BEFORE THE
NEW YORK STATE
PUBLIC SERVICE COMMISSION

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Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of New York State Electric & Gas Corporation for Electric Service	Case 19-E- ____
Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of New York State Electric & Gas Corporation for Gas Service	Case 19-G- ____
Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Rochester Gas and Electric Corporation for Electric Service	Case 19-E- ____
Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Rochester Gas and Electric Corporation for Gas Service	Case 19-G- ____

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DIRECT TESTIMONY OF ANN E. BULKLEY

(SENIOR VICE PRESIDENT OF CONCENTRIC ENERGY ADVISORS, INC.)

May 20, 2019

Testimony of Ann E. Bulkley

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I. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name, affiliation, and business address.

A. My name is Ann E. Bulkley. I am a Senior Vice President of Concentric Energy Advisors, Inc. ("Concentric"), located at 293 Boston Post Road West, Suite 500, Marlborough, Massachusetts 01752.

Q. On whose behalf are you submitting this Direct Testimony?

A. I am submitting this Direct Testimony on behalf of New York State Electric & Gas Corporation ("NYSEG") and Rochester Gas and Electric Corporation ("RG&E"), collectively referred to as "the Companies," wholly-owned subsidiaries of AVANGRID, Inc. ("AVANGRID"). My Direct Testimony is part of the Companies' rate case filings before the New York State Public Service Commission ("PSC" or "Commission").

Q. Please describe your experience in the energy and utility industries.

A. I hold a Bachelor's degree in Economics and Finance from Simmons College and a Master's degree in Economics from Boston University, with more than 20 years of experience consulting to the energy industry. I have advised numerous energy and utility clients on a wide range of financial and economic issues with primary concentrations in valuation and utility rate matters. Many of these assignments have included the determination of the cost of capital for valuation and ratemaking purposes. I have included my

resume and a summary of testimony that I have filed in other proceedings as Attachment A.

Q. Please describe Concentric's activities in energy and utility engagements.

A. Concentric provides regulatory, financial, and economic advisory services to a large number of energy and utility clients across North America. Our regulatory, economic, and market analysis services include utility ratemaking and regulatory advisory services; energy market assessments; market entry and exit analysis; corporate and business unit strategy development; demand forecasting; resource planning; and energy contract negotiations. Our financial advisory activities include buy and sell-side merger, acquisition and divestiture assignments; due diligence and valuation assignments; project and corporate finance services; and transaction support services. In addition, we provide litigation support services on a wide range of financial and economic issues for clients throughout North America.

II. PURPOSE AND OVERVIEW OF TESTIMONY

Q. What is the purpose of your Direct Testimony?

A. The purpose of my Direct Testimony in this proceeding is to present evidence and provide a recommended range for the Companies' cost of equity (sometimes referred to as the Return on Equity or "ROE" for rate-

setting purposes) and capital structure for their utility operations. My analysis and recommendations are supported by the data presented in Exhibits __ (AEB-1) through __ (AEB-11).

Q. Please provide a brief overview of the analyses that led to your ROE recommendation.

A. As discussed in more detail in the remainder of my Direct Testimony, it is important to consider the results of several analytical approaches in determining a reasonable recommendation for the Companies' ROE. To develop my ROE recommendation, I developed a proxy group of companies that face risk generally comparable to that faced by the Companies. The Combined Utility Proxy Group includes both electric utilities and natural gas distribution utilities. I developed a multi-stage Discounted Cash Flow ("DCF") model and two forms of the Capital Asset Pricing Model ("CAPM"). I have presented the DCF and CAPM results weighted equally, and with the Commission's conventional 2/3 weighting of the DCF and 1/3 weighting of the CAPM. I have considered the range of results established using the Combined Utility Proxy Group.

The use of a multi-stage DCF model and two forms of the CAPM is consistent with the approach employed by the Commission in prior cases. While my equal weighting of the DCF and CAPM results does not conform to the weighting typically employed in proceedings before the Commission

in the past, I explain in my Direct Testimony why placing less emphasis on the DCF model at this time is consistent with the goals of the Recommended Decision ("RD") issued in the Generic Finance Proceeding ("GFP"), Case 91-M-0509, which is the docket that has been relied on by the Commission to establish the ROE formula.

Q. Please summarize the results of the ROE estimation models that you considered in your analyses.

A. As noted above, I considered the results of the multi-stage form of the DCF model and two versions of the CAPM. The results of my analyses are summarized in Figure 1 (below).

Figure 1: Summary of Analytical Results

	Low	Mean	High
DCF	8.92%	9.20%	9.67%
Mean CAPM	10.66%	10.72%	10.90%
50%/50% DCF/CAPM	9.79%	9.96%	10.29%
67%/33% DCF/CAPM	9.50%	9.71%	10.08%

Q. What are your conclusions regarding the appropriate cost of equity for the Companies?

A. Based on the quantitative and qualitative analyses discussed throughout my Direct Testimony and the weighting of the DCF and CAPM results presented in Figure 1, and based on my assessment of the business and financial risk environment of NYSEG and RG&E relative to the proxy group, I conclude that the appropriate ROE for the Companies is within the

range of 9.50 percent and 10.29 percent. The Companies are requesting an ROE of 9.50 percent, which is at the low end of the range of reasonableness and is a conservative estimate of the investor-required ROE.

Q. Please summarize your analysis of the appropriate ratemaking capital structure for the companies.

A. The analysis presented in Section VIII of my Direct Testimony demonstrates that the Companies' requested equity ratio of 50 percent is below the mean equity ratio of 56.65 percent for the operating utility companies in my proxy group over the last four years. Therefore, I conclude that the Companies' requested equity ratio is reasonable, if not conservative.

Q. How is the remainder of your Direct Testimony organized?

A. The remainder of my Direct Testimony is organized as follows:

Section III – Discusses the regulatory guidelines and financial considerations pertinent to the development of the Cost of Capital;

Section IV – Briefly discusses the current capital market conditions and the effect of those conditions on the Companies' cost of equity;

Section V – Explains my selection of the proxy group of electric and gas distribution utilities used to develop my analytical results;

Section VI – Explains my analyses and the analytical bases for my ROE recommendation;

Section VII – Summarizes the specific regulatory and business risks that have a direct bearing on the Companies' cost of equity;

Section VIII – Provides an assessment of the Companies' proposed capital structure;

Section IX – Provides an assessment of the effect of a Multi-Year Rate Plan on the ROE; and

Section X – Summarizes my conclusions and recommendations.

III. REGULATORY GUIDELINES AND FINANCIAL CONSIDERATIONS

Q. Please describe the guiding principles to be used in establishing the cost of capital for a regulated utility.

A. The United States Supreme Court's precedent-setting *Hope* and *Bluefield* cases established the standards for determining the reasonableness of a utility's allowed ROE. Among the standards established by the Court in those cases are: (1) consistency with the returns on equity investments in other businesses having similar or comparable risks; (2) adequacy of the return to support credit quality and access to capital; and (3) an understanding that the means of arriving at a fair return are not controlling, only that the end result leads to just and reasonable rates.[1]

Based on those standards, the Commission's order in these cases should provide the Companies with the opportunity to earn a ROE that is (1) adequate to attract capital at reasonable terms, thereby enabling them to

[1] *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) ("*Hope*"); *Bluefield Waterworks & Improvement Co., v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923) ("*Bluefield*").

continue to provide safe, reliable service; (2) sufficient to support the financial soundness of the Companies' operations; and (3) commensurate with returns on equity investments in enterprises having comparable risks. The authorized ROE should enable the Companies to finance capital expenditures at reasonable rates and maintain their financial flexibility over the period during which rates are expected to remain in effect.

Q. Has the Commission conducted a proceeding to review the standard for estimating the Cost of Capital for a regulated utility?

A. Yes. On August 21, 1991, the Commission established the GFP to review the Commission's then-current methodology for estimating the cost of equity and to examine various alternatives.[2]

Q. Please provide a brief summary of the purpose of the GFP.

A. The GFP was initiated because the Commission recognized that the DCF method was particularly sensitive to interest rate fluctuations and was producing returns far below the returns produced by other methodologies.[3] The Commission's goal in opening the GFP was to eliminate controversy around ROE calculations and attempt to find common ground on contentious issues by developing a consensus approach for setting utility equity returns. Among other things, the Commission examined whether

[2] Case 91-M-0509, *Proceeding on Motion of the Commission to Consider Financial and Regulatory Policies for New York State Utilities*, Recommended Decision, (issued July 19, 1994) ("Generic Finance RD"), at 2.

[3] *Id*.

there should be greater consistency in rate of return determinations from company to company, such that differences in returns could be directly attributed to differences in risk between companies, and whether the Commission's historical primary reliance on DCF-based ROE determinations continued to provide fair returns.[4] The Commission's inquiry considered the merits of a generic process to reduce redundancy in litigating equity returns, and sought a robust, but standardized, approach to setting ROE such that ROE results were commensurate with the risk of the individual company and would not be skewed by the shortcomings of a single methodology.

Q. Please describe the conclusions outlined in the RD of the Generic Finance Proceeding.

A. Ultimately, the RD concluded that the Commission should implement a generic process for setting returns, based on proxy groups (not company-specific data), and that reliance on the DCF method should be replaced with a combination of the DCF and CAPM methodologies. The RD proposed to use a preferred convention that gives a respective 2/3 to 1/3 weighting to the results of the DCF and CAPM analyses. The RD recognized that the CAPM "should figure prominently in the analysis" because this methodology provides fundamental information on interest rates and the returns required by stocks as a result of changes in interest rates. At that

[4] *Id* at 13-14.

time, the CAPM was not accorded the same level of prominence as the DCF analysis, given that the former had previously only been used as a check.[5] However, while the RD recognized a benefit to establishing an "operating norm" with respect to setting the ROE, it also recognized that there may be good reason to adjust either the weightings of the DCF and CAPM models or to rely on different ROE estimation models. Specifically, the RD provides the following guidance:

> In either an annual-proceeding to determine a rate of return or in individual proceedings, the 2/3 DCF and 1/3 CAPM convention should be the presumption, but as Multiple Intervenors suggests, parties would not be barred from introducing new methods or different weightings. Such parties, however, would have the burden of convincing other parties and the Commission of the relevance or superiority of their proposals. [6]

To establish the "operating norm," the RD recommended specific forms of the ROE estimation models – a two-stage DCF approach and a Traditional and Zero Beta CAPM. In the DCF model, the first-stage growth was determined by the implied growth rate in Value Line dividend forecasts for four- to six-years in the future. The second growth rate began with the end of the four- to six-year period of the first stage and extended infinitely. The second stage included what is termed an SV adjustment for external growth through additional equity issuances.[7] The CAPM result was proposed to be based on the average of the Traditional and Zero-Beta forms of the model.[8]

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5 *Id* at 27.
6 *Id*.
7 *Id* at 21.
8 *Id* at 24.

Dividend yields in the DCF analysis and risk-free bond yields in the CAPM analyses were based on six months of yield data.[9] Equity ratios were capped at the upper end of the levels necessary to maintain an "A" bond rating.[10] Though the GFP RD was never formally adopted by the Commission, it has served as a touchstone for the Commission's ROE determinations for more than 25 years.

Q. Does the analysis presented in the remainder of your Direct Testimony meet the intentions of the GFP RD?

A. Yes, it does. As discussed in greater detail in Section VI, the methodologies that I have applied to estimate the return on equity are consistent with Commission precedent since the RD in the GFP. Moreover, the models used in my analysis extend the principles advanced in the RD in the GFP to best practices in financial analysis and current capital market conditions, as was contemplated in the RD.

Specifically, I rely on the weighted results of DCF and CAPM analyses. In developing these ROE estimation models, I rely on proxy groups of risk-comparable companies as discussed in Section IV. I have used both the DCF and CAPM methodologies to estimate the return on equity. The multi-stage DCF model that I relied on is consistent with the methodology that the Commission has relied on in that it allows growth rates to vary over

[9] *Id* at 26.
[10] *Id* at 43.

time. Consistent with the fundamental principles upheld by the Commission, I have applied two versions of the CAPM: Traditional and Zero Beta. Finally, consistent with the principles of the GFP, to reduce the volatility associated with the reliance on any one model, I have considered the DCF and CAPM results weighted equally, and with the RD's proposed 2/3 weighting on the DCF and 1/3 weighting of the CAPM.

Q. Do the principles and intentions of the RD in the GFP require adherence to a static formula?

A. No. The GFP and RD did not require rote adherence to a static formula; rather, they promoted some basic principles and afforded parties the flexibility to investigate approaches to address changing financial market conditions. The RD recognized the benefit of using multiple approaches for setting ROE and although it found benefits to a preferred convention for setting ROE, it did not bar parties from introducing new cost of capital estimation methods or weightings and specifically recognized that there may be circumstances where this would be superior. Capital market conditions vary widely over time and each ROE methodology (DCF and CAPM) may be impacted differently by identical conditions. The impact of these conditions on ROE must be assessed and interpreted by the practitioner to determine if their effects are directionally appropriate and are of a reasonable magnitude. Accordingly, it is incumbent on the practitioner to review the results of the analyses and exercise judgment as to how to

weight those results in the overall ROE determination. A close read of the RD reveals that the Commission expressed some uncertainty around the correct level of weighting and certainly indicated a willingness to revisit its proposed weightings in the future. It is particularly fitting that the Commission, which is seeking to update the traditional utility regulatory model with new, innovative approaches suitable to current industry circumstances in the New York Reforming the Energy Vision ("NY REV") efforts, considers the integrity of the intent and principles of the RD and demonstrate the flexibility to adapt the weightings of each methodology to the applicable capital market conditions.

Q. Is flexibility of approach and judgment important to ROE determination?

A. Yes, it is. When faced with the task of estimating the cost of equity, analysts are inclined to gather and evaluate as much relevant data (both quantitative and qualitative) as can be reasonably analyzed. Analysts and academics understand that ROE models are tools to be used in the ROE estimation process, and that strict adherence to any single approach, or the specific results of any single approach, can lead to flawed conclusions. No model can exactly pinpoint the correct return on equity; rather, each model brings its own perspective and set of inputs that inform the estimate of ROE. That position is consistent with the *Hope* finding that "[u]nder the statutory

standard of 'just and reasonable,' it is the result reached, not the method employed, which is controlling."[11]

Though each model brings a different perspective and adds depth to the analysis, each model also has its own set of inherent weaknesses and should not be relied upon individually without corroboration from other approaches. Changes to inputs as a result of changes in economic conditions could have widely different effects on the results of the various analyses.

Regardless of which analyses are performed to estimate the investor's required return on equity, the analyst must apply judgment to assess the reasonableness of results and to determine the best weighting to apply to results under prevailing capital market conditions. No one model can reliably and consistently estimate the cost of capital that meets the fairness standard of *Hope* and *Bluefield* in all market conditions.

IV. CAPITAL MARKET CONDITIONS

Q. Why is it important to analyze capital market conditions?

A. The ROE estimation models rely on market data that are either specific to the proxy group, in the case of the DCF model, or to the expectations of market risk, in the case of the CAPM. The results of the ROE estimation

[11] *Hope*, 320 U.S. at 602.

models can be affected by prevailing market conditions at the time the analysis is performed. While the ROE that is established in a rate proceeding is intended to be forward-looking, the analyst uses current and projected market data, specifically stock prices, dividends, growth rates and interest rates in the ROE estimation models to estimate the required return for the subject company.

As is discussed in the remainder of this section, analysts and regulatory commissions have concluded that current market conditions have affected the results of the ROE estimation models. As a result, it is important to consider the effect of these conditions on the ROE estimation models when determining the appropriate range and recommended ROE for a future period. If investors do not expect current market conditions to be sustained in the future, it is possible that the ROE estimation models will not provide an accurate estimate of investors' required return during that rate period. Therefore, it is important to consider projected market data to estimate the return for that forward-looking period.

Q. What factors are affecting the cost of equity for regulated utilities in the current and projected capital markets?

A. The cost of equity for regulated utility companies is being affected by several factors in the current and prospective capital markets, including: (1) the current low interest rate environment and the corresponding effect on

valuations and dividend yields of utility stocks relative to historical levels; (2) the market's expectation for interest rates; and (3) recent Federal tax reform. In this section, I discuss each of these factors and how it affects the models used to estimate the cost of equity for regulated utilities.

A. The Effect Of Market Conditions On Valuations

Q. How has the Federal Reserve's monetary policy affected capital markets in recent years?

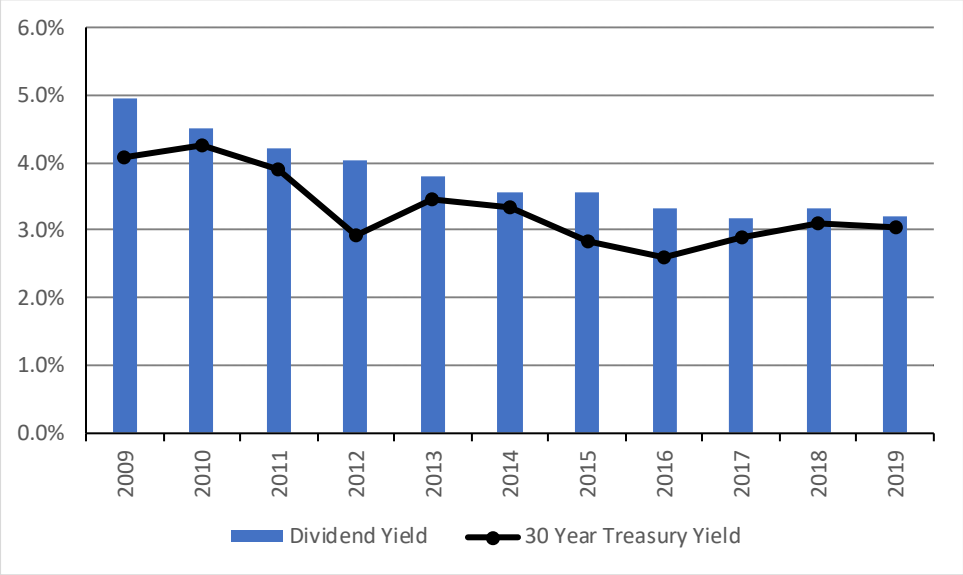
A. Extraordinary and persistent federal intervention in capital markets artificially lowered government bond yields after the Great Recession of 2008-2009, as the Federal Open Market Committee ("FOMC") used monetary policy (both reductions in short-term interest rates and purchases of Treasury bonds and mortgage-backed securities) to stimulate the U.S. economy. As a result of very low or zero returns on short-term government bonds, yield-seeking investors have been forced into longer-term instruments, bidding up prices and reducing yields on those investments. As investors have moved along the risk spectrum in search of yields that meet their return requirements, there has been increased demand for dividend-paying equities, such as natural gas and electric utility stocks.

Q. How has the period of abnormally low interest rates affected the valuations and dividend yields of utility shares?

A. The Federal Reserve's accommodative monetary policy has caused investors to seek alternatives to the historically low interest rates available

on Treasury bonds. A result of this search for higher yield is that the share prices for many common stocks, especially dividend-paying stocks such as utilities, have been driven higher while the dividend yields (which are computed by dividing the dividend payment by the stock price) have decreased to levels well below the historical average. As shown in Figure 2, over the period from 2009 through 2017, since the Federal Reserve intervened to stabilize financial markets and support the economic recovery after the Great Recession of 2008-09, Treasury bond yields and utility dividend yields declined. Specifically, Treasury bond yields declined by approximately 118 basis points, and utility dividend yields have decreased by about 179 basis points over this same period.

Figure 2: Dividend Yields for Electric and Natural Gas Utility Stocks



Q. How have higher stock valuations and lower dividend yields for utility companies affected the results of the DCF model?

A. During periods of general economic and capital market stability, the DCF model may adequately reflect market conditions and investor expectations. However, in the current market environment, the DCF model results are distorted by the historically low level of interest rates and the higher valuation of utility stocks. Value Line recently commented on the high valuations of electric utilities:

> Even after a pullback in late 2018, most stocks in the Electric Utility Industry are still priced expensively, in our view. Many of the equities are still trading within our 2021-2023 Target Price Range. The industry's average dividend yield is 3.5%, and some stocks have yields that aren't significantly higher than the median of all stocks under our coverage. For the 3- to 5-year period, the group's average total return potential is just 5%.[12]

This is further supported by a recent Edward Jones report on the utility sector:

> Utility valuations have climbed back to near-record levels as 10-year Treasury bond rates have fallen back to around 2.5%. On a price-to-earnings basis, remain significantly above their historical average, and have been trading near all-time highs. We have seen utility valuations moving in line with interest rate movements, although there have been exceptions to this. Overall, however, we believe the low-interest rate environment has been the biggest factor in pushing utilities higher since many investors buy them for their dividend yield.

[12] Value Line Investment Survey, Electric Utility (West) Industry, January 25, 2019, at 2217.

> Utilities recently hit new all-time highs, and are still trading significantly above their average price-to-earnings ratio over the past decade. The premium valuation continues to reflect not only the low interest rate environment, but also the stable and predominantly regulated earnings growth we foresee.[13]

As noted by Value Line and Edward Jones, over the last few years, utility stocks have experienced high valuations and low dividend yields; driven by investors moving into dividend paying stocks from bonds due to the low interest rates in the bond market, however, those dynamics are changing. Value Line and Edward Jones recognize that as interest rates increase, bonds become a substitute for utility stocks. As utility stock prices decline, the dividend yields will increase. This change in market conditions implies that the ROE calculated using historical market data in the DCF model may understate the forward-looking cost of equity.

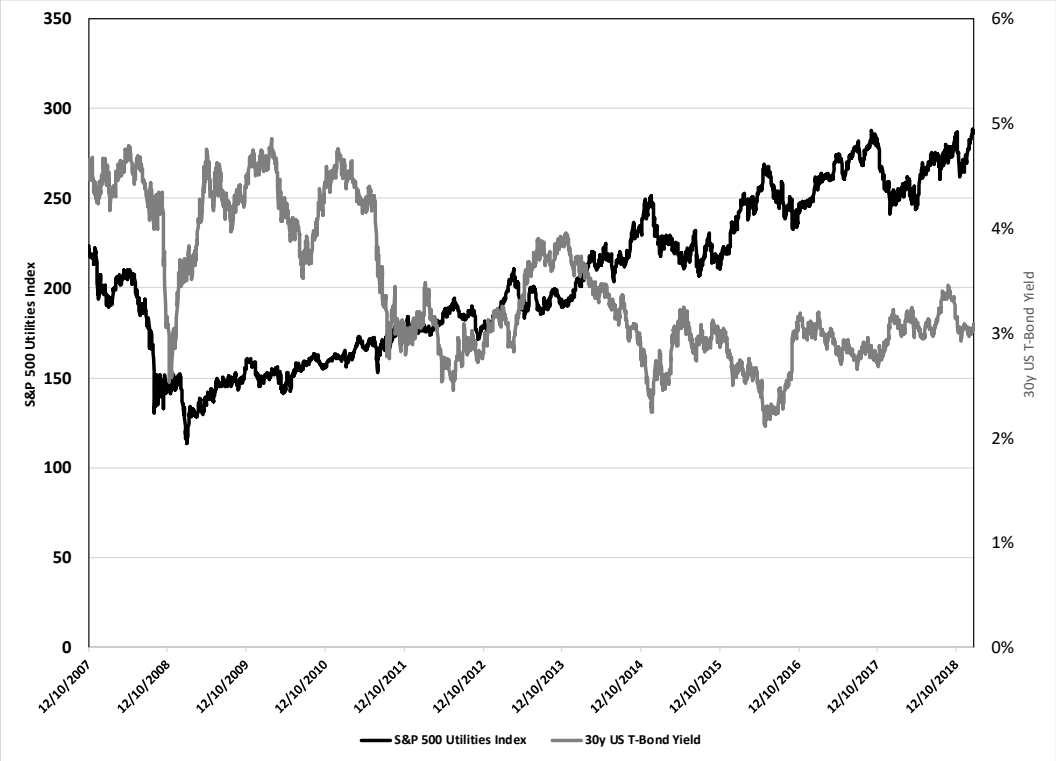
Q. How did the Standard & Poor's ("S&P") Utilities Index respond to the market conditions that existed following the Great Recession of 2008-2009?

A. Figure 3**Error! Reference source not found.**, demonstrates market conditions from 2007-2019 as measured by the S&P Utilities Index and the yield on 30-year Treasury bonds. As shown in Figure 3, the S&P Utilities index increased steadily from the beginning of 2009 through early

[13] Andy Pusateri and Andy Smith. Edward Jones, Utilities Sector Outlook (April 10, 2019), at 2-3. [Reference to figure omitted.]

November 2017, as yields on 30-year Treasury bonds declined in response to accommodative federal monetary policy.

Figure 3: S&P Utilities Index and U.S. Treasury Bond Yields (2007-2019)



Source: Bloomberg Professional

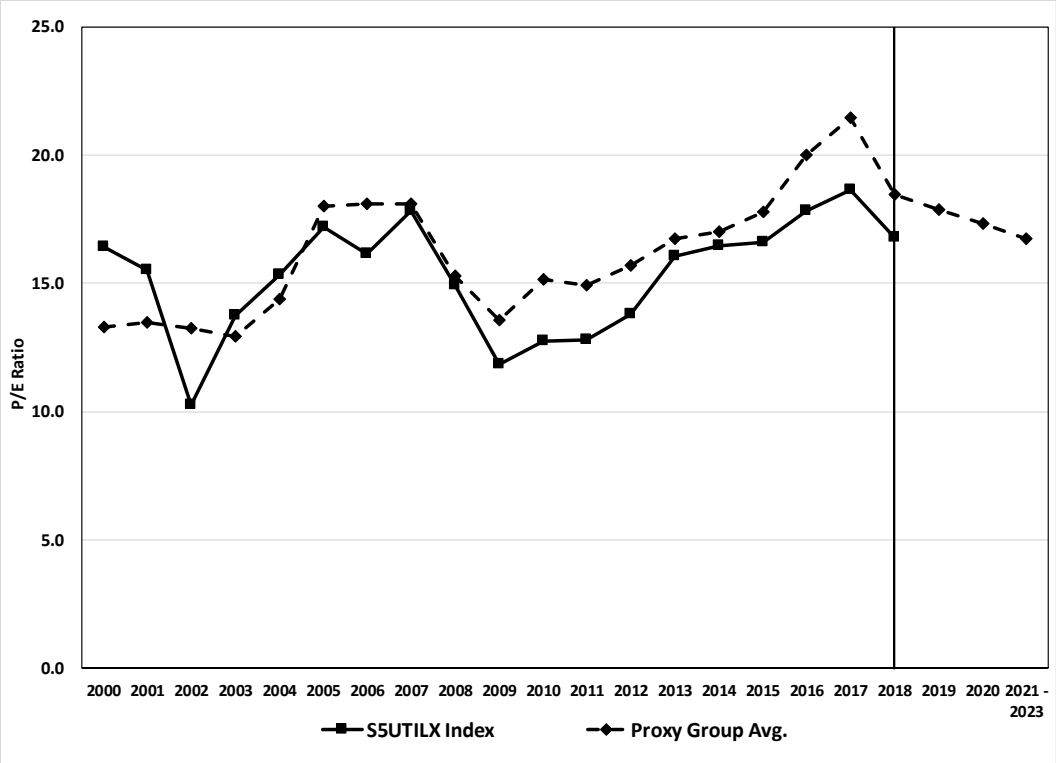
Q. How do the valuations of public utilities compare to the historical average?

A. Figure 4 summarizes the average historical and projected price-to-earnings ("P/E") ratios for the proxy companies calculated using data from Bloomberg Professional and Value Line.[14] As shown in Figure 4, the average P/E ratio for the proxy companies was higher in 2017 than at any other time in the last seventeen years and is significantly higher than the average projected P/E ratio for the group for the period from 2021-2023. In

[14] Selection of the Proxy Companies is discussed in detail in Section IV of my Direct Testimony.

2018 however, the average P/E ratio for the proxy companies has decreased slightly to 18.45 from the high in 2017 of 21.44. All else equal, if P/E ratios for the proxy companies continue to decline, as Value Line projects, the ROE results from the DCF model would be higher. Therefore, the DCF model using historical market data is likely understating the forward-looking cost of equity for the proxy group companies.

Figure 4: Average Historical Proxy Group P/E Ratios



Note: Figure includes data through February 28, 2019.
Source: Bloomberg Professional

Q. Have you reviewed any other market indicators that compare the current valuation of utilities to the historical average?

A. Yes. To further assess how the current low interest rate environment has affected the valuations of the companies in my proxy group, I calculated the price/earnings to growth ("PEG") ratio for the S&P Utilities Index. The

PEG ratio is commonly used by investors to determine if a company is considered over- or under-valued. The ratio compares the P/E ratio of a company to the expected growth rate of future earnings. This allows investors to compare companies with similar P/E ratios but different earnings growth projections. If two companies have a P/E ratio of 20, but Company A is growing at a rate of 6 percent and Company B is growing at a rate of 15 percent, then on a relative valuation basis Company B is the better investment.

As shown in Exhibit __(AEB-11), which is a report published by Yardeni Research, Inc., the PEG ratio for the S&P Utilities Index has been significantly higher than it has historically as a result of the accommodative monetary policy pursued by the Federal Reserve following the Great Recession of 2008/09. [15] While the PEG ratio has declined in recent years due to the Federal's Reserve's shift to normalize monetary policy, the PEG ratio for the S&P Utilities Index is still above the historical average. In general, stocks with lower long-term PEG ratios are considered better values. As the PEG ratio increases above the long-term historical average, as has been the case with the S&P Utilities Index, then the stocks are considered relatively over-valued unless the growth rate increases to support the higher valuation. The PEG ratio for the S&P Utilities Index in 2019 is close to 3.5, which indicates that many of the stocks contained in

[15] Yardeni Research, Inc. "S&P 500 Industry Briefing: Utilities." April 30, 2019, https://www.yardeni.com/pub/if-sut.pdf, p. 5.

the index are currently trading at levels well above the historical average. Based on this valuation metric, investors should expect the stock prices of utilities to decline in the future. This analysis supports the P/E Ratio projections produced by Value Line, which as noted above, are projecting the P/E ratios of utilities to decline over the near-term.

Q. How do equity investors view the utilities sector based on these recent market conditions?

A. Investment advisors have suggested that utility stocks may underperform as a result of market conditions. Barron's recently published the results of its survey of 148 profession money manager in which 64 percent of the professional money managers surveyed recommended selling utility stocks.[16] Barron's also noted that the low dividend yields and high market multiples for utility stocks.

> Utilities, by contrast, have returned about 19% in the past year. Investors view them as a safer bet and more-reliable dividend plays. Higher share prices have pushed down their yields, which have averaged about 3.8% over the past 10 years, according to FactSet.
>
> Nancy Tengler, chief investment strategist at Tengler Wealth Management, is avoiding utility stocks, which in her view offer "high multiples for no growth.".[17]

[16] Jasinski, Nicholas. "Stock Market Highs Are Making Even Bullish Money Managers Cautious, Exclusive Poll Finds." Barron's, Barron's, 26 Apr. 2019, https://www.barrons.com/articles/stock-market-big-money-poll-51556309101?mod=past_editions.

[17] Strauss, Lawrence C. "Dividends Can Tell You a Lot About a Sector's Strength." Barron's, Barron's, 5 Apr. 2019, www.barrons.com/articles/this-dividend-metric-can-help-you-understand-an-industry-51554463800.

Similarly, a recent report on the market outlook for 2019 from J.P. Morgan Asset Management noted that due to higher volatility the Federal Reserve may pause increasing the federal funds rate; however, they are not recommending rotation into the utility sector:

> As prospects for slower economic growth become clearer in the middle of next year, the Fed may signal it will pause. Such a signal, or a trade agreement with China, could lead multiples to expand, pushing the stock market higher and potentially adding years to this already old bull market. However, even if the bull market does end in the next few years, it is important to remember that late-cycle returns have typically been quite strong.
>
> This leaves investors in a tough spot – should they focus on a fundamental story that is softening, or invest with an expectation that multiples will expand as the bull market runs its course? The best answer is probably a little bit of each. We are comfortable holding stocks as long as earnings growth is positive, but do not want to be over-exposed given an expectation for higher volatility. As such, higher-income sectors like financials and energy look more attractive than technology and consumer discretionary, and we would lump the new communication services sector in with the latter names, rather than the former. However, given our expectation of still some further interest rate increases, it does not yet seem appropriate to fully rotate into defensive sectors like utilities and consumer staples. Rather, a focus on cyclical value should allow investors to optimize their upside/downside capture as this bull market continues to age.[18]

This view was further supported by UBS who underweights utilities:

[18] J.P. Morgan Asset Management, "The investment outlook for 2019: Late-cycle risks and opportunities", November 30, 2018, at 5.

> Our underweight views on consumer staples and utilities sectors reflect our preference for sectors that are more leveraged to continued favorable economic growth than these two defensive sectors. In addition, consumer staples are contending with sluggish organic growth. High dividend yields for the utilities sector makes it most negatively exposed to higher interest rates. Our industrials underweight is a bit of a hedge against a potential increase in trade frictions.[19]

Q. Have regulators recently responded to the historically low dividend yields for utility companies and the corresponding effect on the DCF model?

A. Yes. The Federal Energy Regulatory Commission ("FERC") has determined that current capital market conditions have caused the DCF model to understate equity costs for regulated utilities at this time.[20] The FERC recently proposed a methodology that reflects their current view that investors rely on multiple ROE estimation models. The proposed methodology includes an equal weighting of the DCF, CAPM, Expected Earnings and Risk Premium models to better reflect investor behavior and capital market conditions.[21]

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19 UBS, "2019 outlook: Aging gracefully", December 5, 2018, at 7.

20 FERC Docket No. EL11-66-001, Opinion No. 531 (June 19, 2014), footnote 286. While Opinion No. 531 was recently remanded to the FERC by the D.C. Circuit Court on other grounds, that decision did not question the finding by the FERC that capital market conditions were anomalous. *See Emera Maine v. FERC*, 854 F.3d 9 (D.C. Cir. 2017). Additionally, the methodologies that were relied on by FERC to establish the range have not been challenged. *See also* FERC, Docket No. EL 11-66-001, et al., Order Directing Briefs, issued October 16, 2018, at para. 32. This Order develops a proposed methodology to address the issues that were remanded to FERC. The proposed methodology includes an equal weighting of the DCF, CAPM, Expected Earnings and Risk Premium models to better reflect investor behavior and capital market conditions.

21 Federal Energy Regulatory Commission, Docket No. EL 11-66-001, et al., Order Directing Briefs, issued October 16, 2018, at para. 32.

In addition, the Illinois Commerce Commission ("ICC"), the Pennsylvania Public Utility Commission ("PPUC") and the Missouri Public Service Commission ("Missouri PSC") have all considered this in recent decisions.

B. THE CURRENT AND EXPECTED INTEREST RATE ENVIRONMENT

Q. Please provide a brief summary of the recent monetary policy actions of the Federal Reserve.

A. Based on stronger conditions in employment markets, a relatively stable inflation rate, steady economic growth, and increased household spending, the Federal Reserve raised the short-term borrowing rate by 25 basis points on four occasions in 2018. Since December 2015, the Federal Reserve has increased interest rates nine times, bringing the federal funds rate to the range of 2.25 percent to 2.50 percent. While the Federal Reserve recently indicated at the March 2019 meeting that going forward it will be patient in determining future adjustments to the federal funds rate due to recent global economic and financial developments and low inflationary pressures, the FOMC has not indicated that they will not raise interest rates over the coming year. In fact, Bloomberg recently noted that some officials saw higher rates as appropriate later this year if economic growth continued above its longer-run trend rate, according to the minutes.[22] This view was further supported following the May 2019 meeting by Federal Reserve

[22] FOMC, Federal Reserve press release, March 20, 2019. *See also*, Torres, Craig. "Fed Minutes Show Some Rate Flexibility During Year of Patience." Bloomberg.com, Bloomberg, 10 Apr. 2019, www.bloomberg.com/news/articles/2019-04-10/fed-minutes-show-some-rate-flexibility-during-year-of-patience.

Bank of Philadelphia President Patrick Harker who indicated that he still excepts the Federal Reserve to increase rates once in both 2019 and 2020.[23]

Additionally, in October 2017, the FOMC started reducing the size of the Federal Reserve's $4.5 trillion bond portfolio by no longer reinvesting the proceeds of the bonds it holds. In response to the Great Recession, the Federal Reserve pursued a policy known as "Quantitative Easing," in which it systematically purchased mortgage-backed securities and long-term Treasury bonds to provide liquidity in financial markets and drive down yields on long-term government bonds. Although the Federal Reserve discontinued the Quantitative Easing program in October 2014, it continued to reinvest the proceeds from the bonds it holds. Under the initial balance sheet normalization policy, the FOMC gradually reduced the Federal Reserve's securities holdings by $10 billion per month initially, ramping up to $50 billion per month by the end of the first twelve months.[24] However, at the March 2019 meeting, the FOMC announced that it intends to slow the reduction of its holdings of Treasury Securities starting in May 2019 and ultimately conclude the program in September 2019.[25]

[23] Derby, Michael. "Fed's Harker Expects One More Rate Hike in 2019 and Another in 2020." The Wall Street Journal, 6 May 2019, www.wsj.com/articles/feds-harker-expects-one-more-rate-hike-in-2019-and-another-in-2020-11557151277.

[24] Federal Reserve press release, Addendum to the Policy Normalization Principles and Plans, June 14, 2017, implemented at FOMC meeting, September 20, 2017.

[25] Federal Reserve press release, Balance Sheet Normalization Principles and Plans, March 20, 2019.

Q. How does the recent change in the Federal Reserve's policy affect the yields on long-term government bonds?

A. While the Federal Reserve has recently indicated to that will it will be patient in determining future adjustments the federal funds rate, this is not unusual as monetary policy has a lagged effect on the economy. As Federal Reserve Bank of San Francisco notes:

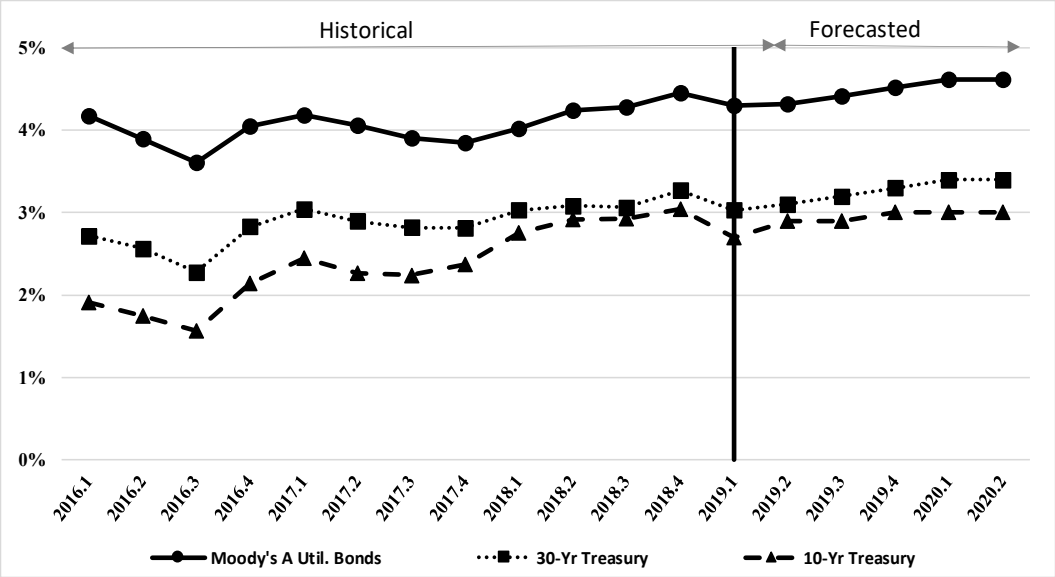
> It can take a fairly long time for a monetary policy action to affect the economy and inflation. And the lags can vary a lot, too. For example, the major effects on output can take anywhere from three months to two years. And the effects on inflation tend to involve even longer lags, perhaps one to three years, or more.[26]

Since December 2015, the Federal Reserve has increased the federal funds rate nine times, four of which occurred in 2018 and three in 2017. Therefore, given recent market volatility and lagged effect that monetary policy has on the economy, it is reasonable to expect the Federal Reserve to be patient with future increases. However, it is important to note, that the Federal Reserve is continuing to reduce the size of its balance sheet by no longer reinvesting the proceeds of the bonds it holds over the near-term. This policy in conjunction with the lagged effect of past increases in the federal funds rate suggests that the yields on long-term government bonds should continue to increase over the near-term which is consistent with investors' expectations. As shown in Figure 5, investors are expecting

[26] Federal Reserve Bank of San Francisco, "U.S. Monetary Policy: An Introduction - How does monetary policy affect the U.S. economy?", February 6, 2004. https://www.frbsf.org/education/teacher-resources/us-monetary-policy-introduction/real-interest-rates-economy/

continued increases in interest rates on both government and corporate/utility bonds over the next few years.

Figure 5: Interest Rate Conditions[27]



Q. Have you examined the effect of the Federal Reserve's monetary policy on the yields of long-term government bonds over the past few years?

A. Yes. As shown in Figure 5, yields on long-term government bonds have increased since the Federal Reserve started to raise the federal funds rate in 2016. However, the increase in long-term government bond yields has not been as pronounced as the rise in short-term interest rates. This is due to a shift in the supply and demand of long-term government bonds that has occurred since 2009. For example, since the Great Recession of 2008-2009, federal debt has increased significantly which has resulted in an increase in the supply of Treasury bonds in the market. In general, an increase in supply should result in a decrease in the price of Treasury bonds and an

[27] Source: Historical data from Bloomberg Professional. Forecast data from Blue Chip Financial Forecasts, Volume. 38, No. 3, March 1, 2019, at 2.

increase in yield. However, long-term government bonds yields have not increased as fast as expected given the increase in supply. This is because the demand for Treasury bonds has also increased since 2009. As noted in a recent article published by the St. Louis Federal Reserve, the demand for government bonds increased for a number of reasons some of which included increased holdings by foreign governments as countries in Europe and Asia faced their own economic uncertainty, and increased holdings from commercial banks due to new regulations that required banks to hold a larger portion of high-quality liquid assets.[28] This has resulted in a more gradual increase in the yields on long-term government bonds over the past few years.

Q. Is the demand for long-term government bonds expected to continue to increase?

A. No, it is not. As noted in the Federal Reserve article:

> Some evidence suggests that the growth in demand for Treasuries has already begun to soften. Returning to Figures 1 and 2, foreign holdings have remained more or less constant since 2014, largely because of declining holdings in Japan and China. Likewise, regulation and policy changes such as the Dodd-Frank Act and new rules for prime money market funds may have only transitory effects on the demand for Treasuries. For example, the pace of growth of the ratio of commercial bank Treasury security holdings to private loans has slowed since 2014 (see Figure 3), as has the growth of investment in government money market funds since 2017 (Figure 4).[29]

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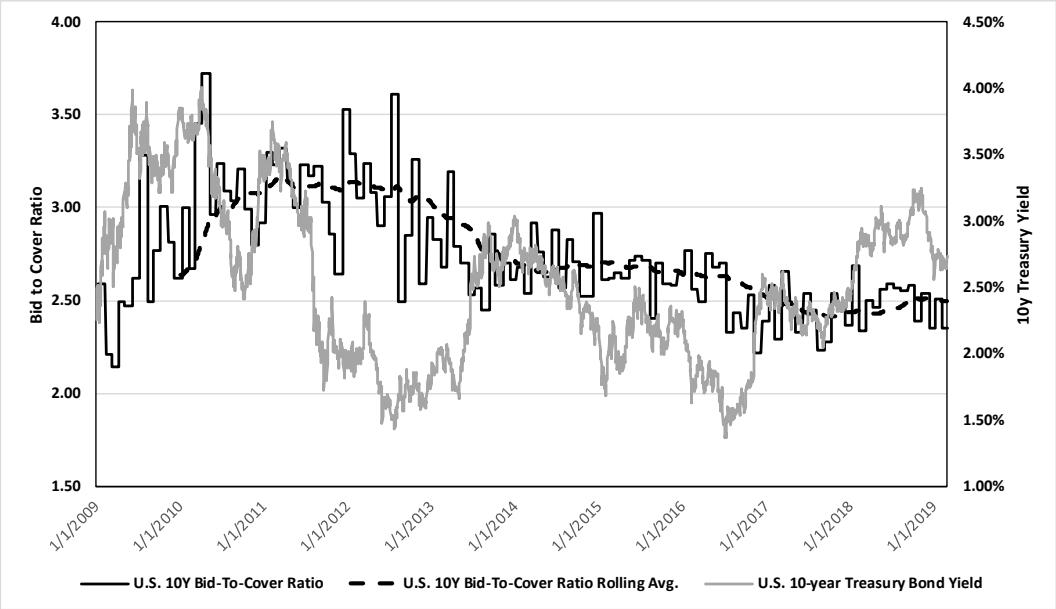
[28] David Andolfatto and Andrew Spewak, Federal Reserve Bank of St. Louis, "On the Supply of, and Demand for, U.S. Treasury Debt," Economic Synopses, No. 5, 2018. https://doi.org/10.20955/es.2018.5.

[29] *Id.*

Furthermore, another indicator of the demand for Treasury bonds is the bid to cover ratio which represents the dollar amount of bids received versus the dollar amount sold in a Treasury security auction. Therefore, a higher bid-to-cover ratio is indicative of an increase in the demand for government bonds. As shown in Figure 6, the bid-to-cover ratio for the 10-year U.S. Treasury bond is currently at its lowest point since 2009 which indicates that the demand for long-term government bonds has declined. The decline in demand is occurring at a time when the supply of Treasury bonds is expected to increase as the Federal Reserve continues its balance sheet unwind and the federal government issues bonds to offset the reduced tax revenue associated with the implementation of the Tax Cuts and Jobs Act ("TCJA"). As a result, yields on long-term government bonds are expected to continue to increase over the near-term which is consistent with investors' expectations shown in Figure 5.

Figure 6: U.S. 10-year Treasury Bond Bid-to-Cover-Ratio



Q. What effect do rising interest rates have on the cost of equity?

A. As interest rates continue to increase, the cost of equity for the proxy companies using the DCF model is likely to be an overly conservative estimate of investors' required returns because the proxy group average dividend yield reflects the increase in stock prices that resulted from substantially lower interest rates. However, my CAPM analysis includes estimated returns based on near-term projected interest rates, reflecting investors' expectations of market conditions over the period that the rates that are determined in this case will be set. As discussed in Section VI, the CAPM may be a more reliable model in current market conditions and therefore it would be reasonable to place greater emphasis on the results of this model.

C. Effect of Tax Reform on the Return on Equity and Capital Structure

Q. Are there other factors that should be considered in determining the cost of equity for the Companies?

A. Yes. The effect of the TCJA should also be considered in the determination of the cost of equity. The credit rating agencies have commented on the effect of the TCJA on regulated utilities. In summary, the TCJA is expected to reduce utility revenues due to the lower federal income taxes and the requirement to return excess accumulated deferred income taxes. This change in revenue is expected to reduce Funds From Operations ("FFO") metrics across the sector, and absent regulatory mitigation strategies, is expected to lead to weaker credit metrics and negative ratings actions for some utilities.[30]

Q. Have credit or equity analysts commented on the effect of the TCJA on utilities?

A. Yes. Moody's Investors Services ("Moody's") indicated that while the TCJA was credit positive for many sectors, it has an overall negative credit impact on regulated operating companies of utilities and their holding companies due to the reduction in cash flow metrics that results from the change in the federal tax rate and the loss of bonus depreciation.

[30] FitchRatings, Special Report, What Investors Want to Know, "Tax Reform Impact on the U.S. Utilities, Power & Gas Sector", January 24, 2018.

Moody's noted that the rates that regulators allow utilities to charge customers are based on a cost-plus model, with tax expense being one of the pass-through items. Utilities will collect less taxes at the lower rate, reducing revenue. While the taxes are ultimately paid out as an expense, under the new law utilities lose the timing benefit, reducing cash that may have been carried over a number of years. The lower tax rate combined with the loss of bonus depreciation will have a negative effect on utility cash flows and will ultimately negatively impact the utilities' ability to fund ongoing operations and capital improvement programs with internally generated cash.

Q. How has Moody's responded to the increased risk for utilities resulting from the TCJA?

A. In January 2018, Moody's issued a report changing the rating outlook for several regulated utilities from Stable to Negative.[31] At that time, Moody's noted that the ratings change affected companies with limited cushion in their ratings for deterioration in financial performance. In June 2018, Moody's downgraded the outlook for the entire regulated utility industry from stable to negative for the first time ever. Moody's cites ongoing concerns about the negative effect of the TCJA on cash flows of regulated utilities. While noting that "[r]egulatory commissions and utility

[31] Moody's Investor Service, Global Credit Research, Rating Action: Moody's changes outlooks on 25 US regulated utilities primarily impacted by tax reform, January 19, 2018.

management teams are taking important first steps"[32] and that "we have seen some credit positive developments in some states in response to tax reform,"[33] Moody's concludes that "we believe that it will take longer than 12-18 months for the majority of the sector to show any material financial improvement from such efforts."[34]

Q. Has Moody's changed its outlook for utilities in 2019?

A. No. Consistent with the prior reports issued by Moody's in January and June of 2018, Moody's is maintaining its negative outlook for regulated utilities in 2019 as a result of continued concerns over the effect of the TCJA on cash flows as well as increasing debt.[35] Moody's notes that "[t]he combination of financial pressures is expected to keep the sector's ratio of funds from operations to debt down around 15% in the year ahead".[36]

Q. What does it mean for Moody's to downgrade a credit outlook?

A. A Moody's rating outlook is an opinion regarding the likely rating direction over what it refers to as "the medium term." A Stable outlook indicates a low likelihood of a rating change in the medium term. A Negative outlook indicates a higher likelihood of a rating change over the medium term. While Moody's indicates that the time period for changing a rating

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32 Moody's Investors Service, "Regulated utilities – US: 2019 outlook shifts to negative due to weaker cash flows, continued high leverage", June 18, 2018, at 3.

33 *Id*.

34 *Id.*

35 Moody's Investors Service, Research Announcement: Moody's: US regulated utilities sector outlook for 2019 remains negative, November 8, 2018.

36 *Id.*

subsequent to a change in the outlook from Stable will vary, on average Moody's indicates that a rating change will follow within a year of a change in outlook.[37]

Q. How has tax reform been addressed by the Commission?

A. In August of 2018, the Commission issued an order determining the rate treatment resulting from tax changes for the New York regulated utilities. While there were concerns raised to the Commission about the effect of sur credits on the cash flow metrics of the utilities, the Order required sur-credits (refunds) for many of the electric and gas utilities that are regulated by the Commission including NYSEG and RG&E. The sur-credits for NYSEG and RG&E are currently structured to reflect the annual ongoing savings realized by the Companies as of October 1, 2018 as well as amortization of tax savings from January 1, 2018 through September 30, 2018 over a three-year period. The disposition of excess ADIT balances was deferred to the Companies' next rate proceeding. The effect of this Order is that NYSEG and RG&E will refund to customers approximately $61 million annually, or 4.1 percent of total annual delivery revenues.

Q. Have any utilities experienced a downgrade related to cash flow metrics resulting from the TCJA?

[37] Moody's Investors Service, Rating Symbols and Definitions, July 2017, at 27.

A. Yes. Figure 7 summarizes credit rating downgrades for utilities that have resulted from tax reform. As shown in this table, several companies that are regulated by the Commission have experienced downgrades including Consolidated Edison, Inc and its operating companies the Consolidated Edison Company of New York and Orange and Rockland Utilities, Inc., as well as the operating companies of National Grid, KeySpan Gas East Corporation, The Brooklyn Union Gas Company, and Niagara Mohawk Power Corporation.

Figure 7: Credit Rating Downgrades Resulting from TCJA

Utility	Rating Agency	Credit Rating before TCJA	Credit Rating after TCJA	Downgrade Date
American Water Works	Moody's	A3	Baa1	4/1/2019
Niagara Mohawk Power Corporation	Moody's	A2	A3	3/29/2019
KeySpan Gas East Corporation (KEDLI)	Moody's	A2	A3	3/29/2019
Xcel Energy	Moody's	A3	Baa1	3/28/2019
ALLETE, Inc.	Moody's	A3	Baa1	3/26/2019
Brooklyn Union Gas Company (KEDNY)	Moody's	A2	A3	2/22/2019
Avista Corp.	Moody's	Baa1	Baa2	12/30/2018
Consolidated Edison Company of New York	Moody's	A2	A3	10/30/2018
Consolidated Edison, Inc.	Moody's	A3	Baa1	10/30/2018
Orange and Rockland Utilities	Moody's	A3	Baa1	10/30/2018
Southwestern Public Service Company	Moody's	Baa1	Baa2	10/19/2018
Dominion Energy Gas Holdings	Moody's	A2	A3	9/20/2018
Piedmont Natural Gas Company, Inc.	Moody's	A2	A3	8/1/2018
WEC Energy Group, Inc.	Moody's	A3	Baa1	7/12/2018
Integrys Holdings Inc.	Moody's	A3	Baa1	7/12/2018
OGE Energy Corp.	Moody's	A3	Baa1	7/5/2018
Oklahoma Gas & Electric Company	Moody's	A1	A2	7/5/2018

Q. Have other rating agencies commented on the effect of the TCJA on ratings?

A. Yes. S&P and Fitch Ratings have also commented on the implications of the TCJA on utilities. S&P published a report on January 24, 2018 entitled "U.S. Tax Reform: For Utilities' Credit Quality, Challenges Abound" in which S&P concludes:

> The impact of tax reform on utilities is likely to be negative to varying degrees depending on a company's tax position going into 2018, how its regulators react, and how the company reacts in return. It is negative for credit quality because the combination of a lower tax rate and the loss of stimulus provisions related to bonus depreciation or full expensing of capital spending will create headwinds in operating cash-flow generation capabilities as customer rates are lowered in response to the new tax code. The impact could be sharpened or softened by regulators depending on how much they want to lower utility rates immediately instead of using some of the lower revenue requirement from tax reform to allow the utility to retain the cash for infrastructure investment or other expenses. Regulators must also recognize that tax reform is a strain on utility credit quality, and we expect companies to request stronger capital structures and other means to offset some of the negative impact.

> Finally, if the regulatory response does not adequately compensate for the lower cash flows, we will look to the issuers, especially at the holding company level, to take steps to protect credit metrics if necessary. Some deterioration in the ability to deduct interest expense could occur at the parent, making debt there relatively more expensive. More equity may make sense and be necessary to protect ratings if financial metrics are already under pressure and regulators are aggressive in lowering customer rates. It will probably take the remainder of this year to fully assess the financial impact on each issuer from the change in tax liabilities, the regulatory response, and the company's ultimate response. We have already witnessed differing responses. We revised our outlook to negative on PNM Resources Inc. and its subsidiaries on Jan. 16 after a Public Service Co. of New Mexico rate case decision incorporated tax savings with no offsetting measures taken to alleviate the weaker cash flows. It remains to be seen whether PNM will eventually do so, especially as it is facing other regulatory headwinds. On the other hand, FirstEnergy Corp. issued $1.62 billion of mandatory convertible stock and $850 million of common equity on Jan. 22 and explicitly referenced the need to support its credit metrics in the face of the new tax code in announcing the move. That is exactly the kind of proactive financial management that we will be looking for to fortify credit quality and promote ratings stability.[38]

In S&P's 2019 trends report, the rating agency notes that the utility industry's financial measures weakened in 2018 and attributed that to tax reform, capital spending and negative load growth. In addition, S&P expects that weaker credit metrics will continue into 2019 for those utilities operating with minimal financial cushion. S&P further expects that these utilities will look to offset the revenue reductions from tax reform with

[38] Standard and Poor's Global Ratings, "U.S. Tax Reform: For Utilities' Credit Quality, Challenges Abound", January 24, 2018.

equity issuances. The rating agency reported that in 2018 regulated utilities issued nearly $35 billion in equity, which is more than twice the equity issuances in 2016 and 2017.[39]

Finally, Fitch recognized the implications of tax reform but indicated that any ratings actions will be guided by the response of regulators and the management of the utilities. Fitch notes that the solution will depend on the ability of utility management to manage the cash flow implications of the TCJA. Fitch offers several solutions to provide rate stability and to moderate changes to cash flow in the near term, including increasing the authorized ROE and/or equity ratio as measures that can be implemented.[40]

Q. What conclusions do you draw from your analysis of capital market conditions?

A. The important conclusions resulting from capital market conditions are:

- The assumptions used in the ROE estimation models have been affected by recent historical market conditions.
- Recent market conditions are not expected to persist as the Federal Reserve continues to normalize monetary policy. As a result, the recent historical market conditions are not reflective of the market conditions that will be present when the rates for the Companies will be in effect.

[39] Standard & Poor's Ratings, "Industry Top Trends 2019, North America Regulated Utilities", November 8, 2019.

[40] FitchRatings, Special Report, What Investors Want to Know, "Tax Reform Impact on the U.S. Utilities, Power & Gas Sector", January 24, 2018.

- It is important to consider the results of a variety of ROE estimation models, using forward-looking assumptions to estimate the cost of equity.
- Without adequate regulatory support, the TCJA will have a negative effect on utility cash flows, which increases investor risk expectations for utilities.

V. PROXY GROUP SELECTION

Q. Please explain why you have used a group of proxy companies to determine the cost of equity for the Companies.

A. In these proceedings, we are focused on estimating the cost of equity for the Companies' rate-regulated, electric and natural gas distribution utility operations in New York. Because ROE is a market-based concept and the Companies are not publicly traded, it is necessary to establish a group of companies that are both publicly traded and comparable to the Companies in certain fundamental business and financial respects to serve as their "proxy" in the ROE determination process. As discussed later in my Direct Testimony, the proxy companies used in my analyses all possess a set of operating and risk characteristics that are substantially comparable to the Companies and thus provide a reasonable basis for the derivation and assessment of the Companies' ROE.

In utility rate proceedings before the Commission over the past 25 years

(since the RD in the GFP),[41] the Commission has endorsed the use of proxy groups for the purpose of determining utility ROEs. Because proxy companies are now commonly used as the basis for estimating the utility cost of equity, the primary objective of the screening process is to establish a group of companies that are as comparable as possible to the Companies with respect to fundamental financial and business risks. As a practical matter, while the determination of an appropriate ROE necessarily requires a degree of informed judgment, the careful selection of a risk-appropriate comparison group serves to mitigate the extent to which subjective assessments must be applied.

Q. Please provide a summary profile of the Companies.

A. NYSEG's principal business consists of its regulated electricity transmission, distribution and limited generation operations and regulated natural gas transportation and distribution operations in New York State. NYSEG serves approximately 899,000 electricity and 268,000 natural gas customers in it approximately 20,000 square mile service territory in the central, eastern and western portions of the state of New York. NYSEG's long-term issuer ratings are A3 (Moody's), A- (S&P)[42] and BBB+ (Fitch).[43] RG&E's principal business consists of its regulated electricity transmission, distribution and generation operations and regulated natural gas

41 Generic Finance RD at 133-134.
42 Source: SNL Financial, accessed March 13, 2019.
43 Source: Fitch Ratings, accessed March 13, 2019.

transportation and distribution operations in western New York. RG&E serves approximately 381,000 electricity and 316,000 natural gas customers in its service territory of approximately 2,700 square miles. The Commission-regulated service territory is located in the City of Rochester, New York and the surrounding counties. RG&E's long-term issuer ratings are A3 (Moody's), A- (S&P)[44] and BBB+ (Fitch).[45]

Q. How did you select the companies included in your proxy group?

A. The Commission has historically relied on proxy groups generally comprised of electric utilities even for the purposes of establishing the ROE for a natural gas distribution utility. In recognition of that practice, I began with the companies that Value Line classifies as "Electric Utilities" and "Natural Gas Distribution Companies." That combined group includes 49 domestic U.S. utilities. I simultaneously applied the following screening criteria to establish a risk-comparable Combined Utility Proxy Group that includes electric utility companies, electric utility companies with natural gas operations and natural gas distribution companies:

- To ensure that information regarding the proxy group companies is consensus-based, I eliminated the companies that are not covered by at least two utility industry equity analysts;
- I eliminated companies that do not have investment grade corporate credit ratings and/or senior unsecured bond ratings according to

[44] Source: SNL Financial, accessed March 13, 2019.
[45] Source: Fitch Ratings, accessed March 13, 2019.

S&P and Moody's because such companies do not have a similar financial risk profile to that of the Companies;

- I eliminated companies that have not paid regular dividends or do not have positive earnings growth projections from at least one source because such characteristics are incompatible with the DCF model;
- To ensure that the proxy group consists of companies that are primarily transmission and distribution regulated utilities, I eliminated companies that have owned generation comprise greater than 60.00 percent of the Company's MWh sales to ultimate customers;
- To ensure that the proxy group consists of companies that are primarily regulated utilities, I eliminated companies with less than 70.00 percent of total operating income derived from regulated utility operations; and
- I eliminated companies known to be party to a merger, acquisition, or other transformational transaction as such activities may have a temporary effect on such companies' stock prices and projections unrelated to the overall cost of capital.

Q. Did you include AVANGRID in your analysis?

A. No. It is my practice to exclude the subject company, or its parent holding company, from the proxy group to avoid circular logic that otherwise would occur.

Q. What is the composition of your Combined Utility Proxy Group?

A. My Combined Utility Proxy Group consists of the 20 companies presented in Figure 8.

Figure 8: Combined Utility Proxy Group

Company	Ticker
ALLETE, Inc.	ALE
Alliant Energy Corporation	LNT
Atmos Energy Corporation	ATO
Black Hills Corporation	BKH
CMS Energy Corporation	CMS
Consolidated Edison, Inc.	ED
Eversource Energy	ES
FirstEnergy Corporation	FE
Hawaiian Electric Industries, Inc.	HE
New Jersey Resources Corporation	NJR
Northwest Natural Gas Company	NWN
NorthWestern Corporation	NWE
ONE Gas, Inc.	OGS
Portland General Electric Company	POR
PPL Corporation	PPL
Public Service Enterprise Group Inc.	PEG
Sempra Energy	SRE
South Jersey Industries, Inc.	SJI
Southwest Gas Corporation	SWX
Spire, Inc.	SR

Q. Why do you believe that net operating income is an appropriate screening criterion?

A. In establishing my proxy group, I relied on the percentage of net operating income derived from regulated operations instead of the percentage of total revenue derived from regulated operations because net operating income is more representative of the contribution of that business segment to earnings and the corporation's overall financial position. Specifically, a significant portion of gas and electric utility company revenue is derived from the costs of purchased gas, purchased fuel, and purchased power, which, in most cases, are recoverable through tracking mechanisms and do not, therefore, contribute to earnings. Furthermore, this portion of total revenue can fluctuate considerably based on the cost of gas and other inputs. Therefore, relying exclusively on a revenue screen does not provide a clear or necessarily consistent indicator of the contribution of the regulated utility operations to a company's earnings. Net operating income excludes the cost of purchased commodity and therefore more closely represents the contribution of the business segment to earnings.

Q. Please provide an example of a company that has been included in the proxy group because net operating income was used instead of total revenue as a screening criterion.

A. New Jersey Resources ("NJR") would have been excluded from the Combined Utility Proxy Group if the percentage of total revenue derived

from regulated operations were used as a screening criterion instead of the percentage of net operating income derived from regulated operations. NJR has an Energy Service segment that provides unregulated, wholesale natural gas to customers that include natural gas distribution companies, industrial companies, electric generators natural gas/liquids processors, retail aggregators, wholesale marketers, and natural gas producers across the US Coast and Canada.[46] In 2017, the Energy Service segment had operating revenues of approximately $1.46 billion.[47] When compared to NJR's total operating revenue of approximately $2.27 billion, it is clear that NJR's percentage of revenue derived from regulated operations would not meet the revenue screening criterion.[48] However, Energy Service's 2017 operating revenue consisted of $1.44 billion in natural gas purchases, which are passed through to customers at cost.[49] Therefore, the Energy Service segment does not represent a large percentage of NJR's net operating income. As discussed above, net operating income is the more appropriate screening criterion because it better approximates a business segment's contribution to earnings and the corporation's overall financial position. For example, NJR operates a large natural gas distribution system in New Jersey and is generally regarded as a gas distribution company. The Energy Services segment of NJR represents a large percentage of the company's operating revenue but represents a small percentage of net operating

46 New Jersey Resource Corporation 2017 Form 10-K, page 11.
47 New Jersey Resource Corporation 2017 Form 10-K, page 52.
48 New Jersey Resource Corporation 2017 Form 10-K, page 74.
49 New Jersey Resource Corporation 2017 Form 10-K, page 52.

income. NJR's regulated operations contribute a larger portion to the company's earnings similar to NYSEG and RG&E and therefore should be included in the Combined Utility Proxy Group.

Q. Do you believe that the 20 companies in your Combined Utility Proxy Group constitutes a sufficiently large proxy group?

A. Yes, I do. The analyses performed in estimating the ROE are more likely to be representative of the subject utility's cost of equity to the extent that the chosen proxy companies are fundamentally comparable to the subject utility. Because all analysts use some form of screening process to arrive at a proxy group, the group, by definition, is not randomly drawn from a larger population. Consequently, there is no reason to place more reliance on the quantitative results of a larger and more dissimilar proxy group simply by virtue of the resulting larger number of observations.

Q. Has the Commission typically relied on similar screening criteria when estimating the ROE?

A. Yes. The Commission has typically relied on screening criteria that are similar to those that I have used to develop my proxy groups. The proxy group that is typically relied on by the Commission is composed of a large group of dividend-paying companies with investment grade bond ratings and regulated revenues of at least 70 percent that are not subject to merger-

related or corporate restructuring activities.[50] For the reasons noted above and discussed throughout my Direct Testimony, a proxy group based on these somewhat less selective criteria may be less comparable to the Companies than the proxy group I have relied on and therefore may not produce appropriate estimates of the Companies' required ROE.

Q. Why is it appropriate to include natural gas distribution companies in the proxy group for NYSEG and RG&E?

A. Because NYSEG and RG&E provide electric and natural gas service, the Companies are both electric utilities and natural gas distribution companies. Therefore, a proxy group that recognizes the risks of natural gas distribution operations more closely approximates the risk profiles of NYSEG and RG&E.

Q. Have other regulators considered the inclusion of natural gas distribution companies in the proxy group used to estimate the cost of equity for an electric utility?

A. Yes. The Staff of the Maine Public Utilities Commission ("Maine Staff") noted in Docket No. 2015-00360 and Docket No. 2013-00443 that including companies in the proxy group that own natural gas distribution operations or using a separate proxy group comprised of natural gas distribution

[50] *See, e.g.,* Case 13-E-0030, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service*, Testimony of Craig E. Henry, at 14-16.

companies is appropriate for the purposes of comparing to an electric utility that does not own any generation.[51] Specifically, Maine Staff stated in Docket No. 2015-00360 that "[l]ike distribution and transmission of electricity through poles and wires, transportation of gas through pipes presents a similar risk profile to electric T&D utilities."[52] In each case, the Maine Staff supported screening criteria that resulted in the inclusion of companies in the proxy group that have natural gas operations. However, the Maine Staff recently expanded the proxy group screening process for transmission and distribution electric utilities to include companies classified by Value Line as natural gas distribution companies. Specifically, in Docket No. 2018-00194, the Maine Staff developed a proxy group that included natural gas distribution companies for the purposes of estimating the cost of equity for Central Maine Power Company, a distribution electric utility.[53]

[51] Emera Maine, Request for Approval of a Proposed Rate Increase, Docket No. 2015-00360, Bench Analysis at 6 (June 2, 2016); Bangor Hydro Electric Company and Maine Public Service Company, Proposed Increase in Distribution Rates, Docket No. 2013-00443, Bench Analysis, at 7 (March 17, 2014).

[52] Emera Maine, Request for Approval of a Proposed Rate Increase, Docket No. 2015-00360, Bench Analysis, at 6-7 (June 2, 2016).

[53] Central Maine Power Company, Investigation into the Rates and Revenue Requirements of Central Maine Power Company, Docket No. 2018-00194, Bench Analysis, at 42 (February 22, 2019).

VI. COST OF EQUITY ESTIMATION

Q. Please briefly discuss the ROE in the context of the regulated Rate of Return.

A. The rate of return ("ROR") for a regulated utility is based on its weighted average cost of capital, in which the costs of the individual sources of capital are weighted by their respective percentages of total capitalization of the utility. The ROE included in the ROR is weighted by the percentage of common equity in the regulated utility's ratemaking capital structure.

Q. How is the required ROE determined?

A. While the cost of debt can be directly observed, the cost of equity and the required ROE are market-based and, therefore, must be estimated based on observable market information. The required ROE is determined by using one or more analytical techniques that rely on market data to quantify investor expectations regarding the range of required equity returns. Informed judgment is applied, based on the results of those analyses, to determine where within the range of results the cost of equity for a company falls. As a general proposition, the key consideration in determining the cost of equity is to ensure that the methodologies employed reasonably reflect investors' views of the financial markets, the proxy group companies, and the subject company's risk profile.

Q. What methods did you use to determine the Companies' cost of equity?

A. Consistent with Commission precedent, I used the DCF model and CAPM as the primary approaches. In establishing my recommended ROE, I relied on a multi-stage form of the DCF model, and, consistent with the Commission's stated preference, I used both the traditional form of the CAPM as well as the Zero-Beta form of that model. In both forms of the CAPM, I incorporated a forward-looking measure of the Market Risk Premium.

Q. Why do you believe it is important to use more than one analytical approach?

A. Because the cost of equity is not directly observable, it must be estimated based on both quantitative and qualitative information. When faced with the task of estimating the cost of equity, analysts and investors are inclined to gather and evaluate as much relevant data as reasonably can be analyzed. As a result, a number of models have been developed to estimate the cost of equity. For that reason, I use multiple approaches to estimate the cost of equity. As a practical matter, however, all of the models available for estimating the cost of equity are subject to limiting assumptions or other methodological constraints. Consequently, many finance texts recommend using multiple approaches when estimating the cost of equity. For example, Copeland, Koller, and Murrin[54] suggest using the CAPM and Arbitrage

[54] Tom Copeland, Tim Koller and Jack Murrin, Valuation: Measuring and Managing the Value of Companies, 3rd Ed. (New York: McKinsey & Company, Inc., 2000), at 214.

Pricing Theory model, while Brigham and Gapenski[55] recommend the CAPM, DCF, and "bond yield plus risk premium" approaches.[56]

Q. How are current market conditions affecting the results of the DCF and CAPM models?

A. As discussed in Section IV, there is concern that current capital market conditions (*i.e.,* characterized by historically low Treasury bond yields) are causing utility stocks to be overvalued, thereby reducing the dividend yields in the DCF model. Consequently, the results of the DCF model are understating the forward-looking cost of equity. The CAPM method offers some balance to the sensitivity of the DCF model to low Treasury bond yields. However, low interest rates also impact the CAPM in two ways: (1) if the risk-free rate is based on historical average yields on Treasury bonds, it understates the forward-looking risk-free rate, and (2) if the market risk premium is based on historical returns on large company stocks minus the current risk free rate, it understates the forward-looking market risk premium. To adjust for these shortcomings, the risk-free rate in the CAPM analysis should also consider projected yields on Treasury bonds, and the market risk premium should be based on a forward-looking computation of the expected return on the total market less the risk-free rate. Market risk

[55] Eugene Brigham, Louis Gapenski, Financial Management: Theory and Practice, 7th Ed. (Orlando: Dryden Press, 1994), at 341.

[56] While it has historically been my practice to present the results of a bond yield plus risk premium approach in the context of estimating a reasonable ROE, I have not done so in this case to limit the number of contested issues. The result of such an analysis, however, would support my CAPM ROE determinations.

premiums based on long-term historical averages are unresponsive to movements in interest rates and would likely understate the market risk premium and, accordingly, the cost of equity.

Q. Are you aware of any regulatory commissions who have recognized that the current anomalous conditions in capital markets are causing ROE recommendations based on DCF models to be unreasonable?

A. Yes, several regulatory commissions have addressed the effect of capital market conditions on the DCF model, including FERC, the ICC, the PPUC and the Missouri PSC.

Q. Please summarize how FERC has responded to the effect of market conditions on the DCF.

A. Understanding the important role that dividend yields play in the DCF model, FERC determined that anomalous capital market conditions have caused the DCF model to understate equity costs for regulated utilities. In Opinion No. 531, issued in June 2014, FERC noted:

> There is 'model risk' associated with the excessive reliance or mechanical application of a model when the surrounding conditions are outside of the normal range. 'Model risk' is the risk that a theoretical model that is used to value real world transactions fails to predict or represent the real phenomenon that is being modeled.[57]

[57] FERC Docket No. EL11-66-001, Opinion No. 531 (June 19, 2014), fn 286.

In Opinion No. 531, FERC noted that then-current low interest rates and bond yields resulted in anomalous market conditions, justifying a movement away from the midpoint of the DCF analysis. In that case, FERC relied on the CAPM and other risk premium methodologies to inform its judgment to set the return above the midpoint of the DCF results.

In Opinion No. 551, issued in September 2016, FERC also found anomalous market conditions prevalent, and again concluded that it was necessary to rely on ROE estimation methodologies other than the DCF model to set the appropriate ROE:

> Though the Commission noted certain economic conditions in Opinion No. 531, the principle argument was based on low interest rates and bond yields, conditions that persisted throughout the study period. Consequently, we find that *capital market conditions are still anomalous* as described above…[58]
>
> ****
>
> Because the evidence in this proceeding indicates that *capital markets continue to reflect the type of unusual conditions that the Commission identified in Opinion No. 531*, we remain concerned that a mechanical application of the DCF methodology would result in a return inconsistent with *Hope* and *Bluefield*.[59]
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[58] FERC Docket No. EL14-12-002, Opinion No. 551, at para. 121 (emphasis added).
[59] *Id*., at para. 122 (emphasis added).

> As the Commission found in Opinion No. 531, under these circumstances, we have less confidence that the midpoint of the zone of reasonableness in this proceeding accurately reflects the equity returns necessary to meet the *Hope* and *Bluefield* capital attraction standards. We therefore find it necessary and reasonable to consider additional record evidence, including evidence of alternative methodologies…[60]

Finally, in October 2018, FERC issued an Order indicating its plan to establish ROEs based on an equal weighting of the results of four financial models: the DCF, CAPM, Expected Earnings and Risk Premium. FERC explains its reasons for moving away from sole reliance on the DCF model as follows:

[60] *Id*.

> Our decision to rely on multiple methodologies in these four complaint proceedings is based on our conclusion that *the DCF methodology may no longer singularly reflect how investors make their decisions*. We believe that, since we adopted the DCF methodology as our sole method for determining utility ROEs in the 1980s, investors have increasingly used a diverse set of data sources and models to inform their investment decisions. Investors appear to base their decisions on numerous data points and models, including the DCF, CAPM, Risk Premium, and Expected Earnings methodologies. As demonstrated in Figure 2 below, which shows the ROE results from the four models over the four test periods at issue in this proceeding, these models do not correlate such that the DCF methodology captures the other methodologies. In fact, in some instances, their cost of equity estimates may move in opposite directions over time. Although we recognize the greater administrative burden on parties and the Commission to evaluate multiple models, we believe that *the DCF methodology alone no longer captures how investors view utility returns because investors do not rely on the DCF alone and the other methods used by investors do not necessarily produce the same results as the DCF*. Consequently, it is appropriate for our analysis to consider a combination of the DCF, CAPM, Risk Premium, and Expected Earnings approaches.[61]

Q. How have the PPUC, the ICC and the Missouri PSC addressed the effect of market conditions on the DCF?

A. In a 2012 decision for PPL Electric Utilities, the PPUC recognized that market conditions were causing the DCF model to produce results that were much lower than other models such as the CAPM and Bond Yield Plus Risk Premium. The PPUC's Order explained:

[61] Federal Energy Regulatory Commission, Docket No. EL 11-66-001, et al., Order Directing Briefs, issued October 16, 2018, at para. 40 (emphasis added). [Figure 2 was omitted]

> Sole reliance on one methodology without checking the validity of the results of that methodology with other cost of equity analyses does not always lend itself to responsible ratemaking. We conclude that methodologies other than the DCF can be used as a check upon the reasonableness of the DCF derived equity return calculation.[62]

The PPUC ultimately concluded:

> As such, where evidence based on the CAPM and RP methods suggest that the DCF-only results may understate the utility's current cost of equity capital, we will give consideration to those other methods, to some degree, in determining the appropriate range of reasonableness for our equity return determination.[63]

In a recent ICC case, Docket No. 16-0093, ICC Staff relied on a DCF analysis that resulted in average returns for their proxy groups of 7.24 percent to 7.51 percent. The utility demonstrated that these results were far too low to be reasonable, by comparing the results of Staff's models to recently authorized ROEs for regulated utilities and the return on the S&P 500.[64] The ICC agreed with the utility that Staff's proposed ROE of 8.04 percent was anomalous and that such a return was not competitive and would deter investment in Illinois.[65] In setting the return in that proceeding the ICC found it necessary to consider other factors beyond the outputs of the financial models, in particular whether or not the return is sufficient to

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62 Pennsylvania Public Utility Commission, PPL Electric Utilities, R-2012-2290597, meeting held December 5, 2012, at 80.

63 *Id.*, at 81.

64 State of Illinois Commerce Commission, Docket No. 16-0093, Illinois-American Water Company Initial Brief, August 31, 2016, at 10.

65 Illinois Staff's analysis and recommendation in that proceeding were based on its application of the multi-stage DCF model and the CAPM to a proxy group of water utilities.

attract capital, maintain financial integrity, and is commensurate with returns for companies of comparable risk, while balancing the interests of customers and shareholders.[66]

Finally, in February 2018, the Missouri PSC in a gas rate case cited the importance of considering multiple methodologies to estimate the cost of equity and the need for the authorized ROE to be consistent with returns in other jurisdictions and to reflect the growing economy and investor expectations for higher interest rates.

> Based on the competent and substantial evidence in the record, on its analysis of the expert testimony offered by the parties, and on its balancing of the interests of the company's ratepayers and shareholders, as fully explained in its findings of fact and conclusions of law, the Commission finds that 9.8 percent is a fair and reasonable return on equity for Spire Missouri. That rate is nearly the midpoint of all the experts' recommendations and *is consistent with the national average, the growing economy, and the anticipated increasing interest rates.* The Commission finds that this rate of return will allow Spire Missouri to compete in the capital market for the funds needed to maintain its financial health.[67]

Q. What are your conclusions about the results of the DCF and CAPM models?

A. The results of both models have been affected by market conditions and, with traditional data inputs, have a tendency to underestimate the current cost of equity. The DCF model is less reliable in current market conditions

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[66] State of Illinois Commerce Commission Decision, Docket No. 16-0093, Illinois-American Water Company, 2016 WL 7325212 (2016), at 55.

[67] File No. GR-2017-0215 and File No. GR-2017-0216, Missouri Public Service Commission, Report and Order, Issue Date February 21, 2018, at 34 (emphasis added).

because dividend yields for utilities are low and not expected to remain at current levels. The results from the CAPM are also affected by the current artificially low yields on Treasury bonds. The use of projected yields on Treasury bonds in the CAPM produces returns that are more reflective of the market conditions that investors expect during the period that the Companies' rates will be in effect. Therefore, properly specified, the CAPM may be a more reliable model in current market conditions than the DCF. Given the sensitivity of each model to market conditions and considering the expectation for changes in those conditions, it is appropriate to equally weight the results of the DCF and CAPM models.

A. DISCOUNTED CASH FLOW MODEL

Q. Please describe the DCF approach.

A. The DCF approach is based on the theory that a stock's current market price represents the present value of all expected future cash flows. In its most general form, the DCF model is expressed as follows:

$$P_0 = \frac{D_1}{(1+r)^1} + \frac{D_2}{(1+r)^2} + \cdots + \frac{D_n}{(1+r)^n} \qquad [1]$$

Where P_0 represents the current market stock price, $D_1 \ldots D_n$ are all expected future dividends, and r is the discount rate, or required ROE. As discussed below, I have not included the constant growth form of the DCF model, but instead have focused on a multi-stage form of the DCF model.

Q. Please generally describe the DCF model you relied on.

A. The multi-stage DCF model is an extension of the constant growth form that enables the analyst to specify growth rates over multiple stages. As with the constant growth form of the DCF model, the multi-stage form defines the cost of equity as the discount rate that sets the current price equal to the discounted value of future cash flows. A multi-stage DCF model addresses the possibility that mean five-year growth rates may not be reasonable in perpetuity and that payout ratios could vary over time.

Q. Please describe the structure of the multi-stage DCF model.

A. The multi-stage DCF model that I have used sets the proxy company's current stock price equal to the present value of future cash flows received over three time periods. In all three periods, cash flows are equal to the annual dividend payments that stockholders receive. The first period is a short-term growth period that consists of the first five years; the second period is a transition period from the short-term growth rate to the long-term growth rate that occurs over five years (*i.e.*, years 6 through 10); and the third period is a long-term growth period that begins in year 11 and continues in perpetuity. The ROE is then calculated as the rate of return that results from the initial stock investment and the dividend payments over the analytical period.

Q. Has the Commission relied on a multi-stage DCF model in prior cases?

A. Yes, the Commission has relied on a two-stage form of the DCF model in prior cases.[68] The two-stage model that the Commission has relied on and the multi-stage model that I rely on both define the cost of equity as the discount rate that sets the current stock price equal to the discounted value of future cash flows that are expressed as projected dividends. Both models project dividends using growth rates over multiple periods.

Q. Is the multi-stage form of the DCF model consistent with the intent of the two-stage model relied upon by the Commission?

A. Yes. Both the construction of the multi-stage model and the underlying assumptions are consistent with the two-stage model relied upon by the Commission. The constant growth DCF model assumes the expected growth rate will be constant in perpetuity. The multi-stage forms of the DCF model, including both the two-stage model that the Commission has relied upon and the multi-stage form of the model that is relied on in my analysis, recognize short and long-term growth prospects.

Q. Does the multi-stage form of the DCF model offer improvements over the two-stage model traditionally relied upon by the Commission?

[68] *See* Case 10-E-0362, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Orange and Rockland Utilities, Inc. for Electric Service,* Order Establishing Rates for Electric Service, (issued June 17, 2011) ("2011 O&R Rate Order"), at 68-69.

A. Yes. The general form of the two-stage model relied upon by the Commission involves a near-term growth stage based on projected dividends and a long-term growth stage employing an estimated long-term growth rate in dividends.[69] The Commission's application of a two-stage DCF assumes that a company's growth abruptly shifts to a long-run growth state after the initial five-year period. In contrast, the multi-stage model relies on growth rates over three periods, as described above. The multi-stage form of the DCF model provides for a gradual transition to a company's expected long-term growth, whereas the two-stage DCF model assumes the transition from short to long-term growth occurs in one year.

Q. What market data did you use to calculate the current stock price in your DCF model?

A. The stock prices that I relied on in my DCF model are based on the average market closing prices for the proxy companies over the three months ended February 28, 2019.

Q. What growth rates did you rely on in the multi-stage DCF model?

A. As shown in Exhibit __ (AEB-1), I began with the current annualized dividend as of February 28, 2019 for each proxy group company. In the

[69] *See, e.g.*, Case 10-E-0362, Case 06-E-1433, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Orange and Rockland Utilities, Inc., for Electric Service*; Case 08-E-0539, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service*.

first stage of the model, the current annualized dividend is escalated based on the average of the three-to five-year earnings growth estimates reported by First Call, Zacks, and Value Line. For the third stage of the model, I relied on long-term projected growth in Gross Domestic Product ("GDP"). The second stage growth rate is a transition from the first stage growth rate to the long-term growth rate on a geometric average basis.

Q. Why do you believe that earnings growth rates are the appropriate growth rates in the DCF model?

A. Earnings are the fundamental driver of a company's ability to pay dividends; therefore, earnings growth is the appropriate measure of a company's long-term growth. In contrast, changes in a company's dividend payments are based on management decisions related to cash management and other factors. For example, a company may decide to retain certain earnings rather than include those earnings in a dividend issuance. Therefore, dividend growth rates are less likely than earnings growth rates to reflect investor perceptions of a company's growth prospects.

Q. Is there support for the use of analysts' earnings growth estimates in the DCF model?

A. Yes, there is significant academic support for the use of analysts' earnings growth rates. In addition, the majority of the data that are publicly available to investors sets forth analysts' projections of earnings growth rates. Value

Line is the only publication I am aware of that provides projected dividend growth rates.

Q. Please summarize the academic research on growth rates and stock valuation.

A. The relationship between various growth rates and stock valuation metrics has been the subject of much academic research. Many published articles specifically support the use of analysts' earnings growth projections in the DCF model in general, as well as for a method of calculating the expected market risk premium. While this article is focused on the calculation of the CAPM, Dr. Robert Harris demonstrates that financial analysts rely on earnings forecasts (referred to in the article as "FAF") and the use of a constant growth DCF formula to estimate the expected market risk premium.[70] Dr. Harris made the following observations:

> […] a growing body of knowledge shows that analysts' earnings forecasts are indeed reflected in stock prices. Such studies typically employ a consensus measure of FAF calculated as a simple average of forecasts by individual analysts.[71]
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> *****
>
> Given the demonstrated relationship of FAF to equity prices and the direct theoretical appeal of expectational data, it is no surprise that FAF have been used in conjunction with DCF models to estimate equity return requirements.[72]

[70] Robert S. Harris, *Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return*, Financial Management, Spring 1986, at 66.

[71] *Id*., at 59.

[72] *Id*., at 60.

Dr. Harris's work demonstrates that analysts rely on earnings as the appropriate measure of growth in the DCF model. Professors Carleton and Vander Weide also performed a study to determine whether projected earnings growth rates are superior to historical measures of growth in the implementation of the DCF model.[73] Although the purpose of that study was to "investigate what growth expectation is embodied in the firm's current stock price,"[74] the authors clearly indicate the importance of earnings projections in the context of the DCF model., concluding that:

> […] our studies affirm the superiority of analysts' forecasts over simple historical growth extrapolations in the stock price formation process. Indirectly, this finding lends support to the use of valuation models whose input includes expected growth rates.[75]

Similarly, Harris and Marston presented "estimates of shareholder required rates of return and risk premia which are derived using forward-looking analysts' growth forecasts."[76] In addition to other findings, Harris and Marston reported that,

> […] in addition to fitting the theoretical requirement of being forward-looking, the utilization of analysts' forecasts in estimating return requirements provides reasonable empirical results that can be useful in practical applications.[77]

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[73] James H. Vander Weide, Willard T. Carleton, *Investor growth expectations: Analysts vs. history,* The Journal of Portfolio Management, Spring 1988.

[74] *Id*., at 78.

[75] *Id*., at 82.

[76] Robert S. Harris, Felicia C. Marston, *Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts*, Financial Management, Summer 1992.

[77] *Id*., at 63.

The Carleton and Vander Weide study was updated to determine whether the finding that analysts' earnings growth forecasts are relevant in the stock valuation process still holds. The results of that updated study continued to demonstrate the importance of analysts' earnings forecasts, including the application of those forecasts to utility companies.[78] Similarly, Brigham, Shome and Vinson noted that "evidence in the current literature indicates that (1) analysts' forecasts are superior to forecasts based solely on time series data; and (2) investors do rely on analysts' forecasts."[79]

Q. What is your opinion of the Commission's historical reliance on dividend per share growth rates during the initial five-year term of its Two-Stage DCF?

A. Sole reliance on Value Line projections of dividend per share growth is not appropriate for several reasons. First, the use of only dividend growth rates ignores the substantial body of academic research demonstrating that earnings growth rates are the most relevant factor in stock price valuation.[80] Second, projections of dividend growth, which would not include growth in retained earnings, only measure a portion of a company's growth. Therefore, earnings growth projections are more complete estimates of total company growth than projected dividend growth rates. Finally, Value

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78 Advanced Research Center, *Investor Growth Expectations*, Summer, 2004.

79 *The Risk Premium Approach to Measuring a Utility's Cost of Equity*, Financial Management, Spring 1985.

80 The Recommended Decision ("RD") in the GFP indicates that the Telecommunications Group, which included Commission Staff, supported the use of earnings per share growth in the DCF models employed to estimate the ROE (RD at 9).

Line's 4-6 year projections are not consensus estimates, but reflect the viewpoint of a single analyst. Therefore, the Commission's models, which have historically relied only on projected dividend per share growth rates from Value Line, reflect the growth expectations of a single analyst in the first stage of the model. In contrast, there are several consensus estimates of projected earnings per share growth rates that are publicly available and widely used by investors, including Zacks Investment Research and Thomson First Call. Each of these consensus forecasts considers the growth expectations for each company based on the expectations of multiple analysts. It is not reasonable to exclude these timely and widely-available sources of information from the analysis when these real-time sources have become the more common data points relied on by investors.

Q. How did you calculate the long-term GDP growth rate?

A. As shown in Exhibit __ (AEB-2), the long-term growth rate of 5.56 percent is based on the real GDP growth rate of 3.22 percent from 1929 through 2018,[81] and a projected inflation rate of 2.27 percent. The projected rate of inflation is based on three measures: (1) the average long-term projected growth rate in the Consumer Price Index ("CPI") of 2.20 percent, as reported by Blue Chip Financial Forecasts;[82] (2) the compound annual growth rate of the CPI for all urban consumers for 2029-2050 of 2.31

[81] U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts Tables, Table 1.1.6, March 8, 2019.

[82] Blue Chip Financial Forecasts, Vol. 38, No. 12, December 1, 2018, at 14.

percent as projected by the Energy Information Administration ("EIA") in the Annual Energy Outlook 2019; and (3) the compound annual growth rate of the GDP chain-type price index for 2029-2050 of 2.29 percent, also reported by the EIA in the Annual Energy Outlook 2019.[83]

Q. Why is the long-term GDP growth rate a reasonable estimate of long-term growth in the multi-stage DCF model?

A. Long-term estimates of GDP growth are commonly used in regulatory proceedings as a proxy for the long-term growth rate in the multi-stage DCF analysis. That application is based on the common theoretical assumption that, over the long-run, all companies in the economy will tend to grow at the same constant rate. That assumption is designed to address the uncertainty associated with estimating individual company growth rates over very long time horizons and is not meant to suggest that company growth rates in the economy will indeed converge in practice over any given period.

Q. Is your calculation of GDP growth consistent with the way in which other analysts' compute estimates of long-term GDP growth?

A. Yes. Investors understand that the U.S. economy goes through cycles of growth and contraction. Therefore, it is appropriate to consider the longest

[83] U.S. Energy Information Administration, Annual Energy Outlook 2019, Table 20.

period possible to measure historical real growth in GDP. This view is consistent with Morningstar's explanation about measuring GDP growth:

> Growth in real GDP (with only a few exceptions) has been reasonably stable over time; therefore, its historical performance is a good estimate of expected long-term future performance. By combining the inflation estimate with the real growth rate estimate, a long-term estimate of nominal growth is formed.[84]

Furthermore, Morningstar supports the use of long-term historical data:

> The 87-year period starting with 1926 is representative of what can happen: it includes high and low returns, volatile and quiet markets, war and peace, inflation and deflation, and prosperity and depression. Restricting attention to a shorter historical period underestimates the amount of change that could occur in a long future period. Finally, because historical event-types (not specific events) tend to repeat themselves, long-run capital market return studies can reveal a great deal about the future. Investors probably expect "unusual" events to occur from time to time, and their return expectations reflect this.[85]

Q. How does your estimate of long-term GDP growth compare with investor expectations of long-term utility industry growth rates?

A. The Commission has traditionally relied on Bank of America Merrill Lynch's ("BAML") market return calculations in estimating a company's ROE using the CAPM. Exhibit __ (AEB-3) includes the relevant pages from the BAML *Quantitative Profiles* reports for December 2018 through February 2019. BAML derives the Implied Return using a multi-stage

[84] Ibbotson and Associates, Stocks, Bonds, Bills and Inflation, 1926-2012, 2013 Valuation Yearbook, at 52.

[85] *Id*., at 59.

Dividend Discount Model ("DDM"). As shown in Exhibit __ (AEB-3), the Implied Returns for the utility industry were 9.70 percent to 9.90 percent each month.[86] For those same months, the average dividend yield for the utility industry was 3.30 percent to 3.50 percent.[87] Because the total return consists of capital appreciation (*i.e.*, growth) and dividend yield, that data suggest an expected utility growth rate of approximately 6.35 percent, which is considerably higher than the long-term growth estimate of 5.56 percent used in my multi-stage DCF analysis.

Q. How does your estimate of long-term growth differ from the estimate the Commission has traditionally relied on?

A. The final stage of both the two-stage DCF model that the Commission has relied on and my multi-stage DCF model extends into the future indefinitely. My long-term growth estimate reflects investors' long-term growth expectations for the period from 2029 through 2050. Therefore, the third stage of my multi-stage DCF model reflects investor growth expectations beginning in the first year of the third stage of the model. In contrast, the growth estimate for the two-stage model that the Commission has typically relied on is based on short-term growth rate forecasts. The use of the sustainable growth rate, calculated using Value Line's published projections, provides an estimate of growth four- to six-years in the future.

[86] Bank of America Merrill Lynch, *Quantitative Profiles,* December 12, 2018, at 58; January 11, 2019, at 57; and February 8, 2019, at 58.

[87] *Id*.

Relying on the sustainable growth rate in perpetuity in the second stage of a two-stage DCF model does not provide a long-run estimate of growth. Rather, the use of the sustainable growth rate assumes that the short-term estimate for the four- to six-year period from the Value Line report date is sustained in perpetuity.

In contrast, the long-term growth rate in my DCF analyses reflects both economic forecasts and market-derived projections of inflation over the longest available time period (30 or more years). Those estimates of long-term inflation expectations are combined with the long-term average historical real GDP growth rate to calculate an expected nominal GDP growth rate. Consequently, the long-term growth estimate in my multi-stage DCF model represents investors' and economists' views of nominal long-term GDP growth well beyond the time horizon reflected in the four- to six-year Value Line sustainable growth estimate relied on by the Commission in prior cases.

Q. Does the use of Value Line data to develop the sustainable growth rate address concerns about growth rate bias?

A. No. The sustainable growth rate is the sum of retention growth plus an SV factor,[88] calculated using Value Line data. As such, the sustainable growth

[88] Retention growth is the product of the expected earned ROE and the retention ratio (one minus the dividend payout ratio). The SV factor employs an estimate of the market-to-book ratio and the expected expansion rate of outstanding shares of common stock in the future.

rate estimate that the Commission has relied upon is based on a single analyst's viewpoint of a company's projected four- to six-year growth prospects.

Q. Are there other problems with the use of the sustainable growth rate as an estimate of long-term growth?

A. Yes. Using the sustainable growth rate to estimate the long-term growth of the company uses a very narrowly defined set of short-term projections based on Value Line data. Specifically, it relies on the following assumptions: (1) projected dividends for year 2; (2) projected dividends for years 4-6; (3) projected earnings for years 4-6; (4) projected book value for year 2; (5) projected book value for years 4-6; (6) current estimate of actual outstanding shares of stock; (7) projected shares of outstanding stock for years 4-6; and (8) current three-month stock price. Each of these assumptions is estimated at most for 6 years into the future. As defined using these assumptions, the sustainable growth rate, which is applied over the long-term in the Commission's two-stage model, does not consider any actual long-term forecasts for the specific company or the economy.

Q. What is your conclusion regarding the methodology typically relied on by the Commission to estimate the sustainable growth rate in the two-stage DCF model?

A. There are several reasons why the Commission's sustainable growth rate should not be relied on in the two-stage DCF model. First, the sustainable growth rate is not a long-term measure of growth and as such should not be applied in perpetuity in the second stage of the model. Second, the exclusive use of Value Line data, which is a single analyst's viewpoint, to establish the sustainable growth rate assumes that investors do not consider any of the other financial information that is widely available when establishing future dividend expectations. In addition, the sustainable growth rate calculation includes Value Line's ROE projections as an input, implicitly accepting them as reasonable. However, Value Line's ROE projections are often significantly different from the ROE estimates produced by the two-stage DCF model. Finally, the Commission's sustainable growth rate methodology implicitly assumes that investors establish long-term growth expectations based entirely on short-term, company-specific projections. It is unreasonable to conclude that investors would ignore the expectations of long-term macroeconomic growth in establishing the long-term growth estimates for an electric or natural gas distribution utility or any other company.

Q. Have other regulatory Commissions reconsidered the use of the sustainable growth rate in the ROE estimation methodology?

A. Yes. The FERC's long-standing methodology for setting the ROE in utility proceedings was to rely on a single stage DCF model that used two

estimates of short-term growth: 1) analysts' estimates of earnings growth, as published by IBES and; 2) the sustainable growth rate, calculated using the (b*r) + (s*v) components that are used by this Commission. The FERC acknowledged that the sustainable growth rate is not a measure of long-term growth but is another estimate of short-term growth similar to analysts' earnings projections.

In Opinion No. 531, the FERC determined that it was appropriate to move from a constant growth DCF methodology to a two-stage DCF model for public utility rate cases.[89] In moving to the two-stage DCF, FERC now relies on analysts' estimates of earnings growth in the short-term and a long-term GDP growth rate as the measure of growth in the second stage. The FERC's two-stage model does not rely on a sustainable growth calculation. This was unchanged by the recently proposed methodology which considers the DCF model, along with three other methodologies.[90]

Q. What are the results of your DCF analyses?

A. As shown in Exhibit __ (AEB-1), the multi-stage DCF analysis based on a three-month average stock price and a range of near-term growth rate assumptions produces a mean ROE of 9.20 percent for the Combined Utility Proxy Group.

[89] Opinion No. 531 147 FERC ¶ 61,234 (June 19, 2014).

[90] FERC, Docket No. EL 11-66-001, et al., Order Directing Briefs, issued October 16, 2018, at para. 32.

Q. Does the multi-stage DCF model discussed above address your concern about low dividend yields?

A. No. While the multi-stage DCF model provides for changes in growth over time, it does not address the low current dividend yields for utility stocks. As discussed in Section IV, currently low dividend yields are causing the DCF model to understate the cost of equity.

Q. What are your conclusions about the results of the DCF model?

A. The results of the DCF model are currently influenced by the low dividend yields on utility stocks due to the low interest rate environment. As discussed previously, one primary assumption of the DCF model is the dividend yield. To the extent these dividend yields are abnormally low and not sustainable, it is important to recognize that the results of the DCF model are understated.

B. Capital Asset Pricing Model

Q. Please briefly describe the Capital Asset Pricing Model.

A. The CAPM is a risk premium approach that estimates the market cost of equity for a given security as a function of a risk-free return plus a risk premium (to compensate investors for the non-diversifiable or "systematic"

risk of that security). As shown in Equation [2], the CAPM is defined by four components:

$$k_e = r_f + \beta(r_m - r_f) \qquad [2]$$

where:

k_e = the required market ROE

β = Beta coefficient of an individual security

r_f = the risk-free rate of return

r_m = the required return on the market as a whole

In this specification, the term ($r_m - r_f$) represents the market risk premium. According to the theory underlying the CAPM, investors should be concerned only with systematic or non-diversifiable risk because unsystematic risk can be diversified away. Non-diversifiable risk is measured by the Beta coefficient, which is defined as:

$$\beta = \frac{Covariance(r_e, r_m)}{Variance(r_m)} \qquad [3]$$

The variance of the market return, noted in Equation [3], is a measure of the uncertainty of the general market, and the covariance between the return on a specific security and the market reflects the extent to which the return on that security will respond to a given change in the market return.

Q. What risk-free rate did you use in your CAPM model?

A. I used three estimates of the yield on Treasury bonds: (1) the current three-month average yield on 30-year Treasury bonds (3.05 percent);[91] (2) the projected 30-year Treasury yield for 2019-2020 (3.28 percent);[92] and (3) the projected 30-year Treasury yield for the period 2020-2024 (3.90 percent).[93] In determining the security most relevant to the application of the CAPM, it is important to select the term (or maturity) that best matches the life of the underlying investment. As noted by Morningstar:

> The traditional thinking regarding the time horizon of the chosen Treasury security is that it should match the time horizon of whatever is being valued… Note that the horizon is a function of the investment, not the investor. If an investor plans to hold stock in a company for only five years, the yield on a five-year Treasury note would not be appropriate since the company will continue to exist beyond those five years.[94]

Because utility companies represent long-duration investments, it is appropriate to use yields on long-term Treasury bonds as the risk-free rate component of the CAPM. In my view, the 30-year Treasury bond is the appropriate security for that purpose. Because the cost of capital is intended to be forward-looking, it is appropriate to consider projected measures of the market risk premium and interest rates.

Q. Please describe your estimate of the market risk premium used in your CAPM.

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91 Bloomberg Professional.
92 Aspen Publishers, Blue Chip Financial Forecasts, Vol. 38, No. 3 March 1, 2019, p. 2.
93 Aspen Publishers, Blue Chip Financial Forecasts, Vol. 37, No. 12 December 1, 2018, p. 14.
94 Morningstar Inc., Ibbotson SBBI 2013 Valuation Yearbook, at 44.

A. The estimated market risk premium is based on the expected return on the S&P 500 Index, less the 30-year Treasury bond yield. The expected return on the S&P 500 Index is calculated using a DCF model for all companies in the index based on market capitalization-weighted growth rates and dividend yields. The market risk premium implied by each of the three Treasury yields discussed above is used in the CAPM analysis.

Q. Is your calculation of the market risk premium consistent with the methodology relied upon in previous cases before the Commission?

A. Yes, it is. The Commission previously has relied upon the calculation of a projected market risk premium, based on the difference between the estimated forward-looking required market return for the S&P 500, as provided by BAML, and the risk-free rate.[95] As a practical matter, that approach is consistent with the Market DCF-derived forward-looking market risk premium estimate discussed above (*see also* Exhibit __ (AEB-4).

Q. What Beta coefficient did you use in your CAPM model?

A. I considered the average Beta coefficients for the proxy group companies as reported by Bloomberg and Value Line (*see* Exhibit __ (AEB-4)). The Beta coefficients reported by Bloomberg were calculated using ten years of weekly returns relative to the S&P 500 Index. Value Line's calculation is

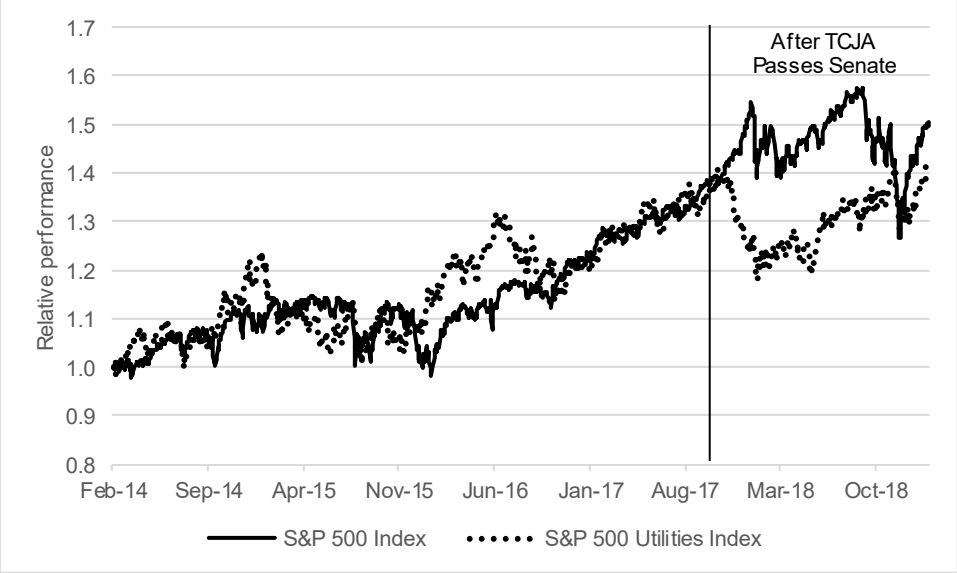
[95] *See e.g.,* 2011 O&R Rate Order, at 77.

based on five years of weekly returns relative to the New York Stock Exchange Composite Index.

Q. Why did you select a ten-year period to calculate the Beta coefficients from Bloomberg?

A. As I discussed in Section IV, the TCJA has had a significant effect on utility companies. While other industries are able to retain the benefits of a reduced corporate income tax rate, this benefit has largely been passed through to customers by utility companies. This fundamental difference affected investors' view of the utility industry relative to other industries. As shown in Figure 9, after the Senate passed the TCJA on December 2, 2017, utilities significantly deviated from the broader market.

Figure 9: Performance of the Utility Industry Relative to the S&P 500



The TCJA's effect on the utility industry relative to other industries caused a short-term significant shift in the returns on the utility industry relative to the broader market. Over the last three to five years, volatility for the utility

industry has been higher than the broader market (as measured by the S&P 500),[96] suggesting higher Beta coefficients for utility companies. However, in short-term calculations of the Beta coefficient, the significant effect of the shift in returns related to the TCJA has outweighed the effect of longer-term measures of relative volatility. As such, to reflect the long-term relationship that suggests utility stocks are less volatile than the broader market (*i.e.* the relative volatility for utility companies has been lower than the S&P 500 over the ten-year measure[97]), I selected a ten-year period to calculate the Beta coefficients from Bloomberg.

Q. Did you consider another form of the CAPM in your analysis?

A. Yes. In prior proceedings, the Commission has relied upon the Zero-Beta CAPM (the form of which is sometimes referred to as the "Empirical CAPM"[98]) in estimating the cost of equity. The Zero-Beta CAPM calculates the product of the adjusted Beta coefficient and the market risk premium and applies a weight of 75.00 percent to that result. The model then applies a 25.00 percent weight to the market risk premium, without any effect from the Beta coefficient. The results of the two calculations are summed, along with the risk-free rate, to produce the Zero-Beta CAPM result, as noted in Equation [4] below:

$$k_e = r_f + 0.75\beta(r_m - r_f) + 0.25(r_m - r_f) \qquad [4]$$

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96 See, S&P Dow Jones Indices, Equity, S&P 500 Utilities, February 28, 2019.

97 *Id.*

98 *See e.g.,* Roger A. Morin, New Regulatory Finance, Public Utilities Reports, Inc., 2006, at 189.

where:

k_e = the required market ROE

β = Adjusted Beta coefficient of an individual security

r_f = the risk-free rate of return

r_m = the required return on the market as a whole

In essence, the Zero-Beta form of the CAPM addresses the tendency of the "traditional" CAPM to underestimate the cost of equity for companies with low Beta coefficients such as regulated utilities. In that regard, the Zero-Beta CAPM is not redundant to the use of adjusted Betas; rather, it recognizes the results of academic research indicating that the risk-return relationship is different (in essence, flatter) than estimated by the CAPM, and that the CAPM underestimates the "alpha," or the constant return term.[99]

As with the CAPM, my application of the Zero-Beta CAPM uses the forward-looking market risk premium estimates, the three yields on 30-year Treasury securities noted earlier as the risk-free rate, and the Bloomberg and Value Line Beta coefficients. Exhibit __ (AEB-4) shows the results of the CAPM models for the Combined Utility Proxy Group. The traditional CAPM model results range from 9.96 percent to 10.72 percent. The Zero-Beta CAPM model results range from 10.92 percent to 11.48 percent. The

[99] *Id*. at 191.

range established by the traditional CAPM model and the Zero-Beta CAPM model results is 9.96 percent to 11.48 percent with a mean of 10.76 percent.

C. Weighted Average Results

Q. Please summarize the results of your analysis and your recommended ROE.

A. As shown in Figure 10 (below), I have presented the results including an equal weighting of the DCF and CAPM results and the RD's proposed 2/3 weighting of the DCF and 1/3 weighting of the CAPM.

Figure 10: Weighted Average Analytical Results

	Low	Mean	High
DCF	8.92%	9.20%	9.67%
Mean CAPM	10.66%	10.72%	10.90%
50%/50% DCF/CAPM	9.79%	9.96%	10.29%
67%/33% DCF/CAPM	9.50%	9.71%	10.08%

Q. What was the Commission's reasoning for developing its weighting of the DCF and CAPM methodologies in the RD?

A. At the time of the RD, the Commission did not have a significant amount of experience with the CAPM. The RD noted that the Commission had historically used the CAPM as a check on its DCF results, and was somewhat undecided as to "how far the Commission should go in elevating the status of CAPM."[100] The RD opted for a gradual transition towards the CAPM, ultimately settling on a 1/3 weighting, indicating that "proposals

[100] RD, at 27.

have simply not shown that the CAPM should be raised all at once to parity with the DCF analysis in the setting of returns on equity."[101] To the extent that this was a consideration in the RD's weighting determination, the Commission's 25 years of experience with the CAPM since that time provides a sound basis for altering the weighting of the two ROE methodologies.

Q. Please summarize your conclusion regarding the relative weighting of the CAPM and DCF results.

A. While the RD proposed the 2/3 weighting on the DCF, the weightings and methodologies used to estimate the ROE were left open for additional consideration in future rate proceedings. Since then, the Commission has employed the CAPM as one component of the formula used to develop ROE estimates. There does not appear to be any reason to infer that the Commission has less confidence in the results of the CAPM than those of the DCF. The conditions that warranted the Commission's GFP inquiry and the subsequent RD in the early 1990s exist again today with DCF results considerably lower than those from other models, such as the CAPM, as well as returns authorized in other jurisdictions. Finally, to the extent that dividend yields are low relative to historical levels and could increase as yields on government bonds rise, the DCF model is likely to underestimate the cost of equity. Therefore, it is reasonable to apply equal weighting to

101 *Id*.

the DCF and CAPM methods when determining the ROE for the Companies.

Q. Are the assumptions used in the CAPM less reliable than the assumptions used in the DCF model?

A. Not necessarily. As discussed previously, the CAPM relies on a risk-free rate, Beta and the MRP. The risk-free rate is readily observable and can be projected for the forward-looking period. Beta is estimated using the historical relationship between the risk of the stock and the overall market. Finally, the market risk premium, while not observable, can be estimated for the forward-looking period. My testimony discusses how the dividend yield has been affected by market conditions and therefore, while this assumption may be easy to calculate using historical data, it is not representative of forward-looking market conditions. Therefore, while the CAPM is often criticized as relying on unobservable assumptions, currently the dividend yield in the DCF model is not reflective of projected market conditions.

VII. REGULATORY AND BUSINESS RISKS

A. RISK ASSESSMENT

Q. Have you performed an analysis of the level of regulatory support that the Companies receive in New York as compared to the proxy group companies?

A. Yes. I conducted an analysis of the regulatory protections that are in place for NYSEG and RG&E compared with those for the operating utility companies held by the proxy group companies. The results of my analysis are presented in Exhibit __ (AEB-5). Specifically, I examined the following factors that affect the business risk of NYSEG and RG&E and the proxy group companies: (1) test year convention; (2) fuel cost recovery; (3) revenue decoupling; and (4) capital cost recovery.

As shown in Exhibit __ (AEB-5), the majority of the operating companies (*i.e.*, 36 out of 63) in the proxy group provide service in jurisdictions that allow the use of a fully or partially forecast test year. All of the operating companies held by the proxy group are allowed to pass through fuel costs and purchased power costs directly to customers, so that the utility does not incur any risk associated with fuel or purchased power costs. It is important to recognize that fuel and purchased power costs typically account for 50 – 60 percent of the total operating costs for a regulated utility. Like NYSEG and RG&E, 60 percent of the operating utilities held by the proxy group (*i.e.*, 38 out of 63) have revenue decoupling mechanisms or weather normalization adjustment clauses that allow them to break the link between customer usage and revenues. Finally, approximately 56 percent of the operating utilities held by the proxy group (35 out of 63) have capital cost recovery mechanisms that allow them to recover capital investments that are placed into service between rate cases.

Q. Based on these analyses, what is your conclusion regarding the level of regulatory support for NYSEG and RG&E relative to that of the proxy group companies?

A. My conclusion is that NYSEG and RG&E have comparable regulatory protection to the proxy group companies. While the Commission has been a leader in implementing mechanisms that reduce the business risk of regulated utilities in New York, many other jurisdictions have taken similar steps in more recent years. A November 2015 report published by the Edison Electric Institute indicates that more and more jurisdictions have moved toward the use of forecast test years since the 2013 survey;[102] fuel cost recovery mechanisms have been ubiquitous for many years; revenue decoupling and weather normalization clauses have been approved in many states, especially where declining usage per customer is a concern;[103] and many states have approved capital tracking mechanisms that reduce the

102 Edison Electric Institute, "Alternative Regulation for Emerging Utility Challenges: 2015 Update," prepared by Pacific Economics Group, November 11, 2015, at 32. (EEI report states: "The ranks of US jurisdictions that allow the use of forward test years have swollen and now encompasses about half of the total. Since our 2013 survey, electric utilities in Pennsylvania have successfully used FTYs and utilities in Arkansas and Indiana have received legislative authorization for their use. Forward test years are the norm in Canadian regulation.")

103 *Id*., at 21. (EEI report states: "In the electric utility industry, decoupling has been favored in states that strongly support DSM. Since our 2013 survey, decoupling has been adopted for electric utilities in Connecticut, Maine, Minnesota, and Washington state. Decoupling is the most widespread means of relaxing the revenue/usage link for gas distributors. This reflects the fact that gas distributors often experience declining average use and that this has been driven chiefly by external forces.")

regulatory lag associated with significant investments to enhance reliability, service quality and safety.[104]

Q. Are there other risks to the Companies that are specific to New York utility regulation?

A. Yes. In addition to the low equity returns that are typically authorized by the Commission for New York's gas and electric utilities (in 2018 average authorized ROEs in New York were 71 basis points below the national average for gas and electric utilities),[105] New York utilities are subject to strictly-enforced customer service quality, electric reliability, and gas safety measures where the utility is required to achieve predetermined performance benchmarks, or be subject to a negative revenue adjustment for any shortfall.

Q. Please describe the Companies' customer service quality, electric reliability and gas safety measures.

A. The Companies are subject to a number of customer service quality and electric reliability and gas safety performance metrics for which negative revenue adjustments are incurred for specific levels of non-performance.

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104 *Id*., at 7. (EEI report states: "It can be see that the precedents are numerous and continue to grow. This is the most widely used Altreg tool in the United States. For electric utilities, trackers for emissions controls, generation capacity, advanced metering infrastructure, and general system modernization have been especially common in recent years. Trackers for gas distributors typically address the cost of replacing old case iron and bare steel mains.")

105 Source: Regulatory Research Associates. 2018 average authorized ROEs for states other than New York (excluding limed issue riders) were 9.61 percent compared to an average authorized ROE of 8.90 percent in New York.

Figure 11 below summarizes the Companies' potential annual exposure to these negative revenue adjustments.

Figure 11: Weighted Summary of Service Quality, Electric Reliability and Gas Safety Performance Metrics[106]

Performance Metric	Maximum Annual Negative Revenue Adjustment NYSEG	Maximum Annual Negative Revenue Adjustment RG&E
Customer Service Quality (Electric and Gas)	$9.52 million	$5.90 million
Electric Reliability (SAIFI and CAIDI)	$14.00 million	10.00 million
Gas Safety[107]	150 Pre-Tax Base Points	150 Pre-Tax Base Points

Q. Do the negative revenue adjustments associated with these performance metrics differentiate the Companies from the proxy group companies?

A. Yes. The asymmetrical nature of a majority of these performance metrics and the magnitude of the exposure places the Companies at greater risk than proxy companies on average.

B. REFORMING THE ENERGY VISION

Q. Please explain the Commission's Reforming the Energy Vision ("REV") plan.

A. REV is a comprehensive energy strategy that includes more than 40 initiatives to build clean, resilient and affordable energy systems in New York. The program includes several initiatives including renewable energy,

[106] Case 15-E-0283, Case 15-G-0284, Case 15-E-0285 and 15-G-0286, Joint Proposal dated February 19, 2016.

[107] The maximum annual negative adjustment was calculated as the sum of the negative revenue adjustments for Leak Prone Mains, Leak Backlog Management, Emergency Response, Gas Safety Violations, and Damage Prevention. Additionally, the Companies can earn a maximum positive annual revenue adjustment of 15 Pre-Tax Base Points if metrics are exceeded for Leak Prone Mains and Leak Backlog Management.

energy efficiency, sustainability transportation and innovation in addition to energy infrastructure modernization.

Q. How does the REV program affect the overall risk profiles of NYSEG and RG&E?

A. By design, energy efficiency programs will reduce customer usage. In addition, the infrastructure modernization programs will require significant capital investment to improve technology and efficiency but do not expand customer services or increase revenues. Therefore, the result of the REV program may likely be increases in base rates over time with lower usage from which to recover those investments. Furthermore, while the REV initiatives have been ongoing for several years, the detailed implementation programs have not been fully outlined, resulting in a greater level of uncertainty related to this program.

Q. Have the proxy companies implemented programs similar to the New York REV program?

A. No. While other states have begun to plan for grid modernization and other energy efficiency programs, the scale of the REV program is significantly different than what has been discussed or proposed in other jurisdictions.

Q. What are your conclusions regarding the effect of the REV program on the overall risk profiles of NYSEG and RG&E?

A. While the REV program is progressive in terms of advancing green and renewable resources and modernizing the energy infrastructure, the implementation and cost recovery aspects of this program in a declining use environment creates much greater risk for NYSEG and RG&E than is experienced by the proxy group companies.

C. REGULATORY ENVIRONMENT

Q. Please explain how the regulatory framework affects investors' risk assessments.

A. The ratemaking process is premised on the principle that, for investors and companies to commit the capital needed to provide safe and reliable utility services, the subject utility must have the opportunity to recover invested capital and the market-required return on such capital. Regulatory commissions recognize that because utility operations are capital intensive, regulatory decisions should enable the utility to attract capital at reasonable terms, which balances the long-term interests of investors and customers. In that respect, the regulatory framework in which a utility operates is one of the most important factors considered in both debt and equity investors' risk assessments.

Because investors have many investment alternatives, even within a given market sector, the Companies' authorized returns must be adequate on a relative basis to ensure their ability to attract capital under a variety of economic and financial market conditions. From the perspective of debt

investors, the authorized return should enable the Companies to generate the cash flow needed to meet their near-term financial obligations, make the capital investments needed to maintain and expand their systems, and maintain sufficient levels of liquidity to fund unexpected events. This financial liquidity must be derived not only from internally generated funds, but also from efficient access to capital markets.

From the perspective of equity investors, the authorized return must be adequate to provide a risk-comparable return on the equity portion of the Companies' capital investments. Because equity investors are the residual claimants on the Companies' cash flows (that is, debt interest must be paid prior to any equity dividends), equity investors are particularly concerned with the regulatory framework in which a utility operates and its effect on future earnings and cash flows.

Q. Please explain how credit rating agencies consider the regulatory framework in establishing a company's credit rating.

A. S&P and Moody's both consider the overall regulatory framework in establishing credit ratings. As shown in Figure 12, Moody's establishes credit ratings based on four key factors:

Figure 12: Moody's Rating Factors

Factor	Weighting
Regulatory Framework	25%
Ability to Recover Costs and Earn Returns	25%
Diversification	10%
Financial Strength	40%
Total	100%

Two of these factors (*i.e.*, regulatory framework and the ability to recover costs and earn returns) are based on the regulatory environment such that half of Moody's overall assessment of business and financial risk for regulated utilities is based upon the regulatory environment.[108] Therefore, Moody's assigns regulatory risk a 50.0 percent weighting in the overall assessment of business and financial risk for regulated utilities.[109]

S&P also identifies the regulatory framework as an important factor in credit ratings for regulated utilities, stating: "One significant aspect of regulatory risk that influences credit quality is the regulatory environment in the jurisdictions in which a utility operates."[110] S&P identifies four specific factors that it uses to assess the credit implications of the regulatory jurisdictions of investor-owned regulated utilities: (1) regulatory stability; (2) tariff-setting procedures and design; (3) financial stability; and (4)

[108] Moody's Investors Service, Rating Methodology: Regulated Electric and Gas Utilities, June 23, 2017, at 4.

[109] *Id.*

[110] Standard & Poor's Global Ratings, Ratings Direct, U.S. and Canadian Regulatory Jurisdictions Support Utilities' Credit Quality—But Some More So Than Others, June 25, 2018, at 2.

regulatory independence and insulation.[111]

Q. How does the regulatory environment in which a utility operates affect its access to and cost of capital?

A. The regulatory environment can significantly affect both the access to, and cost of capital in several ways. First, the proportion and cost of debt capital available to utility companies are influenced by the rating agencies' assessment of the regulatory environment. As noted by Moody's, "[f]or rate regulated utilities, which typically operate as a monopoly, the regulatory environment and how the utility adapts to that environment are the most important credit considerations."[112] Moody's further highlighted the relevance of a stable and predictable regulatory environment to a utility's credit quality, noting: "[b]roadly speaking, the Regulatory Framework is the foundation for how all the decisions that affect utilities are made (including the setting of rates), as well as the predictability and consistency of decision-making provided by that foundation."[113]

Q. Have you conducted any analysis of investors' perceptions of the regulatory framework in which the Companies operate relative to the jurisdictions in which proxy group companies operate?

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111 *Id.*, at 1.

112 Moody's Investors Service, Rating Methodology: Regulated Electric and Gas Utilities, June 23, 2017, at 6.

113 *Id*.

A. Yes. To assess investors' view of the Companies' regulatory framework, I considered three different rankings: (1) the S&P business and financial rankings; (2) the Regulatory Research Associates ("RRA") ranking of regulatory jurisdictions; and (3) S&P's ranking of the credit supportiveness of regulatory jurisdictions.

S&P ranks the business profile on a six-tier scale from excellent ("1") to vulnerable ("6"). In addition, S&P ranks financial profile on a similar scale, from minimal ("1") to highly leveraged ("6"). I applied that numeric ranking system to the proxy group companies. As shown in Exhibit __ (AEB-6), both NYSEG and RG&E's business profile rankings were ("1"), which is in line with the proxy group average ranking that was also excellent ("1.17"). Regarding the financial profile rankings, NYSEG and RG&E's rankings were ("4"), again similar to the proxy group average ranking which was between intermediate and significant ("3.61").

Q. Please explain how you used the RRA ratings to compare the regulatory jurisdictions of the proxy companies with the Companies' regulatory jurisdiction.

A. RRA assigns a ranking for each regulatory jurisdiction between "Above Average/1" to "Below Average/3," with nine total rankings between these categories. I applied a similar numeric ranking system to the RRA rankings with "Above Average/1" assigned the highest ranking ("1") and "Below

Average/3" assigned the lowest ranking ("9"). As shown on Exhibit __ (AEB-7), the New York jurisdictional ranking ("4.0") was generally consistent with the proxy group average numeric ranking ("5.08") from RRA.

Q. How did you conduct your analysis of the S&P credit supportiveness?

A. For credit supportiveness, S&P classifies each regulatory jurisdiction into five categories that range from "Credit Supportive" to "Most Credit Supportive." My analysis of the credit supportiveness of the regulatory jurisdictions that the proxy companies operate in, as compared with the Companies' regulatory jurisdiction, was similar to the analyses of the S&P business and financial ranking and RRA overall regulatory ranking discussed above. I assigned a numerical ranking to each category, from Most Credit Supportive ("1") to Credit Supportive ("5"). As shown in Exhibit __ (AEB-8), the proxy group average ranking was 2.69, which would be classified between "Highly Credit Supportive" and "Very Credit Supportive", and is slightly above the New York jurisdictional classification of "Very Credit Supportive" ("3"), suggesting investors perceive regulation for the Companies as slightly below average relative to the proxy groups.

Q. What is your conclusion regarding the regulatory framework in New York as compared with the jurisdictions in which the proxy group companies operate?

A. The regulatory framework in which a regulated utility provides service is one of the most important consideration for debt and equity investors. Based on my analysis, I conclude that New York's regulatory framework has somewhat greater risk than the jurisdictions in which the proxy group companies provide service. While the differences are not significant, my analysis demonstrates that investors perceive regulation for the Companies as slightly below average relative to the proxy group. There is no indication that the business, regulatory and financial risks of the Companies (or other New York utilities) are lower than the industry average. As such, the large differential in the authorized ROE in New York as compared with the nationwide range of returns (71 basis points in 2018) is not supported by the risk assessment.

D. CAPITAL EXPENDITURES

Q. Did you consider any other information regarding the Companies' risks relative to the proxy group companies?

A. Yes, I also considered the risk related to the Companies' future capital expenditures as compared with the Combined Utility Proxy Group's capital spending plans.

Q. Please summarize the projected capital expenditure requirements for NYSEG and RG&E.

A. The combined capital expenditure projections for NYSEG and RG&E are approximately $6.1 billion for the period from 2019 through 2023. The Company's program includes significant projects including the Advanced

Metering Infrastructure ("AMI") program, the Distributed System Implementation Plan ("DSIP"), the Bulk Electric System ("BES") program, Resiliency, and the Rochester Area Reliability Project ("RARP").[114]

Q. Do credit rating agencies recognize the risks associated with significant capital expenditures?

A. Yes, they do. From a credit perspective, the additional pressure on cash flows associated with high levels of capital expenditures exerts corresponding pressure on credit metrics and, therefore, credit ratings. A 2016 S&P report noted:

> When applicable, a jurisdiction's willingness to support large capital projects with cash during construction is an important aspect of our analysis. This is especially true when the project represents a major addition to rate base and entails long lead times and technological risks that make it susceptible to construction delays. Broad support for all capital spending is the most credit-sustaining. Support for only specific types of capital spending, such as specific environmental projects or system integrity plans, is less so, but still favorable for creditors. Allowance of a cash return on construction work-in-progress or similar ratemaking methods historically were extraordinary measures for use in unusual circumstances, but when construction costs are rising, cash flow support could be crucial to maintain credit quality through the spending program. Even more favorable are those jurisdictions that present an opportunity for a higher return on capital projects as an incentive to investors.[115]

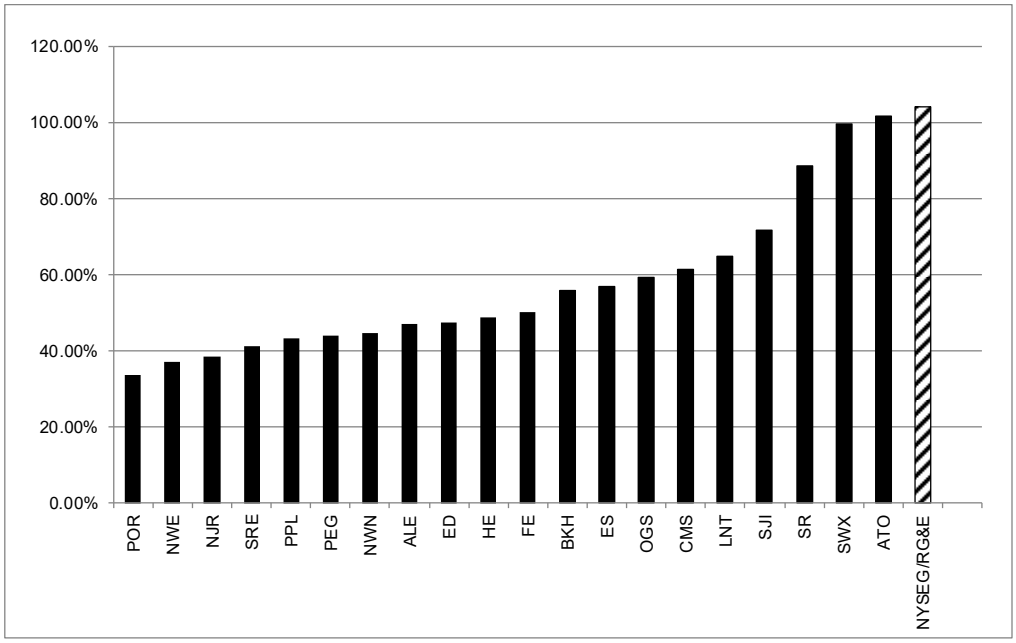
[114] Source: Direct Testimony of Electric, Generation and Common Capital Expenditures Panel and Direct Testimony of Gas and Common Capital Expenditures Panel

[115] S&P Global Ratings, Ratings Direct, "Assessing U.S. Investor-Owned Utility Regulatory Environments," August 10, 2016, at 7.

Q. Have you conducted any analysis of the Companies' projected capital expenditures relative to the proxy companies?

A. Yes. I compared the ratio of projected capital expenditures from 2019 through 2023 to net utility plant as of December 31, 2017, for NYSEG and RG&E with each of the Combined Utility Proxy Group companies. Exhibit __ (AEB-9) shows the ratio of five years of projected capital expenditures to net plant for the proxy group based on data reported by Value Line. Figure 13 demonstrates that NYSEG and RG&E's ratio of projected capital expenditures to net plant are higher than all of the proxy group members. Furthermore, as shown in Exhibit __ (AEB-9), NYSEG and RG&E's combined planned investment ratio of 104.24 percent far exceeds the median of the proxy group, which suggests that the Companies face greater risk from their construction programs than the proxy group on average.

Figure 13: Capital Expenditures/Net Plant



Source: Value Line and Company Data

Q. What are your conclusions regarding the effect of the projected capital expenditure plans on the risk profiles of NYSEG and RG&E and the cost of equity?

A. It is clear that the Companies' capital expenditure requirements as a percentage of net utility plant are higher than the majority of the Combined Utility Proxy Group companies. This elevated level of capital expenditures relative to the Combined Utility Proxy Group increases the importance of setting a return for NYSEG and RG&E that is within the range of reasonableness as established by the returns for that group.

VIII. CAPITAL STRUCTURE

Q. Please summarize the companies' proposed capital structure.

A. NYSEG and RG&E are proposing stand-alone capital structures that reflect the Companies' intentions to maintain a 50.00 percent equity ratio during the rate years, which is more conservative than the Companies' actual stand-alone equity ratios as of December 31, 2018. NYSEG's December 31, 2018 year end equity ratio was 52.80 percent.[116] RG&E's December 31, 2018 year end equity ratio was 50.40 percent.[117] The requested equity ratio is

[116] NYSEG RRP-6-MY, Schedule A.
[117] RG&E RRP-6-MY, Schedule A.

consistent with recent Commission precedent regarding the authorized capital structure for utilities.[118]

Q. What is the Commission's policy on determining the authorized equity ratio?

A. The Commission has allowed the use of a stand-alone equity ratio if a utility can demonstrate that the credit rating agencies view that utility's credit on a stand-alone basis independent of its parent.[119]

Q. Do the credit rating agencies view NYSEG and RG&E credit on a stand-alone basis?

A. Yes, they do. The credit rating agencies review and assess the credit risk profile of the individual utility on a stand-alone basis, and both NYSEG and RG&E are rated on their own financial merits and business risk profiles.

Q. Please describe how the Moody's reports for NYSEG and RG&E demonstrate that Moody's considers the Companies' credit quality on a stand-alone basis.

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[118] *See generally* Case 14-E-0493, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Orange and Rockland Utilities, Inc. for Electric Service*; Case 14-G-0494, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Orange and Rockland Utilities, Inc. for Gas Service*; Case 14-E-0318, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Central Hudson Gas & Electric Corporation for Electric Service*; Case 14-G-0319, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Central Hudson Gas & Electric Corporation for Gas Service*; and Case 15-E-005, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service*.

[119] Case 14-E-0318, Duah Direct Testimony at 9.

A. In recent reports, Moody's notes that NYSEG and RG&E both have strong ring-fencing provisions that protect the stand-alone ratings. For NYSEG, Moody's notes:

> NYSEG benefits from a strong suite of ring-fencing mechanisms that insulate the company from the higher business risk of its unregulated affiliate and parent company. Some of the key provisions are: the imposition of a minimum equity ratio tied to the capital structure used in establishing NYSEG's rates, a prohibition on lending to unregulated affiliates and, most importantly, a "Special Preferred Share" provision, that adds a significant impediment to NYSEG becoming part of a parent-based bankruptcy proceeding.
>
> Still, although NYSEG's current rating levels are well positioned to withstand pressure from a credit deterioration at Avangrid Inc. (AGR, Baa1 stable), NYSEG's parent and/or Iberdrola S.A. (ISA, Baa1 stable), AGR's majority owner, it is not fully immune from possible rating downgrades should the rating of either entity drop materially.[120]

Additionally, Moody's notes similar ring-fencing provisions for RG&E.[121]

Q. What do you conclude regarding the credit rating agencies' view of the credit quality of NYSEG and RG&E?

A. Rating agencies are very cognizant of the protective ring-fencing measures that the Commission has established for NYSEG and RG&E and cite them as the reason why they assess both Companies' credit quality on a stand-alone basis. Because there is factual evidence indicating that the two major

[120] Moody's Investor Services, New York State Electric and Gas Corporation: Update to credit analysis, June 6, 2018 at 5.

[121] Moody's Investor Services, Rochester Gas and Electric Corporation: Update to credit analysis, June 6, 2018 at 4.

credit rating agencies view each of the Companies' credit quality on a stand-alone basis, the stand-alone capital structures proposed in this proceeding are appropriate for the purpose of establishing the ROR on rate base.

Q. What do you conclude regarding the credit rating agencies' view of the credit quality of NYSEG and RG&E?

A. The recent Moody's report demonstrates some concerns regarding NYSEG and RG&E's credit metrics over the medium term. Therefore, it will be important to evaluate the capital structures of the Companies in light of these concerns.

Q. Have you conducted any analysis of the Companies' proposed capital structure as compared with the proxy companies?

A. Yes. I have reviewed NYSEG and RG&E's proposed capital structure as compared with the actual capital structures of the operating companies in the proxy group for the most recently reported four years. As shown on Exhibit __ (AEB-10), the mean annual equity ratio of the proxy companies over that period is 56.65 percent with a range of 48.01 percent to 72.23 percent.

Q. What do you conclude from this analysis?

A. The requested 50 percent equity ratio is conservative considering the equity ratios of the proxy companies and the current business and financial risks

of NYSEG and RG&E, including significant capital investment programs, credit metrics pressures and credit rating agency pressures. This information indicates that the utility operating subsidiaries owned by holding companies with similar business characteristics to NYSEG and RG&E have for the last three years maintained average common equity ratios more than 8 percentage points above the 48.0 percent equity ratio that the Commission approved for NYSEG and RG&E in the Companies' last rate proceeding. These higher proxy equity ratios reflect a level of financial risk that is lower than the financial risk implied by the proposed 50 percent equity ratio. Therefore, I conclude that the requested equity ratio should be considered a lower bound on the equity ratio that would support the Companies' financial integrity. As such, it would be reasonable for the Commission to use higher equity ratios for NYSEG and RG&E closer to those of the proxy group operating companies for ratemaking purposes.

Q. Will the capital structure and ROE authorized in these proceedings affect the Companies' access to capital at reasonable rates?

A. Yes. The level of earnings authorized by the Commission directly affects the Companies' ability to fund their operations with internally generated funds. Both bond investors and rating agencies expect a significant portion of ongoing capital investments to be financed with internally generated funds.

It also is important to realize that because a utility's investment horizon is very long, investors require the assurance of a sufficiently high return to satisfy the long-run financing requirements of the assets placed into service. Those assurances, which often are measured by the relationship between internally generated cash flows and debt (or interest expense), depend quite heavily on the capital structure. As a consequence, both the ROE and capital structure are very important to debt and equity investors. Furthermore, considering the capital market conditions discussed in Section IV, the authorized ROE and capital structure take on even greater significance.

IX. MULTI-YEAR RATE PLAN

Q. Would a multi-year rate plan impact your ROE recommendation?

A. Yes, it would. The Commission has in many cases approved three-year rate case settlements that often include stay-out premiums. It is my understanding that the Companies will provide three years of forecast data in their rate filings. In keeping with Commission precedent, a stay-out premium would reflect the increased risk faced by the Companies under a multi-year rate plan.

Q. How has New York typically estimated a stay-out premium?

A. The New York approach has typically set the measure of the risk and return trade-off using one half of the yield spread between a one-year and three-year Treasury securities.

Q. Does one half of the yield spread between one-year and three-year Treasuries sufficiently reflect the risk to equity investors inherent in a multi-year stay-out?

A. No. The stay-out premium associated with a multi-year rate plan should not only compensate investors for changes in the level of interest rates or inflation, but also for the potential risk of under-earning that is introduced by "staying out." By staying out of rate cases, the utility may not fully recover material amounts of capital expenditures and may be required to absorb losses due to differences between the cost of service established in the rate plan and actual levels of revenue and expense. The premium should compensate the utility and its investors for these additional risks over and above interest rate risk. In the current market environment, there is additional risk that the authorized ROE for the latter years of a multi-year rate plan will be lower than investors' future requirements as interest rates are expected to increase.

Q. What do you propose as the stay-out premium for a three-year rate plan?

A. The ROE proposed by the Company of 9.50 percent will not provide the Companies a return commensurate with the return available on investments of similar risk over the term of the multi-year rate plan without an adequate stay-out premium. Consistent with prior cases in which a stay-out premium was included in multi-year rate plans, I recommend that a stay-out premium be included in a multi-year rate plan. I believe 50 basis points is a reasonable, albeit conservative, reflection of the incremental risk to the Company under a multi-year stay-out provision.

X. CONCLUSION AND RECOMMENDATION

Q. What is your conclusion regarding a fair return on book equity for NYSEG and RG&E?

A. My recommended return on equity considers the results of the DCF and CAPM models, summarized in Figure 14 (below), and the specific risks to which the Companies are exposed. Based on that analysis the ROE for the Companies is within the range of 9.50 percent and 10.29 percent. The Companies are requesting a ROE of 9.50 percent, which is at the low end of that range and is a conservative estimate of the investor-required ROE. Furthermore, if the Commission approves the stay-out period, a premium of 50 basis points should be added to the ROE.

Figure 14: Summary of Analytical Results

	Low	Mean	High
DCF	8.92%	9.20%	9.67%
Mean CAPM	10.66%	10.72%	10.90%
50%/50% DCF/CAPM	9.79%	9.96%	10.29%
67%/33% DCF/CAPM	9.50%	9.71%	10.08%

Q. Does this conclude your Direct Testimony?

A. Yes, it does.

CONCENTRIC ENERGY ADVISORS

Ann E. Bulkley
Senior Vice President

Ms. Bulkley has more than two decades of management and economic consulting experience in the energy industry. Ms. Bulkley has extensive state and federal regulatory experience on both electric and natural gas issues including rate of return, cost of equity and capital structure issues. Ms. Bulkley has provided expert testimony on the cost of capital in more than 30 regulatory proceedings before regulatory commissions in Arizona, Arkansas, Colorado, Connecticut, Kansas, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New Mexico, New York, North Dakota, Oklahoma, Pennsylvania, Texas, South Dakota, West Virginia, and the Federal Energy Regulatory Commission. In addition, Ms. Bulkley has prepared and provided supporting analysis for at least forty Federal and State regulatory proceedings. In addition, Ms. Bulkley has worked on acquisition teams with investors seeking to acquire utility assets, providing valuation services including an understanding of regulation, market expected returns, and the assessment of utility risk factors. Ms. Bulkley has assisted clients with valuations of public utility and industrial properties for ratemaking, purchase and sale considerations, ad valorem tax assessments, and accounting and financial purposes. In addition, Ms. Bulkley has experience in the areas of contract and business unit valuation, strategic alliances, market restructuring and regulatory and litigation support. Prior to joining Concentric, Ms. Bulkley held senior expertise-based consulting positions at several firms, including Reed Consulting Group and Navigant Consulting, Inc. where she specialized in valuation. Ms. Bulkley holds an M.A. in economics from Boston University and a B.A. in economics and finance from Simmons College. Ms. Bulkley is a Certified General Appraiser licensed in the Commonwealth of Massachusetts and the State of New Hampshire.

REPRESENTATIVE PROJECT EXPERIENCE

Regulatory Analysis and Ratemaking

Ms. Bulkley has provided a range of advisory services relating to regulatory policy analysis and many aspects of utility ratemaking. Specific services have included: cost of capital and return on equity testimony, cost of service and rate design analysis and testimony, development of ratemaking strategies; development of merchant function exit strategies; analysis and program development to address residual energy supply and/or provider of last resort obligations; stranded costs assessment and recovery; performance-based ratemaking analysis and design; and many aspects of traditional utility ratemaking (e.g., rate design, rate base valuation).

Cost of Capital

Ms. Bulkley has provided expert testimony on the cost of capital in more than 30 regulatory proceedings before regulatory commissions in Arizona, Arkansas, Colorado, Connecticut, Kansas,

Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New Mexico, New York, North Dakota, Oklahoma, Pennsylvania, Texas, South Dakota, West Virginia, and the Federal Energy Regulatory Commission. In addition, Ms. Bulkley has prepared and provided supporting analysis for at least forty Federal and State regulatory proceedings in which she did not testify.

Valuation

Ms. Bulkley has provided valuation services to utility clients, unregulated generators and private equity clients for a variety of purposes including ratemaking, fair value, ad valorem tax, litigation and damages, and acquisition. Ms. Bulkley's appraisal practices are consistent with the national standards established by the Uniform Standards of Professional Appraisal Practice. In addition, Ms. Bulkley has relied on other simulation based valuation methodologies.

Representative projects/clients have included:

- Northern Indiana Fuel and Light: Provided expert testimony regarding the fair value of the company's natural gas distribution system assets. Valuation relied on cost approach.
- Kokomo Gas: Provided expert testimony regarding the fair value of the company's natural gas distribution system assets. Valuation relied on cost approach.
- Prepared fair value rate base analyses for Northern Indiana Public Service Company for several electric rate proceedings. Valuation approaches used in this project included income, cost and comparable sales approaches.
- Confidential Utility Client: Prepared valuation of fossil and nuclear generation assets for financing purposes for regulated utility client.
- Prepared a valuation of a portfolio of generation assets for a large energy utility to be used for strategic planning purposes. Valuation approach included an income approach, a real options analysis and a risk analysis.
- Assisted clients in the restructuring of NUG contracts through the valuation of the underlying assets. Performed analysis to determine the option value of a plant in a competitively priced electricity market following the settlement of the NUG contract.
- Prepared market valuations of several purchase power contracts for large electric utilities in the sale of purchase power contracts. Assignment included an assessment of the regional power market, analysis of the underlying purchase power contracts, a traditional discounted cash flow valuation approach, as well as a risk analysis. Analyzed bids from potential acquirers using income and risk analysis approached. Prepared an assessment of the credit issues and value at risk for the selling utility.
- Prepared appraisal of a portfolio of generating facilities for a large electric utility to be used for financing purposes.
- Prepared an appraisal of a fleet of fossil generating assets for a large electric utility to establish the value of assets transferred from utility property.
- Conducted due diligence on an electric transmission and distribution system as part of a buy-side due diligence team.
- Provided analytical support for and prepared appraisal reports of generation assets to be used in ad valorem tax disputes.

- Provided analytical support and prepared testimony regarding the valuation of electric distribution system assets in five communities in a condemnation proceeding.
- Valued purchase power agreements in the transfer of assets to a deregulated electric market.

Ratemaking

Ms. Bulkley has assisted several clients with analysis to support investor-owned and municipal utility clients in the preparation of rate cases. Sample engagements include:

- Assisted several investor-owned and municipal clients on cost allocation and rate design issues including the development of expert testimony supporting recommended rate alternatives.
- Worked with Canadian regulatory staff to establish filing requirements for a rate review of a newly regulated electric utility. Analyzed and evaluated rate application. Attended hearings and conducted investigation of rate application for regulatory staff. Prepared, supported and defended recommendations for revenue requirements and rates for the company. Developed rates for gas utility for transportation program and ancillary services.

Strategic and Financial Advisory Services

Ms. Bulkley has assisted several clients across North America with analytically based strategic planning, due diligence and financial advisory services.

Representative projects include:

- Preparation of feasibility studies for bond issuances for municipal and district steam clients.
- Assisted in the development of a generation strategy for an electric utility. Analyzed various NERC regions to identify potential market entry points. Evaluated potential competitors and alliance partners. Assisted in the development of gas and electric price forecasts. Developed a framework for the implementation of a risk management program.
- Assisted clients in identifying potential joint venture opportunities and alliance partners. Contacted interviewed, and evaluated potential alliance candidates based on company-established criteria for several LDCs and marketing companies. Worked with several LDCs and unregulated marketing companies to establish alliances to enter into the retail energy market. Prepared testimony in support of several merger cases and participated in the regulatory process to obtain approval for these mergers.
- Assisted clients in several buy-side due diligence efforts, providing regulatory insight and developing valuation recommendations for acquisitions of both electric and gas properties.

PROFESSIONAL HISTORY

Concentric Energy Advisors, Inc. (2002 – Present)
Senior Vice President
Vice President
Assistant Vice President
Project Manager

Navigant Consulting, Inc. (1995 – 2002)
Project Manager

Cahners Publishing Company (1995)
Economist

EDUCATION

M.A., Economics, Boston University, 1995

B.A., Economics and Finance, Simmons College, 1991

Certified General Appraiser licensed in the Commonwealth of Massachusetts and the States of Michigan and New Hampshire

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Arizona Corporation Commission				
Tucson Electric Power Company	04/19	Tucson Electric Power Company	Docket No. E-01933A-19-0028	Return on Equity
Tucson Electric Power Company	11/15	Tucson Electric Power Company	Docket No. E-01933A-15-0322	Return on Equity
UNS Electric	05/15	UNS Electric	Docket No. E-04204A-15-0142	Return on Equity
UNS Electric	12/12	UNS Electric	Docket No. E-04204A-12-0504	Return on Equity
Arkansas Public Service Commission				
Arkansas Oklahoma Gas Corporation	10/13	Arkansas Oklahoma Gas Corporation	Docket No. 13-078-U	Return on Equity
Colorado Public Utilities Commission				
Public Service Company of Colorado	01/19	Public Service Company of Colorado	19AL-0063ST	Return on Equity
Atmos Energy Corporation	05/15	Atmos Energy Corporation	Docket No. 15AL-0299G	Return on Equity
Atmos Energy Corporation	04/14	Atmos Energy Corporation	Docket No. 14AL-0300G	Return on Equity
Atmos Energy Corporation	05/13	Atmos Energy Corporation	Docket No. 13AL-0496G	Return on Equity
Connecticut Public Utilities Regulatory Authority				
Connecticut Natural Gas Corporation	06/18	Connecticut Natural Gas Corporation	Docket No. 18-05-16	Return on Equity
Yankee Gas Services Co. d/b/a Eversource Energy	06/18	Yankee Gas Services Co. d/b/a Eversource Energy	Docket No. 18-05-10	Return on Equity
The Southern Connecticut Gas Company	06/17	The Southern Connecticut Gas Company	Docket No. 17-05-42	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
The United Illuminating Company	07/16	The United Illuminating Company	Docket No. 16-06-04	Return on Equity
Federal Energy Regulatory Commission				
Sea Robin Pipeline Company LLC	11/18	Sea Robin Pipeline Company LLC	Docket# RP19-___-000	Return on Equity
Tallgrass Interstate Gas Transmission	10/15	Tallgrass Interstate Gas Transmission	RP16-137	Return on Equity
Indiana Utility Regulatory Commission				
Indiana and Michigan American Water Company	09/18	Indiana and Michigan American Water Company	IURC Cause No. 45142	Return on Equity
Northern Indiana Public Service Company	09/17	Northern Indiana Public Service Company	Cause No. 44988	Fair Value
Indianapolis Power and Light Company	12/16	Indianapolis Power and Light Company	Cause No.44893	Fair Value
Northern Indiana Public Service Company	10/15	Northern Indiana Public Service Company	Cause No. 44688	Fair Value
Indianapolis Power and Light Company	09/15	Indianapolis Power and Light Company	Cause No. 44576 Cause No. 44602	Fair Value
Kokomo Gas and Fuel Company	09/10	Kokomo Gas and Fuel Company	Cause No. 43942	Fair Value
Northern Indiana Fuel and Light Company, Inc.	09/10	Northern Indiana Fuel and Light Company, Inc.	Cause No. 43943	Fair Value
Kansas Corporation Commission				
Atmos Energy Corporation	08/15	Atmos Energy Corporation	Docket No. 16-ATMG-079-RTS	Return on Equity
Kentucky Public Service Commission				
Kentucky American Water Company	11/18	Kentucky American Water Company	Docket No. 2018-00358	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Maine Public Utilities Commission				
Central Maine Power	10/18	Central Maine Power	Docket No. 2018-00194	Return on Equity
Maryland Public Service Commission				
Maryland American Water Company	06/18	Maryland American Water Company	Case No. 9487	Return on Equity
Massachusetts Appellate Tax Board				
FirstLight Hydro Generating Company	06/17	FirstLight Hydro Generating Company	Docket No. F-325471 Docket No. F-325472 Docket No. F-325473 Docket No. F-325474	Valuation of Electric Generation Assets
Massachusetts Department of Public Utilities				
Berkshire Gas Company	05/18	Berkshire Gas Company	DPU 18-40	Rate Case
Unitil Corporation	01/04	Fitchburg Gas and Electric	DTE 03-52	Integrated Resource Plan; Gas Demand Forecast
Michigan Public Service Commission				
Wisconsin Electric Power Company	12/11	Wisconsin Electric Power Company	Case No. U-16830	Return on Equity
Michigan Tax Tribunal				
New Covert Generating Co., LLC.	03/18	The Township of New Covert Michigan	MTT Docket No. 000248TT and 16-001888-TT	Valuation of Electric Generation Assets
Covert Township	07/14	New Covert Generating Co., LLC.	Docket No. 399578	Valuation of Electric Generation Assets
Minnesota Public Utilities Commission				
Minnesota Energy Resources Corporation	10/17	Minnesota Energy Resources Corporation	Docket No. G011/GR-17-563	Return on Equity
Missouri Public Service Commission				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Missouri American Water Company	06/17	Missouri American Water Company	Case No. WR-17-2085 Case No. SR-17-2086	Return on Equity
Montana Public Service Commission				
Montana-Dakota Utilities Co.	09/18	Montana-Dakota Utilities Co.	D0218.9.60	Return on Equity
New Hampshire-Merrimack County Superior Court				
Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	04/18	Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	220-2012-CV-1100	Valuation of Utility Property
New Hampshire-Rockingham Superior Court				
Eversource Energy	05/18	Public Service Commission of New Hampshire	218-2016-CV-00899 218-2017-CV-00917	Valuation of Utility Property
New Jersey Board of Public Utilities				
Public Service Electric and Gas Company	04/19	Public Service Electric and Gas Company	EO18060629 GO18060630	Return on Equity
Public Service Electric and Gas Company	02/18	Public Service Electric and Gas Company	GR17070776	Return on Equity
Public Service Electric and Gas Company	01/18	Public Service Electric and Gas Company	ER18010029 GR18010030	Return on Equity
New Mexico Public Regulation Commission				
Southwestern Public Service Company	10/17	Southwestern Public Service Company	Case No. 17-00255-UT	Return on Equity
Southwestern Public Service Company	12/16	Southwestern Public Service Company	Case No. 16-00269-UT	Return on Equity
Southwestern Public Service Company	10/15	Southwestern Public Service Company	Case No. 15-00296-UT	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Southwestern Public Service Company	06/15	Southwestern Public Service Company	Case No. 15-001398-UT	Return on Equity
New York State Department of Public Service				
Central Hudson Gas and Electric Corporation	07/17	Central Hudson Gas and Electric Corporation	Gas 17-G-0460 Electric 17-E-0459	Return on Equity
Niagara Mohawk Power Corporation	04/17	National Grid USA	Case No. C-17-E-0238	Return on Equity
Corning Natural Gas Corporation	06/16	Corning Natural Gas Corporation	Case No. 16-G-0369	Return on Equity
National Fuel Gas Company	04/16	National Fuel Gas Company	Case No. 16-G-0257	Return on Equity
KeySpan Energy Delivery	01/16	KeySpan Energy Delivery	Case No. 15-G-0059	Return on Equity
New York State Electric and Gas Company	05/15	New York State Electric and Gas Company	Case No. 15-G-0284	Return on Equity
North Dakota Public Service Commission				
Northern States Power Company	12/12	Northern States Power Company	C-PU-12-813	Return on Equity
Northern States Power Company	12/10	Northern States Power Company	C-PU-10-657	Return on Equity
Oklahoma Corporation Commission				
Arkansas Oklahoma Gas Corporation	01/13	Arkansas Oklahoma Gas Corporation	Cause No. PUD 201200236	Return on Equity
Pennsylvania Public Utility Commission				
American Water Works Company Inc.	04/17	Pennsylvania-American Water Company	Docket No. R-2017-2595853	Return on Equity
South Dakota Public Utilities Commission				
Northern States Power Company	06/14	Northern States Power Company	Docket No. EL14-058	Return on Equity

Texas Public Utility Commission				
Southwestern Public Service Company	01/14	Southwestern Public Service Company	Docket No. 42004	Return on Equity
Virginia State Corporation Commission				
Virginia American Water Company, Inc.	11/18	Virginia American Water Company, Inc.	Docket No. PUR-2018-00175	Return on Equity
Washington Utilities Transportation Commission				
Cascade Natural Gas Corporation	04/19	Cascade Natural Gas Corporation	Docket NO. UG-19___	Return on Equity
West Virginia Public Service Commission				
West Virginia American Water Company	04/18	West Virginia American Water Company	Case No. 18-0573-W-42T Case No. 18-0576-S-42T	Return on Equity
Wisconsin Public Service Commission				
Wisconsin Electric Power Company and Wisconsin Gas LLC	03/19	Wisconsin Electric Power Company and Wisconsin Gas LLC	Docket No. 05-UR-109	Return on Equity
Wisconsin Public Service Corporation	03/19	Wisconsin Public Service Corporation	6690-UR-126	Return on Equity