Exhibit No. 22

Ameren Missouri – Exhibit 22
Ann E. Bulkley
Surrebuttal Testimony
File Nos. ER-2021-0240 & GR-2021-0241

Exhibit No. 022
Issues: Return on Equity
Witness: Ann E. Bulkley
Exhibit Type: Surrebuttal
Sponsoring Party: Ameren Missouri
File No. ER-2021-0240
Date: November 5, 2021

MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. ER-2021-0240

SURREBUTTAL TESTIMONY

OF

ANN E. BULKLEY

ON BEHALF OF

AMEREN MISSOURI

November 5, 2021

TABLE OF CONTENTS

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OF

ANN E. BULKLEY

FILE NO. ER-2021-0240

I. INTRODUCTION

Q. Please state your name and business address.

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

Q. On whose behalf are you submitting this testimony?

A. I am submitting this testimony on behalf of Ameren Missouri (the "Company"), a wholly-owned subsidiary of Ameren Corporation ("Ameren").

Q. Did you previously provide Direct and Rebuttal testimonies in this proceeding?

A. Yes. I filed Direct Testimony in this proceeding on March 31, 2021. I filed Rebuttal Testimony on October 15, 2021.

Q. What is the purpose of your Surrebuttal Testimony?

A. The purpose of my Surrebuttal Testimony is to respond to the Rebuttal Testimony of the Missouri Public Service Commission Staff ("Staff") witness Peter Chari relating to the authorized return on equity ("ROE"), the Rebuttal Testimony of Staff witness John P. Cassidy relating to the business risk of Ameren Missouri and the Rebuttal Testimony of David Murray on behalf of the Missouri Office of Public Counsel ("OPC").

Q. Are you sponsoring any schedules as part of your Surrebuttal Testimony?

A. Yes, I am sponsoring Schedule AEB-S1, Attachments 1 through 5 to support my Surrebuttal Testimony, which were prepared by me or under my direction.

Q. Please briefly summarize your Surrebuttal Testimony and your key conclusions and recommendations regarding the appropriate ROE for Ameren Missouri in this proceeding.

A. My key conclusions are as follows:

1. Both Mr. Chari and Mr. Murray dedicate many pages of their respective Rebuttal Testimonies to disputing my application of the DCF and CAPM models. Their criticisms should be viewed, however, in the context that neither Mr. Chari nor Mr. Murray rely on the results of any of their own ROE estimation models. Their respective 9.50 percent and 9.00 percent recommendations are not based on any of the assumptions they used to establish their ROE analyses. Rather, each of these witnesses comes to their recommendations by relying completely on subjective analyses.

2. Mr. Murray is inconsistent in his interpretation of market conditions. Mr. Murray opposes my conclusion that market conditions have affected the DCF model results, understating ROEs because interest rates are low, influencing investors' decisions. However, Mr. Murray and I have both acknowledged that utility share prices and interest rates are inversely related. This would imply that if interest rates increase over the near-term as expected the cost of equity as estimated by the DCF model will also likely increase. As a result, to the extent that interest rates are expected to increase, it is unreasonable for Mr. Murray to suggest that the results of the DCF model are not currently underestimating the cost of equity in a

higher interest rate environment, such as the period that Ameren Missouri's rates will be in effect. My recommended range of results considers the effect of this change in market conditions. Mr. Murray's unwillingness to acknowledge this effect on the DCF model results is in direct conflict with his assumption regarding the relationship between interest rates and utility share prices.

3. Mr. Chari opposes my use of earnings per share ("EPS") growth rates in the Constant Growth DCF model because, on average, the EPS growth rates exceed his estimate of the long-term GDP growth rate of 3.70 percent. Mr. Chari contends that a Company is unable to grow at a rate greater than GDP in perpetuity. However, the validity of this critique is entirely based on the assumption that Mr. Chari's estimate of the long-term growth in GDP is correct. Had Mr. Chari estimated GDP using the methodology relied on by Dr. Morin, whom he cites as support for the use of the GDP growth rate in the DCF model, he would have estimated a GDP growth rate of approximately 5.49 percent. A long-term GDP growth rate of 5.49 percent is entirely consistent with the proxy group average EPS growth rates of 5.38 percent and 5.81 percent that I have relied on in my Direct Testimony and Rebuttal Testimony, respectively.

4. Mr. Chari claims to rely on the Federal Energy Regulatory Commission ("FERC") as the basis for his adjustment to the growth rate relied on in my Constant Growth DCF analysis. However, the weightings that Mr. Chari applies are not consistent with FERC's most recent methodology as determined in the Midcontinent Independent System Operator, Inc. ("MISO") transmission owners' case. In Opinion No. 569-A, the FERC adopted a growth rate that places 80 percent weight on EPS growth rate estimates and 20 percent on the long-term GDP growth rate. The FERC noted that this because current electric utility growth rates are closer to

estimates of GDP and investors are likely to view electric utility growth rates as more sustainable than gas pipeline growth rates (where the weighting that Mr. Chari relied on continues to be applied).[1] While I do not agree with the GDP growth rate that Mr. Chari selected to develop his Two-Stage DCF Analysis, had Mr. Chari applied the correct FERC weighting, he would have calculated an adjusted growth rate of 5.04 percent[2] which is 22 basis points greater than the 4.82 percent growth rate he calculated using the incorrect weighting of the short and long-term growth rates.

5. In his criticism of my CAPM analysis, Mr. Chari again misrepresents the FERC methodology. Had he applied that methodology correctly, the results of his analyses would fully support the Company's requested ROE. In Opinion No. 569-A, the FERC clearly supports the use of the Constant Growth DCF model with only an estimate of short-term growth- in particular EPS growth rates. In contrast, Mr. Chari applies a Two-Stage model that weights short and long-term growth rates. If Mr. Chari had correctly applied the FERC methodology, he would have estimated a market return of 12.11 percent which 268 basis points higher than the market return of 9.43 percent calculated by Mr. Chari using the Two-Stage DCF analysis. The adjusted market return of 12.11 percent resulted in updated CAPM results that ranged from 9.43 percent to 11.11 percent, a range that supports the range provided in my Direct Testimony and the Company's requested ROE of 9.90 percent.

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1 FERC Opinion No. 569-A at para 68.
2 5.38%*(80%) + 3.70%*(20%)

6. Mr. Chari and Mr. Murray ignore historical market return data when they suggest that the market return used in my CAPM analysis is overstated. In addition, Mr. Murray ignores the market returns used in his own sources when he criticizes my analyses. As shown in my Direct Testimony, the market return estimate I relied on is 14.13 percent and the market return estimate using the FERC methodology is 12.11 percent. Reviewing historical arithmetic average returns for large company stocks from 1926-2020 demonstrates that the market return has been as high or higher than my estimate at least 50 percent of the years. Further, the Duff and Phelps historical average return of 12.16 percent[3] demonstrates that the market return using the FERC approach is not unreasonable. Furthermore, Mr. Murray references the Wilshire 5000 Index in his Rebuttal Testimony. However, it is important to note that the Wilshire 5000 had a ten-year annualized total return as of June 30, 2021, of 14.76[4] which is consistent with my market return estimate of 14.13 percent and slightly higher than the 12.11 percent market return estimated using the FERC approach.

7. Mr. Chari fails to consider the full range of results from the Bond Yield Risk premium analysis when he concludes that the result from this model supports his recommendation of 9.50 percent. As shown in Schedule AEB-R1, Attachment 7 to my Rebuttal Testimony, the low-end of the range of my risk premium analysis based on the 30-day average of the 30-year Treasury Bond yield as of August 31, 2021 was 9.50 percent which is equivalent to Mr. Chari's recommendation of 9.50 percent. However, reviewing the scenarios that consider the expectation for rising interest rates demonstrates that the Bond Yield Risk Premium analysis in my

[3] Source: Duff &Phelps, Valuation Handbook: Guide to Cost of Capital, 2021.
[4] FT Wilshire 5000 Index Fact Sheet as of June 30, 2021.

Rebuttal Testimony results in a range of returns as high as 10.17 percent, which is slightly higher than the Company's 9.90 percent requested return. As a result, my risk premium analysis provides support for the conclusion that Mr. Chari's recommended ROE will understate the cost of equity as interest rates increase and during the period that Ameren Missouri's rates will be in effect.

8. Finally, Mr. Chari, Mr. Cassidy and Mr. Murray have all concluded that Ameren Missouri's business risk has been reduced due to Plant-In-Service Accounting ("PISA") and the Renewable Energy Standard Rate Adjustment Mechanism ("RESRAM"). All of these witnesses fail to recognize that the determination of the ROE is based on a comparison of the subject company to a risk-comparable proxy group, using the market data for that proxy group. Because the ROE estimation process involves a comparison to the proxy group, it is necessary that the comparison of risk be on that same basis. Therefore, by failing to consider the relative risk of Ameren Missouri, including the PISA and the RESRAM as compared to the proxy group companies, Mr. Chari, Mr. Cassidy and Mr. Murray have all come to flawed conclusions about the risk of Ameren Missouri. The question is not whether Ameren Missouri has more or less risk after the implementation of the PISA and the RESRAM. The correct comparison is does the Company have more or less risk than the proxy group as a result of the implementation of these mechanisms.

Mr. Chari nor Mr. Cassidy nor Mr. Murray have reviewed the cost recovery mechanisms available to the companies in their respective proxy groups to determine the cost recovery risk of the proxy group relative to Ameren Missouri. As a result, there is no basis for these witnesses to make a conclusion regarding the relative risk of Ameren Missouri to the proxy group. Furthermore, as discussed

in my Direct Testimony, I provide a comparison of the proxy group companies and Ameren Missouri across a number of risk factors including forecasted test years, year-end rate base, decoupling mechanisms, formula-based rates, capital cost recovery mechanisms, fuel adjustment clauses, and construction work in progress ("CWIP") allowances within rate base.[5] When a proper analysis is conducted, as was done in my Direct Testimony, the conclusions regarding Ameren Missouri's relative risk are contrary to the unsupported opinions of Mr. Chari, Mr. Cassidy and Mr. Murray. Ameren Missouri has greater risk on average than the proxy group warranting an ROE toward the higher end of the range of results.

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

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

- In Section II, I respond to Staff witness Mr. Chari's ROE analyses and recommendations, OPC witness Mr. Murray's ROE analyses and recommendations and Staff witness Mr. Cassidy's conclusions regarding Ameren Missouri's business risk.
- Finally, in Section III, I summarize my conclusions and recommendations.

II. RETURN ON EQUITY

A. Proxy Group

Q. Please summarize Mr. Murray's position with respect to the proxy group that you relied on for Ameren Missouri.

A. Mr. Murray suggests that I do not recognize or discuss that some of the companies contained in my proxy group have "significant exposure" to unregulated operations.[6]

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[5] Direct Testimony of Ann Bulkley, at 65-66.
[6] Rebuttal Testimony of David Murray, at 18.

Specifically, Mr. Murray notes that I have included Entergy Corporation, NextEra Energy Inc., OGE Energy Corporation and Otter Tail Corporation in my proxy group, each of which has substantial unregulated operations. Mr. Murray believes that companies with a higher percentage of unregulated operations have greater risk than Ameren Missouri. Therefore, Mr. Murray concludes that I have not accounted for the increased risk of unregulated operations when comparing the business risk of Ameren Missouri to the proxy group.[7]

Q. Do you agree with Mr. Murray's position that unregulated operations result in greater risk for the proxy group companies?

A. No, I do not. First, as I discussed in my Direct Testimony, I applied a screening criterion that required a company derive at least 60 percent of their operating income from regulated operations.[8] Thus, the companies included in my proxy group have substantial regulated operations similar to Ameren Missouri. Mr. Murray's statement that my proxy group contains companies with substantial unregulated operations is not correct. Second as shown in Figure 1 below, I compared the 30-day average Constant Growth DCF ("CGDCF") results as of August 31, 2021 contained in Schedule AEB-R1, Attachment 2 of my Rebuttal Testimony for the three companies (Entergy Corporation, NextEra Energy Inc., and Otter Tail Corporation) noted by Mr. Murray as having substantial unregulated operations to the remaining companies in my proxy group.[9] As shown in Figure 1, the average Constant Growth DCF result including Entergy Corporation, NextEra Energy Inc., and Otter Tail Corporation was 9.16 percent which is less than the average Constant Growth DCF result excluding Entergy Corporation, NextEra Energy Inc., and Otter Tail

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7 Rebuttal Testimony of David Murray, at 19.
8 Direct Testimony of Ann E. Bulkley, at 32.
9 Mr. Murray also noted that OG&E Corporation had substantial unregulated operations; however, this company was removed from my proxy group due to M&A activity and thus is not included in Figure 1.

Corporation of 9.18 percent. Further, it is important to note that the company with the highest DCF result (Portland General Electric Company at 11.64 percent) has 100 percent regulated electric operations. Therefore, there was no discernible difference in the CGDCF results. This provides further support that the operating risks of the three companies referenced by Mr. Murray are not perceived to be significantly greater than those of the regulated companies in the proxy group.

Figure 1: Comparison of 30-Day CGDCF Results as of August 31, 2021

Company	Ticker	CGDCF Result
ALLETE, Inc.	ALE	9.24%
Alliant Energy Corporation	LNT	8.15%
American Electric Power Company, Inc.	AEP	9.51%
Duke Energy Corporation	DUK	9.75%
Entergy Corporation	ETR	6.32%
Evergy, Inc.	EVRG	9.79%
NextEra Energy, Inc.	NEE	10.96%
NorthWestern Corporation	NWE	8.12%
Otter Tail Corporation	OTTR	9.97%
Pinnacle West Capital Corporation	PNW	7.55%
Portland General Electric Company	POR	11.64%
Xcel Energy Inc.	XEL	8.87%
Mean Including ETR, NEE, and OTTR		9.16%
Mean Excluding ETR, NEE and OTTR		9.18%

B. DCF – Market Conditions

Q. Please summarize Mr. Murray's concern with your position on how market conditions affect the results of the DCF model.

A. Mr. Murray disagrees with my conclusion that the current valuations of utilities will decline over the near term as interest rates increase. According to Mr. Murray, this assumption violates the Efficient Market Hypothesis ("EMH") which states that stock prices reflect all

current information.[10] Mr. Murray believes that investors have factored in expected market conditions into the current share prices of utilities. Further, Mr. Murray states that even if I was correct and the valuations of utilities were expected to decline, this would not lead to an increase in the cost of equity.[11] To support his conclusion, Mr. Murray references the Grinold-Kroner DCF model which he states assumes that a decline in the valuation of a utility as measured by the P/E ratio would result in a decline in the cost of equity.

Q. Do you agree with Mr. Murray that the market is always efficient?

A. No, I do not. While the EMH is an important part of financial theory, it is critical to understand that the theory relies on simplifying assumptions and is attempting to explain complex financial markets. For example, in its strongest form, the EMH assumes that all information is available equally to investors. However, information is not always available equally. Some firms have greater resources and are able to receive and analyze information more quickly and more completely than competitors. Additionally, the EMH assumes that investors process the information and arrive at similar conclusions regarding how the information impacts the valuation of a company. It is likely, however, that investors have different views regarding how financial information impacts the valuation of a company. It is also true that, as a group, investors may either underreact or overreact to new financial information.

Q. Have investors overreacted to information in the market in recent years?

A. Yes, they have. In response to the COVID-19 pandemic in 2020, volatility as measured by the VIX was at its highest levels since the Great Recession of 2008/09.[12] During 2020,

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[10] Rebuttal Testimony of David Murray, at 21.
[11] Rebuttal Testimony of David Murray, at 22.
[12] Bloomberg Professional

investors were responding to information including the economic effects of the measures used to contain COVID-19 and the additional policy measures implemented by Congress and the Federal Reserve to stabilize the economy. The extreme volatility in 2020 shows that investors were reacting differently to different news stories, which results in wide swings in the market. This demonstrates that investors have overreacted to information in the market, including changes in the policies of the Federal Reserve, as well as increased uncertainty regarding the market and economic conditions in the U.S. and abroad.

Q. Have academics and investors commented on the EMH?

A. Yes, they have. In fact, Professor Aswath Damodaran and Warren Buffet, who Mr. Murray references in his Rebuttal Testimony, have both commented on the EMH and concluded that markets are not efficient. In an interview with Barron's, Professor Aswath Damodaran noted the following regarding the efficient market assumption:

> I'm not an academic. I'm a pragmatist. I don't believe that markets are efficient, but I also don't believe that much of active investing, at least as practiced now, has a prayer at finding and exploiting these inefficiencies for profit. But I do think that markets always convey messages. And if you ignore those messages, or you think you're bigger than the market, the market's going to take you down several notches. So I think that is my overriding message—get away from static to dynamic, from backward-looking to forward-looking. And that scares people.[13]

Warren Buffet also recognized the inefficiencies in the market:

> I'm convinced that there is much inefficiency in the market. These Graham-and-Doddsville investors have successfully exploited gaps between price and value. When the price of a stock can be influenced by a "herd" on Wall Street with prices set at the margin by the most emotional person, or the greediest person, or the most depressed person, it is hard to argue that the

[13] Root, Al. "Buying Tesla at $180 and Other Investing Nuggets From NYU Professor Aswath Damodaran." Barron's, 25 June 2020, www.barrons.com/articles/how-to-value-stocks-according-to-nyu-professor-aswath-damodaran-51593082800.

market always prices rationally. In fact, market prices are frequently nonsensical.[14]

Q. How does the fact that markets are not always efficient affect the ROE estimation process for a utility?

A. In general, investors use the DCF model to develop return estimates for a company as of a specific date factoring in all the information available to them at the time of the estimation. However, for a regulated utility like Ameren Missouri, the cost of equity is being estimated for a future period when the utility's rates will be in effect. Therefore, investors' current valuations may be different than the valuations investors would calculate during the period that the Company's rates will be in effect. For this reason, it is important to review current and prospective capital market conditions and to determine whether current market conditions are expected to persist during the period that the Company's rates will be in effect. If prospective market conditions are expected to be different than current market conditions, the ROE models based on current market data will not produce reasonable estimates of the cost of equity during the period that Ameren Missouri's rates will be in effect.

As discussed in my Direct and Rebuttal Testimonies, the economy is in the recovery phase of the business cycle thus interest rates are expected to increase, and the utility sector is expected to underperform.[15] If the utility sector underperforms over the near term and share prices decline, then the dividend yields of those utilities will increase, resulting in increases in the ROE estimate produced by the DCF model. Given that we are estimating the cost of equity for the period that Ameren Missouri's rates will be in effect, this is an

[14] Buffett, Warren. The Superinvestors of Graham-and-Doddsville. Columbia Business, 17 May 1984, www8.gsb.columbia.edu/articles/columbia-business/superinvestors.

[15] Direct Testimony of Ann Bulkley, at 13-24. Rebuttal Testimony of Ann Bulkley, at 24-32

important factor that must be considered when relying on the results produced by the ROE estimation models.

Q. Does Mr. Murray agree that interest rates and the share prices of utilities are inversely related.

A. Yes, he does. Mr. Murray noted that the valuation levels of utility stocks are inversely related to bond yields which means that the valuation levels of utilities will decline(increase) as interest rate increase(decrease).[16]

Q. Mr. Murray agrees that interest rates and utility share prices are inversely related. Does this position conflict with his criticism of your conclusion that the valuations of utilities will decline over the near term?

A. Yes, it does. As discussed in my Rebuttal Testimony, interest rates are expected to increase over the near term.[17] In fact, in a recent article, Barron's conducted its Big Money poll of professional investors regarding the outlook for the next twelve months. Approximately 60 percent of respondents projected the yield on the 10-year Treasury Bond will be 2.00 percent or greater at the end of the next twelve months which is an increase from the current 30-day average 10-year Treasury Bond yield as of September 30, 2021 of 1.35 percent.[18] Therefore, if interest rates increase as expected over the next twelve months, the inverse relationship between interest rates and utility share prices would indicate that the share prices of utilities will decline. This is most likely why the investors surveyed by Barron's also selected the utility sector as the sector which will

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[16] Direct Testimony of David Murray, at 9.
[17] Rebuttal Testimony of Ann Bulkley, at 24-32.
[18] Jasinski, Nicholas. Stocks Are Still the Place to Be, Our Exclusive Big Money Poll Finds. Barron's, 16 Oct. 2021, https://www.barrons.com/articles/stock-market-covid-economy-outlook-51634312012?mod=hpsubnav&tesla=y.

perform the worst over the next twelve months.[19] Thus, Mr. Murray's conclusion in his Rebuttal Testimony that the Commission should rely on the DCF results calculated using current valuations contradicts his position in his Direct Testimony that interest rates and utility share prices are inversely related because interest rates are expected to increase.

Q. Do you agree with Mr. Murray's use of the Grinold-Kroner DCF model to note that a decline in the valuation of a utility will decrease the cost of equity?

A. No, I do not. Mr. Murray has misinterpreted my position. I have noted that the share prices of utility stocks are expected to decline as interest rates increase over the near-term. Therefore, if we estimated the DCF model at a point in time during the period that Ameren Missouri rates will be in effect, the DCF results would likely be higher due to the decline in share prices. Mr. Murray's use of the Grinold-Kroner model shows that if an investor were to estimate the Grinold-Kroner DCF model today, the expected decline in the P/E ratio over the near-term would reduce the return the investor would expect to earn over the investment period. Therefore, Mr. Murray's use of the Grinold-Kroner model still relies on current market data to estimate the cost of equity during the period Ameren Missouri's rate will be in effect. This does not invalidate my point. In fact, it provides further support. Because, if an investor expects a lower return over the near-term due to an expected decline in the P/E ratio, they may not invest in the stock or sell the stock if the investor is a current owner of the stock. This would result in a decline in the stock price. As a result, it is likely that the results of the DCF model and the Grinold-Kroner model would be greater during the period that Ameren Missouri's rates are in effect.

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[19] *Ibid.*

Q. Do you have any other observations regarding Mr. Murray's use of the Grinold-Kroner model to determine the ROE for Ameren Missouri?

A. While the Grinold-Kroner model may have some academic interest, I am unaware of any regulatory commission that has relied on this methodology to establish the ROE for a regulated utility company. Furthermore, this is yet another methodology proposed by Mr. Murray that results in ROE estimates that would be both inconsistent with his own equity cost recommendation and with the comparable return standard established in *Hope* and *Bluefield*. Based on his application of this model to the DCF results presented in my Direct Testimony, Mr. Murray suggests that the ROE for Ameren Missouri using the Grinold-Kroner model would be 4.97 percent to 7.11 percent depending on the size of the decline in the P/E ratios. While within the range of results of his multi-stage DCF analysis, since Mr. Murray dismissed those results to support an ROE range of 8.50 percent to 9.25 percent and a point estimate of 9.00 percent, I would assume that he is also disregarding the result of this model. Therefore, I am uncertain why Mr. Murray would suggest that this model offers any probative value as to the appropriate ROE for Ameren Missouri.

C. DCF – Growth Rates

Q. Please summarize Mr. Chari and Mr. Murray's criticism of the DCF analyses you prepared in your Direct Testimony.

A. Staff witness Chari and OPC witness Murray both object to the use of analysts' projected earnings per share ("EPS") growth rates in the Constant Growth DCF model, suggesting that the use of a constant growth form of the DCF model with projected EPS growth rates will overstate the ROE.

Q. How do you respond to these witnesses regarding the use of projected EPS growth rate in the Constant Growth DCF model?

A. First, as discussed in my Direct and Rebuttal Testimonies, I have not relied exclusively on the results of the Constant Growth DCF model. Rather, I have considered the results of multiple ROE estimation models in determining the range of ROEs that are appropriate to consider for Ameren Missouri. Furthermore, while each of these witnesses criticizes the use of analysts' projected EPS growth rates in the Constant Growth DCF model, their preferred specification of the DCF model produced ROE estimates that were below any recently authorized ROE for a vertically integrated electric utility that was not determined as part of a formula rate plan and were abandoned in their own recommendations. Specifically, Mr. Murray's Multi-Stage DCF model relied on a 3.0% perpetual growth rate and resulted in a COE estimate for his electric proxy group of approximately 7.00 percent.[20] In contrast, Mr. Murray proposes a range for the Company's ROE of 8.50 percent to 9.25 percent, recommending an ROE of 9.00 percent which is 200 basis points above the results of the DCF methodology that he suggests is more appropriate than the use of the Constant Growth DCF model with analysts' projected EPS growth rates.

Mr. Chari relies on a Two-Stage DCF model using current market data and the Constant Growth DCF model that Mr. Chari relied on in File No. ER-2019-0374 for the Empire District Electric Company ("Empire") – not for the purposes of relying on the model estimates, but rather to estimate a change in the cost of equity from 2019 to the current market, which he then partially applies based on his judgement to the ROE of 9.25 percent that was authorized in the 2019 rate case for Empire. In performing this benchmarking exercise, Mr. Chari also elects not to rely specifically on the results of his Two-Stage DCF

[20] Direct Testimony of Mr. David Murray at 24.

model, which produced a result of 8.29 percent. Rather, Mr. Chari is recommending 9.50 percent, which is 120 basis points above the results of his model.

Considering that both of these witnesses demonstrate no confidence in the results of their own DCF models, it is unreasonable to suggest that the use of their DCF models is a more appropriate estimate of the ROE for Ameren Missouri than the Constant Growth DCF model developed in my Direct Testimony.

Q. Did you review the academic research Mr. Chari referenced to support the use of a GDP growth rate in the DCF model?

A. Yes. In support of the use of a GDP growth rate in the DCF model, Mr. Chari referenced Dr. Roger A. Morin's *New Regulatory Finance* where Dr. Morin noted that all growth rates eventually converge to a level consistent with the growth in GDP.[21] However, Mr. Chari fails to discuss and chooses not to rely on the methodology that Dr. Morin employs to estimate the long-term growth in GDP that he advocates using in his Multi-Stage DCF analysis. Dr. Morin estimates the long-term growth rate in nominal GDP by first calculating the growth in real GDP and then adding the expected inflation rate.[22] The growth rate in real GDP is estimated by calculating the compound annual growth rate in real GDP from 1929 through the present. The expected inflation rate is estimated as the difference between the yield on the 20-year Treasury Bond and the yield on the 20-year Treasury Inflation Protected Bond. As Dr. Morin noted in *New Regulatory Finance*, this resulted in a long-term GDP growth rate of 6.5 percent in 2006.[23]

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[21] Rebuttal Testimony of Mr. Peter Chari, at 6.
[22] Roger A. Morin, *New Regulatory Finance* (2006), page 311.
[23] *Ibid.*

Q. Did Mr. Chari estimate his GDP growth rate consistent with the methodology employed by Dr. Morin?

A. No, he did not. Mr. Chari relied on the projected GDP growth rate of 3.70 percent reported by the Congressional Budget Office ("CBO") for the period of 2026-2031 as the estimate of long-term growth in his Two-Stage DCF model.[24] Therefore, Mr. Chari is relying on a long-term growth rate that only reflects growth for a five-year period.

Q. Did you calculate a long-term GDP growth rate for a Multi-Stage DCF model in your testimony in File No. GR-2021-0241 for Ameren Missouri's natural gas operations?

A. Yes, I did. I presented a Multi-Stage DCF analysis in my Direct and Rebuttal Testimonies in File No. GR-2021-0241 for Ameren Missouri's natural gas operations as an approach to account for short-term growth rates that may not be considered sustainable in perpetuity. For example, in my Direct Testimony, the growth rates for two companies in my proxy group exceeded 15 percent.[25]

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

A. I relied on a methodology similar to that of Dr. Morin which I discussed above. As shown in Schedule AEB-R1, Attachment 5 to my Rebuttal Testimony in File No. GR-2021-0241, I calculated a long-term growth rate of 5.49 percent based on a real GDP growth rate of 3.13 percent from 1929 through 2020, and a projected inflation rate of 2.28 percent. The projected inflation rate is based on three measures: (1) the average long-term projected growth rate in the Consumer Price Index ("CPI") of 2.20 percent;[26] (2) the compound

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[24] Congressional Budget Office, "Additional Information About the Updated Budget and Economic Outlook: 2021 to 2031," July 2021, at 27.
[25] File No. GR-2021-0241, Direct Testimony of Ann Bulkley, at 40-42.
[26] Blue Chip Financial Forecasts, Vol. 40, No. 6, June 1, 2021, at 14

annual growth rate of the CPI for all urban consumers for 2031-2050 of 2.27 percent as projected by the Energy Information Administration ("EIA"); and (3) the compound annual growth rate of the GDP chain-type price index for 2031-2050 of 2.37 percent, also reported by the EIA.[27]

Q. How does your long-term GDP growth rate compare to the EPS growth rates you relied on in your CGDCF model?

A. As noted above, I calculated a long-term GDP growth rate of 5.49 percent. The proxy group average EPS growth rate was 5.38 percent in my Direct Testimony as shown in Schedule AEB-D2, Attachment 3 and, 5.81 percent in my Rebuttal Testimony as shown in Schedule AEB-R1, Attachment 2. Therefore, my long-term GDP growth rate was generally consistent with the proxy group average analysts' projected EPS growth rate. This is consistent with the FERC's findings in Opinion No. 569-A when they moved to an 80 percent weighting on the EPS growth rates, indicating that EPS growth rates had moved closer to GDP growth rates. It is also important to note that the approach employed by me and Dr. Morin to calculate the long-term GDP growth rate results in a long-term GDP growth rate that is approximately 180 basis points greater than the GDP growth rate relied on by Mr. Chari.

Q. Did Mr. Chari correctly apply the methodology relied on by FERC when he adjusted the growth rate you relied on in your CGDCF model?

A. No, he did not. Mr. Chari references FERC's ROE methodology from Opinion No. 569, which involved the MISO transmission owners as support for the use and weighting of the short-term and long-term growth rate in a Two-Stage DCF analysis.[28] Mr. Chari contends

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[27] Energy Information Administration, Annual Energy Outlook 2021 at Table 20, February 3, 2021.
[28] Rebuttal Testimony of Mr. Peter Chari, at 6.

that FERC applies a two-thirds weight to the short-term growth rate and a one-third weight to the long-term growth rate. However, FERC adjusted its application of the two-stage DCF model in Opinion No. 569-A. Specifically, FERC assigns 80 percent weight to the short-term earnings per share growth rate and 20 percent weight to the long-term GDP growth rate.[29] Therefore, Mr. Chari has not adjusted the growth rate in my Constant Growth DCF analysis using the most recent precedent from FERC regarding the weighting of the short-term and long-term growth rates. While I do not agree with the GDP growth that Mr. Chari has selected to develop his Two-Stage DCF Analysis, had Mr. Chari applied the correct FERC weighting, he would have calculated an adjusted growth rate of 5.04 percent[30] which is 22 basis points greater than the 4.82 percent growth rate he calculated using the incorrect weighting of the short and long-term growth rates. Further, had he used a GDP growth rate that was consistent with the approach Dr. Morin uses to estimate GDP, the adjusted growth rate would be 5.40 percent (5.38% x 80% + 5.49%x 20%).

D. CAPM – Market Risk Premium

Q. Please summarize Mr. Chari's and Mr. Murray's criticisms of your use of a projected market risk premium in the CAPM.

A. Mr. Chari contends that my CAPM analysis is based on unreasonably high market risk premiums ("MRPs") which are the result of my estimated market return of 14.13 percent. Specifically, Mr. Chari suggests that my market return calculation has three "significant" flaws: 1) I included companies in the calculation that do not pay a dividend; 2) I included companies with growth rates that are negative and companies with growth rates that exceed 20 percent; 3) I used only a short-term growth rate and did not also consider a

[29] FERC Opinion No. 569-A, issued May 21, 2020, at para 57.
[30] 5.38%*(80%) + 3.70%*(20%)

long-term growth rate.[31] As support for his recommended adjustments, Mr. Chari references FERC and notes that FERC has outlined the "proper way" for estimating the market return using the Constant Growth DCF model.[32] Mr. Chari then calculates an adjusted market return of 9.43 percent which he believes is more consistent with the geometric average historical return for 1926-2020 of approximately 10.30 percent.[33] Finally, Mr. Chari argues that I have incorrectly compared my market return of 14.13 percent to the historical annual market returns for large company stocks from 1926 through 2019. According to Mr. Chari, it is not appropriate to review the individual historical annual returns to determine if an estimated market return is reasonable, the more appropriate comparison is to compare the estimated market return to the geometric average return for the historical period.[34]

Similarly, Mr. Murray criticizes the MRPs that I rely on in my CAPM analysis and contends that they are double the MRPs relied on by utility analysts to estimate the fair value of utility stocks.[35] Moreover, Mr. Murray indicates that he is unaware of any source which calculates the market return using a Constant Growth DCF model with projected earnings growth rates as the estimate of growth. According to Mr. Murray, the sources he reviewed recommended using a growth rate no higher than the growth rate of GDP when estimating the long-term return for the market.[36] Finally, Mr. Murray asserts that the Wilshire 5000, which is an index of the value of all American stocks traded in the United States, would be

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[31] Rebuttal Testimony of Mr. Peter Chari, at 8-9.
[32] Rebuttal Testimony of Mr. Peter Chari, at 10.
[33] Rebuttal Testimony of Mr. Peter Chari, at 10.
[34] Rebuttal Testimony of Mr. Peter Chari, at 10-11.
[35] Rebuttal Testimony of David Murray, at 26.
[36] Rebuttal Testimony of David Murray, at 27.

about 100 times the value of GDP in 50 years if the index grew at the 12.45 percent earnings growth rate that I relied on to calculate my market return.[37]

Q. Please explain why you disagree with Mr. Chari's contention that he has relied on the FERC methodology.

A. It is important to note that while Mr. Chari suggests he is following the methodology outlined by the FERC in Opinion 569, none of the witnesses in this case have attempted to rely on the methodology from that order or Opinion 569-B, which outlines the current FERC methodology for estimating the appropriate cost of equity for Ameren Missouri. If that were the intention, it would be necessary to weigh equally the results of the DCF, the CAPM, and a Risk Premium approach. While Mr. Chari suggests he is relying on the FERC in his calculation of the market return, he has misrepresented the FERC's approach.

Q. Please explain in more detail the errors in Mr. Chari's calculation of the market return used in the CAPM.

A. Mr. Chari correctly noted than when calculating the market return using the Constant Growth DCF model, FERC excludes: 1) companies that do not pay a dividend; 2) companies with growth rates that are negative; and 3) companies with growth rates that exceed 20 percent. However, Mr. Chari is incorrect in his application of a weighted long-term growth rate in that calculation. Specifically, the FERC noted the following in support of the use of the Constant Growth DCF model for the S&P 500 as opposed to the use of a Two-Step DCF model with GDP growth:

> [w]e also continue to find that the CAPM should use a one-step DCF for its risk premium. This is because the rationale for using a two-step DCF methodology for a specific group of utilities does not apply when conducting a DCF study of the dividend-paying companies in the S&P 500, as the

[37] Rebuttal Testimony of David Murray, at 28.

> Commission found in Opinion Nos. 531-B and 569.172 A long-term component is unnecessary because of the regular updates to the S&P 500, which allows it to continue to grow at a short-term growth rate and because S&P 500 companies include stocks that are both new and mature, the latter of which have a moderating effect on the short-term growth rates.[38]

Q. Have you performed a calculation that is consistent with the FERC methodology?

A. Yes, I have. I recalculated the market return that I filed in Schedule AEB-D2, Attachment 7 to reflect the methodology relied on by FERC to estimate the market return. In this calculation, I relied on the Constant Growth DCF model excluding companies that: 1) do not pay a dividend; 2) have a growth rate less than 0 percent; and 3) have a growth rate greater than 20 percent. As shown in Schedule AEB-S1, Attachment 4, I estimated a market return of 12.11 percent using the FERC methodology which is 268 basis points higher than the market return of 9.43 percent calculated by Mr. Chari who incorrectly estimated the market return using the Two-Stage DCF Analysis.

Q. Have you updated the CAPM results presented in your Direct Testimony to reflect the FERC methodology for calculating the market return?

A. Yes, I have. As shown in Figure 2 below, (see also Schedules AEB-S1, Attachment 1 and Attachment 2), my traditional CAPM analysis produces a range of returns from 9.43 percent to 11.11 percent and my ECAPM analysis results range from 10.10 percent to 11.36 percent. Therefore, adjusting my estimate of the market return to reflect the methodology employed by the FERC results in a range of returns that continue to support the Company's requested ROE of 9.90 percent and my recommended range of 9.75 percent to 10.50 percent. Furthermore, the use of the FERC's methodology for calculating the market return does not result in estimates of the ROE using the CAPM and ECAPM

[38] FERC Docket No. EL-14-12-004, Opinion No. 569-A (May 21, 2020), at para. 85.

that range from 8.00 percent to 8.89 percent as indicated by Mr. Chari. Mr. Chari's misapplication of the FERC methodology for calculating the market return significantly biases the results of the CAPM and ECAPM downward and therefore, should be given no weight by the Commission.

Figure 2: CAPM Results – FERC Methodology for Market Return

	Risk-Free Rate as of January 31, 2021 (1.77%)	Q2 2021 – Q2 2022 Projected Risk-Free Rate (2.06%)	2022-2026 Projected Risk-Free Rate (2.80%)
CAPM			
Value Line Beta	11.00%	11.03%	11.11%
Bloomberg Beta	10.19%	10.24%	10.38%
Long-term Avg. Beta	9.43%	9.51%	9.70%
ECAPM			
Value Line Beta	11.28%	11.30%	11.36%
Bloomberg Beta	10.67%	10.71%	10.81%
Long-term Avg. Beta	10.10%	10.16%	10.30%

Q. Do you agree with Mr. Chari's comparison of your market return and the geometric average historical market return?

A. No, I do not. The geometric mean is the compound rate that equates a beginning value to its ending value. It is used to determine the exact rate of compounded return between a specific starting and ending point. The arithmetic mean is the simple average of single period rates of return and best approximates the uncertainty associated with returns from year to year. The important distinction between the two methods is that the arithmetic mean assumes that each periodic return is an independent observation and, therefore, incorporates uncertainty into the calculation of the long-term average. By contrast, the geometric mean does not incorporate the same degree of uncertainty because it assumes that returns remain constant from year to year. In his review of literature on the topic, Cooper noted the following rationale for using the arithmetic mean:

> Note that the arithmetic mean, not the geometric mean is the relevant value for this purpose. The quantity desired is the rate of return that investors expect over the next year for the random annual rate of return on the market. The arithmetic mean, or simple average, is the unbiased measure of the expected value of repeated observations of a random variable, not the geometric mean. …[The] geometric mean underestimates the expected annual rate of return.[39]

Furthermore, Pratt and Grabowski note the following in their review of the literature:

> The choice between which average to use is a matter of disagreement among practitioners. The arithmetic average receives the most support in the literature, though other authors recommend a geometric average. The use of the arithmetic average relies on the assumption that (1) market returns are serially independent (not correlated) and (2) the distribution of market returns is stable (not time-varying). Under these assumptions, an arithmetic average gives an unbiased estimate of expected future returns assuming expected conditions in the future are similar to conditions during the observation period. Moreover, the more observations available, the more accurate will be the estimate.[40]

Therefore, the more appropriate comparison would be to compare the market return to the arithmetic average return for 1926-2020.

Q. Have you compared your market return to the arithmetic average historical return for large company stocks?

A. Yes. As reported by Duff and Phelps, the historical arithmetic average return for large company stocks from 1926-2020 was 12.16 percent.[41] This return is much higher than the geometric average of 10.30 percent reported by Mr. Chari. In addition, the arithmetic average return is much more consistent with my market return estimate of 14.13 percent than the implied market return of 7.49 percent shown in Schedule PC-10 that Mr. Chari relied on to estimate his CAPM. Furthermore, the historical arithmetic average return of

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[39] Ian Cooper, *Arithmetic versus geometric mean estimators: Setting discount rates for capital budgeting*, European Financial Management 2.2, (1996): 158.

[40] Pratt, Shannon P., and Roger J. Grabowski. *Cost of Capital: Applications and Examples*. Wiley, 2008, at 96.

[41] Source: Duff &Phelps, Valuation Handbook: Guide to Cost of Capital, 2021.

12.16 percent is slightly greater than the market return of 12.11 percent estimated using the methodology relied on by FERC.

Q. What is your response to Mr. Murray's contention that he is not "aware of any authoritative sources" that use your approach to estimating the market return?[42]

A. While I developed the estimate of the market return, the process I used to estimate the market return relies on data published by Bloomberg and Value Line and a prominent cost of equity model, the Constant Growth DCF. In addition to the FERC which I reference above, the Minnesota Public Utilities Commission ("Minnesota PUC") and the Maine Public Utilities Commission ("Maine PUC") have also relied on the Constant Growth DCF model to estimate the market return.

In Docket No. G-004/GR-19-511 for Great Plains Natural Gas Company, the Department of Commerce in Minnesota ("Minnesota DOC") relied on a Constant Growth DCF analysis for the S&P 500 to estimate the market return for the CAPM. Specifically, the Minnesota DOC relied on the dividend yield reported by S&P for the S&P 500 and the three-five year earnings growth estimate for the State Street Global Advisors S&P 500 exchange traded fund ("ETF") which resulted in a market return of 13.44 percent.[43] The Minnesota DOC has historically relied on the Constant Growth DCF model to estimate the market return for the CAPM, which has in turn been considered by the Minnesota PUC in prior proceedings.[44]

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[42] Rebuttal Testimony of David Murray, at 27.

[43] Docket No. G-004/GR-19-511, In the Matter of the Petition By Great Plains Natural Gas Co., a Division of Montana-Dakota Utilities Co., for Authority to Increase Natural Gas Rates in Minnesota (March 3, 2020), at Ex. DER-9, CMA-S-8.

[44] See Docket No. E017/GR-15-1033, Findings of Fact, Conclusions and Order, May 1, 2017, at 54-56; and Docket No. E015/GR-16-664, Findings of Fact, Conclusions and Order, March 12, 2018, at 60-61.

The Staff of the Maine PUC have also supported the forward-looking market risk premium. In the Bench Analysis in Docket No. 2019-00092 for Northern Utilities, Inc., the Staff calculated the market return using the Constant Growth DCF model excluding companies that did not pay a dividend and companies that had a negative growth rate. This resulted in a market return of 11.33 percent using Bloomberg data and 13.49 percent using Value Line data.[45] Furthermore, the Maine PUC considered the CAPM results calculated by Staff as a check on the reasonableness of the DCF results and did not dispute the use of Constant Growth DCF model to calculate the market return.[46]

Q. How do you respond to Mr. Murray's comparison of the Wilshire 5000 Index to GDP?

A. Mr. Murray contends that if the market grew at a compound annual growth rate of 12.45 percent, then the Wilshire 5000 would be approximately 100 times the value of GDP in 50 years assuming a 4 percent long-term growth rate in GDP. However, it is important to note that the Wilshire 5000 had a ten-year annualized total return as of June 30, 2021, of 14.76 and a reported long-term EPS growth rate of 18.05 percent.[47] Therefore, the Wilshire 5000 had a total return over the past 10 years that is greater than my market return estimate of 14.13 percent. Finally, Mr. Murray's analysis is dependent on the selection of the GDP growth rate which he assumes is 4 percent. This growth rate is significantly below the long-term GDP growth rate of 5.49 percent that I have estimated and discussed above.

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[45] Northern Utilities, Inc. d/b/a Unitil Request for Approval of Rate Change, Docket No. 2019-00092, Bench Analysis, October 29, 2019, at 21.
[46] Northern Utilities, Inc. d/b/a Unitil Request for Approval of Rate Change, Docket No. 2019-00092, Order Part II, April 1, 2020, at 58.
[47] FT Wilshire 5000 Index Fact Sheet as of June 30, 2021.

E. ECAPM

Q. Please summarize Mr. Chari's stated criticism of the Empirical CAPM analysis.

A. Mr. Chari notes that the ECAPM analysis is based on the findings of Dr. Morin who developed the model based on data between 1926 and 1984; therefore, Mr. Chari asserts that I have simply inputted data into Dr. Morin's model which only reflects market data through 1984.[48] Furthermore, Mr. Chari contends that Dr. Morin presented other studies which produced estimates of alpha that ranged from -9.61 percent to 13.56 percent which according to Mr. Chari means the CAPM overestimated the return in some instances.

Q. Do you agree with how Mr. Chari presented the studies cited by Dr. Morin regarding the appropriate Alpha for the ECAPM?

A. No, I do not. Mr. Chari combined the estimates of Alpha from eight separate studies that Dr. Morin cited into one combined range of Alpha. This is incorrect because the combined range can result in the incorrect conclusion that the consensus among the studies is that CAPM could equally overstate or understate the actual return. However, as shown in Figure 3, six out of the eight studies estimated positive values of Alpha which would indicate that the consensus among the studies is that the CAPM understates the observed return. Additionally, among the six studies which estimate only positive values of Alpha the range of Alpha was 1.63 percent to 13.56 percent. From this range, it is reasonable to conclude that Dr. Morin's estimate of Alpha of 2 percent is somewhat conservative. Finally, as I will discuss in more detail below, studies that I have reviewed which specifically examined the utility industry have shown that the CAPM has historically understated the returns of utilities.

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[48] Rebuttal Testimony of Mr. Peter Chari, at 11-12.

Figure 3: Empirical Evidence on the Alpha Factor[49]

Author	Range of Alpha
Fischer (1993)	-3.6% to 3.6%
Fischer, Jensen and Scholes (1972)	-9.61% to 12.24%
Fama and McBeth (1972)	4.08% to 9.36%
Fama and French (1992)	10.08% to 13.56%
Litzenberger and Ramaswamy (1979)	5.32% to 8.17%
Litzenberger, Ramaswamy and Sosin (1980)	1.63% to 5.04%
Pettengill, Sundaram and Mathur (1995)	4.6%
Morin (1989)	2.0%

Q. Do any of the studies cited by Dr. Morin examine the ability of the CAPM to estimate the return of utilities?

A. Yes. Robert Litzenberger, Krishna Ramaswamy, and Howard Sosin published an article titled "On the CAPM Approach to the Estimation of a Public Utility's Cost of Equity Capital," which studied the ability of the CAPM to estimate the returns for utilities.[50] The authors found that the CAPM tends to understate the return for stocks such as utilities, which have a Beta less than 1.0. To develop the analysis, Litzenberger, et al. utilized both adjusted and raw Beta. In both cases, the CAPM understated the return for utilities with Betas less than 1.0.

Q. Have more recent studies examined the ability of the CAPM and ECAPM to estimate the return of utilities?

A. Yes. Stephane Chretien and Frank Coggins published a study in 2011 titled "Cost of Equity for Energy Utilities: Beyond the CAPM", which studied the CAPM and its ability to

[49] Morin, Roger A., *New Regulatory Finance*, Public Utilities Report, Inc. (2006), at 190 (Table 6-2).
[50] Litzenberger, Robert, et al. "On the CAPM Approach to the Estimation of A Public Utility's Cost of Equity Capital." The Journal of Finance, vol. 35, no. 2, 1980, pp. 369–383.

estimate the risk premium for the utility industry in particular subgroups of utilities for a data set that included market data through the end of 2006. The article considered the CAPM, the Fama-French three-factor model and a model similar to the ECAPM used in my Direct Testimony. As Chretien and Coggins show, the ECAPM significantly outperformed the traditional CAPM at predicting the observed risk premium for the various utility subgroups.[51]

F. Bond Yield Plus Risk Premium

Q. Please summarize Mr. Chari's and Mr. Murray's criticisms regarding the Risk Premium analysis presented in your Direct Testimony.

A. Mr. Chari indicates that he does not have any significant disagreements with my risk premium analysis because the results of my analysis support his recommended ROE of 9.50 percent. However, Mr. Chari suggests that the use of authorized ROEs in my risk premium analysis may not be appropriate because authorized ROEs are not market-based and thus introduce circularity into ratemaking.[52]

Mr. Murray expresses concern with the regression equation in my risk premium analysis because it relies on regulatory commission actions, which he believes have not reduced authorized ROEs by an amount commensurate with the reduction indicated by the low interest rate environment. Mr. Murray contends that my risk premium analysis will not allow for a decrease in the spread between authorized ROEs and the cost of equity

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[51] Chrétien, Stéphane, and Frank Coggins. "Cost Of Equity For Energy Utilities: Beyond The CAPM." Energy Studies Review, Vol. 18, No. 2, 2011.

[52] Rebuttal Testimony of Mr. Peter Chari, at 12.

because my analysis relies on authorized ROEs and regulators have been hesitant to reduce authorized ROEs by the amount indicated by lower interest rates.[53]

Q. How do you respond to Mr. Murray's concern that your risk premium analysis maintains the current wide spread between authorized ROEs and the cost of equity.

A. As explained in my Direct Testimony, the regression equation was developed from authorized ROEs from hundreds of rate case decisions since 1992 and the corresponding Treasury yield at the time of the rate case decision.[54] Therefore, the estimated regression coefficients take into consideration the different economic conditions that have occurred over the past 30 years and their effect on the relationship between interest rates and authorized ROEs. It is incorrect to conclude as Mr. Murray has that the risk premium analysis only considers current economic conditions and maintains the current spread between interest rates and authorized ROEs. I continue to believe that my Bond Yield Plus Risk Premium analysis, which relies on the regression equation to predict future return requirements based on the level of interest rates, is useful for the purpose of corroborating the results of other ROE estimation models.

Q. What is your response to Mr. Chari's concern that your risk premium analysis is not market-based because it relies on authorized ROEs?

A. While my Risk Premium analysis is based on authorized ROEs and the corresponding Treasury yields at the time the regulatory decisions were issued, I believe that investors are informed by allowed ROEs from hundreds of rate case decisions to frame their return expectations. As Mr. Chari observes, one of the fundamental principles in setting a just and reasonable return is that the return must be comparable to returns available to

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[53] Rebuttal Testimony of David Murray, at 29.
[54] Direct Testimony of Ann E. Bulkley, at 50.

investors in companies with similar risk. In that regard, the authorized returns for other vertically integrated electric utilities are a relevant consideration for investors. My Risk Premium analysis demonstrates how those returns relate to the risk-free rate, so that it is possible to use historical returns to estimate future returns at various Treasury bond yields.

Q. Do you agree with Mr. Chari that your risk premium analysis supports his recommended ROE?

A. No, I do not. As shown in Schedule AEB-D2, Attachment 8 to my Direct Testimony, the low-end of the range of my risk premium analysis was 9.44 percent based on the 30-day average 30-year Treasury Bond yield as of January 31, 2021, of 1.77 percent. However, interest rates have increased since the time-period used to develop the analyses in my Direct Testimony. As shown in Schedule AEB-R1, Attachment 7 to my Rebuttal Testimony, the low-end of the range of my risk premium analysis increased to 9.50 percent based on the 30-day average 30-year Treasury Bond yield as of August 31, 2021, of 1.91 percent. The low-end of the range of my risk premium analysis included in my Rebuttal Testimony is equal to Mr. Chari's recommendation of 9.50 percent. However, as I discuss above and in my Rebuttal Testimony, investors expect interest rates to continue to increase over the near-term. As shown in my Rebuttal Testimony, if investors' expectations about interest rates are correct, the return that results from the Risk Premium methodology will be in the range of 10.17 percent, which is greater than the Company's proposed ROE of 9.90 percent.[55] Therefore, my risk premium analysis provides support for the conclusion that Mr. Chari's recommended ROE will understate the cost of equity during the period that Ameren Missouri's rates will be in effect.

[55] Rebuttal Testimony of Ann Bulkley, Schedule AEB-R1, Attachment 1.

G. Authorized Returns in Other Jurisdictions

Q. Please summarize Mr. Chari's review of authorized ROEs for electric utilities.

A. According to Mr. Chari, the average authorized ROE for electric utilities in fully litigated rate cases in 2021 is 9.43 percent which is 47 basis points below the Company's requested ROE of 9.90 percent.[56] Additionally, Mr. Chari notes that there were only three fully litigated cases with an ROE greater than 9.60 percent which were limited issue rider cases in Virginia.[57] Mr. Chari classifies these three cases as outliers which means that he has ultimately concluded that there were no comparable ROEs awarded above 9.60 percent in 2021. As a result, Mr. Chari concludes that the Company's requested ROE of 9.90 percent is too high based on a review of authorized ROEs for electric utilities in 2021.

Q. Do you agree with Mr. Chari that the Company's requested ROE is too high based on a review of authorized ROEs in 2021?

A. No, I do not. Mr. Chari's review of authorized ROEs for electric utilities does not produce a meaningful sample to be considered a credible analysis. For example, Mr. Chari excludes settled rate cases from his review which means he has narrowed the number of electric rate cases reviewed to 18. As shown in Schedule AEB-S1, Attachment 5, of the 18 fully litigated electric rate case he reviewed a majority of the rate cases were limited issue rider cases (i.e., 12 out of 18). Limited issue rider cases are typically cases that set the recovery of costs and returns for new generating assets. Because these are cases that address only generation assets, and often the incremental construction risk, the returns would not be comparable to a vertically integrated utility. In fact, it appears Mr. Chari agrees since he concluded that the three limited issue rider cases on the high-end

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[56] Rebuttal Testimony of Mr. Peter Chari, at 5.
[57] Rebuttal Testimony of Mr. Peter Chari, at 5.

of the range were outliers. Additionally, three of the cases were for distribution only electric utilities; however, these cases should not be included either since vertically integrated utilities may have greater risk than distribution-only companies due to the incremental risk of generation. Thus, Mr. Chari's sample includes only three-fully litigated rate cases for vertically integrated electric utilities in 2021. This sample size is not adequate to draw any meaningful conclusions regarding the reasonableness of the Company's request ROE of 9.90 percent. As such, I recommend that the Commission not consider Mr. Chari's review of authorized ROEs for electric utilities in 2021 in its determination of the authorized ROE for Ameren Missouri.

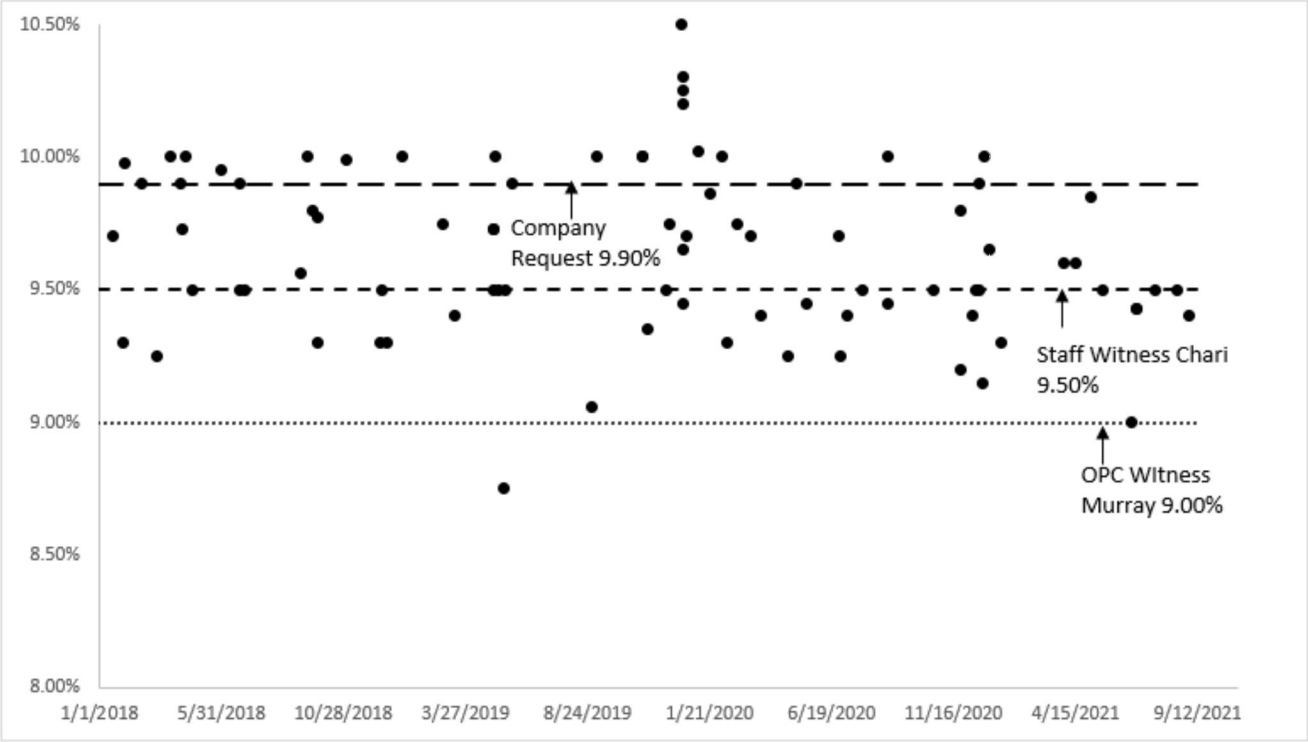
Q. Did you analyze the recently authorized return data to reflect cases that are more comparable to Ameren Missouri?

A. Yes, I did. As discussed in my Rebuttal Testimony, I compared the Company's requested ROE of 9.90 percent, Mr. Chari's recommended ROE of 9.50 percent and Mr. Murray's recommended ROE of 9.00 percent to authorized ROEs for electric utilities in other jurisdictions from January 1, 2018 through August 31, 2021.[58] However, unlike the comparison developed by Mr. Chari, I only included rate cases for vertically integrated electric utilities, and I considered both settled and fully litigated rate cases. Finally, I also excluded formula rate plan rate cases because the ROE is established using a formula, as opposed to following an approach that is similar to what the Commission has typically considered in setting the ROE. As shown in Figure 4 Below (see also Figure 3 of my Rebuttal Testimony), the Company's requested ROE is well within the range of authorized ROEs for vertically integrated electric utilities since 2018. Therefore, it is evident that the Company's requested ROE of 9.90 percent is reasonable based on a comparison to

[58] Rebuttal Testimony of Ann Bulkley, at 19.

recently authorized ROEs and considering the relative risk of Ameren Missouri and current capital market conditions.

Figure 4: U.S. Authorized ROEs – Vertically Integrated Electric Utilities – January 2018 through August 2021[59]



H. Business Risks

Q. Please summarize Mr. Chari's, Mr. Cassidy's and Mr. Murray's position regarding the Company's business risk and the effect on Ameren Missouri's allowed ROE?

A. Mr. Chari contends that Ameren does not have greater risk than the proxy group due to Ameren Missouri utilizing cost recovery mechanisms such as Plant-In-Service Accounting ("PISA"), the Renewable Energy Standard Rate Adjustment Mechanism ("RESRAM"), and

[59] Rebuttal Testimony of Ann Bulkley, at 19. Figure 3 provides authorized ROEs for vertically integrated electric utilities. This figure excludes the most recent decision for Green Mountain Power of 8.2 percent, because it was a formula rate plan and not a market determined cost of equity.

a fuel adjustment clause.[60] Furthermore, Mr. Chari notes that Ameren Missouri has a business risk profile classified as "Excellent" by S&P which is S&P's highest ranking. Finally, Mr. Chari explains that Ameren's P/E ratio is well above the average P/E ratio for his proxy group which he states indicates superior performance relative to its peers. According to Mr. Chari, the superior performance indicates that investors do not view either Ameren or Ameren Missouri as having greater risk than their peers.[61]

Similarly, Mr. Cassidy testifies that Ameren Missouri's use of PISA and the RESRAM reduces the overall business risk of the Company and, according to Mr. Cassidy, the risk of the Company "in relative terms compared to its utility peers."[62] Mr. Cassidy does not develop a comparison of Ameren Missouri to Mr. Chari's proxy group, he refers to Mr. Chari for that analysis, the purpose of his testimony is to provide a review of the effect of PISA and the RESRAM on the business risk of the Company from an accounting perspective. Based on his review of the mechanics of the various cost recovery mechanisms available to Ameren Missouri, Mr. Cassidy concludes that because the Company has mechanisms such as the RESARM and PISA which allow for the timely recovery of cost between rate cases, the overall business risk of the Company is reduced.

Mr. Murray disagrees with my assessment of the Company's business risk and continues to claim Ameren Missouri's business risk has been reduced because PISA was approved for the Company which allows for qualifying investments the deferral of 85 percent of the depreciation and return on capital investment between rate cases.[63]

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60 Rebuttal Testimony of Mr. Peter Chari, at 13.
61 Rebuttal Testimony of Mr. Peter Chari, at 14-15.
62 Rebuttal Testimony of Mr. John P. Cassidy, at 10.
63 Rebuttal Testimony of David Murray, at 29-30.

Q. What is your primary concern with Mr. Chari's, Mr. Cassidy's and Mr. Murray's conclusions regarding Ameren Missouri's business risk?

A. Mr. Chari, Mr. Cassidy and Mr. Murray have not made the relevant comparison to determine how Ameren Missouri's business risk is affected by the PISA and RESRAM. In this case, we are determining the authorized ROE for the Ameren Missouri based on market data for a proxy group of publicly traded companies that are generally comparable to the Company. Therefore, the appropriate approach to assess business risk in the context of determining the authorized ROE is to compare the regulatory mechanisms authorized for the Company to the regulatory mechanisms for the companies of the proxy group being used to develop the ROE. The Company's overall risk is determined through a comprehensive review of regulatory mechanisms that have been implemented by the subject company (Ameren Missouri) and the proxy group companies. The final conclusion of this analysis is a determination as to whether the subject is comparable, above or below average risk, as compared with the proxy group that is being used to calculate the ROE estimates. If the subject has greater risk than the proxy group, then an ROE towards the higher end of the proxy group results may be warranted. This is because investors would require a higher return for the subject than is estimated using the market data for the proxy group companies if the subject has greater risk. None of the opposing witnesses in this proceeding have conducted a review of the cost recovery mechanisms available to the companies in their respective proxy groups to determine the relative cost recovery risk of the proxy group and Ameren Missouri.[64] Instead, each of the witnesses viewed the mechanisms available to Ameren Missouri in isolation. Absent a comparison to the proxy

[64] Mr. Chari and Mr. Cassidy each suggest in their testimony that the other witness will have performed such analysis and refer to each other to support their conclusions.

group, there is no basis to make a conclusion regarding the relative risk of Ameren Missouri to the proxy group employed to set the ROE.

Q. Do Staff witnesses Mr. Chari and Mr. Cassidy agree on the relative business risk of Ameren Missouri to Mr. Chari's proxy group?

A. No, they do not. While neither witness reviews the mechanisms available to the proxy group, both develop conclusions regarding the relative risk of Ameren Missouri to the proxy group. Mr. Chari concludes that there is no evidence that Ameren Missouri has greater risk than the proxy group indicating he views the Company's business risk as being similar to the proxy group[65] while Mr. Cassidy concludes that "Ameren Missouri's business risk can reasonably be assumed to now be lower in relative terms compared to its utility peers."[66] Although, Mr. Cassidy does state later in his testimony that he has not performed an analysis of Ameren Missouri's business risk relative the proxy group and refers to Mr. Chari.[67] Mr. Cassidy includes conflicting statements in his own testimony and therefore, his position on the relative risk seems to be unclear.

Q. Did you develop an analysis to evaluate the regulatory environment in Missouri as compared to the jurisdictions in which the companies in your proxy group operate?

A. Yes, I did. As discussed in my Direct Testimony, I considered the Regulatory Research Associates ("RRA") ranking of regulatory jurisdictions which assigns a ranking for each regulatory jurisdiction between "Above Average/1" to "Below Average/3," with nine total rankings between these categories. While RRA did increase the regulatory ranking of Missouri following the passage of Senate Bill 564 which established PISA, it is important

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65 Rebuttal Testimony of Mr. Peter Chari, at 14-15.
66 Rebuttal Testimony of Mr. John P. Cassidy, at 10.
67 Rebuttal Testimony of Mr. John P. Cassidy, at 10.

to note that Missouri's ranking only increased from "Below Average/1" to "Average/3". Therefore, even considering the current cost recovery mechanisms available to the utilities in Missouri, RRA noted that "Missouri regulation is somewhat more restrictive than average from an investor perspective".[68] Furthermore, as shown in Schedule AEB-D2 Attachment 11 to my Direct Testimony, my proxy group had an average RRA ranking between "Average/1" and "Average/2". Based on the RRA regulatory rankings, Ameren Missouri would have greater business risk than the proxy group as a result of operating in the state of Missouri. The RRA regulatory rankings show that while the implementation of PISA reduced the risk associated with Missouri regulation, Ameren Missouri still faces greater risk on average than the proxy group.

Q. Did you conduct a detailed review of Ameren Missouri's cost recovery mechanisms to the cost recovery mechanisms of the companies in your proxy group?

A. Yes, I did. As shown in Schedule AEB-D2 Attachment 10 to my Direct Testimony, I selected five mechanisms that are important to provide a regulated utility the opportunity to earn its authorized ROE: 1) test year convention (i.e., forecast vs. historical); 2) method for determining rate base (i.e., average vs. year-end); 3) use of either a revenue decoupling mechanism or other clauses that mitigate volumetric risk; 4) prevalence of capital cost recovery between rate cases; and 5) fuel cost recovery.[69] As discussed in my Direct Testimony, based on my review of these five mechanisms, I concluded that many of the companies in the proxy group had more timely cost recovery through forecasted test years, year-end rate base, decoupling mechanisms, formula-based rates, capital cost recovery mechanisms, fuel adjustment clauses, and construction work in progress

[68] Direct Testimony of Ann Bulkley, at 66-67.

("CWIP") allowances within rate base than Ameren Missouri had in Missouri.[70] For example, while as noted by Mr. Chari, Mr. Murray and Mr. Cassidy, Ameren Missouri has PISA and the RESRAM, 81.5 percent of the operating companies held by the proxy group have some form of capital cost recovery mechanism and/or are allowed to include CWIP in rate base; therefore the use of PISA and the RERAM results in Ameren Missouri being more comparable to the group.

Q. Do you agree with Mr. Cassidy's characterization of your conclusion regarding Ameren Missouri's fuel adjustment clause ("FAC")?

A. No, I do not. Mr. Cassidy indicates I concluded that Ameren Missouri's FAC is a comparable mechanism to the fuel adjustment clauses of the companies in my proxy group. However, that is not consistent with my conclusion in my Direct Testimony. I did conclude that FACs were prevalent in the proxy group and therefore the continuation of the FAC for Ameren Missouri makes the Company more comparable to the proxy group. However, Ameren Missouri's FAC allows the Company to defer and recover 95 percent of the difference between the actual net energy costs and net base energy costs. As a result, the FAC does not fully mitigate the power cost risk for Ameren Missouri. This is important to recognize because fuel and purchased power costs typically account for a significant percentage of the total operating costs for a regulated utility. Moreover, according to S&P, there are only seven states (i.e., Hawaii, Idaho, Missouri, Montana, Oregon, Washington and Wyoming) that have fuel cost recovery mechanisms with sharing bands.[71] The remaining 43 states either have restructured and the electric utilities do not own generation or have fuel cost recovery mechanisms with a true-up between actual and forecasted fuel

[70] Direct Testimony of Ann Bulkley, at 65-66.
[71] Source: SNL Financial, Commission Profiles as of October 22, 2021.

costs. As shown in Schedule AEB-D2 Attachment 10 to my Direct Testimony, 93.8 percent of the operating companies in the proxy group are allowed to directly recover fuel costs and purchased power costs from customers, without either a dead band or sharing band. Therefore, Ameren Missouri has greater fuel cost recovery risk than the proxy group.

Q. What did Mr. Cassidy conclude regarding CWIP in rate case base and forecasted test years?

A. Mr. Cassidy opposes both the inclusion of CWIP in rate base and the use of a forecasted test year. According to Mr. Cassidy, the inclusion of CWIP in rate base is not a desirable outcome for ratepayers because it would charge customers for the investments costs of investments that are not yet providing service.[72] Additionally, Mr. Cassidy concludes that Missouri's approach of relying on a historical test year with known and measurable changes through a true-up period represents "the most accurate form of ratemaking" and "provides an appropriate forward looking focus".[73] Mr. Cassidy has only provided an opinion on the inclusion of CWIP in rate base and forecasted test years; however, this "accounting perspective" does not assess the effect of these mechanisms, which are used by the proxy group, on the relative risk of Ameren Missouri to the proxy group.

Q. Have you reviewed whether or not the proxy group companies can include CWIP in rate base and use a forecasted test year?

A. Yes. As I discuss in my Direct Testimony, the inclusion of CWIP in rate base and the use of a forecasted test years reduces regulatory lag. The inclusion of CWIP in rate base reduces regulatory lag associated with new construction, which can be very important particularly when a company is undertaking a large capital investment plan while

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[72] Rebuttal Testimony of Mr. John P. Cassidy, at 23.
[73] Rebuttal Testimony of Mr. John P. Cassidy, at 24.

forecasted test years produce cost estimates that are more reflective of future costs which results in more accurate recovery of incurred costs and mitigates the regulatory lag associated with historical test years. As shown in Schedule AEB-D2 Attachment 10 to my Direct Testimony, 46.2 percent of the operating companies held by the proxy group provide service in jurisdictions that use either a fully or partially forecasted test year while 67.7 percent provide service in jurisdictions that allow the inclusion of CWIP in rate base. Given the prevalence of these mechanisms in the proxy group, it is clear that Ameren Missouri faces increased cost recovery risk as compared to the proxy group due to the use of an adjusted historical test year and the inability to include CWIP in rate base.

Q. Do you agree with Mr. Chari's analysis to compare the business risks of Ameren Missouri to the companies in the proxy group?

A. No, I do not. Mr. Chari compares the P/E ratio of Ameren to the companies in his proxy group and concludes that because Ameren's P/E ratio is well above the proxy group average that investors do not view either Ameren or Ameren Missouri as having more risk than the companies in Mr. Chari's proxy group.[74] However, the stand-alone principle of ratemaking holds that regulated rates should be based on the risks and benefits of the regulated utility, not its investors, parent or affiliates.[75] Since the stand-alone principle requires that Ameren Missouri's authorized cost of capital be based on the business and financial risk of the Company individually, it is necessary to establish a group of companies that are both publicly traded and comparable to Ameren Missouri certain fundamental business and financial respects to serve as a "proxy" for determining the ROE. Mr. Chari's consideration of the investor's views of Ameren should not be considered in determining

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[74] Rebuttal Testimony of Mr. Peter Chari, at 15.
[75] *New Regulatory Finance*, Roger A. Morin Ph.D., Public Utility Reports, 2006, at 215-216.

the ROE. The ROE for Ameren Missouri should be based on the financial and business risk of Ameren Missouri as a stand-alone entity. In fact, in his response to Mr. Murray regarding the Company's capital structure, Mr. Chari noted the following:

> Clearly, from the point of view that Ameren Corp. and Ameren Missouri have different investment obligations, it is reasonable that their capital structures would be different. Besides having different investment obligations, Ameren Corp. and Ameren Missouri have different conditions to fulfill to the rating agencies, in order to maintain their credit worthiness.[76]

Therefore, Mr. Chari has clearly acknowledged that Ameren and Ameren Missouri are different entities and are classified as such by the credit rating agencies. Therefore, Mr. Chari's conclusion that Ameren Missouri has less risk than the proxy group as a result of Ameren's P/E ratio is not appropriate.

III. SUMMARY AND RECOMMENDATIONS

Q. Please summarize your conclusions and recommendations regarding the appropriate ROE for Ameren Missouri in this proceeding.

A. I continue to support the analyses and recommendation contained in my Direct and Rebuttal Testimonies. Specifically, the range of reasonable ROE results for the proxy group companies is between 9.75 percent and 10.50 percent. Therefore, the Company's requested ROE of 9.90 percent is reasonable. Nothing in the other ROE witnesses' rebuttal testimony has caused me to change my range of results or my support of the Company's requested ROE. An authorized ROE of 9.90 percent balances the interests of Ameren Missouri's customers and shareholders, is comparable to the authorized returns for similarly-situated vertically integrated electric utilities, maintains the Company's

[76] Rebuttal Testimony of Mr. Peter Chari, at 20.

financial integrity, and enables Ameren Missouri to attract capital on reasonable terms and conditions.

Q. Does this conclude your Surrebuttal Testimony?

A. Yes, it does.

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

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

$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	1.77%	0.85	12.11%	10.35%	10.56%	10.95%
Alliant Energy Corporation	LNT	1.77%	0.85	12.11%	10.35%	10.56%	10.95%
American Electric Power Company, Inc.	AEP	1.77%	0.75	12.11%	10.35%	9.53%	10.17%
Duke Energy Corporation	DUK	1.77%	0.85	12.11%	10.35%	10.56%	10.95%
Entergy Corporation	ETR	1.77%	0.95	12.11%	10.35%	11.60%	11.73%
Evergy, Inc.	EVRG	1.77%	1.00	12.11%	10.35%	12.11%	12.11%
NextEra Energy, Inc.	NEE	1.77%	0.90	12.11%	10.35%	11.08%	11.34%
NorthWestern Corporation	NWE	1.77%	0.95	12.11%	10.35%	11.60%	11.73%
OGE Energy Corporation	OGE	1.77%	1.10	12.11%	10.35%	13.15%	12.89%
Otter Tail Corporation	OTTR	1.77%	0.85	12.11%	10.35%	10.56%	10.95%
Pinnacle West Capital Corporation	PNW	1.77%	0.90	12.11%	10.35%	11.08%	11.34%
Portland General Electric Company	POR	1.77%	0.85	12.11%	10.35%	10.56%	10.95%
Xcel Energy Inc.	XEL	1.77%	0.80	12.11%	10.35%	10.05%	10.56%
Mean						11.00%	11.28%

Notes:
[1] Source: Bloomberg Professional, as of January 31, 2021
[2] Source: Value Line
[3] Source: Schedule AEB-S1, Attachment 4
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

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

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

$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q2 2021 - Q2 2022)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	2.06%	0.85	12.11%	10.05%	10.61%	10.98%
Alliant Energy Corporation	LNT	2.06%	0.85	12.11%	10.05%	10.61%	10.98%
American Electric Power Company, Inc.	AEP	2.06%	0.75	12.11%	10.05%	9.60%	10.23%
Duke Energy Corporation	DUK	2.06%	0.85	12.11%	10.05%	10.61%	10.98%
Entergy Corporation	ETR	2.06%	0.95	12.11%	10.05%	11.61%	11.74%
Evergy, Inc.	EVRG	2.06%	1.00	12.11%	10.05%	12.11%	12.11%
NextEra Energy, Inc.	NEE	2.06%	0.90	12.11%	10.05%	11.11%	11.36%
NorthWestern Corporation	NWE	2.06%	0.95	12.11%	10.05%	11.61%	11.74%
OGE Energy Corporation	OGE	2.06%	1.10	12.11%	10.05%	13.12%	12.87%
Otter Tail Corporation	OTTR	2.06%	0.85	12.11%	10.05%	10.61%	10.98%
Pinnacle West Capital Corporation	PNW	2.06%	0.90	12.11%	10.05%	11.11%	11.36%
Portland General Electric Company	POR	2.06%	0.85	12.11%	10.05%	10.61%	10.98%
Xcel Energy Inc.	XEL	2.06%	0.80	12.11%	10.05%	10.10%	10.61%
Mean						11.03%	11.30%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 40, No. 2, February 1, 2021, at 2
[2] Source: Value Line
[3] Source: Schedule AEB-S1, Attachment 4
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

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

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

$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2022 - 2026)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	2.80%	0.85	12.11%	9.31%	10.72%	11.07%
Alliant Energy Corporation	LNT	2.80%	0.85	12.11%	9.31%	10.72%	11.07%
American Electric Power Company, Inc.	AEP	2.80%	0.75	12.11%	9.31%	9.79%	10.37%
Duke Energy Corporation	DUK	2.80%	0.85	12.11%	9.31%	10.72%	11.07%
Entergy Corporation	ETR	2.80%	0.95	12.11%	9.31%	11.65%	11.77%
Evergy, Inc.	EVRG	2.80%	1.00	12.11%	9.31%	12.11%	12.11%
NextEra Energy, Inc.	NEE	2.80%	0.90	12.11%	9.31%	11.18%	11.42%
NorthWestern Corporation	NWE	2.80%	0.95	12.11%	9.31%	11.65%	11.77%
OGE Energy Corporation	OGE	2.80%	1.10	12.11%	9.31%	13.05%	12.81%
Otter Tail Corporation	OTTR	2.80%	0.85	12.11%	9.31%	10.72%	11.07%
Pinnacle West Capital Corporation	PNW	2.80%	0.90	12.11%	9.31%	11.18%	11.42%
Portland General Electric Company	POR	2.80%	0.85	12.11%	9.31%	10.72%	11.07%
Xcel Energy Inc.	XEL	2.80%	0.80	12.11%	9.31%	10.25%	10.72%
Mean						11.11%	11.36%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 39, No. 12, December 1, 2020, at 14
[2] Source: Value Line
[3] Source: Schedule AEB-S1, Attachment 4
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

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

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

$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	1.77%	0.83	12.11%	10.35%	10.39%	10.82%
Alliant Energy Corporation	LNT	1.77%	0.80	12.11%	10.35%	10.00%	10.53%
American Electric Power Company, Inc.	AEP	1.77%	0.76	12.11%	10.35%	9.64%	10.26%
Duke Energy Corporation	DUK	1.77%	0.71	12.11%	10.35%	9.11%	9.86%
Entergy Corporation	ETR	1.77%	0.84	12.11%	10.35%	10.43%	10.85%
Evergy, Inc.	EVRG	1.77%	0.79	12.11%	10.35%	9.93%	10.47%
NextEra Energy, Inc.	NEE	1.77%	0.76	12.11%	10.35%	9.68%	10.29%
NorthWestern Corporation	NWE	1.77%	0.91	12.11%	10.35%	11.14%	11.38%
OGE Energy Corporation	OGE	1.77%	0.93	12.11%	10.35%	11.44%	11.61%
Otter Tail Corporation	OTTR	1.77%	0.87	12.11%	10.35%	10.77%	11.11%
Pinnacle West Capital Corporation	PNW	1.77%	0.83	12.11%	10.35%	10.39%	10.82%
Portland General Electric Company	POR	1.77%	0.81	12.11%	10.35%	10.16%	10.65%
Xcel Energy Inc.	XEL	1.77%	0.73	12.11%	10.35%	9.35%	10.04%
Mean						10.19%	10.67%

Notes:
[1] Source: Bloomberg Professional, as of January 31, 2021
[2] Source: Bloomberg Professional, as of January 31, 2021
[3] Source: Schedule AEB-S1, Attachment 4
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

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

$$K = Rf + \beta \times (Rm - Rf)$$
$$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q2 2021 - Q2 2022)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	2.06%	0.83	12.11%	10.05%	10.44%	10.86%
Alliant Energy Corporation	LNT	2.06%	0.80	12.11%	10.05%	10.06%	10.58%
American Electric Power Company, Inc.	AEP	2.06%	0.76	12.11%	10.05%	9.71%	10.31%
Duke Energy Corporation	DUK	2.06%	0.71	12.11%	10.05%	9.19%	9.92%
Entergy Corporation	ETR	2.06%	0.84	12.11%	10.05%	10.47%	10.88%
Evergy, Inc.	EVRG	2.06%	0.79	12.11%	10.05%	9.99%	10.52%
NextEra Energy, Inc.	NEE	2.06%	0.76	12.11%	10.05%	9.75%	10.34%
NorthWestern Corporation	NWE	2.06%	0.91	12.11%	10.05%	11.17%	11.40%
OGE Energy Corporation	OGE	2.06%	0.93	12.11%	10.05%	11.46%	11.62%
Otter Tail Corporation	OTTR	2.06%	0.87	12.11%	10.05%	10.81%	11.14%
Pinnacle West Capital Corporation	PNW	2.06%	0.83	12.11%	10.05%	10.44%	10.86%
Portland General Electric Company	POR	2.06%	0.81	12.11%	10.05%	10.21%	10.69%
Xcel Energy Inc.	XEL	2.06%	0.73	12.11%	10.05%	9.43%	10.10%
Mean						10.24%	10.71%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 40, No. 2, February 1, 2021, at 2
[2] Source: Bloomberg Professional, as of January 31, 2021
[3] Source: Schedule AEB-S1, Attachment 4
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

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

$$K = Rf + \beta \times (Rm - Rf)$$
$$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2022 - 2026)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	2.80%	0.83	12.11%	9.31%	10.56%	10.95%
Alliant Energy Corporation	LNT	2.80%	0.80	12.11%	9.31%	10.21%	10.69%
American Electric Power Company, Inc.	AEP	2.80%	0.76	12.11%	9.31%	9.89%	10.44%
Duke Energy Corporation	DUK	2.80%	0.71	12.11%	9.31%	9.41%	10.08%
Entergy Corporation	ETR	2.80%	0.84	12.11%	9.31%	10.60%	10.98%
Evergy, Inc.	EVRG	2.80%	0.79	12.11%	9.31%	10.14%	10.64%
NextEra Energy, Inc.	NEE	2.80%	0.76	12.11%	9.31%	9.92%	10.47%
NorthWestern Corporation	NWE	2.80%	0.91	12.11%	9.31%	11.24%	11.46%
OGE Energy Corporation	OGE	2.80%	0.93	12.11%	9.31%	11.51%	11.66%
Otter Tail Corporation	OTTR	2.80%	0.87	12.11%	9.31%	10.91%	11.21%
Pinnacle West Capital Corporation	PNW	2.80%	0.83	12.11%	9.31%	10.57%	10.95%
Portland General Electric Company	POR	2.80%	0.81	12.11%	9.31%	10.35%	10.79%
Xcel Energy Inc.	XEL	2.80%	0.73	12.11%	9.31%	9.63%	10.25%
Mean						10.38%	10.81%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 39, No. 12, December 1, 2020, at 14
[2] Source: Bloomberg Professional, as of January 31, 2021
[3] Source: Schedule AEB-S1, Attachment 4
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL -- LONG-TERM AVERAGE BETA

CAPM: $K = R_f + \beta (R_m - R_f)$ / ECAPM: K = Rf + 0.25(Rm − Rf) + 0.75β (Rm − Rf)

	[4]	[5]	[6]	[7]	[8]	[9]
	Risk-Free Rate (R_f)	Beta (β)	Market Return (R_m)	Market Risk Premium ($R_m - R_f$)	CAPM (K)	ECAPM (K)
Current 30-day average of 30-year U.S. Treasury bond yield [1]	1.77%	0.741	12.11%	10.35%	9.43%	10.10%
Near-term projected 30-year U.S. Treasury bond yield (Q2 2021 - Q2 2022) [2]	2.06%	0.741	12.11%	10.05%	9.51%	10.16%
Projected 30-year U.S. Treasury bond yield (2022 - 2026) [3]	2.80%	0.741	12.11%	9.31%	9.70%	10.30%
				Average:	**9.55%**	**10.19%**

Notes:
[1] Source: Bloomberg Professional, as of January 31, 2021
[2] Source: Blue Chip Financial Forecasts, Vol. 40, No. 2, February 1, 2021, at 2
[3] Source: Blue Chip Financial Forecasts, Vol. 39, No. 12, December 1, 2020, at 14
[4] See Notes [1], [2], and [3]
[5] Source: Schedule AEB-S1, Attachment 3
[6] Source: Schedule AEB-S1, Attachment 4
[7] Equals [6] − [4]
[8] Equals [4] + [5] x [7]
[9] Equals [4] + 0.25 x ([7]) + 0.75 x ([5] x [7])

HISTORICAL BETA - 2011 - 2020

Company	Ticker	[1] 12/31/2011	[2] 12/31/2012	[3] 12/31/2013	[4] 12/31/2014	[5] 12/31/2015	[6] 12/31/2016	[7] 12/31/2017	[8] 12/31/2018	[9] 12/31/2019	[10] 12/31/2020	[11] Average
ALLETE, Inc.	ALE	0.70	0.70	0.75	0.80	0.80	0.75	0.80	0.65	0.65	0.85	0.75
Alliant Energy Corporation	LNT	0.75	0.70	0.75	0.80	0.80	0.70	0.70	0.60	0.60	0.85	0.73
American Electric Power Company, Inc.	AEP	0.70	0.65	0.70	0.70	0.70	0.65	0.65	0.55	0.55	0.75	0.66
Duke Energy Corporation	DUK	0.65	0.60	0.65	0.60	0.65	0.60	0.60	0.50	0.50	0.85	0.62
Entergy Corporation	ETR	0.70	0.70	0.70	0.70	0.70	0.65	0.65	0.60	0.60	0.95	0.70
Evergy, Inc.	EVRG								NMF	NMF	1.00	1.00
NextEra Energy, Inc.	NEE	0.75	0.70	0.70	0.70	0.75	0.65	0.65	0.55	0.55	0.90	0.69
NorthWestern Corporation	NWE		0.70	0.70	0.70	0.70	0.70	0.70	0.60	0.60	0.90	0.70
OGE Energy Corporation	OGE	0.80	0.75	0.85	0.90	0.95	0.90	0.95	0.85	0.75	1.10	0.88
Otter Tail Corporation	OTTR	0.90	0.90	0.95	0.90	0.85	0.85	0.90	0.75	0.70	0.85	0.86
Pinnacle West Capital Corporation	PNW	0.70	0.70	0.70	0.70	0.75	0.70	0.70	0.60	0.55	0.85	0.70
Portland General Electric Company	POR	0.75	0.75	0.75	0.80	0.80	0.70	0.70	0.60	0.60	0.85	0.73
Xcel Energy Inc.	XEL	0.65	0.65	0.65	0.70	0.65	0.60	0.60	0.55	0.50	0.80	0.64
Mean		0.73	0.71	0.74	0.75	0.76	0.70	0.72	0.62	0.60	0.88	0.74

Notes:
[1] Value Line, dated November 4, 2011, November 25, 2011, and Dcember 23, 2011
[2] Value Line, dated November 2, 2012, November 23, 2012, and December 21, 2012
[3] Value Line, dated November 1, 2013, November 22, 2013, and December 20, 2013
[4] Value Line, dated October 31, 2014, November 21, 2014, and December 19, 2014
[5] Value Line, dated October 30,2015, November 20, 2015, and December 18, 2015
[6] Value Line, dated October 28, 2016, November 18, 2016, and December 16, 2016
[7] Value Line, dated October 27, 2017, November 17, 2017, and December 15, 2017
[8] Value Line, dated October 18, 2018, November 16, 2018, and Decenber 14, 2018
[9] Value Line, dated October 25, 2019, November 15, 2019, and December 13, 2019
[10] Value Line, dated October 23, 2020, November 13, 2020, and December 11, 2020
[11] Average ([1] - [10])

MARKET RISK PREMIUM DERIVED FROM ANALYSTS' LONG-TERM GROWTH ESTIMATES

[1] Estimated Weighted Average Dividend Yield	2.07%
[2] Estimated Weighted Average Long-Term Growth Rate	9.94%
[3] S&P 500 Estimated Required Market Return	12.11%

STANDARD AND POOR'S 500 INDEX

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Current Dividend Yield	Cap-Weighted Dividend Yield	Value Line Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
LyondellBasell Industries NV	LYB	333.9	85.76	28,636.89	0.13%	4.90%	0.01%	3.50%	0.00%
American Express Co	AXP	805.0	116.26	93,589.30	0.42%	1.48%	0.01%	6.00%	0.02%
Verizon Communications Inc	VZ	4138.0	54.75	226,555.50	1.01%	4.58%	0.05%	4.00%	0.04%
Broadcom Inc	AVGO	406.7	450.5	183,224.21	0.81%	3.20%	0.03%	18.50%	0.15%
Boeing Co/The	BA	564.5	194.19	109,626.08		n/a		-1.50%	
Caterpillar Inc	CAT	543.3	182.84	99,329.29	0.44%	2.25%	0.01%	4.00%	0.02%
JPMorgan Chase & Co	JPM	3048.2	128.67	392,212.28	1.74%	2.80%	0.05%	5.50%	0.10%
Chevron Corp	CVX	1925.0	85.2	164,011.45	0.73%	6.06%	0.04%	10.50%	0.08%
Coca-Cola Co/The	KO	4297.4	48.15	206,921.50	0.92%	3.41%	0.03%	6.50%	0.06%
AbbVie Inc	ABBV	1765.5	102.48	180,925.78	0.80%	5.07%	0.04%	10.50%	0.08%
Walt Disney Co/The	DIS	1814.3	168.17	305,104.78		n/a		17.00%	
FleetCor Technologies Inc	FLT	83.4	242.75	20,245.84		n/a		14.00%	
Extra Space Storage Inc	EXR	131.4	113.79	14,947.23	0.07%	3.16%	0.00%	3.00%	0.00%
Exxon Mobil Corp	XOM	4228.2	44.84	189,594.01	0.84%	7.76%	0.07%	4.50%	0.04%
Phillips 66	PSX	436.8	67.8	29,615.04	0.13%	5.31%	0.01%	4.00%	0.01%
General Electric Co	GE	8759.9	10.68	93,555.44	0.42%	0.37%	0.00%	4.00%	0.02%
HP Inc	HPQ	1289.6	24.34	31,389.74	0.14%	3.18%	0.00%	10.00%	0.01%
Home Depot Inc/The	HD	1076.6	270.82	291,565.08	1.30%	2.22%	0.03%	8.50%	0.11%
International Business Machines Corp	IBM	891.1	119.11	106,133.80		5.47%		-0.50%	
Johnson & Johnson	JNJ	2632.5	163.13	429,446.74	1.91%	2.48%	0.05%	10.00%	0.19%
McDonald's Corp	MCD	745.1	207.84	154,863.87	0.69%	2.48%	0.02%	9.00%	0.06%
Merck & Co Inc	MRK	2530.0	77.07	194,989.72	0.87%	3.37%	0.03%	9.00%	0.08%
3M Co	MMM	576.8	175.66	101,324.55	0.45%	3.35%	0.02%	4.50%	0.02%
American Water Works Co Inc	AWK	181.3	159.02	28,825.87	0.13%	1.38%	0.00%	8.50%	0.01%
Bank of America Corp	BAC	8650.8	29.65	256,496.64	1.14%	2.43%	0.03%	4.00%	0.05%
Baker Hughes Co	BKR	685.8	20.09	13,778.06		3.58%		n/a	
Pfizer Inc	PFE	5558.4	35.9	199,546.45	0.89%	4.35%	0.04%	8.50%	0.08%
Procter & Gamble Co/The	PG	2462.5	128.21	315,714.05	1.40%	2.47%	0.03%	8.00%	0.11%
AT&T Inc	T	7126.0	28.63	204,017.38	0.91%	7.27%	0.07%	5.50%	0.05%
Travelers Cos Inc/The	TRV	252.4	136.3	34,402.12	0.15%	2.49%	0.00%	9.50%	0.01%
Raytheon Technologies Corp	RTX	1518.7	66.73	101,343.92		2.85%		-6.00%	
Analog Devices Inc	ADI	369.3	147.33	54,413.24	0.24%	1.68%	0.00%	8.50%	0.02%
Walmart Inc	WMT	2829.3	140.49	397,486.39	1.77%	1.54%	0.03%	8.00%	0.14%
Cisco Systems Inc/Delaware	CSCO	4221.0	44.58	188,172.18	0.84%	3.23%	0.03%	7.00%	0.06%
Intel Corp	INTC	4063.0	55.51	225,537.13	1.00%	2.50%	0.03%	7.00%	0.07%
General Motors Co	GM	1431.3	50.68	72,538.69		n/a		4.00%	
Microsoft Corp	MSFT	7542.2	231.96	1,749,492.42	7.77%	0.97%	0.08%	13.50%	1.05%
Dollar General Corp	DG	245.0	194.61	47,679.64	0.21%	0.74%	0.00%	13.00%	0.03%
Cigna Corp	CI	361.3	217.05	78,413.00	0.35%	1.84%	0.01%	11.50%	0.04%
Kinder Morgan Inc	KMI	2263.8	14.08	31,874.22	0.14%	7.46%	0.01%	18.50%	0.03%
Citigroup Inc	C	2082.0	57.99	120,732.86	0.54%	3.52%	0.02%	10.00%	0.05%
American International Group Inc	AIG	861.5	37.44	32,255.53		3.42%		28.50%	
Honeywell International Inc	HON	701.7	195.37	137,088.39	0.61%	1.90%	0.01%	8.00%	0.05%
Altria Group Inc	MO	1858.4	41.08	76,343.85	0.34%	8.37%	0.03%	6.50%	0.02%
HCA Healthcare Inc	HCA	338.4	162.48	54,979.17		n/a		11.00%	
Under Armour Inc	UAA	188.5	17.5	3,299.35		n/a		11.00%	
International Paper Co	IP	393.1	50.31	19,776.61	0.09%	4.07%	0.00%	6.50%	0.01%
Hewlett Packard Enterprise Co	HPE	1293.5	12.34	15,961.79	0.07%	3.89%	0.00%	2.50%	0.00%
Abbott Laboratories	ABT	1772.4	123.59	219,046.22	0.97%	1.46%	0.01%	12.00%	0.12%
Aflac Inc	AFL	702.4	45.18	31,736.47	0.14%	2.92%	0.00%	8.50%	0.01%
Air Products and Chemicals Inc	APD	221.0	266.76	58,967.03	0.26%	2.25%	0.01%	12.50%	0.03%
Royal Caribbean Cruises Ltd	RCL	224.3	65	14,582.04		n/a		-0.50%	
Hess Corp	HES	307.1	53.98	16,576.02		1.85%		n/a	
Archer-Daniels-Midland Co	ADM	556.4	50.01	27,825.01	0.12%	2.96%	0.00%	9.00%	0.01%
Automatic Data Processing Inc	ADP	428.1	165.12	70,687.87	0.31%	2.25%	0.01%	9.00%	0.03%
Verisk Analytics Inc	VRSK	162.6	183.5	29,835.27	0.13%	0.59%	0.00%	11.50%	0.02%
AutoZone Inc	AZO	22.8	1118.37	25,452.98		n/a		12.00%	
Avery Dennison Corp	AVY	83.4	150.87	12,585.27	0.06%	1.64%	0.00%	11.00%	0.01%
Enphase Energy Inc	ENPH	126.3	182.35	23,036.82		n/a		40.00%	
MSCI Inc	MSCI	82.6	395.3	32,651.78	0.15%	0.79%	0.00%	17.00%	0.02%
Ball Corp	BLL	327.1	88.02	28,792.40	0.13%	0.68%	0.00%	18.00%	0.02%
Carrier Global Corp	CARR	866.7	38.5	33,367.45		1.25%		n/a	
Bank of New York Mellon Corp/The	BK	886.8	39.83	35,319.81	0.16%	3.11%	0.00%	3.00%	0.00%
Otis Worldwide Corp	OTIS	433.2	64.65	28,006.06		1.24%		n/a	
Baxter International Inc	BAX	510.8	76.83	39,246.15	0.17%	1.28%	0.00%	9.00%	0.02%
Becton Dickinson and Co	BDX	290.9	261.79	76,142.15	0.34%	1.27%	0.00%	9.00%	0.03%
Berkshire Hathaway Inc	BRK/B	1371.0	227.87	312,398.83		n/a		6.00%	
Best Buy Co Inc	BBY	258.9	108.82	28,178.39	0.13%	2.02%	0.00%	9.00%	0.01%
Boston Scientific Corp	BSX	1431.9	35.44	50,747.28		n/a		12.50%	
Bristol-Myers Squibb Co	BMY	2259.8	61.43	138,816.57	0.62%	3.19%	0.02%	12.50%	0.08%
Fortune Brands Home & Security Inc	FBHS	138.9	86.25	11,982.63	0.05%	1.21%	0.00%	8.50%	0.00%
Brown-Forman Corp	BF/B	309.5	71.67	22,181.08	0.10%	1.00%	0.00%	12.00%	0.01%
Cabot Oil & Gas Corp	COG	398.6	18.33	7,305.97	0.03%	2.18%	0.00%	11.50%	0.00%
Campbell Soup Co	CPB	302.9	48.11	14,574.68	0.06%	3.08%	0.00%	4.00%	0.00%
Kansas City Southern	KSU	90.8	202.67	18,412.16	0.08%	0.87%	0.00%	11.50%	0.01%
Hilton Worldwide Holdings Inc	HLT	277.4	101.39	28,130.25		n/a		11.00%	
Carnival Corp	CCL	929.6	18.67	17,356.23		n/a		-10.00%	
Qorvo Inc	QRVO	114.1	170.88	19,489.55		n/a		37.00%	
Lumen Technologies Inc	LUMN	1097.1	12.38	13,582.48	0.06%	8.08%	0.00%	2.50%	0.00%
UDR Inc	UDR	294.5	38.45	11,322.79	0.05%	3.75%	0.00%	3.50%	0.00%
Clorox Co/The	CLX	126.1	209.46	26,402.43	0.12%	2.12%	0.00%	5.00%	0.01%
Paycom Software Inc	PAYC	58.5	379.74	22,219.73		n/a		23.00%	
CMS Energy Corp	CMS	286.3	56.88	16,286.68	0.07%	3.06%	0.00%	7.50%	0.01%
Newell Brands Inc	NWL	424.3	24.02	10,191.69	0.05%	3.83%	0.00%	4.50%	0.00%
Colgate-Palmolive Co	CL	857.2	78	66,859.18	0.30%	2.26%	0.01%	5.00%	0.01%
Comerica Inc	CMA	139.0	57.2	7,950.80	0.04%	4.76%	0.00%	0.50%	0.00%
IPG Photonics Corp	IPGP	53.3	223.43	11,909.04		n/a		10.00%	
Conagra Brands Inc	CAG	488.6	34.6	16,904.83	0.08%	3.18%	0.00%	5.50%	0.00%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Current Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Value Line Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Consolidated Edison Inc	ED	342.1	70.78	24,214.97	0.11%	4.38%	0.00%	3.00%	0.00%
SL Green Realty Corp	SLG	70.5	67.48	4,758.15		5.39%		-1.50%	
Corning Inc	GLW	765.0	35.87	27,440.55	0.12%	2.45%	0.00%	13.50%	0.02%
Cummins Inc	CMI	148.0	234.42	34,695.80	0.15%	2.30%	0.00%	4.00%	0.01%
Danaher Corp	DHR	711.0	237.84	169,104.24	0.75%	0.30%	0.00%	17.00%	0.13%
Target Corp	TGT	500.8	181.17	90,725.04	0.40%	1.50%	0.01%	13.00%	0.05%
Deere & Co	DE	314.4	288.8	90,804.78	0.40%	1.05%	0.00%	5.00%	0.02%
Dominion Energy Inc	D	815.8	72.89	59,465.05	0.26%	3.46%	0.01%	6.00%	0.02%
Dover Corp	DOV	144.1	116.49	16,786.56	0.07%	1.70%	0.00%	6.50%	0.00%
Alliant Energy Corp	LNT	249.8	48.65	12,150.87	0.05%	3.31%	0.00%	5.50%	0.00%
Duke Energy Corp	DUK	736.0	94	69,184.00	0.31%	4.11%	0.01%	5.00%	0.02%
Regency Centers Corp	REG	169.7	47.18	8,005.50	0.04%	5.04%	0.00%	14.50%	0.01%
Eaton Corp PLC	ETN	398.6	117.7	46,915.22	0.21%	2.48%	0.01%	4.00%	0.01%
Ecolab Inc	ECL	285.4	204.51	58,376.36	0.26%	0.94%	0.00%	8.50%	0.02%
PerkinElmer Inc	PKI	112.0	147.07	16,468.02	0.07%	0.19%	0.00%	17.50%	0.01%
Emerson Electric Co	EMR	598.0	79.35	47,454.39	0.21%	2.55%	0.01%	9.50%	0.02%
EOG Resources Inc	EOG	583.4	50.96	29,728.94	0.13%	2.94%	0.00%	7.50%	0.01%
Aon PLC	AON	228.6	203.1	46,431.91	0.21%	0.91%	0.00%	7.50%	0.02%
Entergy Corp	ETR	200.2	95.33	19,088.21	0.08%	3.99%	0.00%	3.00%	0.00%
Equifax Inc	EFX	121.6	177.11	21,544.19	0.10%	0.88%	0.00%	6.50%	0.01%
IQVIA Holdings Inc	IQV	191.7	177.8	34,088.88		n/a		11.00%	
Gartner Inc	IT	89.3	151.91	13,563.59		n/a		12.00%	
FedEx Corp	FDX	265.1	235.34	62,381.81	0.28%	1.10%	0.00%	8.50%	0.02%
FMC Corp	FMC	129.8	108.29	14,051.39	0.06%	1.77%	0.00%	11.50%	0.01%
Ford Motor Co	F	3907.6	10.53	41,146.76		n/a		11.50%	
NextEra Energy Inc	NEE	1959.1	80.87	158,430.31	0.70%	1.73%	0.01%	9.50%	0.07%
Franklin Resources Inc	BEN	505.9	26.29	13,300.06	0.06%	4.26%	0.00%	11.50%	0.01%
Freeport-McMoRan Inc	FCX	1452.9	26.91	39,096.68		n/a		23.00%	
Gap Inc/The	GPS	374.0	20.25	7,574.09	0.03%	4.79%	0.00%	2.50%	0.00%
DexCom Inc	DXCM	96.0	374.85	35,996.10		n/a		n/a	
General Dynamics Corp	GD	287.0	146.68	42,093.05	0.19%	3.00%	0.01%	6.00%	0.01%
General Mills Inc	GIS	611.4	58.1	35,524.49	0.16%	3.51%	0.01%	4.00%	0.01%
Genuine Parts Co	GPC	144.3	93.88	13,545.95	0.06%	3.37%	0.00%	7.00%	0.00%
Atmos Energy Corp	ATO	126.0	89	11,217.29	0.05%	2.81%	0.00%	7.00%	0.00%
WW Grainger Inc	GWW	53.7	364.39	19,556.08	0.09%	1.68%	0.00%	7.50%	0.01%
Halliburton Co	HAL	884.0	17.63	15,585.04	0.07%	1.02%	0.00%	1.50%	0.00%
L3Harris Technologies Inc	LHX	210.1	171.51	36,036.31		2.38%		n/a	
Healthpeak Properties Inc	PEAK	538.4	29.65	15,962.40		4.99%		-15.00%	
Catalent Inc	CTLT	164.7	115.05	18,948.50		n/a		21.00%	
Fortive Corp	FTV	337.2	66.08	22,281.91	0.10%	0.42%	0.00%	8.50%	0.01%
Hershey Co/The	HSY	147.5	145.44	21,456.76	0.10%	2.21%	0.00%	5.00%	0.00%
Synchrony Financial	SYF	584.0	33.65	19,651.60	0.09%	2.62%	0.00%	4.50%	0.00%
Hormel Foods Corp	HRL	539.9	46.86	25,300.56	0.11%	2.09%	0.00%	10.00%	0.01%
Arthur J Gallagher & Co	AJG	193.7	115.41	22,354.92	0.10%	1.66%	0.00%	13.00%	0.01%
Mondelez International Inc	MDLZ	1430.2	55.44	79,288.24	0.35%	2.27%	0.01%	8.00%	0.03%
CenterPoint Energy Inc	CNP	544.8	21.09	11,490.23	0.05%	3.03%	0.00%	5.00%	0.00%
Humana Inc	HUM	132.3	383.11	50,701.16	0.23%	0.65%	0.00%	10.50%	0.02%
Willis Towers Watson PLC	WLTW	128.9	202.94	26,159.98	0.12%	1.40%	0.00%	11.50%	0.01%
Illinois Tool Works Inc	ITW	316.5	194.21	61,471.35	0.27%	2.35%	0.01%	9.00%	0.02%
CDW Corp/DE	CDW	143.0	131.66	18,825.80	0.08%	1.22%	0.00%	11.00%	0.01%
Trane Technologies PLC	TT	240.1	143.35	34,421.92		1.48%		n/a	
Interpublic Group of Cos Inc/The	IPG	390.0	24.07	9,388.14	0.04%	4.24%	0.00%	10.00%	0.00%
International Flavors & Fragrances Inc	IFF	106.9	112.38	12,017.58	0.05%	2.74%	0.00%	6.00%	0.00%
Jacobs Engineering Group Inc	J	130.0	100.96	13,122.88	0.06%	0.83%	0.00%	14.50%	0.01%
Hanesbrands Inc	HBI	348.3	15.29	5,325.87	0.02%	3.92%	0.00%	3.50%	0.00%
Kellogg Co	K	343.7	58.94	20,258.44	0.09%	3.87%	0.00%	2.50%	0.00%
Broadridge Financial Solutions Inc	BR	115.6	141.31	16,338.12	0.07%	1.63%	0.00%	10.50%	0.01%
Perrigo Co PLC	PRGO	136.5	42.7	5,828.17	0.03%	2.11%	0.00%	3.50%	0.00%
Kimberly-Clark Corp	KMB	340.1	132.1	44,932.10	0.20%	3.45%	0.01%	6.50%	0.01%
Kimco Realty Corp	KIM	432.5	16.51	7,140.56	0.03%	3.88%	0.00%	5.00%	0.00%
Oracle Corp	ORCL	2944.0	60.43	177,907.97	0.79%	1.59%	0.01%	10.50%	0.08%
Kroger Co/The	KR	761.3	34.5	26,266.47	0.12%	2.09%	0.00%	7.50%	0.01%
Leggett & Platt Inc	LEG	132.5	41	5,433.28	0.02%	3.90%	0.00%	8.00%	0.00%
Lennar Corp	LEN	275.1	83.15	22,871.24	0.10%	1.20%	0.00%	9.50%	0.01%
Eli Lilly and Co	LLY	956.6	207.97	198,940.36	0.88%	1.63%	0.01%	10.00%	0.09%
L Brands Inc	LB	278.1	40.76	11,335.72		n/a		16.00%	
Charter Communications Inc	CHTR	193.7	607.56	117,703.21		n/a		36.50%	
Lincoln National Corp	LNC	193.3	45.49	8,791.62	0.04%	3.69%	0.00%	9.50%	0.00%
Loews Corp	L	274.9	45.29	12,449.00	0.06%	0.55%	0.00%	13.00%	0.01%
Lowe's Cos Inc	LOW	732.7	166.85	122,254.83	0.54%	1.44%	0.01%	14.50%	0.08%
Xerox Holdings Corp	XRX	198.4	21.03	4,172.04	0.02%	4.76%	0.00%	5.00%	0.00%
IDEX Corp	IEX	75.7	186.19	14,095.70	0.06%	1.07%	0.00%	7.50%	0.00%
Marsh & McLennan Cos Inc	MMC	507.2	109.91	55,745.36	0.25%	1.69%	0.00%	9.00%	0.02%
Masco Corp	MAS	261.7	54.31	14,211.62	0.06%	1.03%	0.00%	9.00%	0.01%
S&P Global Inc	SPGI	240.7	317	76,291.44	0.34%	0.97%	0.00%	8.50%	0.03%
Medtronic PLC	MDT	1346.0	111.33	149,852.41	0.67%	2.08%	0.01%	6.50%	0.04%
Viatris Inc	VTRS	1215.6	16.99	20,652.52		n/a		n/a	
CVS Health Corp	CVS	1308.9	71.65	93,783.62	0.42%	2.79%	0.01%	6.00%	0.02%
DuPont de Nemours Inc	DD	733.9	79.45	58,304.38		1.51%		n/a	
Micron Technology Inc	MU	1118.7	78.27	87,558.38		n/a		11.50%	
Motorola Solutions Inc	MSI	169.5	167.55	28,403.58	0.13%	1.70%	0.00%	8.00%	0.01%
Cboe Global Markets Inc	CBOE	108.0	91.73	9,910.69	0.04%	1.83%	0.00%	12.50%	0.01%
Laboratory Corp of America Holdings	LH	97.4	228.91	22,295.83		n/a		8.00%	
Newmont Corp	NEM	803.4	59.6	47,880.14	0.21%	2.68%	0.01%	19.50%	0.04%
NIKE Inc	NKE	1271.5	133.59	169,856.88		0.82%		27.00%	
NiSource Inc	NI	383.2	22.15	8,488.15	0.04%	3.97%	0.00%	13.00%	0.00%
Norfolk Southern Corp	NSC	252.1	236.62	59,650.72	0.26%	1.67%	0.00%	10.50%	0.03%
Principal Financial Group Inc	PFG	274.7	49.27	13,535.85	0.06%	4.55%	0.00%	5.50%	0.00%
Eversource Energy	ES	342.8	87.5	29,997.10	0.13%	2.59%	0.00%	5.50%	0.01%
Northrop Grumman Corp	NOC	166.7	286.61	47,783.05	0.21%	2.02%	0.00%	11.00%	0.02%
Wells Fargo & Co	WFC	4144.0	29.88	123,822.72	0.55%	1.34%	0.01%	5.00%	0.03%
Nucor Corp	NUE	301.9	48.73	14,713.00	0.07%	3.32%	0.00%	3.00%	0.00%
PVH Corp	PVH	71.1	85.26	6,061.99		n/a		3.50%	
Occidental Petroleum Corp	OXY	931.2	20.06	18,680.05	0.08%	0.20%	0.00%	14.50%	0.01%
Omnicom Group Inc	OMC	215.0	62.38	13,410.02	0.06%	4.17%	0.00%	5.50%	0.00%
ONEOK Inc	OKE	444.4	39.83	17,700.33	0.08%	9.39%	0.01%	10.00%	0.01%
Raymond James Financial Inc	RJF	137.4	99.93	13,730.38	0.06%	1.56%	0.00%	6.00%	0.00%
Parker-Hannifin Corp	PH	128.8	264.61	34,081.77	0.15%	1.33%	0.00%	11.50%	0.02%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Current Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Value Line Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Rollins Inc	ROL	491.6	36.02	17,708.30	0.08%	0.89%	0.00%	12.00%	0.01%
PPL Corp	PPL	768.8	27.67	21,272.25	0.09%	6.00%	0.01%	2.50%	0.00%
ConocoPhillips	COP	1354.6	40.03	54,225.64	0.24%	4.30%	0.01%	10.50%	0.03%
PulteGroup Inc	PHM	268.1	43.5	11,662.09	0.05%	1.29%	0.00%	10.00%	0.01%
Pinnacle West Capital Corp	PNW	112.6	75.25	8,472.92	0.04%	4.41%	0.00%	4.50%	0.00%
PNC Financial Services Group Inc/The	PNC	423.7	143.52	60,809.57	0.27%	3.21%	0.01%	3.00%	0.01%
PPG Industries Inc	PPG	236.2	134.71	31,819.04	0.14%	1.60%	0.00%	3.00%	0.00%
Progressive Corp/The	PGR	585.2	87.19	51,023.59	0.23%	0.46%	0.00%	9.50%	0.02%
Public Service Enterprise Group Inc	PEG	505.8	56.43	28,545.00	0.13%	3.47%	0.00%	5.00%	0.01%
Robert Half International Inc	RHI	114.0	67.5	7,693.65	0.03%	2.01%	0.00%	6.00%	0.00%
Edison International	EIX	378.5	58.16	22,014.37	0.10%	4.56%	0.00%	12.00%	0.01%
Schlumberger NV	SLB	1392.3	22.21	30,923.56		2.25%		0.00%	
Charles Schwab Corp/The	SCHW	1797.2	51.54	92,628.31	0.41%	1.40%	0.01%	7.50%	0.03%
Sherwin-Williams Co/The	SHW	90.8	691.8	62,832.74	0.28%	0.77%	0.00%	10.00%	0.03%
West Pharmaceutical Services Inc	WST	73.9	299.49	22,140.40	0.10%	0.23%	0.00%	17.00%	0.02%
J M Smucker Co/The	SJM	114.1	116.41	13,281.57	0.06%	3.09%	0.00%	2.50%	0.00%
Snap-on Inc	SNA	54.2	179.99	9,758.16	0.04%	2.73%	0.00%	5.00%	0.00%
AMETEK Inc	AME	230.1	113.26	26,057.16	0.12%	0.64%	0.00%	12.50%	0.01%
Southern Co/The	SO	1056.2	58.92	62,233.78	0.28%	4.34%	0.01%	3.00%	0.01%
Truist Financial Corp	TFC	1349.0	47.98	64,723.15	0.29%	3.75%	0.01%	7.00%	0.02%
Southwest Airlines Co	LUV	590.5	43.94	25,945.43		n/a		0.00%	
W R Berkley Corp	WRB	177.8	62.14	11,050.05	0.05%	0.77%	0.00%	10.00%	0.00%
Stanley Black & Decker Inc	SWK	160.2	173.49	27,797.09	0.12%	1.61%	0.00%	7.50%	0.01%
Public Storage	PSA	174.8	227.62	39,792.98	0.18%	3.51%	0.01%	4.00%	0.01%
Arista Networks Inc	ANET	75.7	307.56	23,270.30		n/a		5.50%	
Sysco Corp	SYY	509.4	71.51	36,424.26	0.16%	2.52%	0.00%	11.50%	0.02%
Corteva Inc	CTVA	748.5	39.86	29,834.61		1.30%		n/a	
Texas Instruments Inc	TXN	917.9	165.69	152,093.81	0.68%	2.46%	0.02%	4.00%	0.03%
Textron Inc	TXT	228.9	45.26	10,358.88	0.05%	0.18%	0.00%	8.50%	0.00%
Thermo Fisher Scientific Inc	TMO	396.3	509.7	202,011.95	0.90%	0.17%	0.00%	17.00%	0.15%
TJX Cos Inc/The	TJX	1200.6	64.04	76,888.41	0.34%	1.62%	0.01%	12.00%	0.04%
Globe Life Inc	GL	104.7	90.39	9,460.40	0.04%	0.83%	0.00%	8.00%	0.00%
Johnson Controls International plc	JCI	720.3	49.82	35,883.95	0.16%	2.09%	0.00%	8.00%	0.01%
Ulta Beauty Inc	ULTA	56.3	279.76	15,761.40		n/a		7.00%	
Union Pacific Corp	UNP	673.9	197.47	133,068.91	0.59%	1.96%	0.01%	10.50%	0.06%
Keysight Technologies Inc	KEYS	186.1	141.59	26,347.78		n/a		17.00%	
UnitedHealth Group Inc	UNH	948.8	333.58	316,507.71	1.41%	1.50%	0.02%	12.00%	0.17%
Unum Group	UNM	203.7	23.23	4,731.07	0.02%	4.91%	0.00%	3.50%	0.00%
Marathon Oil Corp	MRO	789.4	7.24	5,715.20	0.03%	1.66%	0.00%	13.00%	0.00%
Varian Medical Systems Inc	VAR	91.4	175.57	16,039.20		n/a		13.50%	
Bio-Rad Laboratories Inc	BIO	24.7	573.77	14,195.64		n/a		11.50%	
Ventas Inc	VTR	374.6	46.07	17,256.49	0.08%	3.91%	0.00%	1.50%	0.00%
VF Corp	VFC	390.0	76.87	29,979.61	0.13%	2.55%	0.00%	6.00%	0.01%
Vornado Realty Trust	VNO	191.3	39.76	7,604.54		5.33%		-20.00%	
Vulcan Materials Co	VMC	132.5	149.14	19,762.69	0.09%	0.91%	0.00%	12.50%	0.01%
Weyerhaeuser Co	WY	747.4	31.19	23,310.94		2.18%		20.50%	
Whirlpool Corp	WHR	62.0	185.09	11,475.58	0.05%	2.70%	0.00%	5.00%	0.00%
Williams Cos Inc/The	WMB	1213.6	21.23	25,764.43	0.11%	7.72%	0.01%	12.00%	0.01%
WEC Energy Group Inc	WEC	315.4	88.9	28,042.17	0.12%	3.05%	0.00%	6.00%	0.01%
Adobe Inc	ADBE	478.7	458.77	219,613.20		n/a		14.00%	
AES Corp/The	AES	665.1	24.39	16,222.55		2.47%		24.00%	
Amgen Inc	AMGN	582.2	241.43	140,553.06	0.62%	2.92%	0.02%	6.50%	0.04%
Apple Inc	AAPL	16788.1	131.96	2,215,357.15	9.84%	0.62%	0.06%	16.00%	1.57%
Autodesk Inc	ADSK	219.9	277.43	61,003.81		n/a		n/a	
Cintas Corp	CTAS	105.0	318.12	33,412.14	0.15%	0.94%	0.00%	13.50%	0.02%
Comcast Corp	CMCSA	4565.9	49.57	226,330.62	1.01%	2.02%	0.02%	8.00%	0.08%
Molson Coors Beverage Co	TAP	200.3	50.16	10,046.90		n/a		5.50%	
KLA Corp	KLAC	154.5	280.07	43,259.61	0.19%	1.29%	0.00%	15.50%	0.03%
Marriott International Inc/MD	MAR	324.3	116.31	37,723.05		n/a		4.00%	
McCormick & Co Inc/MD	MKC	248.9	89.54	22,290.45	0.10%	1.52%	0.00%	6.50%	0.01%
PACCAR Inc	PCAR	346.6	91.22	31,616.85	0.14%	1.40%	0.00%	3.50%	0.00%
Costco Wholesale Corp	COST	443.0	352.43	156,110.63	0.69%	0.79%	0.01%	11.00%	0.08%
First Republic Bank/CA	FRC	173.9	144.99	25,220.00	0.11%	0.55%	0.00%	10.50%	0.01%
Stryker Corp	SYK	375.8	221.01	83,053.57	0.37%	1.14%	0.00%	11.00%	0.04%
Tyson Foods Inc	TSN	294.8	64.31	18,958.14	0.08%	2.77%	0.00%	6.50%	0.01%
Lamb Weston Holdings Inc	LW	146.4	74.7	10,932.72	0.05%	1.26%	0.00%	4.00%	0.00%
Applied Materials Inc	AMAT	917.7	96.68	88,719.47	0.39%	0.91%	0.00%	8.50%	0.03%
American Airlines Group Inc	AAL	605.0	17.17	10,387.83		n/a		-6.50%	
Cardinal Health Inc	CAH	293.4	53.73	15,765.51	0.07%	3.62%	0.00%	13.00%	0.01%
Cerner Corp	CERN	306.6	80.11	24,560.92	0.11%	1.10%	0.00%	9.00%	0.01%
Cincinnati Financial Corp	CINF	160.9	84.09	13,529.83	0.06%	3.00%	0.00%	10.50%	0.01%
ViacomCBS Inc	VIAC	565.0	48.5	27,401.53	0.12%	1.98%	0.00%	8.00%	0.01%
DR Horton Inc	DHI	363.7	76.8	27,932.31	0.12%	1.04%	0.00%	12.00%	0.01%
Flowserve Corp	FLS	130.3	35.56	4,632.15	0.02%	2.25%	0.00%	12.50%	0.00%
Electronic Arts Inc	EA	290.1	143.2	41,539.03	0.18%	0.47%	0.00%	9.50%	0.02%
Expeditors International of Washington Inc	EXPD	169.3	89.52	15,152.69	0.07%	1.16%	0.00%	6.50%	0.00%
Fastenal Co	FAST	574.2	45.59	26,175.95	0.12%	2.46%	0.00%	8.00%	0.01%
M&T Bank Corp	MTB	128.3	132.47	17,000.27	0.08%	3.32%	0.00%	4.00%	0.00%
Xcel Energy Inc	XEL	525.5	63.99	33,624.06	0.15%	2.69%	0.00%	6.00%	0.01%
Fiserv Inc	FISV	670.4	102.69	68,847.28		n/a		14.00%	

STANDARD AND POOR'S 500 INDEX

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Fifth Third Bancorp	FITB	712.8	28.93	20,620.15	0.09%	3.73%	0.00%	1.00%	0.00%
Gilead Sciences Inc	GILD	1253.5	65.6	82,231.44	0.37%	4.15%	0.02%	3.50%	0.01%
Hasbro Inc	HAS	137.0	93.82	12,856.25	0.06%	2.90%	0.00%	9.00%	0.01%
Huntington Bancshares Inc/OH	HBAN	1017.0	13.225	13,449.83	0.06%	4.54%	0.00%	2.50%	0.00%
Welltower Inc	WELL	417.3	60.6	25,288.68	0.11%	4.03%	0.00%	3.50%	0.00%
Biogen Inc	BIIB	153.9	282.61	43,488.59		n/a		7.00%	
Northern Trust Corp	NTRS	208.1	89.19	18,562.31	0.08%	3.14%	0.00%	4.50%	0.00%
Packaging Corp of America	PKG	94.8	134.46	12,750.98	0.06%	2.97%	0.00%	4.00%	0.00%
Paychex Inc	PAYX	360.6	87.32	31,490.30	0.14%	2.84%	0.00%	6.50%	0.01%
People's United Financial Inc	PBCT	424.7	13.66	5,801.13	0.03%	5.27%	0.00%	2.50%	0.00%
QUALCOMM Inc	QCOM	1135.8	156.28	177,495.64	0.79%	1.66%	0.01%	15.50%	0.12%
Roper Technologies Inc	ROP	104.9	392.91	41,205.26	0.18%	0.57%	0.00%	10.00%	0.02%
Ross Stores Inc	ROST	356.5	111.29	39,670.77		n/a		7.50%	
IDEXX Laboratories Inc	IDXX	85.3	478.68	40,831.40		n/a		15.00%	
Starbucks Corp	SBUX	1177.3	96.81	113,974.41	0.51%	1.86%	0.01%	13.50%	0.07%
KeyCorp	KEY	975.8	16.86	16,451.53	0.07%	4.39%	0.00%	4.50%	0.00%
Fox Corp	FOXA	337.5	31.18	10,524.59		1.48%		n/a	
Fox Corp	FOX	257.8	29.89	7,706.54		1.54%		n/a	
State Street Corp	STT	353.2	70	24,720.92	0.11%	2.97%	0.00%	5.00%	0.01%
Norwegian Cruise Line Holdings Ltd	NCLH	315.6	22.65	7,148.77		n/a		-4.50%	
US Bancorp	USB	1507.0	42.85	64,574.95	0.29%	3.92%	0.01%	0.50%	0.00%
A O Smith Corp	AOS	135.4	54.3	7,353.85	0.03%	1.92%	0.00%	5.00%	0.00%
NortonLifeLock Inc	NLOK	591.9	21.07	12,470.70	0.06%	2.37%	0.00%	6.50%	0.00%
T Rowe Price Group Inc	TROW	228.0	156.48	35,677.44	0.16%	2.30%	0.00%	8.00%	0.01%
Waste Management Inc	WM	422.6	111.32	47,044.50	0.21%	1.96%	0.00%	7.50%	0.02%
Constellation Brands Inc	STZ	170.0	210.93	35,864.22	0.16%	1.42%	0.00%	7.50%	0.01%
Xilinx Inc	XLNX	245.3	130.57	32,025.82		n/a		7.50%	
DENTSPLY SIRONA Inc	XRAY	218.6	53.49	11,690.51	0.05%	0.75%	0.00%	5.50%	0.00%
Zions Bancorp NA	ZION	164.0	44.14	7,239.49	0.03%	3.08%	0.00%	6.50%	0.00%
Alaska Air Group Inc	ALK	123.7	48.83	6,038.51		n/a		0.50%	
Invesco Ltd	IVZ	459.3	20.59	9,457.71	0.04%	3.01%	0.00%	2.50%	0.00%
Linde PLC	LIN	523.3	245.4	128,427.64		1.73%		n/a	
Intuit Inc	INTU	262.7	361.23	94,911.74	0.42%	0.65%	0.00%	15.50%	0.07%
Morgan Stanley	MS	1809.2	67.05	121,306.73	0.54%	2.09%	0.01%	7.50%	0.04%
Microchip Technology Inc	MCHP	260.4	136.11	35,439.78	0.16%	1.08%	0.00%	9.00%	0.01%
Chubb Ltd	CB	451.4	145.67	65,751.21	0.29%	2.14%	0.01%	9.50%	0.03%
Hologic Inc	HOLX	257.7	79.73	20,543.39		n/a		20.50%	
Citizens Financial Group Inc	CFG	427.1	36.44	15,562.54	0.07%	4.28%	0.00%	12.00%	0.01%
O'Reilly Automotive Inc	ORLY	72.4	425.47	30,824.45		n/a		14.00%	
Allstate Corp/The	ALL	304.1	107.18	32,590.01	0.14%	2.02%	0.00%	9.00%	0.01%
FLIR Systems Inc	FLIR	131.2	52.05	6,826.51	0.03%	1.31%	0.00%	8.00%	0.00%
Equity Residential	EQR	372.3	61.64	22,945.67	0.10%	3.91%	0.00%	1.00%	0.00%
BorgWarner Inc	BWA	244.5	41.99	10,267.35	0.05%	1.62%	0.00%	4.00%	0.00%
Host Hotels & Resorts Inc	HST	705.3	13.55	9,557.22		n/a		-9.00%	
Incyte Corp	INCY	219.0	89.75	19,654.89		n/a		n/a	
Simon Property Group Inc	SPG	328.1	92.93	30,492.94		5.60%		-1.00%	
Eastman Chemical Co	EMN	135.5	98.35	13,323.28	0.06%	2.81%	0.00%	5.00%	0.00%
Twitter Inc	TWTR	795.4	50.53	40,189.04		n/a		29.00%	
AvalonBay Communities Inc	AVB	139.6	163.67	22,849.81	0.10%	3.89%	0.00%	1.00%	0.00%
Prudential Financial Inc	PRU	396.0	78.28	30,998.88	0.14%	5.62%	0.01%	5.00%	0.01%
United Parcel Service Inc	UPS	715.2	155	110,858.64	0.49%	2.61%	0.01%	8.00%	0.04%
Walgreens Boots Alliance Inc	WBA	864.0	50.25	43,418.11	0.19%	3.72%	0.01%	6.00%	0.01%
STERIS PLC	STE	85.4	187.11	15,970.21	0.07%	0.86%	0.00%	10.00%	0.01%
McKesson Corp	MCK	160.6	174.47	28,013.60	0.12%	0.96%	0.00%	9.00%	0.01%
Lockheed Martin Corp	LMT	280.1	321.82	90,142.75	0.40%	3.23%	0.01%	8.50%	0.03%
AmerisourceBergen Corp	ABC	204.6	104.2	21,320.88	0.09%	1.69%	0.00%	7.00%	0.01%
Capital One Financial Corp	COF	459.0	104.26	47,855.34	0.21%	0.38%	0.00%	5.50%	0.01%
Waters Corp	WAT	62.0	264.67	16,422.24		n/a		6.00%	
Dollar Tree Inc	DLTR	235.2	101.66	23,909.62		n/a		8.50%	
Darden Restaurants Inc	DRI	130.3	116.89	15,234.04	0.07%	1.27%	0.00%	7.50%	0.01%
Domino's Pizza Inc	DPZ	39.4	370.76	14,607.94	0.06%	0.84%	0.00%	14.00%	0.01%
NVR Inc	NVR	3.7	4446.48	16,434.19		n/a		9.50%	
NetApp Inc	NTAP	223.4	66.44	14,841.70	0.07%	2.89%	0.00%	6.00%	0.00%
Citrix Systems Inc	CTXS	123.1	133.31	16,413.66	0.07%	1.11%	0.00%	9.00%	0.01%
DXC Technology Co	DXC	254.4	28.2	7,174.42		n/a		2.50%	
Old Dominion Freight Line Inc	ODFL	117.3	194	22,762.21	0.10%	0.31%	0.00%	9.00%	0.01%
DaVita Inc	DVA	112.0	117.37	13,145.44		n/a		13.00%	
Hartford Financial Services Group Inc/The	HIG	358.3	48.02	17,207.01	0.08%	2.71%	0.00%	8.50%	0.01%
Iron Mountain Inc	IRM	288.2	33.67	9,702.72	0.04%	7.35%	0.00%	8.50%	0.00%
Estee Lauder Cos Inc/The	EL	226.5	236.65	53,610.22	0.24%	0.90%	0.00%	12.00%	0.03%
Cadence Design Systems Inc	CDNS	278.9	130.39	36,369.81		n/a		13.00%	
Tyler Technologies Inc	TYL	40.3	422.79	17,049.85		n/a		10.50%	
Universal Health Services Inc	UHS	77.7	124.68	9,690.63		n/a		11.00%	
Skyworks Solutions Inc	SWKS	164.9	169.25	27,909.33	0.12%	1.18%	0.00%	11.50%	0.01%
NOV Inc	NOV	388.3	12.38	4,806.71		n/a		n/a	
Quest Diagnostics Inc	DGX	134.8	129.15	17,405.03	0.08%	1.73%	0.00%	9.00%	0.01%
Activision Blizzard Inc	ATVI	772.9	91	70,329.99	0.31%	0.45%	0.00%	14.50%	0.05%
Rockwell Automation Inc	ROK	116.2	248.53	28,868.00	0.13%	1.72%	0.00%	7.00%	0.01%
Kraft Heinz Co/The	KHC	1222.6	33.51	40,970.10		4.77%		-0.50%	
American Tower Corp	AMT	444.2	227.36	100,996.27	0.45%	2.13%	0.01%	7.50%	0.03%
HollyFrontier Corp	HFC	162.0	28.46	4,611.00		4.92%		n/a	
Regeneron Pharmaceuticals Inc	REGN	104.9	503.84	52,831.15		n/a		10.50%	
Amazon.com Inc	AMZN	501.8	3206.2	1,608,714.06		n/a		35.50%	
Jack Henry & Associates Inc	JKHY	76.3	144.79	11,049.79	0.05%	1.19%	0.00%	10.50%	0.01%
Ralph Lauren Corp	RL	48.2	101.05	4,872.93		n/a		6.50%	
Boston Properties Inc	BXP	155.7	91.27	14,212.47	0.06%	4.29%	0.00%	4.00%	0.00%
Amphenol Corp	APH	299.2	124.88	37,358.48	0.17%	0.93%	0.00%	11.00%	0.02%
Howmet Aerospace Inc	HWM	433.6	24.58	10,657.99		n/a		12.00%	
Pioneer Natural Resources Co	PXD	216.1	120.9	26,127.58	0.12%	1.82%	0.00%	10.50%	0.01%
Valero Energy Corp	VLO	407.8	56.43	23,011.53	0.10%	6.95%	0.01%	2.50%	0.00%
Synopsys Inc	SNPS	153.0	255.45	39,092.02		n/a		13.50%	
Western Union Co/The	WU	411.1	22.27	9,155.66	0.04%	4.04%	0.00%	6.00%	0.00%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Current Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Value Line Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Etsy Inc	ETSY	126.1	199.09	25,103.46		n/a		32.00%	
CH Robinson Worldwide Inc	CHRW	135.9	85.56	11,631.54	0.05%	2.38%	0.00%	8.00%	0.00%
Accenture PLC	ACN	661.1	241.92	159,941.78	0.71%	1.46%	0.01%	8.00%	0.06%
TransDigm Group Inc	TDG	54.4	553.28	30,118.35		n/a		8.00%	
Yum! Brands Inc	YUM	301.7	101.49	30,616.29	0.14%	1.85%	0.00%	10.50%	0.01%
Prologis Inc	PLD	738.6	103.2	76,221.66	0.34%	2.25%	0.01%	6.00%	0.02%
FirstEnergy Corp	FE	542.6	30.76	16,690.07	0.07%	5.07%	0.00%	8.50%	0.01%
VeriSign Inc	VRSN	114.1	194.07	22,145.33		n/a		9.50%	
Quanta Services Inc	PWR	138.9	70.47	9,785.53	0.04%	0.34%	0.00%	12.50%	0.01%
Henry Schein Inc	HSIC	142.8	65.85	9,401.80		n/a		5.00%	
Ameren Corp	AEE	246.7	72.72	17,942.71	0.08%	2.83%	0.00%	6.00%	0.00%
ANSYS Inc	ANSS	85.9	354.37	30,434.71		n/a		10.00%	
NVIDIA Corp	NVDA	619.0	519.59	321,626.21	1.43%	0.12%	0.00%	13.50%	0.19%
Sealed Air Corp	SEE	155.2	42.27	6,558.32		1.51%		26.00%	
Cognizant Technology Solutions Corp	CTSH	534.6	77.95	41,675.27	0.19%	1.13%	0.00%	5.00%	0.01%
SVB Financial Group	SIVB	51.9	437.78	22,715.53		n/a		19.50%	
Intuitive Surgical Inc	ISRG	117.6	747.64	87,888.82		n/a		12.50%	
Take-Two Interactive Software Inc	TTWO	115.0	200.45	23,056.16		n/a		16.50%	
Republic Services Inc	RSG	318.7	90.52	28,850.99	0.13%	1.88%	0.00%	9.00%	0.01%
eBay Inc	EBAY	689.3	56.51	38,954.55	0.17%	1.13%	0.00%	18.50%	0.03%
Goldman Sachs Group Inc/The	GS	344.1	271.17	93,300.92	0.41%	1.84%	0.01%	6.50%	0.03%
SBA Communications Corp	SBAC	111.1	268.67	29,853.27		0.69%		36.50%	
Sempra Energy	SRE	289.3	123.76	35,798.82	0.16%	3.38%	0.01%	11.00%	0.02%
Moody's Corp	MCO	187.8	266.26	50,003.63	0.22%	0.84%	0.00%	9.50%	0.02%
Booking Holdings Inc	BKNG	41.0	1944.33	79,630.04		n/a		7.00%	
F5 Networks Inc	FFIV	61.6	195.95	12,077.18		n/a		7.00%	
Akamai Technologies Inc	AKAM	162.8	111.03	18,075.02		n/a		15.00%	
MarketAxess Holdings Inc	MKTX	38.0	540.76	20,528.87	0.09%	0.49%	0.00%	17.00%	0.02%
Devon Energy Corp	DVN	673.1	16.46	11,079.34		2.67%		n/a	
Alphabet Inc	GOOGL	300.6	1827.36	549,384.82		n/a		n/a	
Teleflex Inc	TFX	46.6	377.63	17,585.10	0.08%	0.36%	0.00%	15.00%	0.01%
Allegion plc	ALLE	92.0	107.01	9,849.09	0.04%	1.20%	0.00%	9.00%	0.00%
Netflix Inc	NFLX	442.9	532.39	235,792.87		n/a		24.00%	
Agilent Technologies Inc	A	306.9	120.17	36,874.16	0.16%	0.65%	0.00%	10.50%	0.02%
Trimble Inc	TRMB	250.2	65.91	16,489.10		n/a		14.50%	
Anthem Inc	ANTM	248.7	296.98	73,860.11	0.33%	1.52%	0.00%	14.00%	0.05%
CME Group Inc	CME	359.0	181.74	65,242.30	0.29%	1.87%	0.01%	2.50%	0.01%
Juniper Networks Inc	JNPR	329.7	24.42	8,052.15	0.04%	3.28%	0.00%	5.50%	0.00%
BlackRock Inc	BLK	152.5	701.26	106,949.86	0.48%	2.36%	0.01%	9.50%	0.05%
DTE Energy Co	DTE	192.1	118.72	22,806.71	0.10%	3.66%	0.00%	6.00%	0.01%
Celanese Corp	CE	116.9	122.15	14,278.72	0.06%	2.23%	0.00%	5.50%	0.00%
Nasdaq Inc	NDAQ	164.0	135.27	22,189.42	0.10%	1.45%	0.00%	7.00%	0.01%
Philip Morris International Inc	PM	1557.3	79.65	124,040.22	0.55%	6.03%	0.03%	5.00%	0.03%
Ingersoll Rand Inc	IR	417.7	41.84	17,474.73		n/a		n/a	
salesforce.com Inc	CRM	917.7	225.56	207,004.08		n/a		46.50%	
Huntington Ingalls Industries Inc	HII	40.5	157.33	6,370.76	0.03%	2.90%	0.00%	7.00%	0.00%
MetLife Inc	MET	899.9	48.15	43,332.54	0.19%	3.82%	0.01%	6.50%	0.01%
Under Armour Inc	UA	231.7	14.97	3,468.31		n/a		n/a	
Tapestry Inc	TPR	277.4	31.62	8,771.55		n/a		4.00%	
CSX Corp	CSX	764.8	85.755	65,583.28	0.29%	1.21%	0.00%	9.00%	0.03%
Edwards Lifesciences Corp	EW	623.2	82.58	51,467.82		n/a		13.50%	
Ameriprise Financial Inc	AMP	118.0	197.87	23,344.31	0.10%	2.10%	0.00%	12.00%	0.01%
Zebra Technologies Corp	ZBRA	53.3	387.83	20,677.54		n/a		11.00%	
TechnipFMC PLC	FTI	449.5	7.9531	3,574.65		1.63%		n/a	
Zimmer Biomet Holdings Inc	ZBH	207.3	153.67	31,852.41	0.14%	0.62%	0.00%	6.00%	0.01%
CBRE Group Inc	CBRE	335.5	60.98	20,456.11		n/a		7.50%	
Mastercard Inc	MA	987.0	316.29	312,178.23	1.39%	0.56%	0.01%	12.00%	0.17%
CarMax Inc	KMX	162.5	117.78	19,144.08		n/a		8.50%	
Intercontinental Exchange Inc	ICE	561.3	110.35	61,937.69	0.28%	1.09%	0.00%	9.50%	0.03%
Fidelity National Information Services Inc	FIS	620.5	123.46	76,608.04		1.13%		28.00%	
Chipotle Mexican Grill Inc	CMG	28.0	1480	41,410.40		n/a		15.50%	
Wynn Resorts Ltd	WYNN	107.9	99.53	10,736.40		n/a		27.00%	
Live Nation Entertainment Inc	LYV	217.1	66.45	14,427.42		n/a		n/a	
Assurant Inc	AIZ	58.8	135.47	7,960.08	0.04%	1.95%	0.00%	11.50%	0.00%
NRG Energy Inc	NRG	244.2	41.41	10,113.19		3.14%		-1.50%	
Monster Beverage Corp	MNST	527.9	86.83	45,839.03		n/a		12.50%	
Regions Financial Corp	RF	960.4	17.01	16,337.15	0.07%	3.64%	0.00%	8.50%	0.01%
Mosaic Co/The	MOS	379.1	25.96	9,841.18		0.77%		21.00%	
Expedia Group Inc	EXPE	135.9	124.1	16,869.91		n/a		12.00%	
Evergy Inc	EVRG	226.7	53.73	12,178.39	0.05%	3.98%	0.00%	7.50%	0.00%
Discovery Inc	DISCA	161.8	41.42	6,700.39		n/a		15.50%	
CF Industries Holdings Inc	CF	213.9	41.38	8,851.84		2.90%		24.00%	
Leidos Holdings Inc	LDOS	142.3	106.06	15,094.57	0.07%	1.28%	0.00%	10.50%	0.01%
Alphabet Inc	GOOG	329.9	1835.74	605,550.05		n/a		14.50%	
TE Connectivity Ltd	TEL	330.9	120.4	39,839.04	0.18%	1.59%	0.00%	5.50%	0.01%
Cooper Cos Inc/The	COO	49.1	364.04	17,890.02	0.08%	0.02%	0.00%	14.50%	0.01%
Discover Financial Services	DFS	307.0	83.54	25,646.78	0.11%	2.11%	0.00%	5.50%	0.01%
Visa Inc	V	1696.1	193.25	327,774.03	1.46%	0.66%	0.01%	15.00%	0.22%
Mid-America Apartment Communities Inc	MAA	114.4	132.75	15,182.62	0.07%	3.09%	0.00%	1.00%	0.00%
Xylem Inc/NY	XYL	180.2	96.59	17,408.61	0.08%	1.08%	0.00%	8.50%	0.01%
Marathon Petroleum Corp	MPC	650.7	43.16	28,082.10	0.12%	5.38%	0.01%	3.00%	0.00%
Advanced Micro Devices Inc	AMD	1211.3	85.64	103,734.02		n/a		27.00%	
Tractor Supply Co	TSCO	116.5	141.74	16,512.28	0.07%	1.47%	0.00%	10.50%	0.01%
ResMed Inc	RMD	145.5	201.57	29,330.25	0.13%	0.77%	0.00%	8.50%	0.01%
Mettler-Toledo International Inc	MTD	23.8	1168.1	27,794.94		n/a		11.00%	
Copart Inc	CPRT	236.1	109.75	25,915.60		n/a		12.00%	
Fortinet Inc	FTNT	162.3	144.75	23,497.56		n/a		21.00%	
Albemarle Corp	ALB	106.5	162.66	17,316.30	0.08%	0.95%	0.00%	4.00%	0.00%
Apache Corp	APA	377.5	14.28	5,390.39	0.02%	0.70%	0.00%	8.50%	0.00%
Essex Property Trust Inc	ESS	65.2	239.61	15,623.77	0.07%	3.47%	0.00%	1.00%	0.00%
Realty Income Corp	O	373.4	59.06	22,051.70	0.10%	4.76%	0.00%	6.50%	0.01%
Seagate Technology PLC	STX	236.7	66.12	15,649.41	0.07%	4.05%	0.00%	4.00%	0.00%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Current Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Value Line Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Westrock Co	WRK	263.1	41.43	10,899.82	0.05%	1.93%	0.00%	6.50%	0.00%
IHS Markit Ltd	INFO	396.6	87.08	34,535.23	0.15%	0.92%	0.00%	12.00%	0.02%
Westinghouse Air Brake Technologies Corp	WAB	190.3	74.21	14,124.09	0.06%	0.65%	0.00%	10.50%	0.01%
Pool Corp	POOL	40.2	354.18	14,223.51	0.06%	0.66%	0.00%	17.50%	0.01%
Western Digital Corp	WDC	304.2	56.43	17,168.55		n/a		1.00%	
PepsiCo Inc	PEP	1382.0	136.57	188,733.73	0.84%	2.99%	0.03%	6.00%	0.05%
Diamondback Energy Inc	FANG	158.0	56.69	8,955.55	0.04%	2.65%	0.00%	0.50%	0.00%
Maxim Integrated Products Inc	MXIM	268.0	87.71	23,509.88		n/a		7.00%	
ServiceNow Inc	NOW	195.1	543.16	105,970.52		n/a		46.00%	
Church & Dwight Co Inc	CHD	248.5	84.43	20,976.63	0.09%	1.20%	0.00%	8.50%	0.01%
Duke Realty Corp	DRE	372.0	39.56	14,714.38		2.58%		-3.00%	
Federal Realty Investment Trust	FRT	75.6	87.56	6,623.65		4.84%		-0.50%	
MGM Resorts International	MGM	494.7	28.56	14,128.55		0.04%		25.00%	
American Electric Power Co Inc	AEP	496.4	80.91	40,162.91	0.18%	3.66%	0.01%	6.00%	0.01%
Vontier Corp	VNT	168.5	32.43	5,464.36		n/a		n/a	
JB Hunt Transport Services Inc	JBHT	105.7	134.66	14,230.73	0.06%	0.83%	0.00%	6.50%	0.00%
Lam Research Corp	LRCX	143.2	483.95	69,304.06	0.31%	1.07%	0.00%	12.50%	0.04%
Mohawk Industries Inc	MHK	71.2	143.6	10,224.18		n/a		-1.50%	
Pentair PLC	PNR	166.3	54.46	9,059.20	0.04%	1.47%	0.00%	5.50%	0.00%
Vertex Pharmaceuticals Inc	VRTX	260.0	229.08	59,569.51		n/a		32.00%	
Amcor PLC	AMCR	1568.5	10.94	17,159.19		4.30%		n/a	
Facebook Inc	FB	2405.4	258.33	621,399.38		n/a		15.50%	
T-Mobile US Inc	TMUS	1241.2	126.08	156,488.86		n/a		9.50%	
United Rentals Inc	URI	72.2	243.01	17,545.08		n/a		7.00%	
Alexandria Real Estate Equities Inc	ARE	145.4	167.11	24,300.47	0.11%	2.61%	0.00%	14.50%	0.02%
ABIOMED Inc	ABMD	45.2	348.25	15,749.61		n/a		9.50%	
Delta Air Lines Inc	DAL	637.7	37.96	24,208.38		n/a		5.00%	
United Airlines Holdings Inc	UAL	311.8	39.99	12,470.68		n/a		2.00%	
News Corp	NWS	199.6	18.88	3,769.01		1.06%		n/a	
Centene Corp	CNC	579.8	60.3	34,961.82		n/a		13.00%	
Martin Marietta Materials Inc	MLM	62.3	287.41	17,898.17	0.08%	0.79%	0.00%	8.50%	0.01%
Teradyne Inc	TER	166.1	113.48	18,844.03	0.08%	0.35%	0.00%	14.50%	0.01%
PayPal Holdings Inc	PYPL	1171.7	234.31	274,539.15		n/a		19.00%	
Tesla Inc	TSLA	947.9	793.53	752,187.88		n/a		n/a	
DISH Network Corp	DISH	287.5	29.02	8,344.15		n/a		3.00%	
Alexion Pharmaceuticals Inc	ALXN	218.7	153.33	33,536.49		n/a		19.50%	
Dow Inc	DOW	741.1	51.9	38,464.18		5.39%		n/a	
Everest Re Group Ltd	RE	40.0	211.08	8,436.02	0.04%	2.94%	0.00%	10.50%	0.00%
Teledyne Technologies Inc	TDY	37.0	357.01	13,192.59		n/a		8.00%	
News Corp	NWSA	391.0	19.4	7,584.53		1.03%		n/a	
Exelon Corp	EXC	973.9	41.56	40,476.53	0.18%	3.68%	0.01%	3.50%	0.01%
Global Payments Inc	GPN	299.3	176.52	52,838.97	0.23%	0.44%	0.00%	11.50%	0.03%
Crown Castle International Corp	CCI	431.3	159.26	68,688.52	0.31%	3.34%	0.01%	12.50%	0.04%
Aptiv PLC	APTV	270.0	133.6	36,075.34		n/a		9.50%	
Advance Auto Parts Inc	AAP	67.9	149.14	10,119.89	0.04%	0.67%	0.00%	11.00%	0.00%
Align Technology Inc	ALGN	78.9	525.38	41,426.21		n/a		17.00%	
Illumina Inc	ILMN	146.0	426.44	62,260.24		n/a		9.50%	
LKQ Corp	LKQ	304.3	35.09	10,679.47		n/a		10.00%	
Nielsen Holdings PLC	NLSN	357.7	22.33	7,986.95		1.07%		n/a	
Garmin Ltd	GRMN	191.2	114.86	21,965.48	0.10%	2.12%	0.00%	10.50%	0.01%
Zoetis Inc	ZTS	475.3	154.25	73,310.09	0.33%	0.65%	0.00%	12.00%	0.04%
Digital Realty Trust Inc	DLR	280.2	143.95	40,329.75	0.18%	3.11%	0.01%	7.00%	0.01%
Equinix Inc	EQIX	89.1	739.96	65,931.92	0.29%	1.44%	0.00%	14.50%	0.04%
Las Vegas Sands Corp	LVS	763.8	48.09	36,732.49		n/a		5.50%	
Discovery Inc	DISCK	324.2	35.03	11,355.78		n/a		n/a	

Notes:
[1] Equals Sum ([9])
[2] Equals Sum ([11])
[3] Equals ([1] x (1 + (0.5 x [2]))) + [2]
[4] Source: Bloomberg Professional as of January 31, 2021
[5] Source: Bloomberg Professional as of January 31, 2021
[6] Equals [4] x [5]
[7] Equals weight in S&P 500 based on market capitalization [6] if Pays Dividend and Growth Rate >0% and <20%
[8] Source: Bloomberg Professional as of January 31, 2021
[9] Equals [7] x [8]
[10] Source: Value Line
[11] Equals [7] x [10]

Electric Utility Authorized ROEs - January 1, 2021 - August 25, 2021 (Mr. Chari's Data Set)

State	Company	Docket	Rate Case Service Type	Case Type	Date	Decision Type	Return on Equity (%)
Kentucky	Kentucky Power Co.	C-2020-00174	Electric	Vertically Integrated	01/13/2021	Fully Litigated	9.30
New Mexico	El Paso Electric Co.	C-20-00104-UT	Electric	Vertically Integrated	06/23/2021	Fully Litigated	9.00
Wyoming	PacifiCorp	D-20000-578-ER-20	Electric	Vertically Integrated	05/18/2021	Fully Litigated	9.50
Virginia	Appalachian Power Co.	C-PUR-2020-00251 (RAC-EE)	Electric	Limited-Issue Rider	07/29/2021	Fully Litigated	9.20
Virginia	Virginia Electric & Power Co.	C-PUR-2020-00169 (Rider RGGI	Electric	Limited-Issue Rider	08/04/2021	Fully Litigated	9.20
Virginia	Virginia Electric & Power Co.	C-PUR-2020-0134 (Rider CE)	Electric	Limited-Issue Rider	04/30/2021	Fully Litigated	9.20
Virginia	Virginia Electric & Power Co.	C-PUR-2020-00230 (Rider BW)	Electric	Limited-Issue Rider	07/01/2021	Fully Litigated	10.20
Virginia	Virginia Electric & Power Co.	PUR-2020-00231 (Rider US-2)	Electric	Limited-Issue Rider	07/01/2021	Fully Litigated	9.20
Virginia	Virginia Electric & Power Co.	C-PUR-2020-00122 (Rider US-3)	Electric	Limited-Issue Rider	03/31/2021	Fully Litigated	9.20
Virginia	Virginia Electric & Power Co.	C-PUR-2020-00123 (Rider US-4)	Electric	Limited-Issue Rider	03/31/2021	Fully Litigated	9.20
Virginia	Virginia Electric & Power Co.	C-PUR-2020-00099 (Rider B)	Electric	Limited-Issue Rider	02/24/2021	Fully Litigated	9.20
Virginia	Virginia Electric & Power Co.	C-PUR-2020-00100 (Rider GV)	Electric	Limited-Issue Rider	02/24/2021	Fully Litigated	9.20
Virginia	Virginia Electric & Power Co.	C-PUR-2020-00101 (Rider R)	Electric	Limited-Issue Rider	02/24/2021	Fully Litigated	9.34
Virginia	Virginia Electric & Power Co.	C-PUR-2020-00102 (Rider S)	Electric	Limited-Issue Rider	02/24/2021	Fully Litigated	10.20
Virginia	Virginia Electric & Power Co.	C-PUR-2020-00103 (Rider W)	Electric	Limited-Issue Rider	02/24/2021	Fully Litigated	10.20
District of Columbia	Potomac Electric Power Co.	FC-1156	Electric	Distribution	06/04/2021	Fully Litigated	9.28
Delaware	Delmarva Power & Light Co.	D-20-0149	Electric	Distribution	08/05/2021	Fully Litigated	9.60
Maryland	Potomac Electric Power Co.	C-9655	Electric	Distribution	06/28/2021	Fully Litigated	9.55
Florida	Duke Energy Florida LLC	D-20210016-EI	Electric	Vertically Integrated	05/04/2021	Settled	9.85
Kentucky	Kentucky Utilities Co.	C-2020-00349	Electric	Vertically Integrated	06/30/2021	Settled	9.43
Kentucky	Louisville Gas & Electric Co.	C-2020-00350 (elec.)	Electric	Vertically Integrated	06/30/2021	Settled	9.43
North Carolina	Duke Energy Carolinas LLC	D-E-7, Sub 1214	Electric	Vertically Integrated	03/31/2021	Settled	9.60
North Carolina	Duke Energy Progress LLC	D-E-2, Sub 1219	Electric	Vertically Integrated	04/16/2021	Settled	9.60
North Dakota	Northern States Power Co.	C-PU-20-441	Electric	Vertically Integrated	08/18/2021	Settled	9.50
South Carolina	Dominion Energy South Carolina	D-2020-125-E	Electric	Vertically Integrated	07/21/2021	Settled	9.50
Texas	Sharyland Utilities L.L.C.	D-51611	Electric	Transmission	07/15/2021	Settled	9.38
Virginia	Virginia Electric & Power Co.	C-PUR-2020-00197 (Rider RBB)	Electric	Limited-Issue Rider	06/09/2021	Settled	9.20
Virginia	Virginia Electric & Power Co.	C-PUR-2020-00096 (Rider U)	Electric	Limited-Issue Rider	02/26/2021	Settled	9.20
New Jersey	Atlantic City Electric Co.	D-ER20120746	Electric	Distribution	07/14/2021	Settled	9.60

Source: S&P Capital IQ Pro.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company	)	
d/b/a Ameren Missouri's Tariffs to Adjust	)	Case No. ER-2021-0240
Its Revenues for Electric Service.	)	

AFFIDAVIT OF ANN E. BULKLEY

COMMONWEALTH OF MASSACHUSETTS)
) ss
TOWN OF SHREWSBURY)

Ann E. Bulkley, being first duly sworn on her oath, states:

My name is Ann E. Bulkley, and on her oath declare that she is of sound mind and lawful age; that she has prepared the foregoing *Surrebuttal Testimony*; and further, under the penalty of perjury, that the same is true and correct to the best of my knowledge and belief.

/s/ Ann E. Bulkley
Ann E. Bulkley

Sworn to me this 4th day of November, 2021.