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Exhibit No.:
Issue(s): Rate of Return (ROR)/ Return on Equity (ROE)/ Capital Structure
Witness/Type of Exhibit: Murray/Direct
Sponsoring Party: Public Counsel
Case No.: ER-2019-0335

DIRECT TESTIMONY

OF

DAVID MURRAY

Submitted on Behalf of the Office of the Public Counsel

UNION ELECTRIC COMPANY
D/B/A AMEREN MISSOURI

FILE NO. ER-2019-0335

** **

Denotes Confidential Information that has been Redacted

December 4, 2019

PUBLIC

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Union Electric Company d/b/a Ameren Missouri's Tariffs to Decrease Its Revenues for Electric Service	)))	File No. ER-2019-0335

AFFIDAVIT OF DAVID MURRAY

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

David Murray, of lawful age and being first duly sworn, deposes and states:

1. My name is David Murray. I am a Utility Regulatory Manager for the Office of the Public Counsel.

2. Attached hereto and made a part hereof for all purposes is my direct testimony.

3. I hereby swear and affirm that my statements contained in the attached testimony are true and correct to the best of my knowledge and belief.

David Murray
Utility Regulatory Manager

Subscribed and sworn to me this 4th day of December 2019.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

JERENE A. BUCKMAN
My Commission Expires
August 23, 2021
Cole County
Commission #13754037

Jerene A. Buckman
Notary Public

My Commission expires August 23, 2021.

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Definitions/Abbreviations

AFUDC	Allowance for funds used during construction – this is the return that is allowed on CWIP. AFUDC is capitalized based on short-term debt costs until the CWIP balance exceeds short-term debt outstanding. It then accrues a return based on the allowed ROR for long-term capital
Allowed ROE	Regulatory body's determination of how much earnings/profit to allow in the revenue requirement.
Allowed ROR	Regulatory body's decision as to the amount of return allowed for equity capital and debt capital supporting rate base/investment.
Basis Point	$1/100^{th}$ of a percent 0.01%; 100 basis points = 1%
Beta	Measure of the covariance of the stock and the market dividend by the variance of the market. If Beta is less than one, implies the stock will have lower returns than S&P 500 during bull markets, but higher returns than the S&P 500 during bear markets.
CAGR	Compound Annual Growth Rate
CAPM	Capital Asset Pricing Model
CFA	Chartered Financial Analyst Program
COE	Investors' minimum required/expected ROE in exchange for providing equity capital. Implied/determined through analyzing stock prices in relation to fundamentals, such as estimated cash flows/dividends.
COE	Cost of common equity
Constant/Gordon Growth DCF/DDM	Method used to discount dividends/cash flows that are expected to grow at a constant growth rate into perpetuity.
CWIP	Construction work in progress – plant that is not included in rate base, but accrues a return until the plant is fully operational and used for service.
DCF	Discounted Cash Flow Method – the DCF method can discount various proxies of cash flows, such as estimated dividends, free cash flows to the equity investor or free cash flows to the firm. In utility ratemaking, "the DCF model" is used loosely to identify a DDM analysis, which is more specific type of DCF.

DDM	Dividend Discount Model – a DCF method that discounts expected dividends to determine a fair price to pay for a share of stock.
DPS	Dividends per share
EEI	Edison Electric Institute
EPS	Earnings per share
Ex-ante	Risk premium estimates based on evaluating current market price levels as they relate to fundamental valuation principles.
Ex-post	Risk premium estimates made primarily by measuring the excess equity market returns over risk-free rates for historical periods.
Fed	The Federal Reserve Bank
Investment Grade	BBB-, Baa3 or better
Leverage	The amount of debt that supports a company's capital structure.
Multi-stage DCF/DDM	Method used to determine the value and/or COE for a firm in which it is expected to have varying cash flows and/or growth rates. May be as few as two stages, with no limit on more stages.
P/E	Price per share divided by earnings per share. A measure of the cost per share of earnings. Earnings can be measured based on historical or projected periods
P/LTM EPS	Price to last-twelve-months (LTM) EPS
P/NTM EPS	Price to estimated next-twelve months (NTM) EPS
PEG	P/E divided by equity analysts' consensus estimated long-term CAGR in EPS. Used to assess price levels as related to changes in expected growth or to other companies' PEG ratios
PISA	Plant in Service Accounting
ROE	Return on Common Equity – a function of accounting net income divided by book value of equity on balance sheet.
ROR	Rate of Return
WACC	Weighted Average Cost of Capital

DIRECT TESTIMONY

OF

DAVID MURRAY

UNION ELECTRIC COMPANY d/b/a AMEREN MISSOURI

FILE NO. ER-2019-0335

Q. Please state your name and business address.

A. My name is David Murray and my business address is P.O. Box 2230, Jefferson City, Missouri 65102.

Q. By whom are you employed and in what capacity?

A. I am employed by the Missouri Office of the Public Counsel ("OPC") as a Utility Regulatory Manager.

Q. On whose behalf are you testifying?

A. I am testifying on behalf of the OPC.

Q. What it the purpose of your testimony?

A. To recommend a fair and reasonable rate of return ("ROR") for purposes of setting Ameren Missouri's revenue requirement.

Q. What experience, knowledge and education qualify you to sponsor ROR testimony in this case?

A. Please see the attached Schedule 1 for my qualifications as well as a summary of the cases in which I have sponsored testimony on ROR and other financial issues.

Q. What aspects of ROR will you address?

A. I will address a fair and reasonable allowed return on common equity ("ROE") and a fair and reasonable capital structure. Both of these elements should be given due consideration in this case.

Q. What is your main conclusion after analyzing Ameren Missouri's specific financial situation as well as the current state of capital markets?

A. Ameren Missouri's allowed ROE of 9.53% should be lowered and Ameren Missouri should have a lower authorized common equity ratio for its authorized capital structure.

Q. Before you go into the details supporting your analysis, can you summarize the rationale for your conclusions?

A. Yes. Although capital structure and the allowed ROE are interrelated as to the ultimate impact on Ameren Missouri's revenue requirement, I will first briefly explain my rationale for each component, separately.

I recommend that the Commission lower Ameren Missouri's allowed ROE because utility industry capital market conditions clearly show that investors have bid up the price of utility stocks due to sustained low long-term interest rates. As recently as a couple of months ago, utility stocks achieved at or near all-time high valuation levels, both on an absolute and a relative basis. Simply put, as long-term bond yields have declined and remain low, utility companies' cost of equity ("COE") have declined and remain low as well (utility stock prices went up). Although the absolute value of utilities' COE is much lower than average allowed ROEs, this spread should not be allowed to widen, especially as it becomes more evident that the U.S. markets have had a sustained low long-term interest rate environment and utility stock valuations are reflecting expectations of this "lower for longer" situation. Therefore, based on industry-wide capital market conditions, I recommend Ameren Missouri's allowed ROE be reduced.

I recommend that the Commission lower Ameren Missouri's authorized common equity ratio to approximately 48% rather than the 52% ratio Ameren Corporation ("Ameren Corp") has been targeting for Ameren Missouri over the last several years. Ameren Missouri has a lower business risk profile due to the passage of Senate Bill (SB) 564 which allowed Ameren Missouri to elect plant in service accounting ("PISA") in September 2018. Ameren Missouri's reduced business risk profile translates into a higher debt capacity. However, being that Ameren Corp is managing Ameren Missouri's capital structure for

purposes of regulatory ratemaking rather than to reduce its cost of capital, Ameren Corp has been using this higher debt capacity at the holding company for its own benefit. The Commission can rectify this unfair transfer of Ameren Missouri's debt capacity to Ameren Corp by authorizing Ameren Missouri a common equity ratio consistent with Ameren Corp's on a consolidated basis.

Q. Did you take any other matters into consideration when determining a fair and reasonable allowed ROE to apply to your recommended capital structure?

A. Yes. Although capital market information supports lowering Ameren Missouri's allowed ROE by up to 100 basis points, I recognize that Ameren Missouri has affiliates that compete with it for capital. In my opinion, Ameren Corp should choose projects between Ameren Illinois' electric operations and Ameren Missouri's electric operations based on economic efficiency rather than which jurisdiction awards the highest ROR. Therefore, because a 9.25% allowed ROE applied to a 48% equity ratio would result in similar allowed ROR's for both jurisdictions in 2020, this is my point recommendation.

FAIR RETURN ON COMMON EQUITY

Q. How did you determine the approach you would take to estimate a fair and reasonable allowed ROE for purposes of this case?

A. I reconciled the principles established in *Hope* and *Bluefield*[1] with the modern financial models used to estimate the COE. While setting the allowed ROE based on the COE is at least theoretically sufficient to allow a company to attract capital in efficient markets, because average allowed ROEs have been set higher than the COE, this fact must be considered when determining a fair and reasonable allowed ROE. In fact, this Commission has set a "zone of reasonableness standard"[2] for purposes of setting an allowed ROE with the starting point for this zone of reasonableness being a recent industry average allowed

[1] *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591, 64 S.Ct. 281, 88 L.Ed. 333 (1943); *Bluefield Water Works & Improvement Co. v. Public Service Commission of West Virginia*, 262 U.S. 679, *43 S.Ct. 675, 67 L.Ed. 1176* (1923).
[2] *State ex rel. Missouri Gas Energy v. Public Service Commission,* 186 S.W.3d 376, 383 (Mo App. W.D. 2005)

ROE. Considering these principles, I first estimate Ameren Missouri's current COE, then compare Ameren Missouri's current COE to the COE at the time the Commission awarded Ameren Missouri its current 9.53% ROE in Case No. ER-2014-0258, and then determine if and by how much Ameren Missouri's COE changes justify setting a different allowed ROE. My analysis also includes consideration for other recently allowed ROEs with specific consideration given to Ameren Illinois' allowed ROE for its electric operations.

Q. Based on your analysis, what is your estimate of Ameren Missouri's COE?

A. Ameren Missouri's COE is in the range of 5.5% to 6.5%.

Q. Based on your analysis and awareness of capital market conditions, investor expectations and recent average allowed ROEs for electric utilities, what do you consider to be a fair and reasonable allowed ROE for Ameren Missouri?

A. 8.50% to 9.25%. 8.5% is likely the lowest ROE that the Commission would consider under its "zone of reasonableness" standard, while 9.25% gives some consideration to the decline in the COE since Ameren Missouri was awarded a 9.53% allowed ROE in Case No. ER-2014-0258.

Q. How did you inform yourself for purposes of determining the best methods and approaches to use to estimate Ameren Missouri's COE?

A. I reviewed Ameren Corp's Board of Directors ("BOD") strategic financing and investment considerations and decisions over the last few years. I also reviewed investment industry research covering Ameren Corp and the utility industry over the last couple of years. After performing this research, I estimated Ameren Missouri's COE by performing a company-specific COE analysis on Ameren Corp as well as a COE analysis on a broad electric utility industry proxy group.

Q. What specific COE models did you use?

A. I used a multi-stage discounted cash flow ("DCF") method, with specific emphasis on consensus analysts' estimated dividends and the modeled growth of dividends. When the

DCF method is applied to dividends as the proxy for cash flow, it is more specifically defined as the dividend discount model ("DDM"). I also applied the Capital Asset Pricing Model ("CAPM") to both Ameren Corp and the proxy group. Finally, I performed simple and logical reasonableness checks to test the reasonableness of my COE estimates. These reasonableness checks recognize the basic characteristics of utility stocks, mainly being that they are perceived as yield/income investments by the investment community. One such reasonableness check is a straight-forward bond-yield-plus-risk-premium method included in the Chartered Financial Analyst ("CFA") Program curriculum.

Q. Can you describe current capital market conditions as it relates to the electric utility industry in general and Ameren Corp specifically before you get into the details of how you specifically estimated Ameren Missouri's COE?

A. Yes. This information should help provide some context as to the current state of utility capital markets and what this implies about the trend in capital markets over approximately the last decade when long-term interest rates entered into a prolonged period of lower levels with a declining trend. At times I focus on the shorter period since 2014 because Ameren Missouri's current authorized ROE of 9.53% was last determined at that time in Case No. ER-2014-0258.

Q. Did you sponsor ROR testimony in Ameren Missouri's 2014 electric rate case?

A. I did. I testified on behalf of the Staff of the Missouri Public Service Commission (Staff).

Q. What was your recommended allowed ROE in that case?

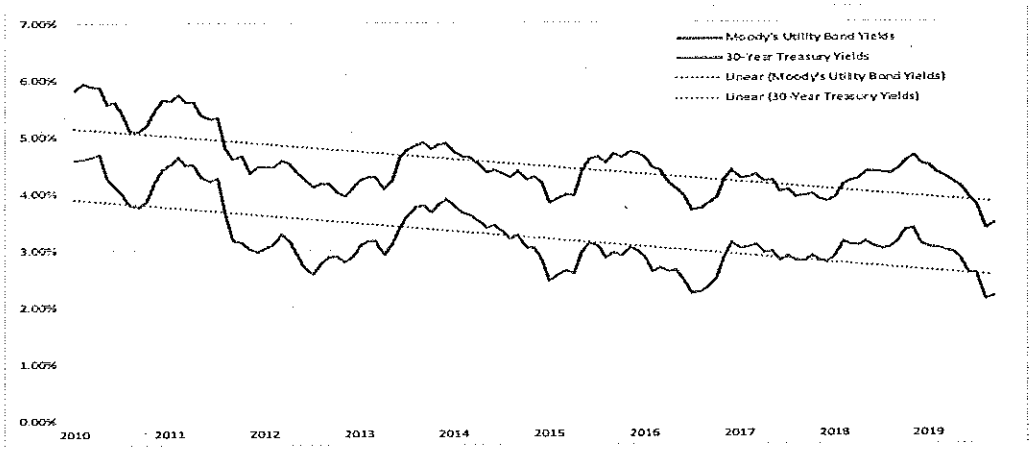
A. It was in the range of 9% to 9.5%, with a point recommendation of 9.25%.

Q. Was your recommended allowed ROE consistent with your COE estimates at the time?

A. No. My COE estimates were lower than allowed ROEs then as well. I compared my COE estimates in the 2012 rate case to those in the 2014 rate case to determine my recommended allowed ROE.

Q. How do current investment grade utility bond yields compare to investment grade utility bond yields over the past decade?

A. They are lower.[3] The below graph shows long-term bond yields since January 1, 2010, which captures the prolonged period of lower long-term interest rates post the recession/financial crisis of 2008/2009. While the early stages of lower long-term interest rates in the first half of this decade were considered by some as potentially anomalous because of the Federal Reserve Bank's ("Fed") quantitative easing ("QE") programs[4] through the end of 2013, since that time, long-term interest rates have continued an overall declining trend.



Average utility long-term bond yields recently hit their lowest levels in over 60-years. Yields for utility bonds were approximately 80 basis points higher when I testified in Ameren Missouri's 2014 rate case compared to current utility bond yields. As recently as the 2018 calendar year, many analysts and economists projected that long-term rates would finally break out of their long-term declining trend.[5] Obviously this didn't happen.

[3] S&P rates Ameren and Ameren Missouri investment grade at BBB+; Moody's rates Ameren and Ameren Missouri investment grade at Baa1.
[4] QE involved three rounds of the Fed's direct intervention in bond markets beyond just lowering the Fed Funds rate. The Fed's QE programs had the express intent of reducing long-term interest rates.
[5] Michael Lapides, et. al, "Why investors should not remain underweight our utility coverage," March 13, 2018, Goldman Sachs. Paul Rizdon, "Electric Utilities Quarterly Review and Sector Outlook," March 12, 2018, KeyBanc.

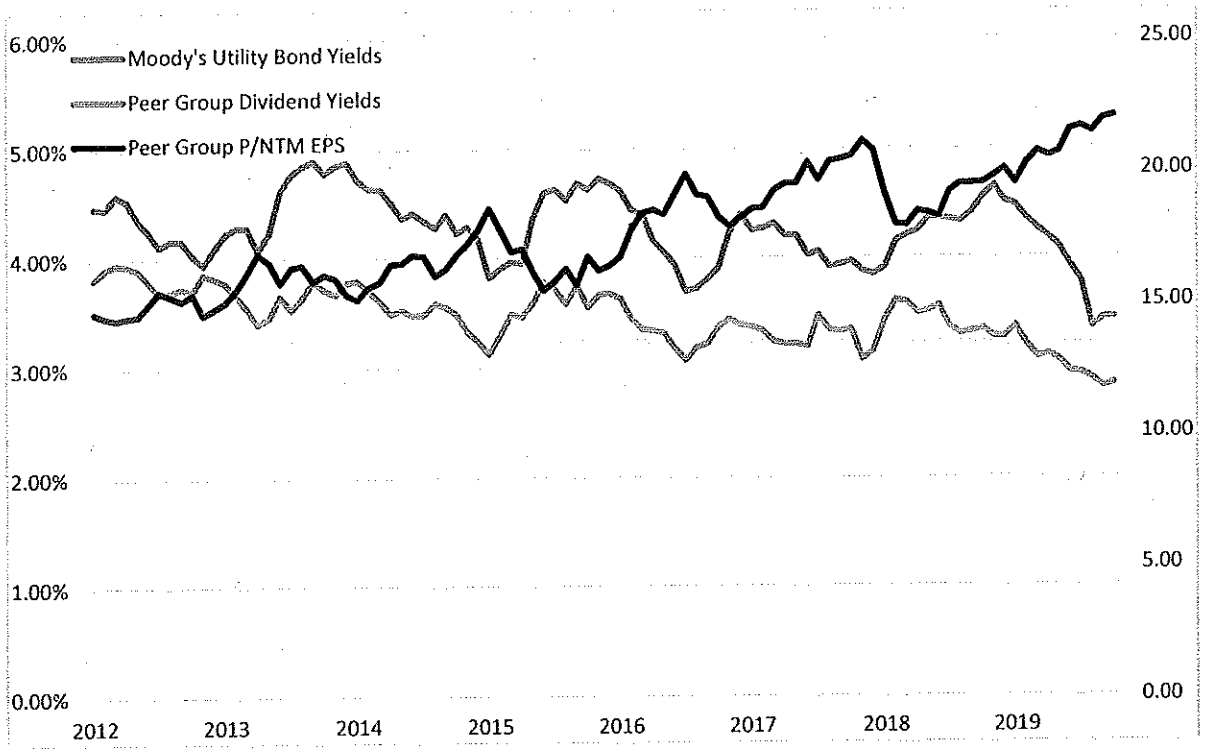
Q. Why is it important to evaluate trends in long-term interest rates when evaluating the utility industry's COE?

A. Utility stocks are a close alternative to bond investments. In fact, the investment community estimates fair prices of utility stocks based on regressions to bond yields.[6] Utility stocks are often referred to as bond-substitutes or pseudo bonds. Therefore, changes in utility stock valuation levels typically have a strong inverse correlation to changes in bond yields, i.e. as bond yields decline, utility stock prices increase.

Q. Are there periods in which this correlation is stronger than others?

A. Yes. Based on my experience of following utility stocks and analyzing historical periods during various long-term interest rate cycles, when long-term rates decline significantly and unexpectedly, utility stock valuation levels increase significantly. This relationship was on full display during late 2014 and early 2015, as well as in the middle of 2016, as can be seen in the chart below:

[6] Julien Dumoulin-Smith, et. al, "4Q 2018 Regulated Utilities Preview: Pullback limited as Contagion Contained," January 22, 2019, Bank of America Merrill Lynch. Eric Beaumont, "Disruption's a Buzz; Initiating Coverage,"July 9, 2018, Barclays. Sophie Karp, "Utilities: Looking for Opportunities at the End of the Cycle," June 4, 2019, KeyBanc.



The black line on the above chart shows utility P/NTM (Price/Next-Twelve-Months) earnings per share (EPS) ratios since January 1, 2012 for a combined group of companies I had selected for purposes of Ameren Missouri's 2012 and 2014 rate cases ("2012/2014 Group")[7] The orange line shows the dividend yields for these companies, and the blue line reflects Moody's average utility bond yields. As the chart shows, utility P/E ratios spiked at the end of 2014 and early 2015 when interest rates declined.

Q. Did you discuss/analyze utility stock price reactions to the decline in interest rates in late 2014 and early 2015 during Ameren Missouri's 2014 rate case?

A. Yes. While I was the Manager of the Financial Analysis Department with Staff, we observed and testified on these pricing changes from November 2014 through March 2015. The increase in utility stock prices was clearly due to a declining cost of capital. Utility dividend yields and bond yields declined both rapidly and dramatically. In fact, because

[7] Alliant Energy (LNT), American Electric Power (AEP), CMS Energy Corporation (CMS), DTE Energy Company (DTE), IDACORP Inc (IDA), OGE Energy Corp. (OGE), Pinnacle West Capital (PNW), PNM Resources Inc. (PNM), Portland General Electric (POG), Southern Company (SO), Wisconsin Energy (WEC), Xcel Energy (XEL)

it was so clearly evident that utility companies' costs of capital (both debt and equity) had declined consistently and significantly, I recommended the Commission authorize Ameren Missouri an ROE of 9.25% in Case No. ER-2014-0258. I made that recommendation because at the time I estimated that Ameren Missouri's COE had declined by at least 50 basis points since the Commission authorized Ameren Missouri an allowed ROE of 9.8% in Case No. ER-2012-0166.

Q. Have there been periods in which this negative correlation broke down?

A. Yes. Utility stock valuation levels increased during much of 2018 while Moody's utility bond yields increased. This relationship was the opposite of the traditional inverse correlation of bond yields and utility stock valuation levels. Most in the investment community attributed the high demand for utility stocks in 2018, despite higher bond yields, to investors' fear of a potential recession with the flattening of the yield curve. As Wolfe Research noted in a January 6, 2019 research report, "2018 was only the 8th year in the last 50 years that utilities outperformed the market in a year when bond[s] yields rose (the others were 1973, 1974, 1975, 1977, 1981, 1990, 2005, 2006, and 2016)."[8]

Q. Have utility stock valuations and bond yields in 2019 provided traditional and consistent signals about utilities' cost of capital?

A. Yes. Utility stock P/E ratios are at all-time highs. Electric utility P/NTM EPS have been around 22x[9] and electric utility dividend yields are at all-time lows, trending below 3%. Utility bond yields are at their lowest levels in over 60 years. Both the utility debt and equity markets clearly indicate that the cost of capital for utilities is the lowest it has experienced in modern times. Although there was some sentiment during 2017 to 2018 that interest rates/bond yields may finally revert back to higher levels, this sentiment has

[8] Steve Fleishman and David Paz, "Top 10 things to watch for 2019," January 6, 2019, Wolfe Research.
[9] Valuation levels of stocks are often evaluated/compared as a price to earnings per share (P/E). Although the numerator (price) is usually consistent across measurements, the denominator (earnings per share) can be measured in a number of ways. Earnings per share (EPS) may be measured on a historical basis or a forward estimate basis. EPS estimates may be for the next twelve months (NTM) or estimates for the next fiscal year or 2 to 3 fiscal years out.

changed. Consequently, investors are pricing utility stocks based on expectations that the cost of capital is going to remain low on a sustained basis.

Q. Can you provide some investor views to corroborate your insights about recent utility stock valuation levels?

A. Yes. KeyBanc stated the following in a June 2019 equity research report regarding its views on utility equity valuation levels:

> **"Our top-down view - sector is expensive, but valuations are not unusual for the late cycle.** Due to utilities stock's 'bond surrogate' characteristics, sector valuations have historically exhibited strong correlation to bond yields. In our analysis, we see a significant directional relationship between U.S. 10-year notes and utilities' forward P/Es. With that said, the group currently trades at a ~19x P/E [based on estimated EPS in 2020], which is 3x higher than the multiple implied by our regression analysis."[10]

If the sector is viewed as expensive by investors, then this means that the cost for utility companies to issue stock is low.

Q. **

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A. **

[10] Paul Rizdon and Sophie Karp, "Utilities: Looking for Opportunities at the End of the Cycle," June 4, 2019, KeyBanc.

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Being that part of Ameren Corp's favorable equity valuation levels is at least in part due to the regulatory certainty provided by SB 564, which ultimately is supported by Ameren Missouri's ratepayers, this lower cost of capital should be reflected in rates in this case.

Q. Did Ameren Corp provide context on the recent P/E ratios for purposes of evaluating the timing of its recently announced equity issuances?

A. Yes. Ameren Corp has been tracking the equity markets for purposes of both its announced dividend reinvestment plan ("DRIP") issuances and its recent block/forward sale equity issuance of approximately $550 million. In the various analysis and discussions Ameren Corp had regarding its decision to issue equity, it recognized the extremely favorable valuation levels right now for utility stocks. **

** As I have already discussed, P/E ratios for utilities have been even more elevated in recent months. Utilities are enjoying a very low cost of capital environment.

Q. Do investors expect allowed ROEs to be reduced because of the current and prolonged low cost of capital environment?

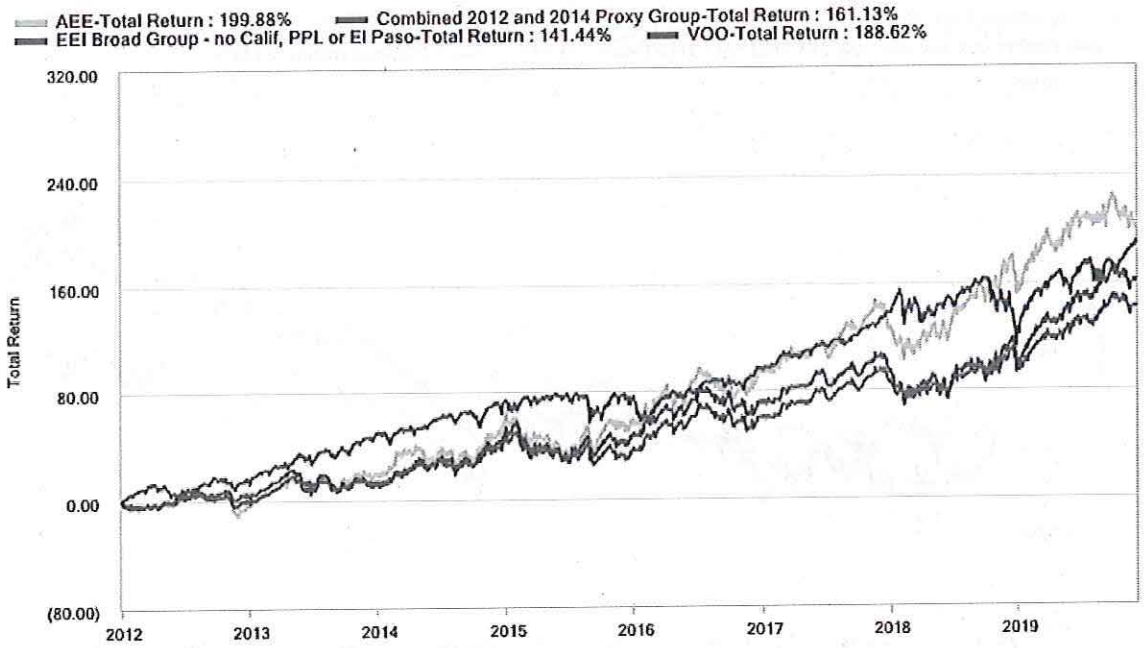
A. Yes. While investors are accustomed to the practice of commissions allowing ROEs higher than the COE, they price in the potential that commissions will not allow the spread

[11] See page 9 of Highly Confidential Schedule DM-D-12.

between allowed ROEs and the COE to widen considerably. This is especially true the longer the U.S. markets experience a "lower for longer" yield environment.[12]

Q. Can you provide information on how Ameren Corp's shareholder returns have compared to its peers and to the S&P 500?

A. Yes. See the below chart for a graphic illustration of Ameren Corp's total return as compared to the S&P 500, EEI's Broad Electric Utility Proxy Group and the 2012/2014 Group.



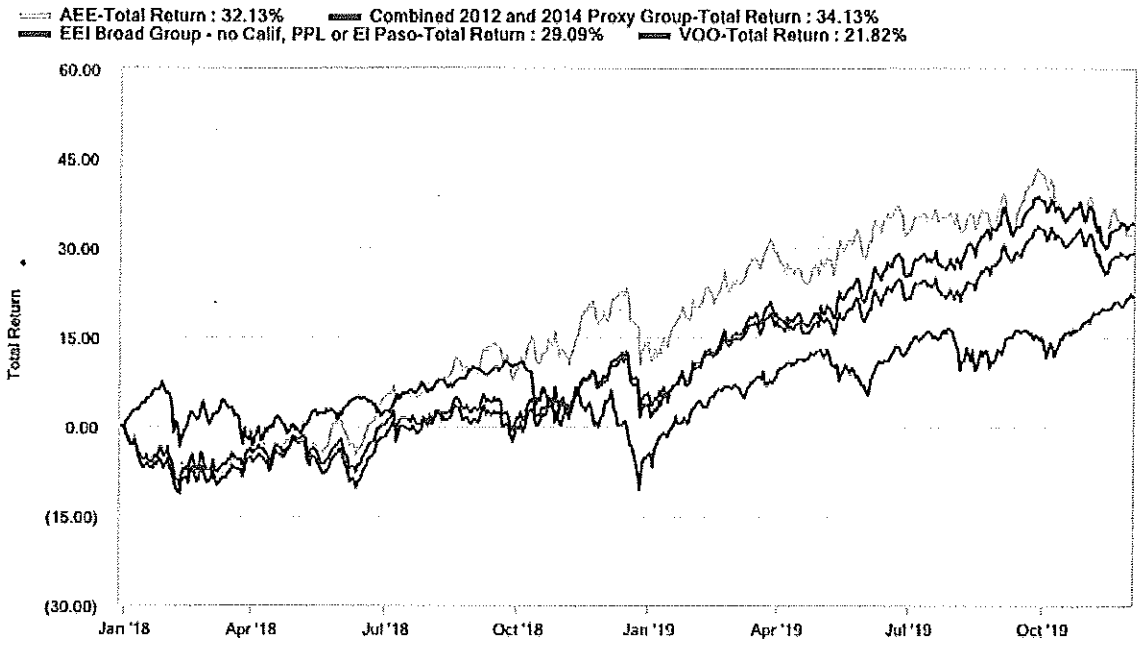
Ameren Corp's (trading ticker is "AEE") total return has not only outperformed that of its peers, but it also has outperformed the S&P 500.[13]. If Ameren Corp was a growth company, not a utility, then this would not be remarkable. However, for Ameren Corp to outperform the S&P 500 over an eight year period speaks to both the decline in perceived

[12] Greg Gordon, et. al, "Regulatory Risk Is Starting To Be More Pronounced. Utilities Have Lagged The S&P 500 By 6.6% Since Late October," November 27, 2019, Evercore ISI. Neil Kalton, Sarah Akers, and Jonathan Reeder, "DDM Analysis Supports Sector Valuation & Quality/Growth Trade," August 19, 2019, Wells Fargo.
[13] VOO" is the trading symbol for Vanguard Fund that tracks the S&P 500.

risk in Ameren Corp as well as the fairly high growth expectations for Ameren Corp due to its anticipated high rate base growth, which investors expect be recovered in rates.

Ameren Corp's total return over this period translates into a compound annual return of 15.44% since 2012. This compares to the compound annual return for the S&P 500 of 14.51% over the same period.

Being that the Missouri Legislature introduced SB564 in early 2018 and passed it by the spring of 2018, it is also relevant to evaluate Ameren Corp's total return since January 1, 2018. The following chart shows this time period:



As can be seen from this chart, Ameren Corp had significantly outperformed some of the 2012/2014 Group through the summer of 2019. However, toward the end of the summer of 2019, these companies' returns caught up to Ameren Corp's. Either way, the compound annual return of Ameren Corp and these companies for this period was very impressive at 15.64% for Ameren Corp and 16.55% for the 2012/2014 Group. This compares to the compound annual return on the S&P 500 of 10.84%. Clearly, utilities have been doing very well over the last couple of years, driven largely by a defensive posture as

well as a continued low long-term interest rate environment, which results in a search for yield.

Q. Is it possible that higher utility returns have also been driven by higher growth expectations for the utility industry?

A. I think it is logical that some of the expansion of Ameren Corp's P/E ratio over the last couple of years can be credited to this attribute, but it cannot be explained by industry-wide long-term growth rates.

Q. What is your basis for this statement?

A. A common financial metric analyzed to evaluate the valuation levels of stocks is the price-to-earnings to long-term growth ratio ("PEG"). This ratio divides P/E ratio by projected long-term growth rates (P/E ÷ LTG). An investor would be interested in this ratio because it informs him/her as to whether increased growth expectations are causing an expansion in the P/E ratio or if it is due to a bidding up of stock prices due to another factor, such as a decline in the COE. PEG ratios have been increasing since 2014, which means that the P/E ratio has been expanding more rapidly than expected growth. Therefore, the COE has been declining, making expected cash flows from utilities worth more than they were when the COE was higher. The PEG ratio was 3.19x when I testified in the 2014 UE rate case. It is 4.61x for the three month period before I filed direct testimony in this case. If the PEG ratio had stayed consistent with its level in 2014, then it may be appropriate to conclude that the increase in the P/E ratio was due to higher growth expectations. However, a closer review of the implied growth rates from the PEG ratios in 2014 shows that expected long-term growth rates have not changed. Consequently, most of the expansion in the P/E ratio for utilities is evidence of the decline in the costs of capital since 2014.

Q. Is there any additional information that shows the cost of capital for utilities is much lower now compared to 2014?

A. Yes. Betas, which is an adjustment factor used to estimate required returns in the CAPM, have declined considerably for the utility industry since 2014. Betas have also been in

steady decline for Ameren Corp specifically and for the utility industry generally. Betas for my proxy group in the 2014 rate case were generally in the 0.70 to 0.75 range for companies with a higher regulated business risk concentration. Ameren Corp had a 0.75 beta in 2014. Betas for my proxy groups in this case are generally in the 0.55 to 0.60 range with Ameren Corp's beta being around 0.55. This 0.10 to 0.20 decline in beta implies reductions to the utility industry's risk premium of 60 to 120 basis points premised off an approximate 6% equity risk premium.

Assuming the risk-free rates remained the same, then this in and of itself shows that utilities' COE has decreased by at least 60 to 120 basis points since 2014. However, considering that risk-free rates have also declined since 2014, this indicates an even greater decrease in the utility industry's COE.

Q. Are you aware of any information specific to Ameren Missouri that illustrates just how low its cost of capital is in the current capital market environment?

A. Yes. Ameren Missouri just issued a 30-year bond with a coupon rate of 3.25%. This is the lowest coupon rate I have ever seen on a 30-year utility bond in the 20-year period in which I have been sponsoring ROR testimony. In order to determine the last time Ameren Missouri was able to issue a bond with such a low coupon rate, I searched the Commission's archives. According to a 1960 UE PSC Annual Report, the last time UE was able to issue a 30-year bond at a cost consistent with its recent issuance was in 1952.

Q. How much lower are the yields on Ameren Missouri's bonds today compared to 2014 when you recommended the Commission allow Ameren Missouri a 9% to 9.5% allowed ROE?

A. Approximately 1% lower. In 2014 Ameren Missouri's bonds were trading at a yield-to-maturity ("YTM") of around 4.25%. Ameren Missouri's 8.45% long-term bonds (maturity in 2039) traded at an average YTM of around 4.14% and Ameren Missouri's 5.5% long-term bonds (maturity in 2034) traded at an average YTM of around 4.43%. At the time I was writing this testimony, Ameren Missouri's current long-term (maturities of close to 30 years) are trading at a YTM in the range of 3.13% to 3.20%.

COST OF EQUITY METHODS

Q. Now that you have provided some context on changes in utility capital market conditions generally and Ameren Corp and Ameren Missouri specifically, can you discuss how you decided to approach your COE estimate for Ameren Missouri in this case?

A. Yes. I performed a company-specific COE analysis as well as a proxy group COE analysis. I used a multi-stage DCF approach and a CAPM. I then tested the reasonableness of my estimates by using some simple, straightforward sanity checks, such as the straight-forward bond-yield-plus-risk-premium method discussed in the CFA curriculum.

Q. How have you informed yourself as to reasonable and rational inputs for your COE approaches?

A. Being that the objective of a ROR witness is to emulate investors' approaches to analyzing and making investment recommendations as it relates to investing in utility stocks, I have made it a priority to review and analyze how equity research analysts determine a utility stock price estimate in practice. This has allowed me to test the theory of cost of capital estimation in utility ROR testimony as it compares to how utility stocks are actually valued. I have discovered investment analysts do use multi-stage DCF approaches to estimate fundamental values of utility stocks, but they do not assume dividends will grow in perpetuity at the same rate as a projected long-term compound annual growth rate ("CAGR") in EPS. They assume rational perpetual growth rates in the 2.5% to 3.5% range when discounting dividends. Finally and most relevant to the task at hand, they estimate utilities' COE to be in the 5% to 6% range.[14]

Q. What equity research firms cover Ameren Corp's stock?

A. According to Ameren Corp's website, the following firms cover its stock: Argus Research Corporation, Bank of American Merrill Lynch ("BAML"), Barclays, Evercore ISI, Wells

[14] *Id.*

Fargo, UBS, KeyBanc Capital Markets ("KeyBanc"), Morgan Stanley, SunTrust, Goldman Sachs ("GS"), Barclays, Wolfe Research ("Wolfe"), Morningstar Equity Research and Value Line.

Q. Why is it important to analyze this information to determine a fair and reasonable allowed ROE for Ameren Missouri?

A. Analyzing this information is important because these professional investment analysts are the very individuals that underlie various consensus estimates widely considered by investors. ROR witnesses recognize the influence investment analysts have on utility stock prices by the very fact that they use consensus EPS forecasts for purposes of estimating the COE.

Q. Did you review any of these firms' research for purposes of performing your cost of equity analysis and preparing your testimony?

A. Yes. I mainly relied on reports Ameren Missouri made available for me to review in response to OPC Data Request Nos. 3001 and 3037. However, over my career I have established relationships with some firms/analysts who have distributed this material to me directly through their email distribution lists. These relationships were borne from my role as a regulator in which many of these analysts seek information related to Missouri's general and specific regulatory issues. I have also interacted with these analysts through my participation in organizations, such as the Society of Utility and Regulatory Analysts ("SURFA").

Q. How did you approach the multi-stage DCF/DDM analysis you performed on Ameren Corp?

A. Schedule 2 attached to my testimony shows the primary logic and assumptions I used in my multi-stage approach. For the first stage, I used consensus analysts' estimates for annual dividend per share ("DPS") through 2022, which is the longest period for which this information is available for Ameren Corp. Ameren Corp's consensus dividend payout ratio is projected to be 55.75% in 2022. Ameren Corp's current guidance on its dividend

payout ratio is 55% to 70%. Being that Ameren Corp plans to be in a high capital expenditure cycle through at least 2028, I assumed Ameren Corp would retain more capital and therefore keep its dividend payout ratio at 55% in order to target an estimated CAGR in EPS of 5.0% through the same year. Therefore, for the second stage the estimated dividends were based on 55% of estimated EPS for each year through 2028. The third stage allowed for a transition to a growth rate consistent with historical industry averages, which is in the 2% to 3% range.[15] Consistent with the lower growth rate, I assumed Ameren Corp would then have a higher dividend payout ratio of 70%, which is also consistent with historical industry averages.

Q. Can you provide some additional explanation as to the rationale underlying your assumed growth rates for Ameren Corp?

A. Yes. Through recent investment communications and actions, Ameren Corp has signaled that it plans to increase its dividend by about 4% annually even though it has provided long-term CAGR in EPS guidance of 6% to 8%. Ameren Corp has also communicated to investors that it plans to increase rate base at a CAGR of 8% through 2023 with the hope of continuing this higher growth through 2028 if it receives extensions to favorable ratemaking treatment it receives for Ameren Illinois and Ameren Missouri. If they are successful in this effort and the investment is recovered, then a 5% CAGR for this period may be achievable with DPS growing at the same rate if Ameren Corp maintains a constant payout ratio. But these ramped up investment programs are finite and will eventually return to a maintenance level of capital investment, similar to how it treated investment in Ameren Missouri over the last ten years. Once the Company achieves this steady state, then it should gravitate toward a dividend payout ratio that ensures it will have sufficient internal equity capital to fund its investments. Using the maintenance level of capital expenditures Ameren Corp made in Ameren Missouri as a proxy, a targeted dividend payout ratio at a minimum of 70%, would be consistent with this level of investment.

[15] August 2014 JP Morgan Study Relied on By Ameren's Board of Directors in its 2017 Dividend Policy Considerations Whitepaper (see Highly Confidential Schedule DM-D-13, p. 6). Staff Study on Long-Term Growth of Value Line Central Utilities. Moody's Public Utility Index.

Q. What does industry data suggest is a sustainable growth rate for electric utility companies?

A. I reviewed past actual historical industry growth rate data from the Moody's electric utility index,[16] a sample group of electric utility companies in which data was available from Value Line,[17] and commentary/analysis available from institutional investors/analysts.[18] This information supports a perpetual growth rate in the range of 2% to 3%. A perpetual growth rate within this range is also consistent with the "sustainable growth model," which estimates EPS growth by multiplying an average long-term industry retention rate by an expected book ROE. Assuming the utility industry reverts to its long-term earnings retention rate of approximately 30% and the allowed ROEs are eventually lowered to compress the spread between the COE and the allowed ROE, this would support a 2.7% perpetual growth rate (9% allowed ROE multiplied by 30%). Both Wells Fargo and Evercore ISI, equity research firms that follow Ameren Corp, assume scenarios where allowed ROEs eventually decline to between 9% to 9.25% as we remain in this prolonged period of low costs of capital.[19]

Q. **

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Q. How does this compare to perpetual growth rates used by equity analysts to estimate fair prices for electric utility stocks?

[16] Staff Cost of Service Report, Case No. ER-2011-0028, p. 18.
[17] *Id.*
[18] Discussed throughout this testimony.
[19] Greg Gordon, et. al, "Regulatory Risk Is Starting To Be More Pronounced. Utilities Have Lagged The S&P 500 By 6.6% Since Late October," November 27, 2019, Evercore ISI (HC Schedule DM-D-14). Neil Kalton, Sarah Akers, and Jonathan Reeder, "DDM Analysis Supports Sector Valuation & Quality/Growth Trade," August 19, 2019, Wells Fargo (HC Schedule DM-D-15).

A. This is fairly consistent with the perpetual growth rates used for purposes of estimating electric utility stock prices. For example, Evercore ISI uses a perpetual growth rate of 2.5% in its 3-stage DDM analyses of electric utility stocks.[20] Wells Fargo uses an average perpetual growth rate of around 3%.[21] In the past when Goldman Sachs provided visibility to its DDM analysis, it used 2.5% as a perpetual growth rate.[22]

Q. How do these growth rates compare to how Ameren Missouri's earnings and rate base grew over the past ten years when Ameren Corp was limiting its investment in Ameren Missouri to maintain safe and reliable service?

A. Based on Ameren Missouri's estimated rate base through the true-up period in this case, Ameren Missouri's CAGR in its rate base has been in the range of 2.2% to 3% since the 2010 to 2011 time period. This further supports a rational expected terminal growth rate when the utility industry is simply maintaining its system to ensure safe and reliable service.

Q. What cost of equity did you estimate for Ameren Corp using the multi-stage approach?

A. Using Ameren Corp's most recent 3-month average stock price of recent share prices of approximately $77 and discounting prospective dividends by reasonable growth rates in the intermediate future as well as perpetually, the implied COE for Ameren Corp is approximately 6.5% to 6.8% (see Schedule DM-D-1). Given that this COE estimate assumes Ameren Corp can achieve 5% to 6% CAGR in EPS over approximately the next 10 years, I consider this COE estimate to be on the high side. Therefore, this COE estimate will be the basis for the upper end of my estimated COE range.

[20] *Id.*
[21] *Id.*
[22] Staff Cost of Service Report, Case No. ER-2010-0036, p. 32.

PROXY GROUP COST OF EQUITY

Q. Should you compare your estimate of Ameren Corp's company-specific COE to the COE of a proxy group of other regulated electric utilities?

A. Yes. Investors frequently evaluate the attractiveness of a utility company's share price by comparing it to the average of peer proxy group, whether it's based on a broader utility index or a custom proxy group.

Q. How did you approach selecting a custom proxy group for purposes of comparing Ameren Corp's COE versus its peers?

A. I decided to analyze a broad proxy group of utilities classified as "regulated" and "mostly regulated" utilities by the Edison Electric Institute ("EEI").[23] Although I estimated a COE based on this broad electric proxy group, I also reviewed the companies classified as "regulated," but even these companies may have non-regulated operations that contribute to volatility to earnings and/or cash flows. Therefore, I reviewed the various business segments of each of these companies to determine which generally have less than 5% of their operations exposed to competitive markets (14 companies). After determining this subset, I further refined the subset of companies to select a proxy group that could be considered pure-play multi-utilities (regulated gas and electric, but predominately electric-7 companies). My final subset of this group was limited to companies that can be defined as truly pure-play vertically integrated electric utilities (5 companies). I also reviewed the 2012/2014 Group, which also was a subset of the EEI group.

Q. Did you also perform a multi-stage DCF analyses on these companies?

A. Yes, but my analysis was more generic because of my lack of familiarity of intimate details of each of these companies. However, I applied the same principles as I did when estimating Ameren Corp's COE, which was to consider the growth cycle each utility was in and whether this would impact near and intermediate term dividend growth rates. For

[23] EEI classifies companies as "Regulated" if at least 80% of their assets are dedicated to regulated utility operations.

the terminal stage, I assumed all companies would have the same dividend payout ratios and growth rates.

My industry COE estimate based on application of the multi-stage DCF to the proxy group shows a COE in the 6.5% to 6.75%range. However, when I filter the results to ensure that the COE estimates are limited to purely regulated utilities or at least predominately regulated utilities, the COE estimates are consistently around 6.5%. It should also be noted that my company-specific estimate of Ameren Corp's COE based on the more generic methodology was also around 6.5% (see Schedule DM-D-3-4).

Q. How is the multi-stage DCF analysis you performed in this case different than what you performed when you sponsored testimony on behalf of Staff?

A. While I was with Staff, the multi-stage DCF I performed on my proxy group was more generic. I assumed that dividends would grow at the same rate as EPS during the first five years. However, typically, as with Ameren Corp's current situation, DPS won't be increased at the same rate as EPS during periods of higher capital expenditures. The growth in DPS will usually lag that of EPS. After the increased capital expenditure cycle ends, then DPS will usually grow at a rate higher than EPS. During this time period, companies will adjust their dividend payout ratios to consider their stage in the building cycle. After the building cycle returns to a maintenance level of capital expenditures, then the payout ratio will increase until the company reaches its sustainable/constant state. The multi-stage DCF I performed in this case takes this reality into consideration. After a build-cycle, especially with no expected growth in usage, eventually the growth rate would revert back to no higher than historical averages. Because utilities earn a return on the book value of their investment, it is reasonable to use the long-term electric utility industry average dividend payout ratio (around 70%) to determine the potential perpetual growth rate by multiplying the retention ratio by a book ROE. My second stage growth rate was a generic 5-year transition period until the model reached the terminal stage.

The multi-stage DCF I sponsor in this case for the proxy groups still has 3 stages, but the first stage discounts discrete consensus annual DPS estimates for as many years as

they are available for each company. At the point in which no discrete DPS estimates are available, I apply an estimated dividend payout ratio to each company's projected EPS in order to estimate the dividend payment. Because the projected EPS is based on analysts' estimates for the first five years and then transitions to a sustainable growth rate by year 10, this approach captures the influence of analysts' estimates on utility stock prices, while still discounting the appropriate metric, DPS. This method also corrects for the fact that the dividend payout ratio should change until the company reaches a sustainable state in which it manages its dividend payout ratio to ensure it is not required to issue new equity, which would reduce the value of existing shares.

Q. If you had performed your multi-stage similar to how you did so when with Staff, what COE would you have estimated?

A. My estimate would have been about 25 basis points lower than the approach I used in this case. The higher COE estimate using my current approach is mainly due to the fact that adjusting the dividend payout ratio for a sustainable stage recognizes that dividends will increase faster than EPS for the transition period. However, in order to ensure that earnings, dividends and book value grow in equilibrium in the terminal stage, this is consistent with the assumptions of the constant-growth DCF and therefore should be used. Regardless, because it is clear that the COE is much lower than allowed ROEs, I don't consider it critical to narrow down the COE to a precise estimate. In my opinion, it is simply fair and reasonable to lower Ameren Missouri's allowed ROE due to the significant amount of evidence that illustrates the cost of capital to utilities has continued its general downward trend through 2019.

Q. How did this COE estimate compare to your COE estimate in Ameren Missouri's 2014 electric rate case using similar companies and assumptions?

A. My current COE estimate using the same approach, but with updated stock prices and updated 5-year growth rates, indicates a COE that is approximately 100 basis points (1.0%) lower than at the time I performed my COE analysis for UE's 2014 rate case. [24]

Q. Are there any other models that can be used to test your conclusions from your multi-stage DCF/DDM analysis on Ameren Corp and the proxy groups?

A. Yes. The CAPM shows the specific impact of lower interest rates on the cost of capital. Although COE estimates can be manipulated with the CAPM by using unreasonable risk premium estimates, fortunately there are a variety of authoritative sources that provide equity risk premium estimates that can form the basis for a consensus view on reasonable risk premium based on current capital market conditions. In fact, Ameren Corp's own financial advisors provide equity risk premium estimates that can be used as a test of reasonableness because these equity risk premiums are used directly by Ameren Corp for purposes of making financial management decisions.

Q. What is the underlying theory that supports the use of the CAPM to estimate the cost of equity for utilities?

A. The CAPM is based on capital market theory in which it is recognized that although the total risk of a company and/or industry consists of market ("systematic") risk and asset/business-specific ("unsystematic") risk, investors are only compensated for systematic risk because holding a diversified portfolio allows for the investor to avoid unsystematic risk. Systematic risks are unanticipated events in the economy, such as economic growth, changes in interest rates, demographic changes, etc., that affect almost all assets to some degree. The required risk premium for incurring the market risk as it relates to the investment/portfolio is determined by adjusting the market risk premium by the beta of the stock or portfolio. The adjusted risk premium is then added to a risk-free rate to determine the cost of equity. The CAPM is typically expressed in equation form as follows:

[24] Staff Cost of Service Report, Case No. ER-2014-0258, Appendix 2, Schedule 12-1.

$$K_e = Rf + \beta\,(RP_m)$$

Where:
K_e = the cost of equity for a security;
Rf = the risk-free rate;
β = beta; and
RP_m = equity risk premium.

Although the equity risk premium is the main variable that typically introduces bias/error in cost of common equity estimates, fortunately there are many sources that provide rational and reasonable estimates of expected/required market returns for purposes of determining an industry/company-specific cost of equity estimate. Many of these market risk premium estimates are conveniently summarized and explained by Duff & Phelps (D&P) in their 2019 Valuation Handbook. According to Exhibit 3.28 in the 2019 D&P Valuation Handbook, the equity risk premiums are generally in the range of 5% to 7%. **

** Although each of these equity risk premium estimates use both ex-post and ex-ante approaches, as well as conditional and unconditional risk-free rates, any estimate outside these levels would not be considered consistent with the "consensus." One of the primary drivers of using a higher equity risk premium versus a lower equity risk premium is due to whether this equity risk premium is applied to a normalized risk-free rate or a current risk-free rate (higher equity risk premiums applied to lower current low risk-free rates). Expected market returns for the S&P 500 are as low as in the 5% to 6% range[26], with no rational institutional investor market return expectations greater than 8% to 9%. An equity risk premium of approximately 6% is reasonable for purposes of the CAPM.

[25] OPC asked for a more legible copy of the table in which this equity risk premium was specified. The Company asserts that it cannot locate a more legible copy of this document that was presented at Ameren's Board of Directors Meeting on August 8, 2019. I note that Ameren regularly relies on JP Morgan financial and capital market information for purposes of making strategic financing and capital management decisions. Being that the equity risk premium is the most important input in estimating the COE using the CAPM, I would expect the Company to understand the urgency of ensuring the Commission has an accurate and reliable record for this case.
[26] https://www.philadelphiafed.org/research-and-data/real-time-center/survey-of-professional-forecasters/2019/survq119

Q. Based on your CAPM analysis, what it the estimated COE for Ameren Corp and the proxy groups?

A. Ameren Corp's COE is between 5.3% and 6.0%. The proxy group estimates are in the range of 5.3% to 6.1%, with the pure-play subsets of the broad proxy group indicating a COE toward the lower end because of their low betas (see Schedules DM-D-4 through DM-D-7).

Q. Is there any information from your CAPM analysis that should be highlighted for purposes of providing some context on the current COE for utilities?

A. Yes. Because regulated utilities are insulated from macroeconomic factors that have a much larger impact on the overall market, their betas (risk-adjusted risk premium) have consistently been the lowest of all industries over various economic/business cycles. Although utility betas are consistently lower than almost all other sectors, they can vary within the sector over time. In recent years, utility betas have been declining considerably. My analysis of utility betas shows they are now in the 0.5 range compared to around 0.7 just a couple of years ago. I rely on my past cost of capital analyses in utility rate cases over the last several years for this conclusion. A 0.5 beta implies that investors would require half the risk premium they require for investing in the market. Not only have betas declined, but risk-free rates have declined. Being that long-term risk-free rates have declined due to general market conditions rather than a concerted effort by the Fed to reduce long-term rates through quantitative easing programs, these conditions are not anomalous, as some have suggested in years past.

Q. Are there any other reasonableness tests to show your COE estimates are rational and logical?

A. Yes. First, as I indicated earlier in my testimony, a simple rule of thumb the Chartered Financial Analyst ("CFA") suggests in its curriculum to estimate the COE is to add 3% to 4% risk premium to a company's bond yield to provide a fairly simple, but objective cost of equity. Being that the investment community views utility stocks as bond surrogates/substitutes, it is logical and reasonable to not add a risk premium any higher

than 3% to the bond. Simply adding a 3% risk premium to the recent 3.25% yields on UE's long-term bonds implies a COE of around 6.25%.

Second, one just needs to think about the basic characteristics of utility stocks, which is that investors view them as yield investments. **

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The Bernstein analysis showed that between 1974 to 2010, approximately 68% of returns from utility stocks were from the income received through dividends, with the remaining from capital gains. .[27] Even if we assumed that Ameren Corp had sustainable investment opportunities to allow it to generate 50% of returns from capital gains, this would translated into only a 5.4% required return based on Ameren Corp's current dividend yield of 2.7%. However, this would mean that there would be a fundamental shift in the composition of expected utility returns, which historically has been more heavily weighted to returns being achieved through income. **

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Q. Is there any other way to test the reasonableness of a COE estimate of around 6%?

A. Yes. Using rational inputs, the constant-growth DCF (i.e. the Gordon Growth DDM) can provide fairly straight-forward and logical COE estimates. Dividend growth for the utility industry has not been very high over long periods of time. As I have already discussed, most investors use a very rational and logical terminal growth rate of close to 3% for purposes of the perpetual growth stage. This is based on long-term industry averages and economic logic. Consequently, a COE estimate much higher than Ameren Corp's dividend yield of 2.7% plus a 3% to 4% dividend growth rate is not logical based on the current

[27] Hugh Wynne, Francois D. Broquin, and Saurabh Singh, "U.S. Utilities: Our Dividend Growth Model Identified Utilities Poised to Pay More," May 20, 2011, Bernstein Research.
[28] Ameren Corporation Finance Committee, 4-37, October 13, 2011.

economic environment and industry fundamentals. Combining the dividend yield with a 3% to 4% growth rate implies a COE of 5.7% to 6.7%. However, as indicated above, this implies that Ameren Corp's investors expect a greater portion of their return to be in the form of capital gains rather than the dividend yield, which would be a departure from utility stock characteristics.

Q. Based on your analysis and understanding of the utility industry's current COE, investor expectations on allowed ROEs and the COE environment that existed when Ameren Missouri was authorized a 9.53% ROE, what would be a fair and reasonable allowed ROE in this case?

A. Based solely on the utility industry capital market evidence, a reduction to Ameren Missouri's allowed ROE to 8.5% to 9.0% would be justified. However, as I will explain in further detail in the following sections of my testimony, if Ameren Missouri's authorized capital structure is fairly set to recognize its debt capacity, then I would recommend the Commission authorize an ROE of 9% to 9.25%.

CAPITAL STRUCTURE

Q. Will you briefly explain capital structure?

A. Capital structure represents how a company's assets are financed. The typical capital structure consist of common equity, long-term debt, and short-term debt. Some utilities' capital structures, including Ameren Corp and Ameren Missouri, also include a small portion of preferred stock. Although short-term debt is a typical component of a utility company's capital structure, if it is fully supporting CWIP, then it typically is excluded from the rate making capital structure and reflected in the allowance for funds used during construction (AFUDC) rate.

Q. What capital structure do you recommend for purposes of setting Ameren Missouri's rate of return (ROR)?

A. I recommend a capital structure that consists of approximately 48% common equity, 1% preferred stock and 51% long-term debt. While not exactly the same as Ameren Corp's consolidated capital structure as of June 30, 2019, this is in line with the capital structure ratios Ameren Corp appears to be targeting for its consolidated operations over the next couple of years.[29]

Q. What is the basis for this capital structure recommendation?

A. My recommended capital structure is consistent with Ameren Corp's consolidated capital structure, net of short-term debt. This capital structure best represents the amount of debt capacity Ameren Corp considers reasonable and appropriate for its regulated utility assets, including Ameren Missouri. Use of this capital structure ensures that Ameren Missouri receives credit for the additional debt capacity it has provided to Ameren Corp for historical investments as well as under its current lower business risk profile with its election of PISA. It is clear that Ameren Corp's strategy for managing its regulated utility subsidiary capital structures is primarily for purposes of ratemaking. Ameren Corp has targeted a common equity ratio of around 52% for Ameren Missouri for at least the past ten years and plans to continue targeting this common equity ratio for ratemaking for at least the next five years. This constant targeting of a 52% common equity ratio regardless of changes in business risk and/or economic conditions, contradicts one of the primary purposes of managing a company's capital structure; to achieve the lowest reasonable cost without jeopardizing financial stability. As I will discuss later in my testimony, Ameren Missouri's lower business risk has afforded Ameren Corp the ability to carry more debt in its capital structure, but instead of sharing the lower cost of this additional debt capacity with Ameren Missouri and its customers, Ameren Corp is using this additional debt capacity at the holding company level in order to finance other activities and leverage its returns.

[29] Ameren actually targets a common equity ratio of approximately 45%, but this includes short-term debt that Ameren has been using as a bridge to finance its construction projects (construction work in progress). Therefore, after removing the short-term debt, Ameren's consolidated capital structure typically contains around 48% equity and should contain this amount based on financial projections.

Q. What is the basis for your conclusion that Ameren Corp targets common equity ratios for ratemaking purposes?

A. My conclusion is based on Ameren Corp's past financial management of its subsidiaries and Ameren Corp's projected equity ratios for the next few years. Ameren Corp has been authorized a 56.1% equity ratio at Ameren Transmission Company of Illinois ("ATXI"), a 50% adjusted equity ratio at Ameren Illinois and an approximate 52% equity ratio at Ameren Missouri. Page 31 of HC Schedule DM-D-7 attached to this testimony shows Ameren Corp's projected equity ratios for its subsidiaries, which are exactly those that have been authorized by their respective regulatory authorities. In other words, Ameren Missouri's equity balance does not represent the most efficient amount for Ameren Missouri. Its equity balance is based on Ameren Corp's hope of what it can get for purposes of setting Ameren Missouri's revenue requirement.

Q. What capital structure has Ameren Corp managed for purposes of taking advantage of debt capacity afforded by Ameren Corp's low-risk regulated utility subsidiaries?

A. They have managed Ameren Corp's consolidated capital structure for purposes of taking advantage of the regulated utilities' debt capacity. Ameren Corp has been issuing an increasing amount of holding company debt for purposes of financing investments in its regulated utility subsidiaries. This is the capital structure that Ameren Corp primarily concentrates on for purposes of achieving the lowest cost of capital for Ameren Corp, not for Ameren Missouri. Ameren Corp has a conflict of interest when managing Ameren Missouri's capital structure, because while its business risk can support more leverage, Ameren Corp does not want to reduce its equity ratio because this would lower Ameren Missouri's revenue requirement and earnings to its holding company.

Q. Can you provide other evidence that supports your position that Ameren Missouri should have a lower common equity ratio than the 52% it was authorized in previous rate cases?

A. Yes, Ameren Missouri's business risk has declined due to the passage of SB 564, passed by the Missouri Legislature in 2018, and Ameren Missouri's decision to elect plant-in-

service accounting (PISA). A fundamental consideration in determining how much financial risk, i.e. additional debt, an asset/business can support is how much business risk is inherent in that asset/business. Consequently, because Ameren Missouri's business risk has declined, it can now carry more leverage, i.e. debt, in its capital structure. Despite operating under less risk, Ameren Corp has not adjusted Ameren Missouri's targeted capital structure to reflect the lower cost of capital that Ameren Missouri's customers support through the certainty of funding of PISA investments. Based on Ameren Corp's continued management of Ameren Missouri's capital structure to a 52% common equity ratio, it is evident the Ameren Corp intends to retain the financial benefits enabled by SB 564, instead of recognizing this reduced cost of capital in the rates customers have to pay. Therefore, the Commission needs to recognize this lower cost of capital afforded to Ameren Missouri by lowering Ameren Missouri's authorized common equity ratio to that which is consistent with Ameren Corp's on a consolidated basis.

Q. What corroborating information supports your position that Ameren Missouri's business risk is lower due to its election of PISA?

A. First, the very fact that Ameren Corp has committed to investing significant amounts of capital in Ameren Missouri's system shows that Ameren Corp has confidence that it will receive timely recovery of and on its PISA investments.

Second, on March 29, 2019, Moody's recently lowered Ameren Corp's Funds from Operations ("FFO")/debt[30] threshold to 17% from 19%, which means that Ameren Corp can incur more leverage as it compares to cash flow and still maintain its current credit rating of Baa1 (functional equivalent of S&P's BBB+). One of the primary reasons Moody's cited for allowing Ameren Corp to have a lower FFO/debt threshold (i.e. use of more leverage) was "improved regulatory construct in Missouri facilitating meaningful rate

[30] FFO/Debt (as generally referenced by most evaluating credit worthiness) is the credit metric that receives the most weight by both Standard & Poor's (S&P) and Moody's. This metric provides insight as to how much sustainable cash flow the operations generate as it relates to the amount of fixed obligations, which includes traditional debt, but also other obligations such as capital leases). The higher the ratio, the less financial risk implied by the ratio. Moody's more specifically defines FFO/debt as "Cash flow from Operations – Pre Working Capital to Debt"). However, I will generally refer to each as FFO/debt.

base growth and reducing regulatory lag [PISA]."[31] Ameren Corp's management indicated the following: **

**This additional debt capacity should be reflected in Ameren Missouri's authorized capital structure because Ameren Missouri's customers will be providing the cash flows that make this lower business risk possible. Considering the intended sizeable increase in Ameren Missouri's rate base over the next several years, it is just and reasonable to ensure ratepayers are charged for the most economically efficient capital structure for Ameren Missouri, not Ameren Corp. Recognizing the reduced cost of capital through Ameren Corp's ability to utilize more debt in its capital structure, allows Ameren Missouri's ratepayers to receive credit for Ameren Corp's reduced risk profile afforded by the legislative opportunity to receive a return on and of plant placed in service between rate cases.

Third, as I discussed regarding Ameren Corp's stock price performance since January 1, 2018, Ameren Corp is now viewed as a premium utility by investors because of the anticipated growth in its investment and the anticipated recovery of a return on and return of this investment. This is illustrated by the decline in Ameren Corp's beta and the fact that its price-to-earnings (P/E) ratios have been trading at a premium to its peers. These market signals are clear indications that Ameren Missouri has both a reduced business risk profile through legislative support for increased investment as well as higher expected growth in earnings and eventually dividends as a result of this growth in investment.

Q. Did you sponsor ROR/capital structure testimony in past Ameren Missouri electric rate cases?

A. Yes. I have sponsored ROR/capital structure testimony in all of Ameren Missouri's electric rate cases since 2010.

[31] "Update to Credit Analysis," Moody's Investor Service, March 29, 2019, p. 2 (Schedule DM-D-18).
[32] Ameren Corp's Finance Committee Meeting, February 7, 2019, p. 24

Q. Did you recommend imputing a common equity ratio for Ameren Missouri based on Ameren Corp's consolidated capital structure in any of those past cases?

A. Yes, I made the same recommendation in Ameren Missouri's last rate case in 2016, Case No. ER-2016-0179. I previously used Ameren Missouri's capital structure for developing my ROR recommendation, due to the fact Ameren Corp and Ameren Missouri had consistent capital structures. In the 2016 rate case, I noticed that Ameren Corp's consolidated capital structure showed more leverage than Ameren Missouri's capital structure. I then recommended the Commission use Ameren Corp's consolidated capital structure and capital costs to set Ameren Missouri's allowed ROR or use a common equity ratio for Ameren Missouri's ratemaking capital structure of no more than 50.51%, which was based on Ameren Corp's common equity ratio as of March 31, 2016.

Q. Why has Ameren Corp's consolidated capital structure continued to become more leveraged than Ameren Missouri's since March 31, 2016?

A. First, because Ameren Corp's organizational objective is to manage each of its subsidiaries to targeted ratemaking common equity ratios rather than based on debt capacity, the use of debt at Ameren Corp has caused additional divergence. Ameren Corp can implement these organizational objectives because all of its treasury functions are implemented by its services company, Ameren Services Company ("AMS"), not the individual entities themselves. Ameren Corp has continued to target a 52% common equity ratio at Ameren Missouri for ratemaking purposes regardless of changes in its business risk. Consequently, other than some fairly limited swings due to dividends, equity infusions, and losses related to tax assets after the passage of the Tax Cut and Jobs Act ("TCJA"), because Ameren Corp desires to continue to have Ameren Missouri's rates set on approximately a 52% equity ratio, it has managed its capital flows accordingly.

Second, the revaluation of deferred tax assets after the passage of the Tax Cut and Jobs Act ("TCJA") caused a larger percentage reduction to Ameren Corp's common equity as compared to Ameren Missouri. Ameren Corp revalued its tax assets at the end of 2017 due to the passage of the TCJA. According to Ameren Missouri's witness Darryl T. Sagel's

Surrebuttal testimony in Ameren Missouri's gas rate case, Case No. GR-2019-0077, this revaluation caused a $154 million reduction to Ameren Corp's common equity balance at the end of 2017 and a $13 million reduction to Ameren Corp's equity balance in 2018. The cumulative total translates into a 2.27% reduction to Ameren Corp's common equity balance as of September 30, 2017, which was the common equity balance before the charges were taken. Ameren Missouri also had a charge to its equity of $36 million due to revaluation of its tax assets. However, this change only translated into a 0.89% reduction to its common equity balance. Therefore, as of December 31, 2017, this caused a 1.1% additional increase in the spread between Ameren Corp and Ameren Missouri's common equity ratio.

Third, on September 16, 2019, Ameren Corp issued $450 million of additional holding company debt on top of the $700 million it already had outstanding. By refinancing short-term debt with long-term debt, Ameren Corp did not impact its total leverage ratio (long-term debt and short-term debt divided by total capital). However, because I am comparing long-term capital structure ratios that do not include short-term debt, this comparison caused the spread between Ameren Corp's common equity ratio and Ameren Missouri's common equity ratio to increase by approximately another 1%. Based on Ameren Corp's recent SEC 10-Q filing for the period through September 30, 2019, the spread between Ameren Corp and Ameren Missouri's common equity ratio was about 4% as of September 30, 2019 (see Schedule DM-D-8).

Q. Would the revaluation caused by the TCJA justify not using Ameren Corp's lower common equity ratio to set Ameren Missouri's allowed ROR?

A. No. Because Ameren Corp can only adjust the Ameren Corp consolidated capital structure by third-party transactions with investors, such as issuing equity, adjusting dividend payments (retaining more earnings), issuing debt, etc. Ameren Corp's means of returning its common equity ratio to a level consistent with Ameren Missouri's would require investor consequential actions (e.g. not increasing the dividend until its retained earnings increased to a level sufficient to return Ameren Corp to a 50% equity ratio). However, as is evident from Ameren Corp's management of its various subsidiaries' dividend

payments, taxes and debt financings, it can allocate various forms of capital to its subsidiaries as needed to achieve its targeted ratemaking common equity ratios.

Q. Can you provide some examples of how Ameren Corp has managed its subsidiaries' capital structures to target ratemaking common equity ratios?

A. Yes. Although Ameren Corp's management of Ameren Missouri's capital structure is our primary focus, because Ameren Corp's management, through AMS, is ultimately managing all of its subsidiaries for the benefit of Ameren Corp shareholders, it is important to evaluate and understand Ameren Corp's decisions as it relates to all of its subsidiaries.

Ameren Corp's management of Ameren Transmission Company of Illinois' ("ATXI") capital structure provides the most glaring example of how Ameren Corp manages its subsidiaries' capital structures to its benefit for ratemaking purposes. ATXI's rates are based on an authorized common equity ratio of 56.1%. Because ATXI was a new company with no financial experience and no significant assets until around 2014 to 2015, it completely relied on Ameren Corp for its capital needs until 2017.

Ameren Corp provided steady incremental financing to ATXI since 2010. Ameren Corp relies on its shared credit facilities with Ameren Missouri and Ameren Illinois in order to have access to commercial paper for financing needs at the holding company level. Ameren Corp has used this short-term debt capital to finance both its equity and debt investments in ATXI.[33] While it appears a majority of Ameren Corp's commercial paper financing was used for purposes of investing in ATXI's assets, which were classified as equity infusions into ATXI, it is also possible some of the commercial paper was issued to finance other Ameren Corp capital needs. For example, Ameren Corp used commercial paper to repay $425 million of long-term debt due in May 2014. During much of this period in which Ameren Corp was funding these investments with external capital, it was also receiving a significant amount of dividends from Ameren Missouri. Being that there is no way to trace the capital once Ameren Corp receives it and redeploys it as it deems consistent with its organizational objectives, it becomes a futile effort to try and

[33] Ameren Missouri response to OPC DR No. 3033.

disaggregate the various forms of capital for each subsidiary. Fortunately, this is not necessary for purposes of determining how much debt the subsidiaries support because the consolidated capital structure provides this objective, transparent and market tested information. The third-party investors are Ameren Corp shareholders, not Ameren Corp. Funds Ameren Corp provides to its subsidiaries can be classified as debt or equity to suit Ameren Corp's organizational objectives. In order to reduce the amount of short-term debt carried at the holding company due to the aforementioned financing needs, Ameren Corp issued $700 million of long-term debt.

After Ameren Corp financed ATXI's investments through short-term and long-term debt, ATXI issued $450 million of third-party debt on June 22, 2017. The proceeds from this debt were used to refund $425 million of the $500 million of debt financing Ameren Corp had provided to ATXI. None of the proceeds were used to return any portion of the equity financing Ameren Corp had infused into ATXI. It is important to emphasize that ATXI's equity and debt capital had been funded from the same source, Ameren Corp's commercial paper. After the aforementioned transactions were completed, ATXI still had a per books common equity ratio of around 55%, which is close to the 56% targeted for FERC ratemaking purposes, despite being financed by debt.

Ameren Corp also manages Ameren Illinois' capital structure for ratemaking purposes. Ameren Illinois, Staff of the Illinois Commerce Commission ("ICC") and the industrial intervening party extensively litigated over several cases about whether Ameren Illinois's authorized ROR should be based on Ameren Illinois's per books capital structure, which showed a common equity ratios in the range of 52% to 54% in various dockets from 2011 to 2013[34], or if it should be adjusted to a lower level in order to recognize the reduced business risk afforded by the Illinois' Grid Modernization Act. The ICC Staff first determined Ameren Illinois's common equity ratio on a stand-alone basis after making adjustments to remove goodwill from Ameren Illinois's common equity balance. After going through this exercise, ICC Staff still determined that Ameren Illinois's common

[34] Docket Nos. D-11-0279, D-12-0293 and D-13-0301.

equity ratio was still unreasonable for the reduced business risk associated with the certainty of formula ratemaking allowed with the Grid Modernization Act.

The ICC Staff then recommended a common equity ratio for Ameren Illinois consistent with Ameren Corp on a consolidated basis. After many years of litigation on the issue, the parties eventually agreed to deem a common equity ratio of "up to and including 50% of the total capital" as reasonable for purposes of setting rates for Ameren Illinois without requiring further litigation. This agreement was codified into law by the 2016 Illinois Legislature's passage of the Future Energy Jobs Act ("FEJA") as an amendment to the 2011 Illinois Energy Infrastructure Modernization Act. Since at least 2015, Ameren Corp has managed Ameren Illinois's actual adjusted year-end common equity ratio to within 25 basis points (0.25%) of the 50% determined reasonable for ratemaking in Illinois. The adjusted year-end common equity ratio has not varied by more than 15 basis points (0.15%) over this period. As can also be seen on page 31 of the attached HC Schedule DM-D-17, Ameren Corp plans to manage Ameren Illinois's capital structure to target this specific common equity ratio for the next five years regardless of whether Ameren Illinois's assets could support additional debt.

Q. What about for Ameren Missouri?

A. Ameren Missouri manages to its 52% targeted common equity ratio by means of its equity infusions, its dividend payments and its debt financings. Ameren Missouri's common equity ratios for rate cases since 2010 have been in the range of 51.26% to 52.30%, with all cases but the 2010 rate case being within 51.75% and 52.30%.

Despite Ameren Missouri's FFO/debt ratios being consistent with strong 'A' ratings based on both Moody's and S&P's benchmark credit metrics, Ameren Corp has not allowed Ameren Missouri's capital structure to reflect its true debt capacity. Allowing Ameren Missouri's capital structure to carry more debt would reduce the cost of capital Ameren Missouri ratepayers would be charged in the revenue requirement. Of course, being that Ameren Corp needed to raise debt capital for its investment in its other subsidiaries as well as support its dividend payments to its shareholders, Ameren Corp had

a financial incentive to maintain a higher common equity ratio at Ameren Missouri because this generated more cash flow for the consolidated entity. It is not fair to Ameren Missouri's ratepayers for Ameren Corp to use Ameren Missouri's debt capacity for the benefit of Ameren Corp and its shareholders.

Q. What evidence can you provide that shows Ameren Missouri's capital flows are not managed as if it were a stand-alone entity?

A. If Ameren Missouri's capital structure were being managed for its own benefit, then one would expect that it would have a carefully managed dividend payment policy, similar to how Ameren Corp manages its dividend payments to a targeted payout ratio in the range of 55% to 70%. However, over the most recent five years, Ameren Missouri has had a dividend payout ratio that has ranged from a low of 68.61% in 2018 to a high of 161.97% in 2015. If Ameren Missouri were financially managed as a stand-alone entity, it would have its own formal dividend policy. It is no surprise that Ameren Missouri has been shouldering the burden of dividends ultimately paid to Ameren Corp shareholders because Ameren Corp has only been minimally reinvesting in Ameren Missouri, whereas it has been investing significant amounts of capital in ATXI and Ameren Illinois. Ameren Illinois and ATXI have each only distributed dividends in one year of the last five (Ameren Illinois $110 million in 2016 and ATXI $75 million in 2018). Over the last five years, Ameren Corp's dividend payout ratio has averaged around 65%; Ameren Missouri's net payout (including equity infusions) ratio has averaged around 80%; Ameren Illinois had an average payout ratio of about 39%; and ATXI has had a payout ratio of about 30%. If Ameren Corp's subsidiaries were stand-alone entities, then it would be impossible for their cash flows to be managed in this fashion because the shareholders of each entity would expect a consistent and steady dividend payout ratio.

Q. What other tools allow Ameren Corp to manage its subsidiaries' common equity ratios?

A. First, the subsidiaries do not have the capability to manage their own capital needs. AMS provides this function for all of Ameren Corp's subsidiaries that have total operational control of all entities, except for Ameren Missouri and Ameren Illinois.

AMS uses short-term debt, i.e. commercial paper at Ameren Corp to make capital infusions in its subsidiaries. Being that Ameren Missouri has a finite amount of cash it can provide to Ameren Corp via dividends, at times Ameren Corp has not received enough dividends from its subsidiaries to fully fund the dividends it pays to its shareholders. Consequently, short-term debt was also used to fund this capital deficiency.

Ameren Corp freely admits that it issues short-term debt and long-term debt at the holding company level to invest in its Ameren Illinois and ATXI subsidiaries.[35] However, Ameren Corp indicates it's a matter of policy not to do the same for Ameren Missouri because it wants to ensure that Ameren Missouri's equity is supported by Ameren Corp's third-party equity issuances.[36] This is Ameren Corp's basis for maintaining that Ameren Missouri's equity ratio is legitimate for ratemaking purposes. Although Ameren Corp made a strategic financing decision to issue third-party equity to partially finance its planned purchase of wind projects, Ameren Corp had just as significant of financing needs in recent years in which it could have issued equity to third-party equity investors. There have been several periods in which Ameren Corp's short-term debt balances have been approximately $1 billion, which would have warranted issuing common equity of up to $550 million to reduce the amount of leverage at Ameren Corp. Even as recently as June 30, 2019, Ameren Corp had $595 million of short-term debt outstanding at the holding company. Realizing it had a sizable amount of short-term debt outstanding and the fact that the cost of capital has been quite low, Ameren Corp issued $450 million of 5-year notes on September 16, 2019. In my review of Ameren Corp's financial plans, Ameren Corp had not planned to issue this debt until 2020. The coupon on this 5-year debt was a very favorable 2.5%.

[35] See Ameren Missouri's response to DR No. 3033.
[36] *Id.*

Q. Are there any other consequences of maintaining a high common equity ratio on Ameren Missouri's revenue requirement other than charging a higher return for a higher proportion of the capital structure?

A. Yes. Although the common equity ratio has been my primary point of contention as to how Ameren Corp inflates Ameren Missouri's cost of service, because debt yields have been very favorable, reaching all-time lows recently, Ameren Corp's strategy also prevents Ameren Missouri ratepayers from realizing lower cost of debt capital. Ameren Corp's decision to issue holding company debt also impacts Ameren Missouri's debt issuance strategies. Ameren Corp passed a resolution that limits the amount of consolidated debt that can mature in any one year to a maximum of $850 million.[37] Considering Ameren Corp just issued $425 million of 5-year debt that matures in 2024, plus it has $350 million that matures in 2026, this precludes Ameren Missouri from issuing sizeable debt that matures in these years. As is typically the case when holding companies issue debt, this forces the subsidiaries, such as Ameren Missouri, to issue longer-term debt, which typically is at a higher cost.

Q. What have you done to ensure that Ameren Missouri receives the benefit of current low debt capital costs in its capital structure?

A. I replaced $323 million of higher-cost equity recorded on Ameren Missouri's books with the same amount of debt at a coupon consistent with Ameren Missouri's recent debt issuance, which was 3.25%. Including the amount and the cost of this debt in Ameren Missouri's embedded cost of debt reduced Ameren Missouri's embedded debt cost by approximately 10 basis points.

Q. Why do you consider Ameren Corp's long-term equity ratio to be the most appropriate for setting Ameren Missouri's allowed ROR?

A Ameren Corp allocates capital around its companies to target and achieve ratemaking common equity ratios. The most objective and practical measure of the capital structure

[37] "Key Financing Considerations," Ameren Finance Committee Discussion, August 2019, p. 8.

that captures the debt capacity of Ameren Corp's regulated utility assets, is that of the Ameren Corp on a consolidated basis. Consequently, this is why I am recommending Ameren Missouri's common equity ratio be set no higher than Ameren Corp's, which is currently approximately 48%, net of short-term debt.

Q. Does Ameren Corp target 48% common equity ratio for purposes of managing its consolidated capital structure?

A. No. Ameren Corp actually targets a consolidated common equity ratio of approximately 45% when short-term debt is included (HC Schedule DM-D-17, p. 31). Because short-term debt costs are used for purposes of capitalizing construction work in progress ("CWIP") through the AFUDC capitalization rate, it is appropriate to exclude short-term debt from the capital structure used for ratemaking as long as short-term debt balances do not exceed CWIP balances. If short-term debt were to exceed CWIP progress balances, then inclusion of short-term debt in the authorized capital structure should be considered.

Q. How much short-term debt has Ameren Corp been carrying on its balance sheet from the end of the December 31, 2018, test year until September 30, 2019?

A. Ameren Corp has consistently been carrying at least $500 million of short-term debt.

Q. How much CWIP has Ameren Corp been carrying on its balance sheet for the same period?

A. Approximately $1 billion.

Q. How much CWIP has Ameren Missouri been carrying on its balance sheet?

A. Ameren Missouri has had CWIP of about $600 million, but its short-term debt balances have been less than that.

Q. Based on this information, do you think it is appropriate to exclude short-term debt from Ameren Missouri's ratemaking capital structure?

A. Yes.

Q. Are there any other approaches that can be used to ensure that Ameren Missouri's ratepayers receive a just and reasonable share in the benefit of the additional debt capacity afforded by Ameren Missouri's lower business risk?

A. Yes. Due to its lower business risk, Moody's lowered Ameren Corp's threshold for FFO/debt to 17% from 19%. Ameren Missouri's current threshold is 19%. Although the 17% threshold would support even more debt in Ameren Missouri's capital structure, I used the 19% FFO/debt ratio to determine how much additional debt Ameren Missouri's capital structure can support and still stay above this threshold. Being that the inputs for this ratio are impacted by changes in revenue requirement, which is impacted by authorized capital structures, adjusting one variable causes the need to adjust the other. For example, if the Commission adopted a more leveraged capital structure, this would likely reduce the projected amount of cash flow and potentially increase the amount of debt Ameren Missouri actually carries on its books.

Q. What is the pro forma impact on Ameren Missouri's FFO/debt ratios using a more leveraged capital structure and a 9% to 9.5% authorized ROE?

A. For purposes of this analysis, I used Ameren Missouri's projected financial statements that were provided to rating agencies in December 2018. If Ameren Missouri is authorized a capital structure of 48% common equity and the Commission did not lower Ameren Missouri's authorized ROE from 9.5%, then based on Ameren Missouri's own projections, its FFO/debt threshold would not drop below 19%. In fact other than next year, it would be comfortably above 20%. This would still comfortably support Moody's "Baa1" rating on Ameren Missouri.

If the Commission adopts my recommended capital structure and lowers Ameren Missouri's allowed ROE to 9%, then it only drops below 19% in 2020. Otherwise, it is still comfortably above 20% for 2021 and 2022.

Q. How can the Commission determine an equitable, market-tested and objective capital structure that more closely captures the amount of debt capacity that is consistent with Ameren Missouri's business risks?

A. The Commission can more closely capture debt capacity consistent with Ameren Missouri's business risks by using Ameren Corp's consolidated capital structure as a proxy. While this capital structure includes capital that is used for investment in all of Ameren Corp's assets, this should not be the focus for determining the proper balance of capital as it relates to each of Ameren Corp's subsidiaries. For example, while FERC has decided to allow ATXI a common equity ratio of 56.1% for purposes of setting its allowed ROR, Ameren Corp understands that these assets can support a much higher amount of leverage because of the low business risk associated with these assets. Consequently, Ameren Corp has issued holding company debt, rather than equity, to support these assets. Ameren Corp's strategic financing decisions primarily concentrate on the amount of leverage Ameren Corp can carry on a consolidated basis. This capital structure most accurately reflects the debt capacity afforded by Ameren Missouri's assets.

OVERALL RATE OF RETURN

Q. Should the Commission take anything else into consideration when deciding a fair and reasonable rate of return, which includes the authorized capital structure and the authorized ROE, for Ameren Missouri?

A. Yes. I have provided my recommendations regarding a fair and reasonable allowed ROE considering the current low cost of capital environment for the utility industry. I have also recommended a capital structure that recognizes the debt capacity made possible by Ameren Missouri's lower business risk. However, as became apparent over the last few years, Ameren Corp diverted significant amounts of capital to its jurisdictions that provided favorable ratemaking treatment. Apparently Ameren Corp decided it could create more value for its shareholders by investing in Ameren Illinois and ATXI. At least for Ameren Illinois's electric utility operations, this higher value would likely have been a function of lower business risk since Ameren Illinois has been able to earn its allowed ROR through formula rates. Although Ameren Missouri will not have formula rates, the PISA accounting mechanism will eliminate all but a minimal amount of regulatory lag as it relates to capital investments. Under GAAP, Ameren Missouri will be able to flow through the debt portion (about 5%) of its deferred ROR directly to earnings as the plant goes into

service. Although the equity portion will still accrue and eventually be charged to ratepayers through a higher rate base, Ameren Corp is not allowed to book it in current earnings.

Ideally, Ameren Corp would be indifferent between its investments in Ameren Illinois and Ameren Missouri based purely on ratemaking treatment and would invest in the most economically efficient projects, but the last few years has proven this is not how the system works - favorable ratemaking policies drive investment. As long as this doesn't cause overinvestment and a strategy of achieving shareholder returns by simply growing rate base without consideration of need for investments, then this policy may be palatable. However, there are means by which regulators can discourage such strategies when a company has assets in several jurisdictions, such as Ameren Corp. One of those means is to take into consideration the allowed ROR in the other jurisdiction. It is noteworthy that Ameren Corp has made significant amounts of capital investment in Illinois even though its allowed ROE has ranged from 8.4% to 9.25% since 2014 with a 50% allowed common equity ratio. Ameren Illinois is expected to have an allowed ROE of 8.91% for the upcoming year. Ameren Illinois's allowed ROE is set by a formula which adds 580 basis points to the previous calendar year's averaged 30-year US Treasury ("UST") yield. Therefore, the 30-year UST yield averaged approximately 3.11% in 2018. Based on the fairly low 30-year UST yields this year, Ameren Illinois's allowed ROE may be around 8.5% in 2021.

Q. Is there any evidence that shows that Ameren Illinois's and Ameren Missouri's cost of capital are fairly similar?

A. Yes. I reviewed current over-the-counter trades for both Ameren Illinois's and Ameren Missouri's longer maturity bonds. Ameren Illinois's bonds with a term to maturity of 25 to 30 years traded at a YTM in the 3.08% to 3.15% range. Ameren Missouri's bonds of similar maturities trade at similar YTMs. This supports using the same cost of capital, i.e. discount rates, for purposes of determining the net present values ("NPV") of projects being considered for Ameren Illinois or Ameren Missouri. Therefore, if one jurisdiction sets its authorized ROR at a level higher than parity compared to the other jurisdiction,

then given two comparable projects, Ameren Corp naturally will invest in the jurisdiction that authorizes a higher ROR because it would create more value for shareholders. It is this very conflict that underlies the principle of authorizing a ROR based on the cost of capital. Awarding ROR's based on a desire to compete with other states will create a perverse incentive for utility projects to be pursued based on earnings alone, not economics and customer need. If the economics of the project, not just the awarded ROR, support the possibility of achieving a ROR higher than the cost of capital, then the company will pursue such project.

Q. Can you provide an example based on Ameren Missouri's current authorized ROR as compared to Ameren Illinois's current authorized ROR?

A. Yes. Ameren Missouri currently has an authorized ROE of 9.53% with an approximate 52% equity ratio. Ameren Illinois currently has an authorized ROE of 8.69% with a 50% equity ratio. Both companies recently issued 30-year debt with coupons of 3.25%. Therefore, I will assume the same cost of debt for each company's revenue requirement. As Ameren Corp has communicated to its investors, it plans on making an additional annual $200 million investment in Ameren Missouri over the next five years for a total of $1 billion. Through a simple example, I will show how much additional value Ameren Corp will earn for its shareholders as compared to if they made this same investment with an authorized return similar to Ameren Illinois.

For simplicity, I assumed that the additional $1 billion investment is made at one time rather than over a period of five years. I also assumed the project would have a depreciation life of 30 years. Ameren Missouri's authorized ROR using a 52% equity ratio, a 9.53% allowed ROE and a 3.25% cost of debt is 6.12%. Ameren Illinois's authorized ROR using a 50% equity ratio, an 8.69% allowed ROE and a 3.25% cost of debt is 5.56%. Ameren Corp would create an additional $56.5 million of return for its shareholders by the mere fact that Ameren Missouri had a higher authorized ROE and equity ratio.

Q. What if you changed Ameren Missouri's allowed ROR to be consistent with your recommended capital structure and allowed ROE of 9.0%?

A. The investment in Ameren Missouri would only generate less than $100,000 of additional return. If the allowed RORs on projects were closer to this parity, then Ameren Corp is much more likely to choose projects that are likely to create value beyond just being awarded a higher ROR.

Q. What is Ameren Illinois's expected allowed ROE for 2020?

A. Ameren Illinois's expected allowed ROE for 2020 is 8.91%. At this higher authorized level for the upcoming year, an allowed ROE of 9% in Missouri coupled with a 48% equity ratio would generate less value as compared to Ameren Illinois. However, a 9.25% allowed ROE would keep the jurisdictions at par with each other.

SUMMARY AND CONCLUSIONS

Q. Can you summarize your main conclusions and views as it relates to an authorized ROR in this case?

A. Yes. The cost of capital for utilities is low and has fallen further in the last couple of years. There is direct evidence of such due to sustained high valuation levels of utility stocks. Around the time Ameren Missouri filed its 2014 electric case, electric utility stocks traded at P/E ratios of around 15x, but now they trade at over 20x. Each year that goes by, it would seem unlikely that utility P/E ratios could go higher, but they do. This is a direct result of a continued downward trend in long-term interest rates. Electric utility dividend yields are also below 3%, which is a direct indication of the bid up in utility stock prices due to the search for yield in the low interest rate environment.

There are other simple and direct market indicators that indicate Ameren Missouri's COE is lower than it was in 2014. For example, Ameren Missouri recently issued a 30-year bond at a coupon of 3.25%. The last time Ameren Missouri issued a bond with this low of a coupon was almost 70 years ago in 1952. Additionally, Ameren Corp's stock beta has declined from 0.75 to 0.55 since 2014. All simple and objective signs indicate Ameren Missouri should be authorized an ROE of approximately 9% to 9.25%.

It is also clear that Ameren Missouri's business risk is lower, which means it can take on more financial risk, i.e. debt, in its capital structure. Ameren Corp has not managed Ameren Missouri's capital structure to allow it to realize the lower cost of capital that accompanies its lower business risk. The Commission should lower Ameren Missouri's allowed equity ratio to ensure ratepayers receive the benefit of a lower capital cost during Ameren Missouri's period of rapidly increasing rate base prompted by SB 564.

Although I recommend the Commission authorize Ameren Missouri a lower common equity ratio of 48%, I recognize that economic efficiency would more likely be achieved if Ameren Corp is not likely to achieve more shareholder value from an investment in an Ameren Missouri project or Ameren Illinois project purely due to the awarded ROR. Therefore, to maintain parity between Ameren Illinois and Ameren Missouri, I recommend the Commission award a 9.25% ROE with the 48% equity ratio. If the Commission authorizes an equity ratio that his higher than 48%, then I recommend the Commission authorize a corresponding lower allowed ROE.

Q. Does this conclude your testimony?

A. Yes.

DAVID MURRAY, CFA

Educational and Employment Background and Credentials

I have been employed as a Utility Regulatory Manager at the Office of the Public Counsel (OPC) since July 1, 2019. Prior to accepting employment with the OPC, I was the Utility Regulatory Manager of the Financial Analysis Department for the Missouri Public Service Commission (Commission) from 2009 through June 30, 2019. I accepted the position of a Public Utility Financial Analyst in June 2000 and my position was reclassified in August 2003 to an Auditor III. I was promoted to the position of Auditor IV, effective July 1, 2006. I was employed by the Missouri Department of Insurance in a regulatory position before I began my employment at the Missouri Public Service Commission.

I was authorized in October 2010 to use the Chartered Financial Analyst (CFA) designation. The use of the CFA designation requires the passage of three rigorous examinations addressing many investment related areas such as valuation analysis, portfolio management, statistical analysis, economic analysis, financial statement analysis and ethical standards. In addition to the passage of the examinations a CFA charterholder must have four years of relevant professional work experience.

In May 1995, I earned a Bachelor of Science degree in Business Administration with an emphasis in Finance and Banking, and Real Estate from the University of Missouri-Columbia. I earned a Masters in Business Administration from Lincoln University in December 2003.

In April 2007 I passed the test required to be awarded the professional designation Certified Rate of Return Analyst (CRRA) by the Society of Utility and Regulatory Financial Analysts (SURFA). I served as a board member on the SURFA Board of Directors from 2008 through 2016. I am not currently an active member of SURFA.

Case Participation

In addition to supervising employees who sponsored rate of return (ROR) testimony as Manager of the Financial Analysis Department of the Missouri Public Service Commission, I directly sponsored ROR testimony in the following electric, gas and water case proceedings (I also filed ROR testimony in several other smaller proceedings that are not listed):

Union Electric	ER-2010-0036, ER-2011-0028, ER-2012-0166, ER-2014-0258, and ER-2016-0179
Empire District Electric Company	ER-2002-424, ER-2004-0570, and ER-2006-0179
Kansas City Power & Light Company	ER-2009-0089, ER-2010-0355, ER-2012-0174, and ER-2016-0285
KCP&L Greater Missouri Operations and Former Aquila Inc. dba Aquila Networks MPS and L&P	ER-2001-672, EC-2002-265, ER-2004-0034, ER-2005-0436, ER-2009-0090, ER-2012-0175, and ER-2016-0156
Spire Missouri West and former Missouri Gas Energy	GR-2001-292, GR-2004-0209, GR-2006-0422, GR-2009-0355, GR-2017-0216
Spire Missouri East (Laclede Gas)	GR-2017-0215
Missouri American Water Company	WR-2003-0500, WR-2007-0216, WR-2010-0131, and WR-2015-0131
Missouri Gas Utility	GR-2008-0060
Summit Natural Gas of Missouri	GR-2014-0086
Liberty Midstates Gas Company	GR-2018-0013

In addition to the above, I have sponsored testimony in other proceedings, such as merger applications, which involve various general financial matters.

Multiple-Stage Dividend Discount Model
for Ameren Corporation

Financial Metrics	Cost of Equity	Stock Price	Consensus Annual Analysts' Estimates 2020	2021	2022	Assumed Annual Compound Growth Rates in Earings Per Share 5.37% 2023	5.00% 2024	5.00% 2025	5.00% 2026	5.00% 2027	5.00% 2028	4.60% 2029	4.20% 2030	3.80% 2031	3.40% 2032	Perpetual 3.00% 2033
Projected Annual EPS 3% Perpetual Consensus Estimates (2020-2022)			$3.46	$3.80	$4.00	$4.21	$4.43	$4.65	$4.88	$5.12	$5.38	$5.63	$5.86	$6.09	$6.29	$6.48
Projected Annual DPS Consensus Estimates (2020-2022)	**6.65%**	-$76.78	$2.02	$2.13	$2.23	$2.33	$2.43	$2.56	$2.68	$2.82	$2.96	$3.26	$3.58	$3.89	$4.22	$4.54
Dividend Payout			58.38%	56.05%	55.75%	55.38%	55.00%	55.00%	55.00%	55.00%	55.00%	58.00%	61.00%	64.00%	67.00%	70.00%

Financial Metrics	Cost of Equity	Stock Price	Consensus Annual Analysts' Estimates 2020	2021	2022	Assumed Annual Compound Growth Rates in Earings Per Share 5.37% 2023	5.00% 2024	5.00% 2025	5.00% 2026	5.00% 2027	5.00% 2028	4.50% 2029	4.00% 2030	3.50% 2031	3.00% 2032	Perpetual 2.50% 2033
Projected Annual EPS 2.5% Perpetual Consensus Estimates (2020-2022)			$3.46	$3.80	$4.00	$4.21	$4.43	$4.65	$4.88	$5.12	$5.38	$5.62	$5.85	$6.05	$6.23	$6.39
Projected Annual DPS Consensus Estimates (2020-2022)	**6.48%**	-$76.78	$2.02	$2.13	$2.23	$2.33	$2.43	$2.56	$2.68	$2.82	$2.96	$3.32	$3.68	$4.05	$4.42	$4.79
Dividend Payout			58.38%	56.05%	55.75%	55.38%	55.00%	55.00%	55.00%	55.00%	55.00%	58.00%	63.00%	67.00%	71.00%	75.00%

Financial Metrics	Cost of Equity	Stock Price	Consensus Annual Analysts' Estimates 2020	2021	2022	Assumed Annual Compound Growth Rates in Earings Per Share 5.37% 2023	5.00% 2024	5.00% 2025	5.00% 2026	5.00% 2027	5.00% 2028	4.70% 2029	4.40% 2030	4.10% 2031	3.80% 2032	Perpetual 3.50% 2033
Projected Annual EPS 3.5% Perpetual Consensus Estimates (2020-2022)			$3.46	$3.80	$4.00	$4.21	$4.43	$4.65	$4.88	$5.12	$5.38	$5.63	$5.88	$6.12	$6.35	$6.58
Projected Annual DPS Consensus Estimates (2020-2022)	**6.83%**	-$76.78	$2.02	$2.13	$2.23	$2.33	$2.43	$2.56	$2.68	$2.82	$2.96	$3.21	$3.47	$3.73	$4.00	$4.27
Dividend Payout			58.38%	56.05%	55.75%	55.38%	55.00%	55.00%	55.00%	55.00%	55.00%	57.00%	59.00%	61.00%	63.00%	65.00%

Sources:
1. Downloaded consensus analyst estimates for 2020-2022 EPS and DPS on December 1, 2019.
2. Targeted dividend payout ratio range based on Ameren's November 11-12, 2019, EEI Investor Presentation p.5.
3. 5% CAGR in EPS through 2028 based on Ameren's anticipated capital spend with regulatory frameworks in MO and IL.
4. 2.5% to 3.5% terminal growth rates based on long-term industry average growth rates, investor information and sustainable growth logic.

Multiple-Stage Dividend Discount Model
for the Comparable Electric Utility Companies

Annual Earnings Per Share Estimates

	Consensus Analysts EPS Estimates (through yellow highlighted cell)				2024 - 2029 Transitionay Period to Perpetual Growth					
Company Name	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
ALLETE, Inc.	$3.82	$4.18	$4.30	$4.61	$4.93	$5.24	$5.52	$5.77	$5.99	$6.16
Alliant Energy Corporation	$2.41	$2.55	$2.71	$2.86	$3.02	$3.17	$3.31	$3.43	$3.55	$3.65
Ameren Corporation	$3.46	$3.80	$4.00	$4.21	$4.44	$4.66	$4.86	$5.05	$5.22	$5.37
American Electric Power Company, Inc.	$4.40	$4.68	$4.98	$5.45	$5.77	$6.07	$6.35	$6.60	$6.83	$7.02
Avangrid, Inc.	$2.45	$2.58	$2.90	$3.09	$3.29	$3.49	$3.66	$3.82	$3.96	$4.07
Avista Corporation	$2.00	$2.15	$2.43	$2.53	$2.63	$2.73	$2.82	$2.92	$3.01	$3.09
Black Hills Corporation	$3.68	$3.92	$4.13	$4.20	$4.41	$4.61	$4.80	$4.97	$5.14	$5.28
CenterPoint Energy, Inc.	$1.67	$1.76	$1.83	$1.70	$1.78	$1.85	$1.92	$1.99	$2.06	$2.12
CMS Energy Corporation	$2.67	$2.88	$3.08	$3.31	$3.54	$3.76	$3.96	$4.13	$4.28	$4.41
Consolidated Edison, Inc.	$4.52	$4.74	$4.90	$5.05	$5.20	$5.35	$5.51	$5.67	$5.83	$6.00
Dominion Energy, Inc.	$4.38	$4.62	$4.87	$5.09	$5.32	$5.54	$5.75	$5.95	$6.14	$6.31
DTE Energy Company	$6.61	$7.09	$7.61	$8.20	$8.71	$9.19	$9.64	$10.04	$10.39	$10.69
Duke Energy Corporation	$5.15	$5.39	$5.70	$6.02	$6.31	$6.60	$6.86	$7.12	$7.35	$7.56
Edison International	$4.54	$4.71	$4.94	$5.42	$5.74	$6.05	$6.33	$6.59	$6.82	$7.01
El Paso Electric Company	$2.70	$2.80	$2.98	$3.16	$3.36	$3.55	$3.72	$3.88	$4.01	$4.13
Entergy Corporation	$5.63	$5.97	$6.34	$6.70	$6.78	$6.89	$7.01	$7.17	$7.35	$7.56
Evergy, Inc.	$3.13	$3.28	$3.45	$3.62	$3.85	$4.06	$4.26	$4.44	$4.59	$4.72
Eversource Energy	$3.66	$3.87	$4.12	$4.40	$4.85	$5.11	$5.36	$5.58	$5.78	$5.94
Exelon Corporation	$3.08	$3.05	$3.11	$3.28	$3.59	$3.90	$4.05	$4.19	$4.32	$4.44
FirstEnergy Corp.	$2.49	$2.64	$2.79	$2.95	$3.13	$3.31	$3.47	$3.61	$3.74	$3.85
Hawaiian Electric Industries, Inc.	$2.01	$2.16	$2.25	$2.35	$2.45	$2.55	$2.64	$2.73	$2.81	$2.89
IDACORP, Inc.	$4.64	$4.86	$5.02	$5.19	$5.36	$5.54	$5.71	$5.88	$6.06	$6.23
MDU Resources Group Inc.	$1.64	$1.82	$1.96	$2.10	$2.26	$2.41	$2.55	$2.67	$2.77	$2.84
NextEra Energy, Inc.	$9.06	$9.84	$10.60	$11.15	$12.02	$12.84	$13.59	$14.25	$14.79	$15.21
NiSource Inc.	$1.38	$1.46	$1.57	$1.67	$1.74	$1.82	$1.89	$1.95	$2.02	$2.07
NorthWestern Corporation	$3.55	$3.72	$3.92	$4.05	$4.20	$4.34	$4.49	$4.63	$4.77	$4.90
OGE Energy Corp.	$2.28	$2.40	$2.49	$2.52	$2.65	$2.78	$2.89	$3.00	$3.10	$3.19
Otter Tail Corporation	$2.40	$2.51	$2.69	$2.88	$3.08	$3.27	$3.45	$3.60	$3.74	$3.84
PG&E Corporation	$4.24	$3.37	$4.45	$4.64	$4.84	$5.03	$5.21	$5.39	$5.56	$5.72
Pinnacle West Capital Corporation	$4.86	$5.21	$5.45	$5.73	$6.02	$6.30	$6.57	$6.81	$7.04	$7.24
PNM Resources, Inc.	$2.21	$2.39	$2.52	$2.65	$2.82	$2.97	$3.12	$3.25	$3.36	$3.46
Portland General Electric Company	$2.56	$2.73	$2.83	$2.90	$3.03	$3.16	$3.28	$3.40	$3.51	$3.61
PPL Corporation	$2.53	$2.50	$2.66	$2.74	$2.82	$2.91	$2.99	$3.08	$3.17	$3.26
Public Service Enterprise Group Incorporated	$3.42	$3.50	$3.67	$3.74	$3.94	$4.12	$4.30	$4.46	$4.61	$4.74
Sempra Energy	$7.12	$7.81	$8.29	$9.60	$10.39	$11.13	$11.80	$12.39	$12.88	$13.24
Southern Company	$3.18	$3.27	$3.51	$3.85	$4.02	$4.18	$4.34	$4.48	$4.63	$4.76
Unitil Corporation	$2.42	$2.58	$2.67	$2.82	$2.94	$3.06	$3.17	$3.28	$3.38	$3.48
WEC Energy Group, Inc.	$3.74	$4.00	$4.25	$4.40	$4.67	$4.92	$5.15	$5.37	$5.55	$5.71
Xcel Energy Inc.	$2.78	$2.96	$3.12	$3.32	$3.51	$3.69	$3.85	$4.01	$4.15	$4.26

Sources: S&P Market Intelligence for Discrete Consensus Annalysts' Annual EPS Estimates and 5-Year CAGR.

Schedule DM-D-3.1

Multiple-Stage Dividend Discount Model
for the Comparable Electric Utility Companies

Annual Growth Rate Estimates Until Terminal Stage

Company Name	Analysts' Est. 5-Yr CAGR	2022	2023	2024	2025	2026	2027	2028	2029
ALLETE, Inc.	7.10%	Discrete Est.	7.10%	7.10%	6.25%	5.40%	4.55%	3.70%	2.85%
Alliant Energy Corporation	5.49%	Discrete Est.	5.49%	5.49%	4.96%	4.43%	3.91%	3.38%	2.85%
Ameren Corporation	5.37%	Discrete Est.	5.37%	5.37%	4.87%	4.36%	3.86%	3.35%	2.85%
American Electric Power Company, Inc.	5.79%	Discrete Est.	Discrete Est.	5.79%	5.20%	4.61%	4.03%	3.44%	2.85%
Avangrid, Inc.	6.58%	Discrete Est.	6.58%	6.58%	5.83%	5.09%	4.34%	3.60%	2.85%
Avista Corporation	4.00%	Discrete Est.	4.00%	4.00%	3.77%	3.54%	3.31%	3.08%	2.85%
Black Hills Corporation	4.94%	Discrete Est.	Discrete Est.	4.94%	4.52%	4.10%	3.69%	3.27%	2.85%
CenterPoint Energy, Inc.	4.57%	Discrete Est.	Discrete Est.	4.57%	4.23%	3.88%	3.54%	3.19%	2.85%
CMS Energy Corporation	6.94%	Discrete Est.	Discrete Est.	6.94%	6.12%	5.30%	4.49%	3.67%	2.85%
Consolidated Edison, Inc.	3.00%	Discrete Est.	3.00%	3.00%	2.97%	2.94%	2.91%	2.88%	2.85%
Dominion Energy, Inc.	4.47%	Discrete Est.	4.47%	4.47%	4.15%	3.82%	3.50%	3.17%	2.85%
DTE Energy Company	6.20%	Discrete Est.	Discrete Est.	6.20%	5.53%	4.86%	4.19%	3.52%	2.85%
Duke Energy Corporation	4.88%	Discrete Est.	Discrete Est.	4.88%	4.48%	4.07%	3.66%	3.26%	2.85%
Edison International	5.94%	Discrete Est.	Discrete Est.	5.94%	5.32%	4.70%	4.08%	3.47%	2.85%
El Paso Electric Company	6.25%	6.25%	6.25%	6.25%	5.57%	4.89%	4.21%	3.53%	2.85%
Entergy Corporation	1.21%	Discrete Est.	Discrete Est.	1.21%	1.54%	1.87%	2.19%	2.52%	2.85%
Evergy, Inc.	6.23%	Discrete Est.	Discrete Est.	6.23%	5.55%	4.88%	4.20%	3.53%	2.85%
Eversource Energy	6.10%	Discrete Est.	Discrete Est.		5.45%	4.80%	4.15%	3.50%	2.85%
Exelon Corporation	4.33%	Discrete Est.	Discrete Est.		4.04%	3.74%	3.44%	3.15%	2.85%
FirstEnergy Corp.	6.20%	Discrete Est.	Discrete Est.	6.20%	5.53%	4.86%	4.19%	3.52%	2.85%
Hawaiian Electric Industries, Inc.	4.22%	Discrete Est.	Discrete Est.	4.22%	3.94%	3.67%	3.40%	3.12%	2.85%
IDACORP, Inc.	3.33%	3.33%	3.33%	3.33%	3.24%	3.14%	3.04%	2.95%	2.85%
MDU Resources Group Inc.	7.50%	7.50%	7.50%	7.50%	6.57%	5.64%	4.71%	3.78%	2.85%
MGE Energy, Inc.	NA	NA	NA	NA	NA	NA	NA	NA	2.85%
NextEra Energy, Inc.	7.81%	Discrete Est.	Discrete Est.	7.81%	6.82%	5.83%	4.83%	3.84%	2.85%
NiSource Inc.	4.49%	Discrete Est.	Discrete Est.	4.49%	4.16%	3.83%	3.50%	3.18%	2.85%
NorthWestern Corporation	3.63%	Discrete Est.	Discrete Est.	3.63%	3.47%	3.32%	3.16%	3.01%	2.85%
OGE Energy Corp.	5.17%	Discrete Est.	Discrete Est.	5.17%	4.71%	4.24%	3.78%	3.31%	2.85%
Otter Tail Corporation	7.05%	7.05%	7.05%	7.05%	6.21%	5.37%	4.53%	3.69%	2.85%
PG&E Corporation	4.25%	Discrete Est.	4.25%	4.25%	3.97%	3.69%	3.41%	3.13%	2.85%
Pinnacle West Capital Corporation	5.11%	Discrete Est.	5.11%	5.11%	4.66%	4.20%	3.75%	3.30%	2.85%
PNM Resources, Inc.	6.23%	Discrete Est.	6.23%	6.23%	5.55%	4.88%	4.20%	3.53%	2.85%
Portland General Electric Company	4.55%	Discrete Est.	Discrete Est.	4.55%	4.21%	3.87%	3.53%	3.19%	2.85%
PPL Corporation	3.00%	Discrete Est.	3.00%	3.00%	2.97%	2.94%	2.91%	2.88%	2.85%
Public Service Enterprise Group Incorporated	5.23%	Discrete Est.	Discrete Est.	5.23%	4.75%	4.28%	3.80%	3.33%	2.85%
Sempra Energy	8.20%	Discrete Est.	Discrete Est.	8.20%	7.13%	6.06%	4.99%	3.92%	2.85%
Southern Company	4.33%	Discrete Est.	Discrete Est.	4.33%	4.04%	3.74%	3.44%	3.15%	2.85%
Unitil Corporation	4.28%	Discrete Est.	Discrete Est.	4.28%	3.99%	3.71%	3.42%	3.14%	2.85%
WEC Energy Group, Inc.	6.06%	Discrete Est.	Discrete Est.	6.06%	5.42%	4.77%	4.13%	3.49%	2.85%
Xcel Energy Inc.	5.67%	Discrete Est.	Discrete Est.	5.67%	5.11%	4.54%	3.98%	3.41%	2.85%

Source: S&P Market Intelligence as of December 1, 2019 for Consensus CAGR's

Note: Discrete Est. - Absolute annual earnings per share estimates provided by analysts for the annual period.

Multiple-Stage Dividend Discount Model
for the Comparable Electric Utility Companies

Annual Dividend Payout Ratios Until Terminal Stage

Company Name	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
ALLETE, Inc.	64.66%	61.96%	62.97%	63.97%	64.98%	65.98%	66.99%	67.99%	69.00%	70.00%
Alliant Energy Corporation	63.07%	63.14%	63.47%	64.40%	65.33%	66.27%	67.20%	68.13%	69.07%	70.00%
Ameren Corporation	58.38%	56.05%	55.75%	57.79%	59.82%	61.86%	63.89%	65.93%	67.96%	70.00%
American Electric Power Company, Inc.	64.09%	63.89%	63.25%	64.22%	65.18%	66.14%	67.11%	68.07%	69.04%	70.00%
Avangrid, Inc.	75.51%	74.81%	69.66%	69.70%	69.75%	69.80%	69.85%	69.90%	69.95%	70.00%
Avista Corporation	80.50%	78.60%	77.53%	76.45%	75.38%	74.30%	73.23%	72.15%	71.08%	70.00%
Black Hills Corporation	58.97%	59.18%	60.54%	61.89%	63.24%	64.59%	65.94%	67.30%	68.65%	70.00%
CenterPoint Energy, Inc.	74.25%	70.45%	68.31%	68.55%	68.79%	69.03%	69.27%	69.52%	69.76%	70.00%
CMS Energy Corporation	61.42%	60.76%	60.71%	61.03%	62.52%	64.02%	65.51%	67.01%	68.50%	70.00%
Consolidated Edison, Inc.	67.70%	66.88%	66.94%	67.38%	67.81%	68.25%	68.69%	69.13%	69.56%	70.00%
Dominion Energy, Inc.	86.53%	84.85%	81.11%	79.60%	78.00%	76.40%	74.80%	73.20%	71.60%	70.00%
DTE Energy Company	61.72%	61.64%	60.05%	57.93%	59.94%	61.95%	63.96%	65.98%	67.99%	70.00%
Duke Energy Corporation	75.92%	75.51%	71.23%	71.76%	71.47%	71.17%	70.88%	70.59%	70.29%	70.00%
Edison International	55.73%	55.63%	54.25%	56.50%	58.75%	61.00%	63.25%	65.50%	67.75%	70.00%
El Paso Electric Company	58.52%	61.43%	62.50%	63.57%	64.64%	65.71%	66.79%	67.86%	68.93%	70.00%
Entergy Corporation	66.79%	64.82%	65.77%	66.38%	66.98%	67.58%	68.19%	68.79%	69.40%	70.00%
Evergy, Inc.	65.50%	67.07%	67.83%	67.13%	67.61%	68.08%	68.56%	69.04%	69.52%	70.00%
Eversource Energy	61.75%	62.02%	62.14%	62.05%	58.97%	61.18%	62.50%	63.83%	65.15%	70.00%
Exelon Corporation	49.35%	52.46%	54.02%	56.30%	58.59%	60.87%	63.15%	65.43%	67.72%	70.00%
FirstEnergy Corp.	63.05%	62.12%	62.37%	63.46%	64.55%	65.64%	66.73%	67.82%	68.91%	70.00%
Hawaiian Electric Industries, Inc.	65.67%	62.96%	63.84%	64.72%	65.60%	66.48%	67.36%	68.24%	69.12%	70.00%
IDACORP, Inc.	57.33%	58.85%	60.24%	61.64%	63.03%	64.42%	65.82%	67.21%	68.61%	70.00%
MDU Resources Group Inc.	51.22%	46.70%	49.62%	52.53%	55.44%	58.35%	61.26%	64.18%	67.09%	70.00%
NextEra Energy, Inc.	61.59%	62.91%	64.06%	64.91%	65.75%	66.60%	67.45%	68.30%	69.15%	70.00%
NiSource Inc.	61.59%	60.96%	61.15%	64.07%	65.06%	66.05%	67.04%	68.02%	69.01%	70.00%
NorthWestern Corporation	67.61%	66.94%	67.32%	67.70%	68.08%	68.47%	68.85%	69.23%	69.62%	70.00%
OGE Energy Corp.	69.74%	70.00%	71.08%	70.93%	70.77%	70.62%	70.46%	70.31%	70.15%	70.00%
Otter Tail Corporation	61.25%	61.35%	62.44%	63.52%	64.60%	65.68%	66.76%	67.84%	68.92%	70.00%
PG&E Corporation	0.00%	0.00%	44.94%	48.52%	52.10%	55.68%	59.26%	62.84%	66.42%	70.00%
Pinnacle West Capital Corporation	65.23%	64.88%	65.50%	66.15%	66.79%	67.43%	68.07%	68.72%	69.36%	70.00%
PNM Resources, Inc.	64.71%	54.39%	56.34%	58.29%	60.25%	62.20%	64.15%	66.10%	68.05%	70.00%
Portland General Electric Company	63.28%	63.00%	64.66%	65.43%	66.19%	66.95%	67.71%	68.48%	69.24%	70.00%
PPL Corporation	66.80%	69.20%	69.30%	69.40%	69.50%	69.60%	69.70%	69.80%	69.90%	70.00%
Public Service Enterprise Group Incorporated	57.60%	59.14%	58.86%	61.23%	62.69%	64.15%	65.61%	67.08%	68.54%	70.00%
Sempra Energy	59.13%	58.00%	58.75%	60.35%	61.96%	63.57%	65.18%	66.78%	68.39%	70.00%
Southern Company	79.87%	80.43%	76.92%	75.93%	74.95%	73.96%	72.97%	71.98%	70.99%	70.00%
Unitil Corporation	61.98%	58.91%	57.68%	56.74%	58.95%	61.16%	63.37%	65.58%	67.79%	70.00%
WEC Energy Group, Inc.	66.84%	66.50%	67.76%	68.08%	68.40%	68.72%	69.04%	69.36%	69.68%	70.00%
Xcel Energy Inc.	61.15%	60.81%	61.86%	60.84%	62.37%	63.90%	65.42%	66.95%	68.47%	70.00%

Multiple-Stage Dividend Discount Model
for the Comparable Electric Utility Companies

Estimated Dividends Until Terminal Stage Based on Discrete Dividends and Payout Ratios
Constant Growth Terminal Year

Company Name	Cost of Equity	Stock Price	2020	2021	2022	2023	2024	2025	2026	2027	Terminal Year 2028
ALLETE, Inc.	**6.63%**	-84.8481	$2.47	$2.59	$2.71	$2.95	$3.20	$3.46	$3.70	$3.93	$118.29
Alliant Energy Corporation	**6.49%**	-52.8668	$1.52	$1.61	$1.72	$1.84	$1.97	$2.10	$2.22	$2.34	$72.95
Ameren Corporation	**6.46%**	-76.7846	$2.02	$2.13	$2.23	$2.44	$2.66	$2.88	$3.11	$3.33	$107.77
American Electric Power Company, Inc.	**6.82%**	-92.3221	$2.82	$2.99	$3.15	$3.50	$3.76	$4.01	$4.26	$4.49	$128.67
Avangrid, Inc.	**7.15%**	-50.1763	$1.85	$1.93	$2.02	$2.15	$2.30	$2.43	$2.56	$2.67	$69.14
Avista Corporation	**6.41%**	-47.6641	$1.61	$1.69	$1.88	$1.93	$1.98	$2.03	$2.07	$2.11	$63.18
Black Hills Corporation	**6.46%**	-76.8502	$2.17	$2.32	$2.50	$2.60	$2.79	$2.98	$3.16	$3.35	$106.29
CenterPoint Energy, Inc.	**6.90%**	-28.41	$1.24	$1.24	$1.25	$1.17	$1.22	$1.28	$1.33	$1.39	$38.04
CMS Energy Corporation	**6.49%**	-62.6786	$1.64	$1.75	$1.87	$2.02	$2.21	$2.40	$2.59	$2.77	$87.85
Consolidated Edison, Inc.	**6.42%**	-90.6857	$3.06	$3.17	$3.28	$3.40	$3.53	$3.65	$3.78	$3.92	$122.05
Dominion Energy, Inc.	**7.19%**	-81.0097	$3.79	$3.92	$3.95	$4.05	$4.15	$4.23	$4.30	$4.35	$106.31
DTE Energy Company	**7.13%**	-128.013	$4.08	$4.37	$4.57	$4.75	$5.22	$5.69	$6.16	$6.62	$182.09
Duke Energy Corporation	**7.22%**	-93.2389	$3.91	$4.07	$4.06	$4.32	$4.51	$4.69	$4.87	$5.02	$126.18
Edison International	**7.83%**	-70.7219	$2.53	$2.62	$2.68	$3.06	$3.37	$3.69	$4.00	$4.32	$103.17
El Paso Electric Company	**6.09%**	-67.1254	$1.58	$1.72	$1.86	$2.01	$2.17	$2.33	$2.48	$2.63	$92.64
Entergy Corporation	**6.35%**	-116.645	$3.76	$3.87	$4.17	$4.45	$4.54	$4.65	$4.78	$4.93	$156.77
Evergy, Inc.	**6.73%**	-64.4202	$2.05	$2.20	$2.34	$2.43	$2.60	$2.76	$2.92	$3.06	$88.65
Eversource Energy	**6.53%**	-83.2905	$2.26	$2.40	$2.56	$2.73	$2.86	$3.13	$3.35	$3.56	$117.13
Exelon Corporation	**7.65%**	-46.4532	$1.52	$1.60	$1.68	$1.85	$2.10	$2.37	$2.56	$2.74	$67.75
FirstEnergy Corp.	**7.05%**	-47.5711	$1.57	$1.64	$1.74	$1.87	$2.02	$2.17	$2.31	$2.45	$66.66
Hawaiian Electric Industries, Inc.	**6.31%**	-44.5225	$1.32	$1.36	$1.44	$1.52	$1.61	$1.69	$1.78	$1.86	$60.76
IDACORP, Inc.	**5.92%**	-108.317	$2.66	$2.86	$3.03	$3.20	$3.38	$3.57	$3.76	$3.95	$147.80
MDU Resources Group Inc.	**7.78%**	-28.2705	$0.84	$0.85	$0.97	$1.10	$1.25	$1.41	$1.56	$1.71	$42.28
NextEra Energy, Inc.	**6.32%**	-229.129	$5.58	$6.19	$6.79	$7.24	$7.90	$8.55	$9.17	$9.73	$318.41
NiSource Inc.	**6.71%**	-28.2056	$0.85	$0.89	$0.96	$1.07	$1.14	$1.20	$1.27	$1.33	$39.07
NorthWestern Corporation	**6.47%**	-72.9006	$2.40	$2.49	$2.64	$2.74	$2.86	$2.97	$3.09	$3.20	$98.53
OGE Energy Corp.	**6.80%**	-43.4638	$1.59	$1.68	$1.77	$1.79	$1.88	$1.96	$2.04	$2.11	$58.73
Otter Tail Corporation	**6.63%**	-52.7375	$1.47	$1.54	$1.68	$1.83	$1.99	$2.15	$2.30	$2.44	$73.76
PG&E Corporation	**23.26%**	-8.62873	$0.00	$0.00	$2.00	$2.25	$2.52	$2.80	$3.09	$3.39	$23.31
Pinnacle West Capital Corporation	**6.97%**	-92.7416	$3.17	$3.38	$3.57	$3.79	$4.02	$4.25	$4.47	$4.68	$127.98
PNM Resources, Inc.	**6.39%**	-50.5386	$1.43	$1.30	$1.42	$1.54	$1.70	$1.85	$2.00	$2.15	$70.82
Portland General Electric Company	**6.27%**	-56.13	$1.62	$1.72	$1.83	$1.90	$2.01	$2.12	$2.22	$2.33	$76.50

PPL Corporation	**8.32%**	-32.1627	$1.69	$1.73	$1.84	$1.90	$1.96	$2.02	$2.08	$2.15	$43.93
Public Service Enterprise Group Incorporated	**6.87%**	-61.536	$1.97	$2.07	$2.16	$2.29	$2.47	$2.64	$2.82	$2.99	$85.94
Sempra Energy	**7.45%**	-144.657	$4.21	$4.53	$4.87	$5.79	$6.44	$7.07	$7.69	$8.28	$210.33
Southern Company	**7.09%**	-61.3471	$2.54	$2.63	$2.70	$2.92	$3.01	$3.09	$3.16	$3.23	$81.94
Unitil Corporation	**5.84%**	-61.6129	$1.50	$1.52	$1.54	$1.60	$1.73	$1.87	$2.01	$2.15	$84.84
WEC Energy Group, Inc.	**6.16%**	-92.2137	$2.50	$2.66	$2.88	$3.00	$3.19	$3.38	$3.56	$3.72	$125.57
Xcel Energy Inc.	**6.38%**	-63.1091	$1.70	$1.80	$1.93	$2.02	$2.19	$2.36	$2.52	$2.68	$87.66
Average	**7.18%**										
Average w/o EIX, SE, PPL, PCG	**6.72%**										
Average Mostly Pure Play	**6.41%**										
Average Pure Play	**6.44%**										
Avereage Pure Play VI Elec	**6.44%**										
Combined 2012-2014	**6.56%**										
Companies from 2014 Rate Case	**6.66%**										

Multiple-Stage Discounted Cash Flow Model
for the Comparable Electric Utility Companies

Method I Sponsored with Staff

Company Name	Annualized Quarterly Dividend	Growth Years 1-5	6	7	Growth Years 8	9	10	Growth in Perpetuity	Cost of Equity
ALLETE, Inc.	$2.35	7.10%	6.50%	5.91%	5.31%	4.71%	4.12%	3.00%	6.69%
Alliant Energy Corporation	$1.42	5.49%	5.32%	5.15%	4.99%	4.82%	4.65%	3.00%	6.21%
Ameren Corporation	$1.98	5.37%	5.05%	4.72%	4.40%	4.08%	3.75%	3.00%	6.07%
American Electric Power Company, Inc.	$2.80	5.79%	5.53%	5.27%	5.00%	4.74%	4.48%	3.00%	6.66%
Avangrid, Inc.	$1.76	6.58%	5.92%	5.27%	4.61%	3.95%	3.30%	3.00%	7.55%
Avista Corporation	$1.55	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	3.00%	6.57%
Black Hills Corporation	$2.14	4.94%	4.70%	4.45%	4.21%	3.96%	3.72%	3.00%	6.25%
CenterPoint Energy, Inc.	$1.15	4.57%	4.04%	3.50%	2.97%	2.44%	1.90%	3.00%	7.47%
CMS Energy Corporation	$1.53	6.94%	6.63%	6.31%	6.00%	5.68%	5.37%	3.00%	6.37%
Consolidated Edison, Inc.	$2.96	3.00%	2.51%	2.02%	1.53%	1.04%	0.55%	3.00%	6.52%
Dominion Energy, Inc.	$3.67	4.47%	3.93%	3.39%	2.84%	2.30%	1.76%	3.00%	8.27%
DTE Energy Company	$4.05	6.20%	6.50%	6.80%	7.10%	7.39%	7.69%	3.00%	6.67%
Duke Energy Corporation	$3.78	4.88%	4.57%	4.25%	3.94%	3.63%	3.31%	3.00%	7.70%
Edison International	$2.45	5.94%	5.45%	4.96%	4.47%	3.98%	3.49%	3.00%	7.29%
El Paso Electric Company	$1.54	6.25%	5.71%	5.17%	4.63%	4.08%	3.54%	3.00%	5.91%
Entergy Corporation	$3.72	1.21%	1.51%	1.81%	2.10%	2.40%	2.70%	3.00%	5.90%
Evergy, Inc.	$2.02	6.23%	5.69%	5.15%	4.61%	4.08%	3.54%	3.00%	6.97%
Eversource Energy	$2.14	6.10%	5.59%	5.07%	4.55%	4.03%	3.52%	3.00%	6.23%
Exelon Corporation	$1.45	4.33%	4.11%	3.89%	3.67%	3.44%	3.22%	3.00%	6.50%
FirstEnergy Corp.	$1.56	6.20%	5.67%	5.13%	4.60%	4.07%	3.53%	3.00%	7.14%
Hawaiian Electric Industries, Inc.	$1.28	4.22%	4.01%	3.81%	3.61%	3.41%	3.20%	3.00%	6.20%
IDACORP, Inc.	$2.68	3.33%	3.28%	3.22%	3.17%	3.11%	3.06%	3.00%	5.59%
MDU Resources Group Inc.	$0.83	7.50%	6.75%	6.00%	5.25%	4.50%	3.75%	3.00%	7.02%
MGE Energy, Inc.	$1.41	NA	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	3.00% x	
NextEra Energy, Inc.	$5.00	7.81%	7.01%	6.21%	5.41%	4.60%	3.80%	3.00%	6.07%
NiSource Inc.	$0.80	4.49%	4.24%	3.99%	3.74%	3.50%	3.25%	3.00%	6.21%
NorthWestern Corporation	$2.30	3.63%	3.52%	3.42%	3.31%	3.21%	3.10%	3.00%	6.38%
OGE Energy Corp.	$1.55	5.17%	4.81%	4.45%	4.09%	3.72%	3.36%	3.00%	7.21%
Otter Tail Corporation	$1.40	7.05%	6.38%	5.70%	5.03%	4.35%	3.68%	3.00%	6.55%
PG&E Corporation	$0.00	4.25%	4.05%	3.84%	3.63%	3.42%	3.21%	3.00% x	
Pinnacle West Capital Corporation	$3.13	5.11%	4.76%	4.40%	4.05%	3.70%	3.35%	3.00%	6.98%
PNM Resources, Inc.	$1.16	6.23%	5.69%	5.15%	4.62%	4.08%	3.54%	3.00%	5.91%
Portland General Electric Company	$1.54	4.55%	4.29%	4.04%	3.78%	3.52%	3.26%	3.00%	6.12%
PPL Corporation	$1.65	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	8.28%
Public Service Enterprise Group Incorpor	$1.88	5.23%	4.86%	4.49%	4.12%	3.74%	3.37%	3.00%	6.63%
Sempra Energy	$3.87	8.20%	7.33%	6.47%	5.60%	4.73%	3.87%	3.00%	6.84%
Southern Company	$2.48	4.33%	4.11%	3.89%	3.67%	3.44%	3.22%	3.00%	7.53%
Unitil Corporation	$1.48	4.28%	4.07%	3.85%	3.64%	3.43%	3.21%	3.00%	5.68%
WEC Energy Group, Inc.	$2.36	6.06%	5.55%	5.04%	4.53%	4.02%	3.51%	3.00%	6.21%
Xcel Energy Inc.	$1.62	5.67%	5.22%	4.78%	4.33%	3.89%	3.44%	3.00%	6.14%
								Average	6.65%
								Average w/o EIX, SE, PPL, PCG	6.57%
								Average Mostly Pure Play	**6.27%**
								Average Pure Play	**6.27%**
								Average Pure Play VI Elec	**6.31%**
								Average 2012 and 2014 Combined	**6.47%**
								ER-2014-0258 Companies	**6.53%**

Sources: Quarterly Dividend Rate and from S&P Market Intelligence. Growth in Years 1-5 Based on Consensus Analysts' Estimated Long-Term Compound Annual Growth Rate in EPS.

CAPITAL ASSET PRICING MODEL (CAPM) COST OF COMMON EQUITY ESTIMATES FOR VARIOUS PROXY GROUPS AND AMEREN BASED ON 30-YEAR US TREASURY

	(1)	(2)	(3)	(4)
Company Name	30-Year Risk Free Rate	Beta	Equity Risk Premium	CAPM Cost of Common Equity
Ameren Corporation	2.21%	0.551	6.00%	5.52%
EEI Electric Proxy Group	2.21%	0.571	6.00%	5.63%
Regulated EEI Proxy Group	2.21%	0.559	6.00%	5.56%
Mostly Regulated Electric & Gas Proxy Group	2.21%	0.545	6.00%	5.48%
Pure Play Electric & Gas	2.21%	0.561	6.00%	5.58%
Pure Play Vertically Integrated	2.21%	0.556	6.00%	5.55%
Average		**0.556**		**5.55%**

Column 1 = Average of last 3 Months of 30-Year Treasuries obtained from the St. Louis Federal Reserve website at https://fred.stlouisfed.org/series/GS20

Column 2 = Beta is a measure of the movement and relative risk of an individual stock to the market as a whole. I used a template provided by S&P Market Intelligence that calculates raw betas based on the Value Linen approach. This approach measures the covariance of the company's weekly returns with that of the S&P 500 divided by the variance of the S&P 500 returns over an historical 5 year period. This raw beta is then adjusted by the Blume formula, which is the following: Adjusted Beta = 0.35 + 0.67 * Unadjusted Beta

Column 3 = The equity risk premium is based on range of the mid-point of a range of market risk premiums identified in Exhibit 3.28 of Duff & Phelps 2019 Valuation Handbook - Cost of Capital: Annual U.S. Guidance and Examples of U.S. Data Tables Included, p. 54.

Column 4 = (Column 1 + (Column 2 * Column 3)).

CAPITAL ASSET PRICING MODEL (CAPM) COST OF COMMON EQUITY ESTIMATES FOR VARIOUS PROXY GROUPS AND AMEREN BASED ON 20-YEAR US TREASURY

	(1)	(2)	(3)	(4)
Company Name	20-Year Risk Free Rate	Beta	Equity Risk Premium	CAPM Cost of Common Equity
Ameren Corporation	2.03%	0.551	6.00%	5.34%
EEI Electric Proxy Group	2.03%	0.571	6.00%	5.46%
Regulated EEI Proxy Group	2.03%	0.559	6.00%	5.39%
Mostly Regulated Electric & Gas Proxy Group	2.03%	0.545	6.00%	5.31%
Pure Play Electric & Gas	2.03%	0.561	6.00%	5.40%
Pure Play Vertically Integrated	2.03%	0.556	6.00%	5.37%
Average		**0.556**		**5.38%**

Column 1 = Average of last 3 Months of 20-Year Treasuries obtained from the St. Louis Federal Reserve website at https://fred.stlouisfed.org/series/GS20

Column 2 = Beta is a measure of the movement and relative risk of an individual stock to the market as a whole. I used a template provided by S&P Market Intelligence that calculates raw betas based on the Value Linen approach. This approach measures the covariance of the company's weekly returns with that of the S&P 500 divided by the variance of the S&P 500 returns over an historical 5 year period. This raw beta is then adjusted by the Blume formula, which is the following: Adjusted Beta = 0.35 + 0.67 * Unadjusted Beta

Column 3 = The equity risk premium is based on range of the mid-point of a range of market risk premiums identified in Exhibit 3.28 of Duff & Phelps 2019 Valuation Handbook - Cost of Capital: Annual U.S. Guidance and Examples of U.S. Data Tables Included, p. 54.

Column 4 = (Column 1 + (Column 2 * Column 3)).

CAPITAL ASSET PRICING MODEL (CAPM) COST OF COMMON EQUITY ESTIMATES FOR VARIOUS PROXY GROUPS AND AMEREN BASED ON 30-YEAR US TREASURY

	(1)	(2)	(3)	(4)
Company Name	D&P Normalized Risk-free Rate	Beta	D&P Equity Risk Premium	CAPM Cost of Common Equity
Ameren Corporation	3.00%	0.551	5.50%	6.03%
EEI Electric Proxy Group	3.00%	0.571	5.50%	6.14%
Regulated EEI Proxy Group	3.00%	0.559	5.50%	6.07%
Mostly Regulated Electric & Gas Proxy Group	3.00%	0.545	5.50%	6.00%
Pure Play Electric & Gas	3.00%	0.561	5.50%	6.09%
Pure Play Vertically Integrated	3.00%	0.556	5.50%	6.06%
Average		**0.556**		**6.06%**

Column 1 = D&P Most Recent Guidance on Normalized Risk-free Rate as of September 30, 2019
https://www.duffandphelps.com/insights/publications/valuation/us-normalized-risk-free-effective-september-30-2019

Column 2 = Beta is a measure of the movement and relative risk of an individual stock to the market as a whole. I used a template provided by S&P Market Intelligence that calculates raw betas based on the Value Linen approach. This approach measures the covariance of the company's weekly returns with that of the S&P 500 divided by the variance of the S&P 500 returns over an historical 5 year period. This raw beta is then adjusted by the Blume formula, which is the following:
Adjusted Beta = 0.35 + 0.67 * Unadjusted Beta

Column 3 = D&P guidance as of September 30, 2019 on equity risk premium to be used in conjunction with normalized risk-free rate.
https://www.duffandphelps.com/insights/publications/valuation/us-normalized-risk-free-effective-september-30-2019

Column 4 = (Column 1 + (Column 2 * Column 3)).

Case No. ER-2019-0335

Schedule DM-D-7 to

David Murray's

Direct Testimony has been

deemed "Highly Confidential"

in its entirety

AMEREN CORPORATION AND AMEREN MISSOURI CAPITAL STRUCTURES AS OF TEST YEAR (12/31/2018), UPDATE (6/30/2019) AND MOST RECENT FISCAL QUARTER (9/30/2019)

Union Electric Capital Structure (SEC balance sheet amounts) as of September 30, 2019

Capital Component	Dollars	Percentage
Common Stock Equity	$4,345,000	**52.31%**
Preferred Stock	$80,000	0.96%
Long-Term Debt	$3,881,000	46.73%
Short-Term Debt	$0	0.00%
Total	$8,306,000	100%

Ameren Capital Structure (SEC balance sheet amounts) as of September 30, 2019

Capital Component	Dollars	Percentage
Common Stock Equity	$8,062,000	**47.54%**
Preferred Stock	$142,000	0.84%
Long-Term Debt	$8,755,000	51.62%
Short-Term Debt	$0	0.00%
Total	$16,959,000	100.00%

Union Electric Capital Structure (based on carrying balances) as of June 30, 2019

Capital Component	Dollars	Percentage
Common Stock Equity	$4,195,000	**52.01%**
Preferred Stock	$81,828	1.01%
Long-Term Debt	$3,789,529	46.98%
Short-Term Debt	$0	0.00%
Total	$8,066,356	100%

Ameren Capital Structure (based on carrying balances) as of June 30, 2019

Capital Component	Dollars	Percentage
Common Stock Equity	$7,791,000	**48.18%**
Preferred Stock	$142,546	0.88%
Long-Term Debt	$8,236,268	50.94%
Short-Term Debt	$0	0.00%
Total	$16,169,814	100.00%

Union Electric Capital Structure (SEC balance sheet amounts) as of June 30, 2019

Capital Component	Dollars	Percentage
Common Stock Equity	$4,195,000	**51.45%**
Preferred Stock	$80,000	0.98%
Long-Term Debt	$3,878,000	47.57%
Short-Term Debt	$0	0.00%
Total	$8,153,000	100%

Ameren Capital Structure (SEC balance sheet amounts) as of June 30, 2019

Capital Component	Dollars	Percentage
Common Stock Equity	$7,791,000	**47.93%**
Preferred Stock	$142,000	0.87%
Long-Term Debt	$8,323,000	51.20%
Short-Term Debt	$0	0.00%
Total	$16,256,000	100.00%

Union Electric Capital Structure (based on carrying balances)
as of December 31, 2018

Capital Component	Dollars	Percentage
Common Stock Equity	$4,149,000	**52.51%**
Preferred Stock	$81,828	1.04%
Long-Term Debt	$3,670,686	46.46%
Short-Term Debt	$0	0.00%
Total	$7,901,513	100%

Ameren Capital Structure (based on carrying balances)
as of December 31, 2018

Capital Component	Dollars	Percentage
Common Stock Equity	$7,631,000	**48.04%**
Preferred Stock	$142,546	0.90%
Long-Term Debt	$8,112,728	51.07%
Short-Term Debt	$0	0.00%
Total	$15,886,274	100.00%

Union Electric Capital Structure (SEC balance sheet amounts)
as of December 31, 2018

Capital Component	Dollars	Percentage
Common Stock Equity	$4,149,000	**52.14%**
Preferred Stock	$80,000	1.01%
Long-Term Debt	$3,728,000	46.85%
Short-Term Debt	$0	0.00%
Total	$7,957,000	100%

Ameren Capital Structure (SEC balance sheet amounts)
as of December 31, 2018

Capital Component	Dollars	Percentage
Common Stock Equity	$7,631,000	**47.87%**
Preferred Stock	$142,000	0.89%
Long-Term Debt	$8,169,000	51.24%
Short-Term Debt	$0	0.00%
Total	$15,942,000	100.00%

Sources: S&P Market Intelligence for SEC Capital Structure Balances. Ameren Missouri's Responses to OPC DR Nos. 3004 and 3005 for long-term debt and preferred stock carrying balances.

Note: Adjusted SEC long-term debt balance for Audrain County and Peno Creek Ch. 100 Leases ($270 million).

Recommended Rate Making Capital Structure for Union Electric Company

Capital Component		Dollar Amount	Percentage of Capital
Common Stock Equity	$	3,871,851	48.00%
Preferred Stock	$	81,828	1.01%
Long-Term Debt	$	4,112,678	50.99%
Short-Term Debt	$	-	0.00%
Total Capitalization	**$**	**8,066,356**	**100.00%**

Recommended Alllowed Rate of Return as of June 30, 2019 for Union Electric Company

Capital Component	Percentage of Capital	Cost	After-Tax ROR	Pre-Tax ROR
Common Stock Equity	48.00%	9.25%	4.44%	5.82%
Preferred Stock	1.01%	4.18%	0.04%	0.06%
Long-Term Debt	50.99%	4.50%	2.29%	2.29%
Total	**100.00%**		**6.78%**	**8.16%**

Sources: Embedded Costs of Debt and Preferred Stock Provided in Response to OPC DR No. 3005
Adjusted Embedded Cost of Debt to Reflect Additonal Debt in Recommended Capital Structure.
Assumed 3.25% Coupon Consistent with UE's 10/1/2019 $330 million debt issuance.
Tax Rate Provided in Laura Moore's Schedule LMM-15.

Do Not Print

Tax Rate Per Laura Moore Schedule LMM-15

Tax	114068
Income	482089
Tax Rate	0.236612

Tax Multiplier 1.30995

Case No. ER-2019-0335

Schedules DM-D-11
through DM-D-18 to
David Murray's
Direct Testimony have been
deemed "Confidential" in their
entirety