Direct Testimony and Schedules
Mr. John J. Reed

Before the Minnesota Public Utilities Commission
State of Minnesota

In the Matter of the Application of Northern States Power Company
for Authority to Increase Rates for Electric Service in Minnesota

Docket No. E002/GR-19-564
Exhibit___(JJR-1)

Return on Equity

November 1, 2019

Table of Contents

Schedules

I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, AFFILIATION, AND BUSINESS ADDRESS.

A. My name is John J. Reed. I am Chairman and Chief Executive Officer of Concentric Energy Advisors, Inc. (Concentric), and CE Capital, Inc. located at 293 Boston Post Road West, Suite 500, Marlborough, Massachusetts 01752.

Concentric is a management consulting and economic advisory firm, focused on the North American energy and water industries. Based in Marlborough, Massachusetts, and Washington, D.C., Concentric specializes in regulatory and litigation support, financial advisory services, energy market strategies, market assessments, energy commodity contracting and procurement, economic feasibility studies, and capital market analyses. CE Capital is a fully-registered broker-dealer securities firm and FINRA member.

Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS TESTIMONY?

A. I am submitting this testimony on behalf of Northern States Power, a Minnesota corporation (NSPM or the Company) and wholly owned subsidiary of Xcel Energy Inc. (XEI).

Q. PLEASE DESCRIBE YOUR EXPERIENCE IN THE ENERGY AND UTILITY INDUSTRIES.

A. I have more than 40 years of experience in the energy industry and have worked as an executive in, and consultant and economist to, the energy industry. Over the past 30 years, I have directed the energy consulting services of Concentric, Navigant Consulting, and Reed Consulting Group. I

have served as Vice Chairman and co-CEO of the nation's largest publicly-traded consulting firm and as Corporate Economist for the nation's largest gas utility (Southern California Gas Company). I have provided regulatory policy and regulatory economics support to more than 100 energy and utility clients and have provided expert testimony on regulatory, economic, and financial matters on more than 200 occasions before the Federal Energy Regulatory Commission (FERC), Canadian regulatory agencies, state utility regulatory agencies, various state and federal courts, and before arbitration panels in the United States and Canada. I have also been involved in numerous utility acquisitions, mergers and asset sales over the past 20 years and have advised clients in these assignments on utility valuations, due diligence matters, risk issues, financing, capital market access, credit rating matters, and the structure and execution of competitive sales processes. As CEO of CE Capital, I hold a number of securities licenses and am fully licensed to engage in investment banking activities, and the sale of all types of securities. I am a graduate of the Wharton School of Business at the University of Pennsylvania, and previously attended the University of Kansas. My background is presented in more detail in Exhibit___(JJR-1), Attachment A.

II. PURPOSE AND OVERVIEW OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my direct testimony in this proceeding is to present evidence and provide a recommendation regarding the Company's authorized return on equity (ROE) for its electric utility operations, and to provide an assessment of the capital structure to be used for ratemaking purposes, as

proposed in the direct testimony of Company witness Ms. Sarah Soong. My analysis and recommendations are supported by the data presented in Exhibit__(JJR-1), Schedules 1 through 10.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE APPROPRIATE COST OF EQUITY FOR THE COMPANY?

A. My analyses indicate that the Company's cost of equity currently is in the range of 9.75 percent to 10.25 percent. Based on the quantitative and qualitative analyses discussed throughout my direct testimony, I conclude that an ROE of 10.20 percent is reasonable and appropriate. With respect to the Company's capital structure, I conclude that the Company's proposed capital structure, consisting of 52.50 percent common equity for each year of its three-year multi-year rate plan (MYRP), 46.63 percent, 46.28 percent, and 46.42 percent long-term debt in 2020, 2021, and 2022, respectively, and 0.87 percent, 1.22 percent, and 1.08 percent short-term debt in 2020, 2021, and 2022, respectively, are reasonable, and my analysis of the appropriate ROE for the Company is based on that capital structure.

Q. PLEASE PROVIDE A BRIEF OVERVIEW OF THE ANALYSIS THAT LED TO YOUR ROE RECOMMENDATION.

A. Since equity analysts and investors tend to use multiple methodologies in developing their return requirements, it is extremely important to consider the results of several analytical approaches in determining the Company's ROE. Therefore, my ROE recommendation takes into account the results of the Constant Growth and Two-Stage Growth forms of the Discounted Cash Flow (DCF) model, the Capital Asset Pricing Model (CAPM), the Risk

Premium Approach, and the Expected Earnings Analysis in the context of the current capital market environment.

In addition to the analyses discussed above, I considered the broader level of returns that are able to be offered by non-utility firms, the Company's capital expenditure program, unique risks such as its nuclear portfolio, and regulatory risk in comparison to the proxy companies that I used in my analysis. I also considered the Company's proposed MYRP, and the Company's leadership and superior performance in and commitment to achieving policy goals in developing my recommendation. While I did not include any explicit adjustments to my ROE estimates for those factors, I did take them into consideration when determining where the Company's ROE should fall within my range of analytical results.

Q. PLEASE DESCRIBE THE APPROACH RECENTLY EMPLOYED BY THE COMMISSION FOR DETERMINING A COMPANY'S ROE.

A. For many years, the Minnesota Public Utilities Commission (the Commission) relied on the mean result Constant Growth DCF model, using a proxy group of comparable companies to determine the authorized ROE for the subject company. Beginning about a decade ago, the Commission has also looked to the mean result of the Two-Growth DCF analysis. However, in its most recent Orders for Minnesota Power Inc. (Minnesota Power), Otter Tail Power Company and Minnesota Energy Resources Corporation (MERC), the Commission has employed a more dynamic process that is more reflective of the manner equity analysts and investors develop their return requirements, and established an authorized ROE that was placed within the

range of the mean and the mean-high results of the Two-Growth DCF model.

For example, in its most recent order for Otter Tail Power Company, the Commission awarded an authorized ROE that was equal to the midpoint between the mean and mean-high results of the Two-Growth DCF model.[1] In support of the decision, the Commission noted that:

> The record in this case establishes a compelling basis for selecting an ROE above the mean average within the DCF range, given Otter Tail's unique characteristics and circumstances relative to other utilities in the proxy group. These factors include the company's relatively smaller size, geographically diffuse customer base, and the scope of the Company's planned infrastructure investments. The Commission has also considered Otter Tail's recognized [sic] the Company's performance in completing major infrastructure projects substantially under budget, its history of providing reliable service with stable rates, and its record of effectively serving the needs of its customers, as measured by multiple customer-satisfaction metrics.[2]

The Commission cited a similar approach in its most recent Order for Minnesota Power where the ROE was also set above the mean results of the Two-Growth DCF model. In that order, the Commission concluded that:

> it is appropriate to establish an ROE toward the higher end of the DCF-supported results to adjust for the divergence between ROEs supported by the DCF models and the models the Commission has historically relied upon for confirmation of reasonableness—the CAPM and Bond Yield Plus Risk Premium models.[3]

Finally, it is most recent Order for MERC, the Commission acknowledged that the record included a broad diversity of modeling and noted that the

[1] Docket No. E017/GR-15-1033, Findings of Fact, Conclusions and Order, at 55.
[2] *Ibid.*
[3] Docket No. E015/GR-16-664, Findings of Fact, Conclusions and Order, at 61.

authorized ROE was set in light of the record as a whole.[4] In that case, the Commission authorized an ROE of 9.70 percent and noted that the authorized ROE was "comfortably between the mean growth-rate and high-growth-rate two-growth DCF results calculated by both MERC and the OAG in surrebuttal testimony."[5]

Q. IS THE APPROACH YOU EMPLOYED FOR DETERMINING THE COMPANY'S ROE CONSISTENT WITH THE APPROACH USED BY THE COMMISSION IN PRIOR CASES?

A. Yes, it is. I have considered the results for the Constant Growth and Two-Growth DCF models, the models that have been relied on historically by the Commission. Then, consistent with the more recent precedent outlined above, I evaluated both the broader market and the Company's specific characteristics, including risks and performance in determining the appropriate ROE. Finally – again – similar to the Commission, as well as equity analysts and investors more generally, I used the results of other analytical approaches such as the CAPM, Risk Premium and Expected Earnings analyses to assess the reasonableness of the Constant Growth and Two-Growth DCF results and to determine where the Company's ROE should fall within a reasonable range.

Q. HOW IS THE REMAINDER OF YOUR DIRECT TESTIMONY ORGANIZED?

A. The remainder of my direct testimony is organized in seven sections: Section III discusses the regulatory guidelines and financial considerations pertinent to the development of the cost of capital; Section IV briefly discusses recent market conditions and the effect of those conditions on credit spreads; Section V explains my selection of proxy groups of comparable companies

[4] Docket No. G011/GR-17-563, Findings of Fact, Conclusions and Order, at 26.
[5] Docket No. G011/GR-17-563, Findings of Fact, Conclusions and Order, at 27.

used to develop my analytical results; Section VI explains my analysis and the analytical basis for the recommendation of the appropriate ROE for the Company; Section VII provides a discussion of specific factors that have a direct bearing on the ROE to be authorized for the Company in this case, which include financial and regulatory risks, as well as policy considerations. Section VIII sets out the supporting analyses I performed to assess the reasonableness of the Company's proposed capital structure, and Section IX 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 Commission is well aware of these principles, I will only touch on them briefly. The United States Supreme Court's *Hope* and *Bluefield* cases established the standards for determining the fairness or reasonableness of a utility's allowed ROE. Among the standards established by the Court in those cases are: (1) consistency with other businesses having similar or comparable risks; (2) adequacy of the return to support credit quality and access to capital; and (3) that the means of arriving at a fair return are not important, only that the end result leads to just and reasonable rates.[6]

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

Q. DOES MINNESOTA STATUTE PROVIDE SIMILAR GUIDANCE IN ESTABLISHING THE APPROPRIATE RETURN ON EQUITY?

A. Yes. Chapter 216B of the Minnesota Statutes states:

> The commission [Minnesota Public Utilities Commission], in the exercise of its powers under this chapter to provide just and reasonable rates for public utilities, shall give due consideration to the public need for adequate, efficient, and reasonable service and to the need of the public utility for revenue sufficient to enable it to meet the cost of furnishing the service, including adequate provision for depreciation of its utility property used and useful in rendering service to the public, and to earn a fair and reasonable return upon the investment in such property.[7]

Based on these legal standards, the Commission Order in this case should provide the Company with the opportunity to earn an ROE that is: (i) adequate to attract capital at reasonable terms, thereby enabling it to provide safe, reliable service; (ii) sufficient to ensure the financial soundness of the Company's operations; and (iii) commensurate with returns on equity investments in enterprises having comparable risks. The allowed ROE should enable the Company to finance capital expenditures at reasonable rates and maintain its financial flexibility over the period during which rates are expected to remain in effect.

Q. PLEASE CHARACTERIZE NSPM'S HISTORICALLY AUTHORIZED ROES RELATIVE TO THOSE OF OTHER ELECTRIC UTILITIES IN THE US.

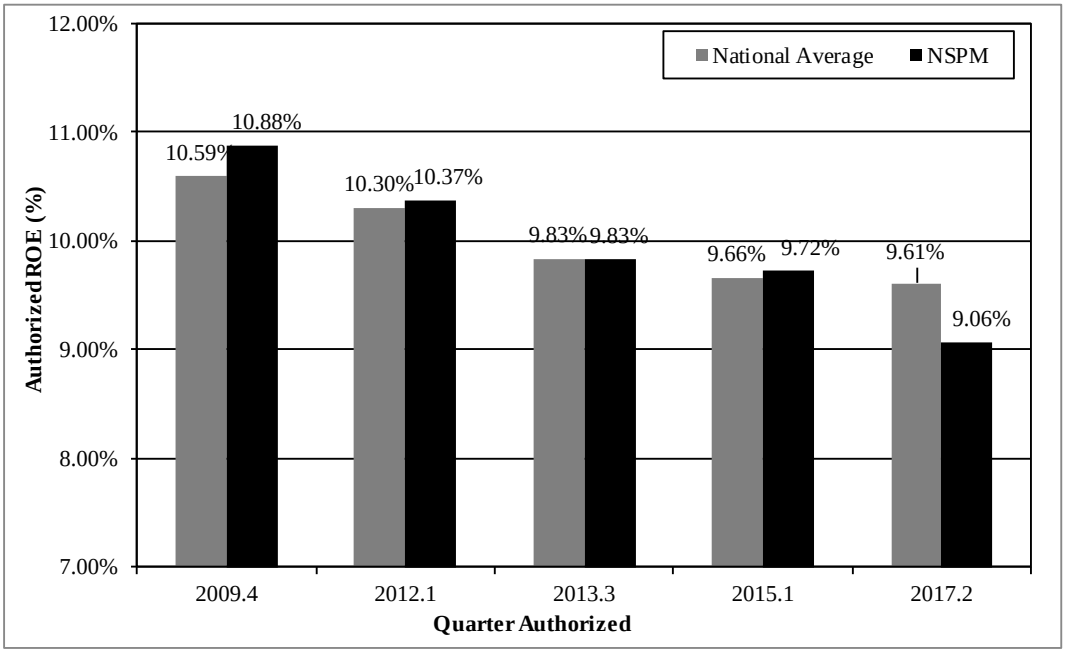
A. Until recently, the Commission has been generally supportive of NSPM's capital needs and has historically authorized an ROE for NSPM comparable to, or slightly above, the national average for other integrated electric utilities during the same period. However, recently, the Commission authorized an effective ROE that was 55 basis points below the national average. Figure 1

[7] Minn. Stat. § 216B.16(6) [clarification added].

shows the history of NSPM's allowed ROEs over the last ten years relative to those of other electric utilities during the same quarter.

Figure 1

Authorized ROEs, NSPM vs. National Average[8]



Q. ARE ROES AUTHORIZED IN OTHER JURISDICTIONS RELEVANT?

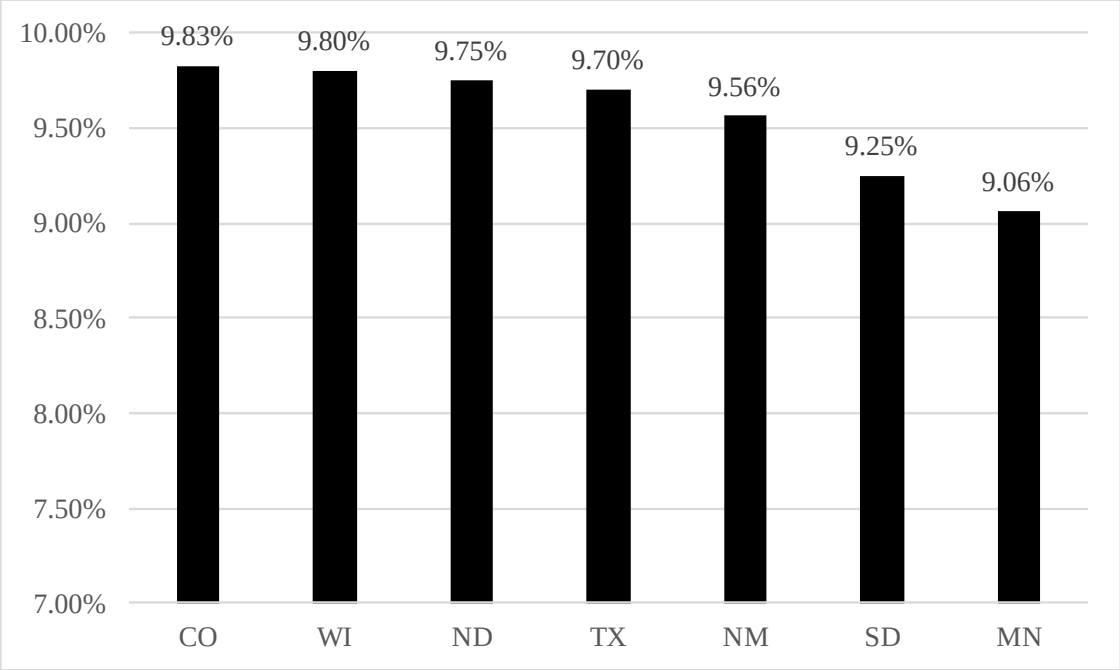
A. Yes. Utilities compete for capital both internally and externally. Internally, because the Company is a subsidiary of Xcel Energy, Inc., which owns other utility subsidiaries, it competes with these other subsidiaries for discretionary investment capital. In determining how to allocate its finite discretionary capital resources, it would be reasonable for Xcel Energy, Inc. to consider the authorized ROE of each of its subsidiaries. As shown in Figure 2, NSPM's

[8] S&P Global Market Intelligence, Regulatory Research Associates, effective authorized ROE displayed for the Company's most recent case based on the revenue deficiency calculated using the Department's recommended ROE of 9.06 percent and subsequently ordered by the Commission in Docket No. E002/M-17-797.

currently authorized ROE is the lowest compared to the other jurisdictions in which Xcel has electric operations.

Figure 2

Most Recent Authorized Electric ROEs, Xcel Electric Subsidiaries[9]



Externally, NSPM competes for equity investor capital with other investments of similar risk, including other utilities. If investors see that higher returns are available for other investments of comparable risk, or for investments in companies operating in other jurisdictions, that can inhibit the utility's ability to attract capital for investment in Minnesota.

[9] S&P Global Market Intelligence, Regulatory Research Associates; ROE for the Company based on Docket No. E-002/M-17-797, where the Commission required the NSPM to "use an ROE of 9.06 percent in all electric dockets filed by the Company that require an ROE until the Commission issues an order in the Company's next rate case authorizing a different ROE." September 27, 2019 Order Authorizing Rider Recovery, Setting Return On Equity, And Setting Filing Requirements, p. 8.

Q. HAS THE COMMISSION CONSIDERED THE AUTHORIZED ROES IN OTHER JURISDICTIONS WHEN ESTABLISHING RETURNS FOR MINNESOTA UTILITIES?

A. Yes. In its Order in Docket No. E001/GR-10-276 for Interstate Power and Light Company (IPL), the Commission noted a previous Order where it explained the following:

> While the probative value of ROEs set in other jurisdictions is limited because the record does not allow the Commission to assess the differing regulatory circumstances affecting those awards, they do provide some window to national context and, as such, can serve a limited function as a check on reasonableness.[10]

In its decision, the Commission also considered the ROE that at the time IPL had just been authorized in Iowa by the Iowa Utilities Board. Specifically, the Commission stated that "[w]hile the helpfulness of other commissions' decisions is very limited by the fact-intensive nature of utility regulation, the decision does offer a reality check of sorts."[11] Therefore, the Commission has considered the returns that have been authorized nationally as well the returns that have been authorized for other utility subsidiaries of the subject company's parent company in other jurisdictions.

Q. HOW DOES THE REGULATORY ENVIRONMENT IN WHICH A UTILITY OPERATES AFFECT ITS ACCESS TO AND COST OF CAPITAL?

A. The regulatory environment can profoundly affect both the access to, and cost of, capital in several ways. Because utility operations are capital-intensive, regulatory decisions should enable the utility to attract capital at reasonable terms under a variety of economic and financial market conditions; doing so balances the long-term interests of the utility and its ratepayers. The financial community carefully monitors the current and

[10] Docket No. E001/GR-10-276, Findings of Fact, Conclusions and Order, at 11.
[11] *Ibid.*

expected financial condition of utility companies, and the regulatory framework in which they operate. For example, 50 percent of Moody's Investors Services (Moody's) ratings factors for utilities are associated with regulatory framework and the ability to recover costs and earn returns.[12] In that respect, the regulatory environment is one of the most important factors in both debt and equity investors' assessments of risk.

IV. CURRENT CAPITAL MARKET ENVIRONMENT

Q. HOW DO ECONOMIC CONDITIONS INFLUENCE THE COST OF CAPITAL?

A. The required cost of capital, including the ROE, is a function of prevailing and expected market conditions. Consistent with the *Hope* and *Bluefield* decisions, the authorized ROE for a public utility should allow the company to attract investor capital at reasonable cost under a variety of economic and financial market conditions. The ability to attract capital on favorable terms is especially important during a period of substantial capital investment such as the Company currently faces, when it is being asked by customers and regulators to enhance system reliability and substitute renewable and other generating sources for higher-carbon resources. For NSPM, as Mr. Chamberlain discusses, the Company has embraced these challenges and is leading the way to a reduced-carbon and zero-carbon energy future, while also expanding its offerings to customers and supporting its local communities. This work is only possible if the Company can continue to attract capital by offering a reasonable return.

[12] Moody's Investor Service, Rating Methodology, Regulated Electric and Gas Utilities, June 2017.

Q. WHAT FACTOR IS CURRENTLY AFFECTING THE ANALYTICAL MODELS FOR COST OF EQUITY FOR REGULATED UTILITIES IN THE CURRENT AND PROSPECTIVE CAPITAL MARKETS?

A. The cost of equity for regulated utility companies is being affected by valuations of utility stocks that are at historically high levels, which has an inverse relationship to dividend yields, driving down certain analytical results. In this section, I discuss how this affects the traditional models used to estimate the cost of equity for regulated utilities. Later in my testimony, I discuss how taking a broader approach, as the Commission has begun doing, can properly address the shortcomings of limiting the analysis to any single approach in the context of a complex industry and capital market environment.

Q. HOW HAS THE FEDERAL RESERVE'S MONETARY POLICY AFFECTED CAPITAL MARKETS IN RECENT YEARS?

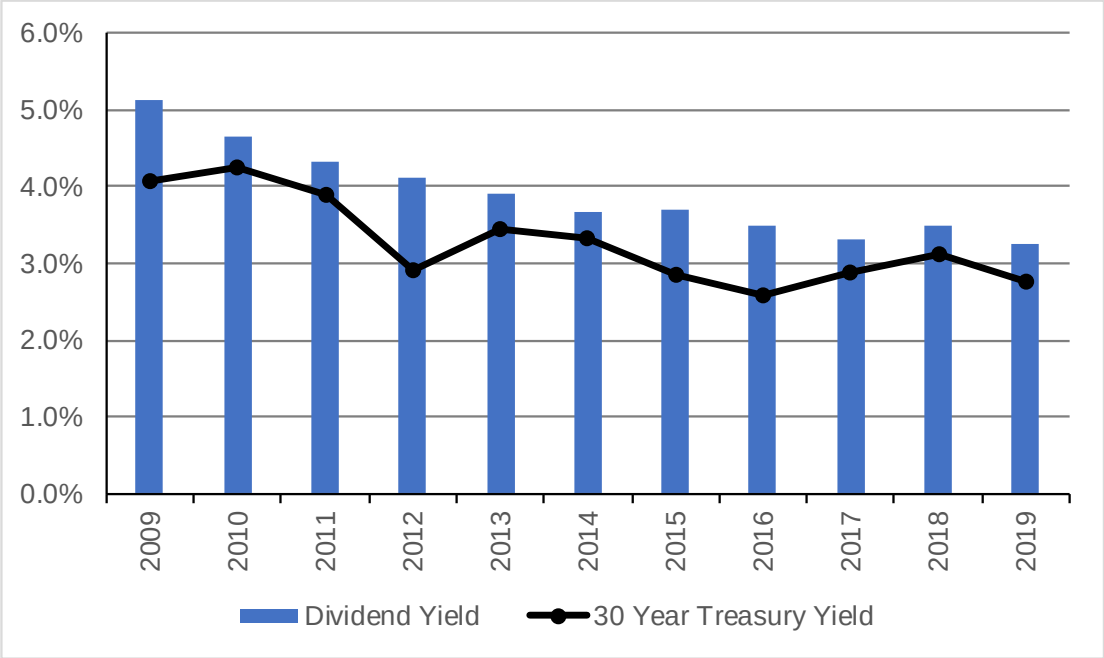
A. Extraordinary and persistent federal intervention in capital markets artificially lowered government bond yields after the Great Recession of 2008-2009, as the Federal Open Market Committee (FOMC) used monetary policy (both reductions in short-term interest rates and purchases of Treasury bonds and 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 electric utility stocks.

Q. HOW HAVE RECENT MARKET CONDITIONS AFFECTED THE VALUATION AND DIVIDEND YIELDS OF UTILITY SHARES?

A. The Federal Reserve's growth-oriented 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 3, over the period from 2009 through 2019, 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 electric utility dividend yields have decreased by about 182 basis points over this same period.

Figure 3

Dividend Yields for Electric Utility Stocks[13]



At its September 2019 meeting, the Federal Reserve acknowledged the implications of global developments on the U.S. economic outlook and lowered the federal funds rate by 25 basis points, resulting in a range of 1.75 percent to 2.00 percent.[14] Thus, the Federal Reserve has reduced the federal funds rate twice in 2019. These actions must be viewed in context, though. Prior to these two recent reductions in the federal funds rate, the Federal Reserve raised the short-term borrowing rate in 25-basis-point increments nine times since late 2015, based on its view of the then-current market fundamentals, including the employment markets, inflation, and overall economic growth.

[13] Source: Bloomberg Professional.
[14] FOMC, Federal Reserve press release, September 18, 2019.

Therefore, it is important to view the recent Federal Reserve policy decisions in the context of the reactions to recent global developments, the trade dispute between the U.S. and China, and longer-term fundamentals. The ongoing trade dispute has affected the global economy and caused a rise in volatility in the financial markets. As a result, the Federal Reserve is continuing to examine and evaluate the effect the trade dispute is having on economic growth and has stated that it will pursue a monetary policy agenda that sustains the economic expansion and satisfies the Federal's Reserve's goals of price stability and full employment. As Chairman Powell noted in his press conference following the September 2019 meeting:

> Well, what we do going forward is very much going to depend, Rich, on the flow of data and information. We've seen, you know, if you look at the things we're monitoring, particularly global growth and trade develops, global growth has continued to weaken. I think it's weakened since our last meeting. Trade developments have been up and down and then up, I guess, or back up perhaps, over the course of this intervening period. In any case, they've been quite volatile. So, we do see those risks as actually more heightened now. We're going to be watching that carefully. We're also going to be watching the U.S. data quite carefully, and we'll have to make an assessment as we go.[15]

Q. HOW HAVE THE TRADE DISPUTE WITH CHINA AND THE RECENT UNCERTAINTY IN THE MARKET AFFECTED THE YIELDS ON LONG-TERM GOVERNMENT BONDS?

A. The current high level of uncertainty surrounding the trade dispute between the U.S. and China, and in U.S. trade policy more generally, has resulted in a flight-to-quality as investors have purchased safer assets such as U.S. Treasuries due to increased fears of a possible recession. This has been

[15] *Id.*, at 6

increasingly evident over the past few months as investors responded to news of increases in tariffs by both China and the U.S. investors have responded to the recent escalation in the trade war by divesting higher-risk assets and purchasing lower-risk assets such as U.S. Treasury bonds.

Q. HOW COULD THE CURRENT TRADE DISPUTE AND MARKET VOLATILITY LEAD TO ANOMALOUS RESULTS IN ROE MODELS AT THIS PARTICULAR POINT IN TIME?

A. While the current uncertainties have influenced the recent decline in interest rates, the trade dispute between the U.S. and China is not expected to continue over the long-term. In fact, given the increase in price-sensitive investors purchasing U.S. Treasuries bonds, if a trade deal were to be reached, it is likely the yields on long-term government bonds would increase substantially. If an ROE is established in the current environment, using a DCF result for proxy companies, then as interest rates increase, that cost of equity is likely to be an understated estimate of investors' required returns because it will have reflected the increase in stock prices that resulted from substantially lower interest rates. This again emphasizes the importance of considering multiple analytical models in developing an ROE estimate and, based on those other results and other appropriate factors, can support the selection of a return well above the mean ROE estimate resulting from either the Constant Growth or Two-Growth DCF analyses.

Q. HAVE EQUITY ANALYSTS COMMENTED ON THE RELATIVELY HIGH VALUATIONS OF UTILITY STOCKS?

A. Yes. Several equity analysts have recognized that utility stock valuations are very high. In the electric utilities industry report, Value Line noted the high valuations:

> Why are most issues in this industry faring so well? The expectation of continued low interest rates has prompted many investors to "reach for yield" by purchasing utility stocks for their generous dividends. However, this has driven the valuation of utility stocks to unusually high levels. For many years, utility equities' price-earnings ratios were at a premium to the market only if earnings were depressed. Now, most utility stocks have a relative price-earnings ratio above 1.0—significantly above that figure, in some cases. The average dividend yield of stocks in the Electric Utility Industry is just 3.25%, which is low, by historical standards. Moreover, the recent quotations of most utility stocks are well within their 2022-2024 Target Price Range.[16]

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

> Utility valuations have climbed back to record levels as 10-year Treasury bond rates have fallen back below 2%. 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.
>
> 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.[17]

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

[16] Value Line Investment Survey, Electric Utility (East) Industry, August 16, 2019, at 135.
[17] Andy Pusateri and Andy Smith. Edward Jones, Utilities Sector Outlook (August 19, 2019), at 2-3.

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 and focusing on dividend yield as a key component in the analysis, as is required by the DCF model, may understate the forward-looking cost of equity.

Furthermore, recently, Bank of America Merrill Lynch commented on the risks of underperformance for certain utilities based on concerns on the valuation of the sector, in particular that the current premium on share prices, may be largely unwarranted.[18]

Q. CAN YOU EXPAND ON THE EFFECT THAT HIGH VALUATIONS ON UTILITY STOCKS HAVE ON THE DCF MODEL?

A. High valuations of utility stocks raise at least two significant concerns with use of the DCF model to estimate the cost of equity for a utility – one a direct mathematical concern and one a foundational assumption-related concern. First, all else equal, higher valuations drive down dividend yields. As I discuss later, the DCF model relies on dividend yields to estimate the cost of equity. Because of that, low dividend yields will necessarily result in low estimates of the cost of equity resulting from the DCF model. Second, if the current high utility stock valuation levels (which lead to low dividend yields) are not

[18] BofAML, American Water Works AWKward valuation: Downgrading premium utility to under perform, July 15, 2019. BofAML, Eversource Energy, Reiterating our Underperform: Shares pricey relative to few updates, July 15, 2019.

sustainable, it calls into question the reliability of analytical approaches that assume a constant valuation level in perpetuity, as the DCF approach does.

Q. HOW HAS THE STANDARD & POOR'S (S&P) UTILITIES INDEX RESPONDED TO THE LOW INTEREST RATE ENVIRONMENT OF RECENT YEARS?

A. Figure 4 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 4, the S&P Utilities index increased steadily from the beginning of 2009 through early November 2017, as yields on 30-year Treasury bonds declined in response to growth-oriented federal monetary policy.

Figure 4

S&P Utilities Index and U.S. Treasury Bond Yields (2007-2019)[19]

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 on a going-forward basis as a result of market conditions. Bloomberg recently noted that the valuations of defensive sector stocks such as utilities have reached record levels which could result in sector rotation as investors question the sustainability of the high valuations. Specifically, Bloomberg explained that:

[19] Bloomberg Professional. Data through September 30, 2019.

> The prospect of easier monetary policy is adding fuel to a mammoth rally in bond proxy shares like real estate companies and utilities. Investors betting on a growth slowdown are ramping up premiums for U.S. defensive stocks to the most in six years, as high-quality equities in Europe also notch fresh records. Companies that post reliable earnings -- growth stocks -- are at a two-decade high versus value shares.
>
> In other words, the late-cycle conundrum is spurring some of the biggest equity market schisms across Europe and the U.S. in decades, and it's prompting warnings a rotation is nigh. Now signs are emerging that the smart money and key-name funds are cutting exposures to expensive defensives.[20]

If valuations of defensive sector stocks, such as utilities, revert to more sustainable levels as investment advisors suggest, analytical approaches that assume that the current valuation levels will persist in perpetuity such as the DCF approach must be viewed with caution. Such models may well be understating the cost of equity due to the current market conditions.

Q. HAVE REGULATORS RECENTLY RESPONDED TO THE HISTORICALLY LOW DIVIDEND YIELDS FOR UTILITY COMPANIES AND THE CORRESPONDING EFFECT ON THE DCF MODEL?

A. Yes. Regulators have begun recognizing all of the factors I have just discussed and how they may be impacting DCF model results. Specifically, regulators have recognized the need to consider multiple analytical approaches in order to develop a reasonable cost of equity. As I discuss in more detail later in my testimony, the FERC, which had previously relied on the DCF approach, recently proposed a revised cost of capital methodology that reflects their current view that investors rely on multiple ROE estimation

[20] Lee, Justina. "Stock Investors Torn as Defensive Bets Go `Absolutely Parabolic'." Bloomberg.com, Bloomberg, 24 June 2019, www.bloomberg.com/news/articles/2019-06-24/stock-investors-torn-as-defensive-bets-go-absolutely-parabolic.

models. This is consistent with the increasing level of complexity and sophistication in investors' analytical approaches over time. The FERC's 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]

In addition, the Illinois Commerce Commission (ICC) and the Pennsylvania Public Utility Commission (PPUC) have all explicitly considered the effect of depressed DCF results in the context of capital market conditions and other financial models in recent decisions. As I discuss in Section VII of my testimony, regulators in other jurisdictions such as Michigan and Massachusetts have also begun recognizing the need to apply judgment in the interpretation of the results of analytical models.

Q. WHAT CONCLUSIONS DO YOU DRAW FROM THESE VARIOUS VIEWS OF THE CURRENT MARKET CONDITIONS?

A. It is important to recognize market conditions such as the trade war, and the impact that such shorter-term phenomenon may have on cost of equity models. Moreover, any comprehensive consideration and assessment of market conditions must be made in the context of multiple analytical approaches, since any single measure may provide incomplete or misleading conclusions. It would be inappropriate, for example, to view the current level of Treasury yields as indicative of a lower cost of capital when utility valuations remain at unsustainable levels. All of this demonstrates the importance of considering the results of a variety of ROE estimation models, using forward-looking assumptions, to estimate the cost of equity.

[21] Federal Energy Regulatory Commission, Docket No. EL11-66-001, et al., Order Directing Briefs, issued October 16, 2018, at para. 32.

V. PROXY GROUP SELECTION

Q. PLEASE EXPLAIN WHY YOU HAVE USED PROXY COMPANIES TO DETERMINE THE COST OF EQUITY FOR THE COMPANY.

A. In this proceeding, we are focused on estimating the cost of equity for the electric operations of the Company, a wholly-owned subsidiary of XEI. Since the ROE is a market-based concept, and given that the Company is not publicly traded, it is necessary to establish one or more groups of companies that are both publicly traded and comparable to the Company in certain fundamental business and financial respects to serve as its "proxy" in the ROE estimation process.

Even if the Company were a publicly-traded entity, it is possible that transitory events could bias its market value in one way or another over a given period of time. A significant benefit of using proxy groups, therefore, is that it serves to dampen the effects of anomalous events that may be associated with any one company. Furthermore, regulatory commissions and analysts alike recognize the importance of developing proxy groups that adequately represent the ongoing risks and prospects of the subject company.

Q. DOES THE SELECTION OF SIMILAR PROXY GROUP COMPANIES SUGGEST THAT ANALYTICAL RESULTS WILL BE TIGHTLY CLUSTERED AROUND AVERAGE (*I.E.*, MEAN) RESULTS?

A. No. Notwithstanding the care taken to establish a risk-comparable group of companies, market expectations with respect to future risks and growth opportunities will vary from company to company. Therefore, even within a

group of similarly-situated companies, it is common for analytical results to reflect a seemingly wide range. At issue, then, is how to select an ROE estimate in the context of that range. As discussed throughout my direct testimony, that determination necessarily must be based on the informed judgment and experience of the analyst.

Q. PLEASE PROVIDE A SUMMARY PROFILE OF THE COMPANY.

A. The Company provides service to 1.5 million electric sales customers and 500,000 gas distribution customers.[22] The Company's long-term bond rating issued by S&P is A-; and by Moody's is A2.

Q. HOW DID YOU SELECT THE COMPANIES INCLUDED IN YOUR ELECTRIC PROXY GROUP?

A. I began with the 37 companies that Value Line classifies as "Electric Utilities" and then screened companies according to the following criteria:

1. Consistently pays quarterly cash dividends;
2. Maintains an investment grade long-term issuer rating (BBB- or higher from S&P or Baa3 or higher from Moody's) from both S&P and Moody's;
3. Is covered by more than one equity analyst;
4. Has positive earnings growth rates published by at least two of the following sources: Value Line Investment Survey (Value Line), Thomson First Call (First Call), and Zacks Investment Research (Zacks);

[22] Northern States Power Company, SEC Form 10-K for fiscal year 2001, at 4.

5. Regulated net operating income make up more than 60 percent of the consolidated company's revenue and net operating income, respectively;
6. Regulated electric net operating income make up more than 80 percent of the consolidated company's regulated operations; and
7. Is not involved in a merger or other transformative transaction for an approximate six-month period prior to my analysis.

Q. BASED ON YOUR CRITERIA WHAT IS THE COMPOSITION OF YOUR ELECTRIC PROXY GROUP?

A. The criteria discussed above result in an Electric Proxy Group consisting of the following 25 companies, shown in Figure 5.

Figure 5

Electric Proxy Group

Company	Ticker
ALLETE, Inc.	ALE
Alliant Energy Corporation	LNT
Ameren Corporation	AEE
American Electric Power Company, Inc.	AEP
Avangrid, Inc.	AGR
Avista Corporation	AVA
DTE Energy Company	DTE
Duke Energy Corporation	DUK
Edison International	EIX
Entergy Corporation	ETR
Eversource Energy	ES
Exelon Corporation	EXC
FirstEnergy Corporation	FE
Evergy, Inc.	EVRG
Hawaiian Electric Industries, Inc.	HE
IDACORP, Inc.	IDA
NextEra Energy, Inc.	NEE
NorthWestern Corporation	NWE
OGE Energy Corporation	OGE
Otter Tail Corporation	OTTR
Pinnacle West Capital Corporation	PNW
PNM Resources, Inc.	PNM
Portland General Electric Company	POR
PPL Corporation	PPL
Southern Company	SO

The application of the selection criteria to potential members of the Electric Proxy Group is set forth on Exhibit___(JJR-1), Schedule 1.

Q. DID YOU INCLUDE XEI IN YOUR ELECTRIC PROXY GROUP?

A. No, I did not. While the fact that the screening criteria indicate that Xcel Energy, Inc. is fundamentally comparable to the other proxy companies, in order to avoid the circular logic that otherwise would arise, it has been my consistent practice to exclude the subject company from the proxy group.

VI. COST OF EQUITY ESTIMATION

Q. PLEASE BRIEFLY DISCUSS THE ROE IN THE CONTEXT OF THE REGULATED RATE OF RETURN.

A. Regulated utilities primarily use common stock and long-term debt to finance their permanent property, plant and equipment. The rate of return (ROR) for a regulated utility is based on its weighted average cost of capital, in which the cost rates of the individual sources of capital are weighted by their respective book values. While the costs of debt and preferred stock can be directly observed, the cost of equity is market-based and, therefore, must be inferred from market-based information.

Q. HOW IS THE REQUIRED ROE DETERMINED?

A. The required ROE is estimated by using analytical techniques that rely on market-based data to quantify investor expectations regarding required equity returns, adjusted for certain incremental costs and risks. I then apply my informed judgment, based on the results of those analyses and considering other qualitative factors where appropriate, to determine where within the

range of results the cost of equity for the Company should rightly fall. The resulting cost of equity serves as the recommended ROE for ratemaking purposes. As a general proposition, the key consideration in determining the cost of equity is to ensure that the methodologies employed reasonably reflect an investors' view of the financial markets in general, and the subject company's common stock in particular.

Q. WHAT METHODS DID YOU USE TO DETERMINE THE COMPANY'S ROE?

A. I considered the results of the Constant Growth DCF model, the Two-Growth DCF model, the CAPM model, the Bond Yield Plus Risk Premium methodology, and an Expected Earnings analysis. A reasonable ROE estimate appropriately considers alternative methodologies and the reasonableness of their individual and collective results.

Q. WHY DO YOU BELIEVE IT IS IMPORTANT TO USE MORE THAN ONE ANALYTICAL APPROACH?

A. As noted above, the cost of equity is not directly observable and, therefore, must be estimated based on both quantitative and qualitative information. More information is accessible to both analysts and investors, in more formats, than ever before. As a general proposition, when faced with the task of estimating the cost of equity, analysts are inclined to gather and evaluate as much relevant data as reasonably can be analyzed and a number of models have been developed to estimate the cost of equity. In addition, as a practical matter, all of the models available to estimate the cost of equity are subject to limiting assumptions or other methodological constraints. Because analysts and investors have access to all of this information and these various analytical tools, it is critical for regulators to consider them as well. And for

the same reason, I use multiple approaches to estimate the cost of equity used in performing valuations in the context of our financial advisory and transaction practices.

Many finance texts recommend using multiple approaches when estimating the cost of equity. Copeland, Koller and Murrin,[23] for example, suggest using the CAPM and Arbitrage Pricing Theory model, while Brigham and Gapenski[24] recommend the CAPM, DCF and "bond yield plus risk premium" approaches. In essence, analysts and academics understand that ROE models simply 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 and irrelevant conclusions. That position is consistent with the *Hope* and *Bluefield* findings that it is the analytical result, as opposed to the methodology, that is controlling in arriving at ROE determinations. Thus, a reasonable ROE estimate appropriately considers alternate methodologies and the reasonableness of their individual and collective results.

So, although we cannot directly observe the cost of equity, we can apply the methods frequently used by analysts to arrive at their return requirements and expectations. While investors and analysts tend to use multiple approaches in developing their estimate of return requirements, each methodology requires certain judgment with respect to the reasonableness of assumptions and the

[23] 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.

[24] Eugene Brigham, Louis Gapenski, Financial Management: Theory and Practice, 7th Ed. (Orlando: Dryden Press, 1994), at 341. *See* also *How do CFOs make capital budgeting and capital structure decisions?*, John Graham and Campbell Harvey, Duke University, Journal of Applied Corporate Finance, Volume 15, Number 1, Spring 2002.

validity of proxies in its application. Using multiple methodologies mitigates the effects of assumptions and inputs associated with relying exclusively on any single approach. Such use, however, must be tempered with due caution as to the results generated by each individual approach, especially given the current capital market conditions. For example, as I discussed earlier, low interest rates, and the effects of the investor "flight to quality" can be seen in high utility share valuations, relative to historical levels and relative to the broader market. These higher utility stock valuations produce lower dividend yields, which in turn results in lower cost of equity estimates from a DCF analysis.

Q. ARE YOU AWARE OF ANY REGULATORY COMMISSIONS WHO HAVE RECOGNIZED THAT RECENT 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 this Commission, FERC, the ICC, and the PPUC.

Q. PLEASE SUMMARIZE HOW THE FERC HAS RESPONDED TO THE EFFECT OF MARKET CONDITIONS ON THE DCF.

A. Recognizing the important role that dividend yields play in the DCF model, the FERC determined that capital market conditions have caused the DCF model to understate equity costs for regulated utilities. In Opinion No. 531, the 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.[25]

In Opinion No. 531, the FERC also noted that the low interest rates and bond yields that persisted throughout the analytical period that was relied on (study period) had affected the results of the DCF model and recognized the need to move away from the midpoint of the DCF analysis. In that case, the 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. These positions were affirmed by the FERC in Opinion No. 551 in September 2016.[26]

Finally, in October 2018, the FERC issued an Order in response to the remand of Opinion No. 531 from the U.S. Court of Appeals for the District of Columbia indicating plans to establish ROEs based on an equal weighting of the results of four financial models: the DCF, CAPM, Expected Earnings, and Risk Premium. FERC explained its reasons for considering moving away from sole reliance on the DCF model as follows:

> 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

[25] FERC Docket No. EL11-66-001, Opinion No. 531 (June 19, 2014), fn 286.
[26] FERC Docket No. EL14-12-002, Opinion No. 551, at para. 121.

> 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.[27]

Q. HOW HAVE THE PPUC AND THE ICC ADDRESSED THE EFFECT OF MARKET CONDITIONS ON THE DCF?

A. In a 2012 decision for PPL Electric Utilities, while noting that the Pennsylvania PUC has traditionally relied primarily on the DCF method to estimate the cost of equity for regulated 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 supported the consideration of multiple ROE estimation methodologies:

> 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.[28]

In a recent ICC case, Docket No. 16-0093, Staff relied on a DCF analysis that resulted in average returns for their proxy groups of 7.24 percent to 7.51

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

[28] Pennsylvania Public Utility Commission, PPL Electric Utilities, R-2012-2290597, meeting held December 5, 2012, at 80-81. The PPUC authorized an ROE of 10.40 percent for PPL Electric Utilities in this case.

percent. The company demonstrated that these results were uncharacteristically too low, by comparing the results of Staff's models to recently authorized ROEs for regulated utilities and the return on the S&P 500.[29] In Order No. 16-0093, the ICC agreed with the Company that Staff's proposed ROE of 8.04 percent was anomalous and recognized that a return that is not competitive will deter investment in Illinois.[30] In setting the return of 9.79 percent in this proceeding, the ICC recognized that it was necessary to consider other factors beyond the outputs of the financial models, particularly whether or not the return is sufficient to attract capital, maintain financial integrity, and is commensurate with returns for companies of comparable risk, while balancing the interests of customers and shareholders.[31]

Q. HAS THE COMMISSION MADE SIMILAR FINDINGS REGARDING THE RELIANCE ON MULTIPLE MODELS?

A. To some degree, yes. For example, in the most recent case for Minnesota Power, the Commission explained that:

> [t]he recommendations of the parties all fall into a fairly narrow and often overlapping range, though the DCF analyses tend to support a lower ROE in that range, and CAPM and risk premium models (and blended approaches) tend to support the higher end of the range.[32]

To account for the divergence between the results of the DCF models and the CAPM and Bond Yield Plus Risk Premium analyses, the Commission authorized an ROE towards the higher end of the results of the DCF

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

[30] 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.

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

[32] Docket No. E015/GR-16-664, Findings of Fact, Conclusions and Order, at 60.

models.[33] Thus, the Commission recognized the importance of considering the results of each model presented in the rate case, since market conditions can cause the results produced by each of the models to diverge and since equity advisors and investors use multiple approaches themselves.

A. Constant Growth DCF Model

Q. PLEASE DESCRIBE THE DCF APPROACH.

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

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + ... + \frac{D_\infty}{(1+k)^\infty} \quad [1]$$

Where P_0 represents the current stock price, D_1 … D_∞ are all expected future dividends, and k is the discount rate, or required ROE. Equation [1] is a standard present value calculation that can be simplified and rearranged into the familiar form:

$$k = \frac{D(1+g)}{P_0} + g \quad [2]$$

Equation [2] is often referred to as the "Constant Growth DCF" model, in which the first term is the expected dividend yield and the second term is the expected long-term growth rate.

Q. WHAT ASSUMPTIONS ARE REQUIRED FOR THE DCF MODEL TO PRODUCE RELIABLE RESULTS?

A. The DCF model makes the following assumptions: (1) a constant average growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a constant price-to-earnings (P/E) multiple; and (4) a cost of equity greater

[33] *Id.,* at 61.

than the expected growth rate. To the extent that any of these assumptions are violated, considered judgment and/or specific adjustments should be applied to the results.

Q. WHAT MARKET DATA DID YOU USE TO CALCULATE THE DIVIDEND YIELD IN YOUR DCF MODEL?

A. The dividend yield in my DCF model is based on the proxy companies' current annualized dividend and average closing stock prices over the 30, 90, and 180-trading days ended September 30, 2019.

Q. WHY DID YOU USE A 30, 90, AND 180-DAY AVERAGING PERIOD?

A. I believe it is important to use an average of recent trading days to calculate the term P_0 in the DCF model to ensure that the calculated ROE is not skewed by anomalous events that may affect stock prices on any given trading day. In that regard, the averaging period should be reasonably representative of expected capital market conditions over the long term. At the same time, it is important to reflect the extraordinary conditions that have defined the financial markets over the recent past. In my view, considering the 30, 90, and 180-day averaging periods reasonably balances those concerns, particularly in the current market environment.

Q. PUTTING ASIDE THE ISSUE OF THE AVERAGING PERIOD, DID YOU MAKE ANY ADJUSTMENTS TO THE DIVIDEND YIELD TO ACCOUNT FOR PERIODIC GROWTH IN DIVIDENDS?

A. Yes. Since utility companies tend to increase their quarterly dividends at different times throughout the year, it is reasonable to assume that dividend increases will be evenly distributed over calendar quarters. Given that

assumption, it is reasonable to apply one-half of the expected annual dividend growth for purposes of calculating the expected dividend yield component of the DCF model. This adjustment ensures that the expected dividend yield is, on average, representative of the coming twelve-month period, and does not overstate the aggregated dividends to be paid during that time. Accordingly, the DCF estimates provided in Exhibit___(JJR-1), Schedule 2 reflect one-half of the expected growth in the dividend yield component of the model.

Q. WHAT GROWTH RATE ESTIMATES DID YOU RELY ON?

A. In its constant growth form, the DCF model (*i.e.*, Equation [2]) assumes a single growth estimate in perpetuity. Accordingly, in order to reduce the long-term growth rate to a single measure, (as noted earlier) one must assume a constant payout ratio, and that earnings per share, dividends per share and book value per share all grow at the same constant rate. Over the long run, however, dividend growth can only be sustained by earnings growth. Consequently, I have incorporated a variety of measures of long-term earnings growth into the constant growth DCF model.

Q. PLEASE SUMMARIZE YOUR INPUTS TO THE CONSTANT GROWTH DCF MODEL.

A. I applied the DCF model to the Electric Proxy Group using the following inputs for the price and dividend terms:

1. The average daily closing prices for both the 30-trading days and 90-trading days ended September 30, 2019 for the term P_0; and
2. The annualized dividend per share as of September 30, 2019 for the term D_0.

I then calculated the DCF results using the average of the following growth terms:

1. The Zacks consensus long-term earnings growth estimates;
2. The First Call (provided by Yahoo!Finance) consensus long-term earnings growth estimates; and
3. The Value Line earnings per share growth estimates.

As a practical matter, as shown in Exhibit___(JJR-1), Schedule 2, I also compared the analyst estimates of earnings growth to each proxy company's announced long-term earnings growth expectations. While I did not rely on company-announced long-term earnings growth expectations, on average they are approximately 140 basis points higher than analyst estimates of earnings growth, and some individual company comparisons vary considerably. For example, Avista Corporation disclosed to investors an expected annual earnings growth rates of 9 percent to 10 percent from 2020 to 2022, and 4 percent to 5 percent following 2022.[34] However, analyst estimates for Avista Corporation range from 3.30 percent to 3.50 percent. This comparison demonstrates that the growth estimates I have applied are conservative relative to what companies have announced to investors.

B. Two-Growth DCF Model

Q. WHAT OTHER FORMS OF THE DCF MODEL HAVE YOU CONSIDERED?

A. In order to address some of the limiting assumptions underlying the Constant Growth form of the DCF model, I also considered the results of a Two-Growth form of the DCF model. As with the Constant Growth DCF model, the Two-Growth form defines the cost of equity as the discount rate that sets

[34] Avista Corporation, "Positioned for Performance: 2019 and beyond," May 21-23, 2019, at 5.

the current price equal to the discounted value of future cash flows; however, unlike the Constant Growth DCF model, the Two-Growth DCF model removes the effect of near-term earnings growth rates that are considered either too high or too low to be sustainable over the long term.

Q. HAS THE COMMISSION PREVIOUSLY RELIED ON THE RESULT OF THE TWO-GROWTH DCF MODEL?

A. Yes. As discussed previously, the Commission has historically placed greater weight on the results of the Two-Growth DCF model and used the results of other analytical models such as the CAPM, and Bond Yield Risk Premium analyses as a check on the reasonableness of the Two-Growth DCF results.

Q. HOW DID YOU APPLY THE TWO-GROWTH DCF TO THE COMPANIES IN YOUR PROXY GROUP?

A. I applied the Two-Growth DCF approach to companies that had an earnings growth rate that could be considered unsustainable for the long-term as compared to the proxy group. An earnings growth rate was considered to be abnormally high or low if the earnings growth rate was outside of the range determined by the average growth rate of the proxy group plus or minus one standard deviation. For the companies with a high or low growth rate, I estimated the companies' ROE by applying the earnings growth rate used in the Constant Growth DCF model for the first five-years (*i.e.*, short-term) and then for the long-term, I used the proxy group average growth rate minus one standard deviation in the case of companies with a low growth rate and the proxy group average growth rate plus one standard deviation in the case of companies with a high growth rate. This approach is consistent with the

approach applied by the Minnesota Department of Commerce (Department) and relied on by the Commission in many proceedings.[35]

C. Flotation Cost Adjustment

Q. WHAT ARE FLOTATION COSTS?

A. Flotation costs are the costs associated with the sale of new issues of common stock. These costs include out-of-pocket expenditures for the preparation, filing, underwriting, and other costs of issuance of common stock.

Q. IS IT IMPORTANT TO RECOGNIZE FLOTATION COSTS IN THE ALLOWED ROE?

A. Yes. In order to attract and retain new investors, a regulated utility must have the opportunity to earn a return that is both competitive and compensatory. To the extent that a company is denied the opportunity to recover prudently incurred flotation costs, actual returns will fall short of required returns, thereby diminishing its ability to attract adequate capital on reasonable terms.

Q. ARE FLOTATION COSTS LIMITED TO EQUITY ISSUANCES PLANNED FOR THE TEST YEAR?

A. No. Flotation costs are not expenses that flow through the income statement. Rather, these costs are deducted from the permanent capital of the issuer and are thus reflected in the balance sheet. They are comparable to capital investments, as further discussed later in my testimony. Recovery of investments is not limited to the year in which the investment is made, and neither should the recovery of flotation costs. Common equity has an

[35] *See*, for example, Docket No. G008/GR-15-424, Findings of Fact, Conclusions and Order, at 43; Docket No. E017/GR-15-1033, Findings of Fact, Conclusions and Order, at 55; Docket No. E015/GR-16-664, Findings of Fact, Conclusions and Order, at 61.

indefinite life, and due to the indeterminate life of an equity issuance, flotation costs should be recovered through a return adjustment, regardless of whether an issuance occurs during, or is planned for, the test year.

Q. ARE FLOTATION COSTS PART OF THE UTILITY'S INVESTED COSTS OR PART OF THE UTILITY'S EXPENSES?

A. Flotation costs are part of the invested costs of the utility, which are properly reflected on the balance sheet of the utility under "paid in capital." They are not current expenses, and therefore are not reflected on the income statement. Flotation costs, like investments in rate base or the issuance costs of long-term debt, are incurred over time. As a result, the great majority of a utility's flotation costs is incurred prior to the test year, but remain part of the cost structure that exists during the test year and beyond, and as such, should be recognized for ratemaking purposes in order to allow the utility a reasonable opportunity to earn its required return.

Q. IS THE NEED TO CONSIDER FLOTATION COSTS ELIMINATED BECAUSE THE COMPANY IS A WHOLLY-OWNED SUBSIDIARY OF XEI?

A. No. Although the Company is an operating subsidiary of XEI, it is appropriate to consider flotation costs because the source of capital used by the Company was the result of a public issuance by its parent organization, which led to the issuance costs. To deny recovery of issuance costs associated with the capital that is invested in the utility ultimately will penalize the investors that fund the utility operations and will inhibit the utility's ability to obtain new equity capital at a reasonable cost. This is particularly important in the case of the Company since it is planning significant capital

expenditures in the near term, and continued access to capital to fund such required expenditures will be critical.

Q. DO THE DCF AND CAPM MODELS ALREADY INCORPORATE INVESTOR EXPECTATIONS OF A RETURN THAT COMPENSATES FOR FLOTATION COSTS?

A. No. All the models used to estimate the appropriate ROE assume no "friction" or transaction costs, as these costs are not reflected in the market price (in the case of the DCF model) or risk premium (in the case of the CAPM). Therefore, it is appropriate to consider flotation costs in determining where within the range of reasonable returns the Company's return should fall.

Q. HAS THE COMMISSION RECOGNIZED THE NEED TO RECOVER FLOTATION COSTS?

A. Yes. While the Commission decisions have not been uniform on this matter, the Commission has previously recognized that common equity has an indefinite life, and due to the indeterminate life of an equity issuance, flotation costs should be recovered through a return adjustment, regardless of whether or not an issuance occurs during or is planned for the Test Year.[36] Moreover, the Commission has authorized the recovery of flotation costs in several cases.[37]

[36] Docket No. E017/GR-07-1178, Findings of Fact, Conclusions of Law, and Order at 57-58; Docket No. G004/GR-04-1487, Findings of Fact, Conclusions of Law and Order at 11.

[37] Docket No. E-001/GR-10-276, Findings of Fact, Conclusions, and Order, at 9; Docket No. E002/GR-10-971, Findings of Fact, Conclusions, and Order, at 8; Docket No. E002/GR-08-1065, Findings of Fact, Conclusions of Law, and Order, at 10-11; Docket No. E017/GR-07-1178, Findings of Fact, Conclusions of Law, and Order, at 57-58; Docket No. G004/GR-04-1487, Findings of Fact, Conclusions of Law and Order, at 11.

Q. HOW DID YOU CALCULATE THE FLOTATION COST ADJUSTMENT?

A. I modified the DCF calculation to provide a dividend yield that would reimburse investors for issuance costs. Based on the issuance costs provided in Exhibit___(JJR-1), Schedule 4, I calculate a flotation cost adjustment for the Company of 0.12 percent (*i.e.*, 12 basis points) using the Electric Proxy Group.

Q. DO YOUR FINAL RESULTS INCLUDE AN ADJUSTMENT FOR FLOTATION COST RECOVERY?

A. Yes, I have adjusted the results of my DCF analyses to include flotation costs.

D. Discounted Cash Flow Model Results

Q. HOW DID YOU CALCULATE THE RANGE OF RESULTS FOR THE CONSTANT GROWTH DCF AND TWO-STAGE DCF MODELS?

A. I calculated the "mean high" DCF result using the highest projected growth rate (*i.e.*, the highest of the Value Line, Zacks, and First Call earnings per share (EPS) growth rates) in combination with the dividend yield for each of the Electric Proxy Group companies. I used a similar approach to calculate the mean low results, using the lowest projected growth rate for each company. Each of these measures represents an average of the Electric Proxy Group results, and the individual results for the comparable companies varies considerably.

Q. HAVE YOU EXCLUDED ANY OF THE DCF RESULTS FOR INDIVIDUAL COMPANIES IN YOUR PROXY GROUP?

A. Yes, I have. It is appropriate to exclude Constant Growth and Two-Growth DCF results below a specified threshold at which equity investors would

consider such returns to provide an insufficient return increment above long-term debt costs. The average credit rating for the companies in my proxy group is BBB+/Baa1. The average yield on Moody's Baa-rated utility bonds over the past 12-months has been 4.50 percent.[38] As shown in Exhibit___(JJR), Schedule 2 and Schedule 3, I have eliminated Constant Growth and Two-Growth DCF results lower than 7.00 percent because such returns would provide equity investors a risk premium only 250 basis points above Baa-rated utility bonds. Also, it is notable that none of the utilities in the proxy group have an allowed return that even approaches the results below 7.00 percent.

Q. HAS THE DEPARTMENT OF COMMERCE PREVIOUSLY RECOGNIZED THE IMPORTANCE OF EXCLUDING THE ROE RESULTS FOR INDIVIDUAL COMPANIES THAT ARE UNREASONABLY LOW?

A. Yes, in many cases. For example, in Docket No. E017/GR-15-1033 for Otter Tail Power Company, the Department cost of capital witness reasoned that:

> Any method of estimating the required rate of return, including DCF analysis, must survive the test of reasonableness based on well-established financial principles. In a DCF analysis, the results should not be mechanically accepted if they violate well-accepted financial principles. For example, it is important for companies in the DOC proxy group to be financially viable because it is in the public interest, including the interest of ratepayers, for the utility to have a reasonable opportunity to recover its costs; setting the return on equity (ROE) too low would not give the utility a reasonable opportunity to finance the necessary capital improvements to its system.[39]

[38] Source: Bloomberg Professional, as of September 30, 2019.

[39] Docket No. E017/GR-15-1033, In the Matter of the Application of Otter Tail Power Company for Authority to Increase Rates for Electric Service in the State of Minnesota (August 16, 2016) at 11.

In that case, the Department determined the proxy group using a screening criterion that eliminated companies that had a constant growth DCF result below an ROE threshold of 7 percent.[40]

In addition, the Department also recognized the importance of excluding the low ROE results of individual companies in Northern States Power Minnesota's Docket Nos. E002/GR-13-868 and E002/GR-15-826. In those proceedings, the ROE threshold used was 8.00 percent and 7.00 percent, respectively.[41]

While the ROE in Docket No. E002/GR-15-826 was determined as part of a settlement, the Commission authorized ROEs that were determined based on analytical approaches excluding the low ROE results of individual companies in Docket Nos. E017/GR-15-1033 and E002/GR-13-868.[42]

Q. IS YOUR APPROACH FOR EXCLUDING THE DCF RESULTS FOR INDIVIDUAL COMPANIES IN YOUR PROXY GROUP CONSISTENT WITH THE APPROACH APPLIED BY THE DEPARTMENT IN PAST CASES?

A. Yes. The Department has historically eliminated a company from the proxy group if the company's ROE did not exceed a certain threshold. While, I do not exclude the company from the proxy group, I remove the specific DCF result for the company that is below the ROE threshold which as discussed above is 7 percent.

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[40] *Id.*, at 13.

[41] Docket No. E002/GR-15-826, In the Matter of the Application of Northern States Power Company for Authority to Increase for Electric Service in Minnesota (June 14, 2016) at 12-13; Docket No. E002/GR-13-868, In the Matter of the Application of Northern States Power Company, D/B/A Xcel Energy, for Authority to Increase Rates for Electric Service in Minnesota (June 5, 2014) at 17.

[42] Docket No. E017/GR-15-1033, Findings of Fact, Conclusions, and Order, at 54-56, and Docket No. E002/GR-13-868, Findings of Fact, Conclusions, and Order, at 61.

Q. WHAT ARE THE RESULTS OF YOUR DCF ANALYSES?

A. As shown in Figure 6, the mean DCF results range from 8.85 percent to 9.01 percent and the mean high results are in the range of 9.57 percent to 10.11 percent. While I also summarize the mean low DCF results, I do not believe that the low DCF results provide a reasonable spread over the expected yields on Treasury bonds to compensate investors for the incremental risk related to an equity investment.

Figure 6

Discounted Cash Flow Results including Flotation Costs[43]

	Mean Low	Mean	Mean High
Constant Growth DCF[1]			
30-Day Average	8.47%	8.99%	10.03%
90-Day Average	8.47%	8.98%	10.11%
180-Day Average	8.58%	9.01%	10.09%
Two-Stage Growth DCF[1]			
30-Day Average	8.26%	8.85%	9.57%
90-Day Average	8.27%	8.85%	9.75%
180-Day Average	8.37%	8.89%	9.77%

Q. WHAT ARE YOUR CONCLUSIONS ABOUT THE RESULTS OF THE DCF MODELS?

A. As discussed previously, one primary assumption of the DCF models is a constant P/E ratio. That assumption is heavily influenced by the market price of utility stocks. To the extent that utility valuations are high and may not be sustainable, it is important to consider the results of the DCF models with caution. As a practical comparison, as shown in Figure 7, the mean DCF results are more than 70 basis points lower than the average ROE of

[43] Includes flotation cost adjustment.

9.73 percent authorized since 2017 for the vertically integrated electric utilities held by proxy companies. In fact, even the company with the *lowest* average authorized ROE of 9.25 percent, ALLETE, Inc., is still *higher* than all of the mean DCF results. As such, it is difficult to reconcile the mean DCF results with the returns available to comparable companies. This calls into question the relevance of the mean DCF results in determining an appropriate return for the Company that is commensurate with returns for companies of similar risk.

Figure 7

Electric Proxy Group, Average Authorized ROEs for Vertically Integrated Operating Utilities, with Decisions Since 2017[44]

Company	Ticker	Avg. Authorized ROE
ALLETE, Inc.	ALE	9.25%
Alliant Energy Corporation	LNT	9.99%
American Electric Power Company, Inc.	AEP	9.72%
Avista Corporation	AVA	10.32%
DTE Energy Company	DTE	10.00%
Duke Energy Corporation	DUK	9.71%
Evergy, Inc.	EVRG	9.30%
Hawaiian Electric Industries, Inc.	HE	9.50%
NextEra Energy, Inc.	NEE	10.25%
Otter Tail Corporation	OTTR	9.31%
Pinnacle West Capital Corporation	PNW	10.00%
PNM Resources, Inc.	PNM	9.58%
Portland General Electric Company	POR	9.50%
PPL Corporation	PPL	9.73%
Average		**9.73%**

[44] *See* Exhibit___(JJR-1), Schedule 2.

Therefore, while I considered the range of results produced by the DCF models, I also considered the results of the CAPM, Bond Yield Plus Risk Premium and Expected Earnings analyses when determining where the Company's cost of equity falls among the range of analytical results. This approach mitigates the effect the current high valuations of utilities are having on the DCF model.

E. CAPM Analysis

Q. PLEASE BRIEFLY DESCRIBE THE CAPITAL ASSET PRICING MODEL.

A. The CAPM is a risk premium approach that estimates the 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 [3], the CAPM is defined by four components, each of which theoretically must be a forward-looking estimate:

$$k_e = r_f + \beta(r_m - r_f) \qquad [3]$$

where:

k_e = the required market ROE

β = Beta 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, since unsystematic risk can be diversified away, investors should be concerned only with systematic or non-diversifiable risk. Non-diversifiable risk is measured by Beta, which is defined as:

$$\beta = \frac{Covariance(r_e, r_m)}{Variance(r_m)} \quad [4]$$

The variance of the market return, noted in Equation [4], 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. Thus, Beta represents the risk of the security relative to the market.

Q. WHAT RISK-FREE RATE DID YOU USE IN YOUR CAPM ANALYSIS?

A. I relied on three sources for my estimate of the risk-free rate: (1) the 30-day average yield on 30-year U.S. Treasury bonds of 2.11 percent;[45] (2) the average projected 30-year U.S. Treasury bond yield for Q4 2019 through Q4 2020 of 2.24 percent;[46] and (3) the average projected 30-year U.S. Treasury bond yield for 2021 through 2025 of 3.60 percent.[47]

Q. WHAT BETA COEFFICIENTS DID YOU USE IN YOUR CAPM ANALYSIS?

A. As shown on Exhibit___(JJR-1), Schedule 5, I used the Beta coefficients for the proxy group companies as reported by Bloomberg and Value Line. The Beta coefficients reported by Bloomberg are calculated using ten years of weekly returns relative to the S&P 500 Index. Value Line's calculation is based on five years of weekly returns relative to the New York Stock Exchange Composite Index.

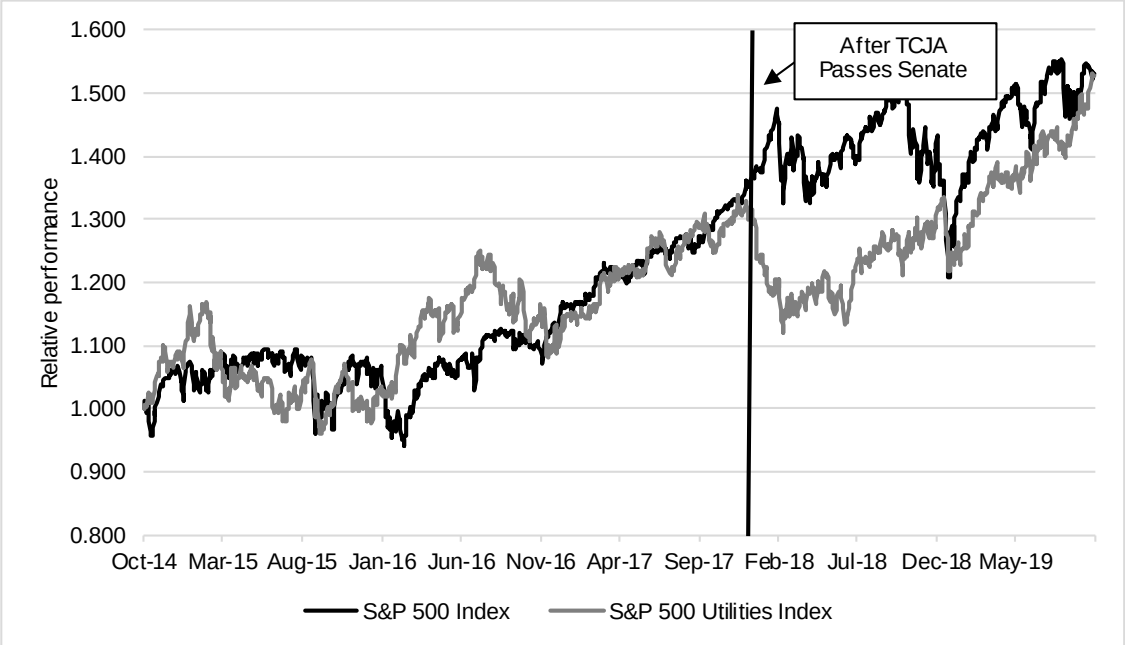
[45] Bloomberg Professional, as of September 30, 2019.
[46] Blue Chip Financial Forecasts, Vol. 38, No. 10, October 1, 2019, at 2.
[47] Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14.

Q. WHY DID YOU SELECT A TEN-YEAR PERIOD TO CALCULATE THE BETA COEFFICIENTS FROM BLOOMBERG?

A. As I discuss in more detail Section VII, the Tax Cuts and Jobs Act of 2017 (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 8, after the Senate passed the TCJA on December 2, 2017, utilities significantly deviated from the broader market.

Figure 8

Performance of the Utility Industry Relative to the S&P 500[48]



The effect of utility industry performance deviating significantly from the broader market, understates the Beta for utility companies as compared with

[48] Bloomberg Professional. Data through September 30, 2019.

historical averages. To reflect the long-term relationship, which has been that 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[49]), I selected a ten-year period to calculate the Beta coefficients from Bloomberg.

Q. WHAT ANALYTICAL PERIOD DOES VALUE LINE RELY ON TO CALCULATE BETA COEFFICIENTS?

A. Value Line does not allow the analyst to select the analytical period, and relies on a 5-year period to calculate its published Beta coefficients. As such, these estimates are more susceptible to short-term events. Given the effect of the TCJA described above, the Value Line estimates of Beta likely understate the long-term measure of risk, and this is significant consideration when considering CAPM results that rely on the Value Line Beta coefficients.

Q. HOW DID YOU ESTIMATE THE MARKET RISK PREMIUM IN THE CAPM?

A. I estimated the market risk premium based on the expected return on S&P 500 Index less the yield on the 30-year Treasury bond. I calculate the expected return on the S&P 500 Index companies for which dividend yields and long-term earnings projections are available using the Constant Growth DCF model discussed earlier in my Direct Testimony. Based on an estimated market capitalization-weighted dividend yield of 1.97 percent and a weighted long-term growth rate of 11.74 percent, the estimated required market return for the S&P 500 Index is 13.83 percent. As shown in Exhibit___(JJR-1), Schedule 5, the implied market risk premium over the 30-day average of the

[49] *Ibid.*

30-year U.S. Treasury bond yield, and projected yields on the 30-year U.S. Treasury bond, range from 10.23 percent to 11.72 percent.

Q. HAVE OTHER REGULATORS ENDORSED THE USE OF A FORWARD-LOOKING MARKET RISK PREMIUM?

A. Yes. The FERC and the Staff in the Maine Public Utilities Commission (Maine PUC) have supported the forward-looking market risk premium. In Opinion No. 531-B, the FERC specifically endorsed a method that is similar to the method I have used to calculate the forward-looking market risk premium (i.e., applying a Constant Growth DCF analysis to the S&P 500 and using the 30-year Treasury bond yields).[50]

In the Bench Analysis in Docket No. 2018-00194 for Central Maine Power Company, Docket No. 2017-00198 for Emera Maine and Docket No. 2017-00065 for Northern Utilities, the Staff accepted the forward-looking methodology for calculating the market return that was proposed by the companies.[51] In each case, the market return was the expected return for the S&P 500 which was calculated using a Constant Growth DCF model. Furthermore, the Maine PUC in Docket No. 2017-0198 used the CAPM results calculated by Staff and Emera Maine as a check on the reasonableness of the DCF results in the case and these CAPM results used the forward-looking market risk premium.[52]

[50] 150 FERC ¶ 61,165, Docket Nos. EL11-66-002, Opinion No. 531-B (March 3, 2015), at para. 109-113.

[51] Central Maine Power Company, Investigation into Rates and Revenue Requirements of Central Maine Power Company, Docket No. 2018-00194, Bench Analysis at 52 (February 22, 2019); Emera Maine, Request for Approval of a Proposed Rate Increase, Docket No. 2017-00198, Bench Analysis at 71-72 (December 21, 2017); Northern Utilities, Inc. d/b/a UNITIL, Request for Approval of Rate Change Pursuant to Section 307, Docket No. 2017-00065, Bench Analysis, at 15-16 (October 6, 2017).

[52] Emera Maine, Request for Approval of Proposed Rate Increase, Docket No. 2017-00198, June 28, 2018, at 41

Q. WHAT ARE THE RESULTS OF YOUR CAPM ANALYSES?

A. As shown in Figure 9 (*see* also Exhibit___(JJR), Schedule 5), my CAPM analysis produces a range of ROE estimates from 9.02 percent to 10.37 percent. The range of results using Bloomberg's Beta coefficients (calculated over a ten-year period) are 9.86 percent to 10.37 percent. Using the Value Line Beta coefficients (calculated over a five-year period) the range of results are 9.02 percent to 9.63 percent.

Figure 9

CAPM Results

	Bloomberg Beta	**Value Line Beta**
Current Risk-Free Rate (2.24%)	9.86%	9.02%
Q4 2019-Q4 2020 Projected Risk-Free Rate (2.40%)	9.91%	9.07%
2021-2025 Projected Risk-Free Rate (3.60%)	10.37%	9.63%

F. Bond Yield Plus Risk Premium Analysis

Q. PLEASE DESCRIBE THE BOND YIELD PLUS RISK PREMIUM APPROACH YOU EMPLOYED.

A. In general terms, this approach is based on the fundamental principal that equity investors bear the residual risk associated with ownership and therefore require a premium over the return they would have earned as a bondholder. That is, since returns to equity holders are more risky than the returns to bondholders, equity investors must be compensated to bear that risk. Risk premium approaches therefore estimate the cost of equity as the sum of the equity risk premium and the yield on a particular class of bonds. As noted in my discussion of the CAPM, since the equity risk premium is not directly

observable, it typically is estimated using a variety of approaches, some of which incorporate a forward-looking estimate of the cost of equity, and others that consider historical estimates. Since we are concerned with estimating the cost of equity for the Company, an alternative approach is to use actual authorized returns for electric utilities as the historical measure of the cost of equity to determine the Risk Premium.

Q. ARE THERE OTHER CONSIDERATIONS THAT SHOULD BE ADDRESSED IN CONDUCTING THIS ANALYSIS?

A. It is important to recognize both academic literature and market evidence indicating that the equity risk premium (as used in this approach) is inversely related to the level of interest rates. That is, as interest rates increase (decrease), the equity risk premium decreases (increases). Consequently, it is important to develop an analysis that: (1) reflects the inverse relationship between interest rates and the equity risk premium; and (2) is based on more recent market conditions. Such an analysis can be developed based on a regression of the risk premium as a function of utility bond yields. If we let authorized electric utility ROEs serve as the measure of required equity returns and define the yield on Baa-rated utility bonds as the relevant measure of interest rates, the risk premium simply would be the difference between those two points.[53]

[53] *See* e.g., S. Keith Berry, *Interest Rate Risk and Utility Risk Premia during 1982-93*, Managerial and Decision Economics, Vol. 19, No. 2 (March, 1998), in which the author used a methodology similar to the regression approach described below, including using allowed ROEs as the relevant data source, and came to similar conclusions regarding the inverse relationship between risk premia and interest rates. *See* also Robert S. Harris, *Using Analysts' Growth Forecasts to Estimate Shareholders Required Rates of Return*, Financial Management, Spring 1986, at 66.

Q. WHAT DID YOUR BOND YIELD PLUS EQUITY RISK PREMIUM ANALYSIS REVEAL?

A. As shown on Figure 10, from January 1, 1992 through September 30, 2019 there was, in fact, a strong negative relationship between risk premia and interest rates. To estimate that relationship, I conducted a regression analysis using the following equation:

$$RP = a + b(M) \qquad [5]$$

where:

RP = Risk Premium (difference between allowed ROEs and Baa rated Long-Term Utility Debt Yield)

a = Intercept term

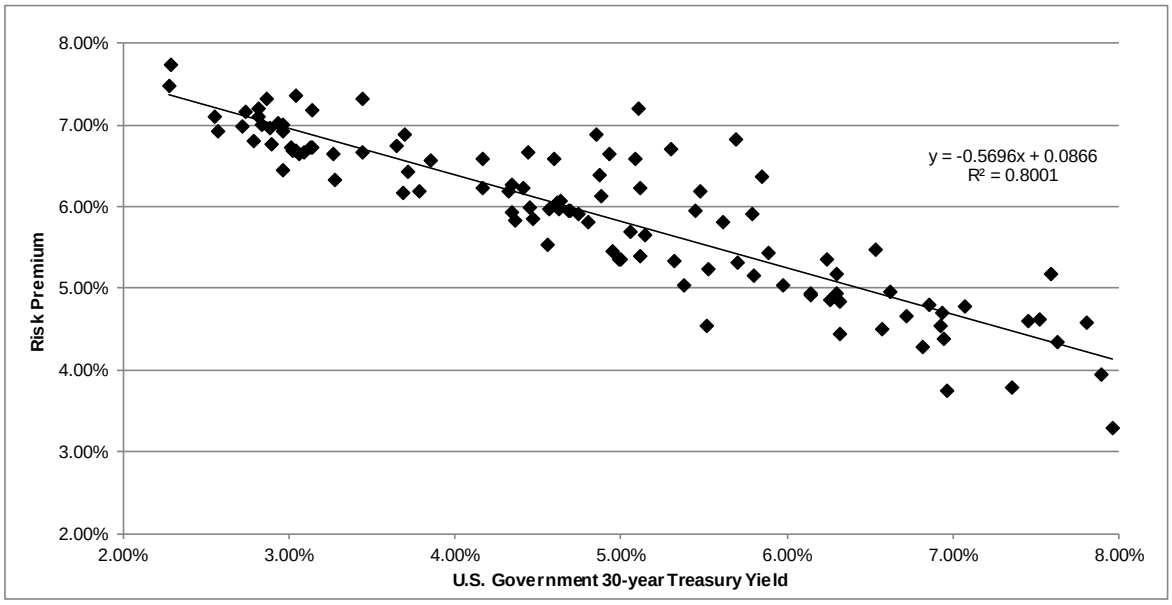
b = Slope term

M = 30-year U.S. Treasury bond yield

Data regarding allowed ROEs was derived from 575 rate cases from 1992 through 2019 as reported by Regulatory Research Associates. This equation's coefficients were statistically significant at the 99 percent level.

Figure 10

Risk Premium vs. Interest Rates-Linear Regression



Q. WHAT ARE THE RESULTS OF YOUR RISK PREMIUM ANALYSIS?

A. As shown in Figure 11, (*see* also Exhibit___(JJR-1), Schedule 6) based on the 30-day average of the 30-year U.S. Treasury bond yield (i.e., 2.11 percent), the risk premium would be 7.46 percent, resulting in an estimated ROE of 9.57 percent. Based on the near-term (Q4 2019 – Q4 2020) projections of the 30-year U.S. Treasury bond yield (i.e., 2.24 percent), the risk premium would be 7.38 percent, resulting in an estimated ROE of 9.62 percent. Based on longer-term (2021-2025) projections of the 30-year U.S. Treasury bond yield (i.e., 3.60 percent), the risk premium would be 6.61 percent, resulting in an estimated ROE of 10.21 percent. The longer-term projections reflect the expected market conditions for the period the MYRP will be in effect, and therefore represent the most relevant estimate of the cost of equity.

Figure 11

Risk Premium Results

	Risk Premium Result
Current Risk-Free Rate (2.11%)	9.57%
Q4 2019-Q4 2020 Projected Risk-Free Rate (2.24%)	9.62%
2021-2025 Projected Risk-Free Rate (3.60%)	10.21%

G. Expected Earnings Analysis

Q. HAVE YOU CONSIDERED ANY ADDITIONAL ANALYSIS TO ESTIMATE THE COST OF EQUITY FOR THE COMPANY?

A. Yes. I have considered an Expected Earnings analysis based on the projected ROEs for each of the proxy group companies.

Q. WHAT IS AN EXPECTED EARNINGS ANALYSIS?

A. The Expected Earnings methodology is a comparable earnings analysis that calculates the earnings that an investor expects to receive on the book value of a stock. The expected earnings analysis is a forward-looking estimate of investors' expected returns. The use of an Expected Earnings approach based on the proxy companies provides a range of the expected returns on a group of risk comparable companies to the subject company. This range is useful in helping to determine the opportunity cost of investing in the subject company, which is relevant in determining a company's ROE.

Q. HAVE REGULATORS ENDORSED THE USE OF AN EXPECTED EARNINGS ANALYSIS?

A. Yes. As discussed above, the FERC issued an Order in October 2018 proposing to establish ROEs based on an equal weighting of the results of

four financial models: the DCF, CAPM, Expected Earnings and Risk Premium. In regard to the expected earnings analysis, FERC noted the following:

> A comparable earnings analysis is a method of calculating the earnings an investor expects to receive on the book value of a particular stock. The analysis can be either backward looking using the company's historical earnings on book value, as reflected on the company's accounting statements, or forward-looking using estimates of earnings on book value, as reflected in analysts' earnings forecasts for the company. The latter approach is often referred to as an "Expected Earnings analysis." The returns on book equity that investors expect to receive from a group of companies with risks comparable to those of a particular utility are relevant to determining that utility's cost of equity, because those returns on book equity help investors determine the opportunity cost of investing in that particular utility instead of other companies of comparable risk. Because investors rely on Expected Earnings analyses to help estimate the opportunity cost of investing in a particular utility, we find this type of analysis useful in determining a utility's ROE.[54]

Q. HAVE REGULATORS OTHER THAN FERC CONSIDERED THE USE OF AN EXPECTED EARNINGS ANALYSIS?

A. Yes. The Washington Utilities & Transportation Commission (Washington UTC), in its order in Dockets UE-170485 and UG-170486, considered the results of the Comparable Earnings analysis[55] in establishing the authorized ROE for Avista Corporation. The Washington UTC noted that it tends to place more weight on the results of the DCF, CAPM and Risk Premium analyses; however, given the wide range of CAPM results presented by the

[54] Federal Energy Regulatory Commission, Docket No. EL11-66-001, et al., Order Directing Briefs, issued October 16, 2018, at 42.

[55] The Expected Earnings analysis is a form of the Comparable Earnings analysis that relies exclusively on forward-looking projections.

ROE witnesses in the case, the Washington UTC also gave weight to the results of the Comparable Earnings analysis.[56] Specifically, the Washington UTC stated the following:

> Finally, as additional data points for our consideration of establishing Avista's ROE, we note that two witness, Mr. McKenzie for Avista and Mr. Parcell for Staff, employ the CE approach to two proxy groups of companies. The respective mid-points of each witnesses' CE analysis are 10.5 and 9.5 percent, respectively, with an average of 10.0 percent. Although we generally do not apply material weight to the CE method, having stronger reliance on the DCF, CAPM and RP methods, we are inclined to include the CE method here given the anomalous CAPM results described previously.[57]

Q. HOW DID YOU DEVELOP THE EXPECTED EARNINGS APPROACH?

A. I relied primarily on the projected ROE capital for the proxy companies as reported by Value Line for the period from 2022-2024. The projected ROEs are adjusted to account for the fact that the ROEs reported by Value Line are calculated on the basis of common shares outstanding at the end of the period, as opposed to average shares outstanding over the analytical period. This adjustment is consistent with FERC's methodology for the Expected Earnings analysis that was included in its October 2018 order. As shown in Exhibit___(JJR-1), Schedule 7, the Expected Earnings analysis results in a mean 10.59 percent and a median of 10.29 percent.

[56] *Wash. Utils. & Transp. Comm'n v. Avista Corp.*, Docket Nos. UE-170485 and UG-170486, Order 07, ¶ 65 (April 26,2018).

[57] *Ibid.*

H. Summary of Analytical Results

Q. PLEASE SUMMARIZE THE RESULTS OF YOUR ANALYSIS.

A. As shown in Figure 12 (below), I considered the results of the Constant Growth DCF model, the Two-Growth DCF model, the CAPM model, the Bond Yield Plus Risk Premium methodology, and an Expected Earnings analysis. As I previously discussed, a reasonable ROE estimate considers multiple methodologies and the reasonableness of their individual and collective results. In addition, as I discuss in Section VII, NSPM's business and financial risks must also be taken into consideration when determining where the Company's cost of equity falls within the range of results.

Figure 12

Summary of Analytical Results

Constant Growth DCF (including flotation costs)			
	Mean Low	Mean	Mean High
30-Day Average Price	8.47%	8.99%	10.03%
90-Day Average Price	8.47%	8.98%	10.11%
180-Day Average Price	8.58%	9.01%	10.09%
Two-Stage Growth DCF (including flotation costs)			
	Mean Low	Mean	Mean High
30-Day Average Price	8.26%	8.85%	9.57%
90-Day Average Price	8.27%	8.85%	9.75%
180-Day Average Price	8.37%	8.89%	9.77%
Capital Asset Pricing Model			
	Current Risk-Free Rate (2.11%)	Q4 2019 – Q4 2020 Projected Risk-Free Rate (2.24%)	2021-2025 Projected Risk-Free Rate (3.60%)
Value Line Beta	9.02%	9.07%	9.63%
Bloomberg Beta	9.86%	9.91%	10.37%
Bond Yield Plus Risk Premium			
	Current Risk-Free Rate (2.11%)	Q4 2019 – Q4 2020 Projected Risk-Free Rate (2.24%)	2021-2025 Projected Risk-Free Rate (3.60%)
Risk Premium Results	9.57%	9.62%	10.21%
Expected Earnings Analysis			
	Mean		Median
Expected Earnings Results	10.59%		10.29%

VII. RISK FACTORS AND OTHER CONSIDERATIONS

Q. DO THE MEAN DCF, CAPM, RISK PREMIUM, AND EXPECTED EARNINGS RESULTS FOR THE ELECTRIC PROXY GROUP PROVIDE THE FULL PICTURE NECESSARY TO DEVELOP AN APPROPRIATE ESTIMATE OF THE COST OF EQUITY FOR THE COMPANY?

A. Not necessarily. As I discussed earlier, notwithstanding the care taken to establish a risk-comparable group of companies and to consider multiple

analyses, market expectations with respect to future risks and growth opportunities will vary from company to company. Therefore, the Company's business and financial risks must also be taken into consideration when determining where the Company's cost of equity falls within the range of results. These risk factors, discussed below, should be compared to the risks of the proxy group. In addition, NSPM's performance in providing superior performance and its demonstrated commitment to staking out industry-leading positions such as providing carbon-free electricity by 2050 and not just achieving, but surpassing, the state's policy goals should be considered in determining where the Company's allowed return falls within the range of reasonableness. Markets reward innovators and the Company is at the forefront of the move to a carbon-free energy future.

A. Capital Expenditures and NSPM's Risk Profile

Q. PLEASE SUMMARIZE THE COMPANY'S CAPITAL EXPENDITURE PLAN.

A. The Company's current projections include approximately $4.6 billion in capital investment for the Company for the three-year period from 2020 through 2022, as explained in the direct testimony of Company witness Ms. Sarah Soong. As the Company's business area witnesses and Mr. Chamberlain explain, those investments serve a number of purposes, including supporting the Company's industry-leading efforts to de-carbonize its generation fleet, to update and upgrade aging infrastructure, to support its efforts to transform the customer experience and to ensure cyber-security. These expenditures represent approximately 42.55 percent of the Company's total net utility plant in service as of December 31, 2018.

Q. HOW IS THE COMPANY'S RISK PROFILE AFFECTED BY ITS SIGNIFICANT LEVEL OF PLANNED CAPITAL EXPENDITURES?

A. As with any utility faced with a substantial capital expenditure plan, the Company's risk profile is adversely affected in two significant and related ways: (1) the heightened level of investment increases the risk of under-recovery, or the delayed recovery of the invested capital; and (2) an inadequate authorized return would put downward pressure on key credit metrics.

Q. HAVE THE RISKS ASSOCIATED WITH ELEVATED CAPITAL EXPENDITURES BEEN RECOGNIZED BY THE FINANCIAL COMMUNITY?

A. Yes, they have. Rating agencies, for example, have consistently focused on the detrimental effect on cash flows and corresponding pressure on credit metrics resulting from elevated capital expenditures. In effect, the additional pressure on cash flows exerts corresponding pressure on credit metrics and, therefore, credit ratings. To that point, S&P explains the importance of regulatory support for large capital projects:

> 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.[58]

Therefore, to the extent that the Company's rates do not permit the opportunity to recover its capital investments on a timely basis, the Company will face increased recovery risk, and thus, increased pressure on its credit metrics.

Q. HOW DOES THE LEVEL OF THE COMPANY'S EXPECTED ELECTRIC CAPITAL EXPENDITURES COMPARE TO THE ELECTRIC PROXY GROUP?

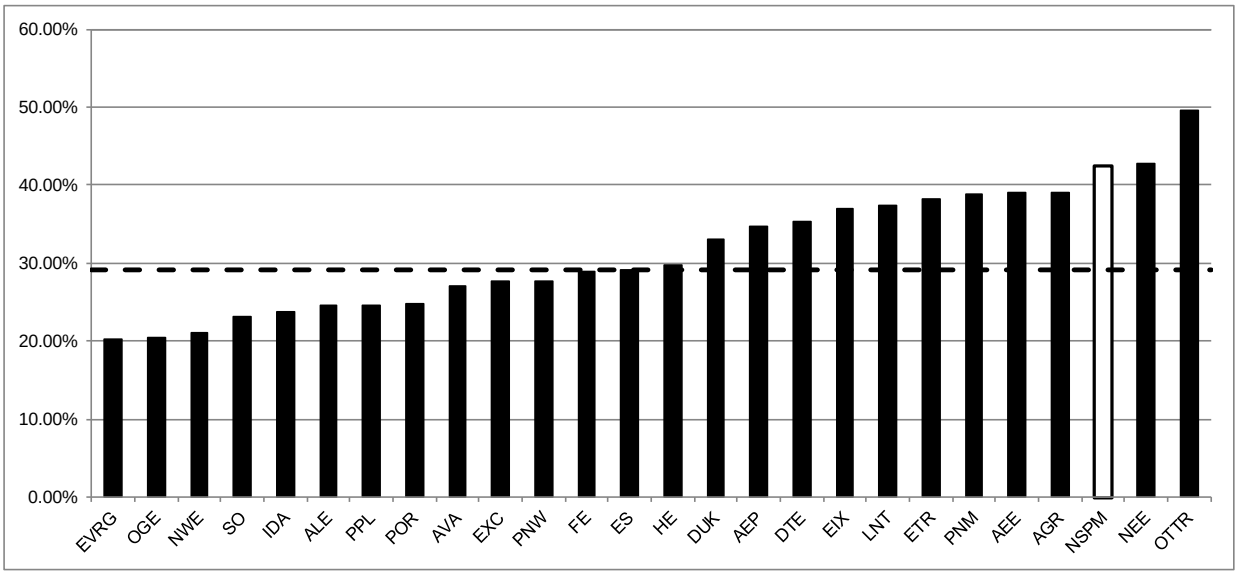
A. In order to reasonably make that comparison, as shown in Exhibit__(JJR-1), Schedule 8, I calculated the ratio of expected capital expenditures to net plant[59] for each of the companies in the Electric Proxy Group. For the projected period from 2020-2022, I performed that calculation using the Company's projected capital expenditures and its total net plant as of December 31, 2018. It is clear from this analysis that the Company's relative level of capital expenditures is significantly above the average of the Electric Proxy Group companies. In fact, the Company's 42.55 percent ratio of capital expenditures to net plant is higher than 23 of the 25 Electric Proxy Group Companies. Figure 13 compares the projected capital expenditures of the Company and the Electric Proxy Group.

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

[59] Source: Value Line.

Figure 13

Comparison of Electric Capital Expenditures[60]



Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE EFFECT OF THE COMPANY'S CAPITAL SPENDING PLANS ON ITS RISK PROFILE?

A. First, it is clear that on a relative basis, the Company has a significant capital expenditure program. It also is clear that the financial community recognizes the additional risks associated with substantial capital expenditures and that those risks are reflected in market valuation multiples. In my view, these factors suggest a comparatively high level of risk vis-à-vis the Electric Proxy Group.

B. Generation Risk

Q. PLEASE PROVIDE AN OVERVIEW OF THE COMPANY'S GENERATION PORTFOLIO.

A. The Company's generation portfolio includes a substantial portion of fossil-

[60] *See* Exhibit__(JJR-1), Schedule 8.

fuel and nuclear generation. As I discuss later in my testimony, the Company has a stated a plan to produce 100 percent carbon-free energy by 2050 and NSPM's nuclear generation will play a critical role in supporting this transition.

Q. PLEASE DESCRIBE THE RISKS ASSOCIATED WITH NSPM'S NUCLEAR GENERATION PORTFOLIO.

A. In general, nuclear generation assets are subject to certain risks including the recovery of investors' capital in the event of a change in market structure or a plant failure, and recovery of replacement power and repair costs in the event of extended or unplanned outage. In addition, federal safety regulations present a substantial risk of requiring investors to commit new capital to comply with new regulations or operation restrictions or possibly closure. In fact, S&P acknowledges "the higher operating risk associated with nuclear-power generation" in its assessment of the Company's business risk.[61] Despite the recent superior performance of its nuclear generation, discussed by Company witness Mr. Timothy O'Connor, the Company and its investors are faced with the risk that new and impending federal regulations will require it to expend additional capital or face closure and investors consider these risks in establishing their return requirements.

Q. HOW DOES THE LEVEL OF THE COMPANY'S DEPENDENCE OF NUCLEAR GENERATION COMPARE TO THE ELECTRIC PROXY GROUP?

A. As shown in Exhibit___(JJR-1), Schedule 9, it is clear that the Company's exposure to the risks associated with nuclear generation is significantly above the proxy group average. Notably, 12 of the 25 proxy companies do not own

[61] S&P Global Ratings, "Northern States Power Co.," November 6, 2018, at 4.

any nuclear generation assets, and 24 of the 25 proxy companies are less dependent on nuclear generation than the Company. This demonstrates that the Company has a higher level of exposure to the risks associated with nuclear generation relative to the proxy group.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE EFFECT OF THE COMPANY'S EXPOSURE TO RISKS ASSOCIATED WITH NUCLEAR GENERATION?

A. Compared to the Electric Proxy Group, the Company relies heavily on nuclear generation and therefore has greater exposure to the risks associated with nuclear generation assets. In my view, these risks must be taken into consideration when determining where the Company's cost of equity falls within the range of results.

C. Regulatory Risk

Q. HOW DOES THE REGULATORY FRAMEWORK AFFECT INVESTORS' RISK ASSESSMENTS?

A. The regulatory framework is one of the most important factors in both debt and equity investors' risk assessments. The ratemaking process is premised on the principle that, in order 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 the return of, and the market-required return on, invested capital. Because utility operations are capital intensive, regulatory decisions should enable the utility to attract capital at reasonable terms; doing so balances the long-term interests of investors and customers.

Because investors have many investment alternatives, even within a given market sector, the Company's authorized return must be adequate on a

relative basis to ensure its ability to attract capital under a variety of economic and financial market conditions. From the perspective of debt investors, the authorized return should enable NSPM to generate the cash flow needed to meet its near-term financial obligations, make the capital investments needed to maintain and expand its system, and maintain sufficient levels of liquidity to fund unexpected events. This financial liquidity must be derived not only from internally-generated funds, but also by confidence in the firm's ongoing 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 Company's capital investments. Because equity investors are the residual claimants on NSPM's cash flows (which is to say that the equity return is subordinate to interest payments), they are particularly concerned with the regulatory framework and its effect on future earnings and cash flows.

Q. PLEASE EXPLAIN HOW NSPM'S PROPOSAL TO IMPLEMENT A MULTI-YEAR RATE PLAN IN THIS PROCEEDING AFFECTS THE AUTHORIZED ROE FOR NSPM.

A. As discussed in the testimony of Company witness Mr. Greg Chamberlain, NSPM is proposing to implement an MYRP with a term of three years. As such, the Company is agreeing to "stay out" of rate proceedings for the duration of the MYRP. In doing so, the Company would forego the option to change rates should capital market conditions change, or if it is unable to recover its costs. Therefore, an appropriate ROE 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" of rate cases for a defined period. By "staying out," 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. To address the issue of interest rate risk, the Commission could provide for an interest rate "trigger," that would index the ROE to an interest rate benchmark to mitigate the risks associated with interest rates or inflation. However, this would not address the risk of under-earning that is introduced by "staying out." In addition, the fact that the ROE authorized in this case will remain in effect for the duration of the MYRP, and the Company will not have the ability to change rates for that period, demonstrates the importance of authorizing an ROE that is consistent with returns available to comparable investments and support NSPM's ability to commit the capital needed to provide safe and reliable utility services.

In developing my recommendation, I have not made an explicit quantitative adjustment to my ROE results or proposed an index or re-opener. However, I do factor in these additional risks when recommending my ROE among the range of results.

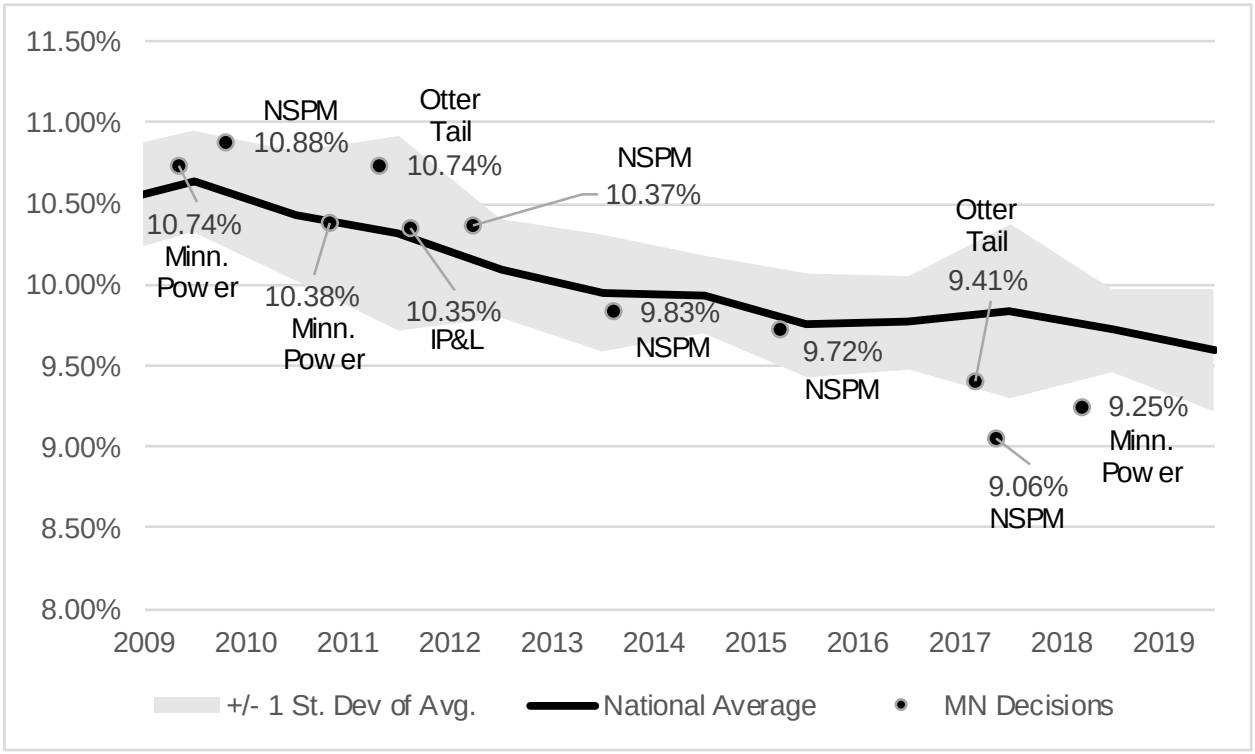
Q. HOW HAVE ROE AUTHORIZATIONS IN MINNESOTA COMPARED TO COMPARABLE UTILITIES ON OTHER JURISDICTIONS?

A. Until recently, the Commission has been generally supportive of utilities' capital needs and has historically authorized ROEs that are comparable to, or slightly above, the national average for other integrated electric utilities during the same period. However, recent decisions have been far removed from the returns available to other comparable utilities in other jurisdictions. Figure 14

shows the history of allowed ROEs in Minnesota since 2009 relative to those of other electric utilities.

Figure 14

Authorized ROEs for Vertically Integrated Electric Utilities, Minnesota vs. National Average[62]



Since utilities compete directly for capital with other investments of similar risk, which include other electric utilities, the ROE awarded to NSPM sends an important signal to investors regarding whether there is regulatory support for financial integrity, dividends, growth, and fair compensation for business and financial risk. As such, the comparable returns are useful in helping to

[62] S&P Global Market Intelligence, Regulatory Research Associates, effective authorized ROE displayed for the Company's most recent case based on the revenue deficiency calculated using the Department's recommended ROE of 9.06 percent and subsequently ordered by the Commission in Docket No. E002/M-17-797.

determine the opportunity cost of investing in the subject company, which is relevant in determining a company's ROE. While comparably available returns are not a direct, market-based analysis like the DCF and CAPM, they are a reflection of the conclusion that regulators make based on the evidence provided by such market-based analyses.

Q. HOW HAVE THE RECENT ROE DECISIONS BY THE COMMISSION DIFFERED FROM THOSE OF OTHER REGULATORY AGENCIES IN OTHER JURISDICTIONS?

A. As discussed above, the Commission has begun to recognize the need for a more robust analytical approach and for the application of judgment, in setting an appropriate ROE. However, the Commission has historically relied on a more mechanical application of the Two-Growth DCF analysis using a proxy group of comparable companies to determine the authorized ROE for the subject company,[63] and has at times still relied on that simple, mathematical approach. Such an approach is not consistent with how today's equity analysts or investors estimate required returns and can lead to results that are incompatible with investors' return requirements in the current market environment.

The Commission's recognition of the need to move away from a specific model is consistent with its prior adaptations in the determination of the appropriate cost of equity. Prior to its adoption of the Two-Growth DCF,[64] the Commission had long relied solely on the more simplified Constant Growth DCF model.[65] However, demonstrating the need to consider

[63] Docket No. G008/GR-15-424, Findings of Fact, Conclusions and Order, at 43.

[64] *See*, for example, Docket No. E017/GR-07-1178, Findings of Fact, Conclusions and Recommendation, at 33-34, and Findings of Fact, Conclusions of Law, and Order at 58-59.

[65] *See*, for example, Docket No. E002/GR-05-1428 Findings of Fact, Conclusions of Law, and Order; Order Opening Investigation, at 26-27.

additional information, and more sophisticated analytical techniques, the Commission has given most weight to the Two-Growth DCF, rather than the Constant Growth DCF, from the period 2008 forward.

More recently, the Commission has further broadened its consideration by recognizing the limitations of the Two-Growth approach and established an authorized ROE that was placed within the range of the mean and the mean-high results of the Two-Growth DCF model.[66] This more thoughtful approach to establishing an authorized ROE is critical if Minnesota utilities are to have authorized ROEs comparable to their peers in other jurisdictions. Those jurisdictions have observed the limitations of DCF approaches in the current capital market environment, and found that it is appropriate to employ a more dynamic process that is more reflective of the manner equity analysts and investors develop their return requirements. Recent decisions from jurisdictions such as Michigan and Massachusetts demonstrate that, consistent with the *Hope* and *Bluefield* findings, it is the analytical result, as opposed to the methodology that is controlling in arriving at ROE determinations. Thus, a reasonable ROE estimate appropriately considers alternate methodologies and the reasonableness of their individual and collective results.

Q. PLEASE DESCRIBE THE RECENT CONSUMERS ENERGY DECISION BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION (MPSC).

A. Consumers Energy filed a rate case on March 31, 2017 requesting an ROE of 10.50 percent based on DCF, CAPM, Empirical CAPM, Risk Premium, and

[66] *See*, for example, Docket No. E017/GR-15-1033, Findings of Fact, Conclusions and Order, at 55; Docket No. E017/GR-15-1033, Findings of Fact, Conclusions and Order, at 55; and Docket No. E015/GR-16-664, Findings of Fact, Conclusions and Order, at 61.

Comparable Earnings analyses. The MPSC Staff recommended an ROE of 9.80 percent based on a DCF, CAPM, and Risk Premium analyses. Other parties recommended ROEs from 8.60 percent to 9.75 percent. The Administrative Law Judge (ALJ) found MPSC Staff Witness Bankapur's analysis most persuasive, and recommended that the MPSC adopt its Staff Witness Bankapur's recommended ROE. Significantly, Staff Witness Bankapur's recommendation relied on the application of professional judgment based on capital market conditions, as several of the models produced average and median results significantly below her recommended range. Figure 15 summarizes MPSC Staff Witness Bankapur's analysis, and recommendation.

Figure 15

MPSC Staff's Results and Recommendation[67]

Model	**Minimum**	**Maximum**	**Average**	**Median**
DCF	7.27%	9.21%	8.50%	8.74%
CAPM: 1952	7.23%	9.42%	7.72%	7.55%
CAPM: 1926	7.65%	10.07%	8.18%	7.99%
Risk Premium	8.51%	8.86%	8.68%	8.68%
Recommended Range	9.00% - 10.00%			
Recommendation	**9.80%**			

Ultimately, the MPSC agreed with the ALJ that Staff Witness Bankapur's analysis was most credible, but authorized an ROE 20 basis points higher (*i.e.*, 10.00 percent) than the recommendation in light of economic volatility and uncertainty.[68] Specifically, the Commission stated that its determination of a fair and reasonable ROE "is not subject to mathematical computation with

[67] Michigan Public Service Commission Case No. U-18322, Direct Testimony of Kavita Bankapur, August 10, 2017, at 20.

[68] Michigan Public Service Commission Case No. U-18322, Order, March 29, 2018 at 42-43.

scientific exactitude but depends upon a comprehensive examination of all factors involved, having in mind the objective sought to be attained in its use."[69] This case reflects two important facts: 1) the Staff Witness recommended an ROE in the upper part of the range 9.80 percent, reflecting the need to temper the model results; and 2) the MPSC felt that it was necessary to go still further and add another 20 basis points to the allowed ROE, reflecting the top of the Staff Witness' recommended range.

Q. PLEASE DESCRIBE THE RECENT EVERSOURCE DECISION BEFORE THE MASSACHUSETTS DEPARTMENT OF PUBLIC UTILITIES (MDPU).

A. Eversource filed a rate case on January 17, 2017 requesting an ROE of 10.50 percent based on DCF, CAPM, and Risk Premium analyses. The Massachusetts Office of the Attorney General (Massachusetts AG) recommended an ROE of 8.875 percent based on a DCF, and CAPM analyses. Other parties recommended ROEs from 8.75 percent to 9.35 percent. The MDPU found all of the witnesses provided a "credible basis" for determining the ROE, but placed "limited weight" on the various CAPM analyses, and viewed the Risk Premium approach as a supplemental analysis.[70] Figure 16 summarizes the results of each parties' witness.

[69] Michigan Public Service Commission Case No. U-18322, Order, March 29, 2018 at 36.

[70] Massachusetts Department of Public Utilities 17-05, Order Establishing Eversource's Revenue Requirement, November 30, 2017, at 683, 692-694, and 701-702.

Figure 16

MDPU Summary of ROE Analyses[71]

Party	Model	Results
Company	DCF	8.77-10.88
AG	DCF	8.80-8.95
FEA	DCF	7.55-9.10
Sunrun	DCF	7.50
Company	CAPM	9.16 – 11.46
AG	CAPM	7.90
Sunrun	CAPM	7.50
FEA	CAPM	8.17 – 9.40
Company	Risk Premium	10.01-10.34
FEA	Risk Premium	9.50-9.90

In arriving at its decision to authorize an ROE of 10.00 percent, the MDPU acknowledged the need to consider the end result, consistent with the *Hope* and *Bluefield* principles:

> The use of empirical analyses in this context is not an exact science. A number of judgments are required in conducting a model based rate of return analysis. Even in studies that purport to be mathematically sound and highly objective, crucial subjective judgments are made along the way and necessarily influence the end result. Each level of judgment to be made in these models contains the possibility of inherent bias and other limitations.
>
> …
>
> While the results of analytical models are useful, the Department must ultimately apply its own judgment to the evidence to determine an appropriate ROE. We must apply to the record

[71] Massachusetts Department of Public Utilities 17-05, Order Establishing Eversource's Revenue Requirement, November 30, 2017, at 683, 692, and 701.

> evidence and arguments considerable judgment and agency expertise to determine the appropriate use of the empirical results. Our task is not a mechanical or model driven exercise.[72]

What is clear, is that while the MDPU indicated that the DCF models were "credible," it considered the results in the context of the other models. The MDPU's conclusion that the cost of equity was closer to the upper end of the range at 10.00 percent reflects an appropriate reliance in informed judgment.

Q. HOW ARE THESE DECISIONS FROM OTHER JURISDICTIONS RELEVANT TO THE COMMISSION IN THIS CASE?

A. Since authorized ROEs in other jurisdictions represent the returns available for comparable investments, these comparable returns are relevant in determining a company's ROE. In addition, these decisions provide context for how other regulatory agencies have considered results from similar models in the context of current capital market conditions. To the extent that the Commission's decision in this case substantially differs from other jurisdictions' decisions under the same capital market conditions, this could result in an ROE that is inadequate relative to other comparable investments, and affect investors' perception of the regulatory framework, and therefore increase the business risk of the Company. Notably, based on the review of recent orders from other regulators, including the FERC, MPSC, MDPU, PPUC, and ICC, it is important to consider the results of the DCF models with caution in determining the appropriate authorized ROE. Placing too much weight on DCF-based approaches can lead to flawed results that are not representative of comparable returns.

[72] Massachusetts Department of Public Utilities 17-05, Order Establishing Eversource's Revenue Requirement, November 30, 2017, at 707-709.

Q. IS THIS SECTION OF YOUR TESTIMONY INTENDED AS CRITICISM OF THE COMMISSION?

A. No. The purpose of this section of my testimony is to report how investors perceive the regulatory framework in Minnesota and how that affects the business risk of NSPM relative to the proxy group companies. In fact, the Commission's decision in this case could demonstrate a more constructive approach that would mitigate NSPM's regulatory risk. For example, while the Commission has traditionally placed significant weight on the DCF model for determining the ROE, capital market conditions suggest that the DCF model may not be reliable as the sole indicator of NSPM's cost of equity at this time. As such, the Commission, like FERC and several other regulatory agencies, can demonstrate a more constructive and forward-looking regulatory framework and consider multiple approaches in its determination of NSPM's cost of equity in this case. 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. Accordingly, it is incumbent on the Commission to review the results of the analyses and exercise judgment as to how to weight those results in the overall ROE determination.

D. Effect of Tax Reform on the ROE and Capital Structure

Q. ARE THERE OTHER FACTORS THAT SHOULD BE CONSIDERED IN DETERMINING THE COST OF EQUITY FOR THE COMPANY?

A. Yes. The effect of the TCJA should also be considered in the determination of the cost of equity. As indicated by Moody's, 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.

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 a lower amount of taxes at the lower tax rate, reducing revenue. 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 from internally-generated funds.

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.[73] At that time, Moody's noted that the rating change affected companies with limited cushion in their ratings for deterioration in financial performance. In June 2018, Moody's issued a report in which the rating agency 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 management teams are taking important first steps"[74] and that "we have seen some credit positive developments in some states in response to

[73] 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.

[74] 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.

tax reform,"[75] 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."[76]

Q. HAVE THE CREDIT RATING AGENCIES RECOGNIZED THE RISKS POSED TO THE COMPANY FROM TAX REFORM?

A. Yes. Moody's acknowledges "No regulatory initiative in Minnesota to offset the cash leakage resulting from the implementation of TCJA" [77] poses a credit challenge to NSPM. While NSPM has maintained its credit ratings to-date, as shown in Figure 17, Moody's downgraded the credit rating for Xcel Energy to Baa1 from A3, citing concerns that the "negative impact of tax reform, an elevated capital expenditure program and limited plans to issue equity contribute to the sustained weaker financial profile."[78]

Q. HAVE ANY OTHER UTILITIES EXPERIENCED A DOWNGRADE RELATED TO CASH FLOW METRICS RESULTING FROM THE TCJA?

A. Yes. Figure 17 summarizes credit rating downgrades for utilities that have resulted from tax reform.

[75] *Ibid.*

[76] *Ibid.*

[77] Moody's Investors Service, Credit Opinion Northern States Power Company (Minnesota), October 31, 2018, at 2.

[78] Moody's Investors Service, Ratings Action: Moody's downgrades Xcel Energy to Baa1 from A3; outlook stable, March 28, 2019.

Figure 17

Credit Rating Downgrades Resulting from TCJA

Utility	Rating Agency	Credit Rating before TCJA	Credit Rating after TCJA	Downgrade Date
DTE Gas Company	Moody's	A2	A3	7/22/2019
South Jersey Gas Company	Moody's	A2	A3	7/17/2019
Central Hudson Gas & Electric	Moody's	A2	A3	7/12/2019
Oklahoma Gas & Electric Company	Moody's	A2	A3	5/31/2019
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 FitchRatings (Fitch) 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.[79]

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 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.[80]

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

[79] S&P Global Ratings, "U.S. Tax Reform: For Utilities' Credit Quality, Challenges Abound", January 24, 2018.

[80] S&P Ratings, "Industry Top Trends 2019, North America Regulated Utilities", November 8, 2019.

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.[81]

E. Policy Considerations

Q. PLEASE DESCRIBE THE COMPANY'S SERVICE OFFERINGS, POLICY INITIATIVES, AND ITS PROMISE TO BENEFIT CUSTOMERS ECONOMICALLY AND ENVIRONMENTALLY.

A. NSPM is committed to transitioning to a carbon-free energy future, while maintaining reliable, safe, and affordable service to customers as well as contributing to economic expansion in Minnesota. In recent years, the Company has provided a number of innovative service offerings and pilot programs to meet customers evolving needs. In addition, Minnesota and the Commission have staked out a leadership role on a number of energy issues, including achieving significant carbon emission reductions. As described by Company witness Mr. Chamberlain and the Company's business area witnesses, NSPM has taken on an industry-leading role on this issue, as the first investor-owned utility in the country to announce a goal of an 80 percent reduction in carbon emissions by 2030 (from 2005 levels) and delivery of 100 percent carbon-free energy by 2050. This ambitious goal is also reflected in Governor Walz's recently announced policy proposals, "One Minnesota Path to Clean Energy," which are intended to "build on the success that Minnesota has already achieved in reducing dependence on fossil fuels and increasing the use of clean energy resources to power the state while ensuring reliable,

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

affordable electricity."[82] And since the Company announced its goal of carbon-free energy by 2050, other utilities have followed suit.

Q. HOW HAS NSPM ALREADY DEMONSTRATED ITS COMMITMENT TO ACHIEVING THESE GOALS?

A. As Mr. Chamberlain discusses, the Company has already been working to "decarbonize" its generation faster than state law targets. Minnesota's "Next Generation Energy Act" set greenhouse gas emission reduction targets relative to 2005 levels as follows: 15 percent reduction by 2015, 20 percent reduction by 2025, and 80 percent reduction by 2050. NSPM, however, has already achieved a carbon emissions reduction of approximately 38 percent from its 2005 levels and has announced plans to retire all of its remaining coal-fired units by 2030.

Q. HAS THE COMPANY MAINTAINED THE AFFORDABILITY OF ITS SERVICE WHILE PURSUING THIS TRANSFORMATION OF ITS GENERATION FLEET?

A. It has. And as Mr. Chamberlain discusses, not only have the Company's customers seen relatively flat total bills for the past ten years, they will continue to see such relatively flat total bills during the term of this MYRP.

Q. HOW DO NSPM'S CARBON EMISSIONS COMPARE TO THE ELECTRIC PROXY GROUP?

A. The Company's performance demonstrates the success it has achieved in advancing the state's goal of reducing Minnesota's dependence on fossil fuels. As shown in Exhibit___(JJR-1), Schedule 9 NSPM emitted an average of 0.50 tons of carbon dioxide emitted per MWh in 2017 compared to a proxy group

[82] Minnesota Department of Commerce, "Walz, Flanagan propose plan to achieve 100 percent clean energy in Minnesota by 2050," March 4, 2019.

average of 0.67 tons per MWh, or 25 percent fewer carbon dioxide emissions per MWh than the proxy companies.

Q. WHAT OTHER POLICY INITIATIVES IS THE COMPANY PURSUING?

A. As Mr. Chamberlain and several business area witnesses discuss, as it works to transform its fleet, the Company is also working to transform the customer experience through its investments in the Advanced Grid Intelligence and Security (AGIS) initiative. Among its goals, AGIS will advance the Company's electric distribution system, provide customers with more choices and ability to control their energy use, and enhance the efficiency and reliability of service the Company can provide. As such, AGIS provides another example of the Company looking forward and positioning itself to serve its customers and serve important state policy goals.

Further, as NSPM pursues these important policy and strategic objectives, Mr. Chamberlain and other Company witnesses also discuss how the Company keeps its focus on maintaining affordable energy prices for its customers. For example, the Company's investments in renewable energy generation can lead to long-term improvements in affordability through avoided fuel costs. Similarly, investments in its core and supporting assets (transmission, distribution and business systems) provide the platform to help customers to control and reduce their energy usage.

Q. PLEASE DESCRIBE THE NEW SERVICE OFFERINGS AND PILOT PROGRAMS THE COMPANY HAS IMPLEMENTED TO MEET CUSTOMERS EVOLVING NEEDS.

A. The Company recognizes that customers' expectations continue to evolve, and therefore has developed a number of innovative service offerings and

pilot programs, particularly with regard to electric vehicles (EVs). Since 2015, the Company has offered residential customers a tariff option designed specifically for charging electric vehicles, encouraging off-peak charging. In August 2018, the Company launched its Residential EV Service Pilot, which built off of the rate of the Residential EV Service Tariff but lowered the upfront costs of EV charging infrastructure for participants by using the EV charger, rather than a second meter, to measure a vehicle's electricity usage, and providing customers with the option to pay for an EV charger through a monthly fee. Based on the success of this pilot, the Commission approved a second Residential EV Service Pilot in October 2019. The second pilot is based on the structure of the existing Residential EV Service Pilot but provides customers with a flat monthly subscription price for off-peak electricity used by customers to charge their vehicles. This pilot is expected to be launched in the coming months.

In addition, in July 2019, the Commission approved the Company's proposed Fleet EV Service Pilot and Public Charging EV Pilot. The Fleet EV Service Pilot is designed to lower the upfront costs of installing charging infrastructure for fleet customers to improve the economics of converting fleets from internal combustion engines to electric vehicles. The Company is working directly with several fleet customers to begin providing them service under this pilot. The Public Charging EV Pilot is similarly designed to lower the upfront costs of installing public charging infrastructure through the Company owning, installing, and maintaining both the electrical infrastructure running up to a customer's meter and also the infrastructure running from the meter to the electric vehicle charger stub. The Company also is working with public charging site hosts to leverage other public funding that may be

available to support the installation of public charging infrastructure. The pilot is designed to increase the availability of public charging options throughout the Company's service territory in order to provide charging infrastructure to consumers who may not otherwise be able to own an electric vehicle.

Q. ARE THERE ANY EXAMPLES OF THE COMPANY'S CONTRIBUTIONS TO ECONOMIC EXPANSION IN MINNESOTA?

A. Yes, in July 2019, the Commission issued an Order approving the Company entering into an electric service agreement with Google that included incentives for Google to locate a data center in Minnesota. The agreement includes protections to ensure that other customers' rates did not increase based on the addition of Google's electric load. Construction of the data center has the potential to benefit all other customers on the system by increasing sales and spreading fixed costs, particularly in light of Google's high load factor. The data center also will create numerous jobs in Becker, Minnesota, including both construction jobs to build the data center, and a number of permanent jobs to operate it.

Q. PLEASE EXPLAIN WHY THE COMPANY'S PERFORMANCE SHOULD BE CONSIDERED IN ESTABLISHING NSPM'S ROE.

A. Given Minnesota's and NSPM's shared priority for clean and affordable electricity, and the investments this will require, it is important to set a return that will allow NSPM to have continued access to capital markets at reasonable terms. As such, NSPM's history of providing efficient, high-quality service, as well as its industry-leading positions on carbon-free energy and its work on bringing an advanced grid to the state, should be considered

when determining where the Company's allowed return falls within the range of reasonableness. Failure to consider the Company's performance and its willingness to partner with the state in achieving Minnesota's environmental policy goals risks sending a message to the Company and the investment community that the state does not support the Company's achievements or its future commitments.

In addition, regulation is intended to emulate competitive forces to encourage efficiency and innovation. In fact, "regulation should be not only a substitute for competition, but a closely imitative substitute."[83] In that sense, incenting innovation is a desired outcome of regulation. As described by Dr. James. C. Bonbright:

> In a dynamic economy, the function of competition is by no means limited to that of bringing about a more or less gradual adjustment of prices to costs of production. An even more important function is that of stimulating innovations and improvements in products and in techniques of production.[84]

In this case, it is clear that NSPM is an innovator in its commitment to providing a lower-carbon future and in bringing advanced grid infrastructure to the state. As such, it is consistent with the principle of regulation as a substitute for competition to consider the Company's performance in setting the return on equity.

[83] James C. Bonbright, Principles of Public Utility Rates, (New York: Columbia University Press, 1961), at 93.
[84] *Id.* at 102.

Q. HAVE YOU CONSIDERED THE RANGE OF ROEs INVESTORS REQUIRE IN NON-UTILITY INDUSTRIES THAT ARE SUBJECT TO COMPETITION?

A. Yes, I have. In order to understand the range of ROEs required by investors in competitive industries, I analyzed the Beta coefficients for all companies that are included in the Value Line universe and report a Beta coefficient. There are more than 5,000 companies grouped into approximately 100 industries. While electric utilities tend to have Beta coefficients at the lower end of the spectrum, other well-established industries that are traditionally considered "safe" or "stable," such as Banking and Insurance, are included in my analysis. These industries are subject to regulation, but not cost-based regulation like utilities, and are therefore subject to market competition. As shown in Figure 18, below, investors require ROEs significantly higher than my recommended ROE in this case.

Figure 18

CAPM Results for Representative Non-Utility Industries[85]

Industry Name	Median Beta	Risk-Free Rate	Market Risk Premium	Estimated ROE
Banking	0.75	3.60%	10.23%	11.27%
Real Estate Investment Trust	0.85	3.60%	10.23%	12.30%
Cable TV	0.85	3.60%	10.23%	12.30%
Insurance (Property/Casualty)	0.88	3.60%	10.23%	12.55%
Insurance (Life)	0.98	3.60%	10.23%	13.58%
Information Services	1.00	3.60%	10.23%	13.83%
Telecom. Utility	1.05	3.60%	10.23%	14.34%
Railroad	1.20	3.60%	10.23%	15.88%
Petroleum (Producing)	1.45	3.60%	10.23%	18.43%
Natural Gas (Diversified)	1.55	3.60%	10.23%	19.46%
Oilfield Services/Equipment	1.60	3.60%	10.23%	19.97%

[85] Sources: Value Line, Exhibit___(JJR), Schedule 5).

Q. ARE YOU AWARE OF WHETHER REGULATORY COMMISSIONS IN PRACTICE CONSIDER A UTILITY'S PERFORMANCE AS A FACTOR IN SETTING THE APPROPRIATE RETURN ON EQUITY?

A. Yes. It is consistent with the long-standing latitude of regulators to recognize efficient, high-quality service in setting the allowed return. Regulators at both the state and federal levels reward utilities for superior performance by either explicitly, or implicitly, reflecting performance in setting the allowed rate of return.[86] The underpinnings of such an approach extend back at least to the *Bluefield* decision.

Consideration of NSPM's superior performance and commitment to achieving policy goals would be consistent with this and other Commissions' authority and precedent, as well as in the public interest. In terms of this case, it would be appropriate to consider and recognize the high performance of NSPM and the benefits and value such service provides to customers in selecting where the Company's allowed return falls within the range of reasonableness.

VIII. CAPITAL STRUCTURE

Q. WHAT IS THE COMPANY'S PROJECTED CAPITAL STRUCTURE?

A. As discussed in greater detail in the direct testimony of Company witness Ms.

[86] *See*, for example, in *Pennsylvania Public Utilities Commission v. Aqua Pennsylvania*, Docket No. R-00038805, July 23, 2004, the Pennsylvania PUC increased ALJ's decision from 10 percent to 10.6 percent in part to recognize management performance for water quality, customer service and low-income customer assistance. Also, in *Pennsylvania Public Utilities Commission v. PPL Electric Utilities Corporation*, Docket No. R-2012-2290597, December 5, 2014, the Pennsylvania PUC increased the authorized ROE by 12 basis points to recognize exemplary management performance for related to its advanced metering infrastructure, operating initiatives, customer contact center, electric competition, customer education, energy efficiency programs, and customer assistance programs.

Sarah Soong, the Company's projected capital structure, consisting of 52.50 percent common equity for each year of its three-year multi-year rate plan (MYRP), 46.63 percent, 46.28 percent, and 46.42 percent long-term debt in 2020, 2021, and 2022, respectively, and 0.87 percent, 1.22 percent, and 1.08 percent short-term debt in 2020, 2021, and 2022, respectively.[87]

Q. PLEASE DISCUSS YOUR ANALYSIS OF THE CAPITAL STRUCTURES OF THE ELECTRIC PROXY GROUP COMPANIES.

A. As discussed previously, the Company's proposed capital structure and equity ratio were an assumed premise for my analysis of the Company's ROE. In order to assess the reasonableness of the Company's proposed capital structure, I also reviewed the capitalization ratios of the individual utility operating companies owned and operated (and for which separate financial information is available) by the respective proxy group companies.

As shown in Exhibit___(JJR-1), Schedule 10, the Company's proposed equity ratio (52.50 percent) is comparable to the weighted average equity ratio of the Electric Proxy Group of 52.34 percent. The Company's long-term and short-term debt ratios of 46.63 percent and 0.87 percent respectively are well within the range of these ratios Electric Proxy Group companies. Thus, overall, the Company's proposed capital structure ratios are well within the range of the Electric Proxy Group.

[87] *See* Exhibit___(SWS-1), Schedule 2.

IX. CONCLUSION AND RECOMMENDATION

Q. WHAT IS YOUR CONCLUSION REGARDING A FAIR RETURN ON EQUITY FOR THE COMPANY?

A. My analyses indicate that the Company's cost of equity currently is in the range of 9.75 percent to 10.25 percent. Based on the quantitative and qualitative analyses presented in my Direct Testimony (*see* Figure 19, below), and in light of the business and financial risks of the Company compared to the proxy group, it is my view that an ROE of 10.20 percent is reasonable and would fairly balance the interests of customers and shareholders. This ROE would enable the Company to maintain its financial integrity and therefore its ability to attract capital at reasonable rates under a variety of economic and financial market conditions, while continuing to provide safe, reliable and affordable electric utility service to customers in Minnesota. This recommendation, which is above the midpoint of the range of reasonableness, also recognizes NSPM's superior performance and commitment to achieving policy goals.

Figure 19

Summary of Analytical Results

Constant Growth DCF (including flotation costs)			
	Mean Low	Mean	Mean High
30-Day Average Price	8.47%	8.99%	10.03%
90-Day Average Price	8.47%	8.98%	10.11%
180-Day Average Price	8.58%	9.01%	10.09%
Two-Stage Growth DCF (including flotation costs)			
	Mean Low	Mean	Mean High
30-Day Average Price	8.26%	8.85%	9.57%
90-Day Average Price	8.27%	8.85%	9.75%
180-Day Average Price	8.37%	8.89%	9.77%
Capital Asset Pricing Model			
	Current Risk-Free Rate (2.11%)	Q4 2019 – Q4 2020 Projected Risk-Free Rate (2.24%)	2021-2025 Projected Risk-Free Rate (3.60%)
Value Line Beta	9.02%	9.07%	9.63%
Bloomberg Beta	9.86%	9.91%	10.37%
Bond Yield Plus Risk Premium			
	Current Risk-Free Rate (2.11%)	Q4 2019 – Q4 2020 Projected Risk-Free Rate (2.24%)	2021-2025 Projected Risk-Free Rate (3.60%)
Risk Premium Results	9.57%	9.62%	10.21%
Expected Earnings Analysis			
	Mean		Median
Expected Earnings Results	10.59%		10.29%

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

JOHN J. REED

Mr. Reed is a financial and economic consultant with more than 42 years of experience in the energy industry. Mr. Reed has also been the CEO of an NASD member securities firm, and Co-CEO of the nation's largest publicly traded management consulting firm (NYSE: NCI). He has provided advisory services in the areas of mergers and acquisitions, asset divestitures and purchases, strategic planning, project finance, corporate valuation, energy market analysis, rate and regulatory matters and energy contract negotiations to clients across North and Central America. Mr. Reed's comprehensive experience includes the development and implementation of nuclear, fossil, and hydroelectric generation divestiture programs with an aggregate valuation in excess of $20 billion. Mr. Reed has also provided expert testimony on financial and economic matters on more than 400 occasions before the FERC, Canadian regulatory agencies, state utility regulatory agencies, various state and federal courts, and before arbitration panels in the United States and Canada. After graduation from the Wharton School of the University of Pennsylvania, Mr. Reed joined Southern California Gas Company, where he worked in the regulatory and financial groups, leaving the firm as Chief Economist in 1981. He served as executive and consultant with Stone & Webster Management Consulting and R.J. Rudden Associates prior to forming REED Consulting Group (RCG) in 1988. RCG was acquired by Navigant Consulting in 1997, where Mr. Reed served as an executive until leaving Navigant to join Concentric as Chairman and Chief Executive Officer.

Chairman and Chief Executive Officer

REPRESENTATIVE PROJECT EXPERIENCE

Executive Management

- As an executive-level consultant, worked with CEOs, CFOs, other senior officers, and Boards of Directors of many of North America's top electric and gas utilities, as well as with senior political leaders of the U.S. and Canada on numerous engagements over the past 25 years. Directed merger, acquisition, divestiture, and project development engagements for utilities, pipelines and electric generation companies, repositioned several electric and gas utilities as pure distributors through a series of regulatory, financial, and legislative initiatives, and helped to develop and execute several "roll-up" or market aggregation strategies for companies seeking to achieve substantial scale in energy distribution, generation, transmission, and marketing.

Financial and Economic Advisory Services

- Retained by many of the nation's leading energy companies and financial institutions for services relating to the purchase, sale or development of new enterprises. These projects included major new gas pipeline projects, gas storage projects, several non-utility generation projects, the purchase and sale of project development and gas marketing firms, and utility acquisitions. Specific services provided include the development of corporate expansion

plans, review of acquisition candidates, establishment of divestiture standards, due diligence on acquisitions or financing, market entry or expansion studies, competitive assessments, project financing studies, and negotiations relating to these transactions.

Litigation Support and Expert Testimony

- Provided expert testimony on more than 400 occasions in administrative and civil proceedings on a wide range of energy and economic issues. Clients in these matters have included gas distribution utilities, gas pipelines, gas producers, oil producers, electric utilities, large energy consumers, governmental and regulatory agencies, trade associations, independent energy project developers, engineering firms, and gas and power marketers. Testimony has focused on issues ranging from broad regulatory and economic policy to virtually all elements of the utility ratemaking process. Also frequently testified regarding energy contract interpretation, accepted energy industry practices, horizontal and vertical market power, quantification of damages, and management prudence. Has been active in regulatory contract and litigation matters on virtually all interstate pipeline systems serving the U.S. Northeast, Mid-Atlantic, Midwest, and Pacific regions.
- Also served on FERC Commissioner Terzic's Task Force on Competition, which conducted an industry-wide investigation into the levels of and means of encouraging competition in U.S. natural gas markets and served on a "Blue Ribbon" panel established by the Province of New Brunswick regarding the future of natural gas distribution service in that province.

Resource Procurement, Contracting and Analysis

- On behalf of gas distributors, gas pipelines, gas producers, electric utilities, and independent energy project developers, personally managed or participated in the negotiation, drafting, and regulatory support of hundreds of energy contracts, including the largest gas contracts in North America, electric contracts representing billions of dollars, pipeline and storage contracts, and facility leases.
- These efforts have resulted in bringing large new energy projects to market across North America, the creation of hundreds of millions of dollars in savings through contract renegotiation, and the regulatory approval of a number of highly contested energy contracts.

Strategic Planning and Utility Restructuring

- Acted as a leading participant in the restructuring of the natural gas and electric utility industries over the past fifteen years, as an adviser to local distribution companies, pipelines, electric utilities, and independent energy project developers. In the recent past, provided services to most of the top 50 utilities and energy marketers across North America. Managed projects that frequently included the redevelopment of strategic plans, corporate reorganizations, the development of multi-year regulatory and legislative agendas, merger, acquisition and divestiture strategies, and the development of market entry strategies. Developed and supported merchant function exit strategies, marketing affiliate strategies, and detailed plans for the functional business units of many of North America's leading utilities.

PROFESSIONAL HISTORY

Concentric Energy Advisors, Inc. (2002 – Present)
Chairman and Chief Executive Officer

CE Capital Advisors (2004 – Present)
Chairman, President, and Chief Executive Officer

Navigant Consulting, Inc. (1997 – 2002)
President, Navigant Energy Capital (2000 – 2002)
Executive Director (2000 – 2002)
Co-Chief Executive Officer, Vice Chairman (1999 – 2000)
Executive Managing Director (1998 – 1999)
President, REED Consulting Group, Inc. (1997 – 1998)

REED Consulting Group (1988 – 1997)
Chairman, President and Chief Executive Officer

R.J. Rudden Associates, Inc. (1983 – 1988)
Vice President

Stone & Webster Management Consultants, Inc. (1981 – 1983)
Senior Consultant
Consultant

Southern California Gas Company (1976 – 1981)
Corporate Economist
Financial Analyst
Treasury Analyst

EDUCATION

Wharton School, University of Pennsylvania
B.S., Economics and Finance, 1976
Licensed Securities Professional: NASD Series 7, 63, 24, 79 and 99 Licenses

BOARDS OF DIRECTORS (PAST AND PRESENT)

Concentric Energy Advisors, Inc.
Navigant Consulting, Inc.
Navigant Energy Capital
Nukem, Inc.
New England Gas Association
R. J. Rudden Associates
REED Consulting Group

AFFILIATIONS

American Gas Association
Energy Bar Association
Guild of Gas Managers
International Association of Energy Economists
Northeast Gas Association
Society of Gas Lighters
Society of Utility and Regulatory Financial Analysts

ARTICLES AND PUBLICATIONS

"Maximizing U.S. federal loan guarantees for new nuclear energy," Bulletin of the Atomic Scientists (with John C. Slocum), July 29, 2009
"Smart Decoupling – Dealing with unfunded mandates in performance-based ratemaking," Public Utilities Fortnightly, May 2012

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Alaska Regulatory Commission				
Chugach Electric	12/86	Chugach Electric	Docket No. U-86-11	Cost Allocation
Chugach Electric	5/87	Enstar Natural Gas Company	Docket No. U-87-2	Tariff Design
Chugach Electric	12/87	Enstar Natural Gas Company	Docket No. U-87-42	Gas Transportation
Chugach Electric	11/87 2/88	Chugach Electric	Docket No. U-87-35	Cost of Capital
Anchorage Municipal Light & Power	9/17	Anchorage Municipal Light & Power	Docket No. U-16-094 Docket No. U-17-008	Project Prudence
Municipality of Anchorage ("MOA") d/b/a Municipal Light and Power	8/19	Municipality of Anchorage ("MOA") d/b/a Municipal Light and Power	Docket No. U-18-102 Docket No. U-19-020 Docket No. U-19-021	Merger Standard for Approval
Alberta Utilities Commission				
Alberta Utilities (AltaLink, EPCOR, ATCO, ENMAX, FortisAlberta, AltaGas)	1/13	Alberta Utilities	Application 1566373, Proceeding ID 20	Stranded Costs
Arizona Corporation Commission				
Tucson Electric Power	7/12	Tucson Electric Power	Docket No. E-01933A-12-0291	Cost of Capital
UNS Energy and Fortis Inc.	1/14	UNS Energy, Fortis Inc.	Docket No. E-04230A-00011 and Docket No. E-01933A-14-0011	Merger

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
California Energy Commission				
Southern California Gas Co.	8/80	Southern California Gas Co.	Docket No. 80-BR-3	Gas Price Forecasting
California Public Utility Commission				
Southern California Gas Co.	3/80	Southern California Gas Co.	TY 1981 G.R.C.	Cost of Service, Inflation
Pacific Gas Transmission Co.	10/91 11/91	Pacific Gas & Electric Co.	App. 89-04-033	Rate Design
Pacific Gas Transmission Co.	7/92	Southern California Gas Co.	A. 92-04-031	Rate Design
San Diego Gas & Electric Company	4/19	San Diego Gas & Electric Company	A. 19-04-XXX	Risk Premium, ROE
Colorado Public Utilities Commission				
AMAX Molybdenum	2/90	Commission Rulemaking	Docket No. 89R-702G	Gas Transportation
AMAX Molybdenum	11/90	Commission Rulemaking	Docket No. 90R-508G	Gas Transportation
Xcel Energy	8/04	Xcel Energy	Docket No. 031-134E	Cost of Debt
Public Service Company of Colorado	6/17	Public Service Company of Colorado	Docket No. 17AL-0363G	Return on Equity (Gas)
CT Public Utilities Regulatory Authority				
Connecticut Natural Gas	12/88	Connecticut Natural Gas	Docket No. 88-08-15	Gas Purchasing Practices
United Illuminating	3/99	United Illuminating	Docket No. 99-03-04	Nuclear Plant Valuation
Southern Connecticut Gas	2/04	Southern Connecticut Gas	Docket No. 00-12-08	Gas Purchasing Practices

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Southern Connecticut Gas	4/05	Southern Connecticut Gas	Docket No. 05-03-17	LNG/Trunkline
Southern Connecticut Gas	5/06	Southern Connecticut Gas	Docket No. 05-03-17PH01	LNG/Trunkline
Southern Connecticut Gas	8/08	Southern Connecticut Gas	Docket No. 06-05-04	Peaking Service Agreement
SJW Group and Connecticut Water Service	4/19	SJW Group and Connecticut Water Service	Docket 19-04-02	Customer Benefits, Public Interest
District of Columbia PSC				
Potomac Electric Power Company	3/99 5/99 7/99	Potomac Electric Power Company	Docket No. 945	Divestiture of Gen. Assets & Purchase Power Contracts
AltaGas Ltd./WGL Holdings	4/17 8/17 10/17	AltaGas Ltd./WGL Holdings	Docket No. 1142	Merger Standards, Public Interest Standard
Federal Energy Regulatory Commission				
Safe Harbor Water Power Corp.	8/82	Safe Harbor Water Power Corp.		Wholesale Electric Rate Increase
Western Gas Interstate Company	5/84	Western Gas Interstate Company	Docket No. RP84-77	Load Forecast Working Capital
Southern Union Gas	4/87 5/87	El Paso Natural Gas Company	Docket No. RP87-16-000	Take-or-Pay Costs
Connecticut Natural Gas	11/87	Penn-York Energy Corporation	Docket No. RP87-78-000	Cost Allocation/Rate Design
AMAX Magnesium	12/88 1/89	Questar Pipeline Company	Docket No. RP88-93-000	Cost Allocation/Rate Design

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Western Gas Interstate Company	6/89	Western Gas Interstate Company	Docket No. RP89-179-000	Cost Allocation/Rate Design, Open-Access Transportation
Associated CD Customers	12/89	CNG Transmission	Docket No. RP88-211-000	Cost Allocation/Rate Design
Utah Industrial Group	9/90	Questar Pipeline Company	Docket No. RP88-93-000, Phase II	Cost Allocation/Rate Design
Iroquois Gas Trans. System	8/90	Iroquois Gas Transmission System	Docket No. CP89-634-000/001; CP89-815-000	Gas Markets, Rate Design, Cost of Capital, Capital Structure
Boston Edison Company	1/91	Boston Edison Company	Docket No. ER91-243-000	Electric Generation Markets
Cincinnati Gas and Electric Co., Union Light, Heat and Power Company, Lawrenceburg Gas Company	7/91	Texas Gas Transmission Corp.	Docket No. RP90-104-000, RP88-115-000, RP90-192-000	Cost Allocation, Rate Design, Comparability of Service
Ocean State Power II	7/91	Ocean State Power II	ER89-563-000	Competitive Market Analysis, Self-dealing
Brooklyn Union/PSE&G	7/91	Texas Eastern	RP88-67, et al	Market Power, Comparability of Service
Northern Distributor Group	9/92 11/92	Northern Natural Gas Company	RP92-1-000, et al	Cost of Service
Canadian Association of Petroleum Producers and Alberta Pet. Marketing Comm.	10/92 7/97	Lakehead Pipe Line Co. L.P.	IS92-27-000	Cost Allocation, Rate Design
Colonial Gas, Providence Gas	7/93 8/93	Algonquin Gas Transmission	RP93-14	Cost Allocation, Rate Design

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Iroquois Gas Transmission	94	Iroquois Gas Transmission	RP94-72-000	Cost of Service, Rate Design
Transco Customer Group	1/94	Transcontinental Gas Pipeline Corporation	Docket No. RP92-137-000	Rate Design, Firm to Wellhead
Pacific Gas Transmission	2/94 3/95	Pacific Gas Transmission	Docket No. RP94-149-000	Rolled-In vs. Incremental Rates, Rate Design
Tennessee GSR Group	1/95 3/95 1/96	Tennessee Gas Pipeline Company	Docket Nos. RP93-151-000, RP94-39-000, RP94-197-000, RP94-309-000	GSR Costs
PG&E and SoCal Gas	8/96 9/96	El Paso Natural Gas Company	RP92-18-000	Stranded Costs
Iroquois Gas Transmission System, L.P.	97	Iroquois Gas Transmission System, L.P.	RP97-126-000	Cost of Service, Rate Design
BEC Energy - Commonwealth Energy System	2/99	Boston Edison Company/ Commonwealth Energy System	EC99-33-000	Market Power Analysis – Merger
Central Hudson Gas & Electric, Consolidated Co. of New York, Niagara Mohawk Power Corporation, Dynegy Power Inc.	10/00	Central Hudson Gas & Electric, Consolidated Co. of New York, Niagara Mohawk Power Corporation, Dynegy Power Inc.	Docket No. EC01-7-000	Market Power 203/205 Filing
Wyckoff Gas Storage	12/02	Wyckoff Gas Storage	CP03-33-000	Need for Storage Project
Indicated Shippers/Producers	10/03	Northern Natural Gas	Docket No. RP98-39-029	Ad Valorem Tax Treatment

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Maritimes & Northeast Pipeline	6/04	Maritimes & Northeast Pipeline	Docket No. RP04-360-000	Rolled-In Rates
ISO New England	8/04 2/05	ISO New England	Docket No. ER03-563-030	Cost of New Entry
Transwestern Pipeline Company, LLC	9/06	Transwestern Pipeline Company, LLC	Docket No. RP06-614-000	Business Risk
Portland Natural Gas Transmission System	6/08	Portland Natural Gas Transmission System	Docket No. RP08-306-000	Market Assessment, Natural Gas Transportation, Rate Setting
Portland Natural Gas Transmission System	5/10 3/11 4/11	Portland Natural Gas Transmission System	Docket No. RP10-729-000	Business Risks, Extraordinary and Non-recurring Events Pertaining to Discretionary Revenues
Morris Energy	7/10	Morris Energy	Docket No. RP10-79-000	Impact of Preferential Rate
Gulf South Pipeline	10/14	Gulf South Pipeline	Docket No. RP15-65-000	Business Risk, Rate Design
BNP Paribas Energy Trading, GP South Jersey Resource Group, LLC	2/15	Transcontinental Gas Pipe Line Corporation	Docket No. RP06-569-008 and RP07-376-005	Regulatory Policy, Incremental Rates, Stacked Rate
Tallgrass Interstate Gas Transmission, LLC	10/15 12/15	Tallgrass Interstate Gas Transmission, LLC	Docket No. RP16-137-000	Market Assessment, Rate Design, Rolled-in Rate Treatment
Florida Public Service Commission				
Florida Power and Light Co.	10/07	Florida Power & Light Co.	Docket No. 070650-EI	Need for New Nuclear Plant
Florida Power and Light Co.	5/08	Florida Power & Light Co.	Docket No. 080009-EI	New Nuclear Cost Recovery, Prudence

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Florida Power and Light Co.	3/09 8/09	Florida Power & Light Co.	Docket No. 080677-EI	Benchmarking in Support of ROE
Florida Power and Light Co.	3/09 5/09 8/09	Florida Power & Light Co.	Docket No. 090009-EI	New Nuclear Cost Recovery, Prudence
Florida Power and Light Co.	3/10 5/10 8/10	Florida Power & Light Co.	Docket No. 100009-EI	New Nuclear Cost Recovery, Prudence
Florida Power and Light Co.	3/11 7/11	Florida Power & Light Co.	Docket No. 110009-EI	New Nuclear Cost Recovery, Prudence
Florida Power and Light Co.	3/12 7/12	Florida Power & Light Co.	Docket No. 120009-EI	New Nuclear Cost Recovery, Prudence
Florida Power and Light Co.	3/12 8/12	Florida Power & Light Co.	Docket No. 120015-EI	Benchmarking in Support of ROE
Florida Power and Light Co.	3/13 7/13	Florida Power & Light Co.	Docket No. 130009	New Nuclear Cost Recovery, Prudence
Florida Power and Light Co.	3/14	Florida Power & Light Co.	Docket No. 140009	New Nuclear Cost Recovery, Prudence
Florida Power and Light Co.	3/15 7/15	Florida Power & Light Co.	Docket No. 150009	New Nuclear Cost Recovery, Prudence
Florida Power and Light Co.	10/15	Florida Power and Light Co.	Docket No. 150001	Recovery of Replacement Power Costs
Florida Power and Light Co.	3/16	Florida Power & Light Co.	Docket No. 160021-EI	Benchmarking in Support of ROE
Florida Senate Committee on Communication, Energy and Utilities				
Florida Power and Light Co.	2/09	Florida Power & Light Co.		Securitization

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Hawai'i Public Utility Commission				
Hawaiian Electric Light Company, Inc.	6/00	Hawaiian Electric Light Company, Inc.	Docket No. 99-0207	Standby Charge
NextEra Energy, Inc. Hawaiian Electric Companies	4/15 8/15 10/15	Hawaiian Electric Company, Inc.; Hawaii Electric Light Company, Inc., Maui Electric Company, Ltd., NextEra Energy, Inc.	Docket No. 2015-0022	Merger Application
Idaho Public Utilities Commission				
Hydro One Limited and Avista Corporation	9/18 11/18	Hydro One Limited and Avista Corporation	Case No. AVU-E-17-09 Case No. AVU-G-17-05	Governance, Financial Integrity and Ring-fencing Merger Commitments
Illinois Commerce Commission				
Renewables Suppliers (Algonquin Power Co., EDP Renewables North America, Invenergy, NextEra Energy Resources)	3/14	Renewables Suppliers	Docket No. 13-0546	Application for Rehearing and Reconsideration, Long-term Purchase Power Agreements
WE Energies Corporation	8/14 12/14 2/15	WE Energies/Integrys	Docket No. 14-0496	Merger Application

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Indiana Utility Regulatory Commission				
Northern Indiana Public Service Company	10/01	Northern Indiana Public Service Company	Cause No. 41746	Valuation of Electric Generating Facilities
Northern Indiana Public Service Company	1/08 3/08	Northern Indiana Public Service Company	Cause No. 43396	Asset Valuation
Northern Indiana Public Service Company	8/08	Northern Indiana Public Service Company	Cause No. 43526	Fair Market Value Assessment
Indianapolis Power & Light Company	12/14	Indianapolis Power & Light Company	Cause No. 44576	Asset Valuation
Indianapolis Power & Light Company	12/16	Indianapolis Power & Light Company	Cause No. 44893	Rate Recovery for New Plant Additions, Valuation of Electric Generating Facilities
Iowa Utilities Board				
Interstate Power and Light	7/05	Interstate Power and Light and FPL Energy Duane Arnold, LLC	Docket No. SPU-05-15	Sale of Nuclear Plant
Interstate Power and Light	5/07	City of Everly, Iowa	Docket No. SPU-06-5	Municipalization
Interstate Power and Light	5/07	City of Kalona, Iowa	Docket No. SPU-06-6	Municipalization
Interstate Power and Light	5/07	City of Wellman, Iowa	Docket No. SPU-06-10	Municipalization
Interstate Power and Light	5/07	City of Terril, Iowa	Docket No. SPU-06-8	Municipalization
Interstate Power and Light	5/07	City of Rolfe, Iowa	Docket No. SPU-06-7	Municipalization

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Kansas Corporation Commission				
Great Plains Energy Kansas City Power and Light Company	1/17	Great Plains Energy, Kansas City Power & Light Company, and Westar Energy	Docket No. 16-KCPE-593-ACQ	Merger Standards, Acquisition Premium, Ring-Fencing, Public Interest Standard
Great Plains Energy Kansas City Power and Light Company	8/17 2/18	Great Plains Energy, Kansas City Power & Light Company, and Westar Energy	Docket No. 18-KCPE-095-MER	Merger Standards, Transaction Value, Merger Benefits, Ring-Fencing,
Maine Public Utility Commission				
Northern Utilities	5/96	Granite State and PNGTS	Docket No. 95-480, 95-481	Transportation Service and PBR
Maine Water Company	7/19 8/19	Maine Water Company	Docket No. 2019-00096	Merger Standards, Net Benefits to Customers, Ring-fencing
Maryland Public Service Commission				
Eastalco Aluminum	3/82	Potomac Edison	Docket No. 7604	Cost Allocation
Potomac Electric Power Company	8/99	Potomac Electric Power Company	Docket No. 8796	Stranded Cost & Price Protection
AltaGas Ltd./WGL Holdings	4/17 9/17 1/18 2/18	AltaGas Ltd./WGL Holdings	Docket No. 9449	Merger Standards, Public Interest Standard
Mass. Department of Public Utilities				
Haverhill Gas	5/82	Haverhill Gas	Docket No. DPU #1115	Cost of Capital
New England Energy Group	1/87	Commission Investigation		Gas Transportation Rates

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Energy Consortium of Mass.	9/87	Commonwealth Gas Company	Docket No. DPU-87-122	Cost Allocation, Rate Design
Mass. Institute of Technology	12/88	Middleton Municipal Light	DPU #88-91	Cost Allocation, Rate Design
Energy Consortium of Mass.	3/89	Boston Gas	DPU #88-67	Rate Design
PG&E Bechtel Generating Co./ Constellation Holdings	10/91	Commission Investigation	DPU #91-131	Valuation of Environmental Externalities
Coalition of Non-Utility Generators		Cambridge Electric Light Co. & Commonwealth Electric Co.	DPU 91-234 EFSC 91-4	Integrated Resource Management
The Berkshire Gas Company Essex County Gas Company Fitchburg Gas and Elec. Light Co.	5/92	The Berkshire Gas Company Essex County Gas Company Fitchburg Gas & Elec. Light Co.	DPU #92-154	Gas Purchase Contract Approval
Boston Edison Company	7/92	Boston Edison	DPU #92-130	Least Cost Planning
Boston Edison Company	7/92	The Williams/Newcorp Generating Co.	DPU #92-146	RFP Evaluation
Boston Edison Company	7/92	West Lynn Cogeneration	DPU #92-142	RFP Evaluation
Boston Edison Company	7/92	L'Energia Corp.	DPU #92-167	RFP Evaluation
Boston Edison Company	7/92	DLS Energy, Inc.	DPU #92-153	RFP Evaluation

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Boston Edison Company	7/92	CMS Generation Co.	DPU #92-166	RFP Evaluation
Boston Edison Company	7/92	Concord Energy	DPU #92-144	RFP Evaluation
The Berkshire Gas Company Colonial Gas Company Essex County Gas Company Fitchburg Gas and Electric Company	11/93	The Berkshire Gas Company Colonial Gas Company Essex County Gas Company Fitchburg Gas and Electric Co.	DPU #93-187	Gas Purchase Contract Approval
Bay State Gas Company	10/93	Bay State Gas Company	Docket No. 93-129	Integrated Resource Planning
Boston Edison Company	94	Boston Edison	DPU #94-49	Surplus Capacity
Hudson Light & Power Department	4/95	Hudson Light & Power Dept.	DPU #94-176	Stranded Costs
Essex County Gas Company	5/96	Essex County Gas Company	Docket No. 96-70	Unbundled Rates
Boston Edison Company	8/97	Boston Edison Company	D.P.U. No. 97-63	Holding Company Corporate Structure
Berkshire Gas Company	6/98	Berkshire Gas Mergeco Gas Co.	D.T.E. 98-87	Merger Approval
Eastern Edison Company	8/98	Montaup Electric Company	D.T.E. 98-83	Marketing for Divestiture of its Generation Business
Boston Edison Company	98	Boston Edison Company	D.T.E. 97-113	Fossil Generation Divestiture
Boston Edison Company	2/99	Boston Edison Company	D.T.E. 98-119	Nuclear Generation Divestiture
Eastern Edison Company	12/98	Montaup Electric Company	D.T.E. 99-9	Sale of Nuclear Plant

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
NStar	9/07 12/07	NStar, Bay State Gas, Fitchburg G&E, NE Gas, W. MA Electric	DPU 07-50	Decoupling, Risk
NStar	6/11	NStar, Northeast Utilities	DPU 10-170	Merger Approval
Town of Milford	1/19 3/19 5/19	Milford Water Company	DPU 18-60	Valuation Analysis
Mass. Energy Facilities Siting Council				
Mass. Institute of Technology	1/89	M.M.W.E.C.	EFSC-88-1	Least-Cost Planning
Boston Edison Company	9/90	Boston Edison	EFSC-90-12	Electric Generation Markets
Silver City Energy Ltd. Partnership	11/91	Silver City Energy	D.P.U. 91-100	State Policies, Need for Facility
Michigan Public Service Commission				
Detroit Edison Company	9/98	Detroit Edison Company	Case No. U-11726	Market Value of Generation Assets
Consumers Energy Company	8/06 1/07	Consumers Energy Company	Case No. U-14992	Sale of Nuclear Plant
WE Energies	12/11	Wisconsin Electric Power Co	Case No. U-16830	Economic Benefits, Prudence
Consumer Energy Company	7/13	Consumers Energy Company	Case No. U-17429	Certificate of Need, Integrated Resource Plan
WE Energies	8/14 3/15	WE Energies/Integrys	Case No. U-17682	Merger Application
Minnesota Public Utilities Commission				
Xcel Energy/No. States Power	9/04	Xcel Energy/No. States Power	Docket No. G002/GR-04-1511	NRG Impacts

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Interstate Power and Light	8/05	Interstate Power and Light and FPL Energy Duane Arnold, LLC	Docket No. E001/PA-05-1272	Sale of Nuclear Plant
Northern States Power Company d/b/a Xcel Energy	11/05	Northern States Power Company	Docket No. E002/GR-05-1428	NRG Impacts on Debt Costs
Northern States Power Company d/b/a Xcel Energy	09/06 10/06 11/06	NSP v. Excelsior	Docket No. E6472/M-05-1993	PPA, Financial Impacts
Northern States Power Company d/b/a Xcel Energy	11/06	Northern States Power Company	Docket No. G002/GR-06-1429	Return on Equity
Northern States Power	11/08 05/09	Northern States Power Company	Docket No. E002/GR-08-1065	Return on Equity
Northern States Power	11/09 6/10	Northern States Power Company	Docket No. G002/GR-09-1153	Return on Equity
Northern States Power	11/10 5/11	Northern States Power Company	Docket No. E002/GR-10-971	Return on Equity
Northern States Power Company d/b/a Xcel Energy	1/16	Northern States Power Company	Docket No. E002/GR-15-826	Industry Perspective
Missouri House Committee on Energy and the Environment				
Ameren Missouri	3/16	Ameren Missouri	HB 2816	Performance Based Ratemaking
Missouri Public Service Commission				
Missouri Gas Energy	1/03 04/03	Missouri Gas Energy	Case No. GR-2001-382	Gas Purchasing Practices, Prudence

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Aquila Networks	2/04	Aquila-MPS, Aquila L&P	Case Nos. ER-2004-0034 HR-2004-0024	Cost of Capital, Capital Structure
Aquila Networks	2/04	Aquila-MPS, Aquila L&P	Case No. GR-2004-0072	Cost of Capital, Capital Structure
Missouri Gas Energy	11/05 2/06 7/06	Missouri Gas Energy	Case Nos. GR-2002-348 GR-2003-0330	Capacity Planning
Missouri Gas Energy	11/10 1/11	KCP&L	Case No. ER-2010-0355	Natural Gas DSM
Missouri Gas Energy	11/10 1/11	KCP&L GMO	Case No. ER-2010-0356	Natural Gas DSM
Laclede Gas Company	5/11	Laclede Gas Company	Case No. CG-2011-0098	Affiliate Pricing Standards
Union Electric Company d/b/a Ameren Missouri	2/12 8/12	Union Electric Company	Case No. ER-2012-0166	ROE, Earnings Attrition, Regulatory Lag
Union Electric Company d/b/a Ameren Missouri	6/14	Noranda Aluminum Inc.	Case No. EC-2014-0223	Ratemaking, Regulatory and Economic Policy
Union Electric Company d/b/a Ameren Missouri	1/15 2/15	Union Electric Company	Case No. ER-2014-0258	Revenue Requirements, Ratemaking Policies
Great Plains Energy Kansas City Power and Light Company	8/17 2/18 3/18	Great Plains Energy, Kansas City Power & Light Company, and Westar Energy	Docket No. EM-2018-0012	Merger Standards, Transaction Value, Merger Benefits, Ring-Fencing,
Union Electric Company d/b/a Ameren Missouri	6/19	Union Electric Company d/b/a Ameren Missouri	Case No. EO-2017-0176	Affiliate Transactions, Cost Allocation Manual

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Union Electric Company d/b/a Ameren Missouri	7/19	Union Electric Company d/b/a Ameren Missouri	Case No. ER-2019-0335	Reasonableness of Affiliate Services and Costs
Missouri Senate Committee on Commerce, Consumer Protection, Energy and the Environment				
Ameren Missouri	3/16	Ameren Missouri	SB 1028	Performance Based Ratemaking
Montana Public Service Commission				
Great Falls Gas Company	10/82	Great Falls Gas Company	Docket No. 82-4-25	Gas Rate Adjustment Clause
Canadian Energy Regulator (formerly known as the National Energy Board)				
Alberta-Northeast	2/87	Alberta Northeast Gas Export Project	Docket No. GH-1-87	Gas Export Markets
Alberta-Northeast	11/87	TransCanada Pipeline	Docket No. GH-2-87	Gas Export Markets
Alberta-Northeast	1/90	TransCanada Pipeline	Docket No. GH-5-89	Gas Export Markets
Independent Petroleum Association of Canada	1/92	Interprovincial Pipe Line, Inc.	RH-2-91	Pipeline Valuation, Toll
The Canadian Association of Petroleum Producers	11/93	Transmountain Pipe Line	RH-1-93	Cost of Capital
Alliance Pipeline L.P.	6/97	Alliance Pipeline L.P.	GH-3-97	Market Study
Maritimes & Northeast Pipeline	97	Sable Offshore Energy Project	GH-6-96	Market Study
Maritimes & Northeast Pipeline	2/02	Maritimes & Northeast Pipeline	GH-3-2002	Natural Gas Demand Analysis

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
TransCanada Pipelines	8/04	TransCanada Pipelines	RH-3-2004	Toll Design
Brunswick Pipeline	5/06	Brunswick Pipeline	GH-1-2006	Market Study
TransCanada Pipelines Ltd.	12/06 4/07	TransCanada Pipelines Ltd.: Gros Cacouna Receipt Point Application	RH-1-2007	Toll Design
Repsol Energy Canada Ltd	3/08	Repsol Energy Canada Ltd	GH-1-2008	Market Study
Maritimes & Northeast Pipeline	7/10	Maritimes & Northeast Pipeline	RH-4-2010	Regulatory Policy, Toll Development
TransCanada Pipelines Ltd	9/11 5/12	TransCanada Pipelines Ltd.	RH-3-2011	Business Services and Tolls Application
Trans Mountain Pipeline LLC	6/12 1/13	Trans Mountain Pipeline LLC	RH-1-2012	Toll Design
TransCanada Pipelines Ltd	8/13	TransCanada Pipelines Ltd	RE-001-2013	Toll Design
NOVA Gas Transmission Ltd	11/13	NOVA Gas Transmission Ltd	OF-Fac-Gas-N081-2013-10 01	Toll Design
Trans Mountain Pipeline LLC	12/13	Trans Mountain Pipeline LLC	OF-Fac-Oil-T260-2013-03 01	Economic and Financial Feasibility, Project Benefits
Energy East Pipeline Ltd.	10/14	Energy East Pipeline	Of-Fac-Oil-E266-2014-01 02	Economic and Financial Feasibility, Project Benefits
NOVA Gas Transmission Ltd	5/16	NOVA Gas Transmission Ltd	GH-003-2015	Certificate of Public Convenience and Necessity
TransCanada PipeLines Limited	4/17 9/17	TransCanada PipeLines Limited	Dawn LTFP Service Application	Public Interest, Toll Design

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
NOVA Gas Transmission Ltd	10/17	NOVA Gas Transmission Ltd	MH-031-2017	Toll Design
NOVA Gas Transmission Ltd	3/19	NOVA Gas Transmission Ltd	System Rate Design and Services Application	Tolling Changes
New Brunswick Energy and Utilities Board				
Atlantic Wallboard/JD Irving Co	1/08	Enbridge Gas New Brunswick	MCTN #298600	Rate Setting for EGNB
Atlantic Wallboard/Flakeboard	9/09 6/10 7/10	Enbridge Gas New Brunswick	NBEUB 2009-017	Rate Setting for EGNB
Atlantic Wallboard/Flakeboard	1/14	Enbridge Gas New Brunswick	NBEUB Matter 225	Rate Setting for EGNB
NH Public Utilities Commission				
Bus & Industry Association	6/89	P.S. Co. of New Hampshire	Docket No. DR89-091	Fuel Costs
Bus & Industry Association	5/90	Northeast Utilities	Docket No. DR89-244	Merger & Acquisition Issues
Eastern Utilities Associates	6/90	Eastern Utilities Associates	Docket No. DF89-085	Merger & Acquisition Issues
EnergyNorth Natural Gas	12/90	EnergyNorth Natural Gas	Docket No. DE90-166	Gas Purchasing Practices
EnergyNorth Natural Gas	7/90	EnergyNorth Natural Gas	Docket No. DR90-187	Special Contracts, Discounted Rates
Northern Utilities, Inc.	12/91	Commission Investigation	Docket No. DR91-172	Generic Discounted Rates
Public Service Co. of New Hampshire	7/14	Public Service Co. of NH	Docket No. DE 11-250	Prudence

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Public Service Co. of New Hampshire	7/15 11/15	Public Service Co. of NH	Docket No. 14-238	Restructuring and Rate Stabilization
New Jersey Board of Public Utilities				
Hilton/Golden Nugget	12/83	Atlantic Electric	B.P.U. 832-154	Line Extension Policies
Golden Nugget	3/87	Atlantic Electric	B.P.U. No. 837-658	Line Extension Policies
New Jersey Natural Gas	2/89	New Jersey Natural Gas	B.P.U. GR89030335J	Cost Allocation, Rate Design
New Jersey Natural Gas	1/91	New Jersey Natural Gas	B.P.U. GR90080786J	Cost Allocation, Rate Design
New Jersey Natural Gas	8/91	New Jersey Natural Gas	B.P.U. GR91081393J	Rate Design, Weather Normalization Clause
New Jersey Natural Gas	4/93	New Jersey Natural Gas	B.P.U. GR93040114J	Cost Allocation, Rate Design
South Jersey Gas	4/94	South Jersey Gas	BRC Dock No. GR080334	Revised Levelized Gas Adjustment
New Jersey Utilities Association	9/96	Commission Investigation	BPU AX96070530	PBOP Cost Recovery
Morris Energy Group	11/09	Public Service Electric & Gas	BPU GR 09050422	Discriminatory Rates
New Jersey American Water Co.	4/10	New Jersey American Water Co.	BPU WR 1040260	Tariff Rates and Revisions
Electric Customer Group	1/11	Generic Stakeholder Proceeding	BPU GR10100761 and ER10100762	Natural Gas Ratemaking Standards and pricing
New Mexico Public Service Commission				
Gas Company of New Mexico	11/83	Public Service Co. of New Mexico	Docket No. 1835	Cost Allocation, Rate Design

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Southwestern Public Service Co., New Mexico	12/12	SPS New Mexico	Case No. 12-00350-UT	Rate Case, Return on Equity
PNM Resources	12/13 10/14 12/14	Public Service Co. of New Mexico	Case No. 13-00390-UT	Nuclear Valuation, In Support of Stipulation
New York State Public Service Commission				
Iroquois Gas Transmission	12/86	Iroquois Gas Transmission System	Case No. 70363	Gas Markets
Brooklyn Union Gas Company	8/95	Brooklyn Union Gas Company	Case No. 95-6-0761	Panel on Industry Directions
Central Hudson, ConEdison and Niagara Mohawk	9/00	Central Hudson, ConEdison and Niagara Mohawk	Case No. 96-E-0909 Case No. 96-E-0897 Case No. 94-E-0098 Case No. 94-E-0099	Section 70, Approval of New Facilities
Central Hudson, New York State Electric & Gas, Rochester Gas & Electric	5/01	Joint Petition of NiMo, NYSEG, RG&E, Central Hudson, Constellation and Nine Mile Point	Case No. 01-E-0011	Section 70, Rebuttal Testimony
Rochester Gas & Electric	12/03	Rochester Gas & Electric	Case No. 03-E-1231	Sale of Nuclear Plant
Rochester Gas & Electric	1/04	Rochester Gas & Electric	Case No. 03-E-0765 Case No. 02-E-0198 Case No. 03-E-0766	Sale of Nuclear Plant; Ratemaking Treatment of Sale

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Rochester Gas and Electric and NY State Electric & Gas Corp	2/10	Rochester Gas & Electric NY State Electric & Gas Corp	Case No. 09-E-0715 Case No. 09-E-0716 Case No. 09-E-0717 Case No. 09-E-0718	Depreciation Policy
National Fuel Gas Corporation	9/16 9/16	National Fuel Gas Corporation	Case No. 16-G-0257	Ring-fencing Policy
NextEra Energy Transmission New York	8/18	NextEra Energy Transmission New York	Case No. 18-T-0499	Certificate of Need for Transmission Line, Vertical Market Power
NextEra Energy Transmission New York	2/19 8/19	NextEra Energy Transmission New York	Case No. 18-E-0765	Certificate of Need for Transmission Line, Vertical Market Power
Nova Scotia Utility and Review Board				
Nova Scotia Power	9/12	Nova Scotia Power	Docket No. P-893	Audit Reply
Nova Scotia Power	8/14	Nova Scotia Power	Docket No. P-887	Audit Reply
Nova Scotia Power	5/16	Nova Scotia Power	2017-2019 Fuel Stability Plan	Used and Useful Ratemaking
NSP Maritime Link ("NSPML")	12/16 2/17 5/17	NSP Maritime Link ("NSPML")	M07718 NSPML Interim Cost Assessment Application	Used and Useful Ratemaking
NSP Maritime Link ("NSPML")	10/19	NSP Maritime Link ("NSPML")	M09277 NSPML 2020 Interim Assessment Application	Recovery of Depreciation and Return, Costs and Customer Benefits, Debt Service Coverage Ratio

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Oklahoma Corporation Commission				
Oklahoma Natural Gas Company	6/98	Oklahoma Natural Gas Company	Case PUD No. 980000177	Storage Issues
Oklahoma Gas & Electric Company	5/05 9/05	Oklahoma Gas & Electric Company	Cause No. PUD 200500151	Prudence of McLain Acquisition
Oklahoma Gas & Electric Company	3/08	Oklahoma Gas & Electric Company	Cause No. PUD 200800086	Acquisition of Redbud Generating Facility
Oklahoma Gas & Electric Company	8/14 1/15	Oklahoma Gas & Electric Company	Cause No. PUD 201400229	Integrated Resource Plan
Ontario Energy Board				
Market Hub Partners Canada, L.P.	5/06	Natural Gas Electric Interface Roundtable	File No. EB-2005-0551	Market-based Rates for Storage
Ontario Power Generation	9/13 2/14 5/14	Ontario Power Generation	EB-2013-0321	Prudence Review of Nuclear Project Management Processes
Oregon Public Utilities Commission				
Hydro One Limited and Avista Corporation	8/18 10/18	Hydro One Limited and Avista Corporation	Docket No. UM 1897	Reasonableness and Sufficiency of the Governance, Bankruptcy, and Financial Ring-Fencing Stipulated Settlement Commitments
Pennsylvania Public Utility Commission				
ATOC	4/95	Equitrans	Docket No. R-00943272	Rate Design, Unbundling
ATOC	3/96 4/96	Equitrans	Docket No. P-00940886	Rate Design, Unbundling
Rhode Island Public Utilities Commission				
Newport Electric	7/81	Newport Electric	Docket No. 1599	Rate Attrition

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
South County Gas	9/82	South County Gas	Docket No. 1671	Cost of Capital
New England Energy Group	7/86	Providence Gas Company	Docket No. 1844	Cost Allocation, Rate Design
Providence Gas	8/88	Providence Gas Company	Docket No. 1914	Load Forecast, Least-Cost Planning
Providence Gas Company and The Valley Gas Company	1/01 3/02	Providence Gas Company and The Valley Gas Company	Docket No. 1673 and 1736	Gas Cost Mitigation Strategy
The New England Gas Company	3/03	New England Gas Company	Docket No. 3459	Cost of Capital
Texas Public Utility Commission				
Southwestern Electric	5/83	Southwestern Electric		Cost of Capital, CWIP
P.U.C. General Counsel	11/90	Texas Utilities Electric Company	Docket No. 9300	Gas Purchasing Practices, Prudence
Oncor Electric Delivery Company	8/07	Oncor Electric Delivery Company	Docket No. 34040	Regulatory Policy, Rate of Return, Return of Capital and Consolidated Tax Adjustment
Oncor Electric Delivery Company	6/08	Oncor Electric Delivery Company	Docket No.35717	Regulatory policy
Oncor Electric Delivery Company	10/08 11/08	Oncor, TCC, TNC, ETT, LCRA TSC, Sharyland, STEC, TNMP	Docket No. 35665	Competitive Renewable Energy Zone
CenterPoint Energy	6/10 10/10	CenterPoint Energy/Houston Electric	Docket No. 38339	Regulatory Policy, Risk, Consolidated Taxes
Oncor Electric Delivery Company	1/11	Oncor Electric Delivery Company	Docket No. 38929	Regulatory Policy, Risk
Cross Texas Transmission	8/12 11/12	Cross Texas Transmission	Docket No. 40604	Return on Equity

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Southwestern Public Service	11/12	Southwestern Public Service	Docket No. 40824	Return on Equity
Lone Star Transmission	5/14	Lone Star Transmission	Docket No. 42469	Return on Equity, Debt, Cost of Capital
CenterPoint Energy Houston Electric, LLC	6/15	CenterPoint Energy Houston Electric, LLC	Docket No. 44572	Distribution Cost Recovery Factor
NextEra Energy, Inc.	10/16 2/17	Oncor Electric Delivery Company LLC, NextEra Energy	Docket No. 46238	Merger Application, Ring-fencing, Affiliate Interest, Code of Conduct
CenterPoint Energy Houston Electric, LLC	4/19 6/19	CenterPoint Energy Houston Electric, LLC	Docket No. 49421	Incentive Compensation
Texas Railroad Commission				
Western Gas Interstate Company	1/85	Southern Union Gas Company	Docket 5238	Cost of Service
Atmos Pipeline Texas	9/10 1/11	Atmos Pipeline Texas	GUD 10000	Ratemaking Policy, Risk
Atmos Pipeline Texas	1/17 4/17	Atmos Pipeline Texas	GUD 10580	Ratemaking Policy, ROE, Rate Design Policy
Texas State Legislature				
CenterPoint Energy	4/13	Association of Electric Companies of Texas	SB 1364	Consolidated Tax Adjustment Clause Legislation
Utah Public Service Commission				
AMAX Magnesium	1/88	Mountain Fuel Supply Company	Case No. 86-057-07	Cost Allocation, Rate Design
AMAX Magnesium	4/88	Utah P&L/Pacific P&L	Case No. 87-035-27	Merger & Acquisition

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Utah Industrial Group	7/90 8/90	Mountain Fuel Supply	Case No. 89-057-15	Gas Transportation Rates
AMAX Magnesium	9/90	Utah Power & Light	Case No. 89-035-06	Energy Balancing Account
AMAX Magnesium	8/90	Utah Power & Light	Case No. 90-035-06	Electric Service Priorities
Questar Gas Company	12/07	Questar Gas Company	Docket No. 07-057-13	Benchmarking in Support of ROE
Vermont Public Service Board				
Green Mountain Power	8/82	Green Mountain Power	Docket No. 4570	Rate Attrition
Green Mountain Power	12/97	Green Mountain Power	Docket No. 5983	Cost of Service
Green Mountain Power	7/98 9/00	Green Mountain Power	Docket No. 6107	Rate Development
Washington Utilities and Transportation Commission				
Hydro One Limited and Avista Corporation	9/18	Hydro One Limited and Avista Corporation	Docket No. U-170970	Reasonableness and Sufficiency of the Governance, Bankruptcy, and Financial Ring-Fencing Stipulated Settlement Commitments
Wisconsin Public Service Commission				
WEC & WICOR	11/99	WEC	Docket No. 9401-YO-100 Docket No. 9402-YO-101	Approval to Acquire the Stock of WICOR
Wisconsin Electric Power Company	1/07	Wisconsin Electric Power Co.	Docket No. 6630-EI-113	Sale of Nuclear Plant
Wisconsin Electric Power Company	10/09	Wisconsin Electric Power Co.	Docket No. 6630-CE-302	CPCN Application for Wind Project

REGULATORY AGENCIES

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Northern States Power Wisconsin	10/13	Xcel Energy (dba Northern States Power Wisconsin)	Docket No. 4220-UR-119	Fuel Cost Adjustments
Wisconsin Electric Power Company	11/13	Wisconsin Electric Power Co.	Docket No. 6630-FR-104	Fuel Cost Adjustment
Wisconsin Gas LLC	5/14	Wisconsin Gas LLC	Docket No. 6650-CG-233	Gas Line Expansion, Reasonableness
WE Energy	8/14 1/15 3/15	WE Energy/Integrys	Docket No. 9400-YO-100	Merger Approval
Wisconsin Public Service Corporation	1/19	Madison Gas and Electric Company and Wisconsin Public Service Corporation	Docket No. 5-BS-228	Evaluation of Models Used in Resource Investment Decisions

Courts and Arbitration

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
American Arbitration Association				
Michael Polsky	3/91	M. Polsky vs. Indeck Energy		Corporate Valuation, Damages
ProGas Limited	7/92	ProGas Limited v. Texas Eastern		Gas Contract Arbitration
Attala Generating Company	12/03	Attala Generating Co v. Attala Energy Co.	Case No. 16-Y-198-00228-03	Power Project Valuation, Breach of Contract, Damages
Nevada Power Company	4/08	Nevada Power v. Nevada Cogeneration Assoc. #2		Power Purchase Agreement
Sensata Technologies, Inc./EMS Engineered Materials Solutions, LLC	1/11	Sensata Technologies, Inc./EMS Engineered Materials Solutions, LLC v. Pepco Energy Services	Case No. 11-198-Y-00848-10	Change in Usage Dispute, Damages
Sandy Creek Energy Associates, L.P.	9/17	Sandy Creek Energy Associates, L.P. vs. Lower Colorado River Authority	Case No. 01-16-0002-6892	Power Purchase Agreement, Analysis of Damages
Canadian Arbitration Panel				
Hydro-Québec	4/15 5/16 7/16	Hydro-Fraser et al v. Hydro-Québec		Electric Price Arbitration
Commonwealth of Massachusetts, Appellate Tax Board				
NStar Electric Company	8/14	NStar Electric Company	Docket No. F316346 Docket No. F319254	Valuation Methodology

Courts and Arbitration

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Western Massachusetts Electric Company	2/16	Western Massachusetts Electric Company v. Board of Assessors of The City of Springfield	Docket No. 315550 Docket No. 319349	Valuation Methodology
Commonwealth of Massachusetts, Suffolk Superior Court				
John Hancock	1/84	Trinity Church v. John Hancock	C.A. No. 4452	Damages Quantification
Court of Common Pleas of Philadelphia County, Civil Division				
Sunoco Marketing & Terminals L.P.	11/16	Sunoco Marketing & Terminals, L.P. v. South Jersey Resources Group	Case No. 150302520	Damages Quantification
State of Colorado District Court, County of Garfield				
Questar Corporation, et al	11/00	Questar Corporation, et al.	Case No. 00CV129-A	Partnership Fiduciary Duties
State of Delaware, Court of Chancery, New Castle County				
Wilmington Trust Company	11/05	Calpine Corporation vs. Bank of New York and Wilmington Trust Company	C.A. No. 1669-N	Bond Indenture Covenants
Illinois Appellate Court, Fifth Division				
Norweb, PLC	8/02	Indeck No. America v. Norweb	Docket No. 97 CH 07291	Breach of Contract, Power Plant Valuation
Independent Arbitration Panel				
Alberta Northeast Gas Limited	2/98	ProGas Ltd., Canadian Forest Oil Ltd., AEC Oil & Gas		
Ocean State Power	9/02	Ocean State Power vs. ProGas Ltd.	2001/2002 Arbitration	Gas Price Arbitration
Ocean State Power	2/03	Ocean State Power vs. ProGas Ltd.	2002/2003 Arbitration	Gas Price Arbitration

Courts and Arbitration

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Ocean State Power	6/04	Ocean State Power vs. ProGas Ltd.	2003/2004 Arbitration	Gas Price Arbitration
Shell Canada Limited	7/05	Shell Canada Limited and Nova Scotia Power Inc.		Gas Contract Price Arbitration
International Court of Arbitration				
Wisconsin Gas Company, Inc.	2/97	Wisconsin Gas Co. vs. Pan-Alberta	Case No. 9322/CK	Contract Arbitration
Minnegasco, A Division of NorAm Energy Corp.	3/97	Minnegasco vs. Pan-Alberta	Case No. 9357/CK	Contract Arbitration
Utilicorp United Inc.	4/97	Utilicorp vs. Pan-Alberta	Case No. 9373/CK	Contract Arbitration
IES Utilities	97	IES vs. Pan-Alberta	Case No. 9374/CK	Contract Arbitration
Mitsubishi Heavy Industries, Ltd., and Mitsubishi Nuclear Energy Systems, Inc.	12/15 2/16	Southern California Edison Company, Edison Material Supply LLC, San Diego Gas & Electric Co., and the City of Riverside vs. Mitsubishi Heavy Industries, Ltd., and Mitsubishi Nuclear Energy Systems, Inc.	Case No. 19784/AGF/RD	Damages Arising Under a Nuclear Power Equipment Contract
International Chamber of Commerce				
Senvion GmbH	4/17	Senvion GmbH v. EDF Renewable Energy, Inc.	Case No. 01-15-0005-4590	Breach-Related Damages, Unfair Competition, Unjust Enrichment
Senvion GmbH	9/17	Senvion GmbH v. EEN CA Lac Alfred Limited Partnership, et al.	Case No. 21535	Breach-Related Damages

Courts and Arbitration

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Senvion GmbH	12/17	Senvion GmbH v. EEN CA Massif du Sud Limited Partnership, et al.	Case No. 21536	Breach-Related Damages
State of New Jersey, Mercer County Superior Court				
Transamerica Corp., et al.	7/07 10/07	IMO Industries Inc. vs. Transamerica Corp., et al.	Docket No. L-2140-03	Breach-Related Damages, Enterprise Value
State of New York, Nassau County Supreme Court				
Steel Los III, LP	6/08	Steel Los II, LP & Associated Brook, Corp v. Power Authority of State of NY	Index No. 5662/05	Property Seizure
Province of Alberta, Court of Queen's Bench				
Alberta Northeast Gas Limited	5/07	Cargill Gas Marketing Ltd. vs. Alberta Northeast Gas Limited	Action No. 0501-03291	Gas Contracting Practices
Quebec Superior Court, District of Gaspé				
Senvion Canada and Senvion GmbH	2/19	Senvion Canada and Senvion GmbH v. Suspendem Rope Access		Breach-Related Damages, Reimbursement of Liquidated Damages, Reimbursement of Scheduled Maintenance Penalties
State of New Hampshire, Judicial Court-Rockingham Superior Court				
Public Service Company of New Hampshire d/b/a Eversource Energy	10/18	Public Service Company of New Hampshire d/b/a Eversource Energy v. City of Portsmouth	Case No. 218-2016-CV-00899 Case No. 218-2017-CV-00917	Valuation of Transmission and Distribution Assets

Courts and Arbitration

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
State of New Hampshire, Superior Court-Merrimack County				
Public Service Company of New Hampshire d/b/a Eversource Energy	3/19	Public Service Company of New Hampshire d/b/a Eversource Energy v. Town of Bow	Docket No. 217-2015-CV-00469, Docket No. 217-2016-CV-00474, Docket No. 217-2017-CV-00422	Valuation of Transmission and Distribution Assets
State of Rhode Island, Providence City Court				
Aquidneck Energy	5/87	Laroche vs. Newport		Least-Cost Planning
State of Texas, Hutchinson County Court				
Western Gas Interstate	5/85	State of Texas vs. Western Gas Interstate Co.	Case No. 14,843	Cost of Service
State of Utah, Third District Court				
PacifiCorp & Holme, Roberts & Owen, LLP	1/07	USA Power & Spring Canyon Energy vs. PacifiCorp. et al.	Civil No. 050903412	Breach-Related Damages
U.S. Bankruptcy Court, District of New Hampshire				
EUA Power Corporation	7/92	EUA Power Corporation	Case No. BK-91-10525-JEY	Pre-Petition Solvency
U.S. Bankruptcy Court, District of New Jersey				
Ponderosa Pine Energy Partners, Ltd.	7/05	Ponderosa Pine Energy Partners, Ltd.	Case No. 05-21444	Forward Contract Bankruptcy Treatment
U.S. Bankruptcy Court, No. District of New York				
Cayuga Energy, NYSEG Solutions, The Energy Network	09/09	Cayuga Energy, NYSEG Solutions, The Energy Network	Case No. 06-60073-6-sdg	Going Concern

Courts and Arbitration

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
U.S. Bankruptcy Court, So. District of New York				
Johns Manville	5/04	Enron Energy Mktg. v. Johns Manville; Enron No. America v. Johns Manville	Case No. 01-16034 (AJG)	Breach of Contract, Damages
U.S. Bankruptcy Court, Northern District of Texas				
Southern Maryland Electric Cooperative, Inc., and Potomac Electric Power Company	11/04	Mirant Corporation, et al. v. SMECO	Case No. 03-4659; Adversary No. 04-4073	PPA Interpretation, Leasing
U.S. Court of Federal Claims				
Boston Edison Company	7/06 11/06	Boston Edison Company v. United States	No. 99-447C No. 03-2626C	Spent Nuclear Fuel Breach, Damages
Consolidated Edison Company	7/07	Consolidated Edison Company	No. 06-305T	Evaluation of Lease Purchase Option
Consolidated Edison Company	2/08 6/08	Consolidated Edison Company v. United States	No. 04-0033C	Spent Nuclear Fuel Breach, Damages
Vermont Yankee Nuclear Power Corporation	6/08	Vermont Yankee Nuclear Power Corporation v. United States	No. 03-2663C	Spent Nuclear Fuel Breach, Damages
Virginia Electric and Power Company d/b/a Dominion Virginia Power	3/19	Virginia Electric and Power Company d/b/a Dominion Virginia Power v. United States	No. 17-464C	Double Recovery, Cost Recovery of Infrastructure Improvements
U. S. District Court, Boulder County, Colorado				
KN Energy, Inc.	3/93	KN Energy vs. Colorado GasMark, Inc.	Case No. 92 CV 1474	Gas Contract Interpretation

Courts and Arbitration

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
U. S. District Court, Northern California				
Pacific Gas & Electric Co./PGT PG&E/PGT Pipeline Exp. Project	4/97	Norcen Energy Resources Limited	Case No. C94-0911 VRW	Fraud Claim
U. S. District Court, District of Connecticut				
Constellation Power Source, Inc.	12/04	Constellation Power Source, Inc. v. Select Energy, Inc.	Civil Action 304 CV 983 (RNC)	ISO Structure, Breach of Contract
U.S. District Court, Northern District of Illinois, Eastern Division				
U.S. Securities and Exchange Commission	4/12	U.S. Securities and Exchange Commission v. Thomas Fisher, Kathleen Halloran, and George Behrens	Case No. 07 C 4483	Prudence, PBR
U. S. District Court, Massachusetts				
Eastern Utilities Associates & Donald F. Pardus	3/94	NECO Enterprises Inc. vs. Eastern Utilities Associates	Civil Action No. 92-10355-RCL	Seabrook Power Sales
U. S. District Court, Montana				
KN Energy, Inc.	9/92	KN Energy v. Freeport MacMoRan	Docket No. CV 91-40-BLG-RWA	Gas Contract Settlement
U.S. District Court, New Hampshire				
Portland Natural Gas Transmission and Maritimes & Northeast Pipeline	9/03	Public Service Company of New Hampshire vs. PNGTS and M&NE Pipeline	Docket No. C-02-105-B	Impairment of Electric Transmission Right-of-Way

Courts and Arbitration

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
U. S. District Court, Southern District of New York				
Central Hudson Gas & Electric	11/99 8/00	Central Hudson v. Riverkeeper, Inc., Robert H. Boyle, John J. Cronin	Civil Action 99 Civ 2536 (BDP)	Electric Restructuring, Environmental Impacts
Consolidated Edison	3/02	Consolidated Edison v. Northeast Utilities	Case No. 01 Civ. 1893 (JGK) (HP)	Industry Standards for Due Diligence
Merrill Lynch & Company	1/05	Merrill Lynch v. Allegheny Energy, Inc.	Civil Action 02 CV 7689 (HB)	Due Diligence, Breach of Contract, Damages
U. S. District Court, Eastern District of Virginia				
Aquila, Inc.	1/05 2/05	VPEM v. Aquila, Inc.	Civil Action 304 CV 411	Breach of Contract, Damages
U. S. District Court, Western District of Virginia				
Washington Gas Light Company	8/15 9/15	Washington Gas Light Company v. Mountaineer Gas Company	Civil Action No. 5:14-cv-41	Nominations and Gas Balancing, Lost and Unaccounted for Gas, Damages
U. S. District Court, Portland Maine				
ACEC Maine, Inc. et al.	10/91	CIT Financial vs. ACEC Maine	Docket No. 90-0304-B	Project Valuation
Combustion Engineering	1/92	Combustion Eng. vs. Miller Hydro	Docket No. 89-0168P	Output Modeling, Project Valuation
U.S. Securities and Exchange Commission				
Eastern Utilities Association	10/92	EUA Power Corporation	File No. 70-8034	Value of EUA Power

Courts and Arbitration

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
U.S. Tax Court in Illinois				
Exelon Corporation	4/15 6/15	Exelon Corporation, as Successor by Merger to Unicom Corporation and Subsidiaries et al. v. Commission of Internal Revenue	Docket Nos. 29183-13, 29184-13	Valuation of Analysis of Lease Terms and Quantify Plant Values
Council of the District of Columbia Committee on Consumer and Regulatory Affairs				
Potomac Electric Power Co.	7/99	Potomac Electric Power Co.	Bill 13-284	Utility Restructuring

PROXY GROUP SCREENING DATA AND RESULTS

Company	Ticker	[1] Pays Dividends	[2] Coverd by More Than 1 Analyst	[3] S&P Credit Rating Between BBB- and AAA	[4] Positive Growth Rates from at least two sources	[5] % Regulated Operating Income > 60%	[6] % Regulated Electric Operating Income > 80%	[7] No M&A Activity or Other Significant Event	[8] Included in Proxy Group
ALLETE, Inc.	ALE	Yes	Yes	BBB+	Yes	75%	97%	Yes	Yes
Alliant Energy Corporation	LNT	Yes	Yes	A-	Yes	97%	94%	Yes	Yes
Ameren Corporation	AEE	Yes	Yes	BBB+	Yes	100%	88%	Yes	Yes
American Electric Power Company, Inc.	AEP	Yes	Yes	A-	Yes	96%	100%	Yes	Yes
Avangrid, Inc.	AGR	Yes	Yes	BBB+	Yes	93%	84%	Yes	Yes
Avista Corporation	AVA	Yes	Yes	BBB	Yes	100%	100%	Yes	Yes
Black Hills Corporation	BKH	Yes	Yes	BBB+	Yes	90%	48%	Yes	No
CenterPoint Energy, Inc.	CNP	Yes	Yes	BBB+	Yes	95%	67%	No	No
CMS Energy Corporation	CMS	Yes	Yes	BBB+	Yes	94%	74%	Yes	No
Consolidated Edison, Inc.	ED	Yes	Yes	A-	Yes	94%	78%	Yes	No
Dominion Resources, Inc.	D	Yes	Yes	BBB+	Yes	95%	66%	Yes	No
DTE Energy Company	DTE	Yes	Yes	BBB+	Yes	93%	81%	Yes	Yes
Duke Energy Corporation	DUK	Yes	Yes	A-	Yes	100%	93%	Yes	Yes
Edison International	EIX	Yes	Yes	BBB	Yes	95%	100%	Yes	Yes
El Paso Electric Company	EE	Yes	Yes	BBB	Yes	100%	100%	No	No
Entergy Corporation	ETR	Yes	Yes	BBB+	Yes	100%	99%	Yes	Yes
Eversource Energy	ES	Yes	Yes	A-	Yes	95%	91%	Yes	Yes
Exelon Corporation	EXC	Yes	Yes	BBB+	Yes	72%	92%	Yes	Yes
FirstEnergy Corporation	FE	Yes	Yes	BBB	Yes	100%	100%	Yes	Yes
Evergy, Inc.	EVRG	Yes	Yes	A-	Yes	100%	100%	Yes	Yes
Hawaiian Electric Industries, Inc.	HE	Yes	Yes	BBB-	Yes	77%	100%	Yes	Yes
IDACORP, Inc.	IDA	Yes	Yes	BBB	Yes	99%	100%	Yes	Yes
MGE Energy, Inc.	MGEE	Yes	No	AA-	Yes	72%	78%	Yes	No
NextEra Energy, Inc.	NEE	Yes	Yes	A-	Yes	70%	100%	Yes	Yes
NorthWestern Corporation	NWE	Yes	Yes	BBB	Yes	100%	84%	Yes	Yes
OGE Energy Corporation	OGE	Yes	Yes	BBB+	Yes	100%	100%	Yes	Yes
Otter Tail Corporation	OTTR	Yes	Yes	BBB	Yes	73%	100%	Yes	Yes
PG&E Corporation	PCG	Yes	Yes	D	Yes	0%	83%	Yes	No
Pinnacle West Capital Corporation	PNW	Yes	Yes	A-	Yes	100%	100%	Yes	Yes
PNM Resources, Inc.	PNM	Yes	Yes	BBB+	Yes	100%	100%	Yes	Yes
Portland General Electric Company	POR	Yes	Yes	BBB+	Yes	100%	100%	Yes	Yes
PPL Corporation	PPL	Yes	Yes	A-	Yes	100%	96%	Yes	Yes
Public Service Enterprise Group Inc.	PEG	Yes	Yes	BBB+	Yes	90%	80%	Yes	No
Sempra Energy	SRE	Yes	Yes	BBB+	Yes	79%	53%	Yes	No
Southern Company	SO	Yes	Yes	A-	Yes	96%	81%	Yes	Yes
Wisconsin Energy Corporation	WEC	Yes	Yes	A-	Yes	78%	59%	Yes	No
Xcel Energy Inc.	XEL	Yes	Yes	A-	Yes	100%	87%	Yes	[9]

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional
[3] Source: Yahoo! Finance and Zacks
[4] Source: Yahoo! Finance, Value Line Investment Survey, and Zacks
[5] Source: Form 10-K's for 2018, 2017, and 2016
[6] Source: Form 10-K's for 2018, 2017, and 2016
[7] Source: SNL Financial News Releases
[8] Screening Result
[9] Parent Company of NSPM

30-DAY CONSTANT GROWTH DCF -- ELECTRIC PROXY GROUP

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	All Proxy Group [10]	[11]	[12]	With Exclusions [13]	[14]	[15]	[16]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Rate	Company Announced Growth Rate	Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE	Average Vertically Integrated Electric Authorized ROE Since 2017
ALLETE, Inc.	ALE	$2.35	$86.31	2.72%	2.81%	6.00%	6.00%	7.20%	6.40%	5-7%	8.80%	9.21%	10.02%	8.80%	9.21%	10.02%	9.25%
Alliant Energy Corporation	LNT	$1.42	$52.61	2.70%	2.78%	6.50%	5.05%	5.50%	5.68%	5-7%	7.82%	8.46%	9.29%	7.82%	8.46%	9.29%	9.99%
Ameren Corporation	AEE	$1.90	$77.40	2.45%	2.53%	6.50%	4.70%	6.40%	5.87%	8%	7.21%	8.39%	9.03%	7.21%	8.39%	9.03%	NA
American Electric Power Company, Inc.	AEP	$2.68	$92.02	2.91%	2.99%	4.00%	6.10%	5.70%	5.27%	5-7%	6.97%	8.26%	9.10%		8.26%	9.10%	9.72%
Avangrid, Inc.	AGR	$1.76	$50.64	3.48%	3.61%	10.00%	6.40%	7.50%	7.97%	8-10%	9.99%	11.58%	13.65%	9.99%	11.58%	13.65%	NA
Avista Corporation	AVA	$1.55	$47.50	3.26%	3.32%	3.50%	3.40%	3.30%	3.40%	9-10%	6.62%	6.72%	6.82%				10.32%
DTE Energy Company	DTE	$3.78	$130.66	2.89%	2.97%	5.50%	4.45%	6.00%	5.32%	5-7%	7.41%	8.29%	8.98%	7.41%	8.29%	8.98%	10.00%
Duke Energy Corporation	DUK	$3.78	$93.64	4.04%	4.14%	6.00%	4.06%	4.90%	4.99%	4-6%	8.18%	9.12%	10.16%	8.18%	9.12%	10.16%	9.71%
Edison International	EIX	$2.45	$72.96	3.36%	3.44%	NMF	3.90%	5.30%	4.60%	8%	7.32%	8.04%	8.75%	7.32%	8.04%	8.75%	NA
Entergy Corporation	ETR	$3.64	$113.78	3.20%	3.26%	0.50%	Negative	7.00%	3.75%	5-7%	3.71%	7.01%	10.31%		7.01%	10.31%	NA
Eversource Energy	ES	$2.14	$82.05	2.61%	2.68%	5.50%	5.63%	5.60%	5.58%	5-7%	8.18%	8.26%	8.31%	8.18%	8.26%	8.31%	NA
Exelon Corporation	EXC	$1.45	$47.41	3.06%	3.15%	9.00%	Negative	3.40%	6.20%	6-8%	6.51%	9.35%	12.20%		9.35%	12.20%	NA
FirstEnergy Corporation	FE	$1.52	$46.90	3.24%	3.35%	8.00%	Negative	6.00%	7.00%	6-8%	9.34%	10.35%	11.37%	9.34%	10.35%	11.37%	NA
Evergy, Inc.	EVRG	$1.90	$65.28	2.91%	3.01%	NMF	6.80%	6.60%	6.70%	5-7%	9.61%	9.71%	9.81%	9.61%	9.71%	9.81%	9.30%
Hawaiian Electric Industries, Inc.	HE	$1.28	$44.57	2.87%	2.93%	4.50%	3.40%	4.20%	4.03%	5-7%	6.32%	6.96%	7.44%			7.44%	9.50%
IDACORP, Inc.	IDA	$2.52	$109.87	2.29%	2.33%	3.50%	2.40%	3.80%	3.23%	NA	4.72%	5.56%	6.14%				NA
NextEra Energy, Inc.	NEE	$5.00	$223.10	2.24%	2.34%	10.50%	7.99%	8.00%	8.83%	6-8%	10.32%	11.17%	12.86%	10.32%	11.17%	12.86%	10.25%
NorthWestern Corporation	NWE	$2.30	$73.26	3.14%	3.19%	3.00%	3.24%	2.60%	2.95%	6-9%	5.78%	6.13%	6.43%				NA
OGE Energy Corporation	OGE	$1.46	$43.78	3.34%	3.42%	6.50%	3.40%	4.50%	4.80%	NA	6.79%	8.22%	9.94%		8.22%	9.94%	NA
Otter Tail Corporation	OTTR	$1.40	$52.31	2.68%	2.77%	5.00%	9.00%	7.00%	7.00%	8.6%	7.74%	9.77%	11.80%	7.74%	9.77%	11.80%	9.31%
Pinnacle West Capital Corporation	PNW	$2.95	$95.17	3.10%	3.19%	5.50%	5.05%	6.10%	5.55%	6-7%	8.23%	8.74%	9.29%	8.23%	8.74%	9.29%	10.00%
PNM Resources, Inc.	PNM	$1.16	$50.89	2.28%	2.35%	7.00%	6.18%	5.50%	6.23%	5-6%	7.84%	8.58%	9.36%	7.84%	8.58%	9.36%	9.58%
Portland General Electric Company	POR	$1.54	$56.33	2.73%	2.80%	4.50%	4.80%	4.80%	4.70%	5-7%	7.30%	7.50%	7.60%	7.30%	7.50%	7.60%	9.50%
PPL Corporation	PPL	$1.65	$30.39	5.43%	5.46%	1.50%	0.59%	n/a	1.05%	5-6%	6.04%	6.50%	6.97%				9.73%
Southern Company	SO	$2.48	$59.70	4.15%	4.22%	3.50%	1.37%	4.50%	3.12%	4-6%	5.55%	7.34%	8.75%		7.34%	8.75%	NA
Mean				3.08%	3.16%	5.48%	4.72%	5.48%	5.21%	6.66%	7.37%	8.37%	9.37%	8.35%	8.87%	9.91%	9.73%
Flotation Costs											0.12%	0.12%	0.12%	0.12%	0.12%	0.12%	
Mean (including Flotation Costs)											7.49%	8.49%	9.49%	8.47%	8.99%	10.03%	

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 30-day average as of September 30, 2019.
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Company investor presentations
[10] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[11] Equals [4] + [8]
[12] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])
[13] - [15] Excludes companies with ROEs less than the a 7.00% return, consistent with the Department position in Docket No. E-002/GR-15-826
[16] Source: Regulatory Research Associates

90-DAY CONSTANT GROWTH DCF -- ELECTRIC PROXY GROUP

											All Proxy Group			With Exclusions			
		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Rate	Company Announced Growth Rate	Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE	Average Vertically Integrated Electric Authorized ROE Since 2017
ALLETE, Inc.	ALE	$2.35	$85.36	2.75%	2.84%	6.00%	6.00%	7.20%	6.40%	5-7%	8.84%	9.24%	10.05%	8.84%	9.24%	10.05%	9.25%
Alliant Energy Corporation	LNT	$1.42	$50.63	2.80%	2.88%	6.50%	5.05%	5.50%	5.68%	5-7%	7.93%	8.57%	9.40%	7.93%	8.57%	9.40%	9.99%
Ameren Corporation	AEE	$1.90	$76.42	2.49%	2.56%	6.50%	4.70%	6.40%	5.87%	8.00%	7.24%	8.43%	9.07%	7.24%	8.43%	9.07%	NA
American Electric Power Company, Inc.	AEP	$2.68	$90.24	2.97%	3.05%	4.00%	6.10%	5.70%	5.27%	5-7%	7.03%	8.31%	9.16%	7.03%	8.31%	9.16%	9.72%
Avangrid, Inc.	AGR	$1.76	$50.46	3.49%	3.63%	10.00%	6.40%	7.50%	7.97%	8-10%	10.00%	11.59%	13.66%	10.00%	11.59%	13.66%	NA
Avista Corporation	AVA	$1.55	$45.59	3.40%	3.46%	3.50%	3.40%	3.30%	3.40%	9-10%	6.76%	6.86%	6.96%				10.32%
DTE Energy Company	DTE	$3.78	$129.44	2.92%	3.00%	5.50%	4.45%	6.00%	5.32%	5-7%	7.44%	8.31%	9.01%	7.44%	8.31%	9.01%	10.00%
Duke Energy Corporation	DUK	$3.78	$89.99	4.20%	4.31%	6.00%	4.06%	4.90%	4.99%	4-6%	8.35%	9.29%	10.33%	8.35%	9.29%	10.33%	9.71%
Edison International	EIX	$2.45	$69.08	3.55%	3.63%	NMF	3.90%	5.30%	4.60%	8.00%	7.52%	8.23%	8.94%	7.52%	8.23%	8.94%	NA
Entergy Corporation	ETR	$3.64	$106.80	3.41%	3.47%	0.50%	Negative	7.00%	3.75%	5-7%	3.92%	7.22%	10.53%		7.22%	10.53%	NA
Eversource Energy	ES	$2.14	$78.41	2.73%	2.81%	5.50%	5.63%	5.60%	5.58%	5-7%	8.30%	8.38%	8.44%	8.30%	8.38%	8.44%	NA
Exelon Corporation	EXC	$1.45	$47.73	3.04%	3.13%	9.00%	Negative	3.40%	6.20%	6-8%	6.49%	9.33%	12.17%		9.33%	12.17%	NA
FirstEnergy Corporation	FE	$1.52	$44.56	3.41%	3.53%	8.00%	Negative	6.00%	7.00%	6-8%	9.51%	10.53%	11.55%	9.51%	10.53%	11.55%	NA
Evergy, Inc.	EVRG	$1.90	$62.28	3.05%	3.15%	NMF	6.80%	6.60%	6.70%	5-7%	9.75%	9.85%	9.95%	9.75%	9.85%	9.95%	9.30%
Hawaiian Electric Industries, Inc.	HE	$1.28	$43.98	2.91%	2.97%	4.50%	3.40%	4.20%	4.03%	5-7%	6.36%	7.00%	7.48%		7.00%	7.48%	9.50%
IDACORP, Inc.	IDA	$2.52	$105.47	2.39%	2.43%	3.50%	2.40%	3.80%	3.23%	NA	4.82%	5.66%	6.23%				NA
NextEra Energy, Inc.	NEE	$5.00	$212.80	2.35%	2.45%	10.50%	7.99%	8.00%	8.83%	6-8%	10.43%	11.28%	12.97%	10.43%	11.28%	12.97%	10.25%
NorthWestern Corporation	NWE	$2.30	$72.21	3.18%	3.23%	3.00%	3.24%	2.60%	2.95%	6-9%	5.83%	6.18%	6.48%				NA
OGE Energy Corporation	OGE	$1.46	$43.18	3.38%	3.46%	6.50%	3.40%	4.50%	4.80%	NA	6.84%	8.26%	9.99%		8.26%	9.99%	NA
Otter Tail Corporation	OTTR	$1.40	$52.09	2.69%	2.78%	5.00%	9.00%	7.00%	7.00%	8.60%	7.75%	9.78%	11.81%	7.75%	9.78%	11.81%	9.31%
Pinnacle West Capital Corporation	PNW	$2.95	$94.80	3.11%	3.20%	5.50%	5.05%	6.10%	5.55%	6-7%	8.24%	8.75%	9.31%	8.24%	8.75%	9.31%	10.00%
PNM Resources, Inc.	PNM	$1.16	$50.24	2.31%	2.38%	7.00%	6.18%	5.50%	6.23%	5-6%	7.87%	8.61%	9.39%	7.87%	8.61%	9.39%	9.58%
Portland General Electric Company	POR	$1.54	$55.28	2.79%	2.85%	4.50%	4.80%	4.80%	4.70%	5-7%	7.35%	7.55%	7.65%	7.35%	7.55%	7.65%	9.50%
PPL Corporation	PPL	$1.65	$30.42	5.42%	5.45%	1.50%	0.59%	n/a	1.05%	5-6%	6.03%	6.50%	6.96%				9.73%
Southern Company	SO	$2.48	$57.07	4.35%	4.41%	3.50%	1.37%	4.50%	3.12%	4-6%	5.75%	7.54%	8.94%		7.54%	8.94%	NA
Mean				3.16%	3.24%	5.48%	4.72%	5.48%	5.21%	6.66%	7.45%	8.45%	9.46%	8.35%	8.86%	9.99%	9.73%
Flotation Costs											0.12%	0.12%	0.12%	0.12%	0.12%	0.12%	
Mean (including Flotation Costs)											7.57%	8.57%	9.58%	8.47%	8.98%	10.11%	

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 30-day average as of September 30, 2019.
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Company investor presentations
[10] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[11] Equals [4] + [8]
[12] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])
[13] - [15] Excludes companies with ROEs less than the a 7.00% return, consistent with the Department position in Docket No. E-002/GR-15-826
[16] Source: Regulatory Research Associates

180-DAY CONSTANT GROWTH DCF -- ELECTRIC PROXY GROUP

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	All Proxy Group [10]	[11]	[12]	With Exclusions [13]	[14]	[15]	[16]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Rate	Company Announced Growth Rate	Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE	Average Regulated Electric Authorized ROE
ALLETE, Inc.	ALE	$2.35	$82.79	2.84%	2.93%	6.00%	6.00%	7.20%	6.40%	5-7%	8.92%	9.33%	10.14%	8.92%	9.33%	10.14%	9.25%
Alliant Energy Corporation	LNT	$1.42	$48.27	2.94%	3.03%	6.50%	5.05%	5.50%	5.68%	5-7%	8.07%	8.71%	9.54%	8.07%	8.71%	9.54%	9.99%
Ameren Corporation	AEE	$1.90	$73.85	2.57%	2.65%	6.50%	4.70%	6.40%	5.87%	8%	7.33%	8.51%	9.16%	7.33%	8.51%	9.16%	NA
American Electric Power Company, Inc.	AEP	$2.68	$86.14	3.11%	3.19%	4.00%	6.10%	5.70%	5.27%	5-7%	7.17%	8.46%	9.31%	7.17%	8.46%	9.31%	9.72%
Avangrid, Inc.	AGR	$1.76	$50.18	3.51%	3.65%	10.00%	6.40%	7.50%	7.97%	8-10%	10.02%	11.61%	13.68%	10.02%	11.61%	13.68%	NA
Avista Corporation	AVA	$1.55	$43.49	3.56%	3.62%	3.50%	3.40%	3.30%	3.40%	9-10%	6.92%	7.02%	7.13%		7.02%	7.13%	10.32%
DTE Energy Company	DTE	$3.78	$125.65	3.01%	3.09%	5.50%	4.45%	6.00%	5.32%	5-7%	7.53%	8.41%	9.10%	7.53%	8.41%	9.10%	10.00%
Duke Energy Corporation	DUK	$3.78	$89.39	4.23%	4.33%	6.00%	4.06%	4.90%	4.99%	4-6%	8.37%	9.32%	10.36%	8.37%	9.32%	10.36%	9.71%
Edison International	EIX	$2.45	$64.96	3.77%	3.86%	NMF	3.90%	5.30%	4.60%	8%	7.75%	8.46%	9.17%	7.75%	8.46%	9.17%	NA
Entergy Corporation	ETR	$3.64	$99.86	3.65%	3.71%	0.50%	Negative	7.00%	3.75%	5-7%	4.15%	7.46%	10.77%		7.46%	10.77%	NA
Eversource Energy	ES	$2.14	$74.34	2.88%	2.96%	5.50%	5.63%	5.60%	5.58%	5-7%	8.46%	8.54%	8.59%	8.46%	8.54%	8.59%	NA
Exelon Corporation	EXC	$1.45	$48.24	3.01%	3.10%	9.00%	Negative	3.40%	6.20%	6-8%	6.46%	9.30%	12.14%		9.30%	12.14%	NA
FirstEnergy Corporation	FE	$1.52	$42.59	3.57%	3.69%	8.00%	Negative	6.00%	7.00%	6-8%	9.68%	10.69%	11.71%	9.68%	10.69%	11.71%	NA
Evergy, Inc.	EVRG	$1.90	$59.76	3.18%	3.29%	NMF	6.80%	6.60%	6.70%	5-7%	9.88%	9.99%	10.09%	9.88%	9.99%	10.09%	9.30%
Hawaiian Electric Industries, Inc.	HE	$1.28	$41.77	3.06%	3.13%	4.50%	3.40%	4.20%	4.03%	5-7%	6.52%	7.16%	7.63%		7.16%	7.63%	9.50%
IDACORP, Inc.	IDA	$2.52	$102.00	2.47%	2.51%	3.50%	2.40%	3.80%	3.23%	NA	4.90%	5.74%	6.32%				NA
NextEra Energy, Inc.	NEE	$5.00	$200.16	2.50%	2.61%	10.50%	7.99%	8.00%	8.83%	6-8%	10.59%	11.44%	13.13%	10.59%	11.44%	13.13%	10.25%
NorthWestern Corporation	NWE	$2.30	$70.10	3.28%	3.33%	3.00%	3.24%	2.60%	2.95%	6-9%	5.92%	6.28%	6.57%				NA
OGE Energy Corporation	OGE	$1.46	$42.51	3.43%	3.52%	6.50%	3.40%	4.50%	4.80%	NA	6.89%	8.32%	10.05%		8.32%	10.05%	NA
Otter Tail Corporation	OTTR	$1.40	$50.94	2.75%	2.84%	5.00%	9.00%	7.00%	7.00%	8.6%	7.82%	9.84%	11.87%	7.82%	9.84%	11.87%	9.31%
Pinnacle West Capital Corporation	PNW	$2.95	$93.67	3.15%	3.24%	5.50%	5.05%	6.10%	5.55%	6-7%	8.28%	8.79%	9.35%	8.28%	8.79%	9.35%	10.00%
PNM Resources, Inc.	PNM	$1.16	$47.65	2.43%	2.51%	7.00%	6.18%	5.50%	6.23%	5-6%	8.00%	8.74%	9.52%	8.00%	8.74%	9.52%	9.58%
Portland General Electric Company	POR	$1.54	$52.86	2.91%	2.98%	4.50%	4.80%	4.80%	4.70%	5-7%	7.48%	7.68%	7.78%	7.48%	7.68%	7.78%	9.50%
PPL Corporation	PPL	$1.65	$30.84	5.35%	5.38%	1.50%	0.59%	n/a	1.05%	5-6%	5.96%	6.42%	6.89%				9.73%
Southern Company	SO	$2.48	$53.95	4.60%	4.67%	3.50%	1.37%	4.50%	3.12%	4-6%	6.00%	7.79%	9.20%		7.79%	9.20%	NA
Mean				3.27%	3.35%	5.48%	4.72%	5.48%	5.21%	6.66%	7.56%	8.56%	9.57%	8.46%	8.89%	9.97%	9.73%
Flotation Costs											0.12%	0.12%	0.12%	0.12%	0.12%	0.12%	
Mean (including Flotation Costs)											7.68%	8.68%	9.69%	8.58%	9.01%	10.09%	

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 30-day average as of September 30, 2019.
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Company investor presentations
[10] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[11] Equals [4] + [8]
[12] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])
[13] - [15] Excludes companies with ROEs less than the a 7.00% return, consistent with the Department position in Docket No. E-002/GR-15-826
[16] Source: Regulatory Research Associates

30-DAY TWO-STAGE GROWTH DCF -- MEAN GROWTH RATE

Company	Ticker	[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Average Growth Rate	[9] Second Growth Rate	[10] Mean ROE	[11] Year 1 Div.	[12] (1+k)^1	[13] PV of Year 1 Div.	[14] Year 2 Div.	[15] (1+k)^2	[16] PV of Year 2 Div.	[17] Year 3 Div.	[18] (1+k)^3	[19] PV of Year 3 Div.	[20] Year 4 Div.	[21] (1+k)^4	[22] PV of Year 4 Div.	[23] Year 5 Div.	[24] (1+k)^5	[25] PV of Year 5 Div.	[26] Year 6 Div.	[27] Year 5 Stock Price	[28] PV of Year 5 Stock Price	[29] Current Stock Price
ALLETE, Inc.	ALE	$2.35	$86.31	2.72%	2.81%	6.40%	6.40%	9.21%	$2.43	1.09	2.22	$2.58	1.19	2.16	$2.75	1.30	2.11	$2.92	1.42	2.05	$3.11	1.55	2.00	$3.31	$117.70	$75.77	$86.31
Alliant Energy Corporation	LNT	$1.42	$52.61	2.70%	2.78%	5.68%	5.68%	8.46%	$1.46	1.08	1.35	$1.54	1.18	1.31	$1.63	1.28	1.28	$1.72	1.38	1.25	$1.82	1.50	1.21	$1.93	$69.36	$46.22	$52.61
Ameren Corporation	AEE	$1.90	$77.40	2.45%	2.53%	5.87%	5.87%	8.39%	$1.96	1.08	1.80	$2.07	1.17	1.76	$2.19	1.27	1.72	$2.32	1.38	1.68	$2.46	1.50	1.64	$2.60	$102.93	$68.79	$77.40
American Electric Power Company, Inc.	AEP	$2.68	$92.02	2.91%	2.99%	5.27%	5.27%	8.26%	$2.75	1.08	2.54	$2.90	1.17	2.47	$3.05	1.27	2.40	$3.21	1.37	2.34	$3.38	1.49	2.27	$3.56	$118.94	$80.00	$92.02
Avangrid, Inc.	AGR	$1.76	$50.64	3.48%	3.61%	7.97%	6.94%	10.68%	$1.83	1.11	1.65	$1.98	1.23	1.61	$2.13	1.36	1.57	$2.30	1.50	1.53	$2.49	1.66	1.50	$2.66	$71.05	$42.77	$50.64
Avista Corporation	AVA	$1.55	$47.50	3.26%	3.32%	3.40%	3.48%	6.78%	$1.58	1.07	1.48	$1.63	1.14	1.43	$1.69	1.22	1.38	$1.74	1.30	1.34	$1.80	1.39	1.30	$1.86	$56.34	$40.58	$47.50
DTE Energy Company	DTE	$3.78	$130.66	2.89%	2.97%	5.32%	5.32%	8.29%	$3.88	1.08	3.58	$4.09	1.17	3.49	$4.30	1.27	3.39	$4.53	1.37	3.30	$4.77	1.49	3.21	$5.03	$169.29	$113.70	$130.66
Duke Energy Corporation	DUK	$3.78	$93.64	4.04%	4.14%	4.99%	4.99%	9.12%	$3.87	1.09	3.55	$4.07	1.19	3.42	$4.27	1.30	3.29	$4.48	1.42	3.16	$4.71	1.55	3.04	$4.94	$119.44	$77.19	$93.64
Edison International	EIX	$2.45	$72.96	3.36%	3.44%	4.60%	4.60%	8.04%	$2.51	1.08	2.32	$2.62	1.17	2.25	$2.74	1.26	2.17	$2.87	1.36	2.11	$3.00	1.47	2.04	$3.14	$91.35	$62.07	$72.96
Entergy Corporation	ETR	$3.64	$113.78	3.20%	3.26%	3.75%	3.75%	7.01%	$3.71	1.07	3.47	$3.85	1.15	3.36	$3.99	1.23	3.26	$4.14	1.31	3.16	$4.30	1.40	3.06	$4.46	$136.78	$97.48	$113.78
Eversource Energy	ES	$2.14	$82.05	2.61%	2.68%	5.58%	5.58%	8.26%	$2.20	1.08	2.03	$2.32	1.17	1.98	$2.45	1.27	1.93	$2.59	1.37	1.88	$2.73	1.49	1.84	$2.89	$107.63	$72.39	$82.05
Exelon Corporation	EXC	$1.45	$47.41	3.06%	3.15%	6.20%	6.20%	9.35%	$1.49	1.09	1.37	$1.59	1.20	1.33	$1.69	1.31	1.29	$1.79	1.43	1.25	$1.90	1.56	1.22	$2.02	$64.04	$40.95	$47.41
FirstEnergy Corporation	FE	$1.52	$46.90	3.24%	3.35%	7.00%	6.94%	10.30%	$1.57	1.10	1.43	$1.68	1.22	1.38	$1.80	1.34	1.34	$1.93	1.48	1.30	$2.06	1.63	1.26	$2.21	$65.61	$40.18	$46.90
Evergy, Inc.	EVRG	$1.90	$65.28	2.91%	3.01%	6.70%	6.70%	9.71%	$1.96	1.10	1.79	$2.10	1.20	1.74	$2.24	1.32	1.69	$2.39	1.45	1.65	$2.55	1.59	1.60	$2.72	$90.28	$56.81	$65.28
Hawaiian Electric Industries, Inc.	HE	$1.28	$44.57	2.87%	2.93%	4.03%	4.03%	6.96%	$1.31	1.07	1.22	$1.36	1.14	1.19	$1.41	1.22	1.15	$1.47	1.31	1.12	$1.53	1.40	1.09	$1.59	$54.32	$38.80	$44.57
IDACORP, Inc.	IDA	$2.52	$109.87	2.29%	2.33%	3.23%	3.48%	5.79%	$2.56	1.06	2.42	$2.64	1.12	2.36	$2.73	1.18	2.31	$2.82	1.25	2.25	$2.91	1.32	2.20	$3.01	$130.27	$98.34	$109.87
NextEra Energy, Inc.	NEE	$5.00	$223.10	2.24%	2.34%	8.83%	6.94%	9.44%	$5.22	1.09	4.77	$5.68	1.20	4.74	$6.18	1.31	4.72	$6.73	1.43	4.69	$7.32	1.57	4.66	$7.83	$313.24	$199.51	$223.10
NorthWestern Corporation	NWE	$2.30	$73.26	3.14%	3.19%	2.95%	3.48%	6.60%	$2.33	1.07	2.19	$2.40	1.14	2.11	$2.47	1.21	2.04	$2.55	1.29	1.97	$2.62	1.38	1.90	$2.71	$86.78	$63.04	$73.26
OGE Energy Corporation	OGE	$1.46	$43.78	3.34%	3.42%	4.80%	4.80%	8.22%	$1.50	1.08	1.38	$1.57	1.17	1.34	$1.64	1.27	1.30	$1.72	1.37	1.25	$1.80	1.48	1.22	$1.89	$55.34	$37.29	$43.78
Otter Tail Corporation	OTTR	$1.40	$52.31	2.68%	2.77%	7.00%	6.94%	9.72%	$1.45	1.10	1.32	$1.55	1.20	1.29	$1.66	1.32	1.26	$1.78	1.45	1.22	$1.90	1.59	1.19	$2.03	$73.18	$46.03	$52.31
Pinnacle West Capital Corporation	PNW	$2.95	$95.17	3.10%	3.19%	5.55%	5.55%	8.74%	$3.03	1.09	2.79	$3.20	1.18	2.71	$3.38	1.29	2.63	$3.57	1.40	2.55	$3.76	1.52	2.48	$3.97	$124.68	$82.03	$95.17
PNM Resources, Inc.	PNM	$1.16	$50.89	2.28%	2.35%	6.23%	6.23%	8.58%	$1.20	1.09	1.10	$1.27	1.18	1.08	$1.35	1.28	1.05	$1.43	1.39	1.03	$1.52	1.51	1.01	$1.62	$68.83	$45.62	$50.89
Portland General Electric Company	POR	$1.54	$56.33	2.73%	2.80%	4.70%	4.70%	7.50%	$1.58	1.07	1.47	$1.65	1.16	1.43	$1.73	1.24	1.39	$1.81	1.34	1.35	$1.89	1.44	1.32	$1.98	$70.87	$49.37	$56.33
PPL Corporation	PPL	$1.65	$30.39	5.43%	5.46%	1.05%	3.48%	8.49%	$1.66	1.08	1.53	$1.68	1.18	1.42	$1.69	1.28	1.33	$1.71	1.39	1.24	$1.73	1.50	1.15	$1.79	$35.66	$23.73	$30.39
Southern Company	SO	$2.48	$59.70	4.15%	4.22%	3.12%	3.48%	7.64%	$2.52	1.08	2.34	$2.60	1.16	2.24	$2.68	1.25	2.15	$2.76	1.34	2.06	$2.85	1.45	1.97	$2.95	$70.73	$48.94	$59.70
Mean				3.08%	3.16%	5.21%	5.23%	8.38%																			
Mean (excluding ROE < 7%) [30]								8.73%																			
Flotation Costs								0.12%																			
Mean (Including Flotation Costs)								8.50%																			
Mean (excluding ROE < 7% and including Flotation Costs)								8.85%																			

Standard Deviation [6]	1.73%
Avg. less Standard Dev [7]	3.48%
Avg. plus Standard Dev [8]	6.94%

Notes:
[1] Source: Constant DCF
[2] Source: Constant DCF
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [5])
[5] Source: Constant DCF
[6] Standard Deviation of Column [5]
[7] Mean of Column [5], minus [6]
[8] Mean of Column [5], plus [6]
[9] If [5] > [8], then [8]; If [5] < [7], then [7], Else [5]
[10] ROE that sets [2] equal to [29] using Excel's goal seek function
[11] = [2] x [4]
[12] = (1 + [10]) ^ 1
[13] = [11] / [12]
[14] = [11] * (1 + [5])
[15] = (1 + [10]) ^ 2
[16] = [14] / [15]
[17] = [14] * (1 + [5])
[18] = (1 + [10]) ^ 3
[19] = [17] / [18]
[20] = [17] * (1 + [5])
[21] = (1 + [10]) ^ 4
[22] = [20] / [21]
[23] = [20] * (1 + [5])
[24] = (1 + [10]) ^ 5
[25] = [23] / [24]
[26] = [23] * (1 + [9])
[27] = [26] / ([10] - [9])
[28] = [27] / [24]
[29] = [13] + [16] + [19] + [22] + [25] + [28]
[30] Excludes companies with ROEs less than the a 7.00% return, consistent with the Department position in Docket No. E-002/GR-15-826

90-DAY TWO-STAGE GROWTH DCF -- MEAN GROWTH RATE

		[1]	[2]	[3]	[4]	[5]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Average Growth Rate	Second Growth Rate	Mean ROE	Year 1 Div.	(1+k)^1	PV of Year 1 Div.	Year 2 Div.	(1+k)^2	PV of Year 2 Div.	Year 3 Div.	(1+k)^3	PV of Year 3 Div.	Year 4 Div.	(1+k)^4	PV of Year 4 Div.	Year 5 Div.	(1+k)^5	PV of Year 5 Div.	Year 6 Div.	Year 5 Stock Price	PV of Year 5 Stock Price	Current Stock Price
ALLETE, Inc.	ALE	$2.35	$85.36	2.75%	2.84%	6.40%	6.40%	9.24%	$2.43	1.09	2.22	$2.58	1.19	2.16	$2.75	1.30	2.11	$2.92	1.42	2.05	$3.11	1.56	2.00	$3.31	$116.41	$74.83	$85.36
Alliant Energy Corporation	LNT	$1.42	$50.63	2.80%	2.88%	5.68%	5.68%	8.57%	$1.46	1.09	1.35	$1.54	1.18	1.31	$1.63	1.28	1.27	$1.72	1.39	1.24	$1.82	1.51	1.21	$1.93	$66.75	$44.25	$50.63
Ameren Corporation	AEE	$1.90	$76.42	2.49%	2.56%	5.87%	5.87%	8.43%	$1.96	1.08	1.80	$2.07	1.18	1.76	$2.19	1.27	1.72	$2.32	1.38	1.68	$2.46	1.50	1.64	$2.60	$101.63	$67.82	$76.42
American Electric Power Company, Inc.	AEP	$2.68	$90.24	2.97%	3.05%	5.27%	5.27%	8.31%	$2.75	1.08	2.54	$2.90	1.17	2.47	$3.05	1.27	2.40	$3.21	1.38	2.33	$3.38	1.49	2.27	$3.56	$116.64	$78.24	$90.24
Avangrid, Inc.	AGR	$1.76	$50.46	3.49%	3.63%	7.97%	6.94%	10.70%	$1.83	1.11	1.65	$1.98	1.23	1.61	$2.13	1.36	1.57	$2.30	1.50	1.53	$2.49	1.66	1.50	$2.66	$70.80	$42.59	$50.46
Avista Corporation	AVA	$1.55	$45.59	3.40%	3.46%	3.40%	3.48%	6.92%	$1.58	1.07	1.47	$1.63	1.14	1.43	$1.69	1.22	1.38	$1.74	1.31	1.33	$1.80	1.40	1.29	$1.86	$54.07	$38.69	$45.59
DTE Energy Company	DTE	$3.78	$129.44	2.92%	3.00%	5.32%	5.32%	8.31%	$3.88	1.08	3.58	$4.09	1.17	3.48	$4.30	1.27	3.39	$4.53	1.38	3.29	$4.77	1.49	3.20	$5.03	$167.71	$112.49	$129.44
Duke Energy Corporation	DUK	$3.78	$89.99	4.20%	4.31%	4.99%	4.99%	9.29%	$3.87	1.09	3.54	$4.07	1.19	3.41	$4.27	1.31	3.27	$4.48	1.43	3.14	$4.71	1.56	3.02	$4.94	$114.77	$73.60	$89.99
Edison International	EIX	$2.45	$69.08	3.55%	3.63%	4.60%	4.60%	8.23%	$2.51	1.08	2.32	$2.62	1.17	2.24	$2.74	1.27	2.16	$2.87	1.37	2.09	$3.00	1.48	2.02	$3.14	$86.50	$58.25	$69.08
Entergy Corporation	ETR	$3.64	$106.80	3.41%	3.47%	3.75%	3.75%	7.22%	$3.71	1.07	3.46	$3.85	1.15	3.35	$3.99	1.23	3.24	$4.14	1.32	3.13	$4.30	1.42	3.03	$4.46	$128.38	$90.59	$106.80
Eversource Energy	ES	$2.14	$78.41	2.73%	2.81%	5.58%	5.58%	8.38%	$2.20	1.08	2.03	$2.32	1.17	1.98	$2.45	1.27	1.93	$2.59	1.38	1.88	$2.73	1.50	1.83	$2.89	$102.85	$68.78	$78.41
Exelon Corporation	EXC	$1.45	$47.73	3.04%	3.13%	6.20%	6.20%	9.33%	$1.49	1.09	1.37	$1.59	1.20	1.33	$1.69	1.31	1.29	$1.79	1.43	1.25	$1.90	1.56	1.22	$2.02	$64.48	$41.28	$47.73
FirstEnergy Corporation	FE	$1.52	$44.56	3.41%	3.53%	7.00%	6.94%	10.48%	$1.57	1.10	1.42	$1.68	1.22	1.38	$1.80	1.35	1.34	$1.93	1.49	1.29	$2.06	1.65	1.25	$2.21	$62.33	$37.87	$44.56
Evergy, Inc.	EVRG	$1.90	$62.28	3.05%	3.15%	6.70%	6.70%	9.85%	$1.96	1.10	1.79	$2.10	1.21	1.74	$2.24	1.33	1.69	$2.39	1.46	1.64	$2.55	1.60	1.59	$2.72	$86.13	$53.84	$62.28
Hawaiian Electric Industries, Inc.	HE	$1.28	$43.98	2.91%	2.97%	4.03%	4.03%	7.00%	$1.31	1.07	1.22	$1.36	1.14	1.19	$1.41	1.23	1.15	$1.47	1.31	1.12	$1.53	1.40	1.09	$1.59	$53.60	$38.21	$43.98
IDACORP, Inc.	IDA	$2.52	$105.47	2.39%	2.43%	3.23%	3.48%	5.88%	$2.56	1.06	2.42	$2.64	1.12	2.36	$2.73	1.19	2.30	$2.82	1.26	2.24	$2.91	1.33	2.19	$3.01	$125.05	$93.97	$105.47
NextEra Energy, Inc.	NEE	$5.00	$212.80	2.35%	2.45%	8.83%	6.94%	9.56%	$5.22	1.10	4.77	$5.68	1.20	4.73	$6.18	1.32	4.70	$6.73	1.44	4.67	$7.32	1.58	4.64	$7.83	$298.83	$189.29	$212.80
NorthWestern Corporation	NWE	$2.30	$72.21	3.18%	3.23%	2.95%	3.48%	6.65%	$2.33	1.07	2.19	$2.40	1.14	2.11	$2.47	1.21	2.04	$2.55	1.29	1.97	$2.62	1.38	1.90	$2.71	$85.54	$62.00	$72.21
OGE Energy Corporation	OGE	$1.46	$43.18	3.38%	3.46%	4.80%	4.80%	8.26%	$1.50	1.08	1.38	$1.57	1.17	1.34	$1.64	1.27	1.29	$1.72	1.37	1.25	$1.80	1.49	1.21	$1.89	$54.58	$36.70	$43.18
Otter Tail Corporation	OTTR	$1.40	$52.09	2.69%	2.78%	7.00%	6.94%	9.73%	$1.45	1.10	1.32	$1.55	1.20	1.29	$1.66	1.32	1.26	$1.78	1.45	1.22	$1.90	1.59	1.19	$2.03	$72.87	$45.81	$52.09
Pinnacle West Capital Corporation	PNW	$2.95	$94.80	3.11%	3.20%	5.55%	5.55%	8.75%	$3.03	1.09	2.79	$3.20	1.18	2.71	$3.38	1.29	2.63	$3.57	1.40	2.55	$3.76	1.52	2.47	$3.97	$124.19	$81.66	$94.80
PNM Resources, Inc.	PNM	$1.16	$50.24	2.31%	2.38%	6.23%	6.23%	8.61%	$1.20	1.09	1.10	$1.27	1.18	1.08	$1.35	1.28	1.05	$1.43	1.39	1.03	$1.52	1.51	1.01	$1.62	$67.96	$44.97	$50.24
Portland General Electric Company	POR	$1.54	$55.28	2.79%	2.85%	4.70%	4.70%	7.55%	$1.58	1.08	1.47	$1.65	1.16	1.43	$1.73	1.24	1.39	$1.81	1.34	1.35	$1.89	1.44	1.32	$1.98	$69.55	$48.33	$55.28
PPL Corporation	PPL	$1.65	$30.42	5.42%	5.45%	1.05%	3.48%	8.49%	$1.66	1.08	1.53	$1.68	1.18	1.42	$1.69	1.28	1.33	$1.71	1.39	1.24	$1.73	1.50	1.15	$1.79	$35.70	$23.76	$30.42
Southern Company	SO	$2.48	$57.07	4.35%	4.41%	3.12%	3.48%	7.84%	$2.52	1.08	2.34	$2.60	1.16	2.23	$2.68	1.25	2.14	$2.76	1.35	2.04	$2.85	1.46	1.95	$2.95	$67.61	$46.36	$57.07
Mean				3.16%	3.24%	5.21%	5.23%	8.46%																			
Mean (excluding ROE < 7%) [30]								8.73%																			
Flotation Costs								0.12%																			
Mean (Including Flotation Costs)								8.58%																			
Mean (excluding ROE < 7% and including Flotation Costs)								8.85%																			

Standard Deviation [6]	1.73%
Avg. less Standard Dev [7]	3.48%
Avg. plus Standard Dev [8]	6.94%

Notes:
[1] Source: Constant DCF
[2] Source: Constant DCF
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [5])
[5] Source: Constant DCF
[6] Standard Deviation of Column [5]
[7] Mean of Column [5], minus [6]
[8] Mean of Column [5], plus [6]
[9] If [5] > [8], then [8]; If [5] < [7], then [7], Else [5]
[10] ROE that sets [2] equal to [29] using Excel's goal seek function
[11] = [2] x [4]
[12] = (1 + [10]) ^ 1
[13] = [11] / [12]
[14] = [11] * (1 + [5])
[15] = (1 + [10]) ^ 2
[16] = [14] / [15]
[17] = [14] * (1 + [5])
[18] = (1 + [10]) ^ 3
[19] = [17] / [18]
[20] = [17] * (1 + [5])
[21] = (1 + [10]) ^ 4
[22] = [20] / [21]
[23] = [20] * (1 + [5])
[24] = (1 + [10]) ^ 5
[25] = [23] / [24]
[26] = [23] * (1 + [9])
[27] = [26] / ([10] - [9])
[28] = [27] / [24]
[29] = [13] + [16] + [19] + [22] + [25] + [28]
[30] Excludes companies with ROEs less than the a 7.00% return, consistent with the Department position in Docket No. E-002/GR-15-826

180-DAY TWO-STAGE GROWTH DCF -- MEAN GROWTH RATE

		[1]	[2]	[3]	[4]	[5]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Average Growth Rate	Second Growth Rate	Mean ROE	Year 1 Div.	(1+k)^1	PV of Year 1 Div.	Year 2 Div.	(1+k)^2	PV of Year 2 Div.	Year 3 Div.	(1+k)^3	PV of Year 3 Div.	Year 4 Div.	(1+k)^4	PV of Year 4 Div.	Year 5 Div.	(1+k)^5	PV of Year 5 Div.	Year 6 Div.	Year 5 Stock Price	PV of Year 5 Stock Price	Current Stock Price
ALLETE, Inc.	ALE	$2.35	$82.79	2.84%	2.93%	6.40%	6.40%	9.33%	$2.43	1.09	2.22	$2.58	1.20	2.16	$2.75	1.31	2.10	$2.92	1.43	2.04	$3.11	1.56	1.99	$3.31	$112.90	$72.28	$82.79
Alliant Energy Corporation	LNT	$1.42	$48.27	2.94%	3.03%	5.68%	5.68%	8.71%	$1.46	1.09	1.34	$1.54	1.18	1.31	$1.63	1.28	1.27	$1.72	1.40	1.23	$1.82	1.52	1.20	$1.93	$63.63	$41.92	$48.27
Ameren Corporation	AEE	$1.90	$73.85	2.57%	2.65%	5.87%	5.87%	8.51%	$1.96	1.09	1.80	$2.07	1.18	1.76	$2.19	1.28	1.72	$2.32	1.39	1.67	$2.46	1.50	1.63	$2.60	$98.21	$65.27	$73.85
American Electric Power Company, Inc.	AEP	$2.68	$86.14	3.11%	3.19%	5.27%	5.27%	8.46%	$2.75	1.08	2.54	$2.90	1.18	2.46	$3.05	1.28	2.39	$3.21	1.38	2.32	$3.38	1.50	2.25	$3.56	$111.34	$74.18	$86.14
Avangrid, Inc.	AGR	$1.76	$50.18	3.51%	3.65%	7.97%	6.94%	10.72%	$1.83	1.11	1.65	$1.98	1.23	1.61	$2.13	1.36	1.57	$2.30	1.50	1.53	$2.49	1.66	1.49	$2.66	$70.41	$42.32	$50.18
Avista Corporation	AVA	$1.55	$43.49	3.56%	3.62%	3.40%	3.48%	7.09%	$1.58	1.07	1.47	$1.63	1.15	1.42	$1.69	1.23	1.37	$1.74	1.32	1.33	$1.80	1.41	1.28	$1.86	$51.58	$36.62	$43.49
DTE Energy Company	DTE	$3.78	$125.65	3.01%	3.09%	5.32%	5.32%	8.41%	$3.88	1.08	3.58	$4.09	1.18	3.48	$4.30	1.27	3.38	$4.53	1.38	3.28	$4.77	1.50	3.19	$5.03	$162.79	$108.74	$125.65
Duke Energy Corporation	DUK	$3.78	$89.39	4.23%	4.33%	4.99%	4.99%	9.32%	$3.87	1.09	3.54	$4.07	1.20	3.40	$4.27	1.31	3.27	$4.48	1.43	3.14	$4.71	1.56	3.01	$4.94	$114.02	$73.02	$89.39
Edison International	EIX	$2.45	$64.96	3.77%	3.86%	4.60%	4.60%	8.46%	$2.51	1.08	2.31	$2.62	1.18	2.23	$2.74	1.28	2.15	$2.87	1.38	2.07	$3.00	1.50	2.00	$3.14	$81.34	$54.20	$64.96
Entergy Corporation	ETR	$3.64	$99.86	3.65%	3.71%	3.75%	3.75%	7.46%	$3.71	1.07	3.45	$3.85	1.15	3.33	$3.99	1.24	3.22	$4.14	1.33	3.11	$4.30	1.43	3.00	$4.46	$120.04	$83.76	$99.86
Eversource Energy	ES	$2.14	$74.34	2.88%	2.96%	5.58%	5.58%	8.54%	$2.20	1.09	2.03	$2.32	1.18	1.97	$2.45	1.28	1.92	$2.59	1.39	1.87	$2.73	1.51	1.81	$2.89	$97.51	$64.74	$74.34
Exelon Corporation	EXC	$1.45	$48.24	3.01%	3.10%	6.20%	6.20%	9.30%	$1.49	1.09	1.37	$1.59	1.19	1.33	$1.69	1.31	1.29	$1.79	1.43	1.25	$1.90	1.56	1.22	$2.02	$65.16	$41.78	$48.24
FirstEnergy Corporation	FE	$1.52	$42.59	3.57%	3.69%	7.00%	6.94%	10.64%	$1.57	1.11	1.42	$1.68	1.22	1.38	$1.80	1.35	1.33	$1.93	1.50	1.29	$2.06	1.66	1.24	$2.21	$59.58	$35.93	$42.59
Evergy, Inc.	EVRG	$1.90	$59.76	3.18%	3.29%	6.70%	6.70%	9.99%	$1.96	1.10	1.79	$2.10	1.21	1.73	$2.24	1.33	1.68	$2.39	1.46	1.63	$2.55	1.61	1.58	$2.72	$82.64	$51.35	$59.76
Hawaiian Electric Industries, Inc.	HE	$1.28	$41.77	3.06%	3.13%	4.03%	4.03%	7.16%	$1.31	1.07	1.22	$1.36	1.15	1.18	$1.41	1.23	1.15	$1.47	1.32	1.11	$1.53	1.41	1.08	$1.59	$50.90	$36.02	$41.77
IDACORP, Inc.	IDA	$2.52	$102.00	2.47%	2.51%	3.23%	3.48%	5.96%	$2.56	1.06	2.42	$2.64	1.12	2.35	$2.73	1.19	2.29	$2.82	1.26	2.23	$2.91	1.34	2.18	$3.01	$120.93	$90.52	$102.00
NextEra Energy, Inc.	NEE	$5.00	$200.16	2.50%	2.61%	8.83%	6.94%	9.73%	$5.22	1.10	4.76	$5.68	1.20	4.72	$6.18	1.32	4.68	$6.73	1.45	4.64	$7.32	1.59	4.60	$7.83	$281.14	$176.75	$200.16
NorthWestern Corporation	NWE	$2.30	$70.10	3.28%	3.33%	2.95%	3.48%	6.74%	$2.33	1.07	2.19	$2.40	1.14	2.11	$2.47	1.22	2.03	$2.55	1.30	1.96	$2.62	1.39	1.89	$2.71	$83.02	$59.91	$70.10
OGE Energy Corporation	OGE	$1.46	$42.51	3.43%	3.52%	4.80%	4.80%	8.32%	$1.50	1.08	1.38	$1.57	1.17	1.34	$1.64	1.27	1.29	$1.72	1.38	1.25	$1.80	1.49	1.21	$1.89	$53.74	$36.04	$42.51
Otter Tail Corporation	OTTR	$1.40	$50.94	2.75%	2.84%	7.00%	6.94%	9.79%	$1.45	1.10	1.32	$1.55	1.21	1.29	$1.66	1.32	1.25	$1.78	1.45	1.22	$1.90	1.60	1.19	$2.03	$71.26	$44.67	$50.94
Pinnacle West Capital Corporation	PNW	$2.95	$93.67	3.15%	3.24%	5.55%	5.55%	8.79%	$3.03	1.09	2.79	$3.20	1.18	2.70	$3.38	1.29	2.62	$3.57	1.40	2.55	$3.76	1.52	2.47	$3.97	$122.71	$80.54	$93.67
PNM Resources, Inc.	PNM	$1.16	$47.65	2.43%	2.51%	6.23%	6.23%	8.74%	$1.20	1.09	1.10	$1.27	1.18	1.07	$1.35	1.29	1.05	$1.43	1.40	1.03	$1.52	1.52	1.00	$1.62	$64.45	$42.39	$47.65
Portland General Electric Company	POR	$1.54	$52.86	2.91%	2.98%	4.70%	4.70%	7.68%	$1.58	1.08	1.46	$1.65	1.16	1.42	$1.73	1.25	1.38	$1.81	1.34	1.35	$1.89	1.45	1.31	$1.98	$66.50	$45.93	$52.86
PPL Corporation	PPL	$1.65	$30.84	5.35%	5.38%	1.05%	3.48%	8.42%	$1.66	1.08	1.53	$1.68	1.18	1.43	$1.69	1.27	1.33	$1.71	1.38	1.24	$1.73	1.50	1.15	$1.79	$36.20	$24.17	$30.84
Southern Company	SO	$2.48	$53.95	4.60%	4.67%	3.12%	3.48%	8.09%	$2.52	1.08	2.33	$2.60	1.17	2.22	$2.68	1.26	2.12	$2.76	1.36	2.02	$2.85	1.48	1.93	$2.95	$63.91	$43.32	$53.95
Mean				3.27%	3.35%	5.21%	5.23%	8.57%																			
Mean (excluding ROE < 7%) [30]								8.77%																			
Flotation Costs								0.12%																			
Mean (Including Flotation Costs)								8.69%																			
Mean (excluding ROE < 7% and including Flotation Costs)								8.89%																			

Standard Deviation [6]	1.73%
Avg. less Standard Dev [7]	3.48%
Avg. plus Standard Dev [8]	6.94%

Notes:
[1] Source: Constant DCF
[2] Source: Constant DCF
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [5])
[5] Source: Constant DCF
[6] Standard Deviation of Column [5]
[7] Mean of Column [5], minus [6]
[8] Mean of Column [5], plus [6]
[9] If [5] > [8], then [8]; If [5] < [7], then [7], Else [5]
[10] ROE that sets [2] equal to [29] using Excel's goal seek function
[11] = [2] x [4]
[12] = (1 + [10]) ^ 1
[13] = [11] / [12]
[14] = [11] * (1 + [5])
[15] = (1 + [10]) ^ 2
[16] = [14] / [15]
[17] = [14] * (1 + [5])
[18] = (1 + [10]) ^ 3
[19] = [17] / [18]
[20] = [17] * (1 + [5])
[21] = (1 + [10]) ^ 4
[22] = [20] / [21]
[23] = [20] * (1 + [5])
[24] = (1 + [10]) ^ 5
[25] = [23] / [24]
[26] = [23] * (1 + [9])
[27] = [26] / ([10] - [9])
[28] = [27] / [24]
[29] = [13] + [16] + [19] + [22] + [25] + [28]
[30] Excludes companies with ROEs less than the a 7.00% return, consistent with the Department position in Docket No. E-002/GR-15-826

30-DAY TWO-STAGE GROWTH DCF -- LOW GROWTH RATE

Company	Ticker	[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Low Growth Rate	[9] Second Growth Rate	[10] Mean ROE	[11] Year 1 Div.	[12] (1+k)^1	[13] PV of Year 1 Div.	[14] Year 2 Div.	[15] (1+k)^2	[16] PV of Year 2 Div.	[17] Year 3 Div.	[18] (1+k)^3	[19] PV of Year 3 Div.	[20] Year 4 Div.	[21] (1+k)^4	[22] PV of Year 4 Div.	[23] Year 5 Div.	[24] (1+k)^5	[25] PV of Year 5 Div.	[26] Year 6 Div.	[27] Year 5 Stock Price	[28] PV of Year 5 Stock Price	[29] Current Stock Price
ALLETE, Inc.	ALE	$2.35	$86.31	2.72%	2.80%	6.00%	6.00%	8.80%	$2.42	1.09	2.22	$2.57	1.18	2.17	$2.72	1.29	2.11	$2.88	1.40	2.06	$3.06	1.52	2.00	$3.24	$115.51	$75.75	$86.31
Alliant Energy Corporation	LNT	$1.42	$52.61	2.70%	2.77%	5.05%	5.05%	7.82%	$1.46	1.08	1.35	$1.53	1.16	1.32	$1.61	1.25	1.28	$1.69	1.35	1.25	$1.77	1.46	1.22	$1.86	$67.31	$46.20	$52.61
Ameren Corporation	AEE	$1.90	$77.40	2.45%	2.51%	4.70%	4.70%	7.21%	$1.94	1.07	1.81	$2.04	1.15	1.77	$2.13	1.23	1.73	$2.23	1.32	1.69	$2.34	1.42	1.65	$2.45	$97.38	$68.75	$77.40
American Electric Power Company, Inc.	AEP	$2.68	$92.02	2.91%	2.97%	4.00%	4.00%	6.97%	$2.73	1.07	2.56	$2.84	1.14	2.48	$2.96	1.22	2.42	$3.07	1.31	2.35	$3.20	1.40	2.28	$3.33	$111.96	$79.93	$92.02
Avangrid, Inc.	AGR	$1.76	$50.64	3.48%	3.59%	6.40%	6.06%	9.69%	$1.82	1.10	1.66	$1.93	1.20	1.61	$2.06	1.32	1.56	$2.19	1.45	1.51	$2.33	1.59	1.47	$2.47	$68.03	$42.84	$50.64
Avista Corporation	AVA	$1.55	$47.50	3.26%	3.32%	3.30%	3.30%	6.62%	$1.58	1.07	1.48	$1.63	1.14	1.43	$1.68	1.21	1.39	$1.74	1.29	1.34	$1.79	1.38	1.30	$1.85	$55.88	$40.56	$47.50
DTE Energy Company	DTE	$3.78	$130.66	2.89%	2.96%	4.45%	4.45%	7.41%	$3.86	1.07	3.60	$4.04	1.15	3.50	$4.22	1.24	3.40	$4.40	1.33	3.31	$4.60	1.43	3.22	$4.80	$162.44	$113.64	$130.66
Duke Energy Corporation	DUK	$3.78	$93.64	4.04%	4.12%	4.06%	4.06%	8.18%	$3.86	1.08	3.57	$4.01	1.17	3.43	$4.18	1.27	3.30	$4.35	1.37	3.17	$4.52	1.48	3.05	$4.71	$114.26	$77.12	$93.64
Edison International	EIX	$2.45	$72.96	3.36%	3.42%	3.90%	3.90%	7.32%	$2.50	1.07	2.33	$2.60	1.15	2.25	$2.70	1.24	2.18	$2.80	1.33	2.11	$2.91	1.42	2.04	$3.02	$88.34	$62.04	$72.96
Entergy Corporation	ETR	$3.64	$113.78	3.20%	3.21%	0.50%	2.39%	5.38%	$3.65	1.05	3.46	$3.67	1.11	3.30	$3.69	1.17	3.15	$3.70	1.23	3.00	$3.72	1.30	2.86	$3.81	$127.39	$98.00	$113.79
Eversource Energy	ES	$2.14	$82.05	2.61%	2.68%	5.50%	5.50%	8.18%	$2.20	1.08	2.03	$2.32	1.17	1.98	$2.45	1.27	1.93	$2.58	1.37	1.89	$2.72	1.48	1.84	$2.87	$107.24	$72.38	$82.05
Exelon Corporation	EXC	$1.45	$47.41	3.06%	3.11%	3.40%	3.40%	6.51%	$1.47	1.07	1.38	$1.52	1.13	1.34	$1.58	1.21	1.30	$1.63	1.29	1.27	$1.69	1.37	1.23	$1.74	$56.03	$40.88	$47.41
FirstEnergy Corporation	FE	$1.52	$46.90	3.24%	3.34%	6.00%	6.00%	9.34%	$1.57	1.09	1.43	$1.66	1.20	1.39	$1.76	1.31	1.35	$1.86	1.43	1.30	$1.98	1.56	1.26	$2.10	$62.76	$40.17	$46.90
Evergy, Inc.	EVRG	$1.90	$65.28	2.91%	3.01%	6.60%	6.06%	9.12%	$1.96	1.09	1.80	$2.09	1.19	1.76	$2.23	1.30	1.72	$2.38	1.42	1.68	$2.53	1.55	1.64	$2.69	$87.73	$56.69	$65.28
Hawaiian Electric Industries, Inc.	HE	$1.28	$44.57	2.87%	2.92%	3.40%	3.40%	6.32%	$1.30	1.06	1.22	$1.35	1.13	1.19	$1.39	1.20	1.16	$1.44	1.28	1.13	$1.49	1.36	1.10	$1.54	$52.69	$38.78	$44.57
IDACORP, Inc.	IDA	$2.52	$109.87	2.29%	2.32%	2.40%	2.40%	4.72%	$2.55	1.05	2.44	$2.61	1.10	2.38	$2.67	1.15	2.33	$2.74	1.20	2.28	$2.80	1.26	2.23	$2.87	$123.70	$98.22	$109.87
NextEra Energy, Inc.	NEE	$5.00	$223.10	2.24%	2.33%	7.99%	6.06%	8.56%	$5.20	1.09	4.79	$5.62	1.18	4.77	$6.06	1.28	4.74	$6.55	1.39	4.72	$7.07	1.51	4.69	$7.50	$300.59	$199.40	$223.10
NorthWestern Corporation	NWE	$2.30	$73.26	3.14%	3.18%	2.60%	2.60%	5.78%	$2.33	1.06	2.20	$2.39	1.12	2.14	$2.45	1.18	2.07	$2.52	1.25	2.01	$2.58	1.32	1.95	$2.65	$83.30	$62.89	$73.26
OGE Energy Corporation	OGE	$1.46	$43.78	3.34%	3.39%	3.40%	3.40%	6.79%	$1.48	1.07	1.39	$1.54	1.14	1.35	$1.59	1.22	1.30	$1.64	1.30	1.26	$1.70	1.39	1.22	$1.75	$51.74	$37.25	$43.78
Otter Tail Corporation	OTTR	$1.40	$52.31	2.68%	2.74%	5.00%	5.00%	7.74%	$1.44	1.08	1.33	$1.51	1.16	1.30	$1.58	1.25	1.26	$1.66	1.35	1.23	$1.74	1.45	1.20	$1.83	$66.77	$45.99	$52.31
Pinnacle West Capital Corporation	PNW	$2.95	$95.17	3.10%	3.18%	5.05%	5.05%	8.23%	$3.02	1.08	2.79	$3.18	1.17	2.71	$3.34	1.27	2.63	$3.51	1.37	2.56	$3.68	1.48	2.48	$3.87	$121.76	$82.00	$95.17
PNM Resources, Inc.	PNM	$1.16	$50.89	2.28%	2.34%	5.50%	5.50%	7.84%	$1.19	1.08	1.11	$1.26	1.16	1.08	$1.33	1.25	1.06	$1.40	1.35	1.03	$1.48	1.46	1.01	$1.56	$66.51	$45.60	$50.89
Portland General Electric Company	POR	$1.54	$56.33	2.73%	2.80%	4.50%	4.50%	7.30%	$1.57	1.07	1.47	$1.65	1.15	1.43	$1.72	1.24	1.39	$1.80	1.33	1.36	$1.88	1.42	1.32	$1.96	$70.19	$49.36	$56.33
PPL Corporation	PPL	$1.65	$30.39	5.43%	5.45%	0.59%	2.39%	7.51%	$1.65	1.08	1.54	$1.66	1.16	1.44	$1.67	1.24	1.35	$1.68	1.34	1.26	$1.69	1.44	1.18	$1.73	$33.92	$23.62	$30.39
Southern Company	SO	$2.48	$59.70	4.15%	4.18%	1.37%	2.39%	6.43%	$2.50	1.06	2.35	$2.53	1.13	2.23	$2.57	1.21	2.13	$2.60	1.28	2.03	$2.64	1.37	1.93	$2.70	$66.94	$49.03	$59.70
Mean				3.08%	3.15%	4.23%	4.30%	7.43%																			
Mean (excluding ROE < 7%) [30]								8.14%																			
Flotation Costs								0.12%																			
Mean (Including Flotation Costs)								7.55%																			
Mean (excluding ROE < 7% and including Flotation Costs)								8.26%																			

Standard Deviation [6]	1.83%
Avg. less Standard Dev [7]	2.39%
Avg. plus Standard Dev [8]	6.06%

Notes:
[1] Source: Constant DCF
[2] Source: Constant DCF
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [5])
[5] Source: Constant DCF
[6] Standard Deviation of Column [5]
[7] Mean of Column [5], minus [6]
[8] Mean of Column [5], plus [6]
[9] If [5] > [8], then [8]; If [5] < [7], then [7], Else [5]
[10] ROE that sets [2] equal to [29] using Excel's goal seek function
[11] = [2] x [4]
[12] = (1 + [10]) ^ 1
[13] = [11] / [12]
[14] = [11] * (1 + [5])
[15] = (1 + [10]) ^ 2
[16] = [14] / [15]
[17] = [14] * (1 + [5])
[18] = (1 + [10]) ^ 3
[19] = [17] / [18]
[20] = [17] * (1 + [5])
[21] = (1 + [10]) ^ 4
[22] = [20] / [21]
[23] = [20] * (1 + [5])
[24] = (1 + [10]) ^ 5
[25] = [23] / [24]
[26] = [23] * (1 + [9])
[27] = [26] / ([10] - [9])
[28] = [27] / [24]
[29] = [13] + [16] + [19] + [22] + [25] + [28]
[30] Excludes companies with ROEs less than the a 7.00% return, consistent with the Department position in Docket No. E-002/GR-15-826

90-DAY TWO-STAGE GROWTH DCF -- LOW GROWTH RATE

		[1]	[2]	[3]	[4]	[5]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Low Growth Rate	Second Growth Rate	Mean ROE	Year 1 Div.	(1+k)^1	PV of Year 1 Div.	Year 2 Div.	(1+k)^2	PV of Year 2 Div.	Year 3 Div.	(1+k)^3	PV of Year 3 Div.	Year 4 Div.	(1+k)^4	PV of Year 4 Div.	Year 5 Div.	(1+k)^5	PV of Year 5 Div.	Year 6 Div.	Year 5 Stock Price	PV of Year 5 Stock Price	Current Stock Price
ALLETE, Inc.	ALE	$2.35	$85.36	2.75%	2.84%	6.00%	6.00%	8.84%	$2.42	1.09	2.22	$2.57	1.18	2.17	$2.72	1.29	2.11	$2.88	1.40	2.05	$3.06	1.53	2.00	$3.24	$114.24	$74.81	$85.36
Alliant Energy Corporation	LNT	$1.42	$50.63	2.80%	2.88%	5.05%	5.05%	7.93%	$1.46	1.08	1.35	$1.53	1.16	1.31	$1.61	1.26	1.28	$1.69	1.36	1.24	$1.77	1.46	1.21	$1.86	$64.77	$44.24	$50.63
Ameren Corporation	AEE	$1.90	$76.42	2.49%	2.54%	4.70%	4.70%	7.24%	$1.94	1.07	1.81	$2.04	1.15	1.77	$2.13	1.23	1.73	$2.23	1.32	1.69	$2.34	1.42	1.65	$2.45	$96.15	$67.77	$76.42
American Electric Power Company, Inc.	AEP	$2.68	$90.24	2.97%	3.03%	4.00%	4.00%	7.03%	$2.73	1.07	2.55	$2.84	1.15	2.48	$2.96	1.23	2.41	$3.07	1.31	2.34	$3.20	1.40	2.28	$3.33	$109.79	$78.17	$90.24
Avangrid, Inc.	AGR	$1.76	$50.46	3.49%	3.60%	6.40%	6.06%	9.70%	$1.82	1.10	1.66	$1.93	1.20	1.61	$2.06	1.32	1.56	$2.19	1.45	1.51	$2.33	1.59	1.47	$2.47	$67.79	$42.66	$50.46
Avista Corporation	AVA	$1.55	$45.59	3.40%	3.46%	3.30%	3.30%	6.76%	$1.58	1.07	1.48	$1.63	1.14	1.43	$1.68	1.22	1.38	$1.74	1.30	1.34	$1.79	1.39	1.29	$1.85	$53.63	$38.67	$45.59
DTE Energy Company	DTE	$3.78	$129.44	2.92%	2.99%	4.45%	4.45%	7.44%	$3.86	1.07	3.60	$4.04	1.15	3.50	$4.22	1.24	3.40	$4.40	1.33	3.31	$4.60	1.43	3.21	$4.80	$160.92	$112.43	$129.44
Duke Energy Corporation	DUK	$3.78	$89.99	4.20%	4.29%	4.06%	4.06%	8.35%	$3.86	1.08	3.56	$4.01	1.17	3.42	$4.18	1.27	3.28	$4.35	1.38	3.15	$4.52	1.49	3.03	$4.71	$109.80	$73.54	$89.99
Edison International	EIX	$2.45	$69.08	3.55%	3.62%	3.90%	3.90%	7.52%	$2.50	1.08	2.32	$2.60	1.16	2.25	$2.70	1.24	2.17	$2.80	1.34	2.10	$2.91	1.44	2.03	$3.02	$83.64	$58.22	$69.08
Entergy Corporation	ETR	$3.64	$106.80	3.41%	3.42%	0.50%	2.39%	5.58%	$3.65	1.06	3.46	$3.67	1.11	3.29	$3.69	1.18	3.13	$3.70	1.24	2.98	$3.72	1.31	2.84	$3.81	$119.53	$91.10	$106.80
Eversource Energy	ES	$2.14	$78.41	2.73%	2.80%	5.50%	5.50%	8.30%	$2.20	1.08	2.03	$2.32	1.17	1.98	$2.45	1.27	1.93	$2.58	1.38	1.88	$2.72	1.49	1.83	$2.87	$102.48	$68.77	$78.41
Exelon Corporation	EXC	$1.45	$47.73	3.04%	3.09%	3.40%	3.40%	6.49%	$1.47	1.06	1.38	$1.52	1.13	1.34	$1.58	1.21	1.31	$1.63	1.29	1.27	$1.69	1.37	1.23	$1.74	$56.42	$41.20	$47.73
FirstEnergy Corporation	FE	$1.52	$44.56	3.41%	3.51%	6.00%	6.00%	9.51%	$1.57	1.10	1.43	$1.66	1.20	1.38	$1.76	1.31	1.34	$1.86	1.44	1.30	$1.98	1.58	1.25	$2.10	$59.63	$37.85	$44.56
Evergy, Inc.	EVRG	$1.90	$62.28	3.05%	3.15%	6.60%	6.06%	9.27%	$1.96	1.09	1.80	$2.09	1.19	1.75	$2.23	1.30	1.71	$2.38	1.43	1.67	$2.53	1.56	1.63	$2.69	$83.70	$53.73	$62.28
Hawaiian Electric Industries, Inc.	HE	$1.28	$43.98	2.91%	2.96%	3.40%	3.40%	6.36%	$1.30	1.06	1.22	$1.35	1.13	1.19	$1.39	1.20	1.16	$1.44	1.28	1.12	$1.49	1.36	1.09	$1.54	$51.98	$38.19	$43.98
IDACORP, Inc.	IDA	$2.52	$105.47	2.39%	2.42%	2.40%	2.40%	4.82%	$2.55	1.05	2.43	$2.61	1.10	2.38	$2.67	1.15	2.32	$2.74	1.21	2.27	$2.80	1.27	2.22	$2.87	$118.75	$93.86	$105.47
NextEra Energy, Inc.	NEE	$5.00	$212.80	2.35%	2.44%	7.99%	6.06%	8.68%	$5.20	1.09	4.78	$5.62	1.18	4.75	$6.06	1.28	4.72	$6.55	1.39	4.69	$7.07	1.52	4.67	$7.50	$286.77	$189.18	$212.80
NorthWestern Corporation	NWE	$2.30	$72.21	3.18%	3.23%	2.60%	2.60%	5.83%	$2.33	1.06	2.20	$2.39	1.12	2.13	$2.45	1.19	2.07	$2.52	1.25	2.01	$2.58	1.33	1.95	$2.65	$82.10	$61.86	$72.21
OGE Energy Corporation	OGE	$1.46	$43.18	3.38%	3.44%	3.40%	3.40%	6.84%	$1.48	1.07	1.39	$1.54	1.14	1.35	$1.59	1.22	1.30	$1.64	1.30	1.26	$1.70	1.39	1.22	$1.75	$51.03	$36.66	$43.18
Otter Tail Corporation	OTTR	$1.40	$52.09	2.69%	2.75%	5.00%	5.00%	7.75%	$1.44	1.08	1.33	$1.51	1.16	1.30	$1.58	1.25	1.26	$1.66	1.35	1.23	$1.74	1.45	1.20	$1.83	$66.48	$45.76	$52.09
Pinnacle West Capital Corporation	PNW	$2.95	$94.80	3.11%	3.19%	5.05%	5.05%	8.24%	$3.02	1.08	2.79	$3.18	1.17	2.71	$3.34	1.27	2.63	$3.51	1.37	2.55	$3.68	1.49	2.48	$3.87	$121.28	$81.63	$94.80
PNM Resources, Inc.	PNM	$1.16	$50.24	2.31%	2.37%	5.50%	5.50%	7.87%	$1.19	1.08	1.10	$1.26	1.16	1.08	$1.33	1.26	1.06	$1.40	1.35	1.03	$1.48	1.46	1.01	$1.56	$65.67	$44.96	$50.24
Portland General Electric Company	POR	$1.54	$55.28	2.79%	2.85%	4.50%	4.50%	7.35%	$1.57	1.07	1.47	$1.65	1.15	1.43	$1.72	1.24	1.39	$1.80	1.33	1.35	$1.88	1.43	1.32	$1.96	$68.89	$48.33	$55.28
PPL Corporation	PPL	$1.65	$30.42	5.42%	5.44%	0.59%	2.39%	7.50%	$1.65	1.08	1.54	$1.66	1.16	1.44	$1.67	1.24	1.35	$1.68	1.34	1.26	$1.69	1.44	1.18	$1.73	$33.96	$23.65	$30.42
Southern Company	SO	$2.48	$57.07	4.35%	4.38%	1.37%	2.39%	6.61%	$2.50	1.07	2.34	$2.53	1.14	2.23	$2.57	1.21	2.12	$2.60	1.29	2.01	$2.64	1.38	1.91	$2.70	$63.98	$46.45	$57.07
Mean				3.16%	3.23%	4.23%	4.30%	7.51%																			
Mean (excluding ROE < 7%) [30]								8.15%																			
Flotation Costs								0.12%																			
Mean (Including Flotation Costs)								7.63%																			
Mean (excluding ROE < 7% and including Flotation Costs)								8.27%																			

Standard Deviation [6]	1.83%
Avg. less Standard Dev [7]	2.39%
Avg. plus Standard Dev [8]	6.06%

Notes:
[1] Source: Constant DCF
[2] Source: Constant DCF
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [5])
[5] Source: Constant DCF
[6] Standard Deviation of Column [5]
[7] Mean of Column [5], minus [6]
[8] Mean of Column [5], plus [6]
[9] If [5] > [8], then [8]; If [5] < [7], then [7], Else [5]
[10] ROE that sets [2] equal to [29] using Excel's goal seek function
[11] = [2] x [4]
[12] = (1 + [10]) ^ 1
[13] = [11] / [12]
[14] = [11] * (1 + [5])
[15] = (1 + [10]) ^ 2
[16] = [14] / [15]
[17] = [14] * (1 + [5])
[18] = (1 + [10]) ^ 3
[19] = [17] / [18]
[20] = [17] * (1 + [5])
[21] = (1 + [10]) ^ 4
[22] = [20] / [21]
[23] = [20] * (1 + [5])
[24] = (1 + [10]) ^ 5
[25] = [23] / [24]
[26] = [23] * (1 + [9])
[27] = [26] / ([10] - [9])
[28] = [27] / [24]
[29] = [13] + [16] + [19] + [22] + [25] + [28]
[30] Excludes companies with ROEs less than the a 7.00% return, consistent with the Department position in Docket No. E-002/GR-15-826

180-DAY TWO-STAGE GROWTH DCF -- LOW GROWTH RATE

		[1]	[2]	[3]	[4]	[5]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Low Growth Rate	Second Growth Rate	Mean ROE	Year 1 Div.	(1+k)^1	PV of Year 1 Div.	Year 2 Div.	(1+k)^2	PV of Year 2 Div.	Year 3 Div.	(1+k)^3	PV of Year 3 Div.	Year 4 Div.	(1+k)^4	PV of Year 4 Div.	Year 5 Div.	(1+k)^5	PV of Year 5 Div.	Year 6 Div.	Year 5 Stock Price	PV of Year 5 Stock Price	Current Stock Price
ALLETE, Inc.	ALE	$2.35	$82.79	2.84%	2.92%	6.00%	6.00%	8.92%	$2.42	1.09	2.22	$2.57	1.19	2.16	$2.72	1.29	2.10	$2.88	1.41	2.05	$3.06	1.53	1.99	$3.24	$110.79	$72.26	$82.79
Alliant Energy Corporation	LNT	$1.42	$48.27	2.94%	3.02%	5.05%	5.05%	8.07%	$1.46	1.08	1.35	$1.53	1.17	1.31	$1.61	1.26	1.27	$1.69	1.36	1.24	$1.77	1.47	1.20	$1.86	$61.75	$41.90	$48.27
Ameren Corporation	AEE	$1.90	$73.85	2.57%	2.63%	4.70%	4.70%	7.33%	$1.94	1.07	1.81	$2.04	1.15	1.77	$2.13	1.24	1.72	$2.23	1.33	1.68	$2.34	1.42	1.64	$2.45	$92.91	$65.22	$73.85
American Electric Power Company, Inc.	AEP	$2.68	$86.14	3.11%	3.17%	4.00%	4.00%	7.17%	$2.73	1.07	2.55	$2.84	1.15	2.48	$2.96	1.23	2.40	$3.07	1.32	2.33	$3.20	1.41	2.26	$3.33	$104.80	$74.12	$86.14
Avangrid, Inc.	AGR	$1.76	$50.18	3.51%	3.62%	6.40%	6.06%	9.72%	$1.82	1.10	1.66	$1.93	1.20	1.61	$2.06	1.32	1.56	$2.19	1.45	1.51	$2.33	1.59	1.46	$2.47	$67.42	$42.39	$50.18
Avista Corporation	AVA	$1.55	$43.49	3.56%	3.62%	3.30%	3.30%	6.92%	$1.58	1.07	1.47	$1.63	1.14	1.42	$1.68	1.22	1.38	$1.74	1.31	1.33	$1.79	1.40	1.28	$1.85	$51.16	$36.61	$43.49
DTE Energy Company	DTE	$3.78	$125.65	3.01%	3.08%	4.45%	4.45%	7.53%	$3.86	1.08	3.59	$4.04	1.16	3.49	$4.22	1.24	3.39	$4.40	1.34	3.29	$4.60	1.44	3.20	$4.80	$156.20	$108.68	$125.65
Duke Energy Corporation	DUK	$3.78	$89.39	4.23%	4.31%	4.06%	4.06%	8.37%	$3.86	1.08	3.56	$4.01	1.17	3.42	$4.18	1.27	3.28	$4.35	1.38	3.15	$4.52	1.49	3.02	$4.71	$109.07	$72.96	$89.39
Edison International	EIX	$2.45	$64.96	3.77%	3.85%	3.90%	3.90%	7.75%	$2.50	1.08	2.32	$2.60	1.16	2.24	$2.70	1.25	2.16	$2.80	1.35	2.08	$2.91	1.45	2.00	$3.02	$78.65	$54.17	$64.96
Entergy Corporation	ETR	$3.64	$99.86	3.65%	3.65%	0.50%	2.39%	5.80%	$3.65	1.06	3.45	$3.67	1.12	3.28	$3.69	1.18	3.11	$3.70	1.25	2.96	$3.72	1.33	2.81	$3.81	$111.72	$84.26	$99.86
Eversource Energy	ES	$2.14	$74.34	2.88%	2.96%	5.50%	5.50%	8.46%	$2.20	1.08	2.03	$2.32	1.18	1.97	$2.45	1.28	1.92	$2.58	1.38	1.87	$2.72	1.50	1.82	$2.87	$97.15	$64.74	$74.34
Exelon Corporation	EXC	$1.45	$48.24	3.01%	3.06%	3.40%	3.40%	6.46%	$1.47	1.06	1.39	$1.52	1.13	1.35	$1.58	1.21	1.31	$1.63	1.28	1.27	$1.69	1.37	1.23	$1.74	$57.02	$41.70	$48.24
FirstEnergy Corporation	FE	$1.52	$42.59	3.57%	3.68%	6.00%	6.00%	9.68%	$1.57	1.10	1.43	$1.66	1.20	1.38	$1.76	1.32	1.33	$1.86	1.45	1.29	$1.98	1.59	1.25	$2.10	$56.99	$35.91	$42.59
Evergy, Inc.	EVRG	$1.90	$59.76	3.18%	3.28%	6.60%	6.06%	9.41%	$1.96	1.09	1.79	$2.09	1.20	1.75	$2.23	1.31	1.70	$2.38	1.43	1.66	$2.53	1.57	1.62	$2.69	$80.31	$51.23	$59.76
Hawaiian Electric Industries, Inc.	HE	$1.28	$41.77	3.06%	3.12%	3.40%	3.40%	6.52%	$1.30	1.07	1.22	$1.35	1.13	1.19	$1.39	1.21	1.15	$1.44	1.29	1.12	$1.49	1.37	1.09	$1.54	$49.37	$36.01	$41.77
IDACORP, Inc.	IDA	$2.52	$102.00	2.47%	2.50%	2.40%	2.40%	4.90%	$2.55	1.05	2.43	$2.61	1.10	2.37	$2.67	1.15	2.32	$2.74	1.21	2.26	$2.80	1.27	2.21	$2.87	$114.84	$90.41	$102.00
NextEra Energy, Inc.	NEE	$5.00	$200.16	2.50%	2.60%	7.99%	6.06%	8.84%	$5.20	1.09	4.78	$5.62	1.18	4.74	$6.06	1.29	4.70	$6.55	1.40	4.67	$7.07	1.53	4.63	$7.50	$269.80	$176.64	$200.16
NorthWestern Corporation	NWE	$2.30	$70.10	3.28%	3.32%	2.60%	2.60%	5.92%	$2.33	1.06	2.20	$2.39	1.12	2.13	$2.45	1.19	2.06	$2.52	1.26	2.00	$2.58	1.33	1.94	$2.65	$79.69	$59.77	$70.10
OGE Energy Corporation	OGE	$1.46	$42.51	3.43%	3.49%	3.40%	3.40%	6.89%	$1.48	1.07	1.39	$1.54	1.14	1.34	$1.59	1.22	1.30	$1.64	1.31	1.26	$1.70	1.40	1.22	$1.75	$50.25	$36.00	$42.51
Otter Tail Corporation	OTTR	$1.40	$50.94	2.75%	2.82%	5.00%	5.00%	7.82%	$1.44	1.08	1.33	$1.51	1.16	1.30	$1.58	1.25	1.26	$1.66	1.35	1.23	$1.74	1.46	1.20	$1.83	$65.02	$44.63	$50.94
Pinnacle West Capital Corporation	PNW	$2.95	$93.67	3.15%	3.23%	5.05%	5.05%	8.28%	$3.02	1.08	2.79	$3.18	1.17	2.71	$3.34	1.27	2.63	$3.51	1.37	2.55	$3.68	1.49	2.47	$3.87	$119.83	$80.51	$93.67
PNM Resources, Inc.	PNM	$1.16	$47.65	2.43%	2.50%	5.50%	5.50%	8.00%	$1.19	1.08	1.10	$1.26	1.17	1.08	$1.33	1.26	1.05	$1.40	1.36	1.03	$1.48	1.47	1.00	$1.56	$62.27	$42.38	$47.65
Portland General Electric Company	POR	$1.54	$52.86	2.91%	2.98%	4.50%	4.50%	7.48%	$1.57	1.07	1.47	$1.65	1.16	1.42	$1.72	1.24	1.38	$1.80	1.33	1.35	$1.88	1.43	1.31	$1.96	$65.87	$45.93	$52.86
PPL Corporation	PPL	$1.65	$30.84	5.35%	5.37%	0.59%	2.39%	7.43%	$1.65	1.07	1.54	$1.66	1.15	1.44	$1.67	1.24	1.35	$1.68	1.33	1.26	$1.69	1.43	1.18	$1.73	$34.43	$24.06	$30.84
Southern Company	SO	$2.48	$53.95	4.60%	4.63%	1.37%	2.39%	6.86%	$2.50	1.07	2.34	$2.53	1.14	2.22	$2.57	1.22	2.10	$2.60	1.30	1.99	$2.64	1.39	1.89	$2.70	$60.47	$43.40	$53.95
Mean				3.27%	3.34%	4.23%	4.30%	7.62%																			
Mean (excluding ROE < 7%) [30]								8.25%																			
Flotation Costs								0.12%																			
Mean (Including Flotation Costs)								7.74%																			
Mean (excluding ROE < 7% and including Flotation Costs)								8.37%																			

Standard Deviation [6]	1.83%
Avg. less Standard Dev [7]	2.39%
Avg. plus Standard Dev [8]	6.06%

Notes:
[1] Source: Constant DCF
[2] Source: Constant DCF
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [5])
[5] Source: Constant DCF
[6] Standard Deviation of Column [5]
[7] Mean of Column [5], minus [6]
[8] Mean of Column [5], plus [6]
[9] If [5] > [8], then [8]; If [5] < [7], then [7], Else [5]
[10] ROE that sets [2] equal to [29] using Excel's goal seek function
[11] = [2] x [4]
[12] = (1 + [10]) ^ 1
[13] = [11] / [12]
[14] = [11] * (1 + [5])
[15] = (1 + [10]) ^ 2
[16] = [14] / [15]
[17] = [14] * (1 + [5])
[18] = (1 + [10]) ^ 3
[19] = [17] / [18]
[20] = [17] * (1 + [5])
[21] = (1 + [10]) ^ 4
[22] = [20] / [21]
[23] = [20] * (1 + [5])
[24] = (1 + [10]) ^ 5
[25] = [23] / [24]
[26] = [23] * (1 + [9])
[27] = [26] / ([10] - [9])
[28] = [27] / [24]
[29] = [13] + [16] + [19] + [22] + [25] + [28]
[30] Excludes companies with ROEs less than the a 7.00% return, consistent with the Department position in Docket No. E-002/GR-15-826

30-DAY TWO-STAGE GROWTH DCF -- HIGH GROWTH RATE

		[1]	[2]	[3]	[4]	[5]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	High Growth Rate	Second Growth Rate	Mean ROE	Year 1 Div.	(1+k)^1	PV of Year 1 Div.	Year 2 Div.	(1+k)^2	PV of Year 2 Div.	Year 3 Div.	(1+k)^3	PV of Year 3 Div.	Year 4 Div.	(1+k)^4	PV of Year 4 Div.	Year 5 Div.	(1+k)^5	PV of Year 5 Div.	Year 6 Div.	Year 5 Stock Price	PV of Year 5 Stock Price	Current Stock Price
ALLETE, Inc.	ALE	$2.35	$86.31	2.72%	2.82%	7.20%	7.20%	10.02%	$2.43	1.10	2.21	$2.61	1.21	2.16	$2.80	1.33	2.10	$3.00	1.47	2.05	$3.22	1.61	1.99	$3.45	$122.19	$75.80	$86.31
Alliant Energy Corporation	LNT	$1.42	$52.61	2.70%	2.79%	6.50%	6.50%	9.29%	$1.47	1.09	1.34	$1.56	1.19	1.31	$1.66	1.31	1.27	$1.77	1.43	1.24	$1.89	1.56	1.21	$2.01	$72.08	$46.24	$52.61
Ameren Corporation	AEE	$1.90	$77.40	2.45%	2.53%	6.50%	6.50%	9.03%	$1.96	1.09	1.80	$2.09	1.19	1.76	$2.23	1.30	1.72	$2.37	1.41	1.68	$2.52	1.54	1.64	$2.69	$106.05	$68.81	$77.40
American Electric Power Company, Inc.	AEP	$2.68	$92.02	2.91%	3.00%	6.10%	6.10%	9.10%	$2.76	1.09	2.53	$2.93	1.19	2.46	$3.11	1.30	2.39	$3.30	1.42	2.33	$3.50	1.55	2.26	$3.71	$123.73	$80.04	$92.02
Avangrid, Inc.	AGR	$1.76	$50.64	3.48%	3.65%	10.00%	8.32%	12.18%	$1.85	1.12	1.65	$2.03	1.26	1.62	$2.24	1.41	1.58	$2.46	1.58	1.55	$2.71	1.78	1.52	$2.93	$75.89	$42.72	$50.64
Avista Corporation	AVA	$1.55	$47.50	3.26%	3.32%	3.50%	4.08%	7.33%	$1.58	1.07	1.47	$1.63	1.15	1.42	$1.69	1.24	1.37	$1.75	1.33	1.32	$1.81	1.42	1.27	$1.88	$57.92	$40.66	$47.50
DTE Energy Company	DTE	$3.78	$130.66	2.89%	2.98%	6.00%	6.00%	8.98%	$3.89	1.09	3.57	$4.13	1.19	3.47	$4.37	1.29	3.38	$4.64	1.41	3.29	$4.92	1.54	3.20	$5.21	$174.85	$113.75	$130.66
Duke Energy Corporation	DUK	$3.78	$93.64	4.04%	4.16%	6.00%	6.00%	10.16%	$3.89	1.10	3.53	$4.13	1.21	3.40	$4.37	1.34	3.27	$4.64	1.47	3.15	$4.92	1.62	3.03	$5.21	$125.32	$77.26	$93.64
Edison International	EIX	$2.45	$72.96	3.36%	3.45%	5.30%	5.30%	8.75%	$2.51	1.09	2.31	$2.65	1.18	2.24	$2.79	1.29	2.17	$2.94	1.40	2.10	$3.09	1.52	2.03	$3.26	$94.45	$62.10	$72.96
Entergy Corporation	ETR	$3.64	$113.78	3.20%	3.31%	7.00%	7.00%	10.31%	$3.77	1.10	3.42	$4.03	1.22	3.31	$4.31	1.34	3.21	$4.62	1.48	3.12	$4.94	1.63	3.02	$5.28	$159.59	$97.70	$113.78
Eversource Energy	ES	$2.14	$82.05	2.61%	2.68%	5.63%	5.63%	8.31%	$2.20	1.08	2.03	$2.32	1.17	1.98	$2.45	1.27	1.93	$2.59	1.38	1.88	$2.74	1.49	1.84	$2.89	$107.90	$72.39	$82.05
Exelon Corporation	EXC	$1.45	$47.41	3.06%	3.20%	9.00%	8.32%	11.59%	$1.52	1.12	1.36	$1.65	1.25	1.33	$1.80	1.39	1.30	$1.96	1.55	1.27	$2.14	1.73	1.24	$2.32	$70.81	$40.92	$47.40
FirstEnergy Corporation	FE	$1.52	$46.90	3.24%	3.37%	8.00%	8.00%	11.37%	$1.58	1.11	1.42	$1.71	1.24	1.38	$1.84	1.38	1.33	$1.99	1.54	1.29	$2.15	1.71	1.26	$2.32	$68.91	$40.22	$46.90
Evergy, Inc.	EVRG	$1.90	$65.28	2.91%	3.01%	6.80%	6.80%	9.81%	$1.96	1.10	1.79	$2.10	1.21	1.74	$2.24	1.32	1.69	$2.39	1.45	1.65	$2.56	1.60	1.60	$2.73	$90.71	$56.81	$65.28
Hawaiian Electric Industries, Inc.	HE	$1.28	$44.57	2.87%	2.94%	4.50%	4.50%	7.44%	$1.31	1.07	1.22	$1.37	1.15	1.18	$1.43	1.24	1.15	$1.49	1.33	1.12	$1.56	1.43	1.09	$1.63	$55.55	$38.81	$44.57
IDACORP, Inc.	IDA	$2.52	$109.87	2.29%	2.34%	3.80%	4.08%	6.39%	$2.57	1.06	2.41	$2.67	1.13	2.35	$2.77	1.20	2.30	$2.87	1.28	2.24	$2.98	1.36	2.19	$3.10	$134.12	$98.38	$109.87
NextEra Energy, Inc.	NEE	$5.00	$223.10	2.24%	2.36%	10.50%	8.32%	10.86%	$5.26	1.11	4.75	$5.82	1.23	4.73	$6.43	1.36	4.72	$7.10	1.51	4.70	$7.85	1.67	4.69	$8.50	$334.09	$199.52	$223.10
NorthWestern Corporation	NWE	$2.30	$73.26	3.14%	3.19%	3.24%	4.08%	7.18%	$2.34	1.07	2.18	$2.41	1.15	2.10	$2.49	1.23	2.02	$2.57	1.32	1.95	$2.66	1.41	1.88	$2.76	$89.28	$63.13	$73.26
OGE Energy Corporation	OGE	$1.46	$43.78	3.34%	3.44%	6.50%	6.50%	9.94%	$1.51	1.10	1.37	$1.61	1.21	1.33	$1.71	1.33	1.29	$1.82	1.46	1.25	$1.94	1.61	1.21	$2.07	$59.98	$37.34	$43.78
Otter Tail Corporation	OTTR	$1.40	$52.31	2.68%	2.80%	9.00%	8.32%	11.18%	$1.46	1.11	1.32	$1.59	1.24	1.29	$1.74	1.37	1.26	$1.89	1.53	1.24	$2.07	1.70	1.22	$2.24	$78.12	$45.99	$52.31
Pinnacle West Capital Corporation	PNW	$2.95	$95.17	3.10%	3.19%	6.10%	6.10%	9.29%	$3.04	1.09	2.78	$3.23	1.19	2.70	$3.42	1.31	2.62	$3.63	1.43	2.54	$3.85	1.56	2.47	$4.09	$127.97	$82.06	$95.17
PNM Resources, Inc.	PNM	$1.16	$50.89	2.28%	2.36%	7.00%	7.00%	9.36%	$1.20	1.09	1.10	$1.28	1.20	1.07	$1.37	1.31	1.05	$1.47	1.43	1.03	$1.57	1.56	1.01	$1.68	$71.38	$45.63	$50.89
Portland General Electric Company	POR	$1.54	$56.33	2.73%	2.80%	4.80%	4.80%	7.60%	$1.58	1.08	1.47	$1.65	1.16	1.43	$1.73	1.25	1.39	$1.82	1.34	1.35	$1.90	1.44	1.32	$1.99	$71.21	$49.37	$56.33
PPL Corporation	PPL	$1.65	$30.39	5.43%	5.47%	1.50%	4.08%	9.09%	$1.66	1.09	1.52	$1.69	1.19	1.42	$1.71	1.30	1.32	$1.74	1.42	1.23	$1.76	1.54	1.14	$1.84	$36.70	$23.76	$30.39
Southern Company	SO	$2.48	$59.70	4.15%	4.25%	4.50%	4.50%	8.75%	$2.54	1.09	2.33	$2.65	1.18	2.24	$2.77	1.29	2.15	$2.89	1.40	2.07	$3.02	1.52	1.99	$3.16	$74.39	$48.91	$59.70
Mean				3.08%	3.18%	6.20%	6.16%	9.33%																			
Mean (excluding ROE < 7%) [30]								9.45%																			
Flotation Costs								0.12%																			
Mean (Including Flotation Costs)								9.45%																			
Mean (excluding ROE < 7% and including Flotation Costs)								9.57%																			

Standard Deviation [6]	2.12%
Avg. less Standard Dev [7]	4.08%
Avg. plus Standard Dev [8]	8.32%

Notes:
[1] Source: Constant DCF
[2] Source: Constant DCF
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [5])
[5] Source: Constant DCF
[6] Standard Deviation of Column [5]
[7] Mean of Column [5], minus [6]
[8] Mean of Column [5], plus [6]
[9] If [5] > [8], then [8]; If [5] < [7], then [7], Else [5]
[10] ROE that sets [2] equal to [29] using Excel's goal seek function
[11] = [2] x [4]
[12] = (1 + [10]) ^ 1
[13] = [11] / [12]
[14] = [11] * (1 + [5])
[15] = (1 + [10]) ^ 2
[16] = [14] / [15]
[17] = [14] * (1 + [5])
[18] = (1 + [10]) ^ 3
[19] = [17] / [18]
[20] = [17] * (1 + [5])
[21] = (1 + [10]) ^ 4
[22] = [20] / [21]
[23] = [20] * (1 + [5])
[24] = (1 + [10]) ^ 5
[25] = [23] / [24]
[26] = [23] * (1 + [9])
[27] = [26] / ([10] - [9])
[28] = [27] / [24]
[29] = [13] + [16] + [19] + [22] + [25] + [28]
[30] Excludes companies with ROEs less than the a 7.00% return, consistent with the Department position in Docket No. E-002/GR-15-826

90-DAY TWO-STAGE GROWTH DCF -- HIGH GROWTH RATE

		[1]	[2]	[3]	[4]	[5]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	High Growth Rate	Second Growth Rate	Mean ROE	Year 1 Div.	(1+k)^1	PV of Year 1 Div.	Year 2 Div.	(1+k)^2	PV of Year 2 Div.	Year 3 Div.	(1+k)^3	PV of Year 3 Div.	Year 4 Div.	(1+k)^4	PV of Year 4 Div.	Year 5 Div.	(1+k)^5	PV of Year 5 Div.	Year 6 Div.	Year 5 Stock Price	PV of Year 5 Stock Price	Current Stock Price
ALLETE, Inc.	ALE	$2.35	$85.36	2.75%	2.85%	7.20%	7.20%	10.05%	$2.43	1.10	2.21	$2.61	1.21	2.15	$2.80	1.33	2.10	$3.00	1.47	2.04	$3.22	1.61	1.99	$3.45	$120.85	$74.86	$85.36
Alliant Energy Corporation	LNT	$1.42	$50.63	2.80%	2.90%	6.50%	6.50%	9.40%	$1.47	1.09	1.34	$1.56	1.20	1.30	$1.66	1.31	1.27	$1.77	1.43	1.24	$1.89	1.57	1.20	$2.01	$69.37	$44.28	$50.63
Ameren Corporation	AEE	$1.90	$76.42	2.49%	2.57%	6.50%	6.50%	9.07%	$1.96	1.09	1.80	$2.09	1.19	1.76	$2.23	1.30	1.71	$2.37	1.42	1.67	$2.52	1.54	1.64	$2.69	$104.70	$67.84	$76.42
American Electric Power Company, Inc.	AEP	$2.68	$90.24	2.97%	3.06%	6.10%	6.10%	9.16%	$2.76	1.09	2.53	$2.93	1.19	2.46	$3.11	1.30	2.39	$3.30	1.42	2.32	$3.50	1.55	2.26	$3.71	$121.33	$78.28	$90.24
Avangrid, Inc.	AGR	$1.76	$50.46	3.49%	3.66%	10.00%	8.32%	12.19%	$1.85	1.12	1.65	$2.03	1.26	1.61	$2.24	1.41	1.58	$2.46	1.58	1.55	$2.71	1.78	1.52	$2.93	$75.61	$42.54	$50.46
Avista Corporation	AVA	$1.55	$45.59	3.40%	3.46%	3.50%	4.08%	6.96%	$1.58	1.07	1.47	$1.63	1.14	1.43	$1.69	1.22	1.38	$1.75	1.31	1.34	$1.81	1.40	1.29	$1.88	$65.44	$46.75	$53.66
DTE Energy Company	DTE	$3.78	$129.44	2.92%	3.01%	6.00%	6.00%	9.01%	$3.89	1.09	3.57	$4.13	1.19	3.47	$4.37	1.30	3.38	$4.64	1.41	3.28	$4.92	1.54	3.19	$5.21	$173.22	$112.54	$129.44
Duke Energy Corporation	DUK	$3.78	$89.99	4.20%	4.33%	6.00%	6.00%	10.33%	$3.89	1.10	3.53	$4.13	1.22	3.39	$4.37	1.34	3.26	$4.64	1.48	3.13	$4.92	1.63	3.01	$5.21	$120.42	$73.67	$89.99
Edison International	EIX	$2.45	$69.08	3.55%	3.64%	5.30%	5.30%	8.94%	$2.51	1.09	2.31	$2.65	1.19	2.23	$2.79	1.29	2.16	$2.94	1.41	2.08	$3.09	1.53	2.02	$3.26	$89.43	$58.28	$69.08
Entergy Corporation	ETR	$3.64	$106.80	3.41%	3.53%	7.00%	7.00%	10.53%	$3.77	1.11	3.41	$4.03	1.22	3.30	$4.31	1.35	3.19	$4.62	1.49	3.09	$4.94	1.65	2.99	$5.28	$149.79	$90.81	$106.80
Eversource Energy	ES	$2.14	$78.41	2.73%	2.81%	5.63%	5.63%	8.44%	$2.20	1.08	2.03	$2.32	1.18	1.98	$2.45	1.28	1.93	$2.59	1.38	1.88	$2.74	1.50	1.83	$2.89	$103.11	$68.78	$78.41
Exelon Corporation	EXC	$1.45	$47.73	3.04%	3.17%	9.00%	8.32%	11.57%	$1.52	1.12	1.36	$1.65	1.24	1.33	$1.80	1.39	1.30	$1.96	1.55	1.27	$2.14	1.73	1.24	$2.32	$71.29	$41.25	$47.73
FirstEnergy Corporation	FE	$1.52	$44.56	3.41%	3.55%	8.00%	8.00%	11.55%	$1.58	1.12	1.42	$1.71	1.24	1.37	$1.84	1.39	1.33	$1.99	1.55	1.29	$2.15	1.73	1.25	$2.32	$65.47	$37.91	$44.56
Evergy, Inc.	EVRG	$1.90	$62.28	3.05%	3.15%	6.80%	6.80%	9.95%	$1.96	1.10	1.79	$2.10	1.21	1.74	$2.24	1.33	1.69	$2.39	1.46	1.64	$2.56	1.61	1.59	$2.73	$86.54	$53.84	$62.28
Hawaiian Electric Industries, Inc.	HE	$1.28	$43.98	2.91%	2.98%	4.50%	4.50%	7.48%	$1.31	1.07	1.22	$1.37	1.16	1.18	$1.43	1.24	1.15	$1.49	1.33	1.12	$1.56	1.43	1.09	$1.63	$54.81	$38.22	$43.98
IDACORP, Inc.	IDA	$2.52	$105.47	2.39%	2.43%	3.80%	4.08%	6.49%	$2.57	1.06	2.41	$2.67	1.13	2.35	$2.77	1.21	2.29	$2.87	1.29	2.23	$2.98	1.37	2.18	$3.10	$128.75	$94.01	$105.47
NextEra Energy, Inc.	NEE	$5.00	$212.80	2.35%	2.47%	10.50%	8.32%	10.98%	$5.26	1.11	4.74	$5.82	1.23	4.72	$6.43	1.37	4.70	$7.10	1.52	4.68	$7.85	1.68	4.66	$8.50	$318.73	$189.30	$212.80
NorthWestern Corporation	NWE	$2.30	$72.21	3.18%	3.24%	3.24%	4.08%	7.22%	$2.34	1.07	2.18	$2.41	1.15	2.10	$2.49	1.23	2.02	$2.57	1.32	1.95	$2.66	1.42	1.87	$2.76	$88.00	$62.09	$72.21
OGE Energy Corporation	OGE	$1.46	$43.18	3.38%	3.49%	6.50%	6.50%	9.99%	$1.51	1.10	1.37	$1.61	1.21	1.33	$1.71	1.33	1.28	$1.82	1.46	1.24	$1.94	1.61	1.20	$2.07	$59.16	$36.75	$43.18
Otter Tail Corporation	OTTR	$1.40	$52.09	2.69%	2.81%	9.00%	8.32%	11.19%	$1.46	1.11	1.32	$1.59	1.24	1.29	$1.74	1.37	1.26	$1.89	1.53	1.24	$2.07	1.70	1.22	$2.24	$77.79	$45.77	$52.09
Pinnacle West Capital Corporation	PNW	$2.95	$94.80	3.11%	3.21%	6.10%	6.10%	9.31%	$3.04	1.09	2.78	$3.23	1.19	2.70	$3.42	1.31	2.62	$3.63	1.43	2.54	$3.85	1.56	2.47	$4.09	$127.46	$81.69	$94.80
PNM Resources, Inc.	PNM	$1.16	$50.24	2.31%	2.39%	7.00%	7.00%	9.39%	$1.20	1.09	1.10	$1.28	1.20	1.07	$1.37	1.31	1.05	$1.47	1.43	1.03	$1.57	1.57	1.00	$1.68	$70.47	$44.99	$50.24
Portland General Electric Company	POR	$1.54	$55.28	2.79%	2.85%	4.80%	4.80%	7.65%	$1.58	1.08	1.46	$1.65	1.16	1.43	$1.73	1.25	1.39	$1.82	1.34	1.35	$1.90	1.45	1.32	$1.99	$69.89	$48.34	$55.28
PPL Corporation	PPL	$1.65	$30.42	5.42%	5.46%	1.50%	4.08%	9.08%	$1.66	1.09	1.52	$1.69	1.19	1.42	$1.71	1.30	1.32	$1.74	1.42	1.23	$1.76	1.54	1.14	$1.84	$36.74	$23.79	$30.42
Southern Company	SO	$2.48	$57.07	4.35%	4.44%	4.50%	4.50%	8.94%	$2.54	1.09	2.33	$2.65	1.19	2.23	$2.77	1.29	2.14	$2.89	1.41	2.05	$3.02	1.53	1.97	$3.16	$71.11	$46.34	$57.07
Mean				3.16%	3.26%	6.20%	6.16%	9.39%																			
Mean (excluding ROE < 7%) [30]								9.63%																			
Flotation Costs								0.12%																			
Mean (Including Flotation Costs)								9.51%																			
Mean (excluding ROE < 7% and including Flotation Costs)								9.75%																			

Standard Deviation [6]	2.12%
Avg. less Standard Dev [7]	4.08%
Avg. plus Standard Dev [8]	8.32%

Notes:
[1] Source: Constant DCF
[2] Source: Constant DCF
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [5])
[5] Source: Constant DCF
[6] Standard Deviation of Column [5]
[7] Mean of Column [5], minus [6]
[8] Mean of Column [5], plus [6]
[9] If [5] > [8], then [8]; If [5] < [7], then [7], Else [5]
[10] ROE that sets [2] equal to [29] using Excel's goal seek function
[11] [2] x [4]
[12] = (1 + [10]) ^ 1
[13] = [11] / [12]
[14] = [11] * (1 + [5])
[15] = (1 + [10]) ^ 2
[16] = [14] / [15]
[17] = [14] * (1 + [5])
[18] = (1 + [10]) ^ 3
[19] = [17] / [18]
[20] = [17] * (1 + [5])
[21] = (1 + [10]) ^ 4
[22] = [20] / [21]
[23] = [20] * (1 + [5])
[24] = (1 + [10]) ^ 5
[25] = [23] / [24]
[26] = [23] * (1 + [9])
[27] = [26] / ([10] - [9])
[28] = [27] / [24]
[29] = [13] + [16] + [19] + [22] + [25] + [28]
[30] Excludes companies with ROEs less than the a 7.00% return, consistent with the Department position in Docket No. E-002/GR-15-826

180-DAY TWO-STAGE GROWTH DCF -- HIGH GROWTH RATE

		[1]	[2]	[3]	[4]	[5]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	High Growth Rate	Second Growth Rate	Mean ROE	Year 1 Div.	(1+k)^1	PV of Year 1 Div.	Year 2 Div.	(1+k)^2	PV of Year 2 Div.	Year 3 Div.	(1+k)^3	PV of Year 3 Div.	Year 4 Div.	(1+k)^4	PV of Year 4 Div.	Year 5 Div.	(1+k)^5	PV of Year 5 Div.	Year 6 Div.	Year 5 Stock Price	PV of Year 5 Stock Price	Current Stock Price
ALLETE, Inc.	ALE	$2.35	$82.79	2.84%	2.94%	7.20%	7.20%	10.14%	$2.43	1.10	2.21	$2.61	1.21	2.15	$2.80	1.34	2.09	$3.00	1.47	2.04	$3.22	1.62	1.98	$3.45	$117.21	$72.31	$82.79
Alliant Energy Corporation	LNT	$1.42	$48.27	2.94%	3.04%	6.50%	6.50%	9.54%	$1.47	1.10	1.34	$1.56	1.20	1.30	$1.66	1.31	1.27	$1.77	1.44	1.23	$1.89	1.58	1.20	$2.01	$66.13	$41.94	$48.27
Ameren Corporation	AEE	$1.90	$73.85	2.57%	2.66%	6.50%	6.50%	9.16%	$1.96	1.09	1.80	$2.09	1.19	1.75	$2.23	1.30	1.71	$2.37	1.42	1.67	$2.52	1.55	1.63	$2.69	$101.18	$65.29	$73.85
American Electric Power Company, Inc.	AEP	$2.68	$86.14	3.11%	3.21%	6.10%	6.10%	9.31%	$2.76	1.09	2.53	$2.93	1.19	2.45	$3.11	1.31	2.38	$3.30	1.43	2.31	$3.50	1.56	2.24	$3.71	$115.82	$74.23	$86.14
Avangrid, Inc.	AGR	$1.76	$50.18	3.51%	3.68%	10.00%	8.32%	12.21%	$1.85	1.12	1.65	$2.03	1.26	1.61	$2.24	1.41	1.58	$2.46	1.59	1.55	$2.71	1.78	1.52	$2.93	$75.20	$42.27	$50.18
Avista Corporation	AVA	$1.55	$43.49	3.56%	3.63%	3.50%	4.08%	7.63%	$1.58	1.08	1.47	$1.63	1.16	1.41	$1.69	1.25	1.35	$1.75	1.34	1.30	$1.81	1.44	1.25	$1.88	$53.03	$36.71	$43.49
DTE Energy Company	DTE	$3.78	$125.65	3.01%	3.10%	6.00%	6.00%	9.10%	$3.89	1.09	3.57	$4.13	1.19	3.47	$4.37	1.30	3.37	$4.64	1.42	3.27	$4.92	1.55	3.18	$5.21	$168.14	$108.79	$125.65
Duke Energy Corporation	DUK	$3.78	$89.39	4.23%	4.36%	6.00%	6.00%	10.36%	$3.89	1.10	3.53	$4.13	1.22	3.39	$4.37	1.34	3.26	$4.64	1.48	3.13	$4.92	1.64	3.00	$5.21	$119.63	$73.09	$89.39
Edison International	EIX	$2.45	$64.96	3.77%	3.87%	5.30%	5.30%	9.17%	$2.51	1.09	2.30	$2.65	1.19	2.22	$2.79	1.30	2.14	$2.94	1.42	2.07	$3.09	1.55	1.99	$3.26	$84.10	$54.23	$64.96
Entergy Corporation	ETR	$3.64	$99.86	3.65%	3.77%	7.00%	7.00%	10.77%	$3.77	1.11	3.40	$4.03	1.23	3.29	$4.31	1.36	3.17	$4.62	1.51	3.07	$4.94	1.67	2.96	$5.28	$140.06	$83.98	$99.86
Eversource Energy	ES	$2.14	$74.34	2.88%	2.96%	5.63%	5.63%	8.59%	$2.20	1.09	2.03	$2.32	1.18	1.97	$2.45	1.28	1.92	$2.59	1.39	1.86	$2.74	1.51	1.81	$2.89	$97.75	$64.74	$74.34
Exelon Corporation	EXC	$1.45	$48.24	3.01%	3.14%	9.00%	8.32%	11.53%	$1.52	1.12	1.36	$1.65	1.24	1.33	$1.80	1.39	1.30	$1.96	1.55	1.27	$2.14	1.73	1.24	$2.32	$72.05	$41.75	$48.24
FirstEnergy Corporation	FE	$1.52	$42.59	3.57%	3.71%	8.00%	8.00%	11.71%	$1.58	1.12	1.42	$1.71	1.25	1.37	$1.84	1.39	1.32	$1.99	1.56	1.28	$2.15	1.74	1.24	$2.32	$62.58	$35.97	$42.59
Evergy, Inc.	EVRG	$1.90	$59.76	3.18%	3.29%	6.80%	6.80%	10.09%	$1.96	1.10	1.78	$2.10	1.21	1.73	$2.24	1.33	1.68	$2.39	1.47	1.63	$2.56	1.62	1.58	$2.73	$83.03	$51.35	$59.76
Hawaiian Electric Industries, Inc.	HE	$1.28	$41.77	3.06%	3.13%	4.50%	4.50%	7.63%	$1.31	1.08	1.22	$1.37	1.16	1.18	$1.43	1.25	1.15	$1.49	1.34	1.11	$1.56	1.44	1.08	$1.63	$52.05	$36.03	$41.77
IDACORP, Inc.	IDA	$2.52	$102.00	2.47%	2.52%	3.80%	4.08%	6.57%	$2.57	1.07	2.41	$2.67	1.14	2.35	$2.77	1.21	2.29	$2.87	1.29	2.23	$2.98	1.37	2.17	$3.10	$124.51	$90.56	$102.00
NextEra Energy, Inc.	NEE	$5.00	$200.16	2.50%	2.63%	10.50%	8.32%	11.15%	$5.26	1.11	4.73	$5.82	1.24	4.71	$6.43	1.37	4.68	$7.10	1.53	4.65	$7.85	1.70	4.62	$8.50	$299.88	$176.76	$200.16
NorthWestern Corporation	NWE	$2.30	$70.10	3.28%	3.33%	3.24%	4.08%	7.32%	$2.34	1.07	2.18	$2.41	1.15	2.10	$2.49	1.24	2.02	$2.57	1.33	1.94	$2.66	1.42	1.87	$2.76	$85.41	$60.00	$70.10
OGE Energy Corporation	OGE	$1.46	$42.51	3.43%	3.55%	6.50%	6.50%	10.05%	$1.51	1.10	1.37	$1.61	1.21	1.33	$1.71	1.33	1.28	$1.82	1.47	1.24	$1.94	1.61	1.20	$2.07	$58.24	$36.09	$42.51
Otter Tail Corporation	OTTR	$1.40	$50.94	2.75%	2.87%	9.00%	8.32%	11.26%	$1.46	1.11	1.31	$1.59	1.24	1.29	$1.74	1.38	1.26	$1.89	1.53	1.24	$2.07	1.70	1.21	$2.24	$76.08	$44.63	$50.94
Pinnacle West Capital Corporation	PNW	$2.95	$93.67	3.15%	3.25%	6.10%	6.10%	9.35%	$3.04	1.09	2.78	$3.23	1.20	2.70	$3.42	1.31	2.62	$3.63	1.43	2.54	$3.85	1.56	2.46	$4.09	$125.94	$80.57	$93.67
PNM Resources, Inc.	PNM	$1.16	$47.65	2.43%	2.52%	7.00%	7.00%	9.52%	$1.20	1.10	1.10	$1.28	1.20	1.07	$1.37	1.31	1.05	$1.47	1.44	1.02	$1.57	1.58	1.00	$1.68	$66.83	$42.41	$47.65
Portland General Electric Company	POR	$1.54	$52.86	2.91%	2.98%	4.80%	4.80%	7.78%	$1.58	1.08	1.46	$1.65	1.16	1.42	$1.73	1.25	1.38	$1.82	1.35	1.34	$1.90	1.45	1.31	$1.99	$66.82	$45.94	$52.86
PPL Corporation	PPL	$1.65	$30.84	5.35%	5.39%	1.50%	4.08%	9.01%	$1.66	1.09	1.52	$1.69	1.19	1.42	$1.71	1.30	1.32	$1.74	1.41	1.23	$1.76	1.54	1.15	$1.84	$37.25	$24.20	$30.84
Southern Company	SO	$2.48	$53.95	4.60%	4.70%	4.50%	4.50%	9.20%	$2.54	1.09	2.32	$2.65	1.19	2.22	$2.77	1.30	2.13	$2.89	1.42	2.04	$3.02	1.55	1.95	$3.16	$67.23	$43.30	$53.95
Mean				3.27%	3.37%	6.20%	6.16%	9.53%																			
Mean (excluding ROE < 7%) [30]								9.65%																			
Flotation Costs								0.12%																			
Mean (Including Flotation Costs)								9.65%																			
Mean (excluding ROE < 7% and including Flotation Costs)								9.77%																			

Standard Deviation [6]	2.12%
Avg. less Standard Dev [7]	4.08%
Avg. plus Standard Dev [8]	8.32%

Notes:
[1] Source: Constant DCF
[2] Source: Constant DCF
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [5])
[5] Source: Constant DCF
[6] Standard Deviation of Column [5]
[7] Mean of Column [5], minus [6]
[8] Mean of Column [5], plus [6]
[9] If [5] > [8], then [8]; If [5] < [7], then [7], Else [5]
[10] ROE that sets [2] equal to [29] using Excel's goal seek function
[11] [2] x [4]
[12] = (1 + [10]) ^ 1
[13] = [11] / [12]
[14] = [11] * (1 + [5])
[15] = (1 + [10]) ^ 2
[16] = [14] / [15]
[17] = [14] * (1 + [5])
[18] = (1 + [10]) ^ 3
[19] = [17] / [18]
[20] = [17] * (1 + [5])
[21] = (1 + [10]) ^ 4
[22] = [20] / [21]
[23] = [20] * (1 + [5])
[24] = (1 + [10]) ^ 5
[25] = [23] / [24]
[26] = [23] * (1 + [9])
[27] = [26] / ([10] - [9])
[28] = [27] / [24]
[29] = [13] + [16] + [19] + [22] + [25] + [28]
[30] Excludes companies with ROEs less than the a 7.00% return, consistent with the Department position in Docket No. E-002/GR-15-826

FLOTATION COST ADJUSTMENT

Flotation Costs from Inception to Date

Date	Shares Issued	Market Price	Offering Price	Underwriting Discount	Offering Expense	Net Proceeds	Total Flotation Costs	Gross Equity Issue before Costs	Net Proceeds	Flotation Cost Percentage
11/16/1949	1,584,238	$10.750	$10.250	$0.124	$0.137	$9.989	$1,205,605	$17,030,559	$15,824,953	7.079%
6/4/1952	1,108,966	$10.500	$10.500	$0.098	$0.162	$10.240	$288,331	$11,644,143	$11,355,812	2.476%
4/14/1954	1,219,856	$15.250	$14.000	$0.060	$0.124	$13.816	$1,749,274	$18,602,804	$16,853,530	9.403%
2/29/1956	670,920	$17.825	$16.750	$0.050	$0.221	$16.479	$903,058	$11,959,149	$11,056,091	7.551%
7/22/1959	952,033	$23.375	$22.000	$0.069	$0.191	$21.740	$1,556,574	$22,253,771	$20,697,197	6.995%
7/28/1965	772,008	$35.250	$33.000	$0.092	$0.225	$32.683	$1,981,745	$27,213,282	$25,231,537	7.282%
1/22/1969	1,080,811	$29.000	$27.000	$0.119	$0.187	$26.694	$2,492,350	$31,343,519	$28,851,169	7.952%
10/21/1970	1,729,298	$23.125	$21.500	$0.175	$0.149	$21.176	$3,370,402	$39,990,016	$36,619,614	8.428%
7/26/1972	1,902,228	$25.000	$23.500	$0.129	$0.166	$23.205	$3,414,499	$47,555,700	$44,141,201	7.180%
10/10/1973	2,092,451	$25.825	$24.500	$0.128	$0.153	$24.219	$3,360,476	$54,037,547	$50,677,071	6.219%
11/20/1974	2,300,000	$17.625	$17.500	$0.910	$0.069	$16.521	$2,539,200	$40,537,500	$37,998,300	6.264%
8/14/1975	1,750,000	$23.000	$23.000	$0.740	$0.077	$22.183	$1,429,750	$40,250,000	$38,820,250	3.552%
6/3/1976	2,000,000	$24.000	$24.000	$0.720	$0.064	$23.216	$1,568,000	$48,000,000	$46,432,000	3.267%
5/31/1993	3,041,955	$44.125	$43.625	$1.200	$0.048	$42.377	$5,317,337	$134,226,264	$128,908,927	3.961%
9/23/1997	4,500,000	$49.938	$49.563	$1.230	$0.133	$48.200	$7,821,000	$224,721,000	$216,900,000	3.480%
9/29/1997	400,000	$50.500	$49.563	$1.230	$0.133	$48.200	$920,000	$20,200,000	$19,280,000	4.554%
2/25/2002	20,000,000	$22.950	$22.500	$0.730	$0.015	$21.755	$23,900,000	$459,000,000	$435,100,000	5.207%
9/9/2008	17,250,000	$20.860	$20.200	$0.100	$0.006	$20.094	$13,218,352	$359,835,000	$346,616,648	3.673%
8/3/2010	21,850,000	$22.100	$21.500	$0.645	$0.013	$20.571	$33,407,927	$482,885,000	$449,477,073	6.918%
March 2013	7,757,449	$29.057	$29.057	$0.291	$0.052	$28.714	$2,657,558	$225,407,642	$222,750,085	1.179%
June 2014	5,693,946	$30.663	$30.663	$0.307	$0.030	$30.326	$1,915,210	$174,592,340	$172,677,130	1.097%
September 2018	4,733,435	$47.885	$47.885	$0.407	$0.073	$47.405	$2,271,040	$226,661,287	$224,390,247	1.002%
8/29/2019	9,359,103	$48.416	$48.416	$0.173	$0.030	$48.213	$1,901,526	$453,132,797	$451,231,271	0.420%
Weighted Average Flotation Costs						Total	$119,189,213	$3,171,079,321	$3,051,890,108	3.759%

The flotation adjustment is derived by dividing the dividend yield by 1-F (where F = flotation costs expressed in percentage terms), or by 0.9624, and adding that result to the constant growth rate to determine the cost of equity. Using the formulas shown previously in my testimony, the Constant Growth DCF calculation is modified as follows to accommodate an adjustment for flotation costs:

$$k = \frac{D \times (1 + .5g)}{P \times (1 - F)} + g$$

Source: Company data.

FLOTATION COST ADJUSTMENT - ELECTRIC PROXY GROUP

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Expected Dividend Yield Adjusted for Flotation Costs	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Estimate	DCF k(e)	Flotation Adjusted DCF k(e)
ALLETE, Inc.	ALE	$2.35	$86.31	2.72%	2.81%	2.92%	6.00%	6.00%	7.20%	6.40%	9.21%	9.32%
Alliant Energy Corporation	LNT	$1.42	$52.61	2.70%	2.78%	2.88%	6.50%	5.05%	5.50%	5.68%	8.46%	8.57%
Ameren Corporation	AEE	$1.90	$77.40	2.45%	2.53%	2.63%	6.50%	4.70%	6.40%	5.87%	8.39%	8.49%
American Electric Power Comp	AEP	$2.68	$92.02	2.91%	2.99%	3.11%	4.00%	6.10%	5.70%	5.27%	8.26%	8.37%
Avangrid, Inc.	AGR	$1.76	$50.64	3.48%	3.61%	3.75%	10.00%	6.40%	7.50%	7.97%	11.58%	11.72%
Avista Corporation	AVA	$1.55	$47.50	3.26%	3.32%	3.45%	3.50%	3.40%	3.30%	3.40%	6.72%	6.85%
DTE Energy Company	DTE	$3.78	$130.66	2.89%	2.97%	3.09%	5.50%	4.45%	6.00%	5.32%	8.29%	8.40%
Duke Energy Corporation	DUK	$3.78	$93.64	4.04%	4.14%	4.30%	6.00%	4.06%	4.90%	4.99%	9.12%	9.29%
Edison International	EIX	$2.45	$72.96	3.36%	3.44%	3.57%	NMF	3.90%	5.30%	4.60%	8.04%	8.17%
Entergy Corporation	ETR	$3.64	$113.78	3.20%	3.26%	3.39%	0.50%	Negative	7.00%	3.75%	7.01%	7.14%
Eversource Energy	ES	$2.14	$82.05	2.61%	2.68%	2.79%	5.50%	5.63%	5.60%	5.58%	8.26%	8.36%
Exelon Corporation	EXC	$1.45	$47.41	3.06%	3.15%	3.28%	9.00%	Negative	3.40%	6.20%	9.35%	9.48%
FirstEnergy Corporation	FE	$1.52	$46.90	3.24%	3.35%	3.49%	8.00%	Negative	6.00%	7.00%	10.35%	10.49%
Evergy, Inc.	EVRG	$1.90	$65.28	2.91%	3.01%	3.13%	NMF	6.80%	6.60%	6.70%	9.71%	9.83%
Hawaiian Electric Industries, In	HE	$1.28	$44.57	2.87%	2.93%	3.04%	4.50%	3.40%	4.20%	4.03%	6.96%	7.08%
IDACORP, Inc.	IDA	$2.52	$109.87	2.29%	2.33%	2.42%	3.50%	2.40%	3.80%	3.23%	5.56%	5.66%
NextEra Energy, Inc.	NEE	$5.00	$223.10	2.24%	2.34%	2.43%	10.50%	7.99%	8.00%	8.83%	11.17%	11.26%
NorthWestern Corporation	NWE	$2.30	$73.26	3.14%	3.19%	3.31%	3.00%	3.24%	2.60%	2.95%	6.13%	6.26%
OGE Energy Corporation	OGE	$1.46	$43.78	3.34%	3.42%	3.55%	6.50%	3.40%	4.50%	4.80%	8.22%	8.35%
Otter Tail Corporation	OTTR	$1.40	$52.31	2.68%	2.77%	2.88%	5.00%	9.00%	7.00%	7.00%	9.77%	9.88%
Pinnacle West Capital Corpora	PNW	$2.95	$95.17	3.10%	3.19%	3.31%	5.50%	5.05%	6.10%	5.55%	8.74%	8.86%
PNM Resources, Inc.	PNM	$1.16	$50.89	2.28%	2.35%	2.44%	7.00%	6.18%	5.50%	6.23%	8.58%	8.67%
Portland General Electric Com	POR	$1.54	$56.33	2.73%	2.80%	2.91%	4.50%	4.80%	4.80%	4.70%	7.50%	7.61%
PPL Corporation	PPL	$1.65	$30.39	5.43%	5.46%	5.67%	1.50%	0.59%	n/a	1.05%	6.50%	6.72%
Southern Company	SO	$2.48	$59.70	4.15%	4.22%	4.38%	3.50%	1.37%	4.50%	3.12%	7.34%	7.51%
PROXY GROUP MEAN				3.08%	3.16%	3.28%	5.48%	4.72%	5.48%	5.21%	8.37%	8.49%
MEAN												8.49%
UNADJUSTED CONSTANT GROWTH DCF MEAN												8.37%
DIFFERENCE (FLOTATION COST ADJUSTMENT)											[12]	0.12%

[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 30-day average as of September 30, 2019.
[3] Equals [2] / [1]
[4] Equals [3] x (1 + 0.50 x [9])
[5] Equals [4] /(1- [Flotation Cost Percentage])
[6] Source: Value Line
[7] Source: Yahoo! Finance
[8] Source: Zacks
[9] Equals average ([6], [7], [8])
[10] Equals [4] + [9]
[11] Equals [5] + [9]
[12] Equals [11] - [10]

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & VL BETA

$$K = Rf + \beta (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Risk-Free Rate (Rf)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	ROE (K)
ALLETE, Inc.	ALE	2.11%	0.65	13.83%	11.72%	9.73%
Alliant Energy Corporation	LNT	2.11%	0.60	13.83%	11.72%	9.14%
Ameren Corporation	AEE	2.11%	0.55	13.83%	11.72%	8.56%
American Electric Power Company, Inc.	AEP	2.11%	0.55	13.83%	11.72%	8.56%
Avangrid, Inc.	AGR	2.11%	0.40	13.83%	11.72%	6.80%
Avista Corporation	AVA	2.11%	0.60	13.83%	11.72%	9.14%
DTE Energy Company	DTE	2.11%	0.55	13.83%	11.72%	8.56%
Duke Energy Corporation	DUK	2.11%	0.50	13.83%	11.72%	7.97%
Edison International	EIX	2.11%	0.60	13.83%	11.72%	9.14%
Entergy Corporation	ETR	2.11%	0.60	13.83%	11.72%	9.14%
Eversource Energy	ES	2.11%	0.60	13.83%	11.72%	9.14%
Exelon Corporation	EXC	2.11%	0.70	13.83%	11.72%	10.32%
FirstEnergy Corporation	FE	2.11%	0.60	13.83%	11.72%	9.14%
Evergy, Inc.	EVRG	2.11%	NMF	13.83%	11.72%	
Hawaiian Electric Industries, Inc.	HE	2.11%	0.55	13.83%	11.72%	8.56%
IDACORP, Inc.	IDA	2.11%	0.60	13.83%	11.72%	9.14%
NextEra Energy, Inc.	NEE	2.11%	0.55	13.83%	11.72%	8.56%
NorthWestern Corporation	NWE	2.11%	0.60	13.83%	11.72%	9.14%
OGE Energy Corporation	OGE	2.11%	0.80	13.83%	11.72%	11.49%
Otter Tail Corporation	OTTR	2.11%	0.65	13.83%	11.72%	9.73%
Pinnacle West Capital Corporation	PNW	2.11%	0.55	13.83%	11.72%	8.56%
PNM Resources, Inc.	PNM	2.11%	0.60	13.83%	11.72%	9.14%
Portland General Electric Company	POR	2.11%	0.60	13.83%	11.72%	9.14%
PPL Corporation	PPL	2.11%	0.65	13.83%	11.72%	9.73%
Southern Company	SO	2.11%	0.50	13.83%	11.72%	7.97%
Mean			0.59			9.02%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Value Line
[3] Source: Schedule 5, Page 7
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- NEAR-TERM PROJECTED RISK-FREE RATE & VL BETA

$$K = Rf + \beta (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Risk-Free Rate (Rf)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	ROE (K)
ALLETE, Inc.	ALE	2.24%	0.65	13.83%	11.59%	9.77%
Alliant Energy Corporation	LNT	2.24%	0.60	13.83%	11.59%	9.19%
Ameren Corporation	AEE	2.24%	0.55	13.83%	11.59%	8.61%
American Electric Power Company, Inc.	AEP	2.24%	0.55	13.83%	11.59%	8.61%
Avangrid, Inc.	AGR	2.24%	0.40	13.83%	11.59%	6.88%
Avista Corporation	AVA	2.24%	0.60	13.83%	11.59%	9.19%
DTE Energy Company	DTE	2.24%	0.55	13.83%	11.59%	8.61%
Duke Energy Corporation	DUK	2.24%	0.50	13.83%	11.59%	8.04%
Edison International	EIX	2.24%	0.60	13.83%	11.59%	9.19%
Entergy Corporation	ETR	2.24%	0.60	13.83%	11.59%	9.19%
Eversource Energy	ES	2.24%	0.60	13.83%	11.59%	9.19%
Exelon Corporation	EXC	2.24%	0.70	13.83%	11.59%	10.35%
FirstEnergy Corporation	FE	2.24%	0.60	13.83%	11.59%	9.19%
Evergy, Inc.	EVRG	2.24%	NMF	13.83%	11.59%	
Hawaiian Electric Industries, Inc.	HE	2.24%	0.55	13.83%	11.59%	8.61%
IDACORP, Inc.	IDA	2.24%	0.60	13.83%	11.59%	9.19%
NextEra Energy, Inc.	NEE	2.24%	0.55	13.83%	11.59%	8.61%
NorthWestern Corporation	NWE	2.24%	0.60	13.83%	11.59%	9.19%
OGE Energy Corporation	OGE	2.24%	0.80	13.83%	11.59%	11.51%
Otter Tail Corporation	OTTR	2.24%	0.65	13.83%	11.59%	9.77%
Pinnacle West Capital Corporation	PNW	2.24%	0.55	13.83%	11.59%	8.61%
PNM Resources, Inc.	PNM	2.24%	0.60	13.83%	11.59%	9.19%
Portland General Electric Company	POR	2.24%	0.60	13.83%	11.59%	9.19%
PPL Corporation	PPL	2.24%	0.65	13.83%	11.59%	9.77%
Southern Company	SO	2.24%	0.50	13.83%	11.59%	8.04%
Mean			0.59			9.07%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 38, No. 9, September 1, 2019, at 2
[2] Source: Value Line
[3] Source: CAPM 2
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- LONG-TERM PROJECTED RISK-FREE RATE & VL BETA

$$K = Rf + \beta (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Risk-Free Rate (Rf)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	ROE (K)
ALLETE, Inc.	ALE	3.60%	0.65	13.83%	10.23%	10.25%
Alliant Energy Corporation	LNT	3.60%	0.60	13.83%	10.23%	9.74%
Ameren Corporation	AEE	3.60%	0.55	13.83%	10.23%	9.23%
American Electric Power Company, Inc.	AEP	3.60%	0.55	13.83%	10.23%	9.23%
Avangrid, Inc.	AGR	3.60%	0.40	13.83%	10.23%	7.69%
Avista Corporation	AVA	3.60%	0.60	13.83%	10.23%	9.74%
DTE Energy Company	DTE	3.60%	0.55	13.83%	10.23%	9.23%
Duke Energy Corporation	DUK	3.60%	0.50	13.83%	10.23%	8.72%
Edison International	EIX	3.60%	0.60	13.83%	10.23%	9.74%
Entergy Corporation	ETR	3.60%	0.60	13.83%	10.23%	9.74%
Eversource Energy	ES	3.60%	0.60	13.83%	10.23%	9.74%
Exelon Corporation	EXC	3.60%	0.70	13.83%	10.23%	10.76%
FirstEnergy Corporation	FE	3.60%	0.60	13.83%	10.23%	9.74%
Evergy, Inc.	EVRG	3.60%	NMF	13.83%	10.23%	
Hawaiian Electric Industries, Inc.	HE	3.60%	0.55	13.83%	10.23%	9.23%
IDACORP, Inc.	IDA	3.60%	0.60	13.83%	10.23%	9.74%
NextEra Energy, Inc.	NEE	3.60%	0.55	13.83%	10.23%	9.23%
NorthWestern Corporation	NWE	3.60%	0.60	13.83%	10.23%	9.74%
OGE Energy Corporation	OGE	3.60%	0.80	13.83%	10.23%	11.78%
Otter Tail Corporation	OTTR	3.60%	0.65	13.83%	10.23%	10.25%
Pinnacle West Capital Corporation	PNW	3.60%	0.55	13.83%	10.23%	9.23%
PNM Resources, Inc.	PNM	3.60%	0.60	13.83%	10.23%	9.74%
Portland General Electric Company	POR	3.60%	0.60	13.83%	10.23%	9.74%
PPL Corporation	PPL	3.60%	0.65	13.83%	10.23%	10.25%
Southern Company	SO	3.60%	0.50	13.83%	10.23%	8.72%
Mean			0.59			9.63%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14
[2] Source: Value Line
[3] Source: CAPM 2
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & BLOOMBERG BETA

$$K = Rf + \beta (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Risk-Free Rate (Rf)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	ROE (K)
ALLETE, Inc.	ALE	2.11%	0.70	13.83%	11.72%	10.34%
Alliant Energy Corporation	LNT	2.11%	0.69	13.83%	11.72%	10.24%
Ameren Corporation	AEE	2.11%	0.65	13.83%	11.72%	9.75%
American Electric Power Company, Inc.	AEP	2.11%	0.63	13.83%	11.72%	9.51%
Avangrid, Inc.	AGR	2.11%	0.50	13.83%	11.72%	8.02%
Avista Corporation	AVA	2.11%	0.70	13.83%	11.72%	10.35%
DTE Energy Company	DTE	2.11%	0.66	13.83%	11.72%	9.90%
Duke Energy Corporation	DUK	2.11%	0.53	13.83%	11.72%	8.37%
Edison International	EIX	2.11%	0.66	13.83%	11.72%	9.85%
Entergy Corporation	ETR	2.11%	0.65	13.83%	11.72%	9.69%
Eversource Energy	ES	2.11%	0.66	13.83%	11.72%	9.83%
Exelon Corporation	EXC	2.11%	0.64	13.83%	11.72%	9.64%
FirstEnergy Corporation	FE	2.11%	0.68	13.83%	11.72%	10.10%
Evergy, Inc.	EVRG	2.11%	0.63	13.83%	11.72%	9.53%
Hawaiian Electric Industries, Inc.	HE	2.11%	0.66	13.83%	11.72%	9.85%
IDACORP, Inc.	IDA	2.11%	0.73	13.83%	11.72%	10.68%
NextEra Energy, Inc.	NEE	2.11%	0.64	13.83%	11.72%	9.65%
NorthWestern Corporation	NWE	2.11%	0.70	13.83%	11.72%	10.35%
OGE Energy Corporation	OGE	2.11%	0.74	13.83%	11.72%	10.81%
Otter Tail Corporation	OTTR	2.11%	0.80	13.83%	11.72%	11.43%
Pinnacle West Capital Corporation	PNW	2.11%	0.66	13.83%	11.72%	9.87%
PNM Resources, Inc.	PNM	2.11%	0.75	13.83%	11.72%	10.90%
Portland General Electric Company	POR	2.11%	0.68	13.83%	11.72%	10.03%
PPL Corporation	PPL	2.11%	0.63	13.83%	11.72%	9.49%
Southern Company	SO	2.11%	0.53	13.83%	11.72%	8.33%
Mean			0.66			9.86%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional
[3] Source: CAPM 2
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- NEAR-TERM PROJECTED RISK-FREE RATE & BLOOMBERG BETA

$$K = Rf + \beta (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Risk-Free Rate (Rf)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	ROE (K)
ALLETE, Inc.	ALE	2.24%	0.70	13.83%	11.59%	10.38%
Alliant Energy Corporation	LNT	2.24%	0.69	13.83%	11.59%	10.28%
Ameren Corporation	AEE	2.24%	0.65	13.83%	11.59%	9.80%
American Electric Power Company, Inc.	AEP	2.24%	0.63	13.83%	11.59%	9.55%
Avangrid, Inc.	AGR	2.24%	0.50	13.83%	11.59%	8.08%
Avista Corporation	AVA	2.24%	0.70	13.83%	11.59%	10.39%
DTE Energy Company	DTE	2.24%	0.66	13.83%	11.59%	9.95%
Duke Energy Corporation	DUK	2.24%	0.53	13.83%	11.59%	8.43%
Edison International	EIX	2.24%	0.66	13.83%	11.59%	9.90%
Entergy Corporation	ETR	2.24%	0.65	13.83%	11.59%	9.74%
Eversource Energy	ES	2.24%	0.66	13.83%	11.59%	9.88%
Exelon Corporation	EXC	2.24%	0.64	13.83%	11.59%	9.68%
FirstEnergy Corporation	FE	2.24%	0.68	13.83%	11.59%	10.14%
Evergy, Inc.	EVRG	2.24%	0.63	13.83%	11.59%	9.57%
Hawaiian Electric Industries, Inc.	HE	2.24%	0.66	13.83%	11.59%	9.89%
IDACORP, Inc.	IDA	2.24%	0.73	13.83%	11.59%	10.72%
NextEra Energy, Inc.	NEE	2.24%	0.64	13.83%	11.59%	9.70%
NorthWestern Corporation	NWE	2.24%	0.70	13.83%	11.59%	10.39%
OGE Energy Corporation	OGE	2.24%	0.74	13.83%	11.59%	10.84%
Otter Tail Corporation	OTTR	2.24%	0.80	13.83%	11.59%	11.46%
Pinnacle West Capital Corporation	PNW	2.24%	0.66	13.83%	11.59%	9.92%
PNM Resources, Inc.	PNM	2.24%	0.75	13.83%	11.59%	10.93%
Portland General Electric Company	POR	2.24%	0.68	13.83%	11.59%	10.08%
PPL Corporation	PPL	2.24%	0.63	13.83%	11.59%	9.54%
Southern Company	SO	2.24%	0.53	13.83%	11.59%	8.39%
Mean			0.66			9.91%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 38, No. 10, October 1, 2019, at 2
[2] Source: Bloomberg Professional
[3] Source: CAPM 2
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- LONG-TERM PROJECTED RISK-FREE RATE & BLOOMBERG BETA

$$K = Rf + \beta (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Risk-Free Rate (Rf)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	ROE (K)
ALLETE, Inc.	ALE	3.60%	0.70	13.83%	10.23%	10.78%
Alliant Energy Corporation	LNT	3.60%	0.69	13.83%	10.23%	10.70%
Ameren Corporation	AEE	3.60%	0.65	13.83%	10.23%	10.27%
American Electric Power Company, Inc.	AEP	3.60%	0.63	13.83%	10.23%	10.06%
Avangrid, Inc.	AGR	3.60%	0.50	13.83%	10.23%	8.76%
Avista Corporation	AVA	3.60%	0.70	13.83%	10.23%	10.80%
DTE Energy Company	DTE	3.60%	0.66	13.83%	10.23%	10.40%
Duke Energy Corporation	DUK	3.60%	0.53	13.83%	10.23%	9.06%
Edison International	EIX	3.60%	0.66	13.83%	10.23%	10.36%
Entergy Corporation	ETR	3.60%	0.65	13.83%	10.23%	10.22%
Eversource Energy	ES	3.60%	0.66	13.83%	10.23%	10.34%
Exelon Corporation	EXC	3.60%	0.64	13.83%	10.23%	10.17%
FirstEnergy Corporation	FE	3.60%	0.68	13.83%	10.23%	10.57%
Evergy, Inc.	EVRG	3.60%	0.63	13.83%	10.23%	10.07%
Hawaiian Electric Industries, Inc.	HE	3.60%	0.66	13.83%	10.23%	10.35%
IDACORP, Inc.	IDA	3.60%	0.73	13.83%	10.23%	11.08%
NextEra Energy, Inc.	NEE	3.60%	0.64	13.83%	10.23%	10.18%
NorthWestern Corporation	NWE	3.60%	0.70	13.83%	10.23%	10.80%
OGE Energy Corporation	OGE	3.60%	0.74	13.83%	10.23%	11.19%
Otter Tail Corporation	OTTR	3.60%	0.80	13.83%	10.23%	11.73%
Pinnacle West Capital Corporation	PNW	3.60%	0.66	13.83%	10.23%	10.38%
PNM Resources, Inc.	PNM	3.60%	0.75	13.83%	10.23%	11.27%
Portland General Electric Company	POR	3.60%	0.68	13.83%	10.23%	10.52%
PPL Corporation	PPL	3.60%	0.63	13.83%	10.23%	10.05%
Southern Company	SO	3.60%	0.53	13.83%	10.23%	9.03%
Mean			0.66			10.37%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14
[2] Source: Bloomberg Professional
[3] Source: CAPM 2
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]

MARKET RISK PREMIUM DERIVED FROM ANALYSTS LONG-TERM GROWTH ESTIMATES

[6] Estimated Weighted Average Dividend Yield	1.97%
[7] Estimated Weighted Average Long-Term Growth Rate	11.74%
[8] S&P 500 Estimated Required Market Return	13.83%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[9] Weight in Index	[10] Estimated Dividend Yield	[11] Cap-Weighted Dividend Yield	[12] Long-Term Growth Est.	[13] Cap-Weighted Long-Term Growth Est.
LyondellBasell Industries NV	LYB	0.12%	4.69%	0.55%	7.10%	0.83%
American Express Co	AXP	0.38%	1.45%	0.55%	9.36%	3.57%
Verizon Communications Inc	VZ	0.97%	4.08%	3.95%	2.56%	2.49%
Broadcom Inc	AVGO	0.43%	3.84%	1.63%	13.48%	5.74%
Boeing Co/The	BA	0.83%	2.16%	1.80%	7.93%	6.60%
Caterpillar Inc	CAT	0.28%	3.26%	0.90%	13.15%	3.63%
JPMorgan Chase & Co	JPM	1.46%	3.06%	4.47%	4.65%	6.80%
Chevron Corp	CVX	0.88%	4.01%	3.51%	1.60%	1.40%
Coca-Cola Co/The	KO	0.90%	2.94%	2.66%	6.96%	6.30%
AbbVie Inc	ABBV	0.44%	5.65%	2.46%	6.05%	2.63%
Walt Disney Co/The	DIS	0.91%	1.35%	1.23%	2.85%	2.60%
FleetCor Technologies Inc	FLT	0.10%	n/a	n/a	15.58%	1.50%
Extra Space Storage Inc	EXR	0.06%	3.08%	0.18%	4.72%	0.28%
Exxon Mobil Corp	XOM	1.16%	4.93%	5.72%	8.52%	9.90%
Phillips 66	PSX	0.18%	3.52%	0.63%	2.20%	0.39%
General Electric Co	GE	0.30%	0.45%	0.14%	5.70%	1.73%
HP Inc	HPQ	0.11%	3.39%	0.37%	1.66%	0.18%
Home Depot Inc/The	HD	0.99%	2.34%	2.32%	9.37%	9.26%
International Business Machines Corp	IBM	0.50%	4.46%	2.23%	1.92%	0.96%
Concho Resources Inc	CXO	0.05%	0.74%	0.04%	13.81%	0.73%
Johnson & Johnson	JNJ	1.33%	2.94%	3.90%	6.09%	8.09%
McDonald's Corp	MCD	0.63%	2.33%	1.48%	8.67%	5.49%
Merck & Co Inc	MRK	0.84%	2.61%	2.19%	11.52%	9.65%
3M Co	MMM	0.37%	3.50%	1.29%	6.95%	2.56%
American Water Works Co Inc	AWK	0.09%	1.61%	0.14%	8.75%	0.76%
Bank of America Corp	BAC	1.06%	2.47%	2.61%	8.80%	9.29%
Baker Hughes a GE Co	BHGE	0.06%	3.10%	0.18%	32.29%	1.89%
Pfizer Inc	PFE	0.77%	4.01%	3.10%	3.88%	2.99%
Procter & Gamble Co/The	PG	1.21%	2.40%	2.90%	7.42%	8.98%
AT&T Inc	T	1.07%	5.39%	5.79%	5.62%	6.04%
Travelers Cos Inc/The	TRV	0.15%	2.21%	0.33%	12.38%	1.86%
United Technologies Corp	UTX	0.46%	2.15%	0.99%	9.75%	4.47%
Analog Devices Inc	ADI	0.16%	1.93%	0.31%	9.72%	1.56%
Walmart Inc	WMT	1.31%	1.79%	2.34%	7.97%	10.46%
Cisco Systems Inc	CSCO	0.82%	2.83%	2.31%	6.48%	5.28%
Intel Corp	INTC	0.89%	2.45%	2.17%	5.98%	5.31%
General Motors Co	GM	0.21%	4.06%	0.84%	10.46%	2.17%
Microsoft Corp	MSFT	4.13%	1.47%	6.06%	10.51%	43.35%
Dollar General Corp	DG	0.16%	0.81%	0.13%	10.68%	1.70%
Cigna Corp	CI	0.22%	0.03%	0.01%	11.24%	2.50%
Kinder Morgan Inc/DE	KMI	0.18%	4.85%	0.88%	11.90%	2.16%
Citigroup Inc	C	0.61%	2.95%	1.79%	11.65%	7.06%
American International Group Inc	AIG	0.19%	2.30%	0.43%	11.00%	2.07%
Honeywell International Inc	HON	0.47%	2.13%	1.01%	7.70%	3.65%
Altria Group Inc	MO	0.30%	8.22%	2.44%	7.10%	2.11%
HCA Healthcare Inc	HCA	0.16%	1.33%	0.21%	10.20%	1.63%
Under Armour Inc	UAA	0.01%	n/a	n/a	30.97%	0.45%
International Paper Co	IP	0.06%	4.78%	0.31%	4.55%	0.29%
Hewlett Packard Enterprise Co	HPE	0.08%	2.97%	0.23%	6.07%	0.47%
Abbott Laboratories	ABT	0.57%	1.53%	0.88%	9.58%	5.51%
Aflac Inc	AFL	0.15%	2.06%	0.31%	4.52%	0.68%
Air Products & Chemicals Inc	APD	0.19%	2.09%	0.40%	12.71%	2.42%
Royal Caribbean Cruises Ltd	RCL	0.09%	2.88%	0.25%	11.00%	0.97%
American Electric Power Co Inc	AEP	0.18%	2.86%	0.51%	5.78%	1.04%
Hess Corp	HES	0.07%	1.65%	0.12%	-5.43%	-0.39%
Aon PLC	AON	0.18%	0.91%	0.16%	10.90%	1.93%
Apache Corp	APA	0.04%	3.91%	0.15%	-8.57%	-0.32%
Archer-Daniels-Midland Co	ADM	0.09%	3.41%	0.30%	0.10%	0.01%
Automatic Data Processing Inc	ADP	0.27%	1.96%	0.53%	12.55%	3.42%
Verisk Analytics Inc	VRSK	0.10%	0.63%	0.06%	18.47%	1.86%
AutoZone Inc	AZO	0.10%	n/a	n/a	11.26%	1.16%
Avery Dennison Corp	AVY	0.04%	2.04%	0.08%	4.95%	0.18%
MSCI Inc	MSCI	0.07%	1.25%	0.09%	11.43%	0.82%
Ball Corp	BLL	0.09%	0.82%	0.08%	6.70%	0.63%
Bank of New York Mellon Corp/The	BK	0.17%	2.74%	0.45%	6.47%	1.07%
Baxter International Inc	BAX	0.17%	1.01%	0.17%	11.96%	2.08%
Becton Dickinson and Co	BDX	0.27%	1.22%	0.32%	12.19%	3.24%
Berkshire Hathaway Inc	BRK/B	1.12%	n/a	n/a	61.80%	69.28%
Best Buy Co Inc	BBY	0.07%	2.90%	0.20%	6.60%	0.47%
H&R Block Inc	HRB	0.02%	4.40%	0.08%	10.00%	0.18%
Boston Scientific Corp	BSX	0.22%	n/a	n/a	8.88%	1.96%
Bristol-Myers Squibb Co	BMY	0.32%	3.23%	1.04%	7.96%	2.57%
Fortune Brands Home & Security Inc	FBHS	0.03%	1.61%	0.05%	9.61%	0.29%
Brown-Forman Corp	BF/B	0.08%	1.06%	0.08%	6.44%	0.48%
Cabot Oil & Gas Corp	COG	0.03%	2.05%	0.06%	34.52%	0.99%
Campbell Soup Co	CPB	0.05%	2.98%	0.16%	7.04%	0.39%
Kansas City Southern	KSU	0.05%	1.08%	0.06%	12.73%	0.66%
Hilton Worldwide Holdings Inc	HLT	0.10%	0.64%	0.07%	12.28%	1.28%
Carnival Corp	CCL	0.09%	4.58%	0.41%	8.47%	0.76%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[9] Weight in Index	[10] Estimated Dividend Yield	[11] Cap-Weighted Dividend Yield	[12] Long-Term Growth Est.	[13] Cap-Weighted Long-Term Growth Est.
Qorvo Inc	QRVO	0.03%	n/a	n/a	10.76%	0.37%
CenturyLink Inc	CTL	0.05%	8.01%	0.42%	5.06%	0.27%
UDR Inc	UDR	0.06%	2.83%	0.16%	6.37%	0.35%
Clorox Co/The	CLX	0.07%	2.79%	0.21%	3.91%	0.29%
CMS Energy Corp	CMS	0.07%	2.39%	0.17%	7.20%	0.51%
Newell Brands Inc	NWL	0.03%	4.91%	0.15%	-3.42%	-0.11%
Colgate-Palmolive Co	CL	0.25%	2.34%	0.57%	4.52%	1.11%
Comerica Inc	CMA	0.04%	4.06%	0.16%	12.93%	0.50%
IPG Photonics Corp	IPGP	0.03%	n/a	n/a	6.13%	0.17%
Conagra Brands Inc	CAG	0.06%	2.77%	0.16%	7.60%	0.44%
Consolidated Edison Inc	ED	0.12%	3.13%	0.38%	3.88%	0.47%
SL Green Realty Corp	SLG	0.03%	4.16%	0.11%	6.80%	0.18%
Corning Inc	GLW	0.09%	2.81%	0.24%	9.34%	0.81%
Cummins Inc	CMI	0.10%	3.22%	0.32%	6.70%	0.67%
Danaher Corp	DHR	0.40%	0.47%	0.19%	14.95%	6.02%
Target Corp	TGT	0.21%	2.47%	0.52%	8.23%	1.75%
Deere & Co	DE	0.21%	1.80%	0.37%	6.51%	1.34%
Dominion Energy Inc	D	0.25%	4.53%	1.15%	4.53%	1.15%
Dover Corp	DOV	0.06%	1.97%	0.11%	10.97%	0.62%
Alliant Energy Corp	LNT	0.05%	2.63%	0.13%	5.63%	0.28%
Duke Energy Corp	DUK	0.27%	3.94%	1.07%	5.01%	1.36%
Regency Centers Corp	REG	0.05%	3.37%	0.15%	4.62%	0.21%
Eaton Corp PLC	ETN	0.14%	3.42%	0.46%	8.60%	1.17%
Ecolab Inc	ECL	0.22%	0.93%	0.21%	13.13%	2.91%
PerkinElmer Inc	PKI	0.04%	0.33%	0.01%	16.84%	0.62%
Emerson Electric Co	EMR	0.16%	2.93%	0.47%	8.06%	1.29%
EOG Resources Inc	EOG	0.17%	1.55%	0.26%	6.50%	1.09%
Entergy Corp	ETR	0.09%	3.10%	0.28%	0.08%	0.01%
Equifax Inc	EFX	0.07%	1.11%	0.07%	8.74%	0.58%
IQVIA Holdings Inc	IQV	0.11%	n/a	n/a	17.75%	2.02%
Gartner Inc	IT	0.05%	n/a	n/a	13.08%	0.66%
FedEx Corp	FDX	0.15%	1.79%	0.26%	20.72%	3.06%
Macy's Inc	M	0.02%	9.72%	0.18%	3.50%	0.07%
FMC Corp	FMC	0.04%	1.82%	0.08%	9.00%	0.40%
Ford Motor Co	F	0.14%	6.55%	0.91%	2.58%	0.36%
NextEra Energy Inc	NEE	0.44%	2.15%	0.95%	5.46%	2.42%
Franklin Resources Inc	BEN	0.06%	3.60%	0.20%	10.00%	0.57%
Freeport-McMoRan Inc	FCX	0.05%	2.09%	0.11%	3.81%	0.21%
Gap Inc/The	GPS	0.03%	5.59%	0.14%	5.03%	0.13%
General Dynamics Corp	GD	0.21%	2.23%	0.46%	8.54%	1.75%
General Mills Inc	GIS	0.13%	3.56%	0.46%	6.50%	0.84%
Genuine Parts Co	GPC	0.06%	3.06%	0.17%	4.77%	0.27%
Atmos Energy Corp	ATO	0.05%	1.84%	0.10%	7.50%	0.39%
WW Grainger Inc	GWW	0.06%	1.94%	0.12%	10.90%	0.69%
Halliburton Co	HAL	0.06%	3.82%	0.25%	5.55%	0.36%
Harley-Davidson Inc	HOG	0.02%	4.17%	0.09%	5.90%	0.13%
L3Harris Technologies Inc	LHX	0.18%	1.44%	0.26%	n/a	n/a
HCP Inc	HCP	0.07%	4.15%	0.28%	2.94%	0.20%
Helmerich & Payne Inc	HP	0.02%	7.09%	0.12%	6.57%	0.11%
Fortive Corp	FTV	0.09%	0.41%	0.04%	9.23%	0.83%
Hershey Co/The	HSY	0.09%	2.00%	0.18%	7.07%	0.63%
Synchrony Financial	SYF	0.09%	2.58%	0.23%	6.57%	0.58%
Hormel Foods Corp	HRL	0.09%	1.92%	0.17%	5.70%	0.52%
Arthur J Gallagher & Co	AJG	0.06%	1.92%	0.12%	9.83%	0.64%
Mondelez International Inc	MDLZ	0.31%	2.06%	0.64%	8.55%	2.65%
CenterPoint Energy Inc	CNP	0.06%	3.81%	0.22%	5.90%	0.35%
Humana Inc	HUM	0.13%	0.86%	0.12%	12.83%	1.72%
Willis Towers Watson PLC	WLTW	0.10%	1.35%	0.13%	14.40%	1.39%
Illinois Tool Works Inc	ITW	0.20%	2.74%	0.54%	6.52%	1.28%
CDW Corp/DE	CDW	0.07%	0.96%	0.07%	13.55%	0.94%
Ingersoll-Rand PLC	IR	0.12%	1.72%	0.20%	9.48%	1.10%
Interpublic Group of Cos Inc/The	IPG	0.03%	4.36%	0.14%	5.85%	0.19%
International Flavors & Fragrances Inc	IFF	0.05%	2.45%	0.12%	12.65%	0.64%
Jacobs Engineering Group Inc	JEC	0.05%	0.74%	0.04%	15.62%	0.75%
Hanesbrands Inc	HBI	0.02%	3.92%	0.08%	5.08%	0.11%
Kellogg Co	K	0.09%	3.54%	0.30%	2.09%	0.18%
Broadridge Financial Solutions Inc	BR	0.06%	1.74%	0.10%	7.80%	0.43%
Perrigo Co PLC	PRGO	0.03%	1.50%	0.04%	-1.60%	-0.05%
Kimberly-Clark Corp	KMB	0.19%	2.90%	0.55%	4.78%	0.91%
Kimco Realty Corp	KIM	0.03%	5.36%	0.18%	3.99%	0.14%
Kohl's Corp	KSS	0.03%	5.40%	0.17%	6.17%	0.19%
Oracle Corp	ORCL	0.70%	1.74%	1.23%	8.38%	5.89%
Kroger Co/The	KR	0.08%	2.48%	0.20%	4.75%	0.38%
Leggett & Platt Inc	LEG	0.02%	3.91%	0.08%	n/a	n/a
Lennar Corp	LEN	0.06%	0.29%	0.02%	9.42%	0.58%
Eli Lilly & Co	LLY	0.42%	2.31%	0.97%	9.93%	4.17%
L Brands Inc	LB	0.02%	6.13%	0.13%	9.23%	0.19%
Charter Communications Inc	CHTR	0.35%	n/a	n/a	29.71%	10.54%
Lincoln National Corp	LNC	0.05%	2.45%	0.12%	9.00%	0.42%
Loews Corp	L	0.06%	0.49%	0.03%	n/a	n/a
Lowe's Cos Inc	LOW	0.33%	2.00%	0.66%	14.56%	4.80%
Host Hotels & Resorts Inc	HST	0.05%	4.63%	0.23%	19.82%	0.97%
Xerox Holdings Corp	XRX	0.03%	3.34%	0.09%	6.20%	0.16%
IDEX Corp	IEX	0.05%	1.22%	0.06%	11.20%	0.54%
Marsh & McLennan Cos Inc	MMC	0.20%	1.82%	0.36%	12.58%	2.48%
Masco Corp	MAS	0.05%	1.30%	0.06%	9.19%	0.43%
S&P Global Inc	SPGI	0.23%	0.93%	0.22%	10.47%	2.46%
Medtronic PLC	MDT	0.57%	1.99%	1.13%	7.26%	4.11%
CVS Health Corp	CVS	0.32%	3.17%	1.01%	6.23%	1.99%
DuPont de Nemours Inc	DD	0.21%	1.68%	0.35%	6.55%	1.35%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[9] Weight in Index	[10] Estimated Dividend Yield	[11] Cap-Weighted Dividend Yield	[12] Long-Term Growth Est.	[13] Cap-Weighted Long-Term Growth Est.
Micron Technology Inc	MU	0.18%	n/a	n/a	4.02%	0.74%
Motorola Solutions Inc	MSI	0.11%	1.34%	0.15%	7.05%	0.78%
Cboe Global Markets Inc	CBOE	0.05%	1.25%	0.06%	10.00%	0.50%
Mylan NV	MYL	0.04%	n/a	n/a	-5.72%	-0.23%
Laboratory Corp of America Holdings	LH	0.06%	n/a	n/a	7.36%	0.47%
Newmont Goldcorp Corp	NEM	0.12%	1.48%	0.18%	5.75%	0.69%
NIKE Inc	NKE	0.46%	0.94%	0.43%	13.82%	6.32%
NiSource Inc	NI	0.04%	2.67%	0.12%	5.28%	0.23%
Noble Energy Inc	NBL	0.04%	2.14%	0.09%	16.58%	0.69%
Norfolk Southern Corp	NSC	0.18%	2.09%	0.39%	13.68%	2.52%
Principal Financial Group Inc	PFG	0.06%	3.85%	0.24%	6.87%	0.43%
Eversource Energy	ES	0.11%	2.50%	0.27%	6.42%	0.69%
Northrop Grumman Corp	NOC	0.25%	1.41%	0.35%	6.84%	1.68%
Wells Fargo & Co	WFC	0.86%	4.04%	3.49%	9.86%	8.51%
Nucor Corp	NUE	0.06%	3.14%	0.19%	0.35%	0.02%
PVH Corp	PVH	0.03%	0.17%	0.00%	6.52%	0.17%
Occidental Petroleum Corp	OXY	0.15%	7.11%	1.10%	6.30%	0.97%
Omnicom Group Inc	OMC	0.07%	3.32%	0.22%	3.58%	0.24%
ONEOK Inc	OKE	0.12%	4.83%	0.57%	13.11%	1.55%
Raymond James Financial Inc	RJF	0.04%	1.65%	0.07%	17.00%	0.76%
Parker-Hannifin Corp	PH	0.09%	1.95%	0.18%	8.24%	0.74%
Rollins Inc	ROL	0.04%	1.23%	0.05%	n/a	n/a
PPL Corp	PPL	0.09%	5.24%	0.46%	1.35%	0.12%
ConocoPhillips	COP	0.25%	2.14%	0.53%	3.45%	0.85%
PulteGroup Inc	PHM	0.04%	1.20%	0.05%	8.25%	0.32%
Pinnacle West Capital Corp	PNW	0.04%	3.04%	0.13%	5.35%	0.23%
PNC Financial Services Group Inc/The	PNC	0.24%	3.28%	0.80%	7.64%	1.85%
PPG Industries Inc	PPG	0.11%	1.72%	0.19%	6.82%	0.74%
Progressive Corp/The	PGR	0.18%	0.52%	0.09%	6.23%	1.09%
Public Service Enterprise Group Inc	PEG	0.12%	3.03%	0.37%	5.46%	0.67%
Raytheon Co	RTN	0.21%	1.92%	0.41%	8.83%	1.87%
Robert Half International Inc	RHI	0.03%	2.23%	0.06%	-1.79%	-0.05%
Edison International	EIX	0.10%	3.25%	0.34%	4.81%	0.50%
Schlumberger Ltd	SLB	0.18%	5.85%	1.08%	28.00%	5.14%
Charles Schwab Corp/The	SCHW	0.21%	1.63%	0.35%	3.94%	0.84%
Sherwin-Williams Co/The	SHW	0.20%	0.82%	0.16%	11.33%	2.23%
JM Smucker Co/The	SJM	0.05%	3.20%	0.16%	2.97%	0.15%
Snap-on Inc	SNA	0.03%	2.43%	0.08%	6.91%	0.23%
AMETEK Inc	AME	0.08%	0.61%	0.05%	9.84%	0.80%
Southern Co/The	SO	0.25%	4.01%	1.01%	3.18%	0.80%
BB&T Corp	BBT	0.16%	3.37%	0.54%	7.24%	1.15%
Southwest Airlines Co	LUV	0.11%	1.33%	0.15%	8.42%	0.95%
Stanley Black & Decker Inc	SWK	0.09%	1.91%	0.16%	8.88%	0.76%
Public Storage	PSA	0.17%	3.26%	0.54%	4.11%	0.68%
Arista Networks Inc	ANET	0.07%	n/a	n/a	21.39%	1.52%
SunTrust Banks Inc	STI	0.12%	3.26%	0.39%	2.37%	0.28%
Sysco Corp	SYY	0.16%	1.96%	0.31%	11.13%	1.76%
Corteva Inc	CTVA	0.08%	1.86%	0.15%	95.20%	7.76%
Texas Instruments Inc	TXN	0.47%	2.79%	1.31%	8.35%	3.92%
Textron Inc	TXT	0.04%	0.16%	0.01%	11.86%	0.52%
Thermo Fisher Scientific Inc	TMO	0.45%	0.26%	0.12%	11.00%	4.99%
Tiffany & Co	TIF	0.04%	2.50%	0.11%	8.42%	0.37%
TJX Cos Inc/The	TJX	0.26%	1.65%	0.43%	11.07%	2.90%
Globe Life Inc	GL	0.04%	0.72%	0.03%	7.60%	0.31%
Johnson Controls International plc	JCI	0.14%	2.37%	0.32%	7.57%	1.03%
Ulta Beauty Inc	ULTA	0.06%	n/a	n/a	19.25%	1.10%
Union Pacific Corp	UNP	0.44%	2.40%	1.06%	12.90%	5.72%
Keysight Technologies Inc	KEYS	0.07%	n/a	n/a	n/a	n/a
UnitedHealth Group Inc	UNH	0.80%	1.99%	1.59%	12.28%	9.83%
Unum Group	UNM	0.02%	3.84%	0.09%	9.00%	0.22%
Marathon Oil Corp	MRO	0.04%	1.63%	0.06%	1.55%	0.06%
Varian Medical Systems Inc	VAR	0.04%	n/a	n/a	8.40%	0.35%
Ventas Inc	VTR	0.11%	4.34%	0.46%	4.85%	0.51%
VF Corp	VFC	0.14%	1.93%	0.27%	10.42%	1.44%
Vornado Realty Trust	VNO	0.05%	4.15%	0.20%	5.46%	0.26%
Vulcan Materials Co	VMC	0.08%	0.82%	0.06%	18.12%	1.41%
Weyerhaeuser Co	WY	0.08%	4.91%	0.39%	2.40%	0.19%
Whirlpool Corp	WHR	0.04%	3.03%	0.12%	4.61%	0.18%
Williams Cos Inc/The	WMB	0.11%	6.32%	0.72%	8.00%	0.91%
WEC Energy Group Inc	WEC	0.12%	2.48%	0.29%	6.44%	0.75%
Adobe Inc	ADBE	0.52%	n/a	n/a	16.00%	8.32%
AES Corp/VA	AES	0.04%	3.34%	0.14%	8.12%	0.34%
Amgen Inc	AMGN	0.45%	3.00%	1.35%	6.47%	2.92%
Apple Inc	AAPL	3.93%	1.38%	5.41%	10.50%	41.31%
Autodesk Inc	ADSK	0.13%	n/a	n/a	47.95%	6.05%
Cintas Corp	CTAS	0.11%	0.76%	0.08%	11.07%	1.21%
Comcast Corp	CMCSA	0.79%	1.86%	1.48%	9.93%	7.89%
Molson Coors Brewing Co	TAP	0.04%	3.97%	0.17%	-2.40%	-0.11%
KLA Corp	KLAC	0.10%	1.88%	0.18%	13.97%	1.37%
Marriott International Inc/MD	MAR	0.16%	1.54%	0.25%	8.50%	1.35%
McCormick & Co Inc/MD	MKC	0.07%	1.46%	0.11%	6.20%	0.46%
Nordstrom Inc	JWN	0.02%	4.40%	0.09%	5.83%	0.12%
PACCAR Inc	PCAR	0.09%	1.83%	0.17%	4.90%	0.46%
Costco Wholesale Corp	COST	0.49%	0.90%	0.44%	10.51%	5.18%
First Republic Bank/CA	FRC	0.06%	0.79%	0.05%	6.99%	0.43%
Stryker Corp	SYK	0.31%	0.96%	0.30%	9.46%	2.98%
Tyson Foods Inc	TSN	0.10%	1.74%	0.17%	4.90%	0.48%
Lamb Weston Holdings Inc	LW	0.04%	1.10%	0.05%	7.50%	0.31%
Applied Materials Inc	AMAT	0.18%	1.68%	0.30%	5.55%	0.99%
American Airlines Group Inc	AAL	0.05%	1.48%	0.07%	6.37%	0.30%

STANDARD AND POOR'S 500 INDEX

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Cardinal Health Inc	CAH	0.05%	4.08%	0.22%	2.49%	0.13%
Celgene Corp	CELG	0.27%	n/a	n/a	16.10%	4.40%
Cerner Corp	CERN	0.08%	1.06%	0.09%	13.55%	1.14%
Cincinnati Financial Corp	CINF	0.07%	1.92%	0.14%	n/a	n/a
DR Horton Inc	DHI	0.08%	1.14%	0.09%	12.60%	0.95%
Flowserve Corp	FLS	0.02%	1.63%	0.04%	15.19%	0.36%
Electronic Arts Inc	EA	0.11%	n/a	n/a	8.54%	0.96%
Expeditors International of Washington Inc	EXPD	0.05%	1.35%	0.07%	9.73%	0.48%
Fastenal Co	FAST	0.07%	2.69%	0.20%	7.15%	0.52%
M&T Bank Corp	MTB	0.08%	2.53%	0.21%	5.33%	0.44%
Xcel Energy Inc	XEL	0.13%	2.50%	0.32%	5.53%	0.72%
Fiserv Inc	FISV	0.27%	n/a	n/a	14.00%	3.83%
Fifth Third Bancorp	FITB	0.08%	3.51%	0.27%	4.65%	0.36%
Gilead Sciences Inc	GILD	0.31%	3.98%	1.24%	7.60%	2.37%
Hasbro Inc	HAS	0.06%	2.29%	0.13%	9.30%	0.54%
Huntington Bancshares Inc/OH	HBAN	0.06%	4.20%	0.24%	4.99%	0.29%
Welltower Inc	WELL	0.14%	3.84%	0.55%	6.34%	0.90%
Biogen Inc	BIIB	0.17%	n/a	n/a	3.33%	0.56%
Northern Trust Corp	NTRS	0.08%	3.00%	0.23%	7.25%	0.57%
Packaging Corp of America	PKG	0.04%	2.98%	0.12%	10.00%	0.39%
Paychex Inc	PAYX	0.12%	3.00%	0.35%	7.25%	0.84%
People's United Financial Inc	PBCT	0.02%	4.54%	0.11%	2.00%	0.05%
QUALCOMM Inc	QCOM	0.36%	3.25%	1.17%	14.37%	5.18%
Roper Technologies Inc	ROP	0.14%	0.52%	0.07%	13.03%	1.88%
Ross Stores Inc	ROST	0.15%	0.93%	0.14%	9.38%	1.45%
IDEXX Laboratories Inc	IDXX	0.09%	n/a	n/a	18.85%	1.72%
Starbucks Corp	SBUX	0.41%	1.63%	0.67%	13.17%	5.42%
KeyCorp	KEY	0.07%	4.15%	0.29%	4.69%	0.33%
Fox Corp	FOXA	0.04%	1.46%	0.06%	3.57%	0.16%
Fox Corp	FOX	0.03%	1.46%	0.05%	-10.86%	-0.35%
State Street Corp	STT	0.09%	3.51%	0.30%	3.98%	0.34%
Norwegian Cruise Line Holdings Ltd	NCLH	0.04%	n/a	n/a	8.27%	0.36%
US Bancorp	USB	0.34%	3.04%	1.03%	6.33%	2.15%
AO Smith Corp	AOS	0.03%	1.84%	0.05%	8.00%	0.21%
Symantec Corp	SYMC	0.06%	1.27%	0.07%	3.35%	0.19%
T Rowe Price Group Inc	TROW	0.10%	2.66%	0.28%	8.20%	0.86%
Waste Management Inc	WM	0.19%	1.78%	0.34%	7.74%	1.47%
CBS Corp	CBS	0.06%	1.78%	0.10%	7.63%	0.42%
Allergan PLC	AGN	0.21%	1.76%	0.38%	8.00%	1.72%
Constellation Brands Inc	STZ	0.13%	1.45%	0.20%	7.83%	1.06%
Xilinx Inc	XLNX	0.09%	1.54%	0.15%	9.45%	0.89%
DENTSPLY SIRONA Inc	XRAY	0.05%	0.75%	0.03%	13.14%	0.61%
Zions Bancorp NA	ZION	0.03%	3.05%	0.09%	6.24%	0.19%
Alaska Air Group Inc	ALK	0.03%	2.16%	0.07%	21.55%	0.67%
Invesco Ltd	IVZ	0.03%	7.32%	0.23%	7.00%	0.22%
Linde PLC	LIN	0.41%	1.81%	0.74%	13.95%	5.68%
Intuit Inc	INTU	0.27%	0.80%	0.21%	15.69%	4.22%
Morgan Stanley	MS	0.27%	3.28%	0.90%	8.26%	2.26%
Microchip Technology Inc	MCHP	0.09%	1.58%	0.14%	7.65%	0.66%
Chubb Ltd	CB	0.29%	1.86%	0.53%	10.73%	3.07%
Hologic Inc	HOLX	0.05%	n/a	n/a	8.95%	0.47%
Citizens Financial Group Inc	CFG	0.06%	4.07%	0.25%	5.42%	0.33%
O'Reilly Automotive Inc	ORLY	0.12%	n/a	n/a	13.64%	1.62%
Allstate Corp/The	ALL	0.14%	1.84%	0.26%	6.23%	0.87%
FLIR Systems Inc	FLIR	0.03%	1.29%	0.04%	13.10%	0.36%
Equity Residential	EQR	0.12%	2.63%	0.33%	8.52%	1.06%
BorgWarner Inc	BWA	0.03%	1.85%	0.05%	1.93%	0.06%
Incyte Corp	INCY	0.06%	n/a	n/a	43.15%	2.68%
Simon Property Group Inc	SPG	0.19%	5.40%	1.01%	5.08%	0.95%
Eastman Chemical Co	EMN	0.04%	3.36%	0.13%	5.44%	0.21%
Twitter Inc	TWTR	0.12%	n/a	n/a	31.80%	3.94%
AvalonBay Communities Inc	AVB	0.12%	2.82%	0.33%	6.68%	0.78%
Prudential Financial Inc	PRU	0.14%	4.45%	0.63%	10.67%	1.50%
United Parcel Service Inc	UPS	0.33%	3.20%	1.04%	8.93%	2.91%
Apartment Investment & Management Co	AIV	0.03%	2.99%	0.09%	3.37%	0.10%
Walgreens Boots Alliance Inc	WBA	0.19%	3.31%	0.64%	5.47%	1.06%
McKesson Corp	MCK	0.10%	1.20%	0.12%	2.39%	0.23%
Lockheed Martin Corp	LMT	0.43%	2.46%	1.05%	10.10%	4.33%
AmerisourceBergen Corp	ABC	0.07%	1.94%	0.13%	14.01%	0.93%
Capital One Financial Corp	COF	0.17%	1.76%	0.29%	5.13%	0.85%
Waters Corp	WAT	0.06%	n/a	n/a	11.26%	0.65%
Dollar Tree Inc	DLTR	0.11%	n/a	n/a	8.39%	0.88%
Darden Restaurants Inc	DRI	0.06%	2.98%	0.17%	9.31%	0.53%
NVR Inc	NVR	0.05%	n/a	n/a	10.66%	0.56%
NetApp Inc	NTAP	0.05%	3.66%	0.18%	5.24%	0.25%
Citrix Systems Inc	CTXS	0.05%	1.45%	0.07%	9.00%	0.44%
DXC Technology Co	DXC	0.03%	2.85%	0.09%	3.77%	0.11%
DaVita Inc	DVA	0.03%	n/a	n/a	18.24%	0.56%
Hartford Financial Services Group Inc/The	HIG	0.09%	1.98%	0.17%	9.50%	0.81%
Iron Mountain Inc	IRM	0.04%	7.55%	0.27%	3.81%	0.14%
Estee Lauder Cos Inc/The	EL	0.17%	0.86%	0.15%	11.15%	1.91%
Cadence Design Systems Inc	CDNS	0.07%	n/a	n/a	10.64%	0.77%
Universal Health Services Inc	UHS	0.05%	0.54%	0.03%	8.08%	0.38%
E*TRADE Financial Corp	ETFC	0.04%	1.28%	0.05%	6.07%	0.25%
Skyworks Solutions Inc	SWKS	0.05%	2.22%	0.12%	12.93%	0.68%
National Oilwell Varco Inc	NOV	0.03%	0.94%	0.03%	67.95%	2.16%
Quest Diagnostics Inc	DGX	0.06%	1.98%	0.11%	7.86%	0.44%
Activision Blizzard Inc	ATVI	0.16%	0.70%	0.11%	7.10%	1.12%
Rockwell Automation Inc	ROK	0.07%	2.35%	0.18%	11.50%	0.86%
Kraft Heinz Co/The	KHC	0.13%	5.73%	0.76%	-3.31%	-0.44%

STANDARD AND POOR'S 500 INDEX

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American Tower Corp	AMT	0.38%	1.72%	0.65%	19.95%	7.59%
HollyFrontier Corp	HFC	0.03%	2.46%	0.08%	-0.31%	-0.01%
Regeneron Pharmaceuticals Inc	REGN	0.12%	n/a	n/a	12.58%	1.46%
Amazon.com Inc	AMZN	3.34%	n/a	n/a	44.33%	147.99%
Jack Henry & Associates Inc	JKHY	0.04%	1.10%	0.05%	9.20%	0.40%
Ralph Lauren Corp	RL	0.02%	2.88%	0.06%	6.35%	0.12%
Boston Properties Inc	BXP	0.08%	2.93%	0.23%	2.18%	0.17%
Amphenol Corp	APH	0.11%	1.04%	0.12%	8.67%	0.97%
Arconic Inc	ARNC	0.04%	0.31%	0.01%	10.90%	0.48%
Pioneer Natural Resources Co	PXD	0.08%	1.40%	0.11%	23.85%	1.95%
Valero Energy Corp	VLO	0.14%	4.22%	0.58%	9.75%	1.34%
Synopsys Inc	SNPS	0.08%	n/a	n/a	14.38%	1.15%
Western Union Co/The	WU	0.04%	3.45%	0.13%	3.61%	0.14%
CH Robinson Worldwide Inc	CHRW	0.04%	2.36%	0.11%	8.63%	0.39%
Accenture PLC	ACN	0.48%	1.66%	0.79%	10.03%	4.78%
TransDigm Group Inc	TDG	0.11%	n/a	n/a	14.40%	1.56%
Yum! Brands Inc	YUM	0.13%	1.48%	0.20%	12.50%	1.68%
Prologis Inc	PLD	0.21%	2.49%	0.52%	7.36%	1.54%
FirstEnergy Corp	FE	0.10%	3.15%	0.32%	0.49%	0.05%
VeriSign Inc	VRSN	0.09%	n/a	n/a	9.70%	0.84%
Quanta Services Inc	PWR	0.02%	0.42%	0.01%	n/a	n/a
Henry Schein Inc	HSIC	0.04%	n/a	n/a	1.27%	0.05%
Ameren Corp	AEE	0.08%	2.37%	0.19%	4.99%	0.39%
ANSYS Inc	ANSS	0.07%	n/a	n/a	11.50%	0.83%
NVIDIA Corp	NVDA	0.41%	0.37%	0.15%	11.15%	4.60%
Sealed Air Corp	SEE	0.02%	1.54%	0.04%	5.72%	0.14%
Cognizant Technology Solutions Corp	CTSH	0.13%	1.33%	0.17%	11.05%	1.43%
SVB Financial Group	SIVB	0.04%	n/a	n/a	11.00%	0.46%
Intuitive Surgical Inc	ISRG	0.24%	n/a	n/a	13.48%	3.26%
Affiliated Managers Group Inc	AMG	0.02%	1.54%	0.03%	5.86%	0.10%
Take-Two Interactive Software Inc	TTWO	0.06%	n/a	n/a	9.86%	0.54%
Republic Services Inc	RSG	0.11%	1.87%	0.20%	12.96%	1.40%
eBay Inc	EBAY	0.13%	1.44%	0.18%	12.07%	1.53%
Goldman Sachs Group Inc/The	GS	0.29%	2.41%	0.70%	0.64%	0.19%
Sempra Energy	SRE	0.16%	2.62%	0.41%	9.80%	1.54%
SBA Communications Corp	SBAC	0.11%	0.61%	0.07%	46.90%	4.97%
Moody's Corp	MCO	0.15%	0.98%	0.15%	11.70%	1.76%
Booking Holdings Inc	BKNG	0.32%	n/a	n/a	19.03%	6.17%
F5 Networks Inc	FFIV	0.03%	n/a	n/a	10.29%	0.34%
Akamai Technologies Inc	AKAM	0.06%	n/a	n/a	12.80%	0.75%
MarketAxess Holdings Inc	MKTX	0.05%	0.62%	0.03%	n/a	n/a
Devon Energy Corp	DVN	0.04%	1.50%	0.06%	6.63%	0.25%
Alphabet Inc	GOOGL	1.42%	n/a	n/a	12.87%	18.30%
Teleflex Inc	TFX	0.06%	0.40%	0.02%	14.25%	0.87%
Netflix Inc	NFLX	0.46%	n/a	n/a	42.80%	19.50%
Allegion PLC	ALLE	0.04%	1.04%	0.04%	10.23%	0.38%
Agilent Technologies Inc	A	0.09%	0.86%	0.08%	13.53%	1.25%
Anthem Inc	ANTM	0.24%	1.33%	0.32%	14.13%	3.37%
CME Group Inc	CME	0.29%	1.42%	0.42%	8.26%	2.43%
Juniper Networks Inc	JNPR	0.03%	3.07%	0.10%	7.74%	0.26%
BlackRock Inc	BLK	0.27%	2.96%	0.79%	8.82%	2.36%
DTE Energy Co	DTE	0.09%	2.84%	0.27%	5.53%	0.52%
Nasdaq Inc	NDAQ	0.06%	1.89%	0.12%	13.17%	0.84%
Celanese Corp	CE	0.06%	2.03%	0.12%	6.13%	0.36%
Philip Morris International Inc	PM	0.46%	6.16%	2.83%	7.81%	3.59%
salesforce.com Inc	CRM	0.51%	n/a	n/a	21.63%	10.95%
Huntington Ingalls Industries Inc	HII	0.03%	1.62%	0.06%	40.00%	1.36%
MetLife Inc	MET	0.17%	3.73%	0.64%	9.69%	1.66%
Under Armour Inc	UA	0.02%	n/a	n/a	27.23%	0.44%
Tapestry Inc	TPR	0.03%	5.18%	0.15%	8.83%	0.26%
CSX Corp	CSX	0.21%	1.39%	0.30%	12.17%	2.62%
Edwards Lifesciences Corp	EW	0.18%	n/a	n/a	14.75%	2.62%
Ameriprise Financial Inc	AMP	0.07%	2.64%	0.20%	3.20%	0.24%
TechnipFMC PLC	FTI	0.04%	2.15%	0.09%	23.04%	0.97%
Zimmer Biomet Holdings Inc	ZBH	0.11%	0.70%	0.08%	6.02%	0.66%
CBRE Group Inc	CBRE	0.07%	n/a	n/a	7.80%	0.54%
Mastercard Inc	MA	1.06%	0.49%	0.51%	17.14%	18.15%
CarMax Inc	KMX	0.06%	n/a	n/a	10.68%	0.60%
Intercontinental Exchange Inc	ICE	0.20%	1.19%	0.24%	8.59%	1.73%
Fidelity National Information Services Inc	FIS	0.32%	1.05%	0.33%	8.97%	2.84%
Chipotle Mexican Grill Inc	CMG	0.09%	n/a	n/a	21.87%	1.98%
Wynn Resorts Ltd	WYNN	0.05%	3.68%	0.17%	13.50%	0.61%
Assurant Inc	AIZ	0.03%	1.91%	0.06%	n/a	n/a
NRG Energy Inc	NRG	0.04%	0.30%	0.01%	35.23%	1.37%
Regions Financial Corp	RF	0.06%	3.92%	0.24%	8.21%	0.50%
Monster Beverage Corp	MNST	0.12%	n/a	n/a	14.30%	1.76%
Mosaic Co/The	MOS	0.03%	0.98%	0.03%	12.87%	0.40%
Expedia Group Inc	EXPE	0.07%	1.01%	0.07%	21.16%	1.56%
Evergy Inc	EVRG	0.06%	2.85%	0.17%	7.62%	0.46%
Discovery Inc	DISCA	0.02%	n/a	n/a	12.57%	0.21%
CF Industries Holdings Inc	CF	0.04%	2.44%	0.10%	19.80%	0.83%
Viacom Inc	VIAB	0.03%	3.33%	0.11%	3.36%	0.11%
Leidos Holdings Inc	LDOS	0.05%	1.58%	0.08%	10.00%	0.48%
Alphabet Inc	GOOG	1.65%	n/a	n/a	12.87%	21.18%
Cooper Cos Inc/The	COO	0.06%	0.02%	0.00%	6.82%	0.39%
TE Connectivity Ltd	TEL	0.12%	1.97%	0.24%	9.21%	1.12%
Discover Financial Services	DFS	0.10%	2.17%	0.22%	8.70%	0.87%
TripAdvisor Inc	TRIP	0.02%	n/a	n/a	14.28%	0.27%
Visa Inc	V	1.15%	0.58%	0.67%	15.59%	18.00%
Mid-America Apartment Communities Inc	MAA	0.06%	2.95%	0.17%	n/a	n/a

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[9] Weight in Index	[10] Estimated Dividend Yield	[11] Cap-Weighted Dividend Yield	[12] Long-Term Growth Est.	[13] Cap-Weighted Long-Term Growth Est.
Xylem Inc/NY	XYL	0.06%	1.21%	0.07%	14.07%	0.78%
Marathon Petroleum Corp	MPC	0.16%	3.49%	0.54%	10.23%	1.59%
Tractor Supply Co	TSCO	0.04%	1.55%	0.06%	10.82%	0.45%
Advanced Micro Devices Inc	AMD	0.12%	n/a	n/a	20.03%	2.45%
ResMed Inc	RMD	0.08%	1.15%	0.09%	11.37%	0.86%
Mettler-Toledo International Inc	MTD	0.07%	n/a	n/a	13.47%	0.91%
Copart Inc	CPRT	0.07%	n/a	n/a	n/a	n/a
Albemarle Corp	ALB	0.03%	2.11%	0.06%	8.92%	0.26%
Fortinet Inc	FTNT	0.05%	n/a	n/a	16.50%	0.84%
Essex Property Trust Inc	ESS	0.08%	2.39%	0.20%	8.33%	0.70%
Realty Income Corp	O	0.09%	3.55%	0.34%	5.01%	0.47%
Seagate Technology PLC	STX	0.06%	4.68%	0.26%	1.26%	0.07%
Westrock Co	WRK	0.04%	4.99%	0.18%	1.80%	0.07%
IHS Markit Ltd	INFO	0.10%	n/a	n/a	12.73%	1.33%
Wabtec Corp	WAB	0.05%	0.67%	0.04%	76.00%	4.07%
Western Digital Corp	WDC	0.07%	3.35%	0.23%	3.07%	0.21%
PepsiCo Inc	PEP	0.75%	2.79%	2.08%	5.59%	4.16%
Diamondback Energy Inc	FANG	0.06%	0.83%	0.05%	17.36%	0.99%
Nektar Therapeutics	NKTR	0.01%	n/a	n/a	-8.60%	-0.11%
Maxim Integrated Products Inc	MXIM	0.06%	3.32%	0.20%	6.95%	0.42%
Church & Dwight Co Inc	CHD	0.07%	1.21%	0.09%	8.22%	0.59%
Duke Realty Corp	DRE	0.05%	2.53%	0.12%	4.74%	0.23%
Federal Realty Investment Trust	FRT	0.04%	3.09%	0.12%	5.71%	0.23%
MGM Resorts International	MGM	0.06%	1.88%	0.11%	13.81%	0.78%
JB Hunt Transport Services Inc	JBHT	0.05%	0.94%	0.04%	12.03%	0.55%
Lam Research Corp	LRCX	0.13%	1.99%	0.26%	16.30%	2.12%
Mohawk Industries Inc	MHK	0.03%	n/a	n/a	5.28%	0.18%
Pentair PLC	PNR	0.02%	1.90%	0.05%	6.57%	0.16%
Vertex Pharmaceuticals Inc	VRTX	0.17%	n/a	n/a	24.60%	4.16%
Amcor PLC	AMCR	0.06%	4.92%	0.30%	6.55%	0.40%
Facebook Inc	FB	1.67%	n/a	n/a	19.37%	32.25%
T-Mobile US Inc	TMUS	0.26%	n/a	n/a	11.27%	2.95%
United Rentals Inc	URI	0.04%	n/a	n/a	12.00%	0.45%
ABIOMED Inc	ABMD	0.03%	n/a	n/a	24.00%	0.75%
Alexandria Real Estate Equities Inc	ARE	0.07%	2.60%	0.18%	4.77%	0.32%
Delta Air Lines Inc	DAL	0.15%	2.80%	0.41%	13.83%	2.01%
United Airlines Holdings Inc	UAL	0.09%	n/a	n/a	12.80%	1.13%
News Corp	NWS	0.01%	1.40%	0.02%	-14.23%	-0.16%
Centene Corp	CNC	0.07%	n/a	n/a	15.00%	1.04%
Macerich Co/The	MAC	0.02%	9.50%	0.16%	-0.31%	-0.01%
Martin Marietta Materials Inc	MLM	0.07%	0.80%	0.05%	15.99%	1.06%
PayPal Holdings Inc	PYPL	0.47%	n/a	n/a	19.58%	9.28%
Coty Inc	COTY	0.03%	4.76%	0.15%	7.03%	0.22%
DISH Network Corp	DISH	0.03%	n/a	n/a	-8.61%	-0.29%
Dow Inc	DOW	0.14%	5.88%	0.81%	14.41%	1.98%
Alexion Pharmaceuticals Inc	ALXN	0.09%	n/a	n/a	14.70%	1.25%
Everest Re Group Ltd	RE	0.04%	2.10%	0.09%	10.00%	0.42%
WellCare Health Plans Inc	WCG	0.05%	n/a	n/a	15.83%	0.80%
News Corp	NWSA	0.02%	1.44%	0.03%	-14.23%	-0.30%
Exelon Corp	EXC	0.18%	3.00%	0.55%	2.73%	0.50%
Global Payments Inc	GPN	0.19%	0.03%	0.00%	17.13%	3.18%
Crown Castle International Corp	CCI	0.22%	3.24%	0.73%	17.07%	3.83%
Aptiv PLC	APTV	0.09%	1.01%	0.09%	6.00%	0.52%
Advance Auto Parts Inc	AAP	0.05%	0.15%	0.01%	15.31%	0.70%
Capri Holdings Ltd	CPRI	0.02%	n/a	n/a	5.52%	0.11%
Align Technology Inc	ALGN	0.06%	n/a	n/a	20.51%	1.15%
Illumina Inc	ILMN	0.17%	n/a	n/a	16.14%	2.81%
Alliance Data Systems Corp	ADS	0.03%	1.97%	0.05%	9.13%	0.23%
LKQ Corp	LKQ	0.04%	n/a	n/a	13.50%	0.51%
Nielsen Holdings PLC	NLSN	0.03%	6.59%	0.19%	12.00%	0.35%
Garmin Ltd	GRMN	0.06%	2.69%	0.17%	6.66%	0.42%
Cimarex Energy Co	XEC	0.02%	1.67%	0.03%	26.17%	0.49%
Zoetis Inc	ZTS	0.23%	0.53%	0.12%	10.23%	2.37%
Equinix Inc	EQIX	0.19%	1.71%	0.32%	19.24%	3.66%
Digital Realty Trust Inc	DLR	0.11%	3.33%	0.35%	17.20%	1.81%
Discovery Inc	DISCK	0.04%	n/a	n/a	12.57%	0.45%

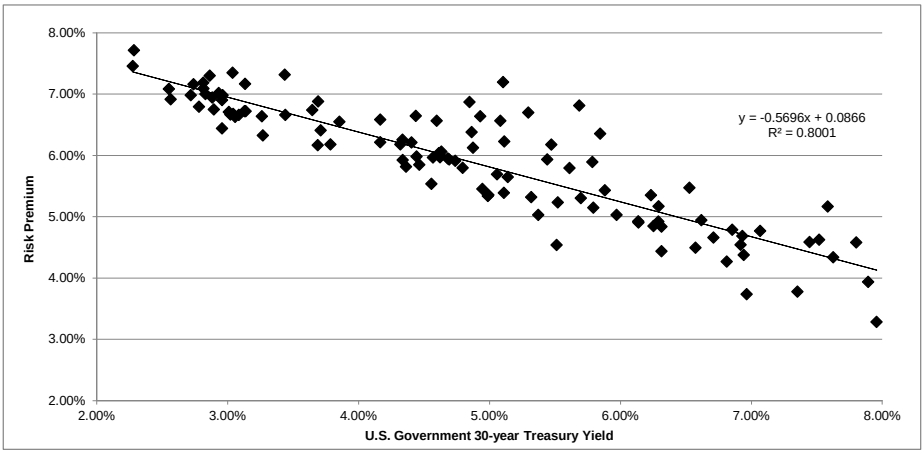
Notes:
[6] Equals sum of Col. [11]
[7] Equals sum of Col. [13]
[8] Equals ([6] x (1 + (0.5 x [7]))) + [7]
[9] Equals weight in S&P 500 based on market capitalization
[10] Source: Bloomberg Professional, as of July 31, 2019.
[11] Equals [9] x [10]
[12] Source: Bloomberg Professional, as of July 31, 2019.
[13] Equals [9] x [12]

Risk Premium -- Electric Utilities

	[1] Average Authorized Electric ROE	[2] U.S. Govt. 30-year Treasury	[3] Risk Premium
1992.1	12.38%	7.80%	4.58%
1992.2	11.83%	7.89%	3.93%
1992.3	12.03%	7.45%	4.59%
1992.4	12.14%	7.52%	4.62%
1993.1	11.84%	7.07%	4.77%
1993.2	11.64%	6.86%	4.79%
1993.3	11.15%	6.31%	4.84%
1993.4	11.04%	6.14%	4.90%
1994.1	11.07%	6.57%	4.49%
1994.2	11.13%	7.35%	3.78%
1994.3	12.75%	7.58%	5.17%
1994.4	11.24%	7.96%	3.28%
1995.1	11.96%	7.63%	4.34%
1995.2	11.32%	6.94%	4.37%
1995.3	11.37%	6.71%	4.66%
1995.4	11.58%	6.23%	5.35%
1996.1	11.46%	6.29%	5.17%
1996.2	11.46%	6.92%	4.54%
1996.3	10.70%	6.96%	3.74%
1996.4	11.56%	6.62%	4.94%
1997.1	11.08%	6.81%	4.27%
1997.2	11.62%	6.93%	4.68%
1997.3	12.00%	6.53%	5.47%
1997.4	11.06%	6.14%	4.92%
1998.1	11.31%	5.88%	5.43%
1998.2	12.20%	5.85%	6.35%
1998.3	11.65%	5.47%	6.18%
1998.4	12.30%	5.10%	7.20%
1999.1	10.40%	5.37%	5.03%
1999.2	10.94%	5.79%	5.15%
1999.3	10.75%	6.31%	4.44%
1999.4	11.10%	6.25%	4.85%
2000.1	11.21%	6.29%	4.92%
2000.2	11.00%	5.97%	5.03%
2000.3	11.68%	5.79%	5.89%
2000.4	12.50%	5.69%	6.81%
2001.1	11.38%	5.44%	5.93%
2001.2	11.00%	5.70%	5.30%
2001.3	10.76%	5.52%	5.23%
2001.4	11.99%	5.30%	6.70%
2002.1	10.05%	5.51%	4.54%
2002.2	11.41%	5.61%	5.79%
2002.3	11.65%	5.08%	6.57%
2002.4	11.57%	4.93%	6.64%
2003.1	11.72%	4.85%	6.87%
2003.2	11.16%	4.60%	6.56%
2003.3	10.50%	5.11%	5.39%
2003.4	11.34%	5.11%	6.23%
2004.1	11.00%	4.88%	6.12%
2004.2	10.64%	5.32%	5.32%
2004.3	10.75%	5.06%	5.69%
2004.4	11.24%	4.86%	6.38%
2005.1	10.63%	4.69%	5.93%
2005.2	10.31%	4.47%	5.85%
2005.3	11.08%	4.44%	6.65%
2005.4	10.63%	4.68%	5.95%
2006.1	10.70%	4.63%	6.06%
2006.2	10.79%	5.14%	5.65%
2006.3	10.35%	4.99%	5.35%
2006.4	10.65%	4.74%	5.91%
2007.1	10.59%	4.80%	5.80%
2007.2	10.33%	4.99%	5.34%
2007.3	10.40%	4.95%	5.45%
2007.4	10.65%	4.61%	6.04%
2008.1	10.62%	4.41%	6.21%
2008.2	10.54%	4.57%	5.97%
2008.3	10.43%	4.44%	5.98%
2008.4	10.39%	3.65%	6.74%
2009.1	10.75%	3.44%	7.31%
2009.2	10.75%	4.17%	6.58%
2009.3	10.50%	4.32%	6.18%
2009.4	10.59%	4.34%	6.26%
2010.1	10.59%	4.62%	5.97%
2010.2	10.18%	4.36%	5.82%
2010.3	10.40%	3.86%	6.55%
2010.4	10.38%	4.17%	6.21%
2011.1	10.09%	4.56%	5.53%
2011.2	10.26%	4.34%	5.92%
2011.3	10.57%	3.69%	6.88%
2011.4	10.39%	3.04%	7.35%
2012.1	10.30%	3.14%	7.17%

Risk Premium -- Electric Utilities

	[1] Average Authorized Electric ROE	[2] U.S. Govt. 30-year Treasury	[3] Risk Premium
2012.2	9.95%	2.93%	7.02%
2012.3	9.90%	2.74%	7.16%
2012.4	10.16%	2.86%	7.30%
2013.1	9.85%	3.13%	6.72%
2013.2	9.86%	3.14%	6.72%
2013.3	10.12%	3.71%	6.41%
2013.4	9.97%	3.79%	6.18%
2014.1	9.86%	3.69%	6.17%
2014.2	10.10%	3.44%	6.66%
2014.3	9.90%	3.26%	6.64%
2014.4	9.94%	2.96%	6.98%
2015.1	9.64%	2.55%	7.08%
2015.2	9.83%	2.88%	6.94%
2015.3	9.40%	2.96%	6.44%
2015.4	9.86%	2.96%	6.90%
2016.1	9.70%	2.72%	6.98%
2016.2	9.48%	2.57%	6.91%
2016.3	9.74%	2.28%	7.46%
2016.4	9.83%	2.83%	7.00%
2017.1	9.72%	3.04%	6.67%
2017.2	9.64%	2.90%	6.75%
2017.3	10.00%	2.82%	7.18%
2017.4	9.91%	2.82%	7.09%
2018.1	9.69%	3.02%	6.66%
2018.2	9.75%	3.09%	6.66%
2018.3	9.69%	3.06%	6.63%
2018.4	9.60%	3.27%	6.33%
2019.1	9.72%	3.01%	6.71%
2019.2	9.58%	2.78%	6.79%
2019.3	10.00%	2.29%	7.71%
AVERAGE	10.74%	4.83%	5.91%
MEDIAN	10.64%	4.80%	6.04%



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.89449
R Square	0.80012
Adjusted R Square	0.79828
Standard Error	0.00435
Observations	111

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.0083	0.0083	436.3138	0.0000
Residual	109	0.0021	0.0000		
Total	110	0.0103			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.0866	0.00138	62.79080	0.00000	0.08387	0.08933	0.08387	0.08933
X Variable 1	-0.5696	0.02727	-20.88813	0.00000	-0.62368	-0.51558	-0.62368	-0.51558

	[7] U.S. Govt. 30-year Treasury	[8] Risk Premium	[9] ROE
Current 30-day average of 30-year U.S. Treasury bond yield [4]	2.11%	7.46%	9.57%
Blue Chip Consensus Forecast (Q4 2019 - Q4 2020) [5]	2.24%	7.38%	9.62%
Blue Chip Consensus Forecast (2021-2025) [6]	3.60%	6.61%	10.21%
AVERAGE			9.80%

Notes:
[1] Source: Regulatory Research Associates, cases up until September 30, 2019
[2] Source: Bloomberg Professional, quarterly bond yields are the average of each trading day in the quarter
[3] Equals Column [1] − Column [2]
[4] Source: Bloomberg Professional
[5] Source: Blue Chip Financial Forecasts, Vol. 38, No. 10, October 1, 2019, at 2
[6] Source: Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14
[7] See notes [4] & [5]
[8] Equals 0.086601 + (-0.569632 x Column [6])
[9] Equals Column [6] + Column [7]

EXPECTED EARNINGS ANALYSIS

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Company	Ticker	Value Line ROE 2022-2024	Value Line Total Capital 2018	Value Line Common Equity Ratio 2018	Total Equity 2018	Value Line Total Capital 2022-2024	Value Line Common Equity Ratio 2022-2024	Total Equity 2022-2024	Compound Annual Growth Rate	Adjustment Factor	Adjusted Return on Common Equity
ALLETE, Inc.	ALE	9.50%	3584.3	60.10%	2,154	4275	59.00%	2,522	3.2%	1.016	9.65%
Alliant Energy Corporation	LNT	10.00%	9832.0	46.70%	4,592	12000	48.00%	5,760	4.6%	1.023	10.23%
Ameren Corporation	AEE	10.50%	15632.0	48.80%	7,628	21000	50.50%	10,605	6.8%	1.033	10.85%
American Electric Power Company, Inc	AEP	10.50%	40677.0	46.80%	19,037	53000	46.50%	24,645	5.3%	1.026	10.77%
Avangrid, Inc.	AGR	6.00%	20472.0	73.80%	15,108	26400	62.00%	16,368	1.6%	1.008	6.05%
Avista Corporation	AVA	8.00%	3580.3	49.50%	1,772	4550	50.00%	2,275	5.1%	1.025	8.20%
DTE Energy Company	DTE	10.50%	22371.0	45.80%	10,246	32300	45.50%	14,697	7.5%	1.036	10.88%
Duke Energy Corporation	DUK	8.50%	94940.0	46.20%	43,862	119500	43.50%	51,983	3.5%	1.017	8.64%
Edison International	EIX	11.50%	27284.0	38.30%	10,450	38000	42.50%	16,150	9.1%	1.044	12.00%
Entergy Corporation	ETR	11.00%	24602.0	35.90%	8,832	30600	40.00%	12,240	6.7%	1.033	11.36%
Eversource Energy	ES	9.00%	24474.0	46.90%	11,478	34700	46.50%	16,136	7.0%	1.034	9.31%
Exelon Corporation	EXC	9.00%	65229.0	47.20%	30,788	79600	50.50%	40,198	5.5%	1.027	9.24%
FirstEnergy Corporation	FE	16.00%	24565.0	27.40%	6,731	34100	32.00%	10,912	10.1%	1.048	16.77%
Evergy, Inc.	EVRG	8.50%	16716.0	60.00%	10,030	18600	47.50%	8,835	-2.5%	0.987	8.39%
Hawaiian Electric Industries, Inc.	HE	10.00%	4182.3	51.70%	2,162	5075	55.00%	2,791	5.2%	1.026	10.26%
IDACORP, Inc.	IDA	9.50%	4205.1	56.40%	2,372	5000	57.00%	2,850	3.7%	1.018	9.67%
NextEra Energy, Inc.	NEE	13.50%	60926.0	56.00%	34,119	84600	54.00%	45,684	6.0%	1.029	13.89%
NorthWestern Corporation	NWE	9.00%	4064.6	47.80%	1,943	4400	52.00%	2,288	3.3%	1.016	9.15%
OGE Energy Corporation	OGE	11.50%	6902.0	58.00%	4,003	8650	54.50%	4,714	3.3%	1.016	11.69%
Otter Tail Corporation	OTTR	11.00%	1318.9	55.30%	729	1950	49.50%	965	5.8%	1.028	11.31%
Pinnacle West Capital Corporation	PNW	10.50%	9861.1	53.00%	5,226	11275	57.00%	6,427	4.2%	1.021	10.72%
PNM Resources, Inc.	PNM	10.00%	4370.0	38.60%	1,687	5575	40.50%	2,258	6.0%	1.029	10.29%
Portland General Electric Company	POR	9.00%	4684.0	53.50%	2,506	5725	51.50%	2,948	3.3%	1.016	9.15%
PPL Corporation	PPL	13.00%	31726.0	36.70%	11,643	37200	45.00%	16,740	7.5%	1.036	13.47%
Southern Company	SO	12.50%	65750.0	37.60%	24,722	78500	42.00%	32,970	5.9%	1.029	12.86%
Mean											10.59%
Median											10.29%

Notes:
[1] Source: Value Line
[2] Source: Value Line
[3] Source: Value Line
[4] Equals [2] x [3]
[5] Source: Value Line
[6] Source: Value Line
[7] Equals [5] x [6]
[8] Equals ([7] / [4]) ^ (1/5) - 1
[9] Equals 2 x (1 + [8]) / (2 + [8])
[10] Equals [1] x [9]

2020-2022 CAPITAL EXPENDITURES AS A PERCENT OF 2018 NET PLANT
($ Millions)

		[1]	[2]	[3]	[4]	[5]
		2018	2020	2021	2022	2020-22 Cap. Ex. / 2018 Net Plant
ALLETE, Inc.	ALE					
Capital Spending per Share			$7.15	$6.20	$5.25	
Common Shares Outstanding			$51.75	51.75	$51.75	
Capital Expenditures			$370.0	$320.9	$271.7	24.65%
Net Plant		$3,904.4				
Alliant Energy Corporation	LNT					
Capital Spending per Share			$6.50	$6.33	$6.15	
Common Shares Outstanding			$242.00	246.00	$250.00	
Capital Expenditures			$1,573.0	$1,556.0	$1,537.5	37.45%
Net Plant		$12,462.0				
Ameren Corporation	AEE					
Capital Spending per Share			$13.30	$11.78	$10.25	
Common Shares Outstanding			$250.00	252.50	$255.00	
Capital Expenditures			$3,325.0	$2,973.2	$2,613.8	39.07%
Net Plant		$22,810.0				
American Electric Power Company, Inc.	AEP					
Capital Spending per Share			$12.65	$12.58	$12.50	
Common Shares Outstanding			$496.00	507.00	$518.00	
Capital Expenditures			$6,274.4	$6,375.5	$6,475.0	34.71%
Net Plant		$55,099.0				
Avangrid, Inc.	AGR					
Capital Spending per Share			$10.05	$9.90	$9.75	
Common Shares Outstanding			$309.00	309.00	$309.00	
Capital Expenditures			$3,105.5	$3,059.1	$3,012.8	39.12%
Net Plant		$23,459.0				
Avista Corporation	AVA					
Capital Spending per Share			$6.05	$6.03	$6.00	
Common Shares Outstanding			$68.00	69.50	$71.00	
Capital Expenditures			$411.4	$418.7	$426.0	27.02%
Net Plant		$4,648.9				
DTE Energy Company	DTE					
Capital Spending per Share			$12.75	$12.88	$13.00	
Common Shares Outstanding			$196.00	198.00	$200.00	
Capital Expenditures			$2,499.0	$2,549.3	$2,600.0	35.33%
Net Plant		$21,650.0				
Duke Energy Corporation	DUK					
Capital Spending per Share			$14.30	$13.53	$12.75	
Common Shares Outstanding			$736.00	745.50	$755.00	
Capital Expenditures			$10,524.8	$10,082.9	$9,626.3	32.97%
Net Plant		$91,694.0				
Edison International	EIX					
Capital Spending per Share			$14.30	$14.65	$15.00	
Common Shares Outstanding			$340.00	347.50	$355.00	
Capital Expenditures			$4,862.0	$5,090.9	$5,325.0	36.95%
Net Plant		$41,348.0				
Entergy Corporation	ETR					
Capital Spending per Share			$19.55	$19.90	$20.25	
Common Shares Outstanding			$200.00	205.00	$210.00	
Capital Expenditures			$3,910.0	$4,079.5	$4,252.5	38.29%
Net Plant		$31,974.0				
Eversource Energy	ES					
Capital Spending per Share			$7.70	$7.23	$6.75	
Common Shares Outstanding			$337.00	343.50	$350.00	
Capital Expenditures			$2,594.9	$2,481.8	$2,362.5	29.05%
Net Plant		$25,610.0				
Exelon Corporation	EXC					
Capital Spending per Share			$7.25	$7.25	$7.25	
Common Shares Outstanding			$976.00	976.00	$976.00	
Capital Expenditures			$7,076.0	$7,076.0	$7,076.0	27.67%
Net Plant		$76,707.0				

2020-2022 CAPITAL EXPENDITURES AS A PERCENT OF 2018 NET PLANT
($ Millions)

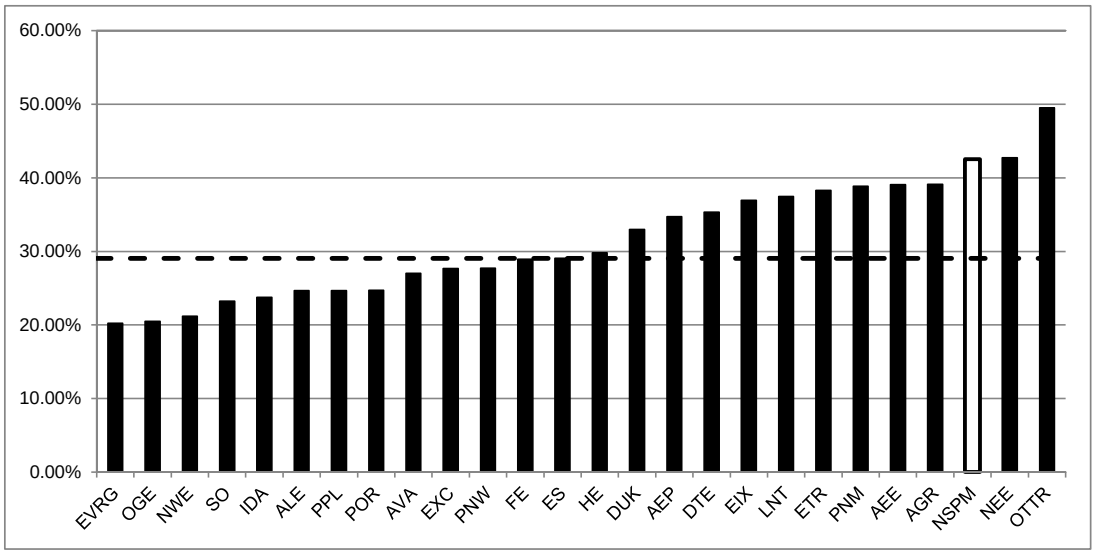
		[1]	[2]	[3]	[4]	[5]
		2018	2020	2021	2022	2020-22 Cap. Ex. / 2018 Net Plant
FirstEnergy Corporation	FE					
Capital Spending per Share			$5.30	$5.28	$5.25	
Common Shares Outstanding			$543.00	546.50	$550.00	
Capital Expenditures			$2,877.9	$2,882.8	$2,887.5	28.91%
Net Plant		$29,911.0				
Evergy, Inc.	EVRG					
Capital Spending per Share			$6.30	$6.03	$5.75	
Common Shares Outstanding			$212.00	212.00	$212.00	
Capital Expenditures			$1,335.6	$1,277.3	$1,219.0	20.22%
Net Plant		$18,952.0				
Hawaiian Electric Industries, Inc.	HE					
Capital Spending per Share			$4.10	$4.30	$4.50	
Common Shares Outstanding			$110.00	111.50	$113.00	
Capital Expenditures			$451.0	$479.5	$508.5	29.79%
Net Plant		$4,830.1				
IDACORP, Inc.	IDA					
Capital Spending per Share			$6.55	$6.90	$7.25	
Common Shares Outstanding			$50.40	50.40	$50.40	
Capital Expenditures			$330.1	$347.8	$365.4	23.73%
Net Plant		$4,395.7				
NextEra Energy, Inc.	NEE					
Capital Spending per Share			$18.70	$18.73	$18.75	
Common Shares Outstanding			$535.00	535.00	$535.00	
Capital Expenditures			$10,004.5	$10,017.9	$10,031.3	42.73%
Net Plant		$70,334.0				
NorthWestern Corporation	NWE					
Capital Spending per Share			$6.55	$6.28	$6.00	
Common Shares Outstanding			$50.65	50.88	$51.10	
Capital Expenditures			$331.8	$319.2	$306.6	21.18%
Net Plant		$4,521.3				
OGE Energy Corporation	OGE					
Capital Spending per Share			$2.90	$2.95	$3.00	
Common Shares Outstanding			$200.00	200.00	$200.00	
Capital Expenditures			$580.0	$590.0	$600.0	20.48%
Net Plant		$8,643.8				
Otter Tail Corporation	OTTR					
Capital Spending per Share			$9.05	$6.28	$3.50	
Common Shares Outstanding			$41.50	41.65	$41.80	
Capital Expenditures			$375.6	$261.4	$146.3	49.54%
Net Plant		$1,581.1				
Pinnacle West Capital Corporation	PNW					
Capital Spending per Share			$10.95	$11.35	$11.75	
Common Shares Outstanding			$113.50	114.25	$115.00	
Capital Expenditures			$1,242.8	$1,296.7	$1,351.3	27.73%
Net Plant		$14,030.0				
PNM Resources, Inc.	PNM					
Capital Spending per Share			$8.60	$8.18	$7.75	
Common Shares Outstanding			$81.00	83.00	$85.00	
Capital Expenditures			$696.6	$678.5	$658.8	38.85%
Net Plant		$5,234.6				
Portland General Electric Company	POR					
Capital Spending per Share			$7.15	$6.33	$5.50	
Common Shares Outstanding			$89.55	89.78	$90.00	
Capital Expenditures			$640.3	$567.8	$495.0	24.73%
Net Plant		$6,887.0				
PPL Corporation	PPL					
Capital Spending per Share			$4.05	$3.65	$3.25	
Common Shares Outstanding			$773.00	776.50	$780.00	
Capital Expenditures			$3,130.7	$2,834.2	$2,535.0	24.67%
Net Plant		$34,458.0				

2020-2022 CAPITAL EXPENDITURES AS A PERCENT OF 2018 NET PLANT
($ Millions)

		[1]	[2]	[3]	[4]	[5]
		2018	2020	2021	2022	2020-22 Cap. Ex. / 2018 Net Plant
Southern Company	SO					
Capital Spending per Share			$6.40	$5.83	$5.25	
Common Shares Outstanding			$1,060.00	1,075.00	$1,090.00	
Capital Expenditures			$6,784.0	$6,261.9	$5,722.5	23.23%
Net Plant		$80,797.0				
NSP Minnesota	NSPM					
Capital Expenditures [6]			$1,533.33	$1,533.33	$1,533.33	42.55%
Net Plant [7]		$10,810.8				
NSPM CapEx Total (2020 - 2022)						$4,600.0
NSPM CapEx Annual Average						$1,533.3
Proxy Group Median						29.05%
NSPM as % Proxy Group Median						1.46

Notes:
[1] - [4] Source: Value Line, dated August 30, 2019.
[5] Equals (Column [2] + [3] + [4]) / Column [1]
[6] Source: Company Provided Data
[6] Source: S&P Global Market Intelligence

2020-2022 CAPITAL EXPENDITURES AS A PERCENT OF 2018 NET PLANT



Projected CAPEX / 2018 Net Plant

Rank	Company		2020-2022
1	Evergy, Inc.	EVRG	20.22%
2	OGE Energy Corporation	OGE	20.48%
3	NorthWestern Corporation	NWE	21.18%
4	Southern Company	SO	23.23%
5	IDACORP, Inc.	IDA	23.73%
6	ALLETE, Inc.	ALE	24.65%
7	PPL Corporation	PPL	24.67%
8	Portland General Electric Company	POR	24.73%
9	Avista Corporation	AVA	27.02%
10	Exelon Corporation	EXC	27.67%
11	Pinnacle West Capital Corporation	PNW	27.73%
12	FirstEnergy Corporation	FE	28.91%
13	Eversource Energy	ES	29.05%
14	Hawaiian Electric Industries, Inc.	HE	29.79%
15	Duke Energy Corporation	DUK	32.97%
16	American Electric Power Company, Inc.	AEP	34.71%
17	DTE Energy Company	DTE	35.33%
18	Edison International	EIX	36.95%
19	Alliant Energy Corporation	LNT	37.45%
20	Entergy Corporation	ETR	38.29%
21	PNM Resources, Inc.	PNM	38.85%
22	Ameren Corporation	AEE	39.07%
23	Avangrid, Inc.	AGR	39.12%
24	NSP Minnesota	NSPM	42.55%
25	NextEra Energy, Inc.	NEE	42.73%
26	Otter Tail Corporation	OTTR	49.54%

Proxy Group Median	29.05%
NSP Minnesota/Proxy Group	1.69

NUCLEAR GENERATION AND CARBON EMISSIONS - NSPM AND PROXY COMPANIES

Company	Ticker	[1] Nuclear Generation (%)	[2] Rate of Carbon Emissions (tons per MWh)
ALLETE, Inc.	ALE	0%	0.91
Alliant Energy Corporation	LNT	0%	0.88
Ameren Corporation	AEE	24%	0.75
American Electric Power Company, Inc.	AEP	11%	0.80
Avangrid, Inc.	AGR	0%	[3]
Avista Corporation	AVA	0%	0.34
DTE Energy Company	DTE	17%	0.81
Duke Energy Corporation	DUK	26%	0.49
Edison International	EIX	6%	[3]
Entergy Corporation	ETR	27%	0.39
Eversource Energy	ES	0%	[3]
Exelon Corporation	EXC	68%	[3]
FirstEnergy Corporation	FE	26%	NA
Evergy, Inc.	EVRG	17%	0.84
Hawaiian Electric Industries, Inc.	HE	0%	NA
IDACORP, Inc.	IDA	0%	0.44
NextEra Energy, Inc.	NEE	22%	0.38
NorthWestern Corporation	NWE	0%	0.54
OGE Energy Corporation	OGE	0%	0.80
Otter Tail Corporation	OTTR	0%	0.97
Pinnacle West Capital Corporation	PNW	28%	0.50
PNM Resources, Inc.	PNM	25%	0.79
Portland General Electric Company	POR	0%	0.50
PPL Corporation	PPL	0%	0.96
Southern Company	SO	14%	0.59
Mean		12%	0.67
NSPM		29%	0.50

Notes:
[1] Sources: Value Line, S&P Global Market Intelligence
[2] Source: S&P Global Market Intelligence
[3] Primarily operate utility operations in deregulated markets, generation assets not directly owned by utility operating companies

CAPITAL STRUCTURE ANALYSIS

COMMON EQUITY RATIO [1]

Proxy Group Company	Ticker	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	2017Q3	Average
ALLETE, Inc.	ALE	60.87%	60.78%	61.24%	60.33%	60.26%	60.43%	60.03%	59.64%	60.45%
Alliant Energy Corporation	LNT	50.55%	52.44%	52.30%	50.65%	50.74%	49.56%	49.66%	50.59%	50.81%
Ameren Corporation	AEE	51.60%	52.14%	52.23%	52.68%	51.82%	51.05%	52.18%	52.65%	52.04%
American Electric Power Company, Inc.	AEP	47.88%	48.19%	48.38%	47.60%	47.73%	47.25%	48.16%	48.25%	47.93%
Avangrid, Inc.	AGR	56.37%	56.60%	56.10%	55.39%	53.43%	54.41%	53.75%	53.25%	54.91%
Avista Corporation	AVA	48.82%	49.37%	47.36%	49.07%	49.74%	50.42%	49.23%	48.36%	49.04%
DTE Energy Company	DTE	47.96%	48.65%	50.29%	49.41%	48.68%	49.27%	49.98%	49.23%	49.18%
Duke Energy Corporation	DUK	51.77%	51.15%	51.70%	51.83%	51.63%	52.32%	52.56%	52.61%	51.95%
Edison International	EIX	48.03%	43.82%	45.57%	49.63%	49.47%	50.48%	50.42%	52.76%	48.77%
Entergy Corporation	ETR	46.72%	46.99%	48.76%	48.45%	48.04%	45.99%	47.47%	47.99%	47.55%
Evergy, Inc.	EVRG	56.35%	55.48%	56.88%	57.20%	55.18%	55.93%	56.31%	57.38%	56.34%
Eversource Energy	ES	50.52%	53.52%	53.61%	52.01%	50.38%	50.87%	52.32%	53.51%	52.09%
Exelon Corporation	EXC	52.99%	52.78%	53.03%	52.57%	52.47%	51.99%	52.78%	52.85%	52.68%
FirstEnergy Corporation	FE	56.36%	56.90%	57.42%	58.23%	57.00%	55.81%	56.81%	55.99%	56.81%
Hawaiian Electric Industries, Inc.	HE	56.55%	58.23%	57.27%	55.20%	54.79%	55.88%	57.94%	57.70%	56.69%
IDACORP, Inc.	IDA	54.37%	54.20%	54.19%	53.95%	53.26%	51.22%	54.16%	54.03%	53.67%
NextEra Energy, Inc.	NEE	59.90%	62.84%	61.79%	63.55%	58.49%	57.77%	55.87%	59.63%	59.98%
NorthWestern Corporation	NWE	48.07%	48.74%	47.88%	48.36%	48.41%	47.48%	45.83%	45.40%	47.52%
OGE Energy Corporation	OGE	53.47%	55.07%	53.20%	53.05%	54.25%	53.59%	53.36%	53.05%	53.63%
Otter Tail Corporation	OTTR	52.67%	53.14%	53.13%	53.49%	52.39%	51.52%	51.37%	51.75%	52.43%
Pinnacle West Capital Corporation	PNW	52.51%	53.67%	54.36%	53.68%	51.11%	51.84%	53.14%	52.88%	52.90%
PNM Resources, Inc.	PNM	43.26%	43.45%	44.72%	48.01%	46.11%	45.40%	45.48%	47.58%	45.50%
Portland General Electric Company	POR	51.39%	50.60%	50.19%	50.51%	50.29%	50.14%	49.80%	50.17%	50.39%
PPL Corporation	PPL	53.02%	53.47%	53.35%	53.91%	53.53%	53.22%	53.79%	54.08%	53.55%
Southern Company	SO	53.84%	54.07%	53.92%	52.91%	50.65%	50.65%	47.96%	48.77%	51.60%
MEAN		52.23%	52.65%	52.75%	52.87%	51.99%	51.78%	52.01%	52.40%	52.34%
LOW		43.26%	43.45%	44.72%	47.60%	46.11%	45.40%	45.48%	45.40%	45.50%
HIGH		60.87%	62.84%	61.79%	63.55%	60.26%	60.43%	60.03%	59.64%	60.45%

COMMON EQUITY RATIO - UTILITY OPERATING COMPANIES [2]

Company Name	Ticker	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	2017Q3	Average
ALLETE (Minnesota Power)	ALE	60.94%	60.87%	61.39%	60.43%	60.33%	60.38%	60.04%	59.73%	60.51%
Superior Water, Light and Power Company	ALE	58.38%	57.40%	55.76%	56.58%	57.34%	62.68%	59.67%	55.83%	57.95%
Interstate Power and Light Company	LNT	51.76%	53.33%	53.05%	49.64%	50.47%	49.92%	50.31%	51.75%	51.28%
Wisconsin Power and Light Company	LNT	48.92%	51.22%	51.29%	52.04%	51.09%	49.09%	48.82%	49.13%	50.20%
Ameren Illinois Company	AEE	52.60%	52.72%	52.32%	51.98%	52.49%	52.35%	52.84%	53.31%	52.58%
Union Electric Company	AEE	50.71%	51.61%	52.16%	53.26%	51.28%	50.01%	51.65%	52.14%	51.60%
Appalachian Power Company	AEP	48.04%	47.77%	48.28%	48.70%	47.90%	47.85%	47.59%	47.87%	48.00%
Indiana Michigan Power Company	AEP	45.04%	45.14%	44.62%	44.53%	44.15%	43.78%	44.37%	44.96%	44.57%
Kentucky Power Company	AEP	44.54%	45.44%	44.94%	44.93%	44.46%	43.85%	43.25%	42.88%	44.29%
Kingsport Power Company	AEP	43.05%	41.79%	44.27%	46.09%	43.76%	43.57%	46.53%	44.13%	44.15%
Ohio Power Company	AEP	52.92%	55.75%	56.19%	53.50%	54.15%	52.91%	57.36%	55.24%	54.75%
Public Service Company of Oklahoma	AEP	47.62%	46.23%	47.20%	49.12%	46.40%	44.86%	45.76%	46.66%	46.73%
Southwestern Electric Power Company	AEP	46.92%	46.88%	46.97%	43.43%	46.72%	46.24%	47.30%	48.15%	46.58%
Wheeling Power Company	AEP	52.01%	54.27%	54.62%	54.70%	54.19%	54.27%	54.26%	54.13%	54.06%
Central Maine Power Company	AGR	61.96%	63.25%	63.21%	62.84%	62.28%	64.18%	63.81%	63.97%	63.19%
New York State Electric & Gas Corporation	AGR	54.16%	54.41%	53.50%	53.68%	49.19%	48.08%	47.49%	46.76%	50.91%
Rochester Gas and Electric Corporation	AGR	50.25%	49.96%	48.89%	48.16%	47.78%	50.80%	49.63%	48.94%	49.30%
United Illuminating Company	AGR	57.26%	56.65%	56.46%	53.89%	51.64%	51.84%	50.85%	49.62%	53.53%
Avista Corporation	AVA	48.82%	49.37%	47.36%	49.07%	49.74%	50.42%	49.23%	48.36%	49.04%
DTE Electric Company	DTE	47.96%	48.65%	50.29%	49.41%	48.68%	49.27%	49.98%	49.23%	49.18%
Duke Energy Carolinas, LLC	DUK	51.17%	50.67%	50.79%	50.78%	50.38%	51.60%	52.72%	52.78%	51.36%
Duke Energy Florida, LLC	DUK	49.64%	48.96%	49.60%	49.65%	48.79%	49.92%	49.25%	49.46%	49.41%
Duke Energy Indiana, LLC	DUK	53.76%	53.40%	52.19%	51.51%	51.23%	51.58%	50.91%	51.71%	52.04%
Duke Energy Kentucky, Inc.	DUK	49.43%	50.53%	50.25%	51.51%	51.98%	52.02%	53.11%	50.69%	51.19%
Duke Energy Ohio, Inc.	DUK	63.12%	59.29%	65.08%	65.55%	65.19%	64.73%	65.84%	65.79%	64.32%
Duke Energy Progress, LLC	DUK	49.73%	49.60%	50.12%	50.76%	51.43%	51.63%	51.46%	51.06%	50.72%
Southern California Edison Company	EIX	48.03%	43.82%	45.57%	49.63%	49.47%	50.48%	50.42%	52.76%	48.77%
Entergy Arkansas, Inc.	ETR	46.49%	47.04%	49.42%	49.38%	48.29%	45.88%	45.95%	45.69%	47.27%
Entergy Louisiana, LLC	ETR	46.32%	45.79%	47.37%	46.77%	46.97%	44.58%	47.43%	47.83%	46.63%
Entergy Mississippi, Inc.	ETR	44.93%	49.41%	49.11%	50.10%	49.10%	48.32%	47.85%	50.89%	48.71%
Entergy Texas, Inc.	ETR	50.79%	50.13%	53.46%	52.61%	51.38%	50.79%	50.45%	51.18%	51.35%
Kansas City Power & Light Company	EVRG	47.49%	44.60%	47.81%	47.53%	45.91%	46.57%	47.59%	48.74%	47.03%
Kansas Gas and Electric Company	EVRG	81.49%	75.13%	74.97%	74.91%	74.45%	74.29%	74.18%	74.21%	75.45%
KCP&L Greater Missouri Operations Comp	EVRG	47.32%	49.47%	50.73%	51.50%	46.97%	47.18%	47.55%	50.69%	48.93%
Westar Energy (KPL)	EVRG	53.34%	55.36%	55.67%	56.61%	54.66%	56.30%	56.40%	57.25%	55.70%
Connecticut Light and Power Company	ES	53.52%	56.15%	56.18%	54.14%	53.67%	50.40%	53.26%	53.49%	53.85%
NSTAR Electric Company	ES	51.56%	53.18%	53.51%	53.57%	51.03%	50.92%	51.52%	52.87%	52.27%
Public Service Company of New Hampshire	ES	39.74%	47.32%	46.94%	42.37%	40.24%	52.03%	51.55%	54.77%	46.87%
Atlantic City Electric Company	EXC	48.73%	44.83%	46.12%	44.23%	43.78%	45.81%	46.30%	47.40%	45.90%
Baltimore Gas and Electric Company	EXC	52.46%	53.54%	53.38%	52.85%	54.08%	54.93%	54.04%	53.70%	53.62%
Commonwealth Edison Company	EXC	54.42%	54.07%	55.06%	54.72%	54.39%	53.99%	54.85%	54.60%	54.51%
Delmarva Power & Light Company	EXC	49.58%	50.09%	49.98%	50.11%	49.86%	46.61%	46.57%	49.20%	49.00%
PECO Energy Company	EXC	54.81%	55.13%	53.72%	52.82%	52.02%	50.47%	53.54%	53.30%	53.23%
Potomac Electric Power Company	EXC	50.24%	49.47%	49.64%	49.64%	50.08%	49.36%	49.63%	49.71%	49.72%
Cleveland Electric Illuminating Company	FE	53.49%	54.32%	55.19%	56.50%	56.27%	55.45%	55.23%	51.93%	54.80%
Jersey Central Power & Light Company	FE	66.58%	67.05%	67.54%	66.41%	64.90%	62.05%	65.30%	65.26%	65.64%
Metropolitan Edison Company	FE	48.46%	47.78%	50.71%	52.40%	50.43%	49.22%	52.33%	52.00%	50.42%
Monongahela Power Company	FE	46.55%	47.19%	46.68%	50.71%	49.50%	50.57%	49.15%	48.18%	48.57%
Ohio Edison Company	FE	71.42%	70.82%	69.93%	69.14%	67.33%	66.89%	64.91%	62.27%	67.84%
Pennsylvania Electric Company	FE	50.93%	51.73%	52.81%	52.71%	52.77%	51.43%	51.56%	53.29%	52.15%
Pennsylvania Power Company	FE	51.71%	50.69%	49.03%	57.01%	54.79%	52.23%	52.41%	55.74%	52.95%
Potomac Edison Company	FE	52.61%	53.29%	52.35%	52.92%	52.65%	52.64%	51.59%	51.27%	52.42%
Toledo Edison Company	FE	59.71%	60.78%	60.39%	62.25%	60.71%	59.04%	58.47%	55.49%	59.60%
West Penn Power Company	FE	46.25%	48.64%	49.75%	50.13%	48.01%	47.15%	52.82%	52.10%	49.36%
Hawaiian Electric Company, Inc.	HE	56.47%	58.12%	57.18%	55.13%	54.72%	55.80%	57.83%	57.59%	56.61%
Idaho Power Co.	IDA	54.37%	54.20%	54.19%	53.95%	53.26%	51.22%	54.16%	54.03%	53.67%
Florida Power & Light Company	NEE	59.95%	63.30%	61.98%	64.37%	58.97%	58.20%	56.11%	60.10%	60.37%
Gulf Power Company	NEE	59.36%	58.06%	59.73%	54.40%	53.23%	53.13%	53.34%	54.97%	55.78%
NorthWestern Corporation	NWE	48.07%	48.74%	47.88%	48.36%	48.41%	47.48%	45.83%	45.40%	47.52%
Oklahoma Gas and Electric Company	OGE	53.47%	55.07%	53.20%	53.05%	54.25%	53.59%	53.36%	53.05%	53.63%
Otter Tail Power Company	OTTR	52.67%	53.14%	53.13%	53.49%	52.39%	51.52%	51.37%	51.75%	52.43%
Arizona Public Service Company	PNW	52.51%	53.67%	54.36%	53.68%	51.11%	51.84%	53.14%	52.88%	52.90%
Public Service Company of New Mexico	PNM	43.26%	43.45%	44.72%	48.01%	46.11%	45.40%	45.48%	47.58%	45.50%
Portland General Electric Company	POR	51.39%	50.60%	50.19%	50.51%	50.29%	50.14%	49.80%	50.17%	50.39%
Kentucky Utilities Company	PPL	52.81%	53.08%	52.46%	53.43%	53.13%	53.26%	53.53%	53.93%	53.20%
Louisville Gas and Electric Company	PPL	52.73%	52.75%	52.26%	53.06%	52.59%	52.66%	52.71%	53.42%	52.77%
PPL Electric Utilities Corporation	PPL	53.31%	54.13%	54.52%	54.65%	54.28%	53.50%	54.57%	54.54%	54.19%
Alabama Power Company	SO	52.54%	52.23%	47.77%	48.12%	47.50%	48.06%	47.06%	47.93%	48.90%
Georgia Power Company	SO	55.18%	55.82%	58.31%	57.02%	53.85%	53.81%	49.75%	49.52%	54.16%
Mississippi Power Company	SO	49.86%	49.72%	50.34%	45.28%	42.53%	39.25%	39.29%	47.27%	45.44%

Notes:
[1] Ratios are weighted by actual common capital, preferred capital, long-term debt and short-term debt of Operating Subsidiaries.
[2] Natural Gas and Electric Operating Subsidiaries with data listed as N/A from SNL Financial have been excluded from the analysis.

CAPITAL STRUCTURE ANALYSIS

LONG-TERM DEBT RATIO [1]

Proxy Group Company	Ticker	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	2017Q3	Average
ALLETE, Inc.	ALE	39.13%	39.19%	38.71%	39.67%	39.74%	39.45%	39.77%	40.12%	39.47%
Alliant Energy Corporation	LNT	49.37%	46.12%	46.06%	48.88%	48.90%	50.02%	49.98%	46.62%	48.24%
Ameren Corporation	AEE	45.82%	46.69%	46.92%	46.29%	47.97%	45.43%	47.09%	46.03%	46.53%
American Electric Power Company, Inc.	AEP	51.02%	50.23%	49.93%	51.02%	49.90%	49.42%	48.99%	49.49%	50.00%
Avangrid, Inc.	AGR	42.78%	42.50%	43.48%	42.35%	42.95%	40.58%	41.40%	44.14%	42.52%
Avista Corporation	AVA	46.15%	47.09%	47.57%	49.95%	50.26%	48.14%	47.78%	48.58%	48.19%
DTE Energy Company	DTE	50.39%	51.26%	48.39%	49.48%	50.20%	47.12%	47.98%	48.26%	49.14%
Duke Energy Corporation	DUK	45.69%	46.92%	46.39%	46.23%	45.72%	46.61%	46.58%	46.62%	46.35%
Edison International	EIX	51.20%	53.24%	51.59%	49.98%	49.37%	49.23%	44.56%	45.87%	49.38%
Entergy Corporation	ETR	53.28%	53.01%	51.24%	51.55%	51.96%	54.01%	52.53%	52.01%	52.45%
Evergy, Inc.	EVRG	37.42%	40.64%	39.04%	38.95%	39.20%	39.54%	40.04%	40.06%	39.36%
Eversource Energy	ES	47.00%	42.50%	44.44%	46.01%	46.13%	45.30%	43.85%	45.09%	45.04%
Exelon Corporation	EXC	45.53%	45.48%	46.44%	46.59%	45.09%	45.07%	46.09%	46.79%	45.89%
FirstEnergy Corporation	FE	41.13%	40.59%	40.06%	39.67%	39.61%	41.18%	42.90%	43.24%	41.05%
Hawaiian Electric Industries, Inc.	HE	38.75%	40.09%	41.99%	42.24%	42.46%	40.38%	41.90%	42.11%	41.24%
IDACORP, Inc.	IDA	45.25%	45.50%	45.70%	45.49%	46.41%	48.48%	45.73%	45.62%	46.02%
NextEra Energy, Inc.	NEE	37.84%	36.11%	34.83%	35.74%	38.45%	37.52%	38.17%	36.18%	36.85%
NorthWestern Corporation	NWE	51.93%	51.26%	52.12%	51.64%	51.59%	52.52%	46.03%	47.51%	50.58%
OGE Energy Corporation	OGE	46.53%	44.37%	46.80%	46.95%	45.75%	46.41%	46.64%	46.95%	46.30%
Otter Tail Corporation	OTTR	45.31%	45.45%	46.02%	46.51%	46.26%	46.29%	38.21%	38.66%	44.09%
Pinnacle West Capital Corporation	PNW	44.00%	44.84%	45.64%	46.32%	44.05%	45.64%	46.86%	46.80%	45.52%
PNM Resources, Inc.	PNM	55.38%	56.55%	53.29%	51.99%	52.67%	52.87%	53.25%	52.42%	53.55%
Portland General Electric Company	POR	48.27%	49.40%	49.81%	49.49%	49.71%	49.86%	50.20%	49.83%	49.57%
PPL Corporation	PPL	45.46%	43.43%	43.79%	44.38%	44.67%	44.25%	44.73%	44.70%	44.43%
Southern Company	SO	44.95%	45.32%	45.40%	46.84%	47.98%	48.09%	51.67%	50.28%	47.57%
MEAN		45.98%	45.91%	45.83%	46.17%	46.28%	46.14%	45.72%	45.76%	45.97%
LOW		37.42%	36.11%	34.83%	35.74%	38.45%	37.52%	38.17%	36.18%	36.85%
HIGH		55.38%	56.55%	53.29%	51.99%	52.67%	54.01%	53.25%	52.42%	53.55%

LONG-TERM DEBT RATIO - UTILITY OPERATING COMPANIES [2]

Company Name	Ticker	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	2017Q3	Average
ALLETE (Minnesota Power)	ALE	39.06%	39.13%	38.61%	39.57%	39.67%	39.62%	39.96%	40.27%	39.49%
Superior Water, Light and Power Company	ALE	41.62%	41.24%	42.31%	43.42%	42.66%	32.58%	32.15%	33.74%	38.72%
Interstate Power and Light Company	LNT	48.24%	46.67%	46.07%	50.36%	49.53%	50.08%	49.69%	48.17%	48.60%
Wisconsin Power and Light Company	LNT	50.90%	45.38%	46.04%	46.85%	48.08%	49.94%	50.35%	44.65%	47.77%
Ameren Illinois Company	AEE	44.71%	45.55%	46.66%	45.76%	47.04%	44.16%	46.15%	43.66%	45.46%
Union Electric Company	AEE	46.81%	47.71%	47.16%	46.74%	48.72%	46.45%	47.84%	47.86%	47.41%
Appalachian Power Company	AEP	51.65%	52.23%	49.24%	50.09%	49.99%	49.12%	50.09%	51.24%	50.46%
Indiana Michigan Power Company	AEP	53.23%	54.22%	55.36%	55.47%	55.85%	50.09%	51.40%	51.41%	53.38%
Kentucky Power Company	AEP	51.25%	52.46%	53.35%	54.31%	54.57%	54.91%	56.13%	56.33%	54.16%
Kingsport Power Company	AEP	42.74%	39.28%	42.90%	44.79%	48.00%	48.59%	53.47%	52.06%	46.48%
Ohio Power Company	AEP	47.08%	38.96%	41.02%	40.62%	40.66%	47.09%	40.46%	40.59%	42.06%
Public Service Company of Oklahoma	AEP	51.55%	51.72%	48.81%	50.02%	49.09%	48.42%	48.60%	48.87%	49.64%
Southwestern Electric Power Company	AEP	51.96%	51.63%	53.03%	56.57%	50.79%	50.67%	50.19%	50.81%	51.95%
Wheeling Power Company	AEP	44.60%	45.73%	45.38%	45.30%	45.81%	45.73%	45.74%	45.87%	45.52%
Central Maine Power Company	AGR	38.04%	36.34%	36.79%	35.09%	35.76%	35.82%	36.18%	36.03%	36.25%
New York State Electric & Gas Corporation	AGR	42.84%	42.88%	45.02%	45.82%	47.28%	40.12%	41.61%	50.11%	44.46%
Rochester Gas and Electric Corporation	AGR	49.75%	50.04%	51.11%	51.84%	52.24%	49.20%	50.36%	51.06%	50.70%
United Illuminating Company	AGR	42.74%	43.35%	43.54%	38.67%	38.27%	39.59%	39.95%	41.69%	40.98%
Avista Corporation	AVA	46.15%	47.09%	47.57%	49.95%	50.26%	48.14%	47.78%	48.58%	48.19%
DTE Electric Company	DTE	50.39%	51.26%	48.39%	49.48%	50.20%	47.12%	47.98%	48.26%	49.14%
Duke Energy Carolinas, LLC	DUK	45.48%	46.18%	47.30%	45.68%	46.32%	48.20%	46.80%	45.00%	46.37%
Duke Energy Florida, LLC	DUK	46.65%	47.89%	49.52%	50.35%	51.21%	50.08%	50.75%	50.54%	49.62%
Duke Energy Indiana, LLC	DUK	44.29%	44.96%	45.80%	46.06%	46.08%	46.59%	47.10%	48.29%	46.15%
Duke Energy Kentucky, Inc.	DUK	43.77%	45.16%	46.48%	39.53%	41.19%	44.81%	46.89%	49.31%	44.64%
Duke Energy Ohio, Inc.	DUK	34.81%	40.71%	30.50%	31.24%	31.97%	33.26%	33.55%	34.21%	33.78%
Duke Energy Progress, LLC	DUK	49.56%	50.40%	48.14%	49.24%	45.20%	46.11%	46.99%	48.94%	48.07%
Southern California Edison Company	EIX	51.20%	53.24%	51.59%	49.98%	49.37%	49.23%	44.56%	45.87%	49.38%
Entergy Arkansas, Inc.	ETR	53.51%	52.96%	50.58%	50.62%	51.71%	54.12%	54.05%	54.31%	52.73%
Entergy Louisiana, LLC	ETR	53.68%	54.21%	52.63%	53.23%	53.03%	55.42%	52.57%	52.17%	53.37%
Entergy Mississippi, Inc.	ETR	55.07%	50.59%	50.89%	49.90%	50.90%	51.68%	52.15%	49.11%	51.29%
Entergy Texas, Inc.	ETR	49.21%	49.87%	46.54%	47.39%	48.62%	49.21%	49.55%	48.82%	48.65%
Kansas City Power & Light Company	EVRG	48.21%	52.28%	48.80%	48.48%	48.01%	47.99%	49.23%	49.88%	49.11%
Kansas Gas and Electric Company	EVRG	18.51%	24.87%	25.03%	25.09%	25.55%	25.71%	25.82%	25.79%	24.55%
KCP&L Greater Missouri Operations Compa	EVRG	44.14%	44.44%	41.98%	40.97%	43.31%	42.46%	43.19%	41.24%	42.72%
Westar Energy (KPL)	EVRG	36.79%	38.79%	38.55%	38.78%	38.49%	39.53%	39.62%	40.00%	38.82%
Connecticut Light and Power Company	ES	43.13%	40.36%	43.82%	45.22%	45.99%	49.60%	45.70%	46.51%	45.04%
NSTAR Electric Company	ES	46.20%	41.64%	42.50%	42.95%	42.59%	43.67%	44.16%	47.13%	43.86%
Public Service Company of New Hampshire	ES	59.56%	50.49%	51.01%	55.91%	55.44%	37.78%	38.42%	37.66%	48.28%
Atlantic City Electric Company	EXC	49.78%	46.10%	47.72%	43.57%	44.73%	47.41%	47.82%	48.61%	46.97%
Baltimore Gas and Electric Company	EXC	44.05%	44.82%	46.07%	47.15%	43.64%	44.30%	44.63%	46.30%	45.12%
Commonwealth Edison Company	EXC	44.01%	44.24%	44.94%	45.28%	43.85%	44.25%	45.15%	45.40%	44.64%
Delmarva Power & Light Company	EXC	49.18%	49.74%	50.02%	49.89%	50.14%	45.97%	45.87%	48.84%	48.70%
PECO Energy Company	EXC	44.48%	44.87%	46.28%	47.18%	43.82%	43.40%	46.46%	46.70%	45.40%
Potomac Electric Power Company	EXC	49.76%	48.66%	49.63%	49.17%	49.92%	49.48%	49.86%	50.29%	49.60%
Cleveland Electric Illuminating Company	FE	42.90%	43.47%	44.36%	43.50%	43.67%	44.49%	44.70%	44.13%	43.90%
Jersey Central Power & Light Company	FE	30.99%	31.43%	29.70%	29.37%	29.42%	32.66%	34.70%	34.74%	31.63%
Metropolitan Edison Company	FE	51.54%	52.22%	44.59%	44.18%	44.54%	45.12%	47.67%	47.42%	47.16%
Monongahela Power Company	FE	48.32%	49.02%	48.85%	49.29%	46.55%	49.43%	50.85%	51.82%	49.27%
Ohio Edison Company	FE	28.58%	29.18%	30.07%	30.86%	32.67%	33.11%	35.09%	37.73%	32.16%
Pennsylvania Electric Company	FE	49.07%	44.33%	45.19%	44.88%	45.13%	45.45%	47.47%	46.71%	46.03%
Pennsylvania Power Company	FE	48.29%	49.31%	50.97%	40.83%	41.53%	41.55%	44.97%	44.26%	45.21%
Potomac Edison Company	FE	46.67%	46.71%	47.65%	47.08%	47.35%	47.36%	48.41%	48.73%	47.49%
Toledo Edison Company	FE	38.87%	39.22%	39.55%	37.75%	36.82%	38.39%	38.92%	40.50%	38.75%
West Penn Power Company	FE	45.10%	40.31%	43.23%	44.20%	44.16%	45.14%	47.18%	47.90%	44.65%
Hawaiian Electric Company, Inc.	HE	38.26%	39.56%	41.44%	41.69%	41.91%	39.84%	41.32%	41.52%	40.69%
Idaho Power Co.	IDA	45.25%	45.50%	45.70%	45.49%	46.41%	48.48%	45.73%	45.62%	46.02%
Florida Power & Light Company	NEE	37.85%	35.56%	34.31%	35.00%	37.96%	36.86%	37.51%	35.29%	36.29%
Gulf Power Company	NEE	37.72%	41.94%	40.27%	43.90%	43.73%	44.77%	45.09%	45.03%	42.81%
NorthWestern Corporation	NWE	51.93%	51.26%	52.12%	51.64%	51.59%	52.52%	46.03%	47.51%	50.58%
Oklahoma Gas and Electric Company	OGE	46.53%	44.37%	46.80%	46.95%	45.75%	46.41%	46.64%	46.95%	46.30%
Otter Tail Power Company	OTTR	45.31%	45.45%	46.02%	46.51%	46.26%	46.29%	38.21%	38.66%	44.09%
Arizona Public Service Company	PNW	44.00%	44.84%	45.64%	46.32%	44.05%	45.64%	46.86%	46.80%	45.52%
Public Service Company of New Mexico	PNM	55.38%	56.55%	53.29%	51.99%	52.67%	52.87%	53.25%	52.42%	53.55%
Portland General Electric Company	POR	48.27%	49.40%	49.81%	49.49%	49.71%	49.86%	50.20%	49.83%	49.57%
Kentucky Utilities Company	PPL	47.19%	42.66%	43.19%	44.15%	44.34%	45.23%	45.60%	46.07%	44.80%
Louisville Gas and Electric Company	PPL	45.13%	41.17%	41.39%	42.80%	43.08%	44.04%	42.39%	41.49%	42.69%
PPL Electric Utilities Corporation	PPL	44.48%	45.15%	45.48%	45.35%	45.72%	43.70%	45.43%	45.46%	45.10%
Alabama Power Company	SO	47.46%	47.77%	52.23%	51.86%	52.47%	50.31%	52.92%	52.07%	50.89%
Georgia Power Company	SO	42.68%	43.10%	40.49%	42.56%	44.11%	46.19%	49.62%	48.83%	44.70%
Mississippi Power Company	SO	50.13%	50.27%	49.65%	54.72%	54.43%	52.03%	60.59%	52.63%	53.06%

Notes:
[1] Ratios are weighted by actual common capital, preferred capital, long-term debt and short-term debt of Operating Subsidiaries.
[2] Natural Gas and Electric Operating Subsidiaries with data listed as N/A from SNL Financial have been excluded from the analysis.

CAPITAL STRUCTURE ANALYSIS

SHORT-TERM DEBT RATIO [1]

Proxy Group Company	Ticker	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	2017Q3	Average
ALLETE, Inc.	ALE	0.00%	0.04%	0.05%	0.00%	0.00%	0.11%	0.20%	0.24%	0.08%
Alliant Energy Corporation	LNT	0.08%	1.43%	1.64%	0.46%	0.36%	0.42%	0.36%	2.79%	0.94%
Ameren Corporation	AEE	2.58%	1.17%	0.84%	1.03%	0.21%	3.52%	0.73%	1.32%	1.43%
American Electric Power Company, Inc.	AEP	1.10%	1.58%	1.69%	1.38%	2.36%	3.33%	2.85%	2.26%	2.07%
Avangrid, Inc.	AGR	0.85%	0.90%	0.42%	2.26%	3.62%	5.01%	4.85%	2.61%	2.56%
Avista Corporation	AVA	5.03%	3.54%	5.07%	0.98%	0.00%	1.43%	2.99%	3.07%	2.76%
DTE Energy Company	DTE	1.66%	0.08%	1.32%	1.10%	1.12%	3.61%	2.04%	2.51%	1.68%
Duke Energy Corporation	DUK	2.54%	1.93%	1.91%	1.93%	2.65%	1.07%	0.86%	0.77%	1.71%
Edison International	EIX	0.77%	2.94%	2.84%	0.39%	1.17%	0.28%	5.02%	1.36%	1.85%
Entergy Corporation	ETR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Evergy, Inc.	EVRG	6.23%	3.87%	4.09%	3.85%	5.62%	4.53%	3.66%	2.56%	4.30%
Eversource Energy	ES	2.48%	3.97%	1.95%	1.98%	3.48%	3.83%	3.83%	1.40%	2.87%
Exelon Corporation	EXC	1.48%	1.74%	0.52%	0.85%	2.43%	2.94%	1.13%	0.36%	1.43%
FirstEnergy Corporation	FE	2.51%	2.51%	2.52%	2.11%	3.40%	3.02%	0.28%	0.77%	2.14%
Hawaiian Electric Industries, Inc.	HE	4.70%	1.68%	0.74%	2.56%	2.75%	3.74%	0.16%	0.19%	2.06%
IDACORP, Inc.	IDA	0.38%	0.30%	0.11%	0.55%	0.32%	0.30%	0.11%	0.34%	0.30%
NextEra Energy, Inc.	NEE	2.26%	1.05%	3.38%	0.71%	3.06%	4.71%	5.96%	4.19%	3.17%
NorthWestern Corporation	NWE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.14%	7.09%	1.90%
OGE Energy Corporation	OGE	0.00%	0.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.07%
Otter Tail Corporation	OTTR	2.02%	1.41%	0.84%	0.00%	1.34%	2.18%	10.42%	9.59%	3.48%
Pinnacle West Capital Corporation	PNW	3.49%	1.49%	0.00%	0.00%	4.83%	2.51%	0.00%	0.32%	1.58%
PNM Resources, Inc.	PNM	1.36%	0.00%	1.99%	0.00%	1.22%	1.73%	1.27%	0.00%	0.95%
Portland General Electric Company	POR	0.34%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%
PPL Corporation	PPL	1.52%	3.10%	2.86%	1.71%	1.79%	2.53%	1.48%	1.22%	2.03%
Southern Company	SO	1.21%	0.61%	0.68%	0.24%	1.37%	1.26%	0.38%	0.95%	0.84%
MEAN		1.78%	1.44%	1.42%	0.96%	1.73%	2.08%	2.27%	1.84%	1.69%
LOW		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
HIGH		6.23%	3.97%	5.07%	3.85%	5.62%	5.01%	10.42%	9.59%	4.30%

SHORT-TERM DEBT RATIO - UTILITY OPERATING COMPANIES [2]

Company Name	Ticker	2019Q2	2019Q1	2018Q4	2018Q3	2018Q2	2018Q1	2017Q4	2017Q3	Average
ALLETE (Minnesota Power)	ALE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Superior Water, Light and Power Compan	ALE	0.00%	1.36%	1.93%	0.00%	0.00%	4.74%	8.18%	10.43%	3.33%
Interstate Power and Light Company	LNT	0.00%	0.00%	0.88%	0.00%	0.00%	0.00%	0.00%	0.08%	0.12%
Wisconsin Power and Light Company	LNT	0.18%	3.40%	2.67%	1.10%	0.83%	0.96%	0.82%	6.22%	2.02%
Ameren Illinois Company	AEE	2.69%	1.73%	1.02%	2.25%	0.47%	3.49%	1.01%	3.03%	1.96%
Union Electric Company	AEE	2.48%	0.67%	0.69%	0.00%	0.00%	3.54%	0.50%	0.00%	0.99%
Appalachian Power Company	AEP	0.31%	0.00%	2.48%	1.21%	2.11%	3.03%	2.33%	0.89%	1.54%
Indiana Michigan Power Company	AEP	1.73%	0.64%	0.02%	0.00%	0.00%	6.12%	4.23%	3.62%	2.05%
Kentucky Power Company	AEP	4.21%	2.10%	1.71%	0.75%	0.97%	1.25%	0.62%	0.79%	1.55%
Kingsport Power Company	AEP	14.21%	18.93%	12.83%	9.12%	8.24%	7.83%	0.00%	3.81%	9.37%
Ohio Power Company	AEP	0.00%	5.29%	2.79%	5.88%	5.19%	0.00%	2.18%	4.18%	3.19%
Public Service Company of Oklahoma	AEP	0.84%	2.05%	3.99%	0.85%	4.51%	6.72%	5.63%	4.47%	3.63%
Southwestern Electric Power Company	AEP	1.12%	1.49%	0.00%	0.00%	2.50%	3.09%	2.51%	1.04%	1.47%
Wheeling Power Company	AEP	3.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.42%
Central Maine Power Company	AGR	0.00%	0.41%	0.00%	2.08%	1.96%	0.00%	0.00%	0.00%	0.56%
New York State Electric & Gas Corporatio	AGR	2.99%	2.71%	1.49%	0.50%	3.53%	11.80%	10.90%	3.12%	4.63%
Rochester Gas and Electric Corporation	AGR	0.00%	0.00%	0.00%	0.00%	-0.02%	0.00%	0.00%	0.00%	0.00%
United Illuminating Company	AGR	0.00%	0.00%	0.00%	7.44%	10.09%	8.56%	9.20%	8.69%	5.50%
Avista Corporation	AVA	5.03%	3.54%	5.07%	0.98%	0.00%	1.43%	2.99%	3.07%	2.76%
DTE Electric Company	DTE	1.66%	0.08%	1.32%	1.10%	1.12%	3.61%	2.04%	2.51%	1.68%
Duke Energy Carolinas, LLC	DUK	3.35%	3.16%	1.91%	3.54%	3.30%	0.20%	0.48%	2.21%	2.27%
Duke Energy Florida, LLC	DUK	3.70%	3.15%	0.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.97%
Duke Energy Indiana, LLC	DUK	1.95%	1.64%	2.01%	2.43%	2.69%	1.83%	2.00%	0.00%	1.82%
Duke Energy Kentucky, Inc.	DUK	6.80%	4.32%	3.28%	8.96%	6.83%	3.18%	0.00%	0.00%	4.17%
Duke Energy Ohio, Inc.	DUK	2.08%	0.00%	4.42%	3.21%	2.84%	2.01%	0.61%	0.00%	1.90%
Duke Energy Progress, LLC	DUK	0.72%	0.00%	1.74%	0.00%	3.36%	2.25%	1.55%	0.00%	1.20%
Southern California Edison Company	EIX	0.77%	2.94%	2.84%	0.39%	1.17%	0.28%	5.02%	1.36%	1.85%
Entergy Arkansas, Inc.	ETR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Entergy Louisiana, LLC	ETR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Entergy Mississippi, Inc.	ETR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Entergy Texas, Inc.	ETR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Kansas City Power & Light Company	EVRG	4.30%	3.13%	3.39%	3.99%	6.08%	5.44%	3.18%	1.38%	3.86%
Kansas Gas and Electric Company	EVRG	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
KCP&L Greater Missouri Operations Com	EVRG	8.53%	6.08%	7.29%	7.53%	9.72%	10.36%	9.26%	8.07%	8.36%
Westar Energy (KPL)	EVRG	9.87%	5.85%	5.78%	4.61%	6.84%	4.17%	3.98%	2.76%	5.48%
Connecticut Light and Power Company	ES	3.36%	3.49%	0.00%	0.63%	0.34%	0.00%	1.03%	0.00%	1.11%
NSTAR Electric Company	ES	2.24%	5.18%	4.00%	3.49%	6.38%	5.41%	4.32%	0.00%	3.88%
Public Service Company of New Hampshi	ES	0.71%	2.19%	2.05%	1.72%	4.32%	10.18%	10.03%	7.57%	4.85%
Atlantic City Electric Company	EXC	1.49%	9.07%	6.16%	12.20%	11.49%	6.78%	5.88%	3.99%	7.13%
Baltimore Gas and Electric Company	EXC	3.48%	1.64%	0.56%	0.00%	2.29%	0.77%	1.32%	0.00%	1.26%
Commonwealth Edison Company	EXC	1.58%	1.69%	0.00%	0.00%	1.76%	1.76%	0.00%	0.00%	0.85%
Delmarva Power & Light Company	EXC	1.24%	0.17%	0.00%	0.00%	0.00%	7.42%	7.56%	1.96%	2.29%
PECO Energy Company	EXC	0.70%	0.00%	0.00%	0.00%	4.16%	6.13%	0.00%	0.00%	1.38%
Potomac Electric Power Company	EXC	0.00%	1.87%	0.72%	1.19%	0.00%	1.17%	0.51%	0.00%	0.68%
Cleveland Electric Illuminating Company	FE	3.60%	2.21%	0.44%	0.00%	0.06%	0.06%	0.06%	3.94%	1.30%
Jersey Central Power & Light Company	FE	2.43%	1.52%	2.75%	4.22%	5.67%	5.30%	0.00%	0.00%	2.74%
Metropolitan Edison Company	FE	0.00%	0.00%	4.69%	3.43%	5.03%	5.66%	0.00%	0.58%	2.42%
Monongahela Power Company	FE	5.13%	3.78%	4.47%	0.00%	3.95%	0.00%	0.00%	0.00%	2.17%
Ohio Edison Company	FE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Pennsylvania Electric Company	FE	0.00%	3.94%	2.01%	2.41%	2.10%	3.12%	0.96%	0.00%	1.82%
Pennsylvania Power Company	FE	0.00%	0.00%	0.00%	2.16%	3.68%	6.22%	2.62%	0.00%	1.84%
Potomac Edison Company	FE	0.73%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.09%
Toledo Edison Company	FE	1.42%	0.00%	0.06%	0.00%	2.47%	2.58%	2.61%	4.01%	1.64%
West Penn Power Company	FE	8.65%	11.05%	7.02%	5.66%	7.83%	7.72%	0.00%	0.00%	5.99%
Hawaiian Electric Company, Inc.	HE	4.64%	1.66%	0.73%	2.52%	2.71%	3.69%	0.16%	0.19%	2.04%
Idaho Power Co.	IDA	0.38%	0.30%	0.11%	0.55%	0.32%	0.30%	0.11%	0.34%	0.30%
Florida Power & Light Company	NEE	2.20%	1.15%	3.70%	0.62%	3.06%	4.94%	6.38%	4.60%	3.33%
Gulf Power Company	NEE	2.91%	0.00%	0.00%	1.69%	3.04%	2.11%	1.57%	0.00%	1.42%
NorthWestern Corporation	NWE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.14%	7.09%	1.90%
Oklahoma Gas and Electric Company	OGE	0.00%	0.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.07%
Otter Tail Power Company	OTTR	2.02%	1.41%	0.84%	0.00%	1.34%	2.18%	10.42%	9.59%	3.48%
Arizona Public Service Company	PNW	3.49%	1.49%	0.00%	0.00%	4.83%	2.51%	0.00%	0.32%	1.58%
Public Service Company of New Mexico	PNM	1.36%	0.00%	1.99%	0.00%	1.22%	1.73%	1.27%	0.00%	0.95%
Portland General Electric Company	POR	0.34%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%
Kentucky Utilities Company	PPL	0.00%	4.26%	4.35%	2.42%	2.53%	1.51%	0.88%	0.00%	1.99%
Louisville Gas and Electric Company	PPL	2.14%	6.08%	6.35%	4.14%	4.33%	3.31%	4.90%	5.08%	4.54%
PPL Electric Utilities Corporation	PPL	2.21%	0.73%	0.00%	0.00%	0.00%	2.80%	0.00%	0.00%	0.72%
Alabama Power Company	SO	0.00%	0.00%	0.00%	0.02%	0.02%	1.63%	0.02%	0.00%	0.21%
Georgia Power Company	SO	2.14%	1.08%	1.20%	0.42%	2.03%	0.00%	0.63%	1.65%	1.14%
Mississippi Power Company	SO	0.01%	0.01%	0.01%	0.00%	3.04%	8.72%	0.12%	0.10%	1.50%

Notes:
[1] Ratios are weighted by actual common capital, preferred capital, long-term debt and short-term debt of Operating Subsidiaries.
[2] Natural Gas and Electric Operating Subsidiaries with data listed as N/A from SNL Financial have been excluded from the analysis.