BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF SOUTHWESTERN PUBLIC SERVICE COMPANY'S APPLICATION FOR: (1) REVISION OF ITS RETAIL RATES UNDER ADVICE NOTICE NO. 282; (2) AUTHORIZATION AND APPROVAL TO SHORTEN THE SERVICE LIFE OF AND ABANDON ITS TOLK GENERATING STATION UNITS; AND (3) OTHER RELATED RELIEF,	)	**CASE NO. 19-00170-UT**
SOUTHWESTERN PUBLIC SERVICE COMPANY,	)	
APPLICANT.	)	

DIRECT TESTIMONY

of

ANN E. BULKLEY

on behalf of

SOUTHWESTERN PUBLIC SERVICE COMPANY

TABLE OF CONTENTS

GLOSSARY OF ACRONYMS AND DEFINED TERMS

Acronym/Defined Term	Meaning
ADIT	Accumulated Deferred Income Tax
CAPM	Capital Asset Pricing Model
Commission / NMPRC	New Mexico Public Regulation Commission
Concentric	Concentric Energy Advisors, Inc.
Cost of Equity	Return on Equity, i.e., ROE
CPI	Consumer Price Index
DCF	Discounted Cash Flow
EIA	Energy Information Administration
EPS	Earnings Per Share
FERC	Federal Energy Regulatory Commission
FFO	Funds from Operations
Fitch	FitchRatings
FOMC	Federal Open Market Committee
GDP	Gross Domestic Product
ICC	Illinois Commerce Commission
kWh	kilowatt-hour
Missouri PSC	Missouri Public Service Commission
Moody's	Moody's Investors Service

Acronym/Defined Term	Meaning
NMPRC DCF Averaging Scenarios	ROE methodology relied on and described by the NMPRC in In the Matter of Southwestern Public Service Company's Application for Revision of its Retail Electric Rates Pursuant to Advice Notice Nos. 208 and 209, and all Associated Approvals, Case No. 07-00319-UT, Final Order Partially Adopting the Recommended Decision (Aug. 26, 2008); In the Matter of Southwestern Public Service Company's Application for Revision of its Retail Electric Rates Under Advice Notice No. 245, Case No. 12-00350-UT, Final Order Partially Adopting Recommended Decision at 3-4 (Mar. 26, 2014).
O&M	operation and maintenance
P/E	price-to-earnings
PPUC	Pennsylvania Public Utility Commission
ROE	Return on Equity / Cost of Equity
ROR	rate of return
RRA	Regulatory Research Associates
S&P	Standard & Poor's
SPS	Southwestern Public Service Company, a New Mexico corporation
Xcel Energy	Xcel Energy Inc.
Zacks	Zacks Investment Research

LIST OF ATTACHMENTS

Attachment	**Description**
AEB-13	Regulatory Risk Analysis (*Filename:* AEB-2 through AEB-15.xlsm)
AEB-14	Adjustment Clauses (*Filename:* AEB-2 through AEB-15.xlsm)
AEB-15	Capital Structure (*Filename:* AEB-2 through AEB-15.xlsm)

Case No. 19-00170-UT
Direct Testimony
of
Ann E. Bulkley

I. WITNESS IDENTIFICATION AND QUALIFICATIONS

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

A. My name is Ann E. Bulkley. I am employed by Concentric Energy Advisors, Inc. ("Concentric") as a Vice President. My business address is 293 Boston Post Road West, Suite 500, Marlborough, Massachusetts 01752.

Q. On whose behalf are you submitting this testimony?

A. I am submitting this testimony on behalf of Southwestern Public Service Company, a New Mexico corporation ("SPS") and wholly-owned electric utility subsidiary of Xcel Energy Inc. ("Xcel Energy").

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

A. I hold a Bachelor's degree in Economics and Finance from Simmons College and a Master's degree in Economics from Boston University, with more than 20 years of experience consulting to the energy industry. I have advised numerous energy and utility clients on a wide range of financial and economic issues with primary concentrations in valuation and utility rate matters. Many of these assignments have included the determination of the cost of capital for valuation and ratemaking purposes. My qualifications and testimony listing are presented in more detail in Attachment AEB-1.

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

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

II. PURPOSE AND OVERVIEW OF TESTIMONY

Q. What is the purpose of your direct testimony?

A. The purpose of my direct testimony is to present evidence and provide a recommendation regarding SPS's Return on Equity ("ROE" or "Cost of Equity") and to assess the reasonableness of its proposed capital structure to be used for ratemaking purposes, as discussed in the Direct Testimony of SPS witness Sarah W. Soong. My analyses and recommendations are supported by the data presented in Attachment AEB-2 through Attachment AEB-15. In addition, I sponsor Schedule G-10, the summary of SPS's support for the claimed rate of return ("ROR") on common stock equity capital.

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

A. All of the models available for estimating the Cost of Equity are subject to limiting assumptions or other methodological constraints. Therefore, it is important to use multiple analytical approaches to ensure that any single model is not unduly influenced by an assumption that is inconsistent or unsustainable in the current capital market conditions. Therefore, in developing my ROE recommendation, I applied the Constant Growth and Multi-Stage forms of the

Discounted Cash Flow ("DCF") model, the Capital Asset Pricing Model ("CAPM"), the Bond Yield Plus Risk Premium approach, and an Expected Earnings analysis. In addition to these analyses, my recommendation also considers the flotation costs associated with issuing common equity and management performance, as well as the following operational and financial risks: (1) SPS's capital expenditure requirements relative to the proxy group; (2) the regulatory framework in New Mexico relative to those jurisdictions in which the proxy group companies operate; and (3) customer concentration and wholesale customer risk. Although I did not make any specific adjustments to my ROE estimates for business and financial risk, I considered them in aggregate when determining where SPS's ROE should fall within the range of analytical results. Finally, I considered SPS's proposed capital structure, which is composed of 54.77% common equity and 45.23% long-term debt, as compared with the actual capital structures of the utility operating company subsidiaries of the proxy companies.

Q. How is the remainder of your direct testimony organized?

A. The remainder of my direct testimony is organized in eight sections. Section III provides a summary of my analyses and conclusions. Section IV reviews the

regulatory guidelines pertinent to the development of the cost of capital. Section V discusses the current and prospective capital market conditions and the effect of those conditions on SPS's Cost of Equity. Section VI explains my selection of a proxy group of electric utilities. Section VII describes my analyses and the analytical basis for the recommendation of the appropriate ROE for SPS. Section VIII provides a discussion of specific business and financial risks that have a direct bearing on the ROE to be authorized for SPS in this case. Section IX discusses the capital structure of SPS as compared with the capital structures of the utility operating company subsidiaries of the proxy group companies. Section X presents my conclusions and recommendations.

Q. Were Attachments AEB-1 through AEB-15 and the portions of the Rate Filing Package schedules that you sponsor or co-sponsor prepared by you or under your direct supervision?

A. Yes.

Q. Do you incorporate the Rate Filing Package schedules you sponsor or co-sponsor into your testimony?

A. Yes.

III. SUMMARY OF ANALYSES AND CONCLUSIONS

Q. What is your conclusion regarding the appropriate authorized ROE and capital structure for SPS in this proceeding?

A. A reasonable range of ROE estimates for SPS is from 9.75% to 10.50%. Within that range, I believe that an ROE of 10.35% is appropriate. SPS's proposed capital structure of 54.77% equity and 45.23% long-term debt is also appropriate.

Q. Please summarize the key factors considered in your analyses and upon which you base your recommended ROE.

A. The required ROE should be a forward-looking estimate; therefore, the analyses supporting my recommendation rely on forward-looking inputs and assumptions (e.g., forecasted growth rates in the DCF model, projected risk-free rate and Market Risk Premium in the CAPM analysis, etc.) and take into consideration capital market conditions, including the effect of the current low interest rate environment on utility stock valuations and dividend yields, the uncertainty associated with global economic events, and the market's expectation for interest rates.

In addition, my analyses and recommendations considered the following:

- the United States Supreme Court's *Hope* and *Bluefield* decisions,[1] which established the standards for determining a fair and reasonable authorized return on equity, including consistency of the authorized return with other businesses having similar risk, adequacy of the return to ensure access to capital and support credit quality, and the necessity for the end result to lead to just and reasonable rates; and

- SPS's business risks relative to the proxy group of comparable companies and the implications of those risks in arriving at the appropriate ROE.

Q. Please explain how you considered those factors.

A. I have relied on several analytical approaches to estimate SPS's Cost of Equity based on a proxy group of publicly traded companies. As shown in Figure 1, those ROE estimation models produce a wide range of results. My conclusion as to where within that range of results SPS's ROE falls is based on SPS's business and financial risk relative to the proxy group. Although the companies in my proxy group are generally comparable to SPS, SPS faces higher risk than the companies in that group in several important ways. In order for SPS to compete for capital on reasonable terms, those additional risk factors should be reflected in SPS's authorized ROE.

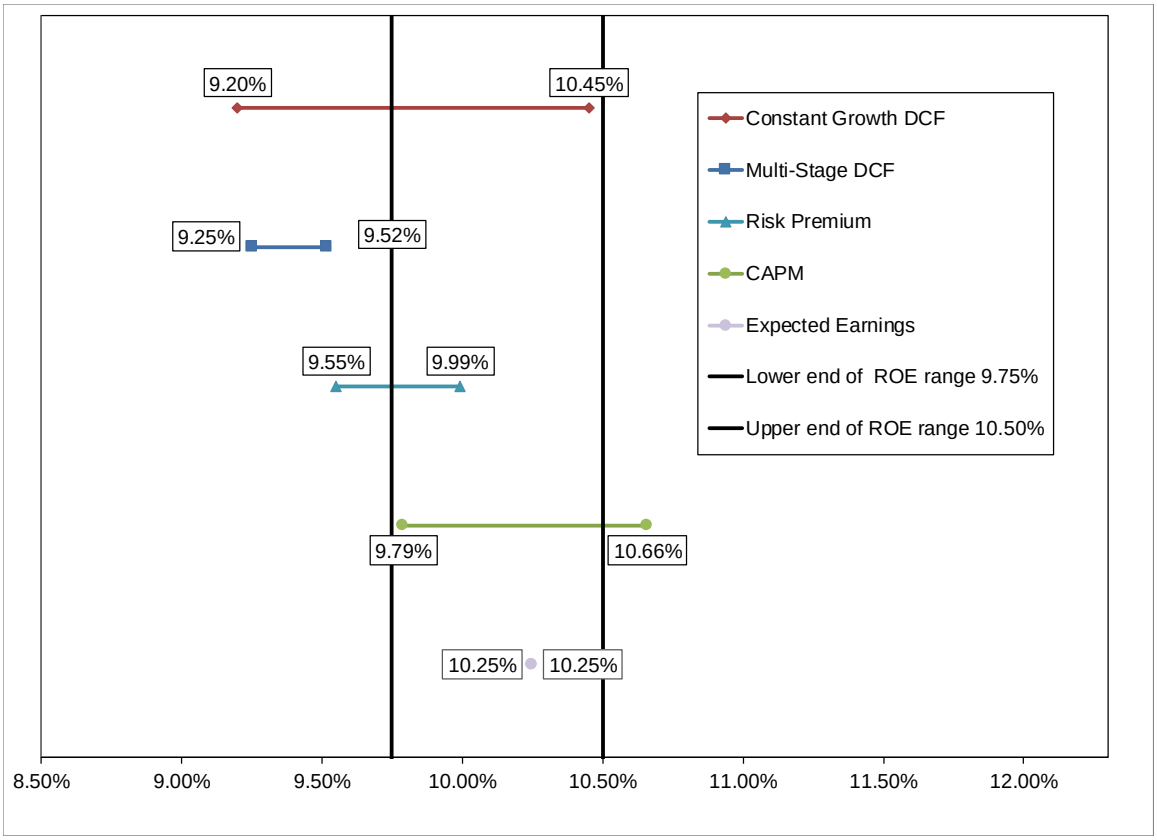
[1] *Bluefield Waterworks & Improvement Co., v. Pub. Serv. Comm'n of West Virginia*, 262 U.S. 679, 692-93 (1923); *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591, 603 (1944).

Q. Please summarize the ROE estimation models that you considered to establish the range of ROEs for SPS.

A. I considered the results of two forms of the DCF model: the Constant Growth form and the Multi-Stage form. I also considered the specific averaging methodologies that were relied on by the New Mexico Public Regulation Commission ("Commission" or "NMPRC") in prior cases ("NMPRC DCF Averaging Scenarios").[2] As discussed in more detail in Section V of my testimony, current and recent historical market conditions have affected the inputs and assumptions of the ROE estimation models. In particular, the current results of the DCF model understate required ROEs due to the accommodative monetary policy of the Federal Reserve. The results of the analyses that I relied on in developing my recommendation are summarized in Figure 1.

[2] In the Matter of Southwestern Public Service Company's Application for Revision of its Retail Electric Rates Pursuant to Advice Notice Nos. 208 and 209, and all Associated Approvals, Case No. 07-00319-UT, Final Order Partially Adopting the Recommended Decision at P 37 (Aug. 26, 2008); In the Matter of Southwestern Public Service Company's Application for Revision of its Retail Electric Rates Under Advice Notice No. 245, Case No. 12-00350-UT, Final Order Partially Adopting Recommended Decision at 3-4 (Mar. 26, 2014).

Figure 1: Summary of Cost of Equity Analytical Results[3]



As shown in Attachment AEB-2, the DCF model is producing individual company results as low as 4.31%, or approximately 20 basis points below SPS's

[3] The DCF results shown in Figure 1 are based on the 360-day average dividend yields, which have been relied on by the Commission. Case No. 12-00350-UT, Recommended Decision at 105 and Final Order Partially Adopting Recommended Decision at 4. Case No. 15-00261-UT, Recommended Decision at 45-50 and Final Order Partially Adopting Corrected Recommended Decision at 15-16. The range provides the results using the mean and high earnings growth rate scenarios.

embedded cost of long-term debt.[4] The mean low Constant Growth DCF results are below an acceptable range of returns for an electric utility and below any authorized ROE for a vertically-integrated electric utility in the U.S. since at least 1980.[5] Based on prospective capital market conditions, and the inverse relationship between the market risk premium and interest rates, I conclude that the mean low DCF results do not provide a sufficient risk premium to compensate equity investors for the residual risks of ownership, including the risk that they have the lowest claim on the assets and income of SPS.

My ROE recommendation considers the mean and mean-high results of the DCF model, a forward-looking CAPM analysis, a Bond Yield plus Risk Premium analysis, and an Expected Earnings analysis. I also consider company-specific risk factors and current and prospective capital market conditions.

Q. Please summarize the analysis you conducted in determining that SPS's requested capital structure is reasonable and appropriate.

A. In order to determine if SPS's requested capital structure was reasonable, I reviewed the capital structures of the utility subsidiaries of the proxy companies

[4] See Schedule G-3, Embedded Cost of Long-Term Borrowed Capital (before annual amortization of losses, base year).

[5] Source: Regulatory Research Associates.

for the eight quarters April 2017 through March 2019. As shown in Attachment AEB-15, the average equity ratio over this time period for the utility operating companies of the proxy group range from 46.51% to a high of 60.29%. SPS's proposed equity ratio of 54.77% is well within that range and is reasonable.

IV. REGULATORY GUIDELINES

Q. Please describe the principles that guide the establishment of the cost of capital for a regulated utility.

A. The United States Supreme Court's precedent-setting Hope and Bluefield decisions established the standards for determining the fairness or reasonableness of a utility's authorized 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) the principle that the specific means of arriving at a fair return are not important, only that the end result leads to just and reasonable rates.[6]

Q. Has the Commission provided similar guidance in establishing the appropriate return on common equity?

A. Yes. The Commission follows the precedents of the Hope and Bluefield cases and acknowledges that utility investors are entitled to a fair and reasonable return.

[6] *Bluefield*, 262 U.S. at 692-93; *Hope*, 320 U.S. at 603.

This position was set forth by the New Mexico Supreme Court as follows:

> From the investor or company point of view, it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. By that standard, the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.[7]

Q. Why is it important for a utility to be allowed the opportunity to earn a return that is adequate to attract equity capital at reasonable terms?

A. A return that is adequate to attract capital at reasonable terms enables SPS to provide safe, reliable electric service while maintaining its financial integrity. That return should be commensurate with returns expected elsewhere in the market for investments of equivalent risk. If it is not, debt and equity investors will seek alternative investment opportunities for which the expected return

[7] *State v. Mountain States Tel. & Tel. Co.*, 224 P.2d 155, 169 (N.M. 1950) (quoting *Hope*, 320 U.S. at 603); see also *PNM Gas Servs. v. New Mexico Public Util. Comm'n*, 1 P.3d 383, 397 (N.M. 2000) (quoting *Hope* and citing to *Mountain States* to support the proposition that utilities must be allowed to recover costs and achieve a fair return); *Mountain States Tel. & Tel. Co. v. New Mexico State Corp. Comm'n*, 696 P.2d 1002, 1003-04 (N.M. 1985) (relying on the *Bluefield* principle that a utility return "should be reasonably sufficient to assure confidence in the public utility company's financial soundness, adequate to support and maintain its credit, and enable it to raise funds necessary to discharge its public duties").

reflects the perceived risks, thereby inhibiting SPS's ability to attract capital at reasonable cost.

Q. What are your conclusions regarding regulatory guidelines?

A. 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, a utility must have the opportunity to recover the return of, and the market-required return on, its 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 the utility and its ratepayers.

The financial community carefully monitors the current and expected financial condition of utility companies, and the regulatory framework in which they operate. In that respect, the regulatory framework is one of the most important factors in both debt and equity investors' assessments of risk. To the extent SPS is authorized a market-based cost of capital, the proper balance is achieved between customers' and shareholders' interests. The Commission's order in this case, therefore, should establish rates that provide SPS the opportunity to earn an ROE that is: (1) adequate to attract capital at reasonable

terms; (2) sufficient to ensure its financial integrity; and (3) commensurate with returns on investments in enterprises with similar risk. Based on the results of my analyses and my professional judgment, a reasonable Cost of Equity for SPS is 10.35%.

V. CAPITAL MARKET CONDITIONS

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

A. The ROE estimation models rely on market data that are either specific to the proxy group, in the case of the DCF model, or the expectations of market risk, in the case of the CAPM. The results of the ROE estimation models can be affected by prevailing market conditions at the time the analysis is performed. While the ROE established in a rate proceeding is intended to be forward-looking, the analyst uses current and projected market data, specifically stock prices, dividends, growth rates, and interest rates in the ROE estimation models to estimate the required return for the subject company. As discussed in the remainder of this section, analysts and many regulatory commissions have concluded that current market conditions have affected the results of the ROE estimation models. As a result, it is important to consider the effect of these conditions on the ROE estimation models when determining the appropriate range and recommended ROE for a future period. If investors do not expect current market conditions to be sustained in the future, it is possible that the ROE estimation models will not provide an accurate estimate of investors' required

return during that rate period. Therefore, it is important to consider projected market data to estimate the return for that forward-looking period.

Q. What factors are affecting the Cost of Equity for regulated utilities in the current and prospective capital markets?

A. The Cost of Equity for regulated utility companies is being affected by several factors in the current and prospective capital markets, including: (1) the current market uncertainty has resulted in valuations of utility stocks that are at historically high levels, which has an inverse relationship to dividend yields; (2) recent market demand for Treasury bonds and the expected effect on that demand for interest rates; and (3) recent Federal tax reform. In this section, I discuss each factor and how it affects the models used to estimate the Cost of Equity for regulated utilities.

A. Effect of Market Conditions on Valuations and Dividend Yields

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 2008-09, as the

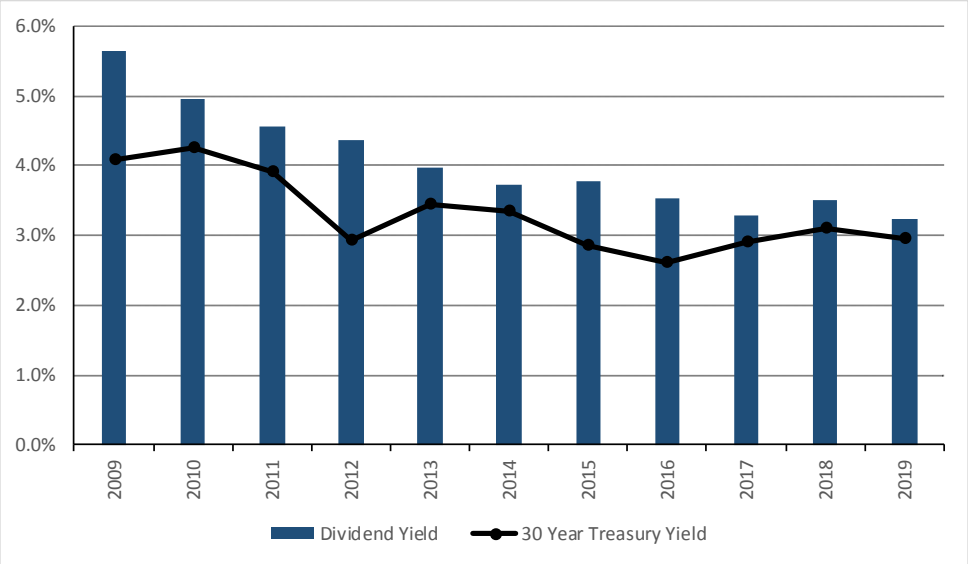
Federal Open Market Committee ("FOMC") used monetary policy (both reductions in short-term interest rates and purchases of Treasury bonds and mortgage-backed securities) to stimulate the U.S. economy. As a result of very low returns on short-term government bonds, yield-seeking investors were forced into longer-term instruments, bidding up prices and reducing yields on those investments. As investors moved along the risk spectrum in search of yields that met their return requirements, there was increased demand for dividend-paying equities, such as utility stocks.

Q. How have recent market conditions affected the valuation and dividend yields of utility shares?

A. The Federal Reserve's monetary policy has caused investors to seek alternatives to the historically low interest rates available on Treasury bonds. As a result of this search for higher yield, the share prices for many common stocks, especially dividend-paying stocks such as utilities, have been driven higher while the dividend yields (which are computed by dividing the dividend payment by the stock price) have decreased to levels well below the historical average. As shown in Figure 2 over the period from 2009 through 2019, as the Federal Reserve intervened to stabilize financial markets and support the economic recovery after

the Great Recession of 2008-09, Treasury bond yields and utility dividend yields declined. Specifically, Treasury bond yields declined by approximately 118 basis points, and utility dividend yields decreased by about 234 basis points over this period.

Figure 2: Dividend Yields for Utility Stocks[8]



[8] Source: Bloomberg Professional. Figure 2 includes 2019 data through May 31, 2019.

Q. Have equity analysts commented on the 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:

> Most stocks in this group have recent prices that are within their 2022-2024 Target Price Range. This indicates the high valuations of most of the issues in this industry. Another indication can be seen in price-earnings ratios. Many electric utility stocks are trading at a market premium- and not because earnings are depressed. Due to the lofty valuations of these equities, many offer miniscule total return potential over the 3-to 5-year period.[9]

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

> Utility valuations have come down as 10-year Treasury bond rates have climbed back over 3%. On a price-to-earnings basis, they do remain significantly above their historical average, but have declined to less unreasonable levels. 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 have declined from their all-time highs reached late in 2017, but are still trading significantly above their average price-to-earnings ratio over the past decade. The premium valuation

[9] Value Line Electric (East) Utility Industry, May 17, 2019.

> continues to reflect not only the low interest rate environment, but also the stable and predominantly regulated earnings growth we foresee.[10]

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

Q. What is the effect of high valuations on utility stocks on the DCF model?

A. High valuations have the effect of depressing the dividend yields, which results in overall lower estimates of the Cost of Equity resulting from the DCF model.

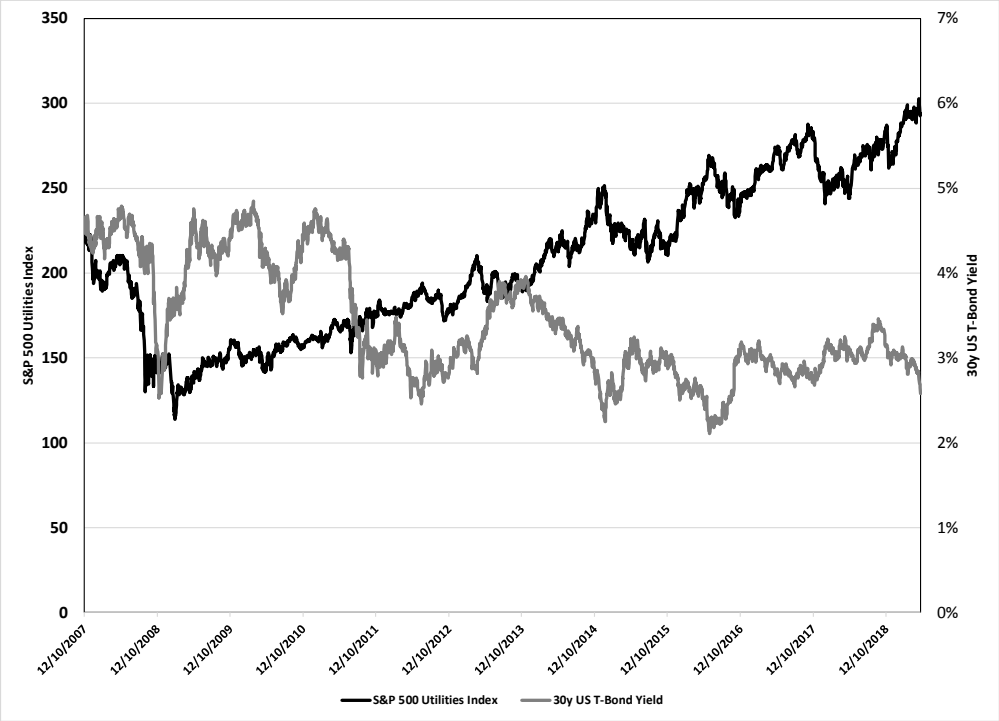
Q. How has the Standard & Poor's ("S&P") Utilities Index responded to the low interest rate environment of recent years?

A. Figure 3 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 that

[10] Andy Pusateri and Andy Smith. Edward Jones, Utilities Sector Outlook (January 16), at 2-3. [Reference to figure omitted.]

Figure, 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 accommodative federal monetary policy.

Figure 3: S&P Utilities Index and Treasury Bond Yields - 2007 – 2019[11]



[11] Bloomberg Professional. Data through May 31, 2019.

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

A. Yes. As I discuss in more detail later in my testimony, the Federal Energy Regulatory Commission ("FERC") recently proposed a methodology that reflects their current view that investors rely on multiple ROE estimation models. 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.[12]

In addition, the Illinois Commerce Commission ("ICC"), the Pennsylvania Public Utility Commission ("PPUC") and the Missouri Public Service Commission ("Missouri PSC") have all considered the effect of low dividend yields on the DCF results in recent decisions.

B. The Current and Expected Interest Rate Environment

Q. Is the demand for long-term government bonds currently increasing?

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

[12] FERC Docket No. EL11-66-001, et. al., Order Directing Briefs, issued October 16, 2018, at para. 32.

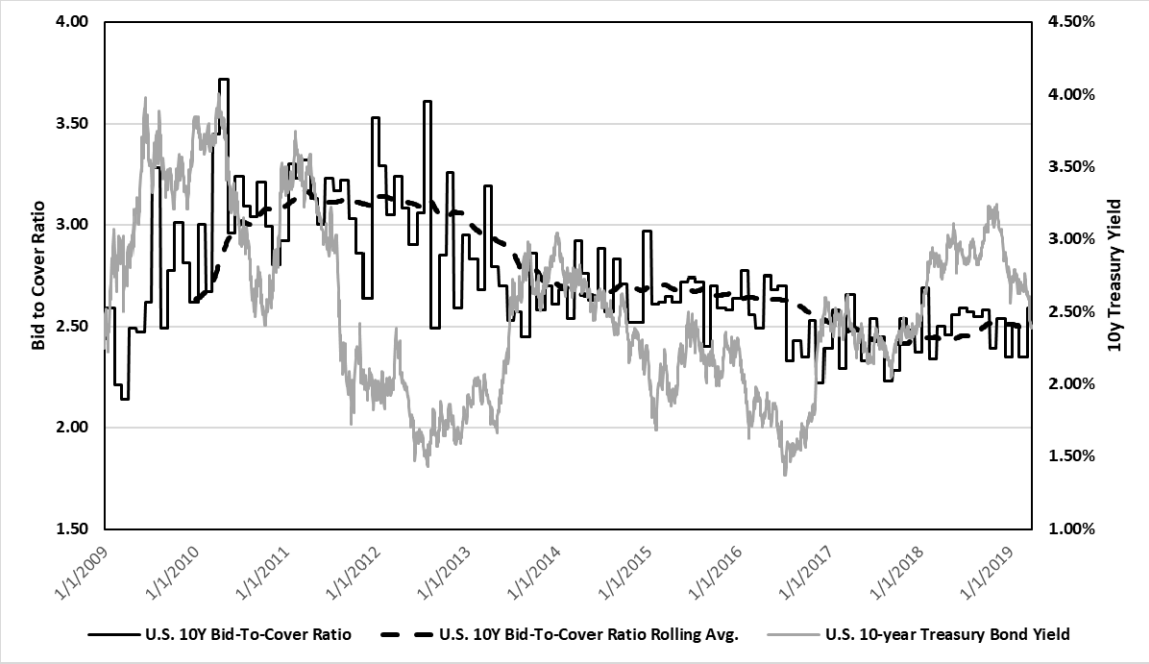
> Some evidence suggests that the growth in demand for Treasuries has already begun to soften. Returning to Figures 1 and 2, foreign holdings have remained more or less constant since 2014, largely because of declining holdings in Japan and China. Likewise, regulation and policy changes such as the Dodd-Frank Act and new rules for prime money market funds may have only transitory effects on the demand for Treasuries. For example, the pace of growth of the ratio of commercial bank Treasury security holdings to private loans has slowed since 2014 (see Figure 3), as has the growth of investment in government money market funds since 2017 (Figure 4).[13]

Furthermore, another indicator of the demand for Treasury bonds is the bid-to-cover ratio, which represents the dollar amount of bids received versus the dollar amount sold in a Treasury security auction. A higher bid-to-cover ratio is indicative of an increase in the demand for government bonds. As shown in Figure 5, the bid-to-cover ratio for the 10-year U.S. Treasury bond remains low, which indicates that the demand for long-term government bonds has declined. The decline in demand is occurring at a time when the supply of Treasury bonds is expected to increase as the Federal Reserve continues its balance sheet unwind

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

over the near-term, and the federal government issues bonds to offset the reduced tax revenue associated with the implementation of the TCJA.

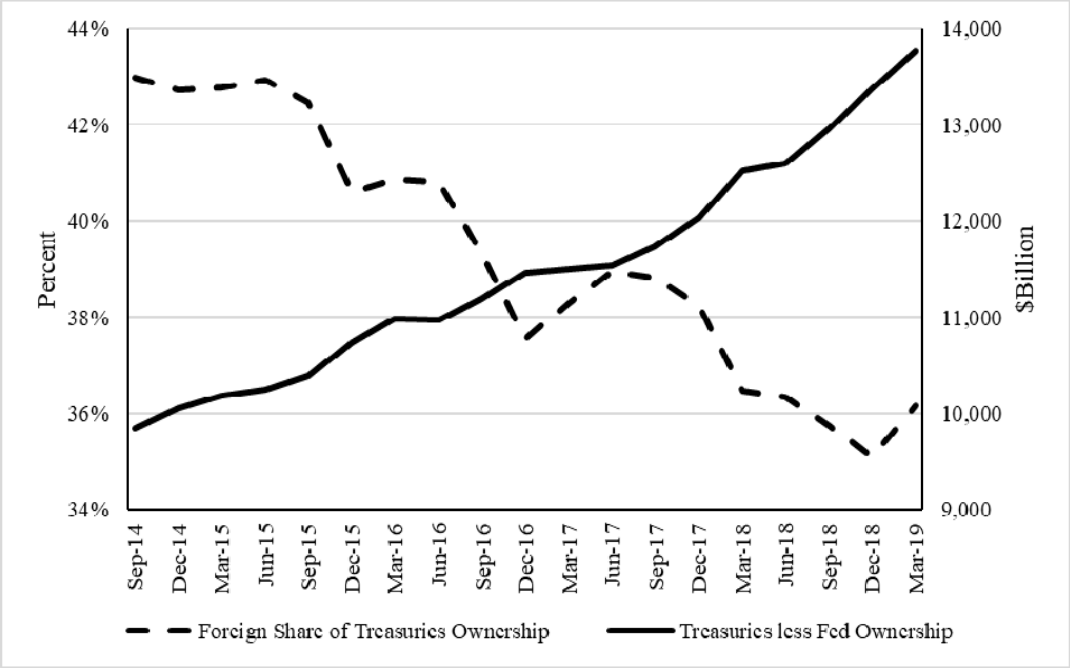
Figure 4: U.S. 10-year Treasury Bond Bid-to-Cover-Ratio



Q. Have equity analysts commented on the demand for Treasury bonds?

A. Yes. Equity analysts noted that the bid-to-cover ratio in the most recent 10-year Treasury bond auction was the lowest that it has been since 2009. As shown in Figure 5 below, Treasury supplies are increasing, while demand has been declining.

Figure 5: Supply and Demand Balance of Treasury Bonds[14]



Q. What effect does weakening demand for Treasuries have on the long-term interest rates?

A. Lower demand at a time when there is a need to increase the supply of Treasury bonds creates the expectation for rising interest rates on government debt. As interest rates increase, the Cost of Equity for the proxy companies using the DCF

[14] Source: Bloomberg.

model is likely to be an overly-conservative estimate of investors' required returns because the proxy group average dividend yield reflects the increase in stock prices that resulted from substantially lower interest rates. As such, rising interest rates support the selection of a return toward the upper end of a reasonable range of ROE estimates resulting from the DCF analysis. Alternatively, my CAPM and Bond Yield Plus Risk Premium analyses include estimated returns based on near-term projected interest rates, reflecting investors' expectations of market conditions over the period that the rates established in this proceeding will be in effect.

C. Effect of Tax Reform on the ROE

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

A. Yes. The effect of the TCJA should also be considered in the determination of the cost of equity. The credit rating agencies have commented on the effect of the TCJA on regulated utilities. In summary, the TCJA is expected to reduce utility revenues due to the lower federal income taxes and the requirement to return excess Accumulated Deferred Income Taxes ("ADIT"). This change in revenue

is expected to reduce Funds from Operations ("FFO") metrics across the sector, and absent regulatory mitigation strategies, is expected to lead to weaker credit metrics and negative ratings actions for some utilities.[15]

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

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

Moody's noted that the rates that regulators allow utilities to charge customers is based on a cost-plus model, with income tax expense being one of the pass-through items. Utilities will collect less income tax at the lower rate, reducing revenue. While the income taxes are ultimately paid out as an expense, under the new tax law, utilities lose the timing benefit, reducing cash that may

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

have been carried over a number of years. The lower tax rate combined with the loss of bonus depreciation will have a negative effect on utility cash flows and will ultimately negatively impact the utilities' ability to fund ongoing operations and capital improvement programs.

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. 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, citing 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"[16] and that "we have seen some credit positive developments in some

[16] 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.

states in response to tax reform,"[17] 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."[18]

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

A. No. Consistent with the prior reports issued by Moody's in January and June of 2018, Moody's is maintaining its negative outlook for regulated utilities in 2019 as a result of continued concerns over the effect of the TCJA on cash flows as well as increasing debt.[19] Moody's notes that "[t]he combination of financial pressures is expected to keep the sector's ratio of funds from operations to debt down around 15% in the year ahead."[20]

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

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

[17] *Ibid.*

[18] *Ibid.*

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

[20] *Ibid*.

higher likelihood of a rating change over the medium term. While Moody's indicates that the time period for changing a rating subsequent to a change in the outlook from Stable will vary, on average Moody's indicates that a rating change will follow within a year of a change in outlook.[21]

Q. Has SPS experienced a downgrade related to cash flow metrics resulting from the TCJA?

A. Yes, Moody's downgraded the long-term issuer rating for SPS to Baa2 from Baa1, noting the weakening of the company's credit metrics, with a material deterioration in the next year. Moody's recognized the more constructive recovery mechanisms available in Texas relative to New Mexico in response to utilities' proposals to offset the impact of the TCJA. Moody's also pointed to the significant difference between the Commission's September 2018 approval of a 51% equity ratio compared to SPS's requested of 58% equity ratio as evidence that this "could be indicating a less constructive relationship between the utility and the NMPRC."[22]

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

[22] Moody's Investors Service, Ratings Action: Moody's changes Xcel Energy's outlook to negative; downgrades Southwestern Public Service ratings to Baa2 with stable outlook, October 26, 2018.

Subsequently, on March 28, 2019, 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."[23] In particular, Moody's expressed concern with Xcel Energy's cash flow to debt ratio declining to around 16% as compared to the historical level of around 20%.

Q. Are you aware of any other utilities that have been downgraded as a result of the effect of the TCJA?

A. Yes. Figure 6 contains a list of additional utilities that have been downgraded as a result of tax reform.

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

Figure 6: Credit Rating Downgrades Resulting from TCJA

Utility	Rating Agency	Credit Rating before TCJA	Credit Rating after TCJA	Downgrade Date
American Water Works	Moody's	A3	Baa1	4/1/2019
KeySpan Gas East Corporation	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	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 credit ratings?

A. Yes. S&P and 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. Some deterioration in the ability to deduct interest expense could occur at the parent, making debt there relatively more expensive. More equity may make sense and be necessary to protect ratings if financial metrics are already under pressure and regulators are aggressive in lowering customer rates. It will probably take the remainder of this year to fully assess the financial impact on each issuer from the change in tax liabilities, the regulatory response, and the company's ultimate response. We have already witnessed differing responses. We revised our outlook to negative on PNM Resources Inc. and its subsidiaries on Jan. 16 after a Public Service Co. of New Mexico rate case decision incorporated tax savings with no offsetting measures taken to alleviate the weaker cash flows. It remains to be seen whether PNM will eventually do so, especially as it is facing other regulatory headwinds. On the other hand, FirstEnergy Corp. issued

> $1.62 billion of mandatory convertible stock and $850 million of common equity on Jan. 22 and explicitly referenced the need to support its credit metrics in the face of the new tax code in announcing the move. That is exactly the kind of proactive financial management that we will be looking for to fortify credit quality and promote ratings stability.[24]

In S&P's 2019 industry 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 level of equity issuances for utilities in 2016 and 2017.[25]

FitchRatings ("Fitch") recognized the implications of tax reform for regulated utilities, but indicated that any ratings actions will be guided by the

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

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

response of regulators and the management of the utilities. Fitch notes that the solution will depend on the ability of utility management to manage the cash flow implications of the TCJA. Fitch offers several solutions to provide rate stability and to moderate changes to cash flow in the near term, including increasing the authorized ROE and/or equity ratio.[26]

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

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

- The assumptions used in the ROE estimation models have been affected by recent historical capital market conditions.
- Recent market conditions are not expected to persist as the Federal Reserve continues to normalize monetary policy. As a result, the recent historical market conditions are not reflective of the market conditions that will be present when the rates for SPS will be in effect.
- It is important to consider the results of a variety of ROE estimation models, using forward-looking assumptions to estimate the cost of equity.
- Without adequate regulatory support, the TCJA will have a negative effect on utility cash flows, which increases investor risk expectations for utilities.

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

VI. PROXY GROUP SELECTION

Q. Why have you used a group of proxy companies to estimate the Cost of Equity for SPS?

A. In this proceeding, I am estimating the Cost of Equity for SPS, which is a rate-regulated subsidiary of Xcel Energy. Since the ROE is a market-based concept, and given the fact that SPS's operations do not make up the entirety of a publicly traded entity, it is necessary to establish a group of companies that is both publicly traded and comparable to SPS in certain fundamental business and financial respects to serve as its "proxy" for purposes of the ROE estimation process.

Even if SPS's regulated electric operations made up the entirety of a publicly traded entity, it is possible that transitory events could bias its market value in one way or another over a given period. A significant benefit of using a proxy group is that it mitigates the effects of anomalous events that may be associated with any one company. The proxy companies used in my analyses all possess a set of operating and financial risk characteristics that are substantially comparable to SPS, and, therefore, provide a reasonable basis for deriving the appropriate ROE for SPS.

Q. Please provide a brief profile of SPS.

A. SPS is a wholly-owned electric utility subsidiary of Xcel Energy that provides electric generation, transmission, and distribution services to approximately 390,000 retail customers in the eastern and southeastern areas of New Mexico and the Panhandle and South Plains areas of Texas. SPS generally accounts for 15 to 20% of Xcel Energy's consolidated net income.[27] SPS's current long-term issuer credit ratings are as follows: (1) S&P A- (Outlook: Stable); (2) Moody's Baa2 (Outlook: Stable); and (3) Fitch BBB (Outlook: Stable).[28]

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

A. I began with the group of domestic U.S. utilities that Value Line classifies as electric utilities, and I simultaneously applied the following screening criteria to select companies that:

- pay consistent quarterly cash dividends, because companies that do not cannot be analyzed using the Constant Growth DCF model;
- have positive long-term earnings growth forecasts from at least two utility industry equity analysts;

[27] Southwestern Public Service Company, United States Securities and Exchange Commission Form 10-K, December 31, 2018, at 7.

[28] Source: SNL Financial.

- have investment grade long-term issuer ratings from both S&P and Moody's;
- own regulated generation assets that are included in rate base;
- derive more than 60% of their total operating income from regulated operations;
- derive more than 80% of their total regulated operating income from regulated electric operations; and
- were not recently parties to a merger or transformative transaction.

Q. Did you consider other factors in addition to the screening criteria discussed above?

A. Yes. I also considered whether each company that passed the screening criteria was, in fact, generally comparable to SPS in terms of business and financial risk.[29] On that basis, I excluded one additional company: Edison International.

Recently, investors in Edison International have been reacting to the company's potential liability related to the California wildfires and how regulators might handle the issue of cost recovery for utility property that was damaged

[29] See Exhibit AEB-14 for a comparison of the adjustment clauses and cost recovery mechanisms for SPS and the operating utilities held by the proxy group.

during the fires.[30] Given the uncertainty surrounding this issue and the magnitude of the potential liability, it is not reasonable to include Edison International in the proxy group at this time.

Q. Did you include Xcel Energy in your analysis?

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

Q. What is the composition of your proxy group?

A. The above screening criteria resulted in a proxy group consisting of the companies shown in Figure 7:

[30] S&P Global Market Intelligence, "S&P Ratings: Other California Utilities Could Join PG&E in Junk Status, Bankruptcy", February 20, 2019.

Figure 7: Proxy Group

Company	Ticker
ALLETE, Inc.	ALE
Alliant Energy Corporation	LNT
Ameren Corporation	AEE
American Electric Power Company, Inc.	AEP
DTE Energy Company	DTE
Duke Energy Corp	DUK
Exelon Corporation	EXC
Evergy, Inc.	EVRG
Hawaiian Electric Industries	HE
IDACORP	IDA
NorthWestern Corporation	NWE
OGE Energy	OGE
Otter Tail Corp	OTTR
Pinnacle West Capital Corporation	PNW
PNM Resources, Inc.	PNM
Portland General Electric Company	POR
PPL Corp	PPL

VII. COST OF EQUITY ESTIMATION

Q. Please briefly discuss the ROE in the context of the regulated ROR.

A. The overall ROR for a regulated utility is based on its weighted average cost of capital, in which the costs of the individual sources of capital are weighted by their respective 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 estimated based on observable market data.

Q. How is the required ROE estimated?

A. The required ROE is estimated by using multiple analytical techniques that rely on market-based data to quantify investor expectations regarding required equity returns, adjusted for certain incremental costs and risks. Quantitative models produce a range of results from which the market-required ROE is selected. That selection must be based on a comprehensive review of relevant data and information, and does not necessarily lend itself to a strict mathematical solution. The key consideration in determining the Cost of Equity is to ensure that the methodologies employed reasonably reflect investors' views of the financial markets in general and of the subject company (in the context of the proxy group) in particular.

Q. What methods did you use to determine SPS's Cost of Equity?

A. I considered the results of two forms of the DCF model and the CAPM analysis, corroborated by the Bond Yield Plus Risk Premium methodology and an Expected Earnings analysis. I believe that a reasonable ROE estimate considers alternative methodologies, observable market data, and the reasonableness of their individual and collective results.

A. Importance of Multiple Analytical Approaches

Q. What approach has the Commission previously used to determine the appropriate return on equity for SPS?

A. The Commission has previously determined the appropriate return on equity for SPS by relying primarily on the results of the Constant Growth DCF model. Specifically, the Hearing Examiner in SPS's last rate case found:

> In contested rate cases involving PNM, EPE and SPS, witnesses consistently calculate ROE using multiple models, including the DCF, CAPM and Risk Premium Models. This case is no different: each of these methods was used by ROE witnesses. However, in recent contested investor-owned utility rate cases, the Commission rejected ROE analyses that combined the results of multiple Methods, finding that it should continue its primary reliance on the Constant Growth DCF Method. The DCF Method is firmly established as the standard method of measuring the cost of capital in the vast majority of corporate finance and investment textbooks and is deeply entrenched in regulatory practice. "The method is

> solid conceptually, and controversy regarding the method generally centers on implementation and execution rather than on theoretical soundness."[31]

Q. Do you agree with the Commission that there can be controversy in the implementation of the DCF model?

A. Yes, I do. Judgement is introduced in the development of the DCF model that can render the results of that model illogical and unreliable. In particular, the growth rates that are relied on are a point where the analyst can introduce judgement that can bias the results of the analysis. For example, in circumstances where the analyst performing the analysis simply chose the growth rates, rather than relying on the published estimates from analysts, the results of the DCF model can be biased by that choice. In addition, the use of estimates that are the view of one analyst can result in sole source bias. Therefore, because judgement can significantly affect the results that are derived from the DCF model, it is important to rely on multiple analytical approaches to develop a range of results using multiple methodologies.

[31] Case No. 17-00255-UT, Recommended Decision at 82, citations omitted.

Q. Are there additional models that should be considered in addition to the Constant Growth DCF model?

A. Yes. Because the Cost of Equity is not directly observable, it must be estimated based on both quantitative and qualitative information. When faced with the task of estimating the Cost of Equity, analysts and investors are inclined to gather and evaluate as much relevant data as reasonably can be analyzed. Several models have been developed to estimate the Cost of Equity, and I use multiple approaches to estimate the Cost of Equity. As a practical matter, however, all of the models available for estimating the Cost of Equity are subject to limiting assumptions or other methodological constraints. Consequently, many well-regarded finance texts recommend using multiple approaches when estimating the Cost of Equity. For example, Copeland, Koller, and Murrin[32] suggest using the CAPM and Arbitrage Pricing Theory model, while Brigham and Gapenski[33] recommend the CAPM, DCF, and Bond Yield Plus Risk Premium approaches. Consistent with the Hope finding, it is the analytical result, not the methodology employed, which is controlling in arriving at ROE determinations.

[32] 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.

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

Q. Are you aware of any regulatory commissions that have recognized that the current capital markets conditions 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 the FERC, PPUC, ICC, and Missouri PSC.

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

A. Understanding the important role that dividend yields play in the DCF model, In Opinion Nos. 531 and 551, the FERC determined that current 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.[34]

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

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) resulted in anomalous market conditions 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.

In October 2018, the FERC issued an Order in response to the remand from the U.S. Court of Appeals for the District of Columbia. In that Order, the FERC proposed 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 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 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.[35]

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

A. In a 2012 decision for PPL Electric Utilities, the PPUC noted that it had traditionally relied primarily on the DCF method to estimate the Cost of Equity for regulated utilities, but the PPUC recognized that market conditions were causing the DCF model to produce results that were much lower than other models, such as the CAPM and Bond Yield Plus Risk Premium. The PPUC's Order explained:

[35] 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]

> Sole reliance on one methodology without checking the validity of the results of that methodology with other cost of equity analyses does not always lend itself to responsible ratemaking. We conclude that methodologies other than the DCF can be used as a check upon the reasonableness of the DCF derived equity return calculation.[36]

The PPUC ultimately concluded:

> As such, where evidence based on the CAPM and RP methods suggest that the DCF-only results may understate the utility's current cost of equity capital, we will give consideration to those other methods, to some degree, in determining the appropriate range of reasonableness for our equity return determination.[37]

In a 2016 ICC case, the ICC Staff relied on a DCF analysis that resulted in average returns for their proxy groups of 7.24% to 7.51%. The Company demonstrated that these results were uncharacteristically low, by comparing the results of ICC Staff's models to recently authorized ROEs for regulated utilities and the return on the S&P 500.[38] The ICC agreed with the Company that the ICC Staff's proposed ROE of 8.04% was anomalous and recognized that a

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

[37] *Id.*, at 81.

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

non-competitive return will deter investment in Illinois.[39] In setting the return in that proceeding, the ICC found that it was necessary to consider other factors beyond the outputs of the financial models, particularly whether the return is sufficient to attract capital, maintain financial integrity, and commensurate with returns for companies of comparable risk, while balancing the interests of customers and shareholders.[40]

Finally, in February 2018, the Missouri PSC issued a decision in Spire's 2017 gas rate case. In explaining the rationale for its decision, the Commission cited the importance of considering multiple methodologies to estimate the Cost of Equity and the need for the authorized ROE to be consistent with returns in other jurisdictions and to reflect the growing economy and investor expectations for higher interest rates.

[39] 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.

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

> Based on the competent and substantial evidence in the record, on its analysis of the expert testimony offered by the parties, and on its balancing of the interests of the company's ratepayers and shareholders, as fully explained in its findings of fact and conclusions of law, the Commission finds that 9.8 percent is a fair and reasonable return on equity for Spire Missouri. That rate is nearly the midpoint of all the experts' recommendations and is consistent with the national average, the growing economy, and the anticipated increasing interest rates. The Commission finds that this rate of return will allow Spire Missouri to compete in the capital market for the funds needed to maintain its financial health.[41]

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

A. Recent market data that is used as the basis for the inputs and assumptions for both models have been affected by market conditions. As a result, relying exclusively on historical inputs and assumptions in these models, without considering whether these inputs and assumptions are consistent with investors' future expectations, will underestimate the Cost of Equity that investors would require over the period that the rates in this case are to be in effect. In this instance, relying on the historical average of abnormally high stock prices results in low dividend yields that are not expected to continue over the period that the

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

new rates will be in effect. This, in turn, underestimates the ROE for the rate period.

The use of recent historical Treasury bond yields in the CAPM also tends to underestimate the projected Cost of Equity. Recent experience indicates that interest rates have been increasing. The use of projected yields on Treasury bonds results in CAPM estimates that are more reflective of the market conditions that investors expect during the period that SPS's rates will be in effect.

B. Constant Growth DCF Model

Q. Are DCF models widely used to estimate the ROE for regulated utilities?

A. Yes. DCF models are widely used in regulatory proceedings and have sound theoretical bases, although neither the DCF model nor any other model can be applied without considerable judgment in the selection of data and the interpretation of results. As discussed in Section V of my Direct Testimony, the currently high valuations and low dividend yields for utility companies and the expectation that those high valuations and low dividend yields are not sustainable are creating concerns among analysts and regulators that the DCF model is understating the Cost of Equity at this time.

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:

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \ldots + \frac{D_\infty}{(1+k)^\infty} \; P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \ldots + \frac{D_\infty}{(1+k)^\infty}$$

[1]

Where P_0 represents the current stock price, D1…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 following form:

$$k = \frac{D_0(1+g)}{P_0} + g \; k = \frac{D_0(1+g)}{P_0} + g \qquad [2]$$

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 Constant Growth DCF model?

A. The Constant Growth DCF model requires the following assumptions: (1) a constant growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a constant price-to-earnings ("P/E") ratio; and (4) a discount rate greater than the expected growth rate. To the extent any of these assumptions is 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 Constant Growth DCF model?

A. The dividend yield in my Constant Growth DCF model is based on the proxy companies' current annual dividend and average closing stock prices over the 30-, 90-, 180-, and 360-trading days as of May 31, 2019.[42]

Q. Why did you use four averaging periods for stock prices?

A. I believe it is important to use an average of trading days to calculate the price term in the DCF model to ensure that the estimated ROE is not skewed by anomalous events that may affect stock prices on any given trading day. The

[42] It is my normal practice to rely on the current annual dividend and average closing stock prices over 30-, 90-, and 180- trading days. In this testimony, I am including the 360-day average because the Commission has previously relied on this longer averaging period. *See* Case No. 12-00350-UT, Recommended Decision at 105 and Final Order Partially Adopting Recommended Decision at 4.

averaging period should be reasonably representative of expected capital market conditions over the long term. In my view, the use of the 30-, 90-, and 180-day averaging periods reasonably balances those considerations. I also recognize that the Commission has considered the use of a 360-day averaging period.[43] Therefore, I also present the results of the DCF model using that averaging period for the calculation of the dividend yield.

Q. Did you make any adjustments to the dividend yield to account for periodic growth in dividends?

A. Yes. The Commission has typically used a full-year growth rate to calculate the expected dividend yield. Therefore, the DCF results presented in the tables in my testimony and in Attachments AEB-2 through AEB-5 reflect that convention.[44]

[43] Case No. 07-00319-UT, Final Order Partially Adopting Recommended Decision, at 13.

[44] Because 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. Therefore, my normal practice is to apply one-half of the growth rate to calculate the expected dividend yield to reflect the timing of dividend payments. However, in this case, I have adopted the Commission's preference for a full year's growth. Case No. 07-00319-UT, Final Order Partially Adopting the Recommended Decision at P 35; *In the Matter of the Application of Public Service Company of New Mexico for Revision of its Retail Electric Rates Pursuant to Advice Notice No. 334*, Case No. 07-00077-UT, Final Order Partially Adopting Recommended Decision at 10 (Apr. 24, 2008); and *In the Matter of the Application of Public Service Company of New Mexico for Revision of its Rates, Rules and Charges Pursuant to Advice Notice Nos. 755 and 756*, Case No. 06-00210-UT, Final Order Partially Adopting Recommended Decision at 9 (Jun. 29, 2007).

Q. Why is it important to select appropriate measures of long-term growth in applying the DCF model?

A. In its Constant Growth form, the DCF model (i.e., Equation [2]) assumes a single long-term growth rate in perpetuity. In order to reduce the long-term growth rate to a single measure, one must assume that the dividend payout ratio remains constant and that Earnings Per Share ("EPS"), 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. EPS growth rates tend to be least influenced by capital allocation decisions that companies may make in response to near-term changes in the business environment. Because such decisions may directly affect near-term dividend payout ratios, estimates of EPS growth are more indicative of long-term investor expectations than are dividend or book value growth estimates.

Q. Has the Commission typically relied on EPS growth estimates in arriving at the growth rate component of the DCF model?

A. Yes. In several recent cases, the Commission has relied on consensus EPS growth rate forecasts, such as Zacks Investment Research ("Zacks"), and EPS growth rates published by Value Line in the Constant Growth DCF model.[45]

Q. Has the Commission previously relied on other measures of growth in establishing the appropriate ROE?

A. Yes. In previous cases, the Commission also considered the use of a "retention growth" estimate in determining a utility's required return on equity.[46] However, in the decision in Case No. 12-00350-UT, the Commission relied on the average of the SPS witness's growth rates, which excluded the retention growth rate.[47] In that case, the SPS witness excluded the retention growth rate because it produced ROE results that were significantly below the returns that have been authorized in

[45] *See* Case No. 12-00350-UT, Final Order Partially Adopting Recommended Decision at 4; Case No. 07-00077-UT, Order at 11; Case No. 07-00319-UT, Final Order Partially Adopting the Recommended Decision at 14; Case No. 06-00210-UT, Order, at 14.

[46] *See* Case No. 07-00077-UT, Order at 11; Case No. 07-00319-UT, Final Order Partially Adopting the Recommended Decision at 14; Case No. 06-00210-UT, Order, at 14.

[47] *See* Case No. 12-00350-UT, Final Order Partially Adopting Recommended Decision, at 4.

any jurisdiction in more than twenty years.[48] The retention growth rate that has been relied on by the Commission is shown in Attachment AEB-3. The result of the DCF analysis using the retention growth rate is 6.77%, which is significantly below the returns that have been authorized in any jurisdiction.[49] In addition, this ROE is inconsistent with the average projected ROE for the proxy group that is used as one of the assumptions in developing the retention growth rate.[50] Therefore, I have not relied on the results of the DCF model using the sustainable growth rate.

Q. What sources of long-term growth rates did you rely on in your Constant Growth DCF model?

A. My Constant Growth DCF model incorporates three sources of long-term growth rates: (1) consensus long-term earnings growth estimates from Zacks; (2) consensus long-term earnings growth estimates from Thomson First Call

[48] Case No. 12-00350-UT, Direct Testimony of John J. Reed, at 42.

[49] *See* Attachment AEB-4.

[50] Attachment AEB-3 provides the calculation of the retention growth rate that the Commission considered in Case No. 12-00350-UT. As shown in Attachment AEB-3, the retention growth rate relies on a projected ROE for the proxy group as one assumption in the calculation. Value Line's projected average ROE for the proxy group is 9.92%, which is 255 basis points higher than the DCF result for the proxy group using the sustainable growth rate.

(provided by Yahoo! Finance); and (3) long-term earnings growth estimates from Value Line.

Q. Have you performed the calculations using the NMPRC DCF Averaging Scenarios that have been relied upon by the Commission?

A. Yes. As shown in Attachment AEB-4, I calculated the results using the NMPRC DCF Averaging Scenarios relied on in Case No. 12-00350-UT.[51] However, I have only relied on the DCF results based on long-term earnings growth rate estimates, not on retention growth rates.

Q. How did you calculate the expected dividend yield in each of the scenarios in Attachments AEB-2 and AEB-4?

A. I adjusted the dividend yield to reflect the full growth rate that was being used in that particular scenario.[52] This ensures that the growth rate used in the dividend yield calculation and the growth rate used as the "g" term of the DCF model are internally consistent.

[51] *See* Case No. 12-00350-UT, Recommended Decision at 105 and Final Order Partially Adopting Recommended Decision, at 4; see also Case No. 07-00319-UT, Final Order Partially Adopting the Recommended Decision, at 14.

[52] The use of the full growth rate in the calculation of the dividend yield is based on the Commission's preferences stated in several cases, including Case No. 12-00350-UT, Final Order Partially Adopting Recommended Decision at 4; Case No. 07-00319-UT, Final Order Partially Adopting the Recommended Decision at ¶ 35; Case No. 07-00077-UT, Order at 10; Case No. 06-00210-UT, Order, at 9.

C. Multi-Stage 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 Multi-Stage DCF model. As with the Constant Growth DCF model, the Multi-Stage form defines the Cost of Equity as the discount rate that sets the current price equal to the discounted value of future cash flows.

Q. What are the benefits of a Multi-Stage model?

A. The Multi-Stage DCF model, which is an extension of the Constant Growth form, enables the analyst to specify different growth rates over multiple stages. In particular, the Multi-Stage DCF model allows for a gradual transition from the first-stage growth rate to the long-term growth rate, thereby avoiding the often unrealistic assumption that growth changes abruptly between the first and third stages.

Q. Please describe the structure of your Multi-Stage DCF model.

A. The Multi-Stage DCF model sets the subject company's current stock price equal to the present value of future cash flows received over three "stages." In all three stages, cash flows are equal to the annual dividend payments that stockholders

receive. Stage One is a short-term growth period consisting of the first five years; Stage Two is a transition period from the short-term growth rate to the long-term growth rate which occurs over five years (i.e., years six through 10); and Stage Three is a long-term growth period that begins in year 11 and continues in perpetuity (i.e., year 200). The ROE is then calculated as the rate of return that results from the initial stock investment and the dividend payments over the analytical period.

Q. Please summarize the EPS growth rates used in your Multi-Stage DCF model.

A. As shown in Attachment AEB-5, I began with the current annualized dividend as of the end of trading on May 31, 2019 for each proxy group company. In the first stage of the model, the current annualized dividend is escalated based on the average of the three-to five-year earnings growth estimates reported by Zacks, Thomson First Call, and Value Line. For the third stage, I relied on long-term projected growth in Gross Domestic Product ("GDP"). The second-stage growth rate is a transition from the first-stage growth rate to the long-term growth rate on a geometric average basis.

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

A. As shown in Attachment AEB-6, the long-term growth rate of 5.52% is based on real GDP growth rate of 3.22% from 1929 through 2018[53] and a projected inflation rate of 2.23%. The projected inflation rate is based on three measures: (1) the average long-term projected growth rate in the Consumer Price Index ("CPI") for 2025-2029 of 2.10%;[54] (2) the compound annual growth rate of the CPI for all urban consumers for 2029-2050 of 2.31% as projected by the Energy Information Administration ("EIA"); and (3) the compound annual growth rate of the GDP chain-type price index for 2029-2050 of 2.29%, also reported by the EIA.[55]

Q. Has the Commission previously relied on a similar GDP growth rate in the Multi-Stage DCF model?

A. Yes, in Case No. 12-00350-UT, the Commission relied on the 5.51% nominal GDP growth rate developed by SPS's witness using the same method.[56]

---

[53] U.S. Department of Commerce, Bureau of Economic Analysis, May 30, 2019.

[54] Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14.

[55] U.S. Energy Information Administration, Annual Energy Outlook, Table 20, Macroeconomic Indicators. *See* Attachment AEB-6.

[56] *See* Case No. 12-00350-UT, Final Order Partially Adopting Recommended Decision, at 4.

Q. Do the assumptions used in the Multi-Stage DCF model address the effect of low dividend yields on the DCF results?

A. No, they do not. While the Multi-Stage DCF model provides for changes in growth over time, it does not address the abnormally low dividend yields for utility stocks and the effect of those low dividend yields on the DCF model, specifically the understated ROEs that result from the use of these assumptions. For that reason, I have also considered the results of alternative risk-premium based methodologies.

D. Discounted Cash Flow Results

Q. How did you calculate the range of results for the Constant Growth and Multi-Stage DCF Models?

A. I calculated the low result for both DCF models using the minimum growth rate (i.e., the lowest of the Zacks, Thomson First Call, and Value Line earnings growth rates) for each of the proxy group companies. Thus, the low result reflects the minimum DCF result for the proxy group. I used a similar approach to calculate the high results, using the highest growth rate for each proxy group company. The mean results were calculated using the average growth rates from all sources.

Q. Have you excluded any of the Constant Growth DCF results for individual companies in your proxy group?

A. Yes. It is appropriate to exclude Constant Growth DCF results below a specified threshold at which equity investors would consider such returns to provide an insufficient risk premium above long-term debt costs. The average credit rating for the companies in the proxy group is BBB+/Baa1. The average yield on Moody's Baa-rated utility bonds for the 360 trading days ending May 30, 2019 was 4.66%.[57] As shown in Attachment AEB-2, I have eliminated Constant Growth DCF results lower than 7.0% because such returns would provide equity investors a risk premium only 234 basis points above Baa-rated utility bonds. This resulted in the elimination of all DCF results for IDACORP, NorthWestern Corporation, and PPL Corporation, and the DCF results using the low growth rates for Exelon Corporation.

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

[57] Source: Bloomberg.

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. The dividend yield on the 30-day average DCF analysis was 3.17%, lower than the average dividend yield for electric utilities over the last 10 years. These data points demonstrate that the results of the current DCF models are significantly below more normal market conditions.

While I have given weight to the range of reasonable results established using the DCF methodologies, my recommendation also gives weight to the results of other ROE estimation models.

Q. Please summarize the results of your DCF analyses.

A. As shown in Figure 8, the Constant Growth DCF analysis using the 360-day average dividend yield and analysts' earnings growth rates produces a range of results from 8.36% to 10.45%. The average of the mean and mean high results is 9.83%.[58] The Multi-Stage DCF analysis using the 360-day average dividend

[58] The average of the mean and mean-high and the 360-day average dividend yields, have been relied on by the Commission in prior cases. *See* Case No. 12-00350-UT, Recommended Decision at 105 and Final Order Partially Adopting Recommended Decision at 4 and Case No. 15-00261-UT, Recommended Decision at 45-50 and Final Order Partially Adopting Corrected Recommended Decision at 15-16. The range provides the results using the mean and high earnings growth rate scenarios.

yield produces a range of results from 9.03% to 9.52%. The average of the mean and mean high results is 9.39%.

Figure 8: Summary of DCF Results

	Mean Low	Mean	Mean High	Mean/Mean High Average
Constant Growth DCF – Projected EPS Growth[59]				
30-Day Average	8.00%	8.83%	10.08%	9.45%
90-Day Average	8.05%	8.88%	10.13%	9.50%
180-Day Average	8.16%	9.00%	10.25%	9.62%
360-Day Average	8.36%	9.20%	10.45%	9.83%
Multi-Stage DCF[60]				
	Low	**Mean**	**High**	
30-Day Average	8.67%	8.87%	9.11%	8.99%
90-Day Average	8.71%	8.92%	9.16%	9.04%
180-Day Average	8.83%	9.04%	9.29%	9.17%
360-Day Average	9.03%	9.25%	9.52%	9.39%

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

[59] *See* Attachment AEB-2. Results summarized in Figure 8 exclude observations below the lower threshold of 7.00%.

[60] *Id.*, at Attachment AEB-5.

compensate investors for the non-diversifiable or "systematic" risk of that security. Systematic risk is the risk inherent in the entire market or market segment. This form of risk cannot be diversified away using a portfolio of assets. Non-systematic risk is the risk of a specific company that can be mitigated through portfolio theory.

The CAPM is defined by four components, each of which must theoretically be a forward-looking estimate:

$$K_e = r_f + \beta(r_m - r_f) \quad [3]$$

Where:

K_e = the required market ROE;

β = Beta coefficient of an individual security;

r_f = the risk-free rate; and

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 only be concerned with systematic risk.

Systematic risk is measured by Beta, which is a measure of the volatility of a security as compared to the market as a whole. Beta is defined as:

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

The variance of the market return (i.e., Variance (rm)) is a measure of the uncertainty of the general market. The covariance between the return on a specific security and the general market (i.e., Covariance (re, rm)) reflects the extent to which the return on that security will respond to a given change in the general market return. Thus, Beta represents the risk of the security relative to the general 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 current 30-day average yield on 30-year U.S. Treasury bonds (i.e., 2.85%);[61] (2) the projected 30-year U.S. Treasury bond yield for 2019 through 2020 (i.e., 3.06%);[62] and (3) the projected 30-year U.S. Treasury bond yield for 2020 through 2025 (i.e., 3.60%).[63]

[61] Bloomberg Professional, as of May 31, 2019.

[62] Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 2.

[63] Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14.

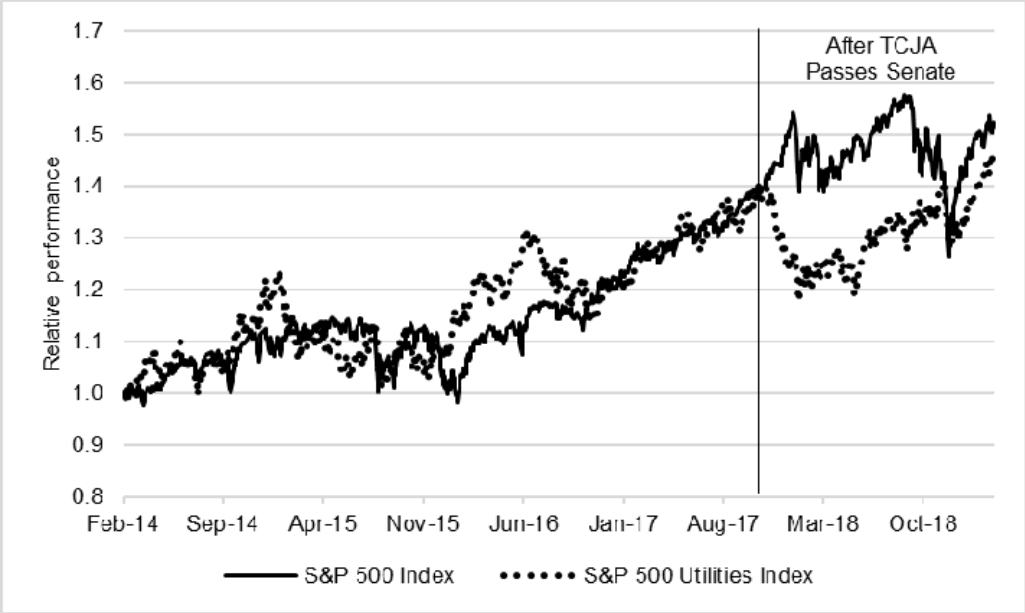
Q. What Beta coefficients did you use in your CAPM analysis?

A. As shown in Attachment AEB-8, I used the average Beta coefficients for the proxy group companies as reported by Value Line and Bloomberg. The Beta coefficients reports by Bloomberg were 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.

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

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

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



The TCJA's effect on the utility industry relative to other industries caused a short-term significant shift in the returns on the utility industry relative to the broader market. Over the last three to five years, volatility for the utility industry has been higher than the broader market (as measured by the S&P 500),[64] suggesting higher Beta coefficients for utility companies. However, in short-term calculations of the Beta coefficient, the significant effect of the shift in returns

[64] *See,* S&P Dow Jones Indices, Equity, S&P 500 Utilities, May 31, 2019.

related to the TCJA has outweighed the effect of longer-term measures of relative volatility. As such, to reflect the long-term relationship that suggests utility stocks are less volatile than the broader market (*i.e.,* the relative volatility for utility companies has been lower than the S&P 500 over the ten-year measure[65]), I selected a ten-year period to calculate the Beta coefficients from Bloomberg.

Q. How did you estimate the Market Risk Premium in the CAPM?

A. I estimated the Market Risk Premium based on the expected total return on the S&P 500 Index less the 30-year Treasury bond yield. I calculated the expected total return on the S&P 500 Index using two methods: (1) the Constant Growth DCF model to estimate the return for each of the companies in the S&P 500 Index and (2) S&P's published five-year projected growth rate for the S&P 500 as a whole. As shown in Attachment AEB-9, based on an estimated dividend yield of 2.08% and a long-term earnings growth rate of 11.69%, calculated using the individual company growth rate estimates, the estimated total market return for the S&P 500 Index is 13.90%. The implied Market Risk Premiums over the current and projected yields on the 30-year U.S. Treasury bond range from

[65] *Ibid.*

10.30% to 11.04%. As shown in Attachment AEB-9 (p. 2), relying on S&P's 5-year growth rate for the S&P 500 and 12-month dividend yield, the market return for the S&P 500 is 14.41% and the implied Market Risk Premiums range from 10.81% to 11.56%.

Q. What are the results of your CAPM analyses?

A. As shown in Figure 10 (*see* also Attachment AEB-9), my CAPM analyses produce a range of returns from 9.79% to 11.02%.

Figure 10: Forward-Looking CAPM Results

	Current Risk-Free Rate (2.85%)	2019-2020 Projected Risk-Free Rate (3.06%)	2021-2025 Projected Risk-Free Rate (3.60%)	Mean Result
CAPM Calculated Using Calculated Return on the S&P 500 Companies				
Value Line Beta	9.79%	9.87%	10.07%	9.91%
Bloomberg Beta	10.43%	10.49%	10.66%	10.53%
CAPM Calculated Using S&P Implied Return on the S&P 500				
Value Line Beta	10.11%	10.19%	10.39%	10.23%
Bloomberg Beta	10.78%	10.85%	11.02%	10.88%

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 principle 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 returns to bondholders, equity investors must be compensated to bear that risk. Risk premium approaches estimate the Cost of Equity as the sum of the equity risk premium and the yield on a particular class of bonds. In my analysis, I used actual authorized returns for electric utility companies 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. Yes. Both academic literature and market evidence indicate 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, the analysis should: (1) reflect the inverse relationship between interest rates and the equity risk premium; and (2) be based

on current and expected market conditions. Such an analysis can be developed based on a regression of the risk premium as a function of U.S. Treasury bond yields. If we let authorized ROEs for electric utility companies serve as the measure of required equity returns and define the yield on the long-term U.S. Treasury bond as the relevant measure of interest rates, the risk premium is simply the difference between those two points.[66]

Q. What did your Bond Yield Plus Risk Premium analysis reveal?

A. As shown in Figure 11, from 1980 through May 2019, there was a strong negative relationship between risk premium and interest rates. To estimate that relationship, I conducted a regression analysis using the following equation:

$$RP = a + b(T) \quad [5]$$

Where:

RP = Risk Premium (difference between allowed ROEs and the yield on 30-year U.S. Treasury bonds)

[66] *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.

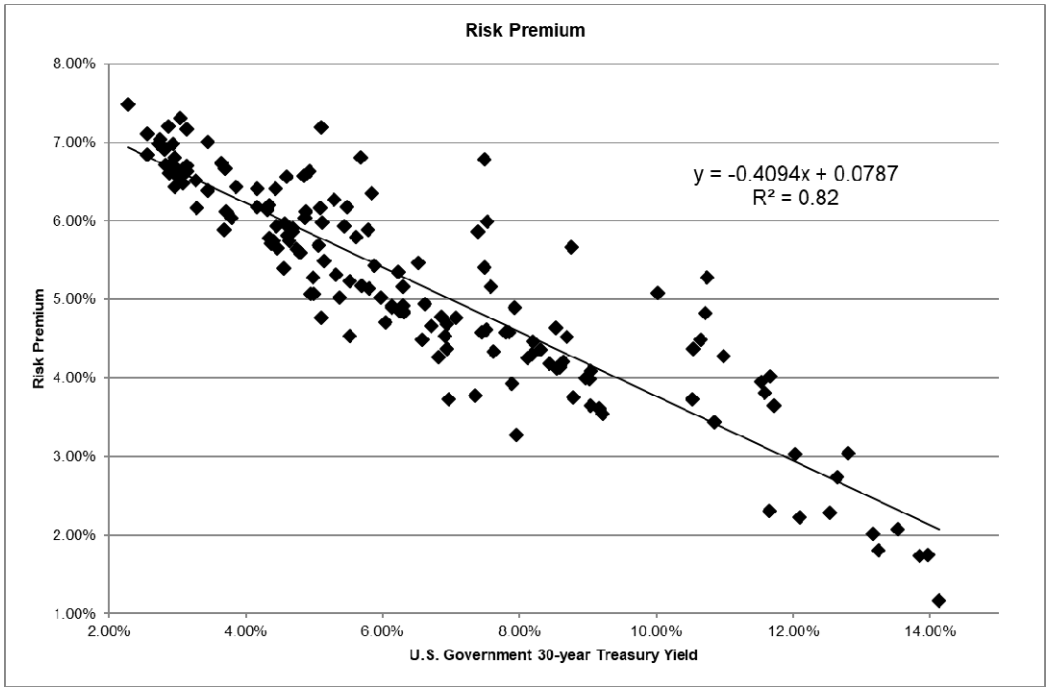
a = intercept term

b = slope term

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

Data regarding allowed ROEs were derived from 1,587 electric utility rate case decisions from 1980 through May 2019 as reported by the Regulatory Research Associates ("RRA"). This equation's coefficients were statistically significant at the 99.0% confidence interval.

Figure 11: Risk Premium Results



As shown in Attachment AEB-10, based on the current 30-day average of the 30-year U.S. Treasury bond yield (i.e., 2.85%), the risk premium would be 6.70%, resulting in an estimated ROE of 9.55%. Based on the near-term (2019-2020) projections of the 30-year U.S. Treasury bond yield (i.e., 3.06%), the risk premium would be 6.61%, resulting in an estimated ROE of 9.67%. Based on longer-term (2021-2025) projections of the 30-year U.S. Treasury bond yield (i.e., 3.60%), the risk premium would be 6.39%, resulting in an estimated ROE of 9.99%.

Q. How did the results of the Bond Yield Risk Premium analysis inform your recommended ROE for SPS?

A. I did not rely specifically on the results of the Bond Yield Risk Premium analysis in setting my recommended ROE for SPS. Rather, the results of this analysis provide support for my view that the DCF model is understating investors' return requirements under current market conditions. For that reason, I believe the results of the Bond Yield Risk Premium analysis support selection of an authorized ROE in the upper half of the range of DCF results.

G. Expected Earnings Analysis

Q. Have you considered any additional analysis to estimate the Cost of Equity for SPS?

A. Yes. Consistent with the FERC's recent Order on remand, 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. 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. How did you develop the Expected Earnings approach?

A. The Expected Earnings analysis is based on the projected return on equity capital for the proxy companies as reported by Value Line for the period from

2022-2024. As shown in Exhibit AEB-11, the Expected Earnings Analysis produces mean results of 10.25% for the proxy group companies.

VIII. BUSINESS RISKS AND OTHER CONSIDERATIONS

Q. Do the mean DCF and CAPM results for the proxy group, taken alone, provide an appropriate estimate of the Cost of Equity for SPS?

A. No. These results provide only a range of the appropriate estimate of SPS's Cost of Equity. Several additional factors must be considered when determining where SPS's Cost of Equity falls within the range of results. These risk factors, discussed below, should be considered with respect to their overall effect on SPS's risk profile relative to the proxy group as well as the flotation costs associated with issuing common equity. In addition, the SPS's management performance in providing low-cost service should be considered in determining where SPS's allowed return falls within the range of reasonableness.

Q. Are you aware that the Commission has previously rejected any adjustment to the ROE for business risk when the proxy companies have the same bond rating as the subject company?

A. Yes, I am aware of the Commission's determination on this issue in Case No. 12-00350-UT. However, I am not proposing to make an explicit adjustment to account for those risk factors. Rather, I am simply taking them into account in deciding where, within a reasonable range, SPS's required ROE falls. Moreover,

these risk factors have been identified by credit rating agencies as key factors in credit opinions. Therefore, it is appropriate to consider whether these factors place SPS at a relatively higher risk than the proxy companies.

A. Risks Associated with SPS's Capital Expenditure Requirements

Q. Please summarize SPS's capital expenditure requirements.

A. SPS's current projections include approximately $4.1 billion in capital investments for the period from 2019-2023, including significant investment in electric transmission and distribution operations.

Q. How is SPS's risk profile affected by its substantial capital expenditure requirements?

A. As with any utility faced with substantial capital expenditure requirements, SPS'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 delayed recovery, of the invested capital; and (2) an inadequate return would put downward pressure on key credit metrics.

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

A. Yes. In Moody's recent downgrade of SPS, the capital investment plan and the lack of adequate regulatory recovery mechanisms in New Mexico were discussed in its rationale:

> The combination of the utilities' investment program along with the exposure of its cash flows to regulatory lag, particularly due to the absence of any transmission and distribution riders in New Mexico, contribute to the extended deterioration in the utility's financial profile.[67]

To the extent that SPS's rates do not permit it to recover its full cost of doing business, SPS will face increased recovery risk and thus increased pressure on its credit metrics. An August 2016 S&P report 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,

[67] Moody's Investors Service, Ratings Action: Moody's changes Xcel Energy's outlook to negative; downgrades Southwestern Public Service ratings to Baa2 with stable outlook, October 19, 2018.

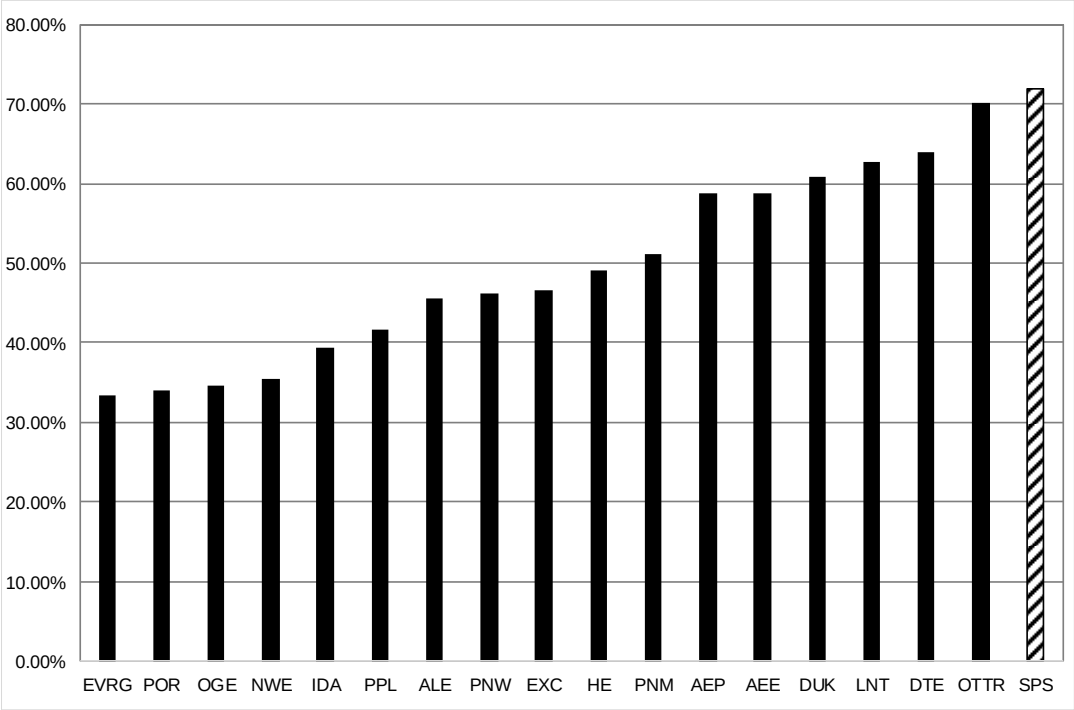
> such as specific environmental projects or system integrity plans, is less so, but still favorable for creditors. Allowance of a cash return on construction work-in-progress or similar ratemaking methods historically were extraordinary measures for use in unusual circumstances, but when construction 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.[68]

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

A. Yes. I compared the ratio of capital expenditures for the period 2019-2023 to 2018 net utility plant for SPS and each of the proxy group companies. As shown in Attachment AEB-12, the proxy group median capital expenditures to net utility plant is 46.69%, whereas SPS's percentage of projected capital expenditures to net utility plant is 71.91%. Figure 12 demonstrates that SPS's projected capital spending for the period from 2019-2023 as a percentage of net utility plant is at the top end of the range for the proxy companies.

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

Figure 12: Comparison of Capital Expenditures



Q. What are your conclusions regarding the effect of SPS's capital spending requirements on its risk profile?

A. It is clear that, on a relative basis, SPS's capital expenditure requirements are significant, and that timely cost recovery is needed in order to maintain credit metrics at a level consistent with the current credit ratings. It also is clear that the financial community recognizes the additional risks associated with substantial

capital expenditures. In my view, those factors support an ROE above the proxy group mean.

B. Regulatory Framework

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, SPS'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 SPS 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 efficient access to capital markets.

From the perspective of equity investors, the authorized return must be adequate to provide a risk-comparable return on the equity portion of SPS's capital investments. Because equity investors are the residual claimants on SPS'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. Do credit rating agencies consider the regulatory framework in establishing a utility company's credit rating?

A. Yes, both S&P and Moody's consider the overall regulatory framework in establishing credit ratings. Moody's establishes credit ratings based on four key factors: (1) regulatory risk; (2) the ability to recover costs and earn returns; (3) diversification; and (4) financial strength, liquidity, and key financial metrics. Of these criteria, regulatory risk and the ability to recover costs and earn returns are each given 25% weight. Therefore, Moody's assigns the regulatory framework a

50% weighting in the overall assessment of business and financial risk for regulated utilities.[69]

S&P has also identified the regulatory framework as an important factor in credit ratings for regulated utilities, stating: "One significant aspect of regulatory risk that influences credit quality is the regulatory environment in the jurisdictions in which a utility operates."[70] S&P identifies four specific factors that it uses to assess the credit implications of the regulatory jurisdictions of investor-owned regulated utilities: (1) regulatory stability; (2) tariff-setting procedures and design; (3) financial stability; and (4) regulatory independence and insulation.[71]

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

A. The regulatory framework can significantly affect both the access to and the cost of capital in several ways. First, the proportion and cost of debt capital available to utility companies are influenced by the rating agencies' assessment of the

[69] Moody's, Rating Methodology: Regulated Electric and Gas Utilities, December 23, 2013, at 6.

[70] S&P, Assessing U.S. Utility Regulatory Environments, August 10, 2016, at 2.

[71] *Ibid*.

regulatory environment. As noted by Moody's, "For rate regulated utilities, which typically operate as a monopoly, the regulatory environment and how the utility adapts to that environment are the most important credit considerations."[72] Moody's further highlights the relevance of a stable and predictable regulatory environment to a utility's credit quality, noting: "Broadly speaking, the Regulatory Framework is the foundation for how all the decisions that affect utilities are made (including the setting of rates), as well as the predictability and consistency of decision-making provided by that foundation."[73]

Q. Have rating agencies provided recent commentary on the regulatory environment for SPS?

A. Yes. In July 2018, Fitch commented that the regulatory environment for SPS is challenging, stating:

[72] Moody's, Rating Methodology: Regulated Electric and Gas Utilities, December 23, 2013, at 9.

[73] *Ibid*.

> Challenging Regulatory Environment:
> Fitch Ratings considers the regulatory environment overseen by the Public Utility Commission of Texas (PUCT) and the New Mexico Public Regulation Commission (NMPRC) to be challenging. Electric utilities in Texas and New Mexico have historically received authorized ROEs that are slightly lower than the nationwide average. In addition, regulatory lag from the use of a historical test year in Texas and other factors in the ratesetting process in New Mexico have made it difficult for SPS to earn its low authorized ROEs.[74]

In October 2018, Moody's also commented that the regulatory environment in New Mexico is challenging:

> In contrast [to Texas], in New Mexico, SPS was not authorized to implement the accelerated depreciation of the Tolk (2 units) coal-fired facility, one of the regulatory initiatives to mitigate the cash impact of the implementation of tax reform, a credit negative. Moreover, in September 2018, the NMPRC approved an increase in SPS' base rates of only $8 million, equal to about 30% of SPS' sought rate hike ($27 million). The key drivers of the gap include material differences between the underlying regulatory parameters, that is authorized 9.1% ROE and 51% equity ratio, and the utility's request of 10.25% ROE and 58% equity layer updated post-tax reform in May 2018. In contrast to the New Mexico Hearing Examiner's recommendation, the NMPRC also ordered as part of the rate case outcome a $10 million refund to end-users related to tax reform, that applies retroactively starting on Jan. 1, 2018, through a rider mechanism over a 18 month period ending in March 2019. In September 2018, SPS appealed this order with the New Mexico Supreme Court (NMSC) on the basis that the outcome is not just and reasonable. This judiciary proceeding sets

[74] Fitch Ratings, Southwestern Public Service Company, Full Rating Report, July 11, 2018, at 1.

> forth a track-record of appealing regulatory outcomes. For example, SPS appealed the NMPRC's application of a future test year which resulted in the regulator's reconsidering the definition. In May 2017, it also appealed the NMPRC's decision (April 2017) to dismiss its latest rate case (court decision now expected in the 2H2019). In our opinion, this willingness to litigate regulatory proceedings evidences a less constructive relationship with the regulator, a significant credit negative. Moreover, the utility does not benefit from transmission and distribution riders, a credit negative, that causes significant regulatory lag in the recovery of related investments.[75]

Q. Have you conducted any analysis of the regulatory framework in New Mexico relative to the jurisdictions in which the companies in your proxy group operate?

A. Yes. For credit supportiveness, S&P classifies each regulatory jurisdiction into five categories that range from "Credit Supportive" to "Most Credit Supportive." For my analysis of the regulatory jurisdictions in which the proxy companies operate, I assigned a numerical ranking to each category, from Most Credit Supportive ("1") to Credit Supportive ("5"). As shown in Attachment AEB-13, the proxy group average ranking was 2.49, which is well above the New Mexico jurisdictional ranking of Credit Supportive ("5").

[75] Moody's Investor Services, Credit Opinion, Southwestern Public Service Company, October 26, 2018, p. 4 [clarification added].

Q. Have you reviewed other rankings of regulatory jurisdictions?

A. Yes, I have. RRA provides a similar analysis of regulatory jurisdictions, using a ranking system of "Above Average" to "Below Average", with three notches at each ranking. I applied a similar numerical ranking to each of the notches used by RRA, from "1" to "9" and applied those to each regulatory jurisdiction that the proxy group operates in and to New Mexico. As shown in Attachment AEB-13, based on that ranking structure, the proxy group receives a ranking of Average (2) and New Mexico receives a ranking of Below Average (2), three notches lower.

Q. Have you conducted any other analysis of the relative risks of SPS's New Mexico operations and the proxy companies?

A. Yes. I have conducted an analysis of the adjustment clauses and cost recovery mechanisms that are in place for SPS compared with those for the operating utility companies held by the proxy group companies. The results of my analysis are presented in Attachment AEB-14. Specifically, I examined the following factors that affect the business risk of SPS and the proxy group companies: (1) fuel cost recovery; (2) revenue decoupling; and (3) capital cost recovery mechanisms.

As shown in Attachment AEB-14, similar to SPS, 79% of the regulated utility operating companies held by the proxy group are allowed to pass through fuel and purchased power costs directly to customers, so that the utility does not incur any risk associated with commodity costs or purchased power costs and 83% are allowed to recover the cost of conservation programs. In addition to those programs, 46% of the operating utilities (both gas and electric) held by the proxy group have some form of revenue decoupling mechanisms that allow them to break the link between customer usage and revenues. Considering capital cost recovery programs, 47% of the operating utilities held by the proxy group have capital cost tracking mechanisms that allow them to recover capital investments for environmental compliance, and 45% have an additional generic capital recovery tracker. As discussed above, Moody's noted "the utility does not benefit from transmission and distribution riders, a credit negative, that causes significant regulatory lag in the recovery of related investments,"[76] demonstrating that investors are aware of the relative risk of SPS's New Mexico operations due to its lack of timely recovery of investments.

[76] Moody's Investor Services, Credit Opinion, Southwestern Public Service Company, October 26, 2018, p. 4.

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 and rating agencies perceive the regulatory framework in New Mexico and how that affects the business risk of SPS relative to the proxy group companies. In fact, the Commission's decision in this case could demonstrate a more constructive approach that would mitigate SPS's regulatory risk. For example, while the Commission has traditionally relied on the DCF model for determining the ROE, capital market conditions vary widely over time and each ROE methodology may be impacted differently by identical conditions. The impact of these conditions on ROE must be assessed and interpreted by the practitioner to determine if their effects are directionally appropriate and are of a reasonable magnitude. Accordingly, it is incumbent on the practitioner to review the results of the analyses and exercise judgment as to how to weight those results in the overall ROE determination. 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 ROE; rather, each model

brings its own perspective and set of inputs that inform the estimate of ROE. As I discussed in Section V, capital market conditions suggest that the DCF model may not be reliable as the sole indicator of SPS's Cost of Equity at this time. As such, the Commission, like FERC and several other regulatory agencies, can demonstrate a more constructive regulatory framework and consider multiple approaches in its determination of SPS's Cost of Equity in this case.

Q. What are your conclusions regarding the perceived risks related to the New Mexico regulatory framework?

A. Both Moody's and S&P have identified the supportiveness of the regulatory framework as an important consideration in developing their overall credit ratings for regulated utilities. The S&P rankings demonstrate that investors perceive the regulatory frameworks for the proxy group companies as more credit supportive than the New Mexico regulatory framework. Both Fitch and Moody's have noted concerns with the challenging regulatory environment in New Mexico. Finally, considering the regulatory adjustment mechanisms, many of the proxy group companies have more cost recovery trackers and revenue stabilization mechanisms than SPS has in New Mexico. Therefore, the average ROE for the

proxy group and the average equity ratio, taken together understate the ROEthat an investor would require in New Mexico because the risks of timely and full cost recovery are greater for SPS than for the proxy group. For that reason, I conclude that the authorized ROE and equity ratio for SPS should be higher than the proxy group mean.

C. Customer Concentration

Q. Have you considered any other business risks faced by SPS?

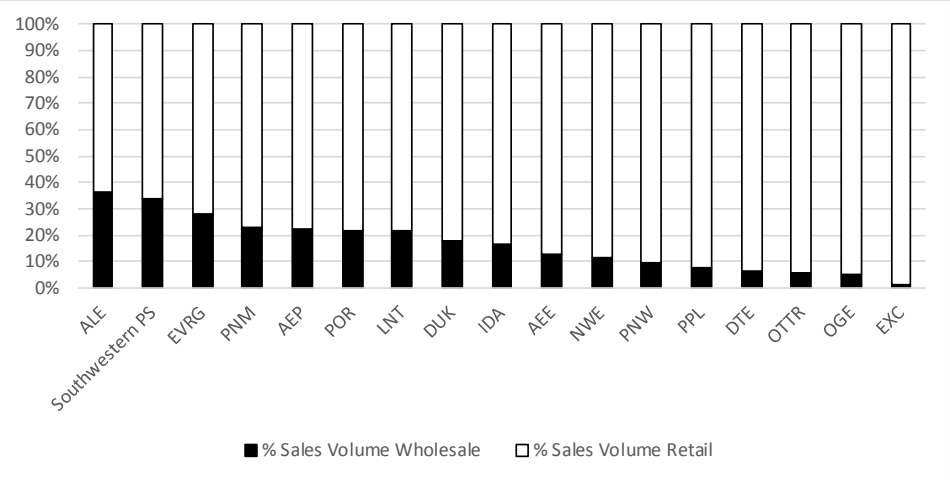
A. Yes, I have also considered the risks related to SPS's declining wholesale customer volumes and overall customer concentration.

Q. What is SPS's wholesale customer profile?

A. More than 33% of SPS's total electric sales are attributable to sales for resale in the wholesale electric market.[77] As shown in Figure 13, SPS's wholesale sales volume is higher than all but one of the 16 proxy group companies, and more than twice the proxy group median wholesale sales volume of approximately 14.6%.

[77] Source: SNL Financial.

Figure 13: Wholesale Customer Concentration



Q. Why are wholesale sales a risk for SPS?

A. Although all utilities face some risk related to wholesale customers and wholesale volumes, by Commission order, SPS has replacement power contracts with two large wholesale customers that are ratcheting down over time. In June 2017, the Golden Spread Electric Cooperative contract terminated.[78] In addition, in Case No. 10-00074-UT, the Commission approved a replacement power sales agreement between SPS and a group of New Mexico electric cooperatives that

[78] In the Matter of the Joint Application of Southwestern Public Service Company and Golden Spread Electric Cooperative, Inc. for Approval of Their Replacement Power Sales Agreement in Accordance with the Final Orders in Case Nos. 04-00426-UT and 05-00341-UT, Case No. 08-00331-UT (Apr. 27, 2010).

includes a declining volume through 2026. Under Phase I of this contract, the New Mexico cooperatives decreased demand by 87 MW through 2016. Phase II began in 2017 and demand decreased by another 80 MW. Phase III, which begins in 2022, limits the maximum firm capacity of the cooperatives to 175 MW. In the final phase of the contract, the demand is reduced to 100 MW.[79] In 2026, the contract terminates.

Q. What are your conclusions regarding SPS's risk related to wholesale customer load?

A. The significant risk of decline in SPS's wholesale customer load results in a shift in SPS's business risk that is not reflected in the business risk of the proxy companies. In particular, the projected decline in the wholesale load shifts costs from wholesale to retail customers and shifts the recovery of those costs from federal to state jurisdictional regulation. This could result in increased regulatory lag, the need for more frequent rate cases, and potentially lower returns, all of

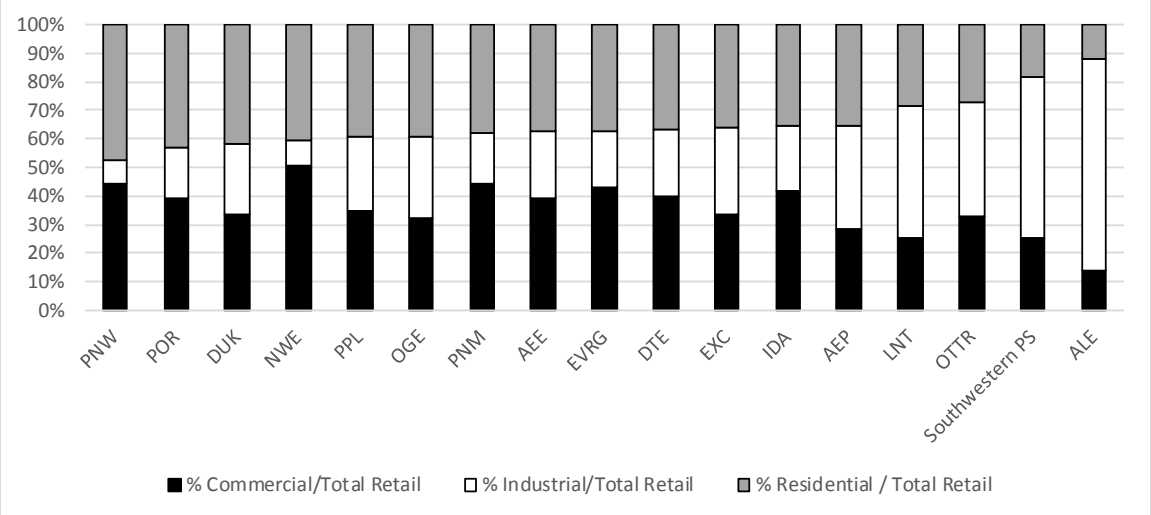
[79] In the Matter of the Application of Southwestern Public Service Company for Approval of System Average Cost Assignments in the Replacement Power Sales Agreements with Central Valley Electric Cooperative, Inc., Farmers' Electric Cooperative of New Mexico, Inc., Lea County Electric Cooperative, Inc., and Roosevelt County Electric Cooperative, Inc., in Accordance with the Final Orders in Case Nos. 04-00426-UT and 05-00341-UT, Case No. 10-00074-UT, Final Order Adopting Certification of Stipulation (Jul. 29, 2010).

which suggest that a return at the upper end of my range of results would be appropriate for SPS.

Q. Please summarize SPS's customer concentration risk.

A. Approximately 56% of SPS's total company retail electric sales in 2018 were derived from industrial customers.[80] As shown in Figure 14, SPS's commercial and industrial sales volume as a percentage of total retail sales were more than 81%, higher than all but one of the proxy companies.

Figure 14: Retail Customer Concentration[81]



[80] Source: SNL Financial.

[81] Source: SNL Financial.

Q. How does customer concentration affect SPS's business risk?

A. The relatively high concentration of commercial and industrial customers in SPS's customer base results in higher business risk because these customer segments have the least stable sales volumes. Moody's notes:

> The combination of the wind projects' PTCs (a pass-through under the fuel-clause after SPS' next rate cases) along with the reduced fuel costs, are expected to offset the impact on the end-users' bill of SPS' material investments. This is important, particularly given the high cost-awareness of its material commercial and industrial customer base (2017: nearly 80% of its total retail sales). The utility does not benefit from decoupling mechanisms in any of its jurisdictions, while the $9.50 monthly fixed charge to residential customers in Texas, does not insulate its cash flows from the risk associated with variations in its customer demand and under-recovery of its fixed costs.[82]

The commercial and industrial classes often have the ability to switch to alternative suppliers. In addition, larger industrial customers have the option to self-generate or relocate operations to take advantage of lower-cost regions with respect to labor and operating costs. Furthermore, industrial customer load is very dependent on economic conditions, resulting in large decreases in demand if operations are closed in weak economic periods. Therefore, SPS's customer

[82] Moody's Investor Services, Southwestern Public Service Company, Credit Opinion, October 26, 2018, at 6.

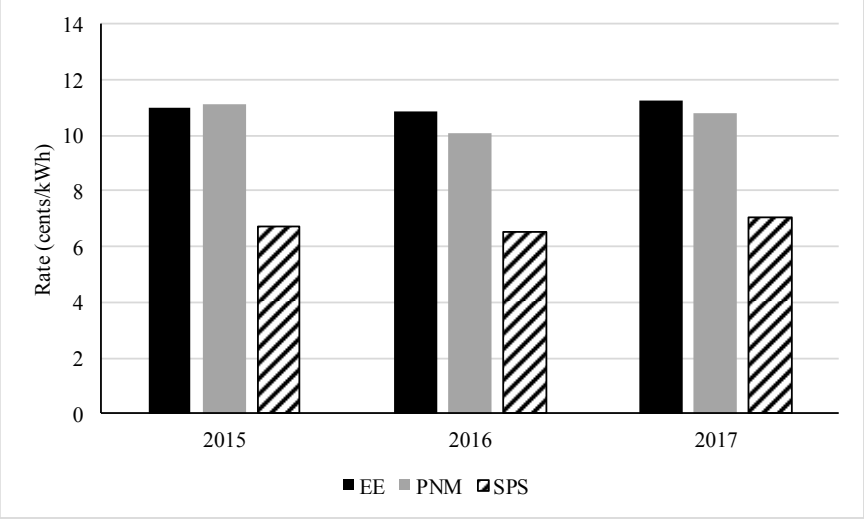
composition with a large percentage of commercial and industrial load results in increased risk of volatility with respect to sales, earnings, and cash flow.

D. Management Performance

Q. Please describe SPS's initiatives and its promise to benefit customers economically.

A. As described by SPS witness David T. Hudson, SPS is committed to a lower carbon future while maintaining reliable, safe, and affordable service to customers as well as contributing to economic expansion in New Mexico. SPS has made significant progress toward these objectives while effectively managing its costs. As shown in Figure 15, SPS has maintained the lowest overall rates in New Mexico, suggesting the company has met its service and least-cost obligations.

Figure 15: **Average Overall Retail Rate**



Q. Has SPS evaluated how its rates compare more broadly with electric utility rates across the country?

A. Yes. SPS recently contracted ScottMadden to prepare a benchmarking study of the SPS's rates, operating costs, and other performance metrics. In this study, ScottMadden compared SPS to a peer group of national companies on a variety of metrics including rates and operating costs.

Q. How do SPS's rates in New Mexico compare with the national peer group?

A. SPS's rates are well below the average of the national peer group, as shown in that study. As shown in Figure 15 above, in 2017, SPS's overall rate is approximately 7.06 cents/kilowatt-hour ("kWh") and the first quartile of the national peer group in the benchmarking study was approximately 7.93 cents /kWh. The median rate of the national group was 9.70 cents/kWh. This demonstrates that SPS has managed to retain a low cost for customers in New Mexico as compared with the national average.

Q. How did SPS's operating costs compare with the national peer group?

A. The benchmarking study compares SPS's total operation and maintenance ("O&M") expenses, total non-fuel O&M expenses, and total non-fuel production O&M expenses to the national peer group. The results of that analysis indicate

that SPS's O&M costs were at or below the median results for the national peer group. These results demonstrate above average management performance as compared with the national peer group used in the benchmarking study.

Q. Please explain why SPS's performance should be considered in establishing SPS's ROE.

A. It is consistent with the long-standing latitude of regulators to recognize low-cost, efficient service in setting the allowed return. Given New Mexico's and SPS's shared priority for clean and affordable electricity, and the investments this will require, it is important to set a return that will allow SPS to have continued access to capital markets at reasonable terms. As such, SPS's history of providing quality, low-cost service should be considered when determining where SPS's allowed return falls within the range of reasonableness.

E. Flotation Costs

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 preparation, filing, underwriting, and other issuance costs.

Q. Why is it important to consider flotation costs in the allowed ROE?

A. In order to attract and retain investors, a regulated utility must have the opportunity to earn an ROE that is both competitive and compensatory. To the extent a company is denied the opportunity to recover prudently-incurred flotation costs, actual returns will fall short of expected (or required) returns, thereby diminishing a company's ability to attract adequate capital on reasonable terms.

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 under "paid in capital." They are not current expenses, and, therefore, are not reflected on the income statement. Rather, like investments in rate base or the issuance costs of long-term debt, flotation costs are incurred over time. As a result, the great majority of a utility's flotation cost is incurred prior to the test year, but remains part of the cost structure that exists during the test year and beyond, and should therefore be recognized for ratemaking purposes. Therefore, recovery of this cost is appropriate regardless of whether an issuance occurs during, or is planned for, the test year because failure

to allow recovery of flotation costs may deny SPS the opportunity to earn its authorized Cost of Equity in the future.

Q. Please provide an example of why a flotation cost adjustment is necessary to compensate investors for the capital they have invested.

A. Suppose Xcel Energy issues stock with a value of $100, and an equity investor invests $100 in Xcel Energy in exchange for that stock. Further suppose that, after paying the flotation costs associated with the equity issuance, which include fees paid to underwriters and attorneys, among others, Xcel Energy ends up with only $97 of issuance proceeds, rather than the $100 the investor contributed. Xcel Energy invests that $97 in plant used to serve its customers, which becomes part of rate base. Absent a flotation cost adjustment, the investor will thereafter earn a return on only the $97 invested in rate base, even though she contributed $100. Making a small flotation cost adjustment gives the investor a reasonable opportunity to earn the authorized return, rather than the lower return that results when the authorized return is applied to an amount less than what the investor contributed.

Q. Is the need to consider flotation costs eliminated because SPS is a wholly-owned subsidiary of Xcel Energy?

A. No. Although SPS is a wholly-owned electric utility subsidiary of Xcel Energy, it is appropriate to consider flotation costs for two reasons. First, a substantial portion of SPS's paid-in equity is the result of prior public issuances of common stock made by SPS before it was combined in mergers that formed New Century Energies, Inc., and later Xcel Energy, at a time when SPS was itself a publicly-traded entity. Second, wholly-owned subsidiaries receive equity capital from their parent and provide returns on the capital that roll up to the parent, which is designated to attract and raise capital based upon the returns of those subsidiaries. To deny recovery of issuance costs associated with the capital that is invested in the subsidiaries ultimately penalizes the investors that fund the utility operations and inhibits the utility's ability to obtain new equity capital at a reasonable cost. This is particularly important for SPS because it is planning significant capital expenditures in the near term.

Q. Does it matter when Xcel Energy last issued common equity?

A. No. Xcel Energy closed on an equity issuance of approximately $460 million (3,359,103 shares of common stock) in November 2018. The vintage of the

issuance, however, is not particularly important because the investor suffers a shortfall in every year that he should have a reasonable opportunity to earn a return on the full amount of capital that he has contributed. Returning to my earlier example, the investor who contributed $100 is entitled to a reasonable opportunity to earn a return on $100 not only in the first year after the investment, but in every subsequent year in which he has the $100 invested. Leaving aside depreciation, which is dealt with separately, there is no basis to conclude that the investor is entitled to earn a return on $100 in the first year after issuance, but thereafter is entitled to earn a return on only $97. As long as the $100 is invested, the investor should have a reasonable opportunity to earn a return on the entire amount.

Q. Is the need to consider flotation costs recognized by the academic and financial communities?

A. Yes. The academic and financial communities recognize the need to reimburse investors for equity issuance costs in the same spirit that they recognize that investors should be reimbursed for the costs of issuing debt. This treatment is consistent with the philosophy of a fair ROR. According to Dr. Shannon Pratt:

> Flotation costs occur when new issues of stock or debt are sold to the public. The firm usually incurs several kinds of flotation or transaction costs, which reduce the actual proceeds received by the firm. Some of these are direct out-of-pocket outlays, such as fees paid to underwriters, legal expenses, and prospectus preparation costs. Because of this reduction in proceeds, the firm's required returns on these proceeds equate to a higher return to compensate for the additional costs. Flotation costs can be accounted for either by amortizing the cost, thus reducing the cash flow to discount, or by incorporating the cost into the cost of capital. Because flotation costs are not typically applied to operating cash flow, one must incorporate them into the cost of capital.[83]

Q. How did you calculate the flotation costs for SPS?

A. My flotation cost calculation was based on the costs of issuing equity that were incurred by the proxy group companies in their two most recent common equity issuances. Based on the issuance costs provided in Attachment AEB-7, flotation costs for SPS are approximately 0.11% (i.e., 11 basis points).

Q. Did you make an explicit adjustment to your recommendation for flotation costs?

A. No, I did not. Rather, I considered flotation costs along with company-specific business and financial risks in determining where within the range of reasonable results the ROE for SPS should be set.

[83] Shannon P. Pratt, Cost of Capital Estimation and Applications, Second Edition, at 220-221.

IX. CAPITAL STRUCTURE

Q. What is SPS's proposed capital structure?

A. SPS's proposed capital structure is composed of 54.77% common equity and 45.23% long-term debt.[84]

Q. How does the business risk of vertically-integrated electric utilities compare to the business risk of other regulated utilities?

A. According to Moody's, generation ownership causes vertically-integrated electric utilities to have higher business risk than either electric transmission and distribution companies, or natural gas distribution or transportation companies.[85] As a result of this higher business risk, integrated electric utilities typically require a higher percentage of equity in the capital structure than other electric or gas utilities.

Q. Have you analyzed the capital structures of the proxy group companies?

A. Yes. I calculated the mean and median proportions of common equity and long-term debt over the most recent eight quarters[86] for each of the proxy group

[84] Schedule G-1.

[85] Moody's, Rating Methodology: Electric and Gas Utilities, December 23, 2013, at 23-24.

[86] The source data for this analysis is the operating company data provided in FERC Form 1 reports. Due to the timing of those filings, my average capital structure analysis uses the quarterly capital structures reported for the proxy group companies for the period from the second quarter of 2017 through the end of the first quarter of 2019.

companies at the operating utility company level. My analysis of the proxy group's capital structures is provided in Attachment AEB-15. As shown in that Attachment, the mean equity ratio for the proxy group at the operating utility company level is 52.98%. The average equity ratios for the utility operating companies held by the proxy group range from 46.51% to 60.29%. SPS's proposed equity ratio of 54.77% is well within the range established by the proxy group capital structures.

Q. How does SPS's proposed capital structure compare to the authorized equity ratio for other vertically-integrated electric utilities?

A. The average authorized equity ratio for other vertically-integrated electric utilities from 2018-2019 was 51.80% and the median was 52.00% within a range from 41.68% to 57.10%. On that basis, my analysis shows that SPS's proposed common equity ratio of 54.77% is well within the range of authorized equity ratios for other vertically-integrated electric utilities over the past two years.

Q. What do you conclude regarding the credit rating agencies' view of SPS's capital structure and its effect on the credit quality of SPS?

A. Moody's recent downgrade of SPS demonstrates concerns regarding SPS's credit metrics over the near term. Increasing a utility company's equity ratio can

enhance cash flow metrics and help mitigate the uncertainty and near-term negative impacts of the TCJA. As discussed in Section V, Moody's cited the weakening of the company's credit metrics and the significant difference between the Commission's September 2018 approval of a 51% equity ratio compared to SPS's requested 58% equity ratio as evidence that "could be indicating a "less constructive relationship between the utility and the and the NMPRC." [87] Therefore, it is important to evaluate the capital structure of SPS, and its effect on the SPS's risk profile, in light of these concerns.

Q. Do you have any additional comments regarding the relationship between the authorized equity ratio and the authorized ROE?

A. Yes. There is a direct relationship between the authorized equity ratio and the authorized ROE. In particular, the authorized equity ratio is the primary indicator of financial risk for a regulated utility such as SPS. To the extent the authorized equity ratio is reduced, a corresponding increase is necessary in the authorized ROE to compensate investors for the greater financial risk associated with a lower equity ratio.

[87] Moody's Investors Service, Ratings Action: Moody's changes Xcel Energy's outlook to negative; downgrades Southwestern Public Service ratings to Baa2 with stable outlook, October 19, 2018.

Q. What is your conclusion with regard to SPS's proposed capital structure?

A. The proposed equity ratio for SPS is similar to the mean and median equity ratios at the operating utilities held within the proxy group. In addition, the proposed equity ratio for SPS is consistent with the authorized equity ratios for integrated electric utilities since 2017. As such, my conclusion is that SPS's proposed capital structure is reasonable.

X. CONCLUSIONS AND RECOMMENDATIONS

Q. What is your conclusion regarding a fair ROE for SPS?

A. Based on the various quantitative analyses summarized in Figure 16 and the qualitative analyses presented in my direct testimony, I believe that a reasonable range of ROE results for SPS is from 9.75% to 10.50%. As discussed throughout my testimony, the required ROE should be a forward-looking estimate; therefore, the analyses supporting my recommendation rely on forward-looking inputs and assumptions (e.g., forecasted earnings growth rates in the DCF model, projected risk free rate and Market Risk Premium in the CAPM analysis, etc.) and take into consideration capital market conditions, including the effect of the current low interest rate environment on utility stock valuations and dividend yields, and the uncertainty associated with global economic events, the market's expectation for interest rates, and concerns regarding cash flow metrics in response to the TCJA. Considering the regulatory, business, and financial risks of SPS compared to the proxy group, and the current capital market conditions that are causing the DCF models to understate the Cost of Equity, an ROE of 10.35% is reasonable.

Figure 16: Summary of Analytical Results

	Mean Low	Mean	Mean High	Mean/ Mean High Average
Constant Growth DCF – Projected EPS Growth[88]				
30-Day Average	8.00%	8.83%	10.08%	9.46%
90-Day Average	8.05%	8.88%	10.13%	9.50%
180-Day Average	8.16%	9.00%	10.25%	9.62%
360-Day Average	8.36%	9.20%	10.45%	9.82%
Multi-Stage DCF[89]				
	Low	**Mean**	**High**	
30-Day Average	8.67%	8.87%	9.11%	8.99%
90-Day Average	8.71%	8.92%	9.16%	9.04%
180-Day Average	8.83%	9.04%	9.29%	9.17%
360-Day Average	9.03%	9.25%	9.52%	9.39%
Risk Premium Analyses				
	Current Risk-Free Rate (2.85%)	**2019-2020 Projected Risk-Free Rate (3.06%)**	**2020-2024 Projected Risk-Free Rate (3.60%)**	
Calculated Return on the S&P 500 Companies				
CAPM - Value Line Beta	9.79%	9.87%	10.07%	
CAPM - Bloomberg Beta	10.43%	10.49%	10.66%	

[88] *See* Attachment AEB-2. Results summarized in Figure 16 exclude observations below the lower threshold of 7.00%.

[89] *Id.*, at AEB-5.

S&P Implied Return on the S&P 500			
CAPM - Value Line Beta	10.11%	10.19%	10.39%
CAPM - Bloomberg Beta	10.78%	10.85%	11.02%
Bond Yield Plus Risk Premium			
Bond Yield + Risk Premium	9.55%	9.67%	9.99%

Q. What is your conclusion with respect to SPS's proposed capital structure?

A. My conclusion is that SPS's proposed capital structure consisting of 54.77% common equity and 45.23% long-term debt is reasonable compared to the mean and range established by the capital structures for the proxy group companies.

Q. Does this conclude your pre-filed direct testimony?

A. Yes.

VERIFICATION

STATE OF MASSACHUSETTS)
) ss.
COUNTY OF MIDDLESEX)

ANN E. BULKLEY, first being sworn on her oath, states:

I am the witness identified in the preceding direct testimony. I have read the direct testimony and the accompanying attachment(s) and am familiar with their contents. Based upon my personal knowledge, the facts stated in the testimony are true. In addition, in my judgment and based upon my professional experience, the opinions and conclusions stated in the testimony are true, valid, and accurate.

Ann E. Bulkley
ANN E. BULKLEY

SUBSCRIBED AND SWORN TO before me this 14th day of June, 2019 by ANN E. BULKLEY.

Laureen G. Sasseville
Notary Public of the State of Massachusetts
My Commission Expires: 10/19/2023

LAUREEN G. SASSEVILLE
Notary Public
COMMONWEALTH OF MASSACHUSETTS
My Commission Expires
October 19, 2023

CONCENTRIC ENERGY ADVISORS

ANN E. BULKLEY

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

Senior Vice President

REPRESENTATIVE PROJECT EXPERIENCE

Regulatory Analysis and Ratemaking

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

Cost of Capital

Ms. Bulkley has provided expert testimony on the cost of capital in more than 30 regulatory proceedings before regulatory commissions in Arizona, Arkansas, Colorado, Connecticut, Kansas, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New Mexico, New York, North Dakota, Oklahoma, Pennsylvania, Texas, South Dakota, West Virginia, and the Federal

Energy Regulatory Commission. In addition, Ms. Bulkley has prepared and provided supporting analysis for at least forty Federal and State regulatory proceedings in which she did not testify.

Valuation

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

Representative projects/clients have included:

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

- Valued purchase power agreements in the transfer of assets to a deregulated electric market.

Ratemaking

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

- Assisted several investor-owned and municipal clients on cost allocation and rate design issues including the development of expert testimony supporting recommended rate alternatives.

Worked with Canadian regulatory staff to establish filing requirements for a rate review of a newly regulated electric utility. Analyzed and evaluated rate application. Attended hearings and conducted investigation of rate application for regulatory staff. Prepared, supported and defended recommendations for revenue requirements and rates for the company. Developed rates for gas utility for transportation program and ancillary services.

Strategic and Financial Advisory Services

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

Representative projects include:

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

PROFESSIONAL HISTORY

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

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

Cahners Publishing Company (1995)
Economist

EDUCATION

Boston University
M.A., Economics, 1995

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

CERTIFICATIONS

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

SPONSOR	DATE	CASE/APPLICANT	DOCKET / CASE NO.	SUBJECT
Arizona Corporation Commission				
Tucson Electric Power Company	04/19	Tucson Electric Power Company	Docket No. E-01933A-19-0028	Return on Equity
Tucson Electric Power Company	11/15	Tucson Electric Power Company	Docket No. E-01933A-15-0322	Return on Equity
UNS Electric	05/15	UNS Electric	Docket No. E-04204A-15-0142	Return on Equity
UNS Electric	12/12	UNS Electric	Docket No. E-04204A-12-0504	Return on Equity
Arkansas Public Service Commission				
Arkansas Oklahoma Gas Corporation	10/13	Arkansas Oklahoma Gas Corporation	Docket No. 13-078-U	Return on Equity
Colorado Public Utilities Commission				
Public Service Company of Colorado	01/19	Public Service Company of Colorado	19AL-0063ST	Return on Equity
Atmos Energy Corporation	05/15	Atmos Energy Corporation	Docket No. 15AL-0299G	Return on Equity
Atmos Energy Corporation	04/14	Atmos Energy Corporation	Docket No. 14AL-0300G	Return on Equity
Atmos Energy Corporation	05/13	Atmos Energy Corporation	Docket No. 13AL-0496G	Return on Equity
Connecticut Public Utilities Regulatory Authority				
Connecticut Natural Gas Corporation	06/18	Connecticut Natural Gas Corporation	Docket No. 18-05-16	Return on Equity
Yankee Gas Services Co. d/b/a Eversource Energy	06/18	Yankee Gas Services Co. d/b/a Eversource Energy	Docket No. 18-05-10	Return on Equity
The Southern Connecticut Gas Company	06/17	The Southern Connecticut Gas Company	Docket No. 17-05-42	Return on Equity
The United Illuminating Company	07/16	The United Illuminating Company	Docket No. 16-06-04	Return on Equity
Federal Energy Regulatory Commission				
Sea Robin Pipeline Company LLC	11/18	Sea Robin Pipeline Company LLC	Docket# RP19-___-000	Return on Equity
Tallgrass Interstate Gas Transmission	10/15	Tallgrass Interstate Gas Transmission	RP16-137	Return on Equity
Indiana Utility Regulatory Commission				

SPONSOR	DATE	CASE/APPLICANT	DOCKET / CASE NO.	SUBJECT
Indiana and Michigan American Water Company	09/18	Indiana and Michigan American Water Company	IURC Cause No. 45142	Return on Equity
Northern Indiana Public Service Company	09/17	Northern Indiana Public Service Company	Cause No. 44988	Fair Value
Indianapolis Power and Light Company	12/16	Indianapolis Power and Light Company	Cause No.44893	Fair Value
Northern Indiana Public Service Company	10/15	Northern Indiana Public Service Company	Cause No. 44688	Fair Value
Indianapolis Power and Light Company	09/15	Indianapolis Power and Light Company	Cause No. 44576 Cause No. 44602	Fair Value
Kokomo Gas and Fuel Company	09/10	Kokomo Gas and Fuel Company	Cause No. 43942	Fair Value
Northern Indiana Fuel and Light Company, Inc.	09/10	Northern Indiana Fuel and Light Company, Inc.	Cause No. 43943	Fair Value
Kansas Corporation Commission				
Atmos Energy Corporation	08/15	Atmos Energy Corporation	Docket No. 16-ATMG-079-RTS	Return on Equity
Kentucky Public Service Commission				
Kentucky American Water Company	11/18	Kentucky American Water Company	Docket No. 2018-00358	Return on Equity
Maine Public Utilities Commission				
Central Maine Power	10/18	Central Maine Power	Docket No. 2018-00194	Return on Equity
Maryland Public Service Commission				
Maryland American Water Company	06/18	Maryland American Water Company	Case No. 9487	Return on Equity
Massachusetts Appellate Tax Board				
FirstLight Hydro Generating Company	06/17	FirstLight Hydro Generating Company	Docket No. F-325471 Docket No. F-325472 Docket No. F-325473 Docket No. F-325474	Valuation of Electric Generation Assets
Massachusetts Department of Public Utilities				
Berkshire Gas Company	05/18	Berkshire Gas Company	DPU 18-40	Rate Case
Unitil Corporation	01/04	Fitchburg Gas and Electric	DTE 03-52	Integrated Resource Plan; Gas Demand Forecast
Michigan Public Service Commission				
Wisconsin Electric Power Company	12/11	Wisconsin Electric Power Company	Case No. U-16830	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET / CASE NO.	SUBJECT
Michigan Tax Tribunal				
New Covert Generating Co., LLC.	03/18	The Township of New Covert Michigan	MTT Docket No. 000248TT and 16-001888-TT	Valuation of Electric Generation Assets
Covert Township	07/14	New Covert Generating Co., LLC.	Docket No. 399578	Valuation of Electric Generation Assets
Minnesota Public Utilities Commission				
Minnesota Energy Resources Corporation	10/17	Minnesota Energy Resources Corporation	Docket No. G011/GR-17-563	Return on Equity
Missouri Public Service Commission				
Missouri American Water Company	06/17	Missouri American Water Company	Case No. WR-17-2085 Case No. SR-17-2086	Return on Equity
Montana Public Service Commission				
Montana-Dakota Utilities Co.	09/18	Montana-Dakota Utilities Co.	D2018.9.60	Return on Equity
New Hampshire-Merrimack County Superior Court				
Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	04/18	Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	220-2012-CV-1100	Valuation of Utility Property
New Hampshire-Rockingham Superior Court				
Eversource Energy	05/18	Public Service Commission of New Hampshire	218-2016-CV-00899 218-2017-CV-00917	Valuation of Utility Property
New Jersey Board of Public Utilities				
Public Service Electric and Gas Company	04/19	Public Service Electric and Gas Company	EO18060629 GO18060630	Return on Equity
Public Service Electric and Gas Company	02/18	Public Service Electric and Gas Company	GR17070776	Return on Equity
Public Service Electric and Gas Company	01/18	Public Service Electric and Gas Company	ER18010029 GR18010030	Return on Equity
New Mexico Public Regulation Commission				
Southwestern Public Service Company	10/17	Southwestern Public Service Company	Case No. 17-00255-UT	Return on Equity
Southwestern Public Service Company	12/16	Southwestern Public Service Company	Case No. 16-00269-UT	Return on Equity
Southwestern Public Service Company	10/15	Southwestern Public Service Company	Case No. 15-00296-UT	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET / CASE NO.	SUBJECT
Southwestern Public Service Company	06/15	Southwestern Public Service Company	Case No. 15-001398-UT	Return on Equity
New York State Department of Public Service				
Central Hudson Gas and Electric Corporation	07/17	Central Hudson Gas and Electric Corporation	Gas 17-G-0460 Electric 17-E-0459	Return on Equity
Niagara Mohawk Power Corporation	04/17	National Grid USA	Case No. C-17-E-0238	Return on Equity
Corning Natural Gas Corporation	06/16	Corning Natural Gas Corporation	Case No. 16-G-0369	Return on Equity
National Fuel Gas Company	04/16	National Fuel Gas Company	Case No. 16-G-0257	Return on Equity
KeySpan Energy Delivery	01/16	KeySpan Energy Delivery	Case No. 15-G-0058 Case No. 15-G-0059	Return on Equity
New York State Electric and Gas Company	05/15	New York State Electric and Gas Company	Case No. 15-G-0284	Return on Equity
North Dakota Public Service Commission				
Northern States Power Company	12/12	Northern States Power Company	C-PU-12-813	Return on Equity
Northern States Power Company	12/10	Northern States Power Company	C-PU-10-657	Return on Equity
Oklahoma Corporation Commission				
Arkansas Oklahoma Gas Corporation	01/13	Arkansas Oklahoma Gas Corporation	Cause No. PUD 201200236	Return on Equity
Pennsylvania Public Utility Commission				
American Water Works Company Inc.	04/17	Pennsylvania-American Water Company	Docket No. R-2017-2595853	Return on Equity
South Dakota Public Utilities Commission				
Northern States Power Company	06/14	Northern States Power Company	Docket No. EL14-058	Return on Equity
Texas Public Utility Commission				
Southwestern Public Service Company	01/14	Southwestern Public Service Company	Docket No. 42004	Return on Equity
Virginia State Corporation Commission				
Virginia American Water Company, Inc.	11/18	Virginia American Water Company, Inc.	Docket No. PUR-2018-00175	Return on Equity
Washington Utilities Transportation Commission				
Cascade Natural Gas Corporation	04/19	Cascade Natural Gas Corporation	Docket NO. UG-19___	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET / CASE NO.	SUBJECT
West Virginia Public Service Commission				
West Virginia American Water Company	04/18	West Virginia American Water Company	Case No. 18-0573-W-42T Case No. 18-0576-S-42T	Return on Equity
Wisconsin Public Service Commission				
Wisconsin Electric Power Company and Wisconsin Gas LLC	03/19	Wisconsin Electric Power Company and Wisconsin Gas LLC	Docket No. 05-UR-109	Return on Equity
Wisconsin Public Service Corporation	03/19	Wisconsin Public Service Corporation	6690-UR-126	Return on Equity

Southwestern Public Service Company

Constant Growth DCF Results

30-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE	Low ROE with Exclusions	Mean ROE with Exclusions	High ROE with Exclusions
ALLETE, Inc.	ALE	$2.35	$81.31	2.89%	3.07%	5.00%	6.00%	7.20%	6.07%	8.03%	9.13%	10.30%	8.03%	9.13%	10.30%
Alliant Energy Corporation	LNT	$1.42	$47.20	3.01%	3.19%	6.50%	5.85%	5.40%	5.92%	8.57%	9.10%	9.70%	8.57%	9.10%	9.70%
Ameren Corporation	AEE	$1.90	$73.07	2.60%	2.75%	6.50%	4.90%	6.20%	5.87%	7.63%	8.62%	9.27%	7.63%	8.62%	9.27%
American Electric Power Company, Inc.	AEP	$2.68	$85.25	3.14%	3.31%	4.00%	5.79%	5.60%	5.13%	7.27%	8.44%	9.12%	7.27%	8.44%	9.12%
DTE Energy Company	DTE	$3.78	$125.38	3.01%	3.17%	5.00%	4.16%	6.00%	5.05%	7.30%	8.22%	9.20%	7.30%	8.22%	9.20%
Duke Energy Corporation	DUK	$3.71	$88.29	4.20%	4.42%	6.00%	4.60%	4.80%	5.13%	9.00%	9.55%	10.45%	9.00%	9.55%	10.45%
Exelon Corporation	EXC	$1.45	$49.35	2.94%	3.09%	10.50%	1.33%	3.80%	5.21%	4.31%	8.30%	13.75%		8.30%	13.75%
Evergy, Inc.	EVRG	$1.90	$57.85	3.28%	3.49%	NA	6.15%	6.60%	6.38%	9.64%	9.87%	10.10%	9.64%	9.87%	10.10%
Hawaiian Electric Industries, Inc.	HE	$1.28	$41.56	3.08%	3.25%	4.50%	6.10%	5.60%	5.40%	7.72%	8.65%	9.37%	7.72%	8.65%	9.37%
IDACORP, Inc.	IDA	$2.52	$100.49	2.51%	2.59%	3.50%	2.40%	3.80%	3.23%	4.97%	5.82%	6.40%			
NorthWestern Corporation	NWE	$2.30	$70.39	3.27%	3.36%	3.00%	2.86%	2.80%	2.89%	6.16%	6.25%	6.37%			
OGE Energy Corporation	OGE	$1.46	$41.87	3.49%	3.66%	6.50%	3.80%	4.60%	4.97%	7.42%	8.63%	10.21%	7.42%	8.63%	10.21%
Otter Tail Corporation	OTTR	$1.40	$50.75	2.76%	2.95%	5.00%	9.00%	7.00%	7.00%	7.90%	9.95%	12.01%	7.90%	9.95%	12.01%
Pinnacle West Capital Corporation	PNW	$2.95	$94.73	3.11%	3.27%	5.00%	5.01%	5.00%	5.00%	8.27%	8.27%	8.28%	8.27%	8.27%	8.28%
PNM Resources, Inc.	PNM	$1.16	$46.65	2.49%	2.65%	8.50%	5.70%	5.20%	6.47%	7.82%	9.11%	11.20%	7.82%	9.11%	11.20%
Portland General Electric Company	POR	$1.45	$52.39	2.77%	2.90%	4.50%	5.20%	4.90%	4.87%	7.39%	7.77%	8.11%	7.39%	7.77%	8.11%
PPL Corporation	PPL	$1.65	$30.59	5.39%	5.45%	1.50%	0.59%	NA	1.05%	6.02%	6.50%	6.97%			
MEAN				**3.17%**	**3.33%**	**5.34%**	**4.67%**	**5.28%**	**5.04%**	**7.38%**	**8.36%**	**9.46%**	**8.00%**	**8.83%**	**10.08%**
Flotation Cost										**0.11%**	**0.11%**	**0.11%**	**0.11%**	**0.11%**	**0.11%**
Flotation Cost Adjusted DCF Result										**7.48%**	**8.47%**	**9.56%**	**8.10%**	**8.93%**	**10.18%**

Notes:

[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 30-day average as of May 31, 2019
[3] Equals [1] / [2]
[4] Equals [3] x (1 + [8])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Equals [3] x (1 + Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])
[12] Equals [9], if greater than 7%
[13] Equals [10], if greater than 7%
[14] Equals [11], if greater than 7%

Southwestern Public Service Company

Constant Growth DCF Results

90-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE	Low RoE - with Exclusions	Mean RoE - with Exclusions	High RoE - with Exclusions
ALLETE, Inc.	ALE	$2.35	$80.69	2.91%	3.09%	5.00%	6.00%	7.20%	6.07%	8.06%	9.16%	10.32%	8.06%	9.16%	10.32%
Alliant Energy Corporation	LNT	$1.42	$46.26	3.07%	3.25%	6.50%	5.85%	5.40%	5.92%	8.64%	9.17%	9.77%	8.64%	9.17%	9.77%
Ameren Corporation	AEE	$1.90	$71.78	2.65%	2.80%	6.50%	4.90%	6.20%	5.87%	7.68%	8.67%	9.32%	7.68%	8.67%	9.32%
American Electric Power Company, Inc.	AEP	$2.68	$82.78	3.24%	3.40%	4.00%	5.79%	5.60%	5.13%	7.37%	8.53%	9.21%	7.37%	8.53%	9.21%
DTE Energy Company	DTE	$3.78	$122.81	3.08%	3.23%	5.00%	4.16%	6.00%	5.05%	7.37%	8.29%	9.26%	7.37%	8.29%	9.26%
Duke Energy Corporation	DUK	$3.71	$88.92	4.17%	4.39%	6.00%	4.60%	4.80%	5.13%	8.96%	9.52%	10.42%	8.96%	9.52%	10.42%
Exelon Corporation	EXC	$1.45	$48.94	2.96%	3.12%	10.50%	1.33%	3.80%	5.21%	4.33%	8.33%	13.77%		8.33%	13.77%
Evergy, Inc.	EVRG	$1.90	$57.38	3.31%	3.52%	NA	6.15%	6.60%	6.38%	9.67%	9.90%	10.13%	9.67%	9.90%	10.13%
Hawaiian Electric Industries, Inc.	HE	$1.28	$39.92	3.21%	3.38%	4.50%	6.10%	5.60%	5.40%	7.85%	8.78%	9.50%	7.85%	8.78%	9.50%
IDACORP, Inc.	IDA	$2.52	$99.04	2.54%	2.63%	3.50%	2.40%	3.80%	3.23%	5.01%	5.86%	6.44%			
NorthWestern Corporation	NWE	$2.30	$68.66	3.35%	3.45%	3.00%	2.86%	2.80%	2.89%	6.24%	6.33%	6.45%			
OGE Energy Corporation	OGE	$1.46	$41.98	3.48%	3.65%	6.50%	3.80%	4.60%	4.97%	7.41%	8.62%	10.20%	7.41%	8.62%	10.20%
Otter Tail Corporation	OTTR	$1.40	$49.96	2.80%	3.00%	5.00%	9.00%	7.00%	7.00%	7.94%	10.00%	12.05%	7.94%	10.00%	12.05%
Pinnacle West Capital Corporation	PNW	$2.95	$93.23	3.16%	3.32%	5.00%	5.01%	5.00%	5.00%	8.32%	8.33%	8.33%	8.32%	8.33%	8.33%
PNM Resources, Inc.	PNM	$1.16	$45.43	2.55%	2.72%	8.50%	5.70%	5.20%	6.47%	7.89%	9.19%	11.27%	7.89%	9.19%	11.27%
Portland General Electric Company	POR	$1.45	$50.93	2.85%	2.99%	4.50%	5.20%	4.90%	4.87%	7.48%	7.85%	8.20%	7.48%	7.85%	8.20%
PPL Corporation	PPL	$1.65	$31.30	5.27%	5.33%	1.50%	0.59%	NA	1.05%	5.89%	6.37%	6.85%			
MEAN				**3.21%**	**3.37%**	**5.34%**	**4.67%**	**5.28%**	**5.04%**	**7.42%**	**8.40%**	**9.50%**	**8.05%**	**8.88%**	**10.13%**
Flotation Cost										**0.11%**	**0.11%**	**0.11%**	**0.11%**	**0.11%**	**0.11%**
Flotation Cost Adjusted DCF Result										**7.52%**	**8.51%**	**9.61%**	**8.15%**	**8.99%**	**10.23%**

Notes:

[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 90-day average as of May 31, 2019
[3] Equals [1] / [2]
[4] Equals [3] x (1 + [8])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Equals [3] x (1 + Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])
[12] Equals [9], if greater than 7%
[13] Equals [10], if greater than 7%
[14] Equals [11], if greater than 7%

Southwestern Public Service Company

Constant Growth DCF Results

180-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE	Low RoE - with Exclusions	Mean RoE - with Exclusions	High RoE - with Exclusions
ALLETE, Inc.	ALE	$2.35	$78.66	2.99%	3.17%	5.00%	6.00%	7.20%	6.07%	8.14%	9.24%	10.40%	8.14%	9.24%	10.40%
Alliant Energy Corporation	LNT	$1.42	$44.89	3.16%	3.35%	6.50%	5.85%	5.40%	5.92%	8.73%	9.27%	9.87%	8.73%	9.27%	9.87%
Ameren Corporation	AEE	$1.90	$68.95	2.76%	2.92%	6.50%	4.90%	6.20%	5.87%	7.79%	8.78%	9.43%	7.79%	8.78%	9.43%
American Electric Power Company, Inc.	AEP	$2.68	$78.59	3.41%	3.58%	4.00%	5.79%	5.60%	5.13%	7.55%	8.71%	9.40%	7.55%	8.71%	9.40%
DTE Energy Company	DTE	$3.78	$118.13	3.20%	3.36%	5.00%	4.16%	6.00%	5.05%	7.49%	8.41%	9.39%	7.49%	8.41%	9.39%
Duke Energy Corporation	DUK	$3.71	$86.67	4.28%	4.50%	6.00%	4.60%	4.80%	5.13%	9.08%	9.63%	10.54%	9.08%	9.63%	10.54%
Exelon Corporation	EXC	$1.45	$46.83	3.10%	3.26%	10.50%	1.33%	3.80%	5.21%	4.47%	8.47%	13.92%		8.47%	13.92%
Evergy, Inc.	EVRG	$1.90	$57.33	3.31%	3.53%	NA	6.15%	6.60%	6.38%	9.67%	9.90%	10.13%	9.67%	9.90%	10.13%
Hawaiian Electric Industries, Inc.	HE	$1.28	$38.28	3.34%	3.52%	4.50%	6.10%	5.60%	5.40%	7.99%	8.92%	9.65%	7.99%	8.92%	9.65%
IDACORP, Inc.	IDA	$2.52	$98.09	2.57%	2.65%	3.50%	2.40%	3.80%	3.23%	5.03%	5.89%	6.47%			
NorthWestern Corporation	NWE	$2.30	$64.75	3.55%	3.65%	3.00%	2.86%	2.80%	2.89%	6.45%	6.54%	6.66%			
OGE Energy Corporation	OGE	$1.46	$40.15	3.64%	3.82%	6.50%	3.80%	4.60%	4.97%	7.57%	8.78%	10.37%	7.57%	8.78%	10.37%
Otter Tail Corporation	OTTR	$1.40	$48.87	2.86%	3.07%	5.00%	9.00%	7.00%	7.00%	8.01%	10.07%	12.12%	8.01%	10.07%	12.12%
Pinnacle West Capital Corporation	PNW	$2.95	$89.09	3.31%	3.48%	5.00%	5.01%	5.00%	5.00%	8.48%	8.48%	8.49%	8.48%	8.48%	8.49%
PNM Resources, Inc.	PNM	$1.16	$43.10	2.69%	2.87%	8.50%	5.70%	5.20%	6.47%	8.03%	9.33%	11.42%	8.03%	9.33%	11.42%
Portland General Electric Company	POR	$1.45	$48.69	2.98%	3.12%	4.50%	5.20%	4.90%	4.87%	7.61%	7.99%	8.33%	7.61%	7.99%	8.33%
PPL Corporation	PPL	$1.65	$30.69	5.38%	5.43%	1.50%	0.59%	NA	1.05%	6.00%	6.48%	6.96%			
MEAN				**3.33%**	**3.49%**	**5.34%**	**4.67%**	**5.28%**	**5.04%**	**7.53%**	**8.52%**	**9.62%**	**8.16%**	**9.00%**	**10.25%**
Flotation Cost										**0.11%**	**0.11%**	**0.11%**	**0.11%**	**0.11%**	**0.11%**
Flotation Cost Adjusted DCF Result										**7.64%**	**8.63%**	**9.73%**	**8.27%**	**9.10%**	**10.35%**

Notes:

[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 180-day average as of May 31, 2019
[3] Equals [1] / [2]
[4] Equals [3] x (1 + [8])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Equals [3] x (1 + Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])
[12] Equals [9], if greater than 7%
[13] Equals [10], if greater than 7%
[14] Equals [11], if greater than 7%

Southwestern Public Service Company

Constant Growth DCF Results

360-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE	Low RoE - with Exclusions	Mean RoE - with Exclusions	High RoE - with Exclusions
ALLETE, Inc.	ALE	$2.35	$76.34	3.08%	3.27%	5.00%	6.00%	7.20%	6.07%	8.23%	9.33%	10.50%	8.23%	9.33%	10.50%
Alliant Energy Corporation	LNT	$1.42	$43.00	3.30%	3.50%	6.50%	5.85%	5.40%	5.92%	8.88%	9.41%	10.02%	8.88%	9.41%	10.02%
Ameren Corporation	AEE	$1.90	$63.59	2.99%	3.16%	6.50%	4.90%	6.20%	5.87%	8.03%	9.03%	9.68%	8.03%	9.03%	9.68%
American Electric Power Company, Inc.	AEP	$2.68	$73.57	3.64%	3.83%	4.00%	5.79%	5.60%	5.13%	7.79%	8.96%	9.64%	7.79%	8.96%	9.64%
DTE Energy Company	DTE	$3.78	$111.33	3.40%	3.57%	5.00%	4.16%	6.00%	5.05%	7.70%	8.62%	9.60%	7.70%	8.62%	9.60%
Duke Energy Corporation	DUK	$3.71	$82.52	4.50%	4.73%	6.00%	4.60%	4.80%	5.13%	9.30%	9.86%	10.77%	9.30%	9.86%	10.77%
Exelon Corporation	EXC	$1.45	$43.49	3.33%	3.51%	10.50%	1.33%	3.80%	5.21%	4.71%	8.72%	14.18%		8.72%	14.18%
Evergy, Inc.	EVRG	$1.90	$55.31	3.43%	3.65%	NA	6.15%	6.60%	6.38%	9.80%	10.03%	10.26%	9.80%	10.03%	10.26%
Hawaiian Electric Industries, Inc.	HE	$1.28	$36.29	3.53%	3.72%	4.50%	6.10%	5.60%	5.40%	8.19%	9.12%	9.84%	8.19%	9.12%	9.84%
IDACORP, Inc.	IDA	$2.52	$93.84	2.69%	2.77%	3.50%	2.40%	3.80%	3.23%	5.15%	6.01%	6.59%			
NorthWestern Corporation	NWE	$2.30	$60.06	3.83%	3.94%	3.00%	2.86%	2.80%	2.89%	6.74%	6.83%	6.94%			
OGE Energy Corporation	OGE	$1.46	$36.90	3.96%	4.15%	6.50%	3.80%	4.60%	4.97%	7.91%	9.12%	10.71%	7.91%	9.12%	10.71%
Otter Tail Corporation	OTTR	$1.40	$46.88	2.99%	3.20%	5.00%	9.00%	7.00%	7.00%	8.14%	10.20%	12.26%	8.14%	10.20%	12.26%
Pinnacle West Capital Corporation	PNW	$2.95	$84.10	3.51%	3.68%	5.00%	5.01%	5.00%	5.00%	8.68%	8.69%	8.69%	8.68%	8.69%	8.69%
PNM Resources, Inc.	PNM	$1.16	$40.56	2.86%	3.04%	8.50%	5.70%	5.20%	6.47%	8.21%	9.51%	11.60%	8.21%	9.51%	11.60%
Portland General Electric Company	POR	$1.45	$45.55	3.18%	3.34%	4.50%	5.20%	4.90%	4.87%	7.83%	8.20%	8.55%	7.83%	8.20%	8.55%
PPL Corporation	PPL	$1.65	$29.79	5.54%	5.60%	1.50%	0.59%	NA	1.05%	6.16%	6.64%	7.12%			
MEAN				**3.51%**	**3.69%**	**5.34%**	**4.67%**	**5.28%**	**5.04%**	**7.73%**	**8.72%**	**9.82%**	**8.36%**	**9.20%**	**10.45%**
Flotation Cost										**0.11%**	**0.11%**	**0.11%**	**0.11%**	**0.11%**	**0.11%**
Flotation Cost Adjusted DCF Result										**7.84%**	**8.83%**	**9.93%**	**8.47%**	**9.31%**	**10.56%**

Notes:

[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 360-day average as of May 31, 2019
[3] Equals [1] / [2]
[4] Equals [3] x (1 + [8])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Equals [3] x (1 + Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])
[12] Equals [9], if greater than 7%
[13] Equals [10], if greater than 7%
[14] Equals [11], if greater than 7%

Southwestern Public Service Company

Calculation of Retention Growth Rate

VALUE LINE ELECTRIC UTILITY UNIVERSE
CALCULATION OF THE PROJECTED EARNINGS RETENTION GROWTH RATE

		[1]	[2]	[3]	[4]	[5]
		EPS	DPS	ROE	Retention Rate	Retention Growth
ALLETE, Inc.	ALE	$ 4.25	$ 2.85	9.00%	32.94%	2.96%
Alliant Energy Corporation	LNT	$ 2.80	$ 1.74	10.00%	37.86%	3.79%
Ameren Corporation	AEE	$ 4.25	$ 2.55	10.50%	40.00%	4.20%
American Electric Power Company, Inc.	AEP	$ 5.00	$ 3.40	11.00%	32.00%	3.52%
DTE Energy Company	DTE	$ 7.50	$ 4.80	10.50%	36.00%	3.78%
Duke Energy Corporation	DUK	$ 5.75	$ 4.15	8.50%	27.83%	2.37%
Exelon Corporation	EXC	$ 4.00	$ 1.80	10.00%	55.00%	5.50%
Evergy, Inc.	EVRG	$ 3.50	$ 2.50	8.50%	28.57%	2.43%
Hawaiian Electric Industries, Inc.	HE	$ 2.50	$ 1.50	10.00%	40.00%	4.00%
IDACORP, Inc.	IDA	$ 5.25	$ 3.20	9.50%	39.05%	3.71%
NorthWestern Corporation	NWE	$ 4.00	$ 2.70	9.00%	32.50%	2.93%
OGE Energy Corporation	OGE	$ 2.75	$ 1.95	11.50%	29.09%	3.35%
Otter Tail Corporation	OTTR	$ 2.50	$ 1.65	10.50%	34.00%	3.57%
Pinnacle West Capital Corporation	PNW	$ 5.75	$ 3.80	10.50%	33.91%	3.56%
PNM Resources, Inc.	PNM	$ 2.75	$ 1.50	9.50%	45.45%	4.32%
Portland General Electric Company	POR	$ 3.00	$ 1.95	9.00%	35.00%	3.15%
PPL Corporation	PPL	$ 2.75	$ 1.80	13.00%	34.55%	4.49%
Mean				10.03%		3.62%

Sources: Value Line 2022-2024 projections, dated March 15, April 26, and May 17, 2019

Southwestern Public Service Company

NMPRC DCF Calculation

NMPRC AVERAGING CONVENTION - 30 DAY CONSTANT GROWTH DCF

Company		[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Value Line EPS Growth	[5] First Call EPS Growth	[6] Zacks EPS Growth	[7] Sustainable Growth Estimate	[8] Average Growth Rate	[9] Expected Dividend Yield (Zacks)	[10] Expected Dividend Yield (Value Line)	[11] Expected Dividend Yield (First Call)	[12] Expected Dividend Yield (Sustainable Growth)	[13] Expected Dividend Yield (Average Growth Rate)
ALLETE, Inc.	ALE	$2.35	$81.31	2.89%	5.00%	6.00%	7.20%	2.96%	5.29%	3.10%	3.03%	3.06%	2.98%	3.04%
Alliant Energy Corporation	LNT	$1.42	$47.20	3.01%	6.50%	5.85%	5.40%	3.79%	5.38%	3.17%	3.20%	3.18%	3.12%	3.17%
Ameren Corporation	AEE	$1.90	$73.07	2.60%	6.50%	4.90%	6.20%	4.20%	5.45%	2.76%	2.77%	2.73%	2.71%	2.74%
American Electric Power Company, Inc.	AEP	$2.68	$85.25	3.14%	4.00%	5.79%	5.60%	3.52%	4.73%	3.32%	3.27%	3.33%	3.25%	3.29%
DTE Energy Company	DTE	$3.78	$125.38	3.01%	5.00%	4.16%	6.00%	3.78%	4.74%	3.20%	3.17%	3.14%	3.13%	3.16%
Duke Energy Corporation	DUK	$3.71	$88.29	4.20%	6.00%	4.60%	4.80%	2.37%	4.44%	4.40%	4.45%	4.40%	4.30%	4.39%
Exelon Corporation	EXC	$1.45	$49.35	2.94%	10.50%	1.33%	3.80%	5.50%	5.28%	3.05%	3.25%	2.98%	3.10%	3.09%
Evergy, Inc.	EVRG	$1.90	$57.85	3.28%	NA	6.15%	6.60%	2.43%	5.06%	3.50%	N/A	3.49%	3.36%	3.45%
Hawaiian Electric Industries, Inc.	HE	$1.28	$41.56	3.08%	4.50%	6.10%	5.60%	4.00%	5.05%	3.25%	3.22%	3.27%	3.20%	3.24%
IDACORP, Inc.	IDA	$2.52	$100.49	2.51%	3.50%	2.40%	3.80%	3.71%	3.35%	2.60%	2.60%	2.57%	2.60%	2.59%
NorthWestern Corporation	NWE	$2.30	$70.39	3.27%	3.00%	2.86%	2.80%	2.93%	2.90%	3.36%	3.37%	3.36%	3.36%	3.36%
OGE Energy Corporation	OGE	$1.46	$41.87	3.49%	6.50%	3.80%	4.60%	3.35%	4.56%	3.65%	3.71%	3.62%	3.60%	3.65%
Otter Tail Corporation	OTTR	$1.40	$50.75	2.76%	5.00%	9.00%	7.00%	3.57%	6.14%	2.95%	2.90%	3.01%	2.86%	2.93%
Pinnacle West Capital Corporation	PNW	$2.95	$94.73	3.11%	5.00%	5.01%	5.00%	3.56%	4.64%	3.27%	3.27%	3.27%	3.22%	3.26%
PNM Resources, Inc.	PNM	$1.16	$46.65	2.49%	8.50%	5.70%	5.20%	4.32%	5.93%	2.62%	2.70%	2.63%	2.59%	2.63%
Portland General Electric Company	POR	$1.45	$52.39	2.77%	4.50%	5.20%	4.90%	3.15%	4.44%	2.90%	2.89%	2.91%	2.86%	2.89%
PPL Corporation	PPL	$1.65	$30.59	5.39%	1.50%	0.59%	NA	4.49%	2.19%	N/A	5.47%	5.43%	5.64%	5.51%
		PROXY GROUP MEAN		3.17%	5.34%	4.67%	5.28%	3.62%	4.68%	3.19%	3.33%	3.32%	3.29%	3.32%
	Proxy Group Mean Excl. IDA, NWE, and PPL			3.06%	5.96%	5.26%	5.56%	3.61%	5.08%	3.22%	3.22%	3.21%	3.16%	3.21%

NMPRC ROE SCENARIOS Excl. IDA, NWE, and PPL	ROE Result	Flotation Cost Adjusted ROE
ROE Using Value Line Growth Estimate	9.18%	9.28%
ROE Using Yahoo! Finance Growth Estimate	8.47%	8.58%
ROE Using Zacks Growth Estimate	8.79%	8.89%
ROE Using Sustainable Growth	6.77%	6.88%
ROE using Average of Zacks, Value Line and First Call	8.81%	8.92%
ROE using Average of Value Line and the Average Growth Rate	8.73%	8.84%
ROE using Average of Yahoo! Finance and the Average Growth Rate	8.38%	8.49%
ROE using Average of Zacks and the Average Growth Rate	8.54%	8.64%
ROE using Average of Sustainable Growth and the Average Growth Rate	7.53%	7.64%
ROE Using Average of Value Line and Sustainable Growth	7.97%	8.08%
ROE Using Average of Zacks and Sustainable Growth	7.78%	7.88%

Notes

[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 30-day average as of May 31, 2019
[3] Equals Col. [1]/Col. [2]
[4] Source: Value Line
[5] Source: First Call EPS as reported on Yahoo! Finance
[6] Source: Zacks
[7] Source: SPS Attachment AEB-3, Col. 5
[8] Equals Avg (Col. [4], [5], [6], [7])
[9] Equals (Col. [3] * (1+ Col. [6]))
[10] Equals (Col. [3] * (1+ Col. [4]))
[11] Equals (Col. [3] * (1+ Col. [5]))
[12] Equals (Col. [3] * (1+ Col. [7]))
[13] Equals (Col. [3] * (1+ Col. [8]))

Southwestern Public Service Company

NMPRC DCF Calculation

NMPRC AVERAGING CONVENTION - 90 DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
Company		Annualized Dividend	Stock Price	Dividend Yield	Value Line EPS Growth	First Call EPS Growth	Zacks EPS Growth	Sustainable Growth Estimate	Average Growth Rate	Expected Dividend Yield (Zacks)	Expected Dividend Yield (Value Line)	Expected Dividend Yield (First Call)	Expected Dividend Yield (Sustainable Growth)	Expected Dividend Yield (Average Growth Rate)
ALLETE, Inc.	ALE	$2.35	$80.69	2.91%	5.00%	6.00%	7.20%	2.96%	5.29%	3.12%	3.06%	3.09%	3.00%	3.07%
Alliant Energy Corporation	LNT	$1.42	$46.26	3.07%	6.50%	5.85%	5.40%	3.79%	5.38%	3.24%	3.27%	3.25%	3.19%	3.23%
Ameren Corporation	AEE	$1.90	$71.78	2.65%	6.50%	4.90%	6.20%	4.20%	5.45%	2.81%	2.82%	2.78%	2.76%	2.79%
American Electric Power Company, Inc.	AEP	$2.68	$82.78	3.24%	4.00%	5.79%	5.60%	3.52%	4.73%	3.42%	3.37%	3.42%	3.35%	3.39%
DTE Energy Company	DTE	$3.78	$122.81	3.08%	5.00%	4.16%	6.00%	3.78%	4.74%	3.26%	3.23%	3.21%	3.19%	3.22%
Duke Energy Corporation	DUK	$3.71	$88.92	4.17%	6.00%	4.60%	4.80%	2.37%	4.44%	4.37%	4.42%	4.36%	4.27%	4.36%
Exelon Corporation	EXC	$1.45	$48.94	2.96%	10.50%	1.33%	3.80%	5.50%	5.28%	3.08%	3.27%	3.00%	3.13%	3.12%
Evergy, Inc.	EVRG	$1.90	$57.38	3.31%	NA	6.15%	6.60%	2.43%	5.06%	3.53%	N/A	3.52%	3.39%	3.48%
Hawaiian Electric Industries, Inc.	HE	$1.28	$39.92	3.21%	4.50%	6.10%	5.60%	4.00%	5.05%	3.39%	3.35%	3.40%	3.33%	3.37%
IDACORP, Inc.	IDA	$2.52	$99.04	2.54%	3.50%	2.40%	3.80%	3.71%	3.35%	2.64%	2.63%	2.61%	2.64%	2.63%
NorthWestern Corporation	NWE	$2.30	$68.66	3.35%	3.00%	2.86%	2.80%	2.93%	2.90%	3.44%	3.45%	3.45%	3.45%	3.45%
OGE Energy Corporation	OGE	$1.46	$41.98	3.48%	6.50%	3.80%	4.60%	3.35%	4.56%	3.64%	3.70%	3.61%	3.59%	3.64%
Otter Tail Corporation	OTTR	$1.40	$49.96	2.80%	5.00%	9.00%	7.00%	3.57%	6.14%	3.00%	2.94%	3.05%	2.90%	2.97%
Pinnacle West Capital Corporation	PNW	$2.95	$93.23	3.16%	5.00%	5.01%	5.00%	3.56%	4.64%	3.32%	3.32%	3.32%	3.28%	3.31%
PNM Resources, Inc.	PNM	$1.16	$45.43	2.55%	8.50%	5.70%	5.20%	4.32%	5.93%	2.69%	2.77%	2.70%	2.66%	2.71%
Portland General Electric Company	POR	$1.45	$50.93	2.85%	4.50%	5.20%	4.90%	3.15%	4.44%	2.99%	2.98%	3.00%	2.94%	2.97%
PPL Corporation	PPL	$1.65	$31.30	5.27%	1.50%	0.59%	NA	4.49%	2.19%	N/A	5.35%	5.30%	5.51%	5.39%
		PROXY GROUP MEAN		3.21%	5.34%	4.67%	5.28%	3.62%	4.68%	3.25%	3.37%	3.36%	3.33%	3.36%
	Proxy Group Mean Excl. IDA, NWE, and PPL			3.10%	5.96%	5.26%	5.56%	3.61%	5.08%	3.27%	3.27%	3.26%	3.21%	3.26%

NMPRC ROE SCENARIOS Excl. IDA, NWE, and PPL	ROE Result	Flotation Cost Adjusted ROE
ROE Using Value Line Growth Estimate	9.23%	9.34%
ROE Using Yahoo! Finance Growth Estimate	8.52%	8.63%
ROE Using Zacks Growth Estimate	8.84%	8.94%
ROE Using Sustainable Growth	6.82%	6.92%
ROE using Average of Zacks, Value Line and First Call	8.86%	8.97%
ROE using Average of Value Line and the Average Growth Rate	8.79%	8.89%
ROE using Average of Yahoo! Finance and the Average Growth Rate	8.43%	8.54%
ROE using Average of Zacks and the Average Growth Rate	8.59%	8.70%
ROE using Average of Sustainable Growth and the Average Growth Rate	7.58%	7.69%
ROE Using Average of Value Line and Sustainable Growth	8.03%	8.13%
ROE Using Average of Zacks and Sustainable Growth	7.83%	7.93%

Notes

[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 90-day average as of May 31, 2019
[3] Equals Col. [1]/Col. [2]
[4] Source: Value Line
[5] Source: First Call EPS as reported on Yahoo! Finance
[6] Source: Zacks
[7] Source: SPS Attachment AEB-3, Col. 5
[8] Equals Avg (Col. [4], [5], [6], [7])
[9] Equals (Col. [3] * (1+ Col. [6]))
[10] Equals (Col. [3] * (1+ Col. [4]))
[11] Equals (Col. [3] * (1+ Col. [5]))
[12] Equals (Col. [3] * (1+ Col. [7]))
[13] Equals (Col. [3] * (1+ Col. [8]))

Southwestern Public Service Company

NMPRC DCF Calculation

NMPRC AVERAGING CONVENTION - 180 DAY CONSTANT GROWTH DCF

Company		[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Value Line EPS Growth	[5] First Call EPS Growth	[6] Zacks EPS Growth	[7] Sustainable Growth Estimate	[8] Average Growth Rate	[9] Expected Dividend Yield (Zacks)	[10] Expected Dividend Yield (Value Line)	[11] Expected Dividend Yield (First Call)	[12] Expected Dividend Yield (Sustainable Growth)	[13] Expected Dividend Yield (Average Growth Rate)
ALLETE, Inc.	ALE	$2.35	$78.66	2.99%	5.00%	6.00%	7.20%	2.96%	5.29%	3.20%	3.14%	3.17%	3.08%	3.15%
Alliant Energy Corporation	LNT	$1.42	$44.89	3.16%	6.50%	5.85%	5.40%	3.79%	5.38%	3.33%	3.37%	3.35%	3.28%	3.33%
Ameren Corporation	AEE	$1.90	$68.95	2.76%	6.50%	4.90%	6.20%	4.20%	5.45%	2.93%	2.93%	2.89%	2.87%	2.91%
American Electric Power Company, Inc.	AEP	$2.68	$78.59	3.41%	4.00%	5.79%	5.60%	3.52%	4.73%	3.60%	3.55%	3.61%	3.53%	3.57%
DTE Energy Company	DTE	$3.78	$118.13	3.20%	5.00%	4.16%	6.00%	3.78%	4.74%	3.39%	3.36%	3.33%	3.32%	3.35%
Duke Energy Corporation	DUK	$3.71	$86.67	4.28%	6.00%	4.60%	4.80%	2.37%	4.44%	4.49%	4.54%	4.48%	4.38%	4.47%
Exelon Corporation	EXC	$1.45	$46.83	3.10%	10.50%	1.33%	3.80%	5.50%	5.28%	3.21%	3.42%	3.14%	3.27%	3.26%
Evergy, Inc.	EVRG	$1.90	$57.33	3.31%	NA	6.15%	6.60%	2.43%	5.06%	3.53%	N/A	3.52%	3.39%	3.48%
Hawaiian Electric Industries, Inc.	HE	$1.28	$38.28	3.34%	4.50%	6.10%	5.60%	4.00%	5.05%	3.53%	3.49%	3.55%	3.48%	3.51%
IDACORP, Inc.	IDA	$2.52	$98.09	2.57%	3.50%	2.40%	3.80%	3.71%	3.35%	2.67%	2.66%	2.63%	2.66%	2.66%
NorthWestern Corporation	NWE	$2.30	$64.75	3.55%	3.00%	2.86%	2.80%	2.93%	2.90%	3.65%	3.66%	3.65%	3.66%	3.66%
OGE Energy Corporation	OGE	$1.46	$40.15	3.64%	6.50%	3.80%	4.60%	3.35%	4.56%	3.80%	3.87%	3.77%	3.76%	3.80%
Otter Tail Corporation	OTTR	$1.40	$48.87	2.86%	5.00%	9.00%	7.00%	3.57%	6.14%	3.07%	3.01%	3.12%	2.97%	3.04%
Pinnacle West Capital Corporation	PNW	$2.95	$89.09	3.31%	5.00%	5.01%	5.00%	3.56%	4.64%	3.48%	3.48%	3.48%	3.43%	3.47%
PNM Resources, Inc.	PNM	$1.16	$43.10	2.69%	8.50%	5.70%	5.20%	4.32%	5.93%	2.83%	2.92%	2.85%	2.81%	2.85%
Portland General Electric Company	POR	$1.45	$48.69	2.98%	4.50%	5.20%	4.90%	3.15%	4.44%	3.12%	3.11%	3.13%	3.07%	3.11%
PPL Corporation	PPL	$1.65	$30.69	5.38%	1.50%	0.59%	NA	4.49%	2.19%	N/A	5.46%	5.41%	5.62%	5.49%
		PROXY GROUP MEAN		3.33%	5.34%	4.67%	5.28%	3.62%	4.68%	3.36%	3.50%	3.47%	3.45%	3.48%
	Proxy Group Mean Excl. IDA, NWE, and PPL			3.22%	5.96%	5.26%	5.56%	3.61%	5.08%	3.39%	3.40%	3.38%	3.33%	3.38%

NMPRC ROE SCENARIOS Excl. IDA, NWE, and PPL	ROE Result	Flotation Cost Adjusted ROE
ROE Using Value Line Growth Estimate	9.36%	9.47%
ROE Using Yahoo! Finance Growth Estimate	8.64%	8.75%
ROE Using Zacks Growth Estimate	8.96%	9.06%
ROE Using Sustainable Growth	6.94%	7.04%
ROE using Average of Zacks, Value Line and First Call	8.99%	9.09%
ROE using Average of Value Line and the Average Growth Rate	8.91%	9.02%
ROE using Average of Yahoo! Finance and the Average Growth Rate	8.55%	8.66%
ROE using Average of Zacks and the Average Growth Rate	8.71%	8.81%
ROE using Average of Sustainable Growth and the Average Growth Rate	7.70%	7.80%
ROE Using Average of Value Line and Sustainable Growth	8.15%	8.25%
ROE Using Average of Zacks and Sustainable Growth	7.95%	8.05%

Notes

[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 180-day average as of May 31, 2019
[3] Equals Col. [1]/Col. [2]
[4] Source: Value Line
[5] Source: First Call EPS as reported on Yahoo! Finance
[6] Source: Zacks
[7] Source: SPS Attachment AEB-3, Col. 5
[8] Equals Avg (Col. [4], [5], [6], [7])
[9] Equals (Col. [3] * (1+ Col. [6]))
[10] Equals (Col. [3] * (1+ Col. [4]))
[11] Equals (Col. [3] * (1+ Col. [5]))
[12] Equals (Col. [3] * (1+ Col. [7]))
[13] Equals (Col. [3] * (1+ Col. [8]))

Southwestern Public Service Company

NMPRC DCF Calculation

NMPRC AVERAGING CONVENTION - 360 DAY CONSTANT GROWTH DCF

Company		[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Value Line EPS Growth	[5] First Call EPS Growth	[6] Zacks EPS Growth	[7] Sustainable Growth Estimate	[8] Average Growth Rate	[9] Expected Dividend Yield (Zacks)	[10] Expected Dividend Yield (Value Line)	[11] Expected Dividend Yield (First Call)	[12] Expected Dividend Yield (Sustainable Growth)	[13] Expected Dividend Yield (Average Growth Rate)
ALLETE, Inc.	ALE	$2.35	$76.34	3.08%	5.00%	6.00%	7.20%	2.96%	5.29%	3.30%	3.23%	3.26%	3.17%	3.24%
Alliant Energy Corporation	LNT	$1.42	$43.00	3.30%	6.50%	5.85%	5.40%	3.79%	5.38%	3.48%	3.52%	3.50%	3.43%	3.48%
Ameren Corporation	AEE	$1.90	$63.59	2.99%	6.50%	4.90%	6.20%	4.20%	5.45%	3.17%	3.18%	3.13%	3.11%	3.15%
American Electric Power Company, Inc.	AEP	$2.68	$73.57	3.64%	4.00%	5.79%	5.60%	3.52%	4.73%	3.85%	3.79%	3.85%	3.77%	3.81%
DTE Energy Company	DTE	$3.78	$111.33	3.40%	5.00%	4.16%	6.00%	3.78%	4.74%	3.60%	3.57%	3.54%	3.52%	3.56%
Duke Energy Corporation	DUK	$3.71	$82.52	4.50%	6.00%	4.60%	4.80%	2.37%	4.44%	4.71%	4.77%	4.70%	4.60%	4.70%
Exelon Corporation	EXC	$1.45	$43.49	3.33%	10.50%	1.33%	3.80%	5.50%	5.28%	3.46%	3.68%	3.38%	3.52%	3.51%
Evergy, Inc.	EVRG	$1.90	$55.31	3.43%	NA	6.15%	6.60%	2.43%	5.06%	3.66%	N/A	3.65%	3.52%	3.61%
Hawaiian Electric Industries, Inc.	HE	$1.28	$36.29	3.53%	4.50%	6.10%	5.60%	4.00%	5.05%	3.72%	3.69%	3.74%	3.67%	3.70%
IDACORP, Inc.	IDA	$2.52	$93.84	2.69%	3.50%	2.40%	3.80%	3.71%	3.35%	2.79%	2.78%	2.75%	2.79%	2.78%
NorthWestern Corporation	NWE	$2.30	$60.06	3.83%	3.00%	2.86%	2.80%	2.93%	2.90%	3.94%	3.94%	3.94%	3.94%	3.94%
OGE Energy Corporation	OGE	$1.46	$36.90	3.96%	6.50%	3.80%	4.60%	3.35%	4.56%	4.14%	4.21%	4.11%	4.09%	4.14%
Otter Tail Corporation	OTTR	$1.40	$46.88	2.99%	5.00%	9.00%	7.00%	3.57%	6.14%	3.20%	3.14%	3.26%	3.09%	3.17%
Pinnacle West Capital Corporation	PNW	$2.95	$84.10	3.51%	5.00%	5.01%	5.00%	3.56%	4.64%	3.68%	3.68%	3.68%	3.63%	3.67%
PNM Resources, Inc.	PNM	$1.16	$40.56	2.86%	8.50%	5.70%	5.20%	4.32%	5.93%	3.01%	3.10%	3.02%	2.98%	3.03%
Portland General Electric Company	POR	$1.45	$45.55	3.18%	4.50%	5.20%	4.90%	3.15%	4.44%	3.34%	3.33%	3.35%	3.28%	3.32%
PPL Corporation	PPL	$1.65	$29.79	5.54%	1.50%	0.59%	NA	4.49%	2.19%	N/A	5.62%	5.57%	5.79%	5.66%
		PROXY GROUP MEAN		3.51%	5.34%	4.67%	5.28%	3.62%	4.68%	3.57%	3.70%	3.67%	3.64%	3.67%
	Proxy Group Mean Excl. IDA, NWE, and PPL			3.41%	5.96%	5.26%	5.56%	3.61%	5.08%	3.59%	3.61%	3.58%	3.53%	3.58%

NMPRC ROE SCENARIOS Excl. IDA, NWE, and PPL	ROE Result	Flotation Cost Adjusted ROE
ROE Using Value Line Growth Estimate	9.57%	9.67%
ROE Using Yahoo! Finance Growth Estimate	8.84%	8.95%
ROE Using Zacks Growth Estimate	9.16%	9.26%
ROE Using Sustainable Growth	7.13%	7.24%
ROE using Average of Zacks, Value Line and First Call	9.19%	9.29%
ROE using Average of Value Line and the Average Growth Rate	9.11%	9.22%
ROE using Average of Yahoo! Finance and the Average Growth Rate	8.75%	8.85%
ROE using Average of Zacks and the Average Growth Rate	8.91%	9.01%
ROE using Average of Sustainable Growth and the Average Growth Rate	7.90%	8.00%
ROE Using Average of Value Line and Sustainable Growth	8.35%	8.46%
ROE Using Average of Zacks and Sustainable Growth	8.15%	8.25%

Notes

[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 360-day average as of May 31, 2019
[3] Equals Col. [1]/Col. [2]
[4] Source: Value Line
[5] Source: First Call EPS as reported on Yahoo! Finance
[6] Source: Zacks
[7] Source: SPS Attachment AEB-3, Col. 5
[8] Equals Avg (Col. [4], [5], [6], [7])
[9] Equals (Col. [3] * (1+ Col. [6]))
[10] Equals (Col. [3] * (1+ Col. [4]))
[11] Equals (Col. [3] * (1+ Col. [5]))
[12] Equals (Col. [3] * (1+ Col. [7]))
[13] Equals (Col. [3] * (1+ Col. [8]))

Southwestern Public Service Company

Multi-Stage DCF Results

30-DAY MULTI-STAGE DCF -- AVERAGE FIRST STAGE GROWTH RATE

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
					Second Stage Growth						
Company	Ticker	Stock Price	Annualized Dividend	First Stage Growth	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth	ROE
ALLETE, Inc.	ALE	$81.31	$2.35	6.07%	5.98%	5.88%	5.79%	5.70%	5.61%	5.52%	8.80%
Alliant Energy Corporation	LNT	$47.20	$1.42	5.92%	5.85%	5.78%	5.72%	5.65%	5.59%	5.52%	8.91%
Ameren Corporation	AEE	$73.07	$1.90	5.87%	5.81%	5.75%	5.69%	5.64%	5.58%	5.52%	8.42%
American Electric Power Company, Inc.	AEP	$85.25	$2.68	5.13%	5.20%	5.26%	5.33%	5.39%	5.46%	5.52%	8.88%
DTE Energy Company	DTE	$125.38	$3.78	5.05%	5.13%	5.21%	5.29%	5.37%	5.44%	5.52%	8.73%
Duke Energy Corporation	DUK	$88.29	$3.71	5.13%	5.20%	5.26%	5.33%	5.39%	5.46%	5.52%	10.05%
Exelon Corporation	EXC	$49.35	$1.45	5.21%	5.26%	5.31%	5.37%	5.42%	5.47%	5.52%	8.67%
Evergy, Inc.	EVRG	$57.85	$1.90	6.38%	6.23%	6.09%	5.95%	5.81%	5.66%	5.52%	9.34%
Hawaiian Electric Industries, Inc.	HE	$41.56	$1.28	5.40%	5.42%	5.44%	5.46%	5.48%	5.50%	5.52%	8.87%
IDACORP, Inc.	IDA	$100.49	$2.52	3.23%	3.61%	4.00%	4.38%	4.76%	5.14%	5.52%	7.85%
NorthWestern Corporation	NWE	$70.39	$2.30	2.89%	3.33%	3.76%	4.20%	4.64%	5.08%	5.52%	8.53%
OGE Energy Corporation	OGE	$41.87	$1.46	4.97%	5.06%	5.15%	5.24%	5.34%	5.43%	5.52%	9.22%
Otter Tail Corporation	OTTR	$50.75	$1.40	7.00%	6.75%	6.51%	6.26%	6.01%	5.77%	5.52%	8.85%
Pinnacle West Capital Corporation	PNW	$94.73	$2.95	5.00%	5.09%	5.18%	5.26%	5.35%	5.44%	5.52%	8.82%
PNM Resources, Inc.	PNM	$46.65	$1.16	6.47%	6.31%	6.15%	5.99%	5.84%	5.68%	5.52%	8.41%
Portland General Electric Company	POR	$52.39	$1.45	4.87%	4.98%	5.08%	5.19%	5.30%	5.41%	5.52%	8.42%
PPL Corporation	PPL	$30.59	$1.65	1.05%	1.79%	2.54%	3.28%	4.03%	4.78%	5.52%	10.03%
MEAN											**8.87%**
Flotation Cost											**0.11%**
Flotation Cost Adjusted DCF Result											**8.98%**

Notes:
[1] Source: Bloomberg Professional, equals 30-trading day average as of May 31, 2019
[2] Source: Bloomberg Professional
[3] Source: SPS Attachment AEB-2
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Source: SPS Attachment AEB-6
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

Southwestern Public Service Company

Multi-Stage DCF Results

90-DAY MULTI-STAGE DCF -- AVERAGE FIRST STAGE GROWTH RATE

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
					Second Stage Growth						
Company	Ticker	Stock Price	Annualized Dividend	First Stage Growth	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth	ROE
ALLETE, Inc.	ALE	$80.69	$2.35	6.07%	5.98%	5.88%	5.79%	5.70%	5.61%	5.52%	8.83%
Alliant Energy Corporation	LNT	$46.26	$1.42	5.92%	5.85%	5.78%	5.72%	5.65%	5.59%	5.52%	8.98%
Ameren Corporation	AEE	$71.78	$1.90	5.87%	5.81%	5.75%	5.69%	5.64%	5.58%	5.52%	8.48%
American Electric Power Company, Inc.	AEP	$82.78	$2.68	5.13%	5.20%	5.26%	5.33%	5.39%	5.46%	5.52%	8.99%
DTE Energy Company	DTE	$122.81	$3.78	5.05%	5.13%	5.21%	5.29%	5.37%	5.44%	5.52%	8.79%
Duke Energy Corporation	DUK	$88.92	$3.71	5.13%	5.20%	5.26%	5.33%	5.39%	5.46%	5.52%	10.02%
Exelon Corporation	EXC	$48.94	$1.45	5.21%	5.26%	5.31%	5.37%	5.42%	5.47%	5.52%	8.70%
Evergy, Inc.	EVRG	$57.38	$1.90	6.38%	6.23%	6.09%	5.95%	5.81%	5.66%	5.52%	9.37%
Hawaiian Electric Industries, Inc.	HE	$39.92	$1.28	5.40%	5.42%	5.44%	5.46%	5.48%	5.50%	5.52%	9.01%
IDACORP, Inc.	IDA	$99.04	$2.52	3.23%	3.61%	4.00%	4.38%	4.76%	5.14%	5.52%	7.88%
NorthWestern Corporation	NWE	$68.66	$2.30	2.89%	3.33%	3.76%	4.20%	4.64%	5.08%	5.52%	8.61%
OGE Energy Corporation	OGE	$41.98	$1.46	4.97%	5.06%	5.15%	5.24%	5.34%	5.43%	5.52%	9.21%
Otter Tail Corporation	OTTR	$49.96	$1.40	7.00%	6.75%	6.51%	6.26%	6.01%	5.77%	5.52%	8.90%
Pinnacle West Capital Corporation	PNW	$93.23	$2.95	5.00%	5.09%	5.18%	5.26%	5.35%	5.44%	5.52%	8.88%
PNM Resources, Inc.	PNM	$45.43	$1.16	6.47%	6.31%	6.15%	5.99%	5.84%	5.68%	5.52%	8.49%
Portland General Electric Company	POR	$50.93	$1.45	4.87%	4.98%	5.08%	5.19%	5.30%	5.41%	5.52%	8.50%
PPL Corporation	PPL	$31.30	$1.65	1.05%	1.79%	2.54%	3.28%	4.03%	4.78%	5.52%	9.92%
MEAN											**8.92%**
Flotation Cost											**0.11%**
Flotation Cost Adjusted DCF Result											**9.02%**

Notes:

[1] Source: Bloomberg Professional, equals 90-trading day average as of May 31, 2019
[2] Source: Bloomberg Professional
[3] Source: SPS Attachment AEB-2
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Source: SPS Attachment AEB-6
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

Southwestern Public Service Company

Multi-Stage DCF Results

180-DAY MULTI-STAGE DCF -- AVERAGE FIRST STAGE GROWTH RATE

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
					Second Stage Growth						
Company	Ticker	Stock Price	Annualized Dividend	First Stage Growth	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth	ROE
ALLETE, Inc.	ALE	$78.66	$2.35	6.07%	5.98%	5.88%	5.79%	5.70%	5.61%	5.52%	8.92%
Alliant Energy Corporation	LNT	$44.89	$1.42	5.92%	5.85%	5.78%	5.72%	5.65%	5.59%	5.52%	9.08%
Ameren Corporation	AEE	$68.95	$1.90	5.87%	5.81%	5.75%	5.69%	5.64%	5.58%	5.52%	8.60%
American Electric Power Company, Inc.	AEP	$78.59	$2.68	5.13%	5.20%	5.26%	5.33%	5.39%	5.46%	5.52%	9.18%
DTE Energy Company	DTE	$118.13	$3.78	5.05%	5.13%	5.21%	5.29%	5.37%	5.44%	5.52%	8.93%
Duke Energy Corporation	DUK	$86.67	$3.71	5.13%	5.20%	5.26%	5.33%	5.39%	5.46%	5.52%	10.14%
Exelon Corporation	EXC	$46.83	$1.45	5.21%	5.26%	5.31%	5.37%	5.42%	5.47%	5.52%	8.85%
Evergy, Inc.	EVRG	$57.33	$1.90	6.38%	6.23%	6.09%	5.95%	5.81%	5.66%	5.52%	9.37%
Hawaiian Electric Industries, Inc.	HE	$38.28	$1.28	5.40%	5.42%	5.44%	5.46%	5.48%	5.50%	5.52%	9.17%
IDACORP, Inc.	IDA	$98.09	$2.52	3.23%	3.61%	4.00%	4.38%	4.76%	5.14%	5.52%	7.91%
NorthWestern Corporation	NWE	$64.75	$2.30	2.89%	3.33%	3.76%	4.20%	4.64%	5.08%	5.52%	8.81%
OGE Energy Corporation	OGE	$40.15	$1.46	4.97%	5.06%	5.15%	5.24%	5.34%	5.43%	5.52%	9.39%
Otter Tail Corporation	OTTR	$48.87	$1.40	7.00%	6.75%	6.51%	6.26%	6.01%	5.77%	5.52%	8.98%
Pinnacle West Capital Corporation	PNW	$89.09	$2.95	5.00%	5.09%	5.18%	5.26%	5.35%	5.44%	5.52%	9.04%
PNM Resources, Inc.	PNM	$43.10	$1.16	6.47%	6.31%	6.15%	5.99%	5.84%	5.68%	5.52%	8.65%
Portland General Electric Company	POR	$48.69	$1.45	4.87%	4.98%	5.08%	5.19%	5.30%	5.41%	5.52%	8.65%
PPL Corporation	PPL	$30.69	$1.65	1.05%	1.79%	2.54%	3.28%	4.03%	4.78%	5.52%	10.01%
MEAN											**9.04%**
Flotation Cost											**0.11%**
Flotation Cost Adjusted DCF Result											**9.14%**

Notes:
[1] Source: Bloomberg Professional, equals 180-trading day average as of May 31, 2019
[2] Source: Bloomberg Professional
[3] Source: SPS Attachment AEB-2
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Source: SPS Attachment AEB-6
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

Southwestern Public Service Company

Multi-Stage DCF Results

360-DAY MULTI-STAGE DCF -- AVERAGE FIRST STAGE GROWTH RATE

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
					Second Stage Growth						
Company	Ticker	Stock Price	Annualized Dividend	First Stage Growth	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth	ROE
ALLETE, Inc.	ALE	$76.34	$2.35	6.07%	5.98%	5.88%	5.79%	5.70%	5.61%	5.52%	9.02%
Alliant Energy Corporation	LNT	$43.00	$1.42	5.92%	5.85%	5.78%	5.72%	5.65%	5.59%	5.52%	9.24%
Ameren Corporation	AEE	$63.59	$1.90	5.87%	5.81%	5.75%	5.69%	5.64%	5.58%	5.52%	8.87%
American Electric Power Company, Inc.	AEP	$73.57	$2.68	5.13%	5.20%	5.26%	5.33%	5.39%	5.46%	5.52%	9.43%
DTE Energy Company	DTE	$111.33	$3.78	5.05%	5.13%	5.21%	5.29%	5.37%	5.44%	5.52%	9.14%
Duke Energy Corporation	DUK	$82.52	$3.71	5.13%	5.20%	5.26%	5.33%	5.39%	5.46%	5.52%	10.38%
Exelon Corporation	EXC	$43.49	$1.45	5.21%	5.26%	5.31%	5.37%	5.42%	5.47%	5.52%	9.11%
Evergy, Inc.	EVRG	$55.31	$1.90	6.38%	6.23%	6.09%	5.95%	5.81%	5.66%	5.52%	9.51%
Hawaiian Electric Industries, Inc.	HE	$36.29	$1.28	5.40%	5.42%	5.44%	5.46%	5.48%	5.50%	5.52%	9.37%
IDACORP, Inc.	IDA	$93.84	$2.52	3.23%	3.61%	4.00%	4.38%	4.76%	5.14%	5.52%	8.02%
NorthWestern Corporation	NWE	$60.06	$2.30	2.89%	3.33%	3.76%	4.20%	4.64%	5.08%	5.52%	9.08%
OGE Energy Corporation	OGE	$36.90	$1.46	4.97%	5.06%	5.15%	5.24%	5.34%	5.43%	5.52%	9.74%
Otter Tail Corporation	OTTR	$46.88	$1.40	7.00%	6.75%	6.51%	6.26%	6.01%	5.77%	5.52%	9.13%
Pinnacle West Capital Corporation	PNW	$84.10	$2.95	5.00%	5.09%	5.18%	5.26%	5.35%	5.44%	5.52%	9.25%
PNM Resources, Inc.	PNM	$40.56	$1.16	6.47%	6.31%	6.15%	5.99%	5.84%	5.68%	5.52%	8.85%
Portland General Electric Company	POR	$45.55	$1.45	4.87%	4.98%	5.08%	5.19%	5.30%	5.41%	5.52%	8.87%
PPL Corporation	PPL	$29.79	$1.65	1.05%	1.79%	2.54%	3.28%	4.03%	4.78%	5.52%	10.16%
MEAN											**9.25%**
Flotation Cost											**0.11%**
Flotation Cost Adjusted DCF Result											**9.35%**

Notes:
[1] Source: Bloomberg Professional, equals 360-trading day average as of May 31, 2019
[2] Source: Bloomberg Professional
[3] Source: SPS Attachment AEB-2
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Source: SPS Attachment AEB-6
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

Southwestern Public Service Company

Multi-Stage DCF Results

30-DAY MULTI-STAGE DCF --MINIMUM FIRST STAGE GROWTH RATE

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
					Second Stage Growth						
Company	Ticker	Stock Price	Annualized Dividend	First Stage Growth	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth	ROE
ALLETE, Inc.	ALE	$81.31	$2.35	5.00%	5.09%	5.17%	5.26%	5.35%	5.43%	5.52%	8.58%
Alliant Energy Corporation	LNT	$47.20	$1.42	5.40%	5.42%	5.44%	5.46%	5.48%	5.50%	5.52%	8.79%
Ameren Corporation	AEE	$73.07	$1.90	4.90%	5.00%	5.11%	5.21%	5.31%	5.42%	5.52%	8.24%
American Electric Power Company, Inc.	AEP	$85.25	$2.68	4.00%	4.25%	4.51%	4.76%	5.01%	5.27%	5.52%	8.64%
DTE Energy Company	DTE	$125.38	$3.78	4.16%	4.39%	4.61%	4.84%	5.07%	5.29%	5.52%	8.54%
Duke Energy Corporation	DUK	$88.29	$3.71	4.60%	4.75%	4.91%	5.06%	5.21%	5.37%	5.52%	9.90%
Exelon Corporation	EXC	$49.35	$1.45	1.33%	2.03%	2.73%	3.43%	4.12%	4.82%	5.52%	7.93%
Evergy, Inc.	EVRG	$57.85	$1.90	6.15%	6.05%	5.94%	5.84%	5.73%	5.63%	5.52%	9.28%
Hawaiian Electric Industries, Inc.	HE	$41.56	$1.28	4.50%	4.67%	4.84%	5.01%	5.18%	5.35%	5.52%	8.68%
IDACORP, Inc.	IDA	$100.49	$2.52	2.40%	2.92%	3.44%	3.96%	4.48%	5.00%	5.52%	7.71%
NorthWestern Corporation	NWE	$70.39	$2.30	2.80%	3.25%	3.71%	4.16%	4.61%	5.07%	5.52%	8.51%
OGE Energy Corporation	OGE	$41.87	$1.46	3.80%	4.09%	4.37%	4.66%	4.95%	5.23%	5.52%	8.95%
Otter Tail Corporation	OTTR	$50.75	$1.40	5.00%	5.09%	5.17%	5.26%	5.35%	5.43%	5.52%	8.43%
Pinnacle West Capital Corporation	PNW	$94.73	$2.95	5.00%	5.09%	5.17%	5.26%	5.35%	5.43%	5.52%	8.82%
PNM Resources, Inc.	PNM	$46.65	$1.16	5.20%	5.25%	5.31%	5.36%	5.41%	5.47%	5.52%	8.17%
Portland General Electric Company	POR	$52.39	$1.45	4.50%	4.67%	4.84%	5.01%	5.18%	5.35%	5.52%	8.35%
PPL Corporation	PPL	$30.59	$1.65	0.59%	1.41%	2.23%	3.06%	3.88%	4.70%	5.52%	9.90%
MEAN											**8.67%**
Flotation Cost											**0.11%**
Flotation Cost Adjusted DCF Result											**8.78%**

Notes:
[1] Source: Bloomberg Professional, equals 30-trading day average as of May 31, 2019
[2] Source: Bloomberg Professional
[3] Source: SPS Attachment AEB-2
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Source: SPS Attachment AEB-6
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

Southwestern Public Service Company

Multi-Stage DCF Results

90-DAY MULTI-STAGE DCF --MINIMUM FIRST STAGE GROWTH RATE

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
					Second Stage Growth						
Company	Ticker	Stock Price	Annualized Dividend	First Stage Growth	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth	ROE
ALLETE, Inc.	ALE	$80.69	$2.35	5.00%	5.09%	5.17%	5.26%	5.35%	5.43%	5.52%	8.60%
Alliant Energy Corporation	LNT	$46.26	$1.42	5.40%	5.42%	5.44%	5.46%	5.48%	5.50%	5.52%	8.86%
Ameren Corporation	AEE	$71.78	$1.90	4.90%	5.00%	5.11%	5.21%	5.31%	5.42%	5.52%	8.29%
American Electric Power Company, Inc.	AEP	$82.78	$2.68	4.00%	4.25%	4.51%	4.76%	5.01%	5.27%	5.52%	8.74%
DTE Energy Company	DTE	$122.81	$3.78	4.16%	4.39%	4.61%	4.84%	5.07%	5.29%	5.52%	8.60%
Duke Energy Corporation	DUK	$88.92	$3.71	4.60%	4.75%	4.91%	5.06%	5.21%	5.37%	5.52%	9.87%
Exelon Corporation	EXC	$48.94	$1.45	1.33%	2.03%	2.73%	3.43%	4.12%	4.82%	5.52%	7.95%
Evergy, Inc.	EVRG	$57.38	$1.90	6.15%	6.05%	5.94%	5.84%	5.73%	5.63%	5.52%	9.31%
Hawaiian Electric Industries, Inc.	HE	$39.92	$1.28	4.50%	4.67%	4.84%	5.01%	5.18%	5.35%	5.52%	8.81%
IDACORP, Inc.	IDA	$99.04	$2.52	2.40%	2.92%	3.44%	3.96%	4.48%	5.00%	5.52%	7.74%
NorthWestern Corporation	NWE	$68.66	$2.30	2.80%	3.25%	3.71%	4.16%	4.61%	5.07%	5.52%	8.59%
OGE Energy Corporation	OGE	$41.98	$1.46	3.80%	4.09%	4.37%	4.66%	4.95%	5.23%	5.52%	8.94%
Otter Tail Corporation	OTTR	$49.96	$1.40	5.00%	5.09%	5.17%	5.26%	5.35%	5.43%	5.52%	8.48%
Pinnacle West Capital Corporation	PNW	$93.23	$2.95	5.00%	5.09%	5.17%	5.26%	5.35%	5.43%	5.52%	8.88%
PNM Resources, Inc.	PNM	$45.43	$1.16	5.20%	5.25%	5.31%	5.36%	5.41%	5.47%	5.52%	8.24%
Portland General Electric Company	POR	$50.93	$1.45	4.50%	4.67%	4.84%	5.01%	5.18%	5.35%	5.52%	8.43%
PPL Corporation	PPL	$31.30	$1.65	0.59%	1.41%	2.23%	3.06%	3.88%	4.70%	5.52%	9.79%
MEAN											**8.71%**
Flotation Cost											**0.11%**
Flotation Cost Adjusted DCF Result											**8.82%**

Notes:

[1] Source: Bloomberg Professional, equals 90-trading day average as of May 31, 2019
[2] Source: Bloomberg Professional
[3] Source: SPS Attachment AEB-2
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Source: SPS Attachment AEB-6
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

Southwestern Public Service Company

Multi-Stage DCF Results

180-DAY MULTI-STAGE DCF -- MINIMUM FIRST STAGE GROWTH RATE

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
					Second Stage Growth						
Company	Ticker	Stock Price	Annualized Dividend	First Stage Growth	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth	ROE
ALLETE, Inc.	ALE	$78.66	$2.35	5.00%	5.09%	5.17%	5.26%	5.35%	5.43%	5.52%	8.68%
Alliant Energy Corporation	LNT	$44.89	$1.42	5.40%	5.42%	5.44%	5.46%	5.48%	5.50%	5.52%	8.97%
Ameren Corporation	AEE	$68.95	$1.90	4.90%	5.00%	5.11%	5.21%	5.31%	5.42%	5.52%	8.41%
American Electric Power Company, Inc.	AEP	$78.59	$2.68	4.00%	4.25%	4.51%	4.76%	5.01%	5.27%	5.52%	8.92%
DTE Energy Company	DTE	$118.13	$3.78	4.16%	4.39%	4.61%	4.84%	5.07%	5.29%	5.52%	8.73%
Duke Energy Corporation	DUK	$86.67	$3.71	4.60%	4.75%	4.91%	5.06%	5.21%	5.37%	5.52%	9.99%
Exelon Corporation	EXC	$46.83	$1.45	1.33%	2.03%	2.73%	3.43%	4.12%	4.82%	5.52%	8.07%
Evergy, Inc.	EVRG	$57.33	$1.90	6.15%	6.05%	5.94%	5.84%	5.73%	5.63%	5.52%	9.32%
Hawaiian Electric Industries, Inc.	HE	$38.28	$1.28	4.50%	4.67%	4.84%	5.01%	5.18%	5.35%	5.52%	8.96%
IDACORP, Inc.	IDA	$98.09	$2.52	2.40%	2.92%	3.44%	3.96%	4.48%	5.00%	5.52%	7.77%
NorthWestern Corporation	NWE	$64.75	$2.30	2.80%	3.25%	3.71%	4.16%	4.61%	5.07%	5.52%	8.79%
OGE Energy Corporation	OGE	$40.15	$1.46	3.80%	4.09%	4.37%	4.66%	4.95%	5.23%	5.52%	9.10%
Otter Tail Corporation	OTTR	$48.87	$1.40	5.00%	5.09%	5.17%	5.26%	5.35%	5.43%	5.52%	8.55%
Pinnacle West Capital Corporation	PNW	$89.09	$2.95	5.00%	5.09%	5.17%	5.26%	5.35%	5.43%	5.52%	9.04%
PNM Resources, Inc.	PNM	$43.10	$1.16	5.20%	5.25%	5.31%	5.36%	5.41%	5.47%	5.52%	8.40%
Portland General Electric Company	POR	$48.69	$1.45	4.50%	4.67%	4.84%	5.01%	5.18%	5.35%	5.52%	8.57%
PPL Corporation	PPL	$30.69	$1.65	0.59%	1.41%	2.23%	3.06%	3.88%	4.70%	5.52%	9.88%
MEAN											**8.83%**
Flotation Cost											**0.11%**
Flotation Cost Adjusted DCF Result											**8.94%**

Notes:
[1] Source: Bloomberg Professional, equals 180-trading day average as of May 31, 2019
[2] Source: Bloomberg Professional
[3] Source: SPS Attachment AEB-2
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Source: SPS Attachment AEB-6
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

Southwestern Public Service Company

Multi-Stage DCF Results

360-DAY MULTI-STAGE DCF -- MINIMUM FIRST STAGE GROWTH RATE

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
					Second Stage Growth						
Company	Ticker	Stock Price	Annualized Dividend	First Stage Growth	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth	ROE
ALLETE, Inc.	ALE	$76.34	$2.35	5.00%	5.09%	5.17%	5.26%	5.35%	5.43%	5.52%	8.78%
Alliant Energy Corporation	LNT	$43.00	$1.42	5.40%	5.42%	5.44%	5.46%	5.48%	5.50%	5.52%	9.12%
Ameren Corporation	AEE	$63.59	$1.90	4.90%	5.00%	5.11%	5.21%	5.31%	5.42%	5.52%	8.66%
American Electric Power Company, Inc.	AEP	$73.57	$2.68	4.00%	4.25%	4.51%	4.76%	5.01%	5.27%	5.52%	9.16%
DTE Energy Company	DTE	$111.33	$3.78	4.16%	4.39%	4.61%	4.84%	5.07%	5.29%	5.52%	8.94%
Duke Energy Corporation	DUK	$82.52	$3.71	4.60%	4.75%	4.91%	5.06%	5.21%	5.37%	5.52%	10.22%
Exelon Corporation	EXC	$43.49	$1.45	1.33%	2.03%	2.73%	3.43%	4.12%	4.82%	5.52%	8.28%
Evergy, Inc.	EVRG	$55.31	$1.90	6.15%	6.05%	5.94%	5.84%	5.73%	5.63%	5.52%	9.46%
Hawaiian Electric Industries, Inc.	HE	$36.29	$1.28	4.50%	4.67%	4.84%	5.01%	5.18%	5.35%	5.52%	9.15%
IDACORP, Inc.	IDA	$93.84	$2.52	2.40%	2.92%	3.44%	3.96%	4.48%	5.00%	5.52%	7.88%
NorthWestern Corporation	NWE	$60.06	$2.30	2.80%	3.25%	3.71%	4.16%	4.61%	5.07%	5.52%	9.06%
OGE Energy Corporation	OGE	$36.90	$1.46	3.80%	4.09%	4.37%	4.66%	4.95%	5.23%	5.52%	9.43%
Otter Tail Corporation	OTTR	$46.88	$1.40	5.00%	5.09%	5.17%	5.26%	5.35%	5.43%	5.52%	8.68%
Pinnacle West Capital Corporation	PNW	$84.10	$2.95	5.00%	5.09%	5.17%	5.26%	5.35%	5.43%	5.52%	9.25%
PNM Resources, Inc.	PNM	$40.56	$1.16	5.20%	5.25%	5.31%	5.36%	5.41%	5.47%	5.52%	8.59%
Portland General Electric Company	POR	$45.55	$1.45	4.50%	4.67%	4.84%	5.01%	5.18%	5.35%	5.52%	8.79%
PPL Corporation	PPL	$29.79	$1.65	0.59%	1.41%	2.23%	3.06%	3.88%	4.70%	5.52%	10.02%
MEAN											**9.03%**
Flotation Cost											**0.11%**
Flotation Cost Adjusted DCF Result											**9.13%**

Notes:
[1] Source: Bloomberg Professional, equals 360-trading day average as of May 31, 2019
[2] Source: Bloomberg Professional
[3] Source: SPS Attachment AEB-2
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Source: SPS Attachment AEB-6
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

Southwestern Public Service Company

Multi-Stage DCF Results

30-DAY MULTI-STAGE DCF -- MAXIMUM FIRST STAGE GROWTH RATE

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
					Second Stage Growth						
Company	Ticker	Stock Price	Annualized Dividend	First Stage Growth	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth	ROE
ALLETE, Inc.	ALE	$81.31	$2.35	7.20%	6.92%	6.64%	6.36%	6.08%	5.80%	5.52%	9.05%
Alliant Energy Corporation	LNT	$47.20	$1.42	6.50%	6.34%	6.17%	6.01%	5.85%	5.68%	5.52%	9.04%
Ameren Corporation	AEE	$73.07	$1.90	6.50%	6.34%	6.17%	6.01%	5.85%	5.68%	5.52%	8.55%
American Electric Power Company, Inc.	AEP	$85.25	$2.68	5.79%	5.75%	5.70%	5.66%	5.61%	5.57%	5.52%	9.03%
DTE Energy Company	DTE	$125.38	$3.78	6.00%	5.92%	5.84%	5.76%	5.68%	5.60%	5.52%	8.93%
Duke Energy Corporation	DUK	$88.29	$3.71	6.00%	5.92%	5.84%	5.76%	5.68%	5.60%	5.52%	10.31%
Exelon Corporation	EXC	$49.35	$1.45	10.50%	9.67%	8.84%	8.01%	7.18%	6.35%	5.52%	9.93%
Evergy, Inc.	EVRG	$57.85	$1.90	6.60%	6.42%	6.24%	6.06%	5.88%	5.70%	5.52%	9.39%
Hawaiian Electric Industries, Inc.	HE	$41.56	$1.28	6.10%	6.00%	5.91%	5.81%	5.71%	5.62%	5.52%	9.03%
IDACORP, Inc.	IDA	$100.49	$2.52	3.80%	4.09%	4.37%	4.66%	4.95%	5.23%	5.52%	7.94%
NorthWestern Corporation	NWE	$70.39	$2.30	3.00%	3.42%	3.84%	4.26%	4.68%	5.10%	5.52%	8.55%
OGE Energy Corporation	OGE	$41.87	$1.46	6.50%	6.34%	6.17%	6.01%	5.85%	5.68%	5.52%	9.61%
Otter Tail Corporation	OTTR	$50.75	$1.40	9.00%	8.42%	7.84%	7.26%	6.68%	6.10%	5.52%	9.30%
Pinnacle West Capital Corporation	PNW	$94.73	$2.95	5.01%	5.10%	5.18%	5.27%	5.35%	5.44%	5.52%	8.83%
PNM Resources, Inc.	PNM	$46.65	$1.16	8.50%	8.00%	7.51%	7.01%	6.51%	6.02%	5.52%	8.82%
Portland General Electric Company	POR	$52.39	$1.45	5.20%	5.25%	5.31%	5.36%	5.41%	5.47%	5.52%	8.48%
PPL Corporation	PPL	$30.59	$1.65	1.50%	2.17%	2.84%	3.51%	4.18%	4.85%	5.52%	10.17%
MEAN											**9.11%**
Flotation Cost											**0.11%**
Flotation Cost Adjusted DCF Result											**9.22%**

Notes:
[1] Source: Bloomberg Professional, equals 30-trading day average as of May 31, 2019
[2] Source: Bloomberg Professional
[3] Source: SPS Attachment AEB-2
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Source: SPS Attachment AEB-6
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

Southwestern Public Service Company

Multi-Stage DCF Results

90-DAY MULTI-STAGE DCF -- MAXIMUM FIRST STAGE GROWTH RATE

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
					Second Stage Growth						
Company	Ticker	Stock Price	Annualized Dividend	First Stage Growth	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth	ROE
ALLETE, Inc.	ALE	$80.69	$2.35	7.20%	6.92%	6.64%	6.36%	6.08%	5.80%	5.52%	9.08%
Alliant Energy Corporation	LNT	$46.26	$1.42	6.50%	6.34%	6.17%	6.01%	5.85%	5.68%	5.52%	9.11%
Ameren Corporation	AEE	$71.78	$1.90	6.50%	6.34%	6.17%	6.01%	5.85%	5.68%	5.52%	8.61%
American Electric Power Company, Inc.	AEP	$82.78	$2.68	5.79%	5.75%	5.70%	5.66%	5.61%	5.57%	5.52%	9.14%
DTE Energy Company	DTE	$122.81	$3.78	6.00%	5.92%	5.84%	5.76%	5.68%	5.60%	5.52%	9.01%
Duke Energy Corporation	DUK	$88.92	$3.71	6.00%	5.92%	5.84%	5.76%	5.68%	5.60%	5.52%	10.27%
Exelon Corporation	EXC	$48.94	$1.45	10.50%	9.67%	8.84%	8.01%	7.18%	6.35%	5.52%	9.96%
Evergy, Inc.	EVRG	$57.38	$1.90	6.60%	6.42%	6.24%	6.06%	5.88%	5.70%	5.52%	9.42%
Hawaiian Electric Industries, Inc.	HE	$39.92	$1.28	6.10%	6.00%	5.91%	5.81%	5.71%	5.62%	5.52%	9.18%
IDACORP, Inc.	IDA	$99.04	$2.52	3.80%	4.09%	4.37%	4.66%	4.95%	5.23%	5.52%	7.98%
NorthWestern Corporation	NWE	$68.66	$2.30	3.00%	3.42%	3.84%	4.26%	4.68%	5.10%	5.52%	8.63%
OGE Energy Corporation	OGE	$41.98	$1.46	6.50%	6.34%	6.17%	6.01%	5.85%	5.68%	5.52%	9.60%
Otter Tail Corporation	OTTR	$49.96	$1.40	9.00%	8.42%	7.84%	7.26%	6.68%	6.10%	5.52%	9.36%
Pinnacle West Capital Corporation	PNW	$93.23	$2.95	5.01%	5.10%	5.18%	5.27%	5.35%	5.44%	5.52%	8.88%
PNM Resources, Inc.	PNM	$45.43	$1.16	8.50%	8.00%	7.51%	7.01%	6.51%	6.02%	5.52%	8.91%
Portland General Electric Company	POR	$50.93	$1.45	5.20%	5.25%	5.31%	5.36%	5.41%	5.47%	5.52%	8.57%
PPL Corporation	PPL	$31.30	$1.65	1.50%	2.17%	2.84%	3.51%	4.18%	4.85%	5.52%	10.06%
MEAN											**9.16%**
Flotation Cost											**0.11%**
Flotation Cost Adjusted DCF Result											**9.27%**

Notes:

[1] Source: Bloomberg Professional, equals 90-trading day average as of May 31, 2019
[2] Source: Bloomberg Professional
[3] Source: SPS Attachment AEB-2
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Source: SPS Attachment AEB-6
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

Southwestern Public Service Company

Multi-Stage DCF Results

180-DAY MULTI-STAGE DCF -- MAXIMUM FIRST STAGE GROWTH RATE

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
					Second Stage Growth						
Company	Ticker	Stock Price	Annualized Dividend	First Stage Growth	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth	ROE
ALLETE, Inc.	ALE	$78.66	$2.35	7.20%	6.92%	6.64%	6.36%	6.08%	5.80%	5.52%	9.17%
Alliant Energy Corporation	LNT	$44.89	$1.42	6.50%	6.34%	6.17%	6.01%	5.85%	5.68%	5.52%	9.22%
Ameren Corporation	AEE	$68.95	$1.90	6.50%	6.34%	6.17%	6.01%	5.85%	5.68%	5.52%	8.74%
American Electric Power Company, Inc.	AEP	$78.59	$2.68	5.79%	5.75%	5.70%	5.66%	5.61%	5.57%	5.52%	9.34%
DTE Energy Company	DTE	$118.13	$3.78	6.00%	5.92%	5.84%	5.76%	5.68%	5.60%	5.52%	9.15%
Duke Energy Corporation	DUK	$86.67	$3.71	6.00%	5.92%	5.84%	5.76%	5.68%	5.60%	5.52%	10.40%
Exelon Corporation	EXC	$46.83	$1.45	10.50%	9.67%	8.84%	8.01%	7.18%	6.35%	5.52%	10.16%
Evergy, Inc.	EVRG	$57.33	$1.90	6.60%	6.42%	6.24%	6.06%	5.88%	5.70%	5.52%	9.43%
Hawaiian Electric Industries, Inc.	HE	$38.28	$1.28	6.10%	6.00%	5.91%	5.81%	5.71%	5.62%	5.52%	9.34%
IDACORP, Inc.	IDA	$98.09	$2.52	3.80%	4.09%	4.37%	4.66%	4.95%	5.23%	5.52%	8.01%
NorthWestern Corporation	NWE	$64.75	$2.30	3.00%	3.42%	3.84%	4.26%	4.68%	5.10%	5.52%	8.83%
OGE Energy Corporation	OGE	$40.15	$1.46	6.50%	6.34%	6.17%	6.01%	5.85%	5.68%	5.52%	9.79%
Otter Tail Corporation	OTTR	$48.87	$1.40	9.00%	8.42%	7.84%	7.26%	6.68%	6.10%	5.52%	9.44%
Pinnacle West Capital Corporation	PNW	$89.09	$2.95	5.01%	5.10%	5.18%	5.27%	5.35%	5.44%	5.52%	9.04%
PNM Resources, Inc.	PNM	$43.10	$1.16	8.50%	8.00%	7.51%	7.01%	6.51%	6.02%	5.52%	9.09%
Portland General Electric Company	POR	$48.69	$1.45	5.20%	5.25%	5.31%	5.36%	5.41%	5.47%	5.52%	8.72%
PPL Corporation	PPL	$30.69	$1.65	1.50%	2.17%	2.84%	3.51%	4.18%	4.85%	5.52%	10.15%
MEAN											**9.29%**
Flotation Cost											**0.11%**
Flotation Cost Adjusted DCF Result											**9.40%**

Notes:
[1] Source: Bloomberg Professional, equals 180-trading day average as of May 31, 2019
[2] Source: Bloomberg Professional
[3] Source: SPS Attachment AEB-2
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Source: SPS Attachment AEB-6
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

Southwestern Public Service Company

Multi-Stage DCF Results

360-DAY MULTI-STAGE DCF -- MAXIMUM FIRST STAGE GROWTH RATE

Inputs		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
					Second Stage Growth						
Company	Ticker	Stock Price	Annualized Dividend	First Stage Growth	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth	ROE
ALLETE, Inc.	ALE	$76.34	$2.35	7.20%	6.92%	6.64%	6.36%	6.08%	5.80%	5.52%	9.29%
Alliant Energy Corporation	LNT	$43.00	$1.42	6.50%	6.34%	6.17%	6.01%	5.85%	5.68%	5.52%	9.39%
Ameren Corporation	AEE	$63.59	$1.90	6.50%	6.34%	6.17%	6.01%	5.85%	5.68%	5.52%	9.01%
American Electric Power Company, Inc.	AEP	$73.57	$2.68	5.79%	5.75%	5.70%	5.66%	5.61%	5.57%	5.52%	9.60%
DTE Energy Company	DTE	$111.33	$3.78	6.00%	5.92%	5.84%	5.76%	5.68%	5.60%	5.52%	9.37%
Duke Energy Corporation	DUK	$82.52	$3.71	6.00%	5.92%	5.84%	5.76%	5.68%	5.60%	5.52%	10.65%
Exelon Corporation	EXC	$43.49	$1.45	10.50%	9.67%	8.84%	8.01%	7.18%	6.35%	5.52%	10.51%
Evergy, Inc.	EVRG	$55.31	$1.90	6.60%	6.42%	6.24%	6.06%	5.88%	5.70%	5.52%	9.57%
Hawaiian Electric Industries, Inc.	HE	$36.29	$1.28	6.10%	6.00%	5.91%	5.81%	5.71%	5.62%	5.52%	9.55%
IDACORP, Inc.	IDA	$93.84	$2.52	3.80%	4.09%	4.37%	4.66%	4.95%	5.23%	5.52%	8.13%
NorthWestern Corporation	NWE	$60.06	$2.30	3.00%	3.42%	3.84%	4.26%	4.68%	5.10%	5.52%	9.10%
OGE Energy Corporation	OGE	$36.90	$1.46	6.50%	6.34%	6.17%	6.01%	5.85%	5.68%	5.52%	10.17%
Otter Tail Corporation	OTTR	$46.88	$1.40	9.00%	8.42%	7.84%	7.26%	6.68%	6.10%	5.52%	9.61%
Pinnacle West Capital Corporation	PNW	$84.10	$2.95	5.01%	5.10%	5.18%	5.27%	5.35%	5.44%	5.52%	9.26%
PNM Resources, Inc.	PNM	$40.56	$1.16	8.50%	8.00%	7.51%	7.01%	6.51%	6.02%	5.52%	9.31%
Portland General Electric Company	POR	$45.55	$1.45	5.20%	5.25%	5.31%	5.36%	5.41%	5.47%	5.52%	8.94%
PPL Corporation	PPL	$29.79	$1.65	1.50%	2.17%	2.84%	3.51%	4.18%	4.85%	5.52%	10.30%
MEAN											**9.52%**
Flotation Cost											**0.11%**
Flotation Cost Adjusted DCF Result											**9.62%**

Notes:
[1] Source: Bloomberg Professional, equals 360-trading day average as of May 31, 2019
[2] Source: Bloomberg Professional
[3] Source: SPS Attachment AEB-2
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Source: SPS Attachment AEB-6
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

Southwestern Public Service Company

Calculation of GDP Growth Rate

CALCULATION OF LONG-TERM GDP GROWTH RATE

Step 1		
Real GDP ($ Billions) [1]		
1929	$	1,109.4
2018	$	18,566.4
Compound Annual Growth Rate		**3.22%**
Step 2		
Consumer Price Index (YoY % Change) [2]		
2025-2029		2.10%
Average		2.10%
Consumer Price Index (All-Urban) [3]		
2029		3.24
2050		5.24
Compound Annual Growth Rate		2.31%
GDP Chain-type Price Index (2009=1.000) [3]		
2029		1.50
2050		2.42
Compound Annual Growth Rate		2.29%
Average Inflation Forecast		**2.23%**
Long-Term GDP Growth Rate		**5.52%**

Notes:
[1] Bureau of Economic Analysis, downloaded May 30, 2019
[2] Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14
[3] Energy Information Administration, Annual Energy Outlook, Table 20

Southwestern Public Service Company

Flotation Cost

FLOTATION COST ADJUSTMENT

Two most recent common stock issuances per company, if available

Company	Offering Completion Date	Shares Issued (000)	Offering Price	Under-writing Discount [i]	Offering Expense ($000)	Total Flotation Costs ($000)	Gross Equity Issue Before Costs ($000)	Net Proceeds ($000)	Net Proceeds Per Share	Flotation Cost Percentage
ALLETE, Inc.	5/24/2001	6,600	$ 23.68	$ 0.9472	$350	$6,602	$156,288	$149,686	$22.68	4.22%
ALLETE, Inc.	2/26/2014	3,220	$ 49.75	$ 1.7413	$450	$6,057	$160,195	$154,138	$47.87	3.78%
Alliant Energy Corporation	12/13/2018	8,359	$ 44.85	$ 0.5200	$1,000	$5,347	$374,900	$369,553	$44.21	1.43%
Alliant Energy Corporation	7/1/2003	17,250	$ 19.25	$ 0.7700	$370	$13,653	$332,063	$318,410	$18.46	4.11%
Ameren Corporation	7/2/2004	10,925	$ 42.00	$ 1.2600	$400	$14,166	$458,850	$444,685	$40.70	3.09%
Ameren Corporation	9/9/2009	21,850	$ 25.25	$ 0.7575	$450	$17,001	$551,713	$534,711	$24.47	3.08%
American Electric Power Company, Inc.	2/27/2003	56,000	$ 20.95	$ 0.6285	$550	$35,746	$1,173,200	$1,137,454	$20.31	3.05%
American Electric Power Company, Inc.	4/1/2009	69,000	$ 24.50	$ 0.7350	$400	$51,115	$1,690,500	$1,639,385	$23.76	3.02%
DTE Energy Company	6/19/2002	237,875	$ 43.25	$ 1.4056	$250	$334,607	$10,288,094	$9,953,487	$41.84	3.25%
Duke Energy Corporation	3/1/2016	10,638	$ 72.00	$ 2.1600	$400	$23,377	$765,900	$742,523	$69.80	3.05%
Exelon Corporation	6/11/2014	57,500	$ 35.00	$ 1.0500	$600	$60,975	$2,012,500	$1,951,525	$33.94	3.03%
Hawaiian Electric Industries, Inc.	12/2/2008	5,000	$ 23.00	$ 0.8625	$300	$4,613	$115,000	$110,388	$22.08	4.01%
Hawaiian Electric Industries, Inc.	3/19/2013	7,000	$ 26.75	$ 1.0031	$450	$7,472	$187,250	$179,778	$25.68	3.99%
IDACORP, Inc.	12/9/2004	4,025	$ 30.00	$ 1.2000	$300	$5,130	$120,750	$115,620	$28.73	4.25%
NorthWestern Corporation	11/4/2014	7,767	$ 51.50	$ 1.8025	$1,000	$15,000	$400,000	$385,000	$49.57	3.75%
NorthWestern Corporation	9/29/2015	1,100	$ 51.81	$ 1.3300	$1,000	$2,463	$56,991	$54,528	$49.57	4.32%
OGE Energy Corp.	8/21/2003	5,324	$ 21.60	$ 0.7900	$325	$4,531	$115,000	$110,469	$20.75	3.94%
Otter Tail Corporation	12/7/2004	3,075	$ 25.45	$ 0.9500	$300	$3,221	$78,259	$75,038	$24.40	4.12%
Otter Tail Corporation	9/18/2008	5,175	$ 30.00	$ 1.0875	$400	$6,028	$155,250	$149,222	$28.84	3.88%
Pinnacle West Capital Corporation	4/27/2005	6,095	$ 42.00	$ 1.3650	$250	$8,570	$255,990	$247,420	$40.59	3.35%
Pinnacle West Capital Corporation	4/8/2010	6,900	$ 38.00	$ 1.3300	$190	$9,367	$262,200	$252,833	$36.64	3.57%
PNM Resources, Inc.	3/23/2005	3,910	$ 26.76	$ 0.8697	$200	$3,601	$104,632	$101,031	$25.84	3.44%
PNM Resources, Inc.	12/6/2006	5,750	$ 30.79	$ 1.0780	$250	$6,449	$177,043	$170,594	$29.67	3.64%
Portland General Electric Company	3/5/2009	12,478	$ 14.10	$ 0.4935	$375	$6,533	$175,933	$169,400	$13.58	3.71%
Portland General Electric Company	6/11/2013	12,765	$ 29.50	$ 0.9588	$600	$12,839	$376,568	$363,728	$28.49	3.41%
PPL Corporation	4/10/2012	11,385	$ 27.70	$ 0.6800	$750	$8,492	$315,365	$306,873	$26.95	2.69%
PPL Corporation	5/8/2018	63,250	$ 27.00	$ 0.2943	$1,000	$19,614	$1,707,750	$1,688,136	$26.69	1.15%
							$692,565.6	$22,568,180.3	$21,875,614.6	3.07%

Notes:

[i] Underwriting discount was calculated as the market price minus the offering price when not explicitly given in the prospectus.

The flotation cost adjustment is derived by dividing the dividend yield by 1 − F (where F = flotation costs expressed in percentage terms), or by 0.9693, 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:

$$k = \frac{D \times (1 + 0.5g)}{P \times (1 - F)} + g$$

Southwestern Public Service Company

Flotation Cost

Company	Ticker	[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Expected Dividend Yield Adjusted for Flotation Costs	[6] Value Line Earnings Growth	[7] Yahoo! Finance Earnings Growth	[8] Zacks Earnings Growth	[9] Average Earnings Growth	[10] ROE	[11] ROE Adjusted for Flotation Costs
ALLETE, Inc.	ALE	$2.35	$81.31	2.89%	3.07%	3.16%	5.00%	6.00%	7.20%	6.07%	9.13%	9.23%
Alliant Energy Corporation	LNT	$1.42	$47.20	3.01%	3.19%	3.29%	6.50%	5.85%	5.40%	5.92%	9.10%	9.20%
Ameren Corporation	AEE	$1.90	$73.07	2.60%	2.75%	2.84%	6.50%	4.90%	6.20%	5.87%	8.62%	8.71%
American Electric Power Company, Inc.	AEP	$2.68	$85.25	3.14%	3.31%	3.41%	4.00%	5.79%	5.60%	5.13%	8.44%	8.54%
DTE Energy Company	DTE	$3.78	$125.38	3.01%	3.17%	3.27%	5.00%	4.16%	6.00%	5.05%	8.22%	8.32%
Duke Energy Corporation	DUK	$3.71	$88.29	4.20%	4.42%	4.56%	6.00%	4.60%	4.80%	5.13%	9.55%	9.69%
Exelon Corporation	EXC	$1.45	$49.35	2.94%	3.09%	3.19%	10.50%	1.33%	3.80%	5.21%	8.30%	8.40%
Evergy, Inc.	EVRG	$1.90	$57.85	3.28%	3.49%	3.60%	NA	6.15%	6.60%	6.38%	9.87%	9.98%
Hawaiian Electric Industries, Inc.	HE	$1.28	$41.56	3.08%	3.25%	3.35%	4.50%	6.10%	5.60%	5.40%	8.65%	8.75%
IDACORP, Inc.	IDA	$2.52	$100.49	2.51%	2.59%	2.67%	3.50%	2.40%	3.80%	3.23%	5.82%	5.90%
NorthWestern Corporation	NWE	$2.30	$70.39	3.27%	3.36%	3.47%	3.00%	2.86%	2.80%	2.89%	6.25%	6.35%
OGE Energy Corporation	OGE	$1.46	$41.87	3.49%	3.66%	3.78%	6.50%	3.80%	4.60%	4.97%	8.63%	8.74%
Otter Tail Corporation	OTTR	$1.40	$50.75	2.76%	2.95%	3.04%	5.00%	9.00%	7.00%	7.00%	9.95%	10.04%
Pinnacle West Capital Corporation	PNW	$2.95	$94.73	3.11%	3.27%	3.37%	5.00%	5.01%	5.00%	5.00%	8.27%	8.38%
PNM Resources, Inc.	PNM	$1.16	$46.65	2.49%	2.65%	2.73%	8.50%	5.70%	5.20%	6.47%	9.11%	9.20%
Portland General Electric Company	POR	$1.45	$52.39	2.77%	2.90%	2.99%	4.50%	5.20%	4.90%	4.87%	7.77%	7.86%
PPL Corporation	PPL	$1.65	$30.59	5.39%	5.45%	5.62%	1.50%	0.59%	NA	1.05%	6.50%	6.67%
Mean											8.36%	8.47%
Flotation Cost Adjustment											[12]	0.11%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 30-day average as of July 31, 2017.
[3] Equals [1] / [2]
[4] Equals [3] x (1 + [9])
[5] Equals [4] / (1 − Flotation Cost)
[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 Average ([11]) − Average ([10])

Southwestern Public Service Company

Value Line and Bloomberg Betas

BETA
as of May 31, 2019

		Value Line	Bloomberg
ALLETE, Inc.	ALE	0.65	0.71
Alliant Energy Corporation	LNT	0.65	0.70
Ameren Corporation	AEE	0.60	0.66
American Electric Power Company, Inc.	AEP	0.55	0.64
DTE Energy Company	DTE	0.55	0.68
Duke Energy Corporation	DUK	0.50	0.55
Exelon Corporation	EXC	0.70	0.66
Evergy, Inc.	EVRG	NA	0.65
Hawaiian Electric Industries, Inc.	HE	0.60	0.65
IDACORP, Inc.	IDA	0.60	0.74
NorthWestern Corporation	NWE	0.60	0.70
OGE Energy Corporation	OGE	0.85	0.76
Otter Tail Corporation	OTTR	0.70	0.82
Pinnacle West Capital Corporation	PNW	0.55	0.68
PNM Resources, Inc.	PNM	0.65	0.77
Portland General Electric Company	POR	0.60	0.67
PPL Corporation	PPL	0.70	0.63
Mean		0.628	0.686

Sources: Bloomberg Professional as of May 31, 2019 and Value Line, dated March 15, April 26, and May 17, 2019

Southwestern Public Service Company

CAPM Analysis

CAPITAL ASSET PRICING MODEL

	[4]	[5]	[6]	[7]
	Risk-Free Rate	Value Line Beta	Market Risk Premium	ROE
Proxy Group Average Value Line Beta				
[1] Current 30-day average of 30-year U.S. Treasury bond yield	2.85%	0.628	11.04%	9.79%
[2] Near-term projected 30-year U.S. Treasury bond yield (Q3 2019 - Q3 2020)	3.06%	0.628	10.84%	9.87%
[3] Projected 30-year U.S. Treasury bond yield (2021 - 2025)	3.60%	0.628	10.30%	10.07%
Mean				9.91%

	Risk-Free Rate	Bloomberg Beta	Market Risk Premium	ROE
Proxy Group Average Bloomberg Beta				
[1] Current 30-day average of 30-year U.S. Treasury bond yield	2.85%	0.686	11.04%	10.43%
[2] Near-term projected 30-year U.S. Treasury bond yield (Q3 2019 - Q3 2020)	3.06%	0.686	10.84%	10.49%
[3] Projected 30-year U.S. Treasury bond yield (2021 - 2025)	3.60%	0.686	10.30%	10.66%
Mean				10.53%

Source:

[1] Bloomberg Professional
[2] Source: Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 2
[3] Source: Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14
[4] See Notes [1], [2], and [3]
[5] Exhibit AEB-8 Beta
[6] Exhibit AEB-10 CAPM at 2
[7] Equals [4] + ([5] x [6])

Southwestern Public Service Company

CAPM Analysis

CAPITAL ASSET PRICING MODEL

S&P's estimate of the S&P 500 Growth Rate	12.27%	[6]
S&P's estimate of the S&P 500 Dividend Yield	2.02%	[6]
Implied Return on the S&P 500	14.41%	[7]

	[4]	[5]	[6]	[7]
	Risk-Free Rate	Value Line Beta	S&P Implied Market Risk Premium	ROE
Proxy Group Average Value Line Beta				
[1] Current 30-day average of 30-year U.S. Treasury bond yield	2.85%	0.628	11.56%	10.11%
[2] Near-term projected 30-year U.S. Treasury bond yield (Q3 2019 - Q3 2020)	3.06%	0.628	11.35%	10.19%
[3] Projected 30-year U.S. Treasury bond yield (2021 - 2025)	3.60%	0.628	10.81%	10.39%
Mean				10.23%

	Risk-Free Rate	Bloomberg Beta	S&P Implied Market Risk Premium	ROE
Proxy Group Average Bloomberg Beta				
[1] Current 30-day average of 30-year U.S. Treasury bond yield	2.85%	0.686	11.56%	10.78%
[2] Near-term projected 30-year U.S. Treasury bond yield (Q3 2019 - Q3 2020)	3.06%	0.686	11.35%	10.85%
[3] Projected 30-year U.S. Treasury bond yield (2021 - 2025)	3.60%	0.686	10.81%	11.02%
Mean				10.88%

Source:

[1] Bloomberg Professional
[2] Source: Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 2
[3] Source: Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14
[4] See Notes [1], [2], and [3]
[5] Exhibit AEB-8 Beta
[6] S&P Dow Jones Indices, S&P 500 Earnings and Estimate Report May 31, 2019
[7] Constant Growth DCF using S&P estimates: 1.94% x (1+12.14%) +12.14%
[8] Equals [4] + ([5] x [6])

Southwestern Public Service Company

CAPM Analysis

MARKET RISK PREMIUM DERIVED FROM ANALYSTS LONG-TERM GROWTH ESTIMATES

[8] Estimated Weighted Average Dividend Yield	2.08%		
[9] Estimated Weighted Average Long-Term Growth Rate	11.69%		
[10] S&P 500 Estimated Required Market Return	13.90%		
[11] Risk-Free Rate	2.85%	3.06%	3.60%
[12] Implied Market Risk Premium	11.04%	10.84%	10.30%

STANDARD AND POOR'S 500 INDEX

		[13]	[14]	[15]	[16]	[17]
Name	Ticker	% Total Market Cap	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
LyondellBasell Industries NV	LYB	0.12%	5.66%	0.01%	6.20%	0.01%
American Express Co	AXP	0.40%	1.36%	0.01%	12.953%	0.05%
Verizon Communications Inc	VZ	0.95%	4.43%	0.04%	2.42%	0.02%
Broadcom Inc	AVGO	0.42%	4.21%	0.02%	13.034%	0.05%
Boeing Co/The	BA	0.81%	2.41%	0.02%	12.255%	0.10%
Caterpillar Inc	CAT	0.29%	3.44%	0.01%	13.225%	0.04%
JPMorgan Chase & Co	JPM	1.45%	3.02%	0.04%	6.80%	0.10%
Chevron Corp	CVX	0.91%	4.18%	0.04%	3.93%	0.04%
Coca-Cola Co/The	KO	0.88%	3.26%	0.03%	6.49%	0.06%
AbbVie Inc	ABBV	0.48%	5.58%	0.03%	5.123%	0.02%
Walt Disney Co/The	DIS	1.00%	1.33%	0.01%	7.08%	0.07%
FleetCor Technologies Inc	FLT	0.09%	n/a	n/a	19.667%	0.02%
Extra Space Storage Inc	EXR	0.06%	3.36%	0.00%	5.418%	0.00%
Exxon Mobil Corp	XOM	1.26%	4.92%	0.06%	17.13%	0.22%
Phillips 66	PSX	0.15%	4.46%	0.01%	2.507%	0.00%
General Electric Co	GE	0.35%	0.42%	0.00%	8.867%	0.03%
HP Inc	HPQ	0.12%	3.43%	0.00%	3.11%	0.00%
Home Depot Inc/The	HD	0.88%	2.87%	0.03%	9.485%	0.08%
International Business Machines Corp	IBM	0.47%	5.10%	0.02%	1.923%	0.01%
Concho Resources Inc	CXO	0.08%	0.51%	0.00%	11.85%	0.01%
Johnson & Johnson	JNJ	1.47%	2.90%	0.04%	5.983%	0.09%
McDonald's Corp	MCD	0.64%	2.34%	0.01%	8.723%	0.06%
Merck & Co Inc	MRK	0.86%	2.78%	0.02%	9.005%	0.08%
3M Co	MMM	0.39%	3.61%	0.01%	7.10%	0.03%
American Water Works Co Inc	AWK	0.09%	1.77%	0.00%	8.58%	0.01%
Bank of America Corp	BAC	1.07%	2.26%	0.02%	10.10%	0.11%
Baker Hughes a GE Co	BHGE	0.05%	3.36%	0.00%	43.55%	0.02%
Pfizer Inc	PFE	0.97%	3.47%	0.03%	5.09%	0.05%
Procter & Gamble Co/The	PG	1.09%	2.90%	0.03%	7.147%	0.08%
AT&T Inc	T	0.94%	6.67%	0.06%	4.79%	0.05%
Travelers Cos Inc/The	TRV	0.16%	2.25%	0.00%	13.057%	0.02%
United Technologies Corp	UTX	0.46%	2.33%	0.01%	8.867%	0.04%
Analog Devices Inc	ADI	0.15%	2.24%	0.00%	12.10%	0.02%
Walmart Inc	WMT	1.23%	2.09%	0.03%	3.964%	0.05%
Cisco Systems Inc	CSCO	0.94%	2.69%	0.03%	6.96%	0.07%
Intel Corp	INTC	0.83%	2.86%	0.02%	8.88%	0.07%
General Motors Co	GM	0.20%	4.56%	0.01%	5.978%	0.01%
Microsoft Corp	MSFT	4.00%	1.49%	0.06%	12.818%	0.51%
Dollar General Corp	DG	0.14%	1.01%	0.00%	10.596%	0.01%
Cigna Corp	CI	0.24%	0.03%	0.00%	11.093%	0.03%
Kinder Morgan Inc/DE	KMI	0.19%	5.01%	0.01%	13.90%	0.03%
Citigroup Inc	C	0.61%	2.90%	0.02%	12.717%	0.08%
American International Group Inc	AIG	0.19%	2.51%	0.00%	11.00%	0.02%
Honeywell International Inc	HON	0.50%	2.00%	0.01%	8.175%	0.04%
Altria Group Inc	MO	0.39%	6.52%	0.03%	6.525%	0.03%
HCA Healthcare Inc	HCA	0.17%	1.32%	0.00%	11.62%	0.02%
Under Armour Inc	UAA	0.02%	n/a	n/a	31.188%	0.01%
International Paper Co	IP	0.07%	4.82%	0.00%	4.767%	0.00%
Hewlett Packard Enterprise Co	HPE	0.08%	3.28%	0.00%	5.79%	0.00%
Abbott Laboratories	ABT	0.57%	1.68%	0.01%	9.698%	0.05%
Aflac Inc	AFL	0.16%	2.11%	0.00%	3.43%	0.01%

Southwestern Public Service Company

CAPM Analysis

STANDARD AND POOR'S 500 INDEX

		[13]	[14]	[15]	[16]	[17]
Name	Ticker	% Total Market Cap	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Air Products & Chemicals Inc	APD	0.19%	2.28%	0.00%	12.303%	0.02%
Royal Caribbean Cruises Ltd	RCL	0.11%	2.30%	0.00%	12.105%	0.01%
American Electric Power Co Inc	AEP	0.18%	3.11%	0.01%	6.188%	0.01%
Hess Corp	HES	0.07%	1.79%	0.00%	-9.23%	-0.01%
Anadarko Petroleum Corp	APC	0.15%	1.71%	0.00%	16.908%	0.03%
Aon PLC	AON	0.18%	0.98%	0.00%	9.95%	0.02%
Apache Corp	APA	0.04%	3.84%	0.00%	1.045%	0.00%
Archer-Daniels-Midland Co	ADM	0.09%	3.65%	0.00%	0.60%	0.00%
Automatic Data Processing Inc	ADP	0.29%	1.97%	0.01%	13.50%	0.04%
Verisk Analytics Inc	VRSK	0.10%	0.71%	0.00%	9.457%	0.01%
AutoZone Inc	AZO	0.11%	n/a	n/a	12.578%	0.01%
Avery Dennison Corp	AVY	0.04%	2.23%	0.00%	5.55%	0.00%
MSCI Inc	MSCI	0.08%	1.05%	0.00%	10.00%	0.01%
Ball Corp	BLL	0.09%	0.98%	0.00%	6.767%	0.01%
Bank of New York Mellon Corp/The	BK	0.17%	2.62%	0.00%	7.333%	0.01%
Baxter International Inc	BAX	0.16%	1.20%	0.00%	11.90%	0.02%
Becton Dickinson and Co	BDX	0.27%	1.32%	0.00%	11.353%	0.03%
Berkshire Hathaway Inc	BRK/B	1.14%	n/a	n/a	-1.60%	-0.02%
Best Buy Co Inc	BBY	0.07%	3.19%	0.00%	6.813%	0.00%
H&R Block Inc	HRB	0.02%	3.81%	0.00%	10.00%	0.00%
Boston Scientific Corp	BSX	0.23%	n/a	n/a	9.08%	0.02%
Bristol-Myers Squibb Co	BMY	0.31%	3.61%	0.01%	8.63%	0.03%
Fortune Brands Home & Security Inc	FBHS	0.03%	1.83%	0.00%	9.465%	0.00%
Brown-Forman Corp	BF/B	0.06%	1.33%	0.00%	9.91%	0.01%
Cabot Oil & Gas Corp	COG	0.04%	1.44%	0.00%	35.02%	0.02%
Campbell Soup Co	CPB	0.05%	3.86%	0.00%	1.42%	0.00%
Kansas City Southern	KSU	0.05%	1.27%	0.00%	12.667%	0.01%
Hilton Worldwide Holdings Inc	HLT	0.11%	0.67%	0.00%	13.10%	0.01%
Carnival Corp	CCL	0.11%	3.91%	0.00%	10.227%	0.01%
Qorvo Inc	QRVO	0.03%	n/a	n/a	12.188%	0.00%
CenturyLink Inc	CTL	0.05%	9.57%	0.00%	1.78%	0.00%
UDR Inc	UDR	0.05%	3.06%	0.00%	5.433%	0.00%
Clorox Co/The	CLX	0.08%	2.85%	0.00%	4.425%	0.00%
CMS Energy Corp	CMS	0.07%	2.73%	0.00%	6.07%	0.00%
Newell Brands Inc	NWL	0.02%	6.86%	0.00%	-11.58%	0.00%
Colgate-Palmolive Co	CL	0.25%	2.47%	0.01%	4.15%	0.01%
Comerica Inc	CMA	0.04%	3.89%	0.00%	12.598%	0.01%
IPG Photonics Corp	IPGP	0.03%	n/a	n/a	10.49%	0.00%
Conagra Brands Inc	CAG	0.05%	3.18%	0.00%	6.25%	0.00%
Consolidated Edison Inc	ED	0.12%	3.43%	0.00%	4.267%	0.01%
SL Green Realty Corp	SLG	0.03%	3.95%	0.00%	-0.842%	0.00%
Corning Inc	GLW	0.10%	2.77%	0.00%	9.835%	0.01%
Cummins Inc	CMI	0.10%	3.02%	0.00%	7.145%	0.01%
Danaher Corp	DHR	0.40%	0.52%	0.00%	10.24%	0.04%
Target Corp	TGT	0.17%	3.18%	0.01%	6.75%	0.01%
Deere & Co	DE	0.19%	2.17%	0.00%	9.453%	0.02%
Dominion Energy Inc	D	0.25%	4.88%	0.01%	5.18%	0.01%
Dover Corp	DOV	0.05%	2.15%	0.00%	10.30%	0.01%
Alliant Energy Corp	LNT	0.05%	2.99%	0.00%	5.373%	0.00%
Duke Energy Corp	DUK	0.26%	4.33%	0.01%	4.978%	0.01%
Regency Centers Corp	REG	0.05%	3.55%	0.00%	4.315%	0.00%
Eaton Corp PLC	ETN	0.13%	3.81%	0.01%	8.95%	0.01%
Ecolab Inc	ECL	0.22%	1.00%	0.00%	13.133%	0.03%
PerkinElmer Inc	PKI	0.04%	0.32%	0.00%	16.093%	0.01%
Emerson Electric Co	EMR	0.16%	3.25%	0.01%	8.835%	0.01%
EOG Resources Inc	EOG	0.20%	1.40%	0.00%	9.813%	0.02%
Entergy Corp	ETR	0.08%	3.75%	0.00%	-1.18%	0.00%
Equifax Inc	EFX	0.06%	1.29%	0.00%	11.633%	0.01%
IQVIA Holdings Inc	IQV	0.11%	n/a	n/a	17.283%	0.02%
Gartner Inc	IT	0.06%	n/a	n/a	13.995%	0.01%
FedEx Corp	FDX	0.17%	1.69%	0.00%	14.00%	0.02%
Macy's Inc	M	0.03%	7.34%	0.00%	1.825%	0.00%
FMC Corp	FMC	0.04%	2.18%	0.00%	9.333%	0.00%

Southwestern Public Service Company

CAPM Analysis

STANDARD AND POOR'S 500 INDEX

		[13]	[14]	[15]	[16]	[17]
Name	Ticker	% Total Market Cap	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Ford Motor Co	F	0.16%	6.30%	0.01%	-4.765%	-0.01%
NextEra Energy Inc	NEE	0.40%	2.52%	0.01%	5.02%	0.02%
Franklin Resources Inc	BEN	0.07%	3.27%	0.00%	10.00%	0.01%
Freeport-McMoRan Inc	FCX	0.06%	2.06%	0.00%	-8.10%	0.00%
Gap Inc/The	GPS	0.03%	5.19%	0.00%	5.84%	0.00%
General Dynamics Corp	GD	0.20%	2.54%	0.00%	8.757%	0.02%
General Mills Inc	GIS	0.12%	3.96%	0.00%	5.933%	0.01%
Genuine Parts Co	GPC	0.06%	3.08%	0.00%	5.835%	0.00%
Atmos Energy Corp	ATO	0.05%	2.06%	0.00%	7.00%	0.00%
WW Grainger Inc	GWW	0.06%	2.20%	0.00%	12.467%	0.01%
Halliburton Co	HAL	0.08%	3.38%	0.00%	13.397%	0.01%
Harley-Davidson Inc	HOG	0.02%	4.58%	0.00%	8.60%	0.00%
Harris Corp	HRS	0.09%	1.46%	0.00%	n/a	n/a
HCP Inc	HCP	0.06%	4.67%	0.00%	2.683%	0.00%
Helmerich & Payne Inc	HP	0.02%	5.81%	0.00%	51.015%	0.01%
Fortive Corp	FTV	0.11%	0.37%	0.00%	11.68%	0.01%
Hershey Co/The	HSY	0.08%	2.19%	0.00%	7.067%	0.01%
Synchrony Financial	SYF	0.10%	2.50%	0.00%	4.033%	0.00%
Hormel Foods Corp	HRL	0.09%	2.13%	0.00%	5.70%	0.01%
Arthur J Gallagher & Co	AJG	0.07%	2.04%	0.00%	9.83%	0.01%
Mondelez International Inc	MDLZ	0.31%	2.05%	0.01%	6.886%	0.02%
CenterPoint Energy Inc	CNP	0.06%	4.04%	0.00%	6.093%	0.00%
Humana Inc	HUM	0.14%	0.90%	0.00%	13.345%	0.02%
Willis Towers Watson PLC	WLTW	0.10%	1.48%	0.00%	13.967%	0.01%
Illinois Tool Works Inc	ITW	0.19%	2.86%	0.01%	7.267%	0.01%
Ingersoll-Rand PLC	IR	0.12%	1.79%	0.00%	9.155%	0.01%
Foot Locker Inc	FL	0.02%	3.86%	0.00%	6.553%	0.00%
Interpublic Group of Cos Inc/The	IPG	0.03%	4.43%	0.00%	11.745%	0.00%
International Flavors & Fragrances Inc	IFF	0.06%	2.16%	0.00%	7.80%	0.00%
Jacobs Engineering Group Inc	JEC	0.04%	0.90%	0.00%	13.10%	0.01%
Hanesbrands Inc	HBI	0.02%	4.04%	0.00%	3.25%	0.00%
Kellogg Co	K	0.08%	4.26%	0.00%	2.523%	0.00%
Broadridge Financial Solutions Inc	BR	0.06%	1.55%	0.00%	n/a	n/a
Perrigo Co PLC	PRGO	0.02%	2.00%	0.00%	-0.80%	0.00%
Kimberly-Clark Corp	KMB	0.19%	3.22%	0.01%	4.333%	0.01%
Kimco Realty Corp	KIM	0.03%	6.44%	0.00%	3.768%	0.00%
Kohl's Corp	KSS	0.03%	5.43%	0.00%	5.825%	0.00%
Oracle Corp	ORCL	0.73%	1.90%	0.01%	7.714%	0.06%
Kroger Co/The	KR	0.08%	2.46%	0.00%	6.386%	0.00%
Leggett & Platt Inc	LEG	0.02%	4.51%	0.00%	10.00%	0.00%
Lennar Corp	LEN	0.06%	0.32%	0.00%	10.988%	0.01%
Jefferies Financial Group Inc	JEF	0.02%	2.83%	0.00%	n/a	n/a
Eli Lilly & Co	LLY	0.47%	2.23%	0.01%	9.32%	0.04%
L Brands Inc	LB	0.03%	5.34%	0.00%	9.38%	0.00%
Charter Communications Inc	CHTR	0.35%	n/a	n/a	44.243%	0.16%
Lincoln National Corp	LNC	0.05%	2.49%	0.00%	9.00%	0.00%
Loews Corp	L	0.07%	0.49%	0.00%	n/a	n/a
Lowe's Cos Inc	LOW	0.31%	2.36%	0.01%	14.392%	0.05%
Host Hotels & Resorts Inc	HST	0.06%	4.42%	0.00%	15.045%	0.01%
Marsh & McLennan Cos Inc	MMC	0.21%	1.90%	0.00%	11.73%	0.02%
Masco Corp	MAS	0.04%	1.37%	0.00%	12.325%	0.01%
Mattel Inc	MAT	0.01%	n/a	n/a	9.00%	0.00%
S&P Global Inc	SPGI	0.22%	1.07%	0.00%	9.20%	0.02%
Medtronic PLC	MDT	0.52%	2.16%	0.01%	7.34%	0.04%
CVS Health Corp	CVS	0.29%	3.82%	0.01%	7.665%	0.02%
DuPont de Nemours Inc	DD	0.20%	2.60%	0.01%	15.267%	0.03%
Micron Technology Inc	MU	0.15%	n/a	n/a	-1.90%	0.00%
Motorola Solutions Inc	MSI	0.10%	1.52%	0.00%	5.50%	0.01%
Cboe Global Markets Inc	CBOE	0.05%	1.14%	0.00%	5.345%	0.00%
Mylan NV	MYL	0.04%	n/a	n/a	4.714%	0.00%
Laboratory Corp of America Holdings	LH	0.07%	n/a	n/a	7.275%	0.00%
Newmont Goldcorp Corp	NEM	0.11%	1.69%	0.00%	5.10%	0.01%
NIKE Inc	NKE	0.41%	1.14%	0.00%	17.508%	0.07%

Southwestern Public Service Company

CAPM Analysis

STANDARD AND POOR'S 500 INDEX

		[13]	[14]	[15]	[16]	[17]
Name	Ticker	% Total Market Cap	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
NiSource Inc	NI	0.04%	2.87%	0.00%	5.237%	0.00%
Noble Energy Inc	NBL	0.04%	2.24%	0.00%	10.997%	0.00%
Norfolk Southern Corp	NSC	0.22%	1.76%	0.00%	13.875%	0.03%
Principal Financial Group Inc	PFG	0.06%	4.19%	0.00%	4.60%	0.00%
Eversource Energy	ES	0.10%	2.90%	0.00%	6.50%	0.01%
Northrop Grumman Corp	NOC	0.22%	1.74%	0.00%	7.08%	0.02%
Wells Fargo & Co	WFC	0.84%	4.06%	0.03%	10.355%	0.09%
Nucor Corp	NUE	0.06%	3.33%	0.00%	0.75%	0.00%
PVH Corp	PVH	0.03%	0.18%	0.00%	8.448%	0.00%
Occidental Petroleum Corp	OXY	0.16%	6.27%	0.01%	12.233%	0.02%
Omnicom Group Inc	OMC	0.07%	3.36%	0.00%	4.06%	0.00%
ONEOK Inc	OKE	0.11%	5.44%	0.01%	11.96%	0.01%
Raymond James Financial Inc	RJF	0.05%	1.65%	0.00%	17.00%	0.01%
Parker-Hannifin Corp	PH	0.08%	2.31%	0.00%	9.015%	0.01%
Rollins Inc	ROL	0.05%	1.12%	0.00%	10.00%	0.01%
PPL Corp	PPL	0.09%	5.54%	0.01%	5.00%	0.00%
Exelon Corp	EXC	0.20%	3.02%	0.01%	3.455%	0.01%
ConocoPhillips	COP	0.28%	2.07%	0.01%	5.00%	0.01%
PulteGroup Inc	PHM	0.04%	1.42%	0.00%	8.795%	0.00%
Pinnacle West Capital Corp	PNW	0.04%	3.14%	0.00%	5.294%	0.00%
PNC Financial Services Group Inc/The	PNC	0.24%	2.99%	0.01%	7.475%	0.02%
PPG Industries Inc	PPG	0.10%	1.83%	0.00%	8.703%	0.01%
Progressive Corp/The	PGR	0.20%	0.50%	0.00%	6.233%	0.01%
Public Service Enterprise Group Inc	PEG	0.13%	3.20%	0.00%	5.87%	0.01%
Raytheon Co	RTN	0.21%	2.16%	0.00%	9.307%	0.02%
Robert Half International Inc	RHI	0.03%	2.31%	0.00%	9.05%	0.00%
Edison International	EIX	0.08%	4.13%	0.00%	5.523%	0.00%
Schlumberger Ltd	SLB	0.20%	5.77%	0.01%	32.45%	0.07%
Charles Schwab Corp/The	SCHW	0.23%	1.63%	0.00%	11.143%	0.03%
Sherwin-Williams Co/The	SHW	0.16%	1.08%	0.00%	9.46%	0.02%
JM Smucker Co/The	SJM	0.06%	2.80%	0.00%	3.20%	0.00%
Snap-on Inc	SNA	0.04%	2.44%	0.00%	7.35%	0.00%
AMETEK Inc	AME	0.08%	0.68%	0.00%	9.058%	0.01%
Southern Co/The	SO	0.23%	4.64%	0.01%	4.00%	0.01%
BB&T Corp	BBT	0.15%	3.47%	0.01%	8.483%	0.01%
Southwest Airlines Co	LUV	0.11%	1.51%	0.00%	5.013%	0.01%
Stanley Black & Decker Inc	SWK	0.08%	2.08%	0.00%	10.00%	0.01%
Public Storage	PSA	0.18%	3.36%	0.01%	5.228%	0.01%
Arista Networks Inc	ANET	0.08%	n/a	n/a	21.323%	0.02%
SunTrust Banks Inc	STI	0.11%	3.33%	0.00%	6.217%	0.01%
Sysco Corp	SYY	0.15%	2.27%	0.00%	12.733%	0.02%
Texas Instruments Inc	TXN	0.41%	2.95%	0.01%	9.867%	0.04%
Textron Inc	TXT	0.04%	0.18%	0.00%	12.06%	0.01%
Thermo Fisher Scientific Inc	TMO	0.45%	0.28%	0.00%	10.833%	0.05%
Tiffany & Co	TIF	0.05%	2.47%	0.00%	9.25%	0.00%
TJX Cos Inc/The	TJX	0.26%	1.83%	0.00%	10.05%	0.03%
Torchmark Corp	TMK	0.04%	0.81%	0.00%	7.91%	0.00%
Total System Services Inc	TSS	0.09%	0.42%	0.00%	12.143%	0.01%
Johnson Controls International plc	JCI	0.15%	2.70%	0.00%	7.80%	0.01%
Ulta Beauty Inc	ULTA	0.08%	n/a	n/a	21.00%	0.02%
Union Pacific Corp	UNP	0.50%	2.11%	0.01%	13.06%	0.06%
Keysight Technologies Inc	KEYS	0.06%	n/a	n/a	n/a	n/a
UnitedHealth Group Inc	UNH	0.97%	1.49%	0.01%	13.377%	0.13%
Unum Group	UNM	0.03%	3.62%	0.00%	9.00%	0.00%
Marathon Oil Corp	MRO	0.05%	1.52%	0.00%	0.45%	0.00%
Varian Medical Systems Inc	VAR	0.05%	n/a	n/a	8.50%	0.00%
Ventas Inc	VTR	0.10%	4.93%	0.00%	3.945%	0.00%
VF Corp	VFC	0.14%	2.49%	0.00%	-19.065%	-0.03%
Vornado Realty Trust	VNO	0.05%	3.99%	0.00%	4.225%	0.00%
Vulcan Materials Co	VMC	0.07%	0.99%	0.00%	16.297%	0.01%
Weyerhaeuser Co	WY	0.07%	5.96%	0.00%	7.10%	0.01%
Whirlpool Corp	WHR	0.03%	4.18%	0.00%	4.97%	0.00%
Williams Cos Inc/The	WMB	0.13%	5.76%	0.01%	3.90%	0.01%

Southwestern Public Service Company

CAPM Analysis

STANDARD AND POOR'S 500 INDEX

		[13]	[14]	[15]	[16]	[17]
Name	Ticker	% Total Market Cap	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
WEC Energy Group Inc	WEC	0.11%	2.93%	0.00%	5.88%	0.01%
Xerox Corp	XRX	0.03%	3.27%	0.00%	6.50%	0.00%
Adobe Inc	ADBE	0.56%	n/a	n/a	17.12%	0.10%
AES Corp/VA	AES	0.04%	3.46%	0.00%	8.173%	0.00%
Amgen Inc	AMGN	0.43%	3.48%	0.01%	5.203%	0.02%
Apple Inc	AAPL	3.40%	1.76%	0.06%	9.35%	0.32%
Autodesk Inc	ADSK	0.15%	n/a	n/a	59.895%	0.09%
Cintas Corp	CTAS	0.10%	0.92%	0.00%	12.02%	0.01%
Comcast Corp	CMCSA	0.78%	2.05%	0.02%	11.473%	0.09%
Molson Coors Brewing Co	TAP	0.05%	2.98%	0.00%	-0.233%	0.00%
KLA-Tencor Corp	KLAC	0.07%	2.91%	0.00%	9.25%	0.01%
Marriott International Inc/MD	MAR	0.18%	1.54%	0.00%	8.263%	0.01%
McCormick & Co Inc/MD	MKC	0.08%	1.46%	0.00%	6.20%	0.00%
Nordstrom Inc	JWN	0.02%	4.73%	0.00%	7.45%	0.00%
PACCAR Inc	PCAR	0.10%	1.94%	0.00%	5.00%	0.00%
Costco Wholesale Corp	COST	0.44%	1.09%	0.00%	10.51%	0.05%
First Republic Bank/CA	FRC	0.07%	0.78%	0.00%	12.135%	0.01%
Stryker Corp	SYK	0.29%	1.14%	0.00%	8.233%	0.02%
Tyson Foods Inc	TSN	0.09%	1.98%	0.00%	3.10%	0.00%
Lamb Weston Holdings Inc	LW	0.04%	1.35%	0.00%	11.83%	0.00%
Applied Materials Inc	AMAT	0.15%	2.17%	0.00%	9.69%	0.01%
American Airlines Group Inc	AAL	0.05%	1.47%	0.00%	14.505%	0.01%
Cardinal Health Inc	CAH	0.05%	4.57%	0.00%	14.018%	0.01%
Celgene Corp	CELG	0.28%	n/a	n/a	19.241%	0.05%
Cerner Corp	CERN	0.10%	1.03%	0.00%	13.787%	0.01%
Cincinnati Financial Corp	CINF	0.07%	2.28%	0.00%	n/a	n/a
DR Horton Inc	DHI	0.07%	1.40%	0.00%	12.923%	0.01%
Flowserve Corp	FLS	0.03%	1.64%	0.00%	19.15%	0.00%
Electronic Arts Inc	EA	0.12%	n/a	n/a	11.867%	0.01%
Expeditors International of Washington Inc	EXPD	0.05%	1.44%	0.00%	9.80%	0.00%
Fastenal Co	FAST	0.07%	2.81%	0.00%	7.55%	0.01%
M&T Bank Corp	MTB	0.09%	2.51%	0.00%	7.283%	0.01%
Xcel Energy Inc	XEL	0.12%	2.83%	0.00%	5.568%	0.01%
Fiserv Inc	FISV	0.14%	n/a	n/a	10.55%	0.01%
Fifth Third Bancorp	FITB	0.08%	3.32%	0.00%	3.95%	0.00%
Gilead Sciences Inc	GILD	0.33%	4.05%	0.01%	7.565%	0.03%
Hasbro Inc	HAS	0.05%	2.86%	0.00%	10.85%	0.01%
Huntington Bancshares Inc/OH	HBAN	0.06%	4.43%	0.00%	8.237%	0.00%
Welltower Inc	WELL	0.14%	4.28%	0.01%	6.11%	0.01%
Biogen Inc	BIIB	0.18%	n/a	n/a	5.18%	0.01%
Northern Trust Corp	NTRS	0.08%	2.81%	0.00%	9.68%	0.01%
Packaging Corp of America	PKG	0.04%	3.55%	0.00%	8.25%	0.00%
Paychex Inc	PAYX	0.13%	2.89%	0.00%	8.767%	0.01%
People's United Financial Inc	PBCT	0.03%	4.62%	0.00%	2.00%	0.00%
QUALCOMM Inc	QCOM	0.34%	3.71%	0.01%	15.417%	0.05%
Roper Technologies Inc	ROP	0.15%	0.54%	0.00%	12.933%	0.02%
Ross Stores Inc	ROST	0.14%	1.10%	0.00%	9.40%	0.01%
IDEXX Laboratories Inc	IDXX	0.09%	n/a	n/a	18.30%	0.02%
Starbucks Corp	SBUX	0.39%	1.89%	0.01%	12.717%	0.05%
KeyCorp	KEY	0.07%	4.26%	0.00%	7.173%	0.00%
Fox Corp	FOXA	0.05%	1.31%	0.00%	3.368%	0.00%
Fox Corp	FOX	0.04%	1.33%	0.00%	-3.73%	0.00%
State Street Corp	STT	0.09%	3.40%	0.00%	7.267%	0.01%
Norwegian Cruise Line Holdings Ltd	NCLH	0.05%	n/a	n/a	10.858%	0.01%
US Bancorp	USB	0.34%	2.95%	0.01%	6.70%	0.02%
AO Smith Corp	AOS	0.02%	2.17%	0.00%	8.00%	0.00%
Symantec Corp	SYMC	0.05%	1.60%	0.00%	7.32%	0.00%
T Rowe Price Group Inc	TROW	0.10%	3.01%	0.00%	7.103%	0.01%
Waste Management Inc	WM	0.20%	1.87%	0.00%	7.507%	0.01%
CBS Corp	CBS	0.07%	1.49%	0.00%	15.353%	0.01%
Allergan PLC	AGN	0.17%	2.43%	0.00%	5.84%	0.01%
Constellation Brands Inc	STZ	0.12%	1.70%	0.00%	8.353%	0.01%
Xilinx Inc	XLNX	0.11%	1.45%	0.00%	9.60%	0.01%

Southwestern Public Service Company

CAPM Analysis

STANDARD AND POOR'S 500 INDEX

		[13]	[14]	[15]	[16]	[17]
Name	Ticker	% Total Market Cap	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
DENTSPLY SIRONA Inc	XRAY	0.05%	0.65%	0.00%	12.57%	0.01%
Zions Bancorp NA	ZION	0.03%	2.79%	0.00%	7.598%	0.00%
Alaska Air Group Inc	ALK	0.03%	2.41%	0.00%	13.20%	0.00%
Invesco Ltd	IVZ	0.04%	6.35%	0.00%	7.123%	0.00%
Linde PLC	LIN	0.41%	1.94%	0.01%	15.05%	0.06%
Intuit Inc	INTU	0.27%	0.77%	0.00%	16.16%	0.04%
Morgan Stanley	MS	0.29%	2.95%	0.01%	9.485%	0.03%
Microchip Technology Inc	MCHP	0.08%	1.83%	0.00%	10.338%	0.01%
Chubb Ltd	CB	0.28%	2.05%	0.01%	10.60%	0.03%
Hologic Inc	HOLX	0.05%	n/a	n/a	8.385%	0.00%
Citizens Financial Group Inc	CFG	0.06%	3.93%	0.00%	8.04%	0.01%
O'Reilly Automotive Inc	ORLY	0.12%	n/a	n/a	15.223%	0.02%
Allstate Corp/The	ALL	0.13%	2.09%	0.00%	9.00%	0.01%
FLIR Systems Inc	FLIR	0.03%	1.41%	0.00%	n/a	n/a
Equity Residential	EQR	0.12%	2.96%	0.00%	6.718%	0.01%
BorgWarner Inc	BWA	0.03%	1.92%	0.00%	4.37%	0.00%
Incyte Corp	INCY	0.07%	n/a	n/a	39.47%	0.03%
Simon Property Group Inc	SPG	0.21%	5.06%	0.01%	4.87%	0.01%
Eastman Chemical Co	EMN	0.04%	3.82%	0.00%	6.50%	0.00%
Twitter Inc	TWTR	0.12%	n/a	n/a	31.76%	0.04%
AvalonBay Communities Inc	AVB	0.12%	2.99%	0.00%	5.648%	0.01%
Prudential Financial Inc	PRU	0.16%	4.33%	0.01%	11.433%	0.02%
United Parcel Service Inc	UPS	0.27%	4.13%	0.01%	8.793%	0.02%
Apartment Investment & Management Co	AIV	0.03%	3.12%	0.00%	8.75%	0.00%
Walgreens Boots Alliance Inc	WBA	0.19%	3.57%	0.01%	5.663%	0.01%
McKesson Corp	MCK	0.10%	1.28%	0.00%	4.01%	0.00%
Lockheed Martin Corp	LMT	0.40%	2.60%	0.01%	7.818%	0.03%
AmerisourceBergen Corp	ABC	0.07%	2.06%	0.00%	4.99%	0.00%
Capital One Financial Corp	COF	0.17%	1.86%	0.00%	5.20%	0.01%
Waters Corp	WAT	0.06%	n/a	n/a	9.90%	0.01%
Dollar Tree Inc	DLTR	0.10%	n/a	n/a	9.765%	0.01%
Darden Restaurants Inc	DRI	0.06%	2.58%	0.00%	10.696%	0.01%
NetApp Inc	NTAP	0.06%	3.24%	0.00%	9.727%	0.01%
Citrix Systems Inc	CTXS	0.05%	1.49%	0.00%	37.42%	0.02%
DXC Technology Co	DXC	0.05%	1.77%	0.00%	5.277%	0.00%
DaVita Inc	DVA	0.03%	n/a	n/a	18.895%	0.01%
Hartford Financial Services Group Inc/The	HIG	0.08%	2.28%	0.00%	9.50%	0.01%
Iron Mountain Inc	IRM	0.04%	7.97%	0.00%	7.62%	0.00%
Estee Lauder Cos Inc/The	EL	0.15%	1.07%	0.00%	11.84%	0.02%
Cadence Design Systems Inc	CDNS	0.08%	n/a	n/a	9.35%	0.01%
Universal Health Services Inc	UHS	0.04%	0.33%	0.00%	9.383%	0.00%
E*TRADE Financial Corp	ETFC	0.05%	1.25%	0.00%	12.73%	0.01%
Skyworks Solutions Inc	SWKS	0.05%	2.28%	0.00%	11.223%	0.01%
National Oilwell Varco Inc	NOV	0.03%	0.96%	0.00%	83.885%	0.03%
Quest Diagnostics Inc	DGX	0.05%	2.21%	0.00%	7.133%	0.00%
Activision Blizzard Inc	ATVI	0.14%	0.85%	0.00%	6.988%	0.01%
Rockwell Automation Inc	ROK	0.07%	2.61%	0.00%	11.588%	0.01%
Kraft Heinz Co/The	KHC	0.14%	5.79%	0.01%	0.523%	0.00%
American Tower Corp	AMT	0.39%	1.76%	0.01%	20.093%	0.08%
HollyFrontier Corp	HFC	0.03%	3.48%	0.00%	1.26%	0.00%
Regeneron Pharmaceuticals Inc	REGN	0.14%	n/a	n/a	11.81%	0.02%
Amazon.com Inc	AMZN	3.68%	n/a	n/a	44.949%	1.66%
Jack Henry & Associates Inc	JKHY	0.04%	1.22%	0.00%	9.025%	0.00%
Ralph Lauren Corp	RL	0.02%	2.62%	0.00%	7.838%	0.00%
Boston Properties Inc	BXP	0.09%	2.90%	0.00%	4.905%	0.00%
Amphenol Corp	APH	0.11%	1.06%	0.00%	8.778%	0.01%
Arconic Inc	ARNC	0.04%	0.37%	0.00%	9.90%	0.00%
Pioneer Natural Resources Co	PXD	0.10%	0.45%	0.00%	24.833%	0.03%
Valero Energy Corp	VLO	0.12%	5.11%	0.01%	13.09%	0.02%
Synopsys Inc	SNPS	0.07%	n/a	n/a	13.25%	0.01%
L3 Technologies Inc	LLL	0.08%	1.40%	0.00%	5.00%	0.00%
Western Union Co/The	WU	0.04%	4.12%	0.00%	3.717%	0.00%
CH Robinson Worldwide Inc	CHRW	0.05%	2.51%	0.00%	8.933%	0.00%

Southwestern Public Service Company

CAPM Analysis

STANDARD AND POOR'S 500 INDEX

		[13]	[14]	[15]	[16]	[17]
Name	Ticker	% Total Market Cap	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Accenture PLC	ACN	0.48%	1.64%	0.01%	10.333%	0.05%
TransDigm Group Inc	TDG	0.10%	n/a	n/a	11.09%	0.01%
Yum! Brands Inc	YUM	0.13%	1.64%	0.00%	12.20%	0.02%
Prologis Inc	PLD	0.20%	2.88%	0.01%	7.04%	0.01%
FirstEnergy Corp	FE	0.09%	3.69%	0.00%	0.347%	0.00%
VeriSign Inc	VRSN	0.10%	n/a	n/a	8.80%	0.01%
Quanta Services Inc	PWR	0.02%	0.46%	0.00%	22.00%	0.00%
Henry Schein Inc	HSIC	0.04%	n/a	n/a	1.50%	0.00%
Ameren Corp	AEE	0.08%	2.59%	0.00%	5.813%	0.00%
ANSYS Inc	ANSS	0.06%	n/a	n/a	12.95%	0.01%
NVIDIA Corp	NVDA	0.35%	0.47%	0.00%	9.76%	0.03%
Sealed Air Corp	SEE	0.03%	1.53%	0.00%	5.73%	0.00%
Cognizant Technology Solutions Corp	CTSH	0.15%	1.29%	0.00%	11.05%	0.02%
SVB Financial Group	SIVB	0.04%	n/a	n/a	11.00%	0.00%
Intuitive Surgical Inc	ISRG	0.23%	n/a	n/a	12.053%	0.03%
Affiliated Managers Group Inc	AMG	0.02%	1.53%	0.00%	9.10%	0.00%
Take-Two Interactive Software Inc	TTWO	0.05%	n/a	n/a	8.80%	0.00%
Republic Services Inc	RSG	0.11%	1.77%	0.00%	13.263%	0.02%
eBay Inc	EBAY	0.13%	1.56%	0.00%	10.49%	0.01%
Goldman Sachs Group Inc/The	GS	0.28%	1.86%	0.01%	1.135%	0.00%
Sempra Energy	SRE	0.15%	2.94%	0.00%	8.673%	0.01%
SBA Communications Corp	SBAC	0.10%	n/a	n/a	42.50%	0.04%
Moody's Corp	MCO	0.15%	1.09%	0.00%	7.05%	0.01%
Booking Holdings Inc	BKNG	0.30%	n/a	n/a	16.483%	0.05%
F5 Networks Inc	FFIV	0.03%	n/a	n/a	9.95%	0.00%
Akamai Technologies Inc	AKAM	0.05%	n/a	n/a	13.70%	0.01%
Devon Energy Corp	DVN	0.04%	1.43%	0.00%	13.153%	0.01%
Alphabet Inc	GOOGL	1.40%	n/a	n/a	12.452%	0.17%
Teleflex Inc	TFX	0.06%	0.47%	0.00%	12.45%	0.01%
Red Hat Inc	RHT	0.14%	n/a	n/a	20.30%	0.03%
Netflix Inc	NFLX	0.63%	n/a	n/a	43.233%	0.27%
Allegion PLC	ALLE	0.04%	1.11%	0.00%	10.15%	0.00%
Agilent Technologies Inc	A	0.09%	0.98%	0.00%	11.00%	0.01%
Anthem Inc	ANTM	0.30%	1.15%	0.00%	14.18%	0.04%
CME Group Inc	CME	0.29%	1.56%	0.00%	6.905%	0.02%
Juniper Networks Inc	JNPR	0.04%	3.09%	0.00%	7.92%	0.00%
BlackRock Inc	BLK	0.27%	3.18%	0.01%	8.997%	0.02%
DTE Energy Co	DTE	0.10%	3.01%	0.00%	8.50%	0.01%
Nasdaq Inc	NDAQ	0.06%	2.07%	0.00%	7.087%	0.00%
Celanese Corp	CE	0.05%	2.61%	0.00%	7.95%	0.00%
Philip Morris International Inc	PM	0.51%	5.91%	0.03%	7.275%	0.04%
salesforce.com Inc	CRM	0.49%	n/a	n/a	23.013%	0.11%
Huntington Ingalls Industries Inc	HII	0.04%	1.68%	0.00%	40.00%	0.01%
MetLife Inc	MET	0.19%	3.81%	0.01%	9.273%	0.02%
Under Armour Inc	UA	0.02%	n/a	n/a	28.34%	0.01%
Tapestry Inc	TPR	0.03%	4.73%	0.00%	10.20%	0.00%
Fluor Corp	FLR	0.02%	3.03%	0.00%	16.535%	0.00%
CSX Corp	CSX	0.25%	1.29%	0.00%	11.708%	0.03%
Edwards Lifesciences Corp	EW	0.15%	n/a	n/a	14.00%	0.02%
Ameriprise Financial Inc	AMP	0.08%	2.81%	0.00%	3.20%	0.00%
TechnipFMC PLC	FTI	0.04%	2.50%	0.00%	17.52%	0.01%
Zimmer Biomet Holdings Inc	ZBH	0.10%	0.84%	0.00%	5.655%	0.01%
CBRE Group Inc	CBRE	0.06%	n/a	n/a	7.30%	0.00%
Mastercard Inc	MA	1.07%	0.52%	0.01%	17.275%	0.18%
CarMax Inc	KMX	0.05%	n/a	n/a	10.387%	0.01%
Intercontinental Exchange Inc	ICE	0.20%	1.34%	0.00%	9.35%	0.02%
Fidelity National Information Services Inc	FIS	0.16%	1.16%	0.00%	10.915%	0.02%
Chipotle Mexican Grill Inc	CMG	0.08%	n/a	n/a	19.365%	0.01%
Wynn Resorts Ltd	WYNN	0.05%	3.73%	0.00%	23.233%	0.01%
Assurant Inc	AIZ	0.03%	2.40%	0.00%	n/a	n/a
NRG Energy Inc	NRG	0.04%	0.35%	0.00%	33.17%	0.01%
Regions Financial Corp	RF	0.06%	4.05%	0.00%	9.223%	0.01%
Monster Beverage Corp	MNST	0.14%	n/a	n/a	14.45%	0.02%

Southwestern Public Service Company

CAPM Analysis

STANDARD AND POOR'S 500 INDEX

		[13]	[14]	[15]	[16]	[17]
Name	Ticker	% Total Market Cap	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Mosaic Co/The	MOS	0.03%	0.93%	0.00%	13.60%	0.00%
Expedia Group Inc	EXPE	0.07%	1.11%	0.00%	21.84%	0.01%
Evergy Inc	EVRG	0.06%	3.27%	0.00%	8.18%	0.01%
Discovery Inc	DISCA	0.02%	n/a	n/a	13.35%	0.00%
CF Industries Holdings Inc	CF	0.04%	2.98%	0.00%	20.267%	0.01%
Viacom Inc	VIAB	0.04%	2.76%	0.00%	3.505%	0.00%
Alphabet Inc	GOOG	1.62%	n/a	n/a	12.452%	0.20%
Cooper Cos Inc/The	COO	0.06%	0.02%	0.00%	6.18%	0.00%
TE Connectivity Ltd	TEL	0.12%	2.18%	0.00%	9.933%	0.01%
Discover Financial Services	DFS	0.10%	2.15%	0.00%	9.00%	0.01%
TripAdvisor Inc	TRIP	0.02%	n/a	n/a	9.34%	0.00%
Visa Inc	V	1.18%	0.62%	0.01%	15.543%	0.18%
Mid-America Apartment Communities Inc	MAA	0.05%	3.36%	0.00%	7.00%	0.00%
Xylem Inc/NY	XYL	0.06%	1.29%	0.00%	13.967%	0.01%
Marathon Petroleum Corp	MPC	0.13%	4.61%	0.01%	9.497%	0.01%
Tractor Supply Co	TSCO	0.05%	1.39%	0.00%	11.198%	0.01%
Advanced Micro Devices Inc	AMD	0.12%	n/a	n/a	18.30%	0.02%
ResMed Inc	RMD	0.07%	1.30%	0.00%	12.30%	0.01%
Mettler-Toledo International Inc	MTD	0.08%	n/a	n/a	12.973%	0.01%
Copart Inc	CPRT	0.07%	n/a	n/a	20.00%	0.01%
Albemarle Corp	ALB	0.03%	2.32%	0.00%	13.414%	0.00%
Fortinet Inc	FTNT	0.05%	n/a	n/a	24.04%	0.01%
Essex Property Trust Inc	ESS	0.08%	2.67%	0.00%	6.568%	0.01%
Realty Income Corp	O	0.09%	3.87%	0.00%	4.69%	0.00%
Seagate Technology PLC	STX	0.05%	6.02%	0.00%	4.603%	0.00%
Westrock Co	WRK	0.04%	5.58%	0.00%	3.167%	0.00%
IHS Markit Ltd	INFO	0.10%	n/a	n/a	11.15%	0.01%
Wabtec Corp	WAB	0.05%	0.77%	0.00%	15.00%	0.01%
Western Digital Corp	WDC	0.05%	5.37%	0.00%	-5.237%	0.00%
PepsiCo Inc	PEP	0.76%	2.98%	0.02%	5.453%	0.04%
Diamondback Energy Inc	FANG	0.07%	0.76%	0.00%	14.547%	0.01%
Nektar Therapeutics	NKTR	0.02%	n/a	n/a	-2.40%	0.00%
Maxim Integrated Products Inc	MXIM	0.06%	3.50%	0.00%	8.967%	0.01%
Church & Dwight Co Inc	CHD	0.08%	1.22%	0.00%	7.96%	0.01%
Duke Realty Corp	DRE	0.05%	2.86%	0.00%	4.12%	0.00%
Federal Realty Investment Trust	FRT	0.04%	3.12%	0.00%	5.40%	0.00%
MGM Resorts International	MGM	0.06%	2.10%	0.00%	14.167%	0.01%
JB Hunt Transport Services Inc	JBHT	0.04%	1.22%	0.00%	13.125%	0.01%
Lam Research Corp	LRCX	0.11%	2.52%	0.00%	9.10%	0.01%
Mohawk Industries Inc	MHK	0.04%	n/a	n/a	6.823%	0.00%
Pentair PLC	PNR	0.03%	2.07%	0.00%	7.197%	0.00%
Vertex Pharmaceuticals Inc	VRTX	0.18%	n/a	n/a	51.38%	0.09%
Facebook Inc	FB	1.80%	n/a	n/a	19.216%	0.35%
United Rentals Inc	URI	0.04%	n/a	n/a	17.76%	0.01%
ABIOMED Inc	ABMD	0.05%	n/a	n/a	29.00%	0.01%
Alexandria Real Estate Equities Inc	ARE	0.07%	2.65%	0.00%	4.755%	0.00%
Delta Air Lines Inc	DAL	0.14%	2.72%	0.00%	12.715%	0.02%
United Continental Holdings Inc	UAL	0.09%	n/a	n/a	13.805%	0.01%
News Corp	NWS	0.01%	1.72%	0.00%	-10.26%	0.00%
Centene Corp	CNC	0.10%	n/a	n/a	13.895%	0.01%
Macerich Co/The	MAC	0.02%	8.26%	0.00%	0.103%	0.00%
Martin Marietta Materials Inc	MLM	0.06%	0.91%	0.00%	13.898%	0.01%
PayPal Holdings Inc	PYPL	0.54%	n/a	n/a	19.572%	0.11%
Coty Inc	COTY	0.04%	4.05%	0.00%	8.203%	0.00%
DISH Network Corp	DISH	0.04%	n/a	n/a	-16.48%	-0.01%
Dow Inc	DOW	0.15%	5.99%	0.01%	n/a	n/a
Alexion Pharmaceuticals Inc	ALXN	0.11%	n/a	n/a	16.372%	0.02%
Everest Re Group Ltd	RE	0.04%	2.26%	0.00%	10.00%	0.00%
WellCare Health Plans Inc	WCG	0.06%	n/a	n/a	17.22%	0.01%
News Corp	NWSA	0.02%	1.76%	0.00%	-10.26%	0.00%
Global Payments Inc	GPN	0.10%	0.03%	0.00%	16.733%	0.02%
Crown Castle International Corp	CCI	0.23%	3.46%	0.01%	16.333%	0.04%
Aptiv PLC	APTV	0.07%	1.37%	0.00%	8.893%	0.01%

Southwestern Public Service Company

CAPM Analysis

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[13] % Total Market Cap	[14] Estimated Dividend Yield	[15] Cap-Weighted Dividend Yield	[16] Long-Term Growth Est.	[17] Cap-Weighted Long-Term Growth Est.
Advance Auto Parts Inc	AAP	0.05%	0.15%	0.00%	15.68%	0.01%
Capri Holdings Ltd	CPRI	0.02%	n/a	n/a	7.316%	0.00%
Align Technology Inc	ALGN	0.10%	n/a	n/a	22.22%	0.02%
Illumina Inc	ILMN	0.19%	n/a	n/a	27.09%	0.05%
Alliance Data Systems Corp	ADS	0.03%	1.83%	0.00%	12.467%	0.00%
LKQ Corp	LKQ	0.03%	n/a	n/a	13.30%	0.00%
Nielsen Holdings PLC	NLSN	0.03%	6.16%	0.00%	12.00%	0.00%
Garmin Ltd	GRMN	0.06%	2.98%	0.00%	7.275%	0.00%
Cimarex Energy Co	XEC	0.02%	1.40%	0.00%	31.54%	0.01%
Zoetis Inc	ZTS	0.20%	0.65%	0.00%	10.807%	0.02%
Equinix Inc	EQIX	0.17%	2.03%	0.00%	18.37%	0.03%
Digital Realty Trust Inc	DLR	0.10%	3.67%	0.00%	17.363%	0.02%
Discovery Inc	DISCK	0.04%	n/a	n/a	13.35%	0.01%

Notes:
[8] Equals sum of Col. [15]
[9] Equals sum of Col. [17]
[10] Equals ([8] x (1 + (0.5 x [9]))) + [9]
[11] Source: Exhibit AEB-10 CAPM at 1
[12] Equals [10] − [11]
[13] Equals weight in S&P 500 based on market capitalization
[14] Source: Bloomberg Professional
[15] Equals [13] x [14]
[16] Source: Bloomberg Professional
[17] Equals [13] x [16]

Southwestern Public Service Company

Bond Yield Plus Risk Premium Analysis

BOND YIELD PLUS RISK PREMIUM

	[1]	[2]	[3]
	Average Authorized Electric ROE	U.S. Govt. 30-year Treasury	Risk Premium
1980.1	13.97%	11.66%	2.31%
1980.2	14.25%	10.52%	3.73%
1980.3	14.30%	10.85%	3.45%
1980.4	14.32%	12.10%	2.23%
1981.1	14.82%	12.54%	2.28%
1981.2	15.05%	13.24%	1.80%
1981.3	15.31%	14.13%	1.17%
1981.4	15.59%	13.85%	1.74%
1982.1	15.71%	13.97%	1.75%
1982.2	15.60%	13.53%	2.07%
1982.3	15.85%	12.80%	3.05%
1982.4	16.03%	10.75%	5.28%
1983.1	15.54%	10.71%	4.83%
1983.2	15.13%	10.65%	4.49%
1983.3	15.39%	11.58%	3.81%
1983.4	15.37%	11.72%	3.65%
1984.1	15.06%	12.02%	3.04%
1984.2	15.18%	13.16%	2.02%
1984.3	15.38%	12.65%	2.74%
1984.4	15.69%	11.67%	4.02%
1985.1	15.48%	11.53%	3.95%
1985.2	15.27%	10.99%	4.28%
1985.3	14.91%	10.54%	4.37%
1985.4	15.11%	10.03%	5.08%
1986.1	14.42%	8.76%	5.67%
1986.2	14.27%	7.48%	6.79%
1986.3	13.26%	7.40%	5.86%
1986.4	13.52%	7.52%	5.99%
1987.1	12.90%	7.48%	5.41%
1987.2	13.17%	8.53%	4.64%
1987.3	13.14%	9.05%	4.10%
1987.4	12.76%	9.22%	3.55%
1988.1	12.74%	8.59%	4.14%
1988.2	12.70%	9.04%	3.65%
1988.3	12.78%	9.17%	3.61%
1988.4	12.97%	8.96%	4.00%
1989.1	13.02%	9.03%	3.99%
1989.2	13.22%	8.69%	4.53%
1989.3	12.38%	8.12%	4.26%
1989.4	12.83%	7.93%	4.90%
1990.1	12.62%	8.44%	4.19%
1990.2	12.85%	8.64%	4.21%
1990.3	12.54%	8.78%	3.76%
1990.4	12.68%	8.55%	4.13%
1991.1	12.66%	8.19%	4.47%
1991.2	12.67%	8.31%	4.37%
1991.3	12.49%	8.19%	4.31%
1991.4	12.42%	7.84%	4.58%
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%

Southwestern Public Service Company

Bond Yield Plus Risk Premium Analysis

BOND YIELD PLUS RISK PREMIUM

	[1]	[2]	[3]
	Average Authorized Electric ROE	U.S. Govt. 30-year Treasury	Risk Premium
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%	6.04%	4.71%
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	10.88%	5.70%	5.18%
2001.3	10.76%	5.52%	5.23%
2001.4	11.57%	5.30%	6.27%
2002.1	10.05%	5.51%	4.54%
2002.2	11.41%	5.61%	5.79%
2002.3	11.25%	5.08%	6.17%
2002.4	11.57%	4.93%	6.64%
2003.1	11.43%	4.85%	6.58%
2003.2	11.16%	4.60%	6.56%
2003.3	9.88%	5.11%	4.76%
2003.4	11.09%	5.11%	5.98%
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	10.91%	4.86%	6.04%
2005.1	10.56%	4.69%	5.87%
2005.2	10.13%	4.47%	5.66%
2005.3	10.85%	4.44%	6.41%
2005.4	10.59%	4.68%	5.91%
2006.1	10.38%	4.63%	5.75%
2006.2	10.63%	5.14%	5.49%
2006.3	10.06%	4.99%	5.07%
2006.4	10.39%	4.74%	5.65%
2007.1	10.39%	4.80%	5.59%
2007.2	10.27%	4.99%	5.28%
2007.3	10.02%	4.95%	5.07%
2007.4	10.43%	4.61%	5.81%
2008.1	10.15%	4.41%	5.75%
2008.2	10.54%	4.57%	5.97%
2008.3	10.38%	4.44%	5.94%
2008.4	10.39%	3.65%	6.74%
2009.1	10.45%	3.44%	7.01%
2009.2	10.58%	4.17%	6.42%
2009.3	10.46%	4.32%	6.14%
2009.4	10.54%	4.34%	6.21%
2010.1	10.45%	4.62%	5.82%
2010.2	10.08%	4.36%	5.71%
2010.3	10.29%	3.86%	6.43%
2010.4	10.34%	4.17%	6.17%

Southwestern Public Service Company

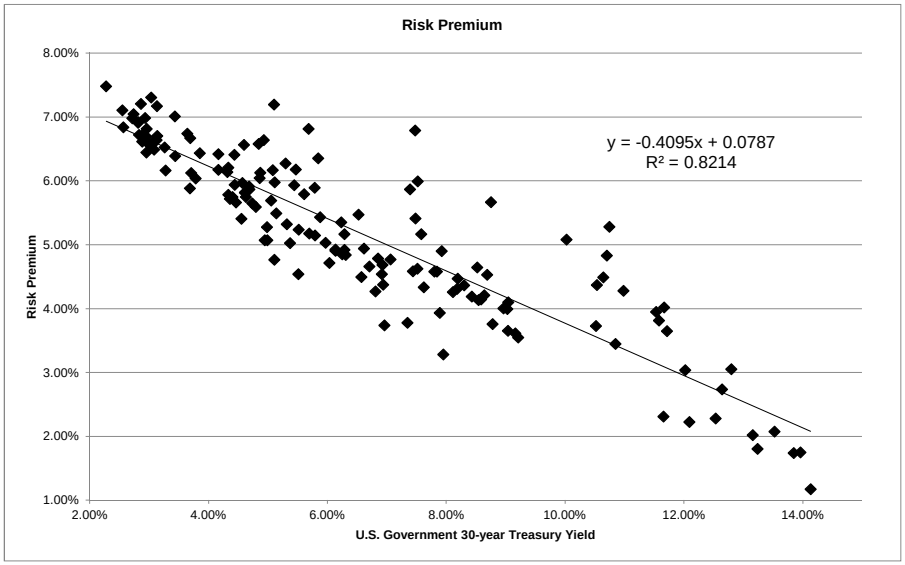
Bond Yield Plus Risk Premium Analysis

BOND YIELD PLUS RISK PREMIUM

	[1]	[2]	[3]
	Average Authorized Electric ROE	U.S. Govt. 30-year Treasury	Risk Premium
2011.1	9.96%	4.56%	5.40%
2011.2	10.12%	4.34%	5.78%
2011.3	10.36%	3.69%	6.67%
2011.4	10.34%	3.04%	7.31%
2012.1	10.30%	3.14%	7.17%
2012.2	9.92%	2.93%	6.98%
2012.3	9.78%	2.74%	7.04%
2012.4	10.07%	2.86%	7.21%
2013.1	9.77%	3.13%	6.64%
2013.2	9.84%	3.14%	6.70%
2013.3	9.83%	3.71%	6.12%
2013.4	9.82%	3.79%	6.04%
2014.1	9.57%	3.69%	5.88%
2014.2	9.83%	3.44%	6.39%
2014.3	9.79%	3.26%	6.52%
2014.4	9.78%	2.96%	6.81%
2015.1	9.66%	2.55%	7.11%
2015.2	9.50%	2.88%	6.61%
2015.3	9.40%	2.96%	6.44%
2015.4	9.65%	2.96%	6.69%
2016.1	9.70%	2.72%	6.98%
2016.2	9.41%	2.57%	6.84%
2016.3	9.76%	2.28%	7.48%
2016.4	9.55%	2.83%	6.72%
2017.1	9.61%	3.04%	6.57%
2017.2	9.61%	2.90%	6.71%
2017.3	9.73%	2.82%	6.91%
2017.4	9.74%	2.82%	6.92%
2018.1	9.59%	3.02%	6.57%
2018.2	9.57%	3.09%	6.49%
2018.3	9.66%	3.06%	6.60%
2018.4	9.44%	3.28%	6.16%
2019.1	9.57%	3.01%	6.56%
2019.2	9.58%	2.87%	6.70%
AVERAGE	11.69%	6.47%	5.22%
MEDIAN	11.16%	5.79%	5.33%

Southwestern Public Service Company

Bond Yield Plus Risk Premium Analysis



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.906326781
R Square	0.821428234
Adjusted R Square	0.820283543
Standard Error	0.005707397
Observations	158

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.023375325	0.023375325	717.5983499	3.07751E-60
Residual	156	0.005081604	3.25744E-05		
Total	157	0.028456929			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.078665549	0.001088227	72.28778082	7.3131E-122	0.076515987	0.080815112	0.076515987	0.080815112
U.S. Govt. 30-year Treasury	-0.409467844	0.01528548	-26.78802624	3.07751E-60	-0.439661062	-0.379274626	-0.439661062	-0.379274626

	[7] U.S. Govt. 30-year Treasury	[8] Risk Premium	[9] ROE
Current 30-Day Average [4]	2.85%	6.70%	9.55%
Blue Chip Consensus Forecast (Q3 2019-Q3 2020) [5]	3.06%	6.61%	9.67%
Blue Chip Consensus Forecast (2021-2025) [6]	3.60%	6.39%	9.99%
MEAN			9.74%

Notes:
[1] Source: Regulatory Research Associates
[2] Source: Bloomberg Professional, quarterly bond yields are the average of the last price 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. 6, June 1, 2019, at 2
[6] Source: Blue Chip Financial Forecasts, Vol. 38, No. 6, June 1, 2019, at 14
[7] See notes [4], [5] & [6]
[8] Equals 0.078666 + (-0.409468 x Column [7])
[9] Equals Column [7] + Column [8]

Southwestern Public Service Company

Value Line Projected Constant Growth DCF

EXPECTED EARNINGS ANALYSIS
As of May 31, 2019

Company		[1] Value Line 2022 - 2024	[2] Adjustment Factor	[3] Adjusted Return on Common Equity
ALLETE, Inc.	ALE	9.00%	1.015	9.13%
Alliant Energy Corporation	LNT	10.00%	1.023	10.23%
Ameren Corporation	AEE	10.50%	1.029	10.80%
American Electric Power Company, Inc.	AEP	11.00%	1.027	11.30%
DTE Energy Company	DTE	10.50%	1.036	10.88%
Duke Energy Corporation	DUK	8.50%	1.017	8.64%
Exelon Corporation	EXC	10.00%	1.029	10.29%
Evergy, Inc.	EVRG	8.50%	0.987	8.39%
Hawaiian Electric Industries, Inc.	HE	10.00%	1.025	10.25%
IDACORP, Inc.	IDA	9.50%	1.018	9.67%
NorthWestern Corporation	NWE	9.00%	1.015	9.13%
OGE Energy Corporation	OGE	11.50%	1.016	11.68%
Otter Tail Corporation	OTTR	10.50%	1.028	10.79%
Pinnacle West Capital Corporation	PNW	10.50%	1.020	10.71%
PNM Resources, Inc.	PNM	9.50%	1.031	9.79%
Portland General Electric Company	POR	9.00%	1.016	9.14%
PPL Corporation	PPL	13.00%	1.038	13.49%
Mean		10.03%		10.25%

Notes:
[1] Source: Value Line Investment Survey
[2] Equals 2*(1+5-Yr. Change in Equity)/(2+5 Yr. Change in Equity)
[3] Equals [1] x [2]

Southwestern Public Service Company

Capital Expenditures

2019-2023 CAPITAL EXPENDITURES AS A PERCENT OF 2018 NET PLANT
($ Millions)

		[1]	[2]	[3]	[4]	[5]	[6]	[7]
		2018	2019	2020	2021	2022	2023	
Allete, Inc.	ALE							
Capital Spending per Share			10.60	7.20	6.23	5.25	5.25	
Common Shares Outstanding			51.50	51.50	51.50	51.50	51.50	
Capital Expenditures			545.90	370.80	320.59	270.38	270.38	
Net Plant		3,904.40						
2019-22 Capital Spending / 2018 Net Plant								45.54%
Alliant Energy Corporation	LNT							
Capital Spending per Share			6.75	6.50	6.33	6.15	6.15	
Common Shares Outstanding			240.00	242.00	246.00	250.00	250.00	
Capital Expenditures			1,620.00	1,573.00	1,555.95	1,537.50	1,537.50	
Net Plant		12,462.00						
2019-22 Capital Spending / 2018 Net Plant								62.78%
Ameren Corporation	AEE							
Capital Spending per Share			9.90	11.65	11.08	10.50	10.50	
Common Shares Outstanding			246.50	248.50	250.75	253.00	253.00	
Capital Expenditures			2,440.35	2,895.03	2,777.06	2,656.50	2,656.50	
Net Plant		22,810.00						
2019-22 Capital Spending / 2018 Net Plant								58.86%
American Electric Power Company, Inc.	AEP							
Capital Spending per Share			13.55	12.50	12.50	12.50	12.50	
Common Shares Outstanding			495.00	502.00	511.00	520.00	520.00	
Capital Expenditures			6,707.25	6,275.00	6,387.50	6,500.00	6,500.00	
Net Plant		55,099.00						
2019-22 Capital Spending / 2018 Net Plant								58.75%
DTE Energy Company	DTE							
Capital Spending per Share			18.75	12.75	12.88	13.00	13.00	
Common Shares Outstanding			192.00	196.00	198.00	200.00	200.00	
Capital Expenditures			3,600.00	2,499.00	2,549.25	2,600.00	2,600.00	
Net Plant		21,650.00						
2019-22 Capital Spending / 2018 Net Plant								63.96%
Duke Energy	DUK							
Capital Spending per Share			7.45	8.45	8.23	8.00	8.00	
Common Shares Outstanding			808.00	816.00	828.00	840.00	840.00	
Capital Expenditures			6,019.60	6,895.20	6,810.30	6,720.00	6,720.00	
Net Plant		54,560.00						
2019-22 Capital Spending / 2018 Net Plant								60.79%
Exelon Corporation	EXC							
Capital Spending per Share			7.55	7.30	7.28	7.25	7.25	
Common Shares Outstanding			971.00	974.00	978.50	983.00	983.00	
Capital Expenditures			7,331.05	7,110.20	7,118.59	7,126.75	7,126.75	
Net Plant		76,707.00						
2019-22 Capital Spending / 2018 Net Plant								46.69%
Evergy, Inc.	EVRG							
Capital Spending per Share			5.70	6.30	6.03	5.75	5.75	
Common Shares Outstanding			225.00	212.00	212.00	212.00	212.00	
Capital Expenditures			1,282.50	1,335.60	1,277.30	1,219.00	1,219.00	
Net Plant		18,952.00						
2019-22 Capital Spending / 2018 Net Plant								33.42%
Hawaiian Electric Industries, Inc.	HE							
Capital Spending per Share			3.90	4.10	4.30	4.50	4.50	
Common Shares Outstanding			109.00	110.00	111.50	113.00	113.00	
Capital Expenditures			425.10	451.00	479.45	508.50	508.50	
Net Plant		4,830.10						
2019-22 Capital Spending / 2018 Net Plant								49.12%
IDACORP, Inc.	IDA							
Capital Spending per Share			6.35	6.55	6.90	7.25	7.25	
Common Shares Outstanding			50.40	50.40	50.40	50.40	50.40	
Capital Expenditures			320.04	330.12	347.76	365.40	365.40	
Net Plant		4,395.70						
2019-22 Capital Spending / 2018 Net Plant								39.33%

Southwestern Public Service Company

Capital Expenditures

2019-2023 CAPITAL EXPENDITURES AS A PERCENT OF 2018 NET PLANT
($ Millions)

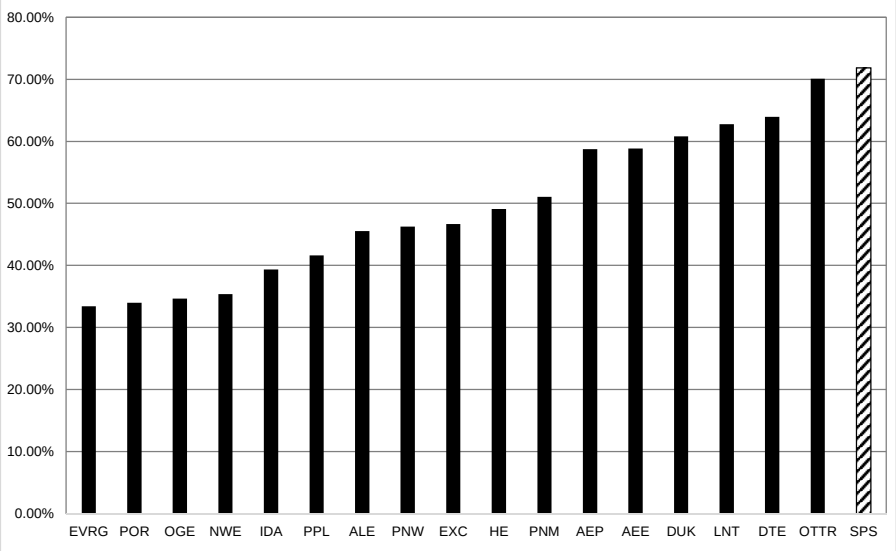
		[1]	[2]	[3]	[4]	[5]	[6]	[7]
		2018	2019	2020	2021	2022	2023	
NorthWestern Corporation	NWE							
Capital Spending per Share			6.65	6.55	6.28	6.00	6.00	
Common Shares Outstanding			50.50	50.65	50.88	51.10	51.10	
Capital Expenditures			335.83	331.76	319.24	306.60	306.60	
Net Plant		4,521.30						
2019-22 Capital Spending / 2018 Net Plant								35.39%
OGE Energy Corporation	OGE							
Capital Spending per Share			3.15	2.90	2.95	3.00	3.00	
Common Shares Outstanding			199.70	199.70	199.70	199.70	199.70	
Capital Expenditures			629.06	579.13	589.12	599.10	599.10	
Net Plant		8,643.80						
2019-22 Capital Spending / 2018 Net Plant								34.65%
Otter Tail Corporation	OTTR							
Capital Spending per Share			5.10	10.20	6.48	2.75	2.75	
Common Shares Outstanding			39.75	40.25	41.00	41.75	41.75	
Capital Expenditures			202.73	410.55	265.48	114.81	114.81	
Net Plant		1,581.10						
2019-22 Capital Spending / 2018 Net Plant								70.10%
Pinnacle West Capital Corporation	PNW							
Capital Spending per Share			11.25	11.00	11.38	11.75	11.75	
Common Shares Outstanding			112.50	113.00	113.75	114.50	114.50	
Capital Expenditures			1,265.63	1,243.00	1,293.91	1,345.38	1,345.38	
Net Plant		14,030.00						
2019-22 Capital Spending / 2018 Net Plant								46.28%
PNM Resources, Inc.	PNM							
Capital Spending per Share			8.00	8.10	6.55	5.00	5.00	
Common Shares Outstanding			79.65	81.00	82.50	84.00	84.00	
Capital Expenditures			637.20	656.10	540.38	420.00	420.00	
Net Plant		5,234.60						
2019-22 Capital Spending / 2018 Net Plant								51.08%
Portland General Electric Company	POR							
Capital Spending per Share			5.15	5.20	5.23	5.25	5.25	
Common Shares Outstanding			89.40	89.55	89.78	90.00	90.00	
Capital Expenditures			460.41	465.66	469.07	472.50	472.50	
Net Plant		6,887.00						
2019-22 Capital Spending / 2018 Net Plant								33.98%
PPL Corp	PPL							
Capital Spending per Share			4.30	4.05	3.65	3.25	3.25	
Common Shares Outstanding			770.00	773.00	776.50	780.00	780.00	
Capital Expenditures			3,311.00	3,130.65	2,834.23	2,535.00	2,535.00	
Net Plant		34,458.00						
2019-22 Capital Spending / 2018 Net Plant								41.63%
SPS	SPS							
Capital Expenditures [8]			1,252.03	1,441.72	410.29	410.20	625.89	
Net Plant [9]		5,757.33						
2018-21 Capital Spending / 2016 Net Plant								71.91%

Notes:
[1] Source: Value Line; dated March 15, April 26, and May 17, 2019
[2] Source: Value Line; dated March 15, April 26, and May 17, 2019
[3] Source: Value Line; dated March 15, April 26, and May 17, 2019
[4] Source: Value Line; dated March 15, April 26, and May 17, 2019
[5] Source: Value Line; dated March 15, April 26, and May 17, 2019
[6] Source: Value Line; dated March 15, April 26, and May 17, 2019
[7] Equals Sum ([2], [3], [4], [5], [6]) / [1]
[8] Source: Southwestern Public Service Company.
[9] Source: S&P Global Market Intelligence (formerly SNL Financial)

Southwestern Public Service Company

Capital Expenditures

2019-2023 CAPITAL EXPENDITURES AS A PERCENT OF 2018 NET PLANT
($ Millions)



Evergy, Inc.	EVRG	33.42%
Portland General Electric Company	POR	33.98%
OGE Energy Corporation	OGE	34.65%
NorthWestern Corporation	NWE	35.39%
IDACORP, Inc.	IDA	39.33%
PPL Corp	PPL	41.63%
Allete, Inc.	ALE	45.54%
Pinnacle West Capital Corporation	PNW	46.28%
Exelon Corporation	EXC	46.69%
Hawaiian Electric Industries, Inc.	HE	49.12%
PNM Resources, Inc.	PNM	51.08%
American Electric Power Company, Inc.	AEP	58.75%
Ameren Corporation	AEE	58.86%
Duke Energy	DUK	60.79%
Alliant Energy Corporation	LNT	62.78%
DTE Energy Company	DTE	63.96%
Otter Tail Corporation	OTTR	70.10%
SPS	SPS	71.91%

Proxy Group Median	46.69%

Southwestern Public Service Company

Regulatory Risk Analysis

COMPARISON OF SPS NEW MEXICO AND PROXY GROUP COMPANIES
S&P JURISDICTIONAL RANKINGS

		[1]	[2]	[3]	[4]
		S&P		RRA	
		Rank	Numeric Rank	Rank	Numeric Rank
ALLETE, Inc.	Minnesota	Highly Credit Supportive	2	Average / 2	5
	Wisconsin	Most Credit Supportive	1	Above Average / 2	2
Alliant Energy Corporation	Iowa	Most Credit Supportive	1	Average / 1	4
	Wisconsin	Most Credit Supportive	1	Above Average / 2	2
Ameren Corporation	Illinois	Very Credit Supportive	3	Average / 2	5
	Missouri	Very Credit Supportive	3	Average / 3	6
American Electric Power Company, Inc.	Arkansas	Highly Credit Supportive	2	Average / 1	4
	Indiana	Highly Credit Supportive	2	Average / 1	4
	Kentucky	Most Credit Supportive	1	Average / 1	4
	Louisiana	Highly Credit Supportive	2	Average / 2	5
	Michigan	Most Credit Supportive	1	Above Average / 3	3
	Ohio	Very Credit Supportive	3	Average / 2	5
	Oklahoma	More Credit Supportive	4	Average / 3	6
	Tennessee	Highly Credit Supportive	2	Above Average / 3	3
	Texas (PUC)	Very Credit Supportive	3	Average / 3	6
	Virginia	Highly Credit Supportive	2	Above Average / 2	2
	West Virginia	Very Credit Supportive	3	Below Average / 2	8
DTE Energy Company	Michigan	Most Credit Supportive	1	Above Average / 3	3
Duke Energy Corporation	Florida	Most Credit Supportive	1	Above Average / 2	2
	Indiana	Highly Credit Supportive	2	Average / 1	4
	Kentucky	Most Credit Supportive	1	Average / 1	4
	North Carolina	Most Credit Supportive	1	Average / 1	4
	Ohio	Very Credit Supportive	3	Average / 2	5
	South Carolina	More Credit Supportive	4	Average / 3	6
	Tennessee	Highly Credit Supportive	2	Above Average / 3	3
Exelon Corporation	District of Columbia	More Credit Supportive	4	Below Average / 3	9
	Delaware	Very Credit Supportive	3	Average / 3	6
	Illinois	Very Credit Supportive	3	Average / 2	5
	Maryland	More Credit Supportive	4	Below Average / 3	9
	New Jersey	More Credit Supportive	4	Below Average / 1	7
	Pennsylvania	Highly Credit Supportive	2	Above Average / 2	2
Evergy, Inc.	Kansas	Highly Credit Supportive	2	Below Average / 1	7
	Missouri	Very Credit Supportive	3	Average / 3	6
Hawaiian Electric Industries, Inc.	Hawaii	Credit Supportive	5	Average / 2	5
IDACORP	Idaho	Very Credit Supportive	3	Average / 2	5
	Oregon	Highly Credit Supportive	2	Average / 2	5
NorthWestern Corporation	Montana	More Credit Supportive	4	Below Average / 1	7
	Nebraska	Very Credit Supportive	3	Average / 1	4
	South Dakota	Very Credit Supportive	3	Average / 2	5
	Wyoming	Highly Credit Supportive	2	Average / 3	6
OGE Energy	Arkansas	Highly Credit Supportive	2	Average / 1	4
	Oklahoma	More Credit Supportive	4	Average / 3	6
Otter Tail Corporation	Minnesota	Highly Credit Supportive	2	Average / 2	5
	North Dakota	Highly Credit Supportive	2	Average / 1	4
	South Dakota	Very Credit Supportive	3	Average / 2	5
Pinnacle West Capital Corporation	Arizona	More Credit Supportive	4	Average / 3	6
PNM Resources, Inc.	New Mexico	Credit Supportive	5	Below Average / 2	8
Portland General Electric Company	Oregon	Highly Credit Supportive	2	Average / 2	5

Southwestern Public Service Company

Regulatory Risk Analysis

COMPARISON OF SPS NEW MEXICO AND PROXY GROUP COMPANIES
S&P JURISDICTIONAL RANKINGS

		[1]	[2]	[3]	[4]
		S&P		RRA	
		Rank	Numeric Rank	Rank	Numeric Rank
PPL Corporation	Kentucky	Most Credit Supportive	1	Average / 1	4
	Pennsylvania	Highly Credit Supportive	2	Above Average / 2	2
	Virginia	Highly Credit Supportive	2	Above Average / 2	2
Proxy Group Average		Highly Credit Supportive	2.49	Average / 2	4.78
SPS-NM	New Mexico	Credit Supportive	5	Below Average / 2	8

Notes:
[1] "U.S. and Canadian Regulatory Jurisdictions Continue to Bolster Utilities' Credit Quality," S&P Global Ratings, dated October 30, 2018
[2] Most Credit Supportive = 1, Highly Credit Supportive = 2, Very Credit Supportive = 3, More Credit Supportive = 4, Credit Supportive = 5
[3] Regulatory Research Associates, updated June 7, 2019
[4] Above Average (AA) /1 = 1, AA/2 = 2, AA/3 = 3, Average (A) /1 = 4, A/2 = 5, A/3 = 6, Below Average (BA) /1 = 7, BA/2 = 8 and BA/3 =9

Southwestern Public Service Company

COMPARISON OF SPS NEW MEXICO AND PROXY GROUP COMPANIES
ADJUSTMENT CLAUSES

		Fuel Recovery	Conservation Programs	Decoupling Full	Decoupling Partial	Renewables	Environmental Compliance	Generation Capacity	New Capital Generic Infrastructure	RTO-related Transmission expense	Other
ALLETE, Inc.	Minnesota	x	x			x	x			x	
Alliant Energy Corporation	Iowa	x	x			x	x			x	x
	Wisconsin	x									x
Ameren Corporation	Illinois		x			x	x			x	x
	Missouri	x	x		x		x		x	x	x
American Electric Power Company, Inc.	Arkansas	x	x		x		x	x		x	x
	Indiana	x	x		x	x	x		x	x	x
	Kentucky	x	x		x	x	x				x
	Louisiana	x	x		x		x				x
	Michigan	x	x			x					
	Ohio		x		x	x			x	x	x
	Oklahoma	x	x		x				x	x	x
	Tennessee	x									
	Texas (PUC)		x						x	x	
	Virginia	x	x			x		x		x	x
	West Virginia	x	x			x			x		x
DTE Energy Company	Michigan	x	x			x				x	
Duke Energy Corporation	Florida	x	x				x	x			x
	Indiana	x	x		x	x	x	x	x	x	x
	Kentucky	x	x		x	x	x				x
	North Carolina	x	x			x	x				
	Ohio		x		x	x			x	x	x
	South Carolina	x					x				
	Tennessee	x			x				x		x
Exelon Corporation	District of Columbia				x	x			x		x
	Delaware									x	
	Illinois		x			x	x		x	x	x
	Maryland		x	x					x		x
	New Jersey		x			x			x		x
	Pennsylvania		x						x		x
Evergy, Inc.	Kansas	x	x		x	x	x			x	x
	Missouri	x	x		x				x	x	x
Hawaiian Electric Industries, Inc.	Hawaii	x	x	x		x		x	x		x
IDACORP	Idaho	x	x	x							
	Oregon	x	x			x					
NorthWestern Corporation	Montana	x	x								x
	Nebraska	x									x
	South Dakota	x	x								
OGE Energy	Arkansas	x	x		x	x	x	x	x	x	x
	Oklahoma	x	x		x	x	x		x	x	x
Otter Tail Corporation	Minnesota	x	x			x	x			x	

Southwestern Public Service Company

COMPARISON OF SPS NEW MEXICO AND PROXY GROUP COMPANIES
ADJUSTMENT CLAUSES

		Fuel Recovery	Conservation Programs	Decoupling Full	Decoupling Partial	Renewables	Environmental Compliance	Generation Capacity	New Capital Generic Infrastructure	RTO-related Transmission expense	Other
	North Dakota	x				x	x		x		x
Pinnacle West Capital Corporation	Arizona	x	x		x	x	x			x	x
PNM Resources, Inc.	New Mexico	x	x			x	x		x		x
Portland General Electric Company	Oregon	x	x		x	x					
PPL Corporation	Kentucky	x	x		x	x	x				x
	Pennsylvania		x						x	x	x
	Virginia	x									
Proxy Companies		37	39	3	19	28	22	6	21	22	34
Total Jurisdictions	47										
Percent of Jurisdictions		79%	83%	6%	40%	60%	47%	13%	45%	47%	72%
SPS-NM	New Mexico	x	x			x					x

Notes:
[1] S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated September 28, 2018.

Southwestern Public Service Company

Capital Structure

CAPITAL STRUCTURE ANALYSIS

COMMON EQUITY RATIO [1]

Company	Ticker	2019 Q1	2018 Q4	2018 Q3	2018 Q2	2018 Q1	2017 Q4	2017 Q3	2017 Q2	Average
ALLETE, Inc.	ALE	60.80%	61.27%	60.33%	60.26%	60.50%	60.15%	59.79%	59.22%	60.29%
Alliant Energy Corporation	LNT	54.12%	54.11%	51.87%	51.96%	50.87%	50.94%	53.19%	52.36%	52.43%
Ameren Corporation	AEE	53.19%	53.13%	53.67%	52.39%	53.39%	53.05%	53.84%	53.40%	53.26%
American Electric Power Company, Inc.	AEP	48.96%	49.20%	48.27%	48.90%	48.88%	49.57%	49.37%	48.88%	49.00%
DTE Energy Company	DTE	48.69%	50.96%	49.97%	49.23%	51.12%	51.02%	50.50%	50.63%	50.26%
Duke Energy Corporation	DUK	52.16%	52.71%	52.85%	53.04%	52.88%	53.01%	53.02%	53.20%	52.86%
Exelon Corporation	EXC	53.72%	53.31%	53.02%	53.78%	53.56%	53.38%	53.04%	53.56%	53.42%
Evergy, Inc.	EVRG	57.72%	59.42%	59.60%	60.81%	60.87%	58.56%	59.00%	58.27%	59.28%
Hawaiian Electric Industries, Inc.	HE	50.09%	52.91%	53.77%	53.40%	54.66%	54.75%	56.51%	56.18%	54.03%
IDACORP, Inc.	IDA	54.36%	54.25%	54.25%	53.44%	51.37%	54.22%	54.22%	53.48%	53.70%
NorthWestern Corporation	NWE	48.74%	47.88%	48.36%	48.41%	47.48%	49.89%	48.86%	48.61%	48.53%
OGE Energy Corporation	OGE	55.38%	53.20%	53.05%	54.25%	53.59%	53.36%	53.05%	52.75%	53.58%
Otter Tail Corporation	OTTR	53.90%	53.58%	53.49%	53.11%	52.67%	57.34%	57.24%	55.31%	54.58%
Pinnacle West Capital Corporation	PNW	54.48%	54.36%	53.68%	53.71%	53.18%	53.14%	53.05%	53.32%	53.61%
PNM Resources, Inc.	PNM	43.67%	45.83%	48.19%	46.88%	46.40%	46.26%	47.77%	47.09%	46.51%
Portland General Electric Company	POR	50.60%	50.19%	50.51%	50.29%	50.14%	49.80%	50.17%	50.32%	50.25%
PPL Corporation	PPL	55.18%	54.92%	54.85%	54.51%	54.60%	54.60%	54.75%	57.21%	55.08%
MEAN		52.69%	53.01%	52.93%	52.84%	52.72%	53.12%	53.37%	53.16%	52.98%
MEDIAN		53.72%	53.20%	53.05%	53.11%	52.88%	53.14%	53.05%	53.32%	53.42%
LOW		43.67%	45.83%	48.19%	46.88%	46.40%	46.26%	47.77%	47.09%	46.51%
HIGH		60.80%	61.27%	60.33%	60.81%	60.87%	60.15%	59.79%	59.22%	60.29%

Southwestern Public Service Company

Capital Structure

COMMON EQUITY RATIO - ELECTRIC UTILITY OPERATING COMPANIES [2]

Company	Ticker	2019 Q1	2018 Q4	2018 Q3	2018 Q2	2018 Q1	2017 Q4	2017 Q3	2017 Q2	Average
ALLETE (Minnesota Power)	ALE	60.87%	61.39%	60.43%	60.33%	60.38%	60.04%	59.73%	59.16%	60.29%
Superior Water, Light and Power Company	ALE	58.19%	56.86%	56.58%	57.34%	65.80%	64.99%	62.33%	62.08%	60.52%
Interstate Power and Light Company	LNT	54.87%	55.10%	51.34%	52.28%	51.83%	52.22%	53.76%	52.93%	53.04%
Wisconsin Power and Light Company	LNT	53.03%	52.69%	52.62%	51.52%	49.57%	49.23%	52.39%	51.56%	51.58%
Ameren Illinois Company	AEE	54.05%	53.27%	53.61%	53.17%	54.69%	53.85%	55.46%	55.03%	54.14%
Union Electric Company	AEE	52.44%	53.00%	53.73%	51.76%	52.34%	52.42%	52.64%	52.19%	52.56%
Appalachian Power Company	AEP	47.77%	49.51%	49.30%	48.93%	49.35%	48.72%	48.30%	47.85%	48.72%
Indiana Michigan Power Company	AEP	45.43%	44.62%	44.53%	44.15%	46.64%	46.33%	46.65%	46.27%	45.58%
Kentucky Power Company	AEP	46.42%	45.72%	45.28%	44.89%	44.40%	43.52%	43.22%	43.30%	44.59%
Kingsport Power Company	AEP	51.54%	50.79%	50.71%	47.69%	47.28%	46.53%	45.88%	50.58%	48.88%
Ohio Power Company	AEP	58.86%	57.80%	56.85%	57.11%	52.91%	58.63%	57.64%	56.72%	57.07%
Public Service Company of Oklahoma	AEP	47.19%	49.16%	49.55%	48.59%	48.10%	48.50%	48.85%	48.26%	48.52%
Southwestern Electric Power Company	AEP	47.59%	46.97%	43.43%	47.91%	47.72%	48.52%	48.66%	48.14%	47.37%
Transource Maryland, LLC	AEP	41.49%	41.81%	55.33%	71.00%	76.00%				57.12%
Transource Pennsylvania, LLC	AEP	39.15%	41.92%	52.43%	70.85%	78.53%				56.57%
Wheeling Power Company	AEP	54.27%	54.62%	54.70%	54.19%	54.27%	54.26%	54.13%	54.10%	54.32%
DTE Electric Company	DTE	48.69%	50.96%	49.97%	49.23%	51.12%	51.02%	50.50%	50.63%	50.26%
Duke Energy Carolinas, LLC	DUK	52.32%	51.78%	52.64%	52.10%	51.70%	52.98%	53.98%	53.49%	52.62%
Duke Energy Florida, LLC	DUK	50.56%	50.04%	49.65%	48.79%	49.92%	49.25%	49.46%	47.74%	49.42%
Duke Energy Indiana, LLC	DUK	54.29%	53.26%	52.79%	52.64%	52.54%	51.94%	51.71%	51.89%	52.63%
Duke Energy Kentucky, Inc.	DUK	52.81%	51.95%	56.58%	55.79%	53.72%	53.11%	50.69%	55.74%	53.80%
Duke Energy Ohio, Inc.	DUK	59.29%	68.09%	67.73%	67.10%	66.06%	66.24%	65.79%	65.38%	65.71%
Duke Energy Progress, LLC	DUK	49.60%	51.00%	50.76%	53.22%	52.82%	52.27%	51.06%	53.51%	51.78%
NorthWestern Corporation	NEW	48.74%	47.88%	48.36%	48.41%	47.48%	49.89%	48.86%	48.61%	48.53%
Atlantic City Electric Company	EXC	49.30%	49.14%	50.38%	49.46%	49.14%	49.19%	49.37%	49.11%	49.39%
Baltimore Gas and Electric Company	EXC	54.43%	53.67%	52.85%	55.34%	55.36%	54.77%	53.70%	53.33%	54.18%
Commonwealth Edison Company	EXC	55.00%	55.06%	54.72%	55.36%	54.96%	54.85%	54.60%	55.22%	54.97%
Delmarva Power & Light Company	EXC	50.18%	49.98%	50.11%	49.86%	50.35%	50.38%	50.18%	50.13%	50.15%
PECO Energy Company	EXC	55.13%	53.72%	52.82%	54.28%	53.77%	53.54%	53.30%	55.64%	54.02%
Potomac Electric Power Company	EXC	50.41%	50.01%	50.24%	50.08%	49.94%	49.89%	49.71%	49.60%	49.98%
Great Plains Energy Incorporated	EVRG		51.05%	51.39%			50.15%	51.25%	50.41%	50.85%
Kansas City Power & Light Company	EVRG	46.04%	49.49%	49.50%	48.88%	49.25%	49.15%	49.42%	48.47%	48.78%
Kansas Gas and Electric Company	EVRG	75.13%	74.97%	74.91%	74.45%	74.29%	74.18%	74.21%	73.69%	74.48%
KCP&L Greater Missouri Operations Company	EVRG	52.68%	54.71%	55.70%	52.03%	52.63%	52.40%	55.14%	54.57%	53.73%
Westar Energy (KPL)	EVRG	58.80%	59.08%	59.34%	58.68%	58.75%	58.74%	58.87%	58.22%	58.81%
Westar Energy, Inc.	EVRG		65.23%	65.34%	64.75%	64.71%	64.65%	64.73%	64.14%	64.79%
Hawaiian Electric Company, Inc.	HE	50.09%	52.91%	53.77%	53.40%	54.66%	54.75%	56.51%	56.18%	54.03%
Idaho Power Company	IDA	54.36%	54.25%	54.25%	53.44%	51.37%	54.22%	54.22%	53.48%	53.70%
NorthWestern Corporation	NWE	48.74%	47.88%	48.36%	48.41%	47.48%	49.89%	48.86%	48.61%	48.53%
Oklahoma Gas and Electric Company	OGE	55.38%	53.20%	53.05%	54.25%	53.59%	53.36%	53.05%	52.75%	53.58%
Otter Tail Power Company	OTTR	53.90%	53.58%	53.49%	53.11%	52.67%	57.34%	57.24%	55.31%	54.58%
Arizona Public Service Company	PNW	54.48%	54.36%	53.68%	53.71%	53.18%	53.14%	53.05%	53.32%	53.61%
Public Service Company of New Mexico	PNM	43.67%	45.83%	48.19%	46.88%	46.40%	46.26%	47.77%	47.09%	46.51%
Portland General Electric Company	POR	50.60%	50.19%	50.51%	50.29%	50.14%	49.80%	50.17%	50.32%	50.25%
Kentucky Utilities Company	PPL	55.44%	54.85%	54.76%	54.51%	54.08%	54.00%	53.93%	58.73%	55.04%
Louisville Gas and Electric Company	PPL	56.16%	55.80%	55.35%	54.97%	54.46%	55.42%	56.29%	60.06%	56.06%
PPL Electric Utilities Corporation	PPL	54.52%	54.52%	54.65%	54.28%	55.04%	54.57%	54.54%	54.43%	54.57%

Notes:
[1] Ratios are weighted by actual common capital and long-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.

Southwestern Public Service Company

Capital Structure

CAPITAL STRUCTURE ANALYSIS

LONG-TERM DEBT RATIO [1]

Company	Ticker	2019 Q1	2018 Q4	2018 Q3	2018 Q2	2018 Q1	2017 Q4	2017 Q3	2017 Q2	Average
ALLETE, Inc.	ALE	39.20%	38.73%	39.67%	39.74%	39.50%	39.85%	40.21%	40.78%	39.71%
Alliant Energy Corporation	LNT	45.88%	45.89%	48.13%	48.04%	49.13%	49.06%	46.81%	47.64%	47.57%
Ameren Corporation	AEE	46.81%	46.87%	46.33%	47.61%	46.61%	46.95%	46.16%	46.60%	46.74%
American Electric Power Company, Inc.	AEP	51.04%	50.80%	51.73%	51.10%	51.12%	50.43%	50.63%	51.12%	51.00%
DTE Energy Company	DTE	51.31%	49.04%	50.03%	50.77%	48.88%	48.98%	49.50%	49.37%	49.74%
Duke Energy Corporation	DUK	47.84%	47.29%	47.15%	46.96%	47.12%	46.99%	46.98%	46.80%	47.14%
Exelon Corporation	EXC	46.28%	46.69%	46.98%	46.22%	46.44%	46.62%	46.96%	46.44%	46.58%
Evergy, Inc.	EVRG	42.28%	40.58%	40.40%	39.19%	39.13%	41.44%	41.00%	41.73%	40.72%
Hawaiian Electric Industries, Inc.	HE	49.91%	47.09%	46.23%	46.60%	45.34%	45.25%	43.49%	43.82%	45.97%
IDACORP, Inc.	IDA	45.64%	45.75%	45.75%	46.56%	48.63%	45.78%	45.78%	46.52%	46.30%
NorthWestern Corporation	NWE	51.26%	52.12%	51.64%	51.59%	52.52%	50.11%	51.14%	51.39%	51.47%
OGE Energy Corporation	OGE	44.62%	46.80%	46.95%	45.75%	46.41%	46.64%	46.95%	47.25%	46.42%
Otter Tail Corporation	OTTR	46.10%	46.42%	46.51%	46.89%	47.33%	42.66%	42.76%	44.69%	45.42%
Pinnacle West Capital Corporation	PNW	45.52%	45.64%	46.32%	46.29%	46.82%	46.86%	46.95%	46.68%	46.39%
PNM Resources, Inc.	PNM	56.33%	54.17%	51.81%	53.12%	53.60%	53.74%	52.23%	52.91%	53.49%
Portland General Electric Company	POR	49.40%	49.81%	49.49%	49.71%	49.86%	50.20%	49.83%	49.68%	49.75%
PPL Corporation	PPL	44.82%	45.08%	45.15%	45.49%	45.40%	45.40%	45.25%	42.79%	44.92%
MEAN		47.31%	46.99%	47.07%	47.16%	47.28%	46.88%	46.63%	46.84%	47.02%
MEDIAN		46.28%	46.80%	46.95%	46.89%	47.12%	46.86%	46.95%	46.68%	46.58%
LOW		39.20%	38.73%	39.67%	39.19%	39.13%	39.85%	40.21%	40.78%	39.71%
HIGH		56.33%	54.17%	51.81%	53.12%	53.60%	53.74%	52.23%	52.91%	53.49%

Southwestern Public Service Company

Capital Structure

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

Company	Ticker	2019 Q1	2018 Q4	2018 Q3	2018 Q2	2018 Q1	2017 Q4	2017 Q3	2017 Q2	Average
ALLETE (Minnesota Power)	ALE	39.13%	38.61%	39.57%	39.67%	39.62%	39.96%	40.27%	40.84%	39.71%
Superior Water, Light and Power Company	ALE	41.81%	43.14%	43.42%	42.66%	34.20%	35.01%	37.67%	37.92%	39.48%
Interstate Power and Light Company	LNT	45.13%	44.90%	48.66%	47.72%	48.17%	47.78%	46.24%	47.07%	46.96%
Wisconsin Power and Light Company	LNT	46.97%	47.31%	47.38%	48.48%	50.43%	50.77%	47.61%	48.44%	48.42%
Ameren Illinois Company	AEE	45.95%	46.73%	46.39%	46.83%	45.31%	46.15%	44.54%	44.97%	45.86%
Union Electric Company	AEE	47.56%	47.00%	46.27%	48.24%	47.66%	47.58%	47.36%	47.81%	47.44%
Appalachian Power Company	AEP	52.23%	50.49%	50.70%	51.07%	50.65%	51.28%	51.70%	52.15%	51.28%
Indiana Michigan Power Company	AEP	54.57%	55.38%	55.47%	55.85%	53.36%	53.67%	53.35%	53.73%	54.42%
Kentucky Power Company	AEP	53.58%	54.28%	54.72%	55.11%	55.60%	56.48%	56.78%	56.70%	55.41%
Kingsport Power Company	AEP	48.46%	49.21%	49.29%	52.31%	52.72%	53.47%	54.12%	49.42%	51.12%
Ohio Power Company	AEP	41.14%	42.20%	43.15%	42.89%	47.09%	41.37%	42.36%	43.28%	42.93%
Public Service Company of Oklahoma	AEP	52.81%	50.84%	50.45%	51.41%	51.90%	51.50%	51.15%	51.74%	51.48%
Southwestern Electric Power Company	AEP	52.41%	53.03%	56.57%	52.09%	52.28%	51.48%	51.34%	51.86%	52.63%
Transource Maryland, LLC	AEP	58.51%	58.19%	44.67%	29.00%	24.00%				
Transource Pennsylvania, LLC	AEP	60.85%	58.08%	47.57%	29.15%	21.47%				
Wheeling Power Company	AEP	45.73%	45.38%	45.30%	45.81%	45.73%	45.74%	45.87%	45.90%	45.68%
DTE Electric Company	DTE	51.31%	49.04%	50.03%	50.77%	48.88%	48.98%	49.50%	49.37%	49.74%
Duke Energy Carolinas, LLC	DUK	47.68%	48.22%	47.36%	47.90%	48.30%	47.02%	46.02%	46.51%	47.38%
Duke Energy Florida, LLC	DUK	49.44%	49.96%	50.35%	51.21%	50.08%	50.75%	50.54%	52.26%	50.58%
Duke Energy Indiana, LLC	DUK	45.71%	46.74%	47.21%	47.36%	47.46%	48.06%	48.29%	48.11%	47.37%
Duke Energy Kentucky, Inc.	DUK	47.19%	48.05%	43.42%	44.21%	46.28%	46.89%	49.31%	44.26%	46.20%
Duke Energy Ohio, Inc.	DUK	40.71%	31.91%	32.27%	32.90%	33.94%	33.76%	34.21%	34.62%	34.29%
Duke Energy Progress, LLC	DUK	50.40%	49.00%	49.24%	46.78%	47.18%	47.73%	48.94%	46.49%	48.22%
NorthWestern Corporation	NEW	51.26%	52.12%	51.64%	51.59%	52.52%	50.11%	51.14%	51.39%	51.47%
Atlantic City Electric Company	EXC	50.70%	50.86%	49.62%	50.54%	50.86%	50.81%	50.63%	50.89%	50.61%
Baltimore Gas and Electric Company	EXC	45.57%	46.33%	47.15%	44.66%	44.64%	45.23%	46.30%	46.67%	45.82%
Commonwealth Edison Company	EXC	45.00%	44.94%	45.28%	44.64%	45.04%	45.15%	45.40%	44.78%	45.03%
Delmarva Power & Light Company	EXC	49.82%	50.02%	49.89%	50.14%	49.65%	49.62%	49.82%	49.87%	49.85%
PECO Energy Company	EXC	44.87%	46.28%	47.18%	45.72%	46.23%	46.46%	46.70%	44.36%	45.98%
Potomac Electric Power Company	EXC	49.59%	49.99%	49.76%	49.92%	50.06%	50.11%	50.29%	50.40%	50.02%
Great Plains Energy Incorporated	EVRG		48.95%	48.61%			49.85%	48.75%	49.59%	49.15%
Kansas City Power & Light Company	EVRG	53.96%	50.51%	50.50%	51.12%	50.75%	50.85%	50.58%	51.53%	51.22%
Kansas Gas and Electric Company	EVRG	24.87%	25.03%	25.09%	25.55%	25.71%	25.82%	25.79%	26.31%	25.52%
KCP&L Greater Missouri Operations Company	EVRG	47.32%	45.29%	44.30%	47.97%	47.37%	47.60%	44.86%	45.43%	46.27%
Westar Energy (KPL)	EVRG	41.20%	40.92%	40.66%	41.32%	41.25%	41.26%	41.13%	41.78%	41.19%
Westar Energy, Inc.	EVRG		34.77%	34.66%	35.25%	35.29%	35.35%	35.27%	35.86%	35.21%
Hawaiian Electric Company, Inc.	HE	49.91%	47.09%	46.23%	46.60%	45.34%	45.25%	43.49%	43.82%	45.97%
Idaho Power Company	IDA	45.64%	45.75%	45.75%	46.56%	48.63%	45.78%	45.78%	46.52%	46.30%
NorthWestern Corporation	NWE	51.26%	52.12%	51.64%	51.59%	52.52%	50.11%	51.14%	51.39%	51.47%
Oklahoma Gas and Electric Company	OGE	44.62%	46.80%	46.95%	45.75%	46.41%	46.64%	46.95%	47.25%	46.42%
Otter Tail Power Company	OTTR	46.10%	46.42%	46.51%	46.89%	47.33%	42.66%	42.76%	44.69%	45.42%
Arizona Public Service Company	PNW	45.52%	45.64%	46.32%	46.29%	46.82%	46.86%	46.95%	46.68%	46.39%
Public Service Company of New Mexico	PNM	56.33%	54.17%	51.81%	53.12%	53.60%	53.74%	52.23%	52.91%	53.49%
Portland General Electric Company	POR	49.40%	49.81%	49.49%	49.71%	49.86%	50.20%	49.83%	49.68%	49.75%
Kentucky Utilities Company	PPL	44.56%	45.15%	45.24%	45.49%	45.92%	46.00%	46.07%	41.27%	44.96%
Louisville Gas and Electric Company	PPL	43.84%	44.20%	44.65%	45.03%	45.54%	44.58%	43.71%	39.94%	43.94%
PPL Electric Utilities Corporation	PPL	45.48%	45.48%	45.35%	45.72%	44.96%	45.43%	45.46%	45.57%	45.43%

Notes:
[1] Ratios are weighted by actual common capital and long-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.