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Case No. ER-2026-0143

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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. ER-2026-0143

REBUTTAL TESTIMONY

OF

ANN E. BULKLEY

ON

BEHALF OF

EVERGY MISSOURI METRO

Kansas City, Missouri

August 2026

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REBUTTAL TESTIMONY

OF

ANN E. BULKLEY

FILE NO. ER-2026-0143

I. INTRODUCTION

Q: Are you the same Ann E. Bulkley that previously filed direct testimony in this proceeding?

A: Yes. I previously filed direct testimony before the Missouri Public Service Commission ("Commission") in this proceeding on behalf of Evergy Metro, Inc. ("Evergy Metro") d/b/a Evergy Missouri Metro ("Evergy Missouri Metro" or the "Company"), a wholly-owned subsidiary of Evergy, Inc. ("Evergy").[1]

Q: What is the purpose of your rebuttal testimony?

A: The purpose of my rebuttal testimony is to respond to the direct testimonies of Dr. Seoung Joun Won on behalf of the Missouri Public Service Commission Staff ("Staff"),[2] and David Murray on behalf of the Missouri Office of the Public Counsel ("OPC")[3] regarding their respective proposals for the return on equity and capital structure for the Company in this proceeding. To the extent that I do not address a particular issue raised by these witnesses in my rebuttal testimony, it should not be viewed as acceptance of that issue.

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1 Missouri Public Service Commission, Direct Testimony of Ann E. Bulkley, Case No. ER-2026-0143, February 6, 2026 ("Bulkley Direct").

2 Missouri Public Service Commission, Direct Testimony of Seoung Joun Won, PhD, Case No. ER-2026-0143, June 30, 2026 ("Won Direct").

3 Missouri Public Service Commission, Direct Testimony of David Murray, Case No. ER-2026-0143, June 30, 2026 ("Murray Direct").

Q: Are you sponsoring any exhibits in support of rebuttal direct testimony?

A: Yes. I am sponsoring Schedule AEB-1R through Schedule AEB-11R, which have been prepared by me or under my direction.

Q: Have you prepared cost of equity analyses to support your rebuttal testimony that reflect current market conditions?

A: Yes. As discussed in more detail herein, I have prepared updated cost of equity analyses based on market data through June 30, 2026 to rebut the cost of equity analyses of the other witnesses in this proceeding. These analyses validate the reasonableness of my recommended ROE range of 10.25 percent to 11.25 percent, and that the Company's proposed ROE of 10.50 percent is reasonable.[4]

Q: How is the remainder of your rebuttal testimony organized?

A: The remainder of my testimony is organized as follows:

- Section II provides a summary and overview of my rebuttal testimony and the important factors to be considered in establishing the authorized ROE for the Company.
- Section III provides cost of equity analyses based on market data as of June 30, 2026.
- Section IV discusses the changes in capital market conditions since my direct testimony and their effect on the cost of equity and authorized ROEs for comparable utilities nationwide relative to the witnesses' ROE recommendations in this proceeding.
- Section V provides my response to Dr. Won's cost of equity analyses and recommendations.

[4] Bulkley Direct, at 5.

- Section VI provides my response to Mr. Murray's cost of equity analyses and recommendations.

- Section VII provides my response to Dr. Won's and Mr. Murray's discussion of the Company's business and regulatory risks

- Section VIII provides my response to Dr. Won's and Mr. Murray's recommendations regarding the Company's capital structure.

II. SUMMARY OF ANALYSIS AND CONCLUSIONS

Q: What factors should be considered in evaluating the results of the cost of equity analyses and establishing the authorized ROE?

A: The primary factors that should be considered are: (1) the importance of providing a return that is comparable to returns on alternative investments with commensurate risk; (2) the need for a return that supports a utility's ability to attract needed capital at reasonable terms; (3) the effect of current and expected capital market conditions; and (4) achieving a reasonable balance between the interests of investors and customers.

Q: Please summarize the ROE results and recommendations of the parties in this proceeding.

A: Figure 1 summarizes the results of the cost of equity analyses presented by Dr. Won and Mr. Murray in this proceeding, and each of their final ROE recommendations. As shown, Dr. Won recommends an ROE of 9.73 percent.[5] Dr. Won conducts a Two-Step DCF analysis, a CAPM analysis, and a Bond Yield Plus Risk Premium ("BYRP" or "Risk Premium") analysis. Dr. Won sets his ROE recommendation of 9.73 percent equal to the average result of his BYRP analysis, while his recommended ROE range of 9.48 percent

[5] Won Direct, at 4.

to 9.98 percent appears to be determined by adding and subtracting 25 basis points from his recommended ROE.[6] However, Dr. Won provides no support or reasoning as to why he selected 25 basis points. It is also unclear how Dr. Won considered the results of his DCF and CAPM analyses in the determination of his recommended ROE, which he claims support a cost of equity range of 8.18 percent to 9.16 percent (*i.e.*, determined by averaging the range of the DCF and CAPM results).[7]

Mr. Murray recommends an ROE of 9.25 percent.[8] Mr. Murray conducts a multi-stage DCF analysis and a CAPM analysis, and also a "rule of thumb" BYRP analysis as a check on the reasonableness of his other two cost of equity analyses. While Mr. Murray's recommended ROE is significantly greater than any of the results of the cost of equity analyses that he conducts, Mr. Murray acknowledges his recommendation is based on several factors,[9] including a fair and reasonable ROE range of 9.00 percent to 9.50 percent.

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6 Won Direct, at 57. Schedule SJW-d16, Won Direct.

7 Won Direct, at 51, 54.

8 Murray Direct, at 6.

9 Murray Direct, at 2-3.

FIGURE 1: SUMMARY OF RESULTS OF THE COST OF EQUITY ANALYSES AND ROE RECOMMENDATIONS OF DR. WON AND MR. MURRAY

	Dr. Won	Mr. Murray
DCF Analysis		
Two-Step DCF	8.18%	n/a
Multi-Stage DCF	n/a	7.84% -8.21%
CAPM	9.16%	6.24% - 9.67%
Bond Yield Plus Risk Premium	9.73%	n/a
Rule of Thumb	n/a	8.75%
Recommended ROE Range	9.48% - 9.98%	9.00% - 9.50%
Recommended ROE	**9.73%**	**9.25%**

Q: What do Dr. Won and Mr. Murray recommend for the Company's capital structure?

A: Dr. Won recommends using the Company's actual capital structure as of December 31, 2025 comprising of 51.38 percent equity; however, he notes that he will continue to monitor the Company's capital structure through the end of the true-up period, June 30, 2026 and will update his recommended capital structure for Evergy Metro at that time.[10] Mr. Murray recommends a capital structure comprising 45.00 percent equity based on what Mr. Murray states is Evergy's approximate common equity ratio excluding short-term debt since July 1, 2024.[11]

[10] Won Direct, at 46.

[11] Murray Direct, at 2.

Q: What are your key conclusions and recommendations regarding the appropriate ROE for Evergy Metro in this proceeding?

A: Neither the direct testimonies of the witnesses in this proceeding nor my updated analytical results based on market data through June 30, 2026 has caused me to change my conclusions or recommendations. A range for the authorized ROE of 10.25 percent to 11.25 percent is reasonable, as is the Company's proposed capital structure.

Q: What are your key conclusions regarding the cost of equity analyses and ROE recommendations of the other parties in this proceeding?

A: My key conclusions regarding the analyses of Dr. Won and Mr. Murray are as follows:

- **Individual Model Results That Fail to Meet Comparable Return Requirements:** *Hope* and *Bluefield* establish that the authorized ROE must be comparable to other returns available to investors in companies with similar risk.[12] Several of the individual model results of Dr. Won and Mr. Murray fail this standard, limiting their usefulness in assessing the appropriate ROE for the Company
- **Dr. Won and Mr. Murray rely on inappropriate market risk premia in their CAPM analyses:** Dr. Won's methodology for estimating the market risk premium has changed as compared to his prior testimonies, without providing any rationale for the change. The current methodology serves to reduce the results of his CAPM analyses. Further, both Dr. Won's and Mr. Murray's market risk premia calculations that use historical data are flawed in that they use the geometric average return in certain scenarios, and in all historical market risk premium calculations they deduct total bond yield returns instead of income-only returns, which understates the market risk premium and the CAPM results. Further, the implied market risk premia that each witness relies on (Dr. Won – *Kroll* and Professor Damodaran and Mr. Murray – *Kroll*, Professor Damodaran, and Dimson, Marsh, and Staunton) fail to consider the relationship between interest rates and market risk premia.

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

- **Dr. Won's Recommendation Is Based On His BYRP Model And Gives No Weight To His DCF And CAPM:** While Dr. Won contends that his DCF and CAPM analyses support a cost of equity range of 7.11 percent to 10.34 percent with a mean of 8.67 percent,[13] it appears he acknowledges that the results of these two models are understated. Dr. Won's recommendation of 9.73 percent is based on the average results of his BYRP analysis which is at the higher end of the range that he indicated his DCF and CAPM analyses support.

- **Dr. Won Uses Outdated Data:** Dr. Won's DCF uses stock price and dividend data from Q4 2025.

- **Updates and Corrections to Dr. Won's Analyses:** When Dr. Won's DCF, CAPM, and BYRP analyses are updated to reflect the most current data available and corrected for the issues that I discuss in detail herein, the estimated range of the cost of equity is 9.94 percent to 11.86 percent, the midpoint of which is 10.90 percent *which is substantially higher than the Company proposed cost of equity in this proceeding*.

- **Mr. Murray's Recommendation Lacks Analytical Foundation And Reflects His Own Unsupported Opinion:** Mr. Murray conducts DCF and CAPM analyses, as well as a "rule of thumb" BYRP analysis, but does not rely on the results of any of these analyses for his ROE recommendation. He seemingly ignores his own models as his ROE recommendation is higher than his model results.

- **Mr. Murray's multi-stage DCF specification is inconsistent with his characterization of the electric utility industry:** Mr. Murray acknowledges that utilities have had EPS growth in the range of 4 percent to 6 percent for "a couple of decades" and that given the increased capex related to data centers and to "grid modernization, grid hardening, and renewable generation projects", EPS growth for utilities is expected to remain elevated for some time. Despite these facts, Mr. Murray's multi-stage DCF model relies on unrealistic assumptions that bias the results downwards (*i.e.*, (1) the growth in the industry will begin to decline in year 6 of his model; (2) the industry will converge to long-term growth rate in year 15 (*i.e.*, 2040); and (3) the long-term growth range is 2.5 percent to 3.5 percent).

- **Mr. Murray's Recommendation Does Not Consider Changes In Capital Market Conditions:** Despite a significant increase in interest rates over the past few years that indicates an increase in the cost of equity, which Mr. Murray acknowledges, he nonetheless recommends an ROE (9.25 percent) that is approximately 45 basis points below what he states is the average authorized ROE nationally (9.70 percent).[14]

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[13] Won Direct, at 58.

[14] Murray Direct, at 3.

- **Dr. Won and Mr. Murray do not appropriately analyze Evergy Metro's business risk:** Neither witness compare analyze Evergy Metro's business risk relative to a proxy group of comparable companies with similar business risk.
- **Mr. Murray's recommendation to rely on the consolidated parent company capital structure is inappropriate**. Mr. Murray's proposal is inconsistent with Dr. Won's conclusion, which is that the consolidated holding company capital structure is not appropriate for Evergy Metro in this proceeding. Further, Mr. Murray's contention that Evergy West's proposed capital structure is not a consequence of an arms-length transactions is simply speculation and he has provided no evidence to support his allegation

III. UPDATED COST OF EQUITY ANALYSES

Q: Have you updated your cost of equity analyses to support your rebuttal testimony?

A: Yes. I have updated the cost of equity analyses conducted in my direct testimony based on market data through June 30, 2026, and the results are summarized in Figure 2. Since the filing of my direct testimony, NextEra Energy, Inc. and Dominion Energy Resources, Inc. have agreed to merge, and thus the inclusion of these two companies in my proxy group would no longer satisfy my screening criteria that excludes companies that are a party to a merger or transformative transaction. As a result, the updated cost of equity analyses exclude these two companies from the proxy group. The updated cost of equity analyses summarized in Schedule AEB-1R through Schedule AEB-6R are based on the same methodologies used in my direct testimony.

FIGURE 2: SUMMARY OF COST OF EQUITY ANALYTICAL RESULTS

	Minimum Growth Rate	Average Growth Rate	Maximum Growth Rate
Mean Results:			
30-Day Avg. Stock Price	9.99%	10.86%	11.73%
90-Day Avg. Stock Price	9.98%	10.86%	11.72%
180-Day Avg. Stock Price	10.12%	10.99%	11.85%
Average	10.03%	10.90%	11.77%
Median Results:			
30-Day Avg. Stock Price	9.88%	10.58%	11.52%
90-Day Avg. Stock Price	9.87%	10.55%	11.47%
180-Day Avg. Stock Price	10.03%	10.70%	11.60%
Average	9.93%	10.61%	11.53%
	30-Year Treasury Bond Yield		
	Current 30-Day Avg	Near-Term Projected	Longer-Term Projected
CAPM:			
Current *Value Line* Beta	11.15%	11.11%	11.07%
Long-term Avg. *Value Line* Beta	11.44%	11.41%	11.37%
ECAPM:			
Current *Value Line* Beta	11.70%	11.67%	11.64%
Long-term Avg. *Value Line* Beta	11.92%	11.90%	11.87%
Bond Yield Risk Premium	10.87%	10.80%	10.70%

Q: Do the updated results support the Company's requested ROE of 10.50 percent in this proceeding?

A: Yes. The results of the cost of equity analyses continue to support my recommended ROE range of 10.25 percent to 11.25 percent, and the Company's proposed ROE of 10.50 percent in this proceeding.

IV. CAPITAL MARKETS CONDITIONS AND COMPARABLE RETURN

Q: Do you generally agree with Dr. Won's and Mr. Murray's characterizations of the changes in market conditions over the past few years and their effect on the cost of equity?

A: Yes. I generally agree with Dr. Won's and Mr. Murray's respective characterizations of the capital market conditions over the past few years and the fact that they both acknowledge the cost of equity for electric utilities has increased since the Company's last rate proceeding as a result of the changes in capital market conditions.[15] Dr. Won and Mr. Murray recognize that long-term interest rates are significantly higher since that time due to the Federal Reserve's efforts to combat persistently high inflation. As Dr. Won notes, inflation remains elevated above the Federal Reserve's target and that one of the most important factors in the economic conditions that impact the cost of equity is the interest rate as influenced by the Federal Reserve's monetary policy.[16] However, while Dr. Won and Mr. Murray summarize the capital market conditions over the past few years in a similar manner as I have done, it is our respective conclusions regarding those conditions that differ.

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[15] *See, e.g.*, Won Direct, at 4, range of 9.48 percent to 9.98 percent as compared to a range of 9.37 percent to 9.87 percent in Ameren Missouri's last rate proceeding (Missouri Public Service Commission, Case No. ER-2022-0129 and ER-2022-0130, Staff Cost of Service Report, June 2022, at 4); Murray Direct, at 3, cost of equity range of 7.75 percent to 8.25 percent as compared to a cost of equity range of 7.00 percent to 7.50 percent in Evergy Metro's last rate proceeding (Missouri Public Service Commission, Case No. ER-2022-0130, Direct Testimony of David Murray, June 8, 2022, at 2).

[16] Won Direct, at 16.

Q: What conclusions have Dr. Won and Mr. Murray drawn from the changes in market conditions?

A: While recognizing the increase in the cost of equity for electric utilities, Dr. Won contends that the results of the DCF and CAPM may be "overstated" due to "elevated interest rates" and "a notable decoupling between monetary policy and market yields."[17] Similarly, Mr. Murray also acknowledges that there has been an increase in the electric utility industry's cost of equity in the past few years; however; he contends that his recommended ROE of 9.25 percent in this proceeding is reasonable because, despite recent increases in long-term bond yields, electric utility valuation levels are currently similar and the price-to-earnings ("P/E") ratio for the electric industry is trading similar to 2015 levels when the Commission separately authorized an ROE for the Company of 9.50 percent.[18]

Q: Has Dr. Won provided any support for his contention that the results of the DCF and CAPM may be "overstated" as a result of the current capital market conditions?[19]

A: No. It is unclear how Dr. Won concludes that the results of his DCF and CAPM analyses may be overstated given the evidence presented in his testimony. First, Dr. Won's position is not supported given that his recommended ROE for the Company in this proceeding (*i.e.*,

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[17] *Id*., at 28.

[18] Murray Direct, at 2-3.

[19] Won Direct at 29.

9.73 percent) is actually greater than the result of his DCF analysis (*i.e.*, 8.18 percent)[20] and the result of his CAPM analysis (*i.e.*, 9.51 percent).[21]

Second, Dr. Won states that interest rates as influenced by the Federal Reserve are "one of the most important factors" that affect a utility's cost of equity.[22] This is because utilities are considered bond proxies meaning the share price performance of utilities is inversely related to interest rates. For example, as interest rates increase (decrease), the share prices of utilities decrease (increase) and thus the cost of equity for utilities increases (decreases). Therefore, by extension, if Dr. Won believes the cost of equity results produced by the DCF and CAPM may be overstated, he must also believe that interest rates are expected to decline thus lowering the cost of equity. However, Dr. Won provides evidence to the contrary as he concludes that the Federal Reserve is expected to "maintain the current level of the federal fund rate until it achieves the desired inflation rate."[23] Thus, Dr. Won's position does not support his conclusion that the results of the DCF and CAPM may be overstated.

Q: What is Mr. Murray's position on P/E ratios and his cost of equity recommendation?

A: Mr. Murray believes that as P/E ratios increases, the market risk premium and thus cost of equity decreases.[24] As a result, Mr. Murray compares the current P/E ratios for electric utilities to the P/E ratios for electric utilities in 2015 when the Commission deemed a 9.50

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[20] *Id*., at Schedule SJW-d12.

[21] *Id*., at Schedule SJW-d13.

[22] *Id*., at 12.

[23] *Id.*, at 27.

[24] Murray Direct, at 3, and 19.

percent authorized ROE to be fair and reasonable. Based on this comparison, Mr. Murray concludes that 9.25 percent ROE for Evergy Metro is reasonable because P/E ratios are currently slightly higher than in 2015 when the Commission determined that a 9.50 percent authorized ROE was reasonable.[25]

Q: Is Mr. Murray's ROE recommendation of 9.25 percent in this proceeding consistent with the P/E ratio data that he references to support his recommendation?

A: No. As shown in Figure 3, I have calculated the P/E ratios for Mr. Murray's electric utility proxy group companies in this proceeding over the duration of the recent rate proceedings for electric utilities where Mr. Murray has provided a recommended ROE and compared those P/E ratios to his recommended ROEs in those proceedings. As shown, while Mr. Murray suggests that there should be an inverse relationship between the P/E ratios and the ROE, it is clear that Mr. Murray's historical recommendations have not taken into consideration the P/E ratios of his proxy group. For example, Mr. Murray's recommended ROE in this proceeding is the same as his recommendation in 2019 in case for Ameren Missouri, despite the fact that P/E ratios for electric utilities are lower currently than they were in 2019. Therefore, it is clear that Mr. Murray does not consistently rely on P/E ratios in establishing his ROE recommendations.

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[25] *Id.*, at 20-22.

FIGURE 3: COMPARISON OF MR. MURRAY'S P/E RATIOS AND ROE RECOMMENDATIONS[26]

	Docket	Filed	Order	Electric Utility Group P/E	Murray's Recommended ROE
Ameren	ER-2019-0335	7/3/2019	3/18/2020	21.49	9.25%
Ameren	ER-2021-0240	3/31/2021	12/22/2021	19.47	9.00%
Evergy Metro and West	ER-2022-0129/ER-2022-0130	1/7/2022	11/21/2022	20.89	9.00%
Ameren	ER-2022-0337	8/1/2022	6/14/2023	21.33	9.25%
Evergy West	ER-2024-0189	2/2/2024	12/4/2024	15.83	9.50%
Ameren	ER-2024-0319	6/28/2024	10/31/2024	16.03	9.50%
The Empire District Electric	ER-2024-0261	11/6/2024	6/17/2026	18.36	9.25%
Evergy Metro	ER-2026-0143	2/6/2026	N/A	19.07	9.25%

V. RESPONSE TO DR. WON

V.A. Proxy Group

Q: Does Dr. Won rely on the same proxy group that you have used for your cost of equity analyses?

A: No, although our proxy groups are similar. Dr. Won relies on a proxy group that is based on a group of U.S. utilities that the Edison Electric Institute ("EEI") classifies as electric utilities, to which he then applies a set of screening criteria. Dr. Won's proxy group consists of 14 companies, which include the same companies as utilized in my updated cost of equity analyses with the exception that Dr. Won does not include Dominion Resources,

[26] Mr. Murray's workpaper titled: Final - Charts - Graphs in Testimony-ER-2026-0143.xlsx; Case No. ER-2019-0335, Direct Testimony of David Murray, December 4, 2019; Case No. GR-2021-0240, Direct Testimony of David Murray, September 3, 2021; Case Nos. 2022-0129 and ER-2022-0130, Direct Testimony of David Murray, June 8, 2022; Case No. ER-2022-0337, Direct Testimony of David Murray, January 13, 2023; Case No. ER-2024-0189, Direct Testimony of David Murray, June 27, 2024; Case No. ER-2024-0319, Direct Testimony of David Murray, December 3, 2024; Case No. ER-2024-0261, Direct Testimony of David Murray, July 2, 2025; Murray Direct.

Inc. (“Dominion”), NextEra Energy, Inc. (“NextEra”), and PPL Corporation (“PPL”) in his proxy group, and includes Duke Energy Corp. in the proxy group.[27]

Q: Do you agree with Dr. Won’s screening criteria?

A: Not entirely. While Dr. Won and I generally rely on similar screening criteria, in this case he has changed his dividend screening criterion, without explanation. In the Company’s last rate case, Dr. Won relied on a dividend screen that excluded companies that had reduced the dividend since 2019, which was five years from the filing of his testimony, in 2024.[28] In the current case, Dr. Won applies a dividend screen that excludes companies that have had reduced the dividend since 2016,[29] which arbitrarily extends his five year timeline to 10 years, which he states results in the exclusion of PPL from his proxy group. In addition, Dr. Won includes another unexplained screen that he has not relied upon previously, requiring that the companies in the proxy group have five years of financial data available. It is unclear how this screen affected his final proxy group.

Q: Do you agree that PPL should be excluded from Dr. Won’s proxy group based on this screen?

A: No. Dr. Won indicates that PPL fails his screening criterion because the company has not had a positive dividend payout since 2020;[30] however, that is not accurate. Although PPL

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[27] Won Direct, at 48.

[28] Case No. ER-2024-0189, Won Direct Testimony, at 32.

[29] Won Direct, at 48.

[30] Schedule SJW-d8.

had a dividend cut in April 2022, it nonetheless has had a positive dividend payout since 2020, and also has consistently increased its dividend since April 2022.

Q: Do the differences in proxy group result explain the material differences in the results that you and Dr. Won generate in the cost of equity models?

A: No. As a result, I will not discuss further the differences in our proxy groups; however, since Dr. Won's exclusion of PPL appears to be incorrect and inconsistent with his current and previous screening criterion, I have shown adjustments to Dr. Won's cost of equity analyses including PPL given that the company meets his screening criteria.

V.B. Two-Step DCF Analysis

Q: Please summarize Dr. Won's specification of his DCF model.

A: Dr. Won conducts a two-step DCF analysis where he relies on (1) the average of the monthly high and low stock prices for his proxy companies as of October 2025 through December 2025;[31] and (2) a growth rate for each proxy company that is based on a short-term growth rate to which he applies an 80.00 percent weighting and a long-term growth rate to which he applies a 20.00 percent weighting.[32] Dr. Won's short-term growth rate is an average of the projected earnings per share ("EPS"), dividend per share ("DPS"), and book value per share ("BVPS") growth rates for each of his proxy group companies published by *The Value Line Investment Survey* ("*Value Line*").[33] Dr. Won's long-term

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[31] Won Direct, at Schedule SJW-d11; Dr. Won appears to mislabel columns [1] through [6] as 2024 data when they should be labeled as 2025 data.

[32] Won Direct, at 50 and Schedules SJW-d10 and SJW-d12.

[33] *Id.*

growth rate is a projected nominal gross domestic product ("GDP") growth rate of 3.80 percent as reported by the Congressional Budget Office ("CBO") in its Economic Outlook.[34] After calculating the cost of equity for each of his proxy group companies, Dr. Won narrows the range of results by eliminating the highest and lowest individual company results. The upper bound of his range is set by averaging the two highest results produced by his analysis. The lower bound is set by averaging the two lowest results produced by his analysis.[35] Dr. Won's estimated cost of equity from his two-step DCF analysis is 8.18 percent, which is the midpoint between his derived upper and lower bounds.[36]

Q: Is the estimated cost of equity from Dr. Won's two-step DCF analysis reasonable?

A: No. Dr. Won's estimated cost of equity from his two-step DCF analysis of 8.18 percent is significantly below the average authorized ROE for electric utilities nationally in 2025, which, as Dr. Won notes in Table 5 of his testimony, was 9.84 percent for vertically-integrated electric utilities nationally in 2025.[37] In addition, the estimated cost of equity of 8.18 percent from Dr. Won's two-step DCF analysis is also well below the lowest authorized ROE for a vertically integrated electric utility in the United States since at least 1980. Although I disagree with Dr. Won's application of the two-step DCF model and his measure of central tendency, it is important to note that it appears Dr. Won also does not

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[34] Schedule SJW-d10.

[35] Schedule SJW-d12.

[36] Won Direct, at 51 and Schedule SJW-d12.

[37] Won Direct, at 59.

rely on the results of his constant growth DCF analysis.[38] Dr. Won sets his recommended ROE at the result of his BYRP analysis of 9.73 percent, and establishes a range around that of 25 basis points above and below this recommended ROE'.[39] Dr. Won's ROE recommendation, which is equivalent to the result of his Bond Yield Risk Premium model,[40] is 155 basis points greater than the 8.18 percent result of his two-step DCF analysis. Thus, it appears that Dr. Won does not rely on the result of his DCF analysis. The *Hope* and *Bluefield* decisions, which Dr. Won acknowledges are standards to be followed in setting a just and reasonable return, require the authorized return to be comparable to other returns available to investors in companies with similar risk. Dr. Won's DCF result of 8.18 percent does not meet this standard.

Q: Why you do you disagree with Dr. Won's specification of his two-step DCF analysis?

A: Dr. Won references the FERC's ROE methodology in Opinion No. 575 as support for his two-step DCF analysis; however, he fails to follow that methodology. The stock price and dividend data that Dr. Won relies on for his DCF analysis is outdated based on when he filed his testimony and is inconsistent with the dates used in other cost of equity estimation methodologies in his testimony. In addition, his short-term growth rate is also inconsistent with the FERC's methodology, and I disagree with his long-term growth rate.

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[39] Won Direct, at 4. Schedules SJW-d15 and SJW-d16.

[40] Schedule SJW-d15.

The FERC relies on a six month average stock price for purposes of calculating the dividend yield; however, Dr. Won uses a three month average stock price. Furthermore, not only is Dr. Won's stock price averaging inconsistent with the FERC's methodology, but the stock price data that he relies on is outdated. Specifically, Dr. Won relies on stock price data for the quarter ending December 31, 2025, even though his testimony was filed in June 2026. Given that Dr. Won relies on data through March 2026 in his BYRP analysis,[41] there is no reason that the data in his DCF should be outdated and misaligned with the data he has used elsewhere. Schedule AEB-7R reflects the updated stock prices for Dr. Won's proxy group, including for PPL, which as previously noted, meets Dr. Won's screening criteria.

Q: Are the annual dividends for each proxy company that Dr. Won relies on to estimate the dividend yield in his DCF analysis also outdated?

A: Yes. Dr. Won relies on the annual 2025 dividends (stated in dollars) published by *Value Line* for each of his proxy group companies. However, given that Dr. Won's testimony was filed in June 2026, it is appropriate to rely on more current dividend assumptions, particularly when current quarterly dividend data is readily available from public sources for each of the proxy group companies, including the fact that *Value Line* also publishes dividend data for each of his proxy group companies for 2026.

[41] Won Direct, at Schedule SJW-d11 and Schedule SJW-d14-1.

Q: Are Dr. Won's short-term growth rates consistent with the FERC methodology?

A: No. Dr. Won's short-term growth rates in his two-step DCF analysis are an average of the projected EPS, DPS, and BVPS growth rates for each of the proxy group companies as published by *Value Line*, which is not the methodology used by the FERC. As stated in Opinion No. 575, the FERC has consistently relied solely on projected EPS growth rates as the short-term growth rate.[42]

Q: Has Staff previously relied solely on EPS growth rates for the short-term growth rate in prior cases?

A: Yes. For example, in the 2019 Empire District Electric rate proceeding, Staff witness Mr. Chari relied solely on historical and projected EPS growth rates as short-term growth rates in the DCF, and did not rely on either DPS or BVPS growth rates.[43] Similarly, in the Ameren Missouri 2021 rate proceeding, Staff witness Mr. Chari relied solely on projected EPS growth rates from both *Value Line* and S&P Global Market Intelligence as short-term growth rates, and did not rely on DPS or BVPS growth rates.[44]

Q: Why are projected EPS growth rates the appropriate growth rate in the DCF analysis?

A: It is appropriate to rely on analysts' projected EPS growth rates in the development of the DCF model for numerous reasons:

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[42] *Entergy Arkansas, et al.*, Opinion No. 575, 175 FERC ¶ 61,136 (2021), at P 131.

[43] Missouri Public Service Commission, Case No. ER-2019-0374, Staff Report, January 15, 2020, at 14.

[44] Missouri Public Service Commission, Case No. ER-2021-0240, Staff Report, September 3, 2021, at 25.

- Earnings are the fundamental determinant of a company's ability to pay dividends, and over the long-term dividend growth can only be sustained by earnings growth.[45] Therefore, EPS, not DPS or BVPS, should be relied on in the DCF analysis.

- Management decisions to conserve cash for capital investments, to manage the dividend payout for the purpose of minimizing future dividend reductions, or to signal future earnings prospects, can influence dividend growth rates in near-term periods. These decisions affect the dividends and the payout ratio in the short term, but are not necessarily indicative of a firm's long-term earnings growth.

  For example, forty S&P 500 companies suspended dividend payments in 2020 as a result of the increased uncertainty due to COVID-19.[46] These dividend suspensions occurred because companies believed earnings over the short term would decline and, therefore, elected to conserve cash to offset the financial effects of COVID-19.

- Given that BVPS is the inverse of DPS, estimates of BVPS growth are also highly influenced by dividend policy. All else equal, investing earnings in assets increases BVPS, while paying dividends and not investing in assets decreases BVPS.

- There is significant academic research demonstrating that EPS growth rates are most relevant in stock price valuation.[47] For example, Liu, *et al*. (2002) examined "the valuation performance of a comprehensive list of value drivers" and found that "forward earnings explain stock prices remarkably well" and were generally superior to other value drivers analyzed. Gleason, *et al*. (2012) found that the sell-side analysts with the most accurate stock price targets were those whom the researchers found to have more accurate earnings forecasts.

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[45] As noted by Brigham and Houston: "Growth in dividends occurs primarily as a result of growth in earnings per share (EPS). Earnings growth, in turn, results from a number of factors, including (1) inflation, (2) the amount of earnings the company retains and invests, and (3) the rate of return the company earns on its equity (ROE)." Eugene F. Brigham and Joel F. Houston, Fundamentals of Financial Management, at 317 (Concise Fourth Edition, Thomson South-Western, 2004).

[46] Karen Langley, U.S. Companies Slashed Dividends at Fastest Pace in More Than a Decade, Wall Street Journal, July 8, 2020.

[47] *See, e.g.*, Robert S. Harris, "Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return," *Financial Management*, Spring 1986, at 66; James H. Vander Weide and Willard T. Carleton, "Investor growth expectations: Analysts vs. history," *The Journal of Portfolio Management*, Spring, 1988; Robert S. Harris and Felicia C. Marston, "Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts," *Financial Management*, Summer, 1992; Advanced Research Center, "Investor Growth Expectations," Summer 2004; Eugene F. Brigham, Dilip K. Shome and Steve R. Vinson, "The Risk Premium Approach to Measuring a Utility's Cost of Equity," *Financial Management*, Vol. 14, No. 1, Spring, 1985; Roger A. Morin, *New Regulatory Finance*, Public Utilities Reports, Inc., 2006, at 299-303; Jing Liu, *et. al*., "Equity Valuation Using Multiples," *Journal of Accounting Research*, Vol. 40 No. 1, March 2002; C. A. Gleason, *et. al*., "Valuation Model Use and the Price Target Performance of Sell-Side Equity Analysts," *Contemporary Accounting Research*, September 2011; Bochun Jung, *et al*., "Do financial analysts' long-term growth forecasts matter? Evidence from stock recommendations and career outcomes," *Journal of Accounting and Economics*, Vol. 53 Issues 1-2, February-April 2012.

- Investment analysts report predominant reliance on EPS growth projections. In a survey completed by 297 members of the Association for Investment Management and Research, the majority of respondents ranked earnings as the most important variable in valuing a security (more important than cash flow, dividends, or book value).[48]
- Projected EPS growth rates such as those available from *S&P Cap IQ* and *Zacks Investment Research* ("*Zacks*") are based on consensus estimates available from multiple sources. In other words, projected EPS growth rates include the contributions of more than one analyst and thus the results are less likely to be biased in one direction or another. Moreover, the fact that projected EPS growth estimates are available from multiple sources on a consensus basis attests to the importance of projected EPS growth rates to investors when developing long-term growth expectations.

For all of these reasons, projected EPS growth rates, not projected DPS or BVPS growth rates, should be used for purposes of estimating the cost of equity using the constant growth DCF analysis.

Q: Have other regulatory commissions relied on projected EPS growth rates as the estimate of perpetual growth in the constant growth DCF model, such as you have done?

A: Yes. For example, the Pennsylvania Public Utilities Commission ("Pennsylvania PUC") has historically preferred the use of analysts' projected EPS growth rates in the constant growth DCF analysis.[49] The Pennsylvania PUC has noted the following:

> Upon our consideration of the record evidence, we find that I&E's DCF calculation correctly used forecasted earnings growth rates instead of

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[48] Stanley B. Block, "A Study of Financial Analysts: Practice and Theory," *Financial Analysts Journal*, July/August 1999.

[49] *See, e.g.*, Pennsylvania Public Utility Commission, Opinion and Order, October 4, 2018, at 93. *See, also*, Docket No. M-2018-3006643, Public Meeting held January 17, 2018, at 16, in which the Commission discusses the method it uses to set the ROE for the Distribution System Improvement Charge.

> considering historical growth rates. The record indicates that growth rate forecasts are made by analysts who already factor historical data into their forecasts of earnings per share growth. Although past performance can yield valuable information, relying on it for a DCF analysis results in placing too much weight on past performance. ***Thus, the best measure of growth for use in the DCF model are forecasted earnings growth rates***.[50]

Q: Do you agree with Dr. Won's GDP growth rate?

A: No. Dr. Won's two-stage DCF model assumes a long-term growth rate in perpetuity However, Dr. Won's GDP growth forecast only reflects growth for the 10-year period of 2026 through 2036, even though his two-stage DCF model extends into perpetuity.[51] In other words, the long-term growth rate only covers a small portion of the long-term period to which it is being applied. As a result, Dr. Won's projected GDP growth rate may not be indicative of the expected growth in GDP over the long term.

Q: Is the GDP growth rate that Dr. Won relies on supported by *Morningstar*, which Dr. Won has relied on elsewhere in his cost of equity analyses?

A: No. *Morningstar*, the former publisher of the SBBI Yearbook that is now owned by *Kroll*, which is a data source Dr. Won relies on in his estimation of the market risk premium in his CAPM analysis, recommends estimating a projected long-term nominal GDP growth rate by first calculating the historical growth in real GDP and then adding the expected inflation rate:

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[50] Pennsylvania Public Utility Commission, Docket No. Docket No. R-2020-3018929, Opinion and Order, June 17, 2021, at 160; emphasis added.

[51] Won Direct, at 14.

> Growth in real GDP (with only a few exceptions) has been reasonably stable over time; therefore, its historical performance is a good estimate of expected long-term future performance. ***By combining the inflation estimate with the real growth rate estimate, a long-term estimate of nominal growth is formed***.[52]

Q: What is the resulting estimate of a long-term growth rate when the methodology outlined by *Morningstar* is applied?

A: As shown on Schedule AEB-8R when longer-term GDP growth is estimated consistent with the methodology outlined by *Morningstar*, the long-term nominal GDP growth rate is 5.28 percent. Specifically, the long-term nominal GDP growth rate is based on the real GDP growth rate of 3.17 percent from 1929 through 2025, and a projected inflation rate of 2.04 percent. The projected rate of inflation is based on three measures: (1) the average long-term projected growth rate in the Consumer Price Index ("CPI") of 2.20 percent, as reported by *Blue Chip Financial Forecasts*;[53] (2) the compound annual growth rate of the CPI for all urban consumers for 2035-2050 of 1.99 percent as projected by the Energy Information Administration ("EIA") in its Annual Energy Outlook 2026; and (3) the compound annual growth rate of the GDP chain-type price index for 2035-2050 of 1.93 percent, also reported by the EIA in the Annual Energy Outlook 2025.[54] Therefore, the long-term growth rate consistent with the methodology supported by *Morningstar* (*i.e.*,

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[52] *Ibbotson and Associates*, Stocks, Bonds, Bills and Inflation, 1926-2012, 2013 Valuation Yearbook, at 52; emphasis added.

[53] *Blue Chip Financial Forecasts*, Vol. 45, No. 6, June 1, 2026, at 14.

[54] Energy Information Administration, Annual Energy Outlook 2026 at Table 20, April 8, 2026.

5.28 percent) is substantially higher than the long-term growth rate that Dr. Won assumes for his analysis (*i.e.*, 3.80 percent).

Q: How does Dr. Won establish the upper and lower bounds based on the results of his DCF analysis?

A: Dr. Won establishes an upper bound and lower bound for his DCF results by arbitrarily excluding certain high and low end results of the proxy group without providing any explanation or support for doing so. Specifically, Dr. Won establishes his lower bound as an average of the second and third lowest DCF results, and his upper bound as an average of the second and third highest DCF results.

Q: Are the upper and lower bounds that Dr. Won establishes for his DCF analysis consistent with the FERC's methodology for excluding high-end and low-end outliers?[55]

A: No. Dr. Won's approach for establishing his lower and upper bounds of 7.11 percent and 9.25 percent, respectively,[56] is inconsistent with the FERC methodology that he references as support for his two-step DCF approach. Specifically, as stated in the FERC's Opinion No. 575, the FERC excludes low-end and high-end outliers from the results of the DCF analysis, whereby cost of equity results lower than the yield on corporate Baa bonds plus 20 percent of the market risk premium in the CAPM are excluded, as are cost of equity results higher than 200 percent of the median result of the DCF analysis. As shown on

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[55] Won Direct, at 58 and Schedule SJW-d12.

[56] *Id.*

Schedule AEB-9R, the results of Dr. Won's DCF analysis for DTE Energy and Entergy Corp. would be excluded pursuant to FERC's outlier methodology.

Q: How would the result of Dr. Won's two-step DCF analysis change when current data is utilized and the FERC's two-step DCF approach is accurately applied?

A: Schedule AEB-9R shows the results of Dr. Won's two-step DCF analysis as filed in his testimony as compared to his two-step DCF analysis after it has been (1) updated to reflect data through June 2026; (2) corrected the proxy group to include PPL given that, as previously discussed, the company meets his screening criteria; (3) corrected to rely solely on projected EPS growth rates for the short-term growth rates consistent with the FERC's methodology; and (4) revised to reflect long-term growth rates consistent with the *Morningstar* methodology. As shown on Schedule AEB-9R, page 3, when Dr. Won's analysis is updated with current data and corrected as discussed, the average resulting cost of equity is 9.94 percent, or substantially higher than the 8.18 percent that he reflects in his testimony.

V.C. CAPM Analysis

Q: Please summarize Dr. Won's application of the CAPM.

A: Dr. Won's CAPM analysis relies on (1) a risk-free rate of 4.71 percent based on the average yield on the 30-year Treasury bond for the three months ending December 31, 2025; (2) betas for his proxy group published by *Value Line*; and (3) an average of four measures of

a market risk premium.[57] Specifically, Dr. Won's four market risk premia are from the following sources:

- *Kroll's* recommended 5.00 percent market risk premium;
- An implied market risk premium of 5.03 percent from Professor Damodaran of the NYU Stern Business School;
- Professor Damodaran's historical geometric average market risk premium between 1928 to 2025 of 5.48 percent; and
- Professor Damodaran's historical arithmetic average market risk premium from 1928 to 2025 of 7.03 percent.

The results of Dr. Won's CAPM analyses range from 8.39 percent to 9.89 percent.[58] Dr. Won also applies an upper and lower bound to the results of his CAPM analysis similar to his DCF analysis and averages the upper and lower bounds to estimate a cost of equity of 9.16 percent.[59]

Q: Before discussing the merits of Dr. Won's CAPM analysis, as a threshold matter, are the results of each of his CAPM scenarios reasonable?

A: No. As previously discussed, the *Hope* and *Bluefield* decisions require a utility's authorized return to be comparable to other returns available to investors in companies with similar risk;[60] however, the results of Dr. Won's CAPM scenarios that rely on a the Kroll and Damodaran implied equity risk premium (*i.e.*, 8.39 percent and 8.41 percent,

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[57] Won Direct, at 53-54 and Schedule SJW-d13.

[58] Schedule SJW-d13. The date of Dr. Won's *Value Line* betas is not provided in Dr. Won's testimony or workpapers.

[59] *Id*.

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

respectively) are not reasonable nor do they meet the comparable return standard of *Hope* and *Bluefield* given they are well below the low-end of the range of comparable authorized returns for any electric or natural gas utility in at least since 1980, including during periods with extremely low long-term interest rates.

Q: Do you agree with Dr. Won's specification of his CAPM analysis?

A: No. There are several flaws with the assumptions in Dr. Won's CAPM analysis, including:

- Relying on the *Kroll* and Professor Damodaran implied market risk premia that fail to reflect the inverse relationship between interest rates and market risk premium.
- Relying on historical data to estimate a forward-looking market return and market risk premium.
- Calculating the market risk premium incorrectly, by relying on the historical total return on long-term government bonds instead of the historical income-only return.
- Relying on historical geometric averages of the market return and market risk premia to estimate the cost of equity.

Each of these assumptions independently and combined cause the result of Dr. Won's CAPM analysis to be understated and unreliable.

Q: Are the market risk premia published by *Kroll* and Professor Damodaran, as used in Dr. Won's CAPM analyses consistent with the inverse relationship between interest rates and the market risk premium?

A: No. The historical market risk premium is 7.52 percent based on a historical risk free rate of 4.84 percent. The inverse relationship between interest rates and the market risk premium suggests that as interest rates increase, the market risk premium would decrease, and as interest rates decrease, the market risk premium increases. Both academic literature and market evidence indicate that the equity risk premium is inversely related to the level

of interest rates (*i.e.*, as interest rates increase, the equity risk premium decreases, and vice versa).[61]

As shown in Figure 4, the risk free rates that Dr. Won relies upon are slightly lower than the historical average, which would suggest that a market risk premium that is slightly higher than the historical average. The market risk premia reported by *Kroll* and Professor Damodaran are well below the historical average and inconsistent with the inverse relationship between interest rates and the market risk premium. The effect of relying on these estimates of the market risk premium in the current interest rate environment is that the result of the CAPM is understated.

FIGURE 4: MISALIGNMENT OF MARKET RISK PREMIA RELIED ON BY DR. WON[62]

Source	Market Risk Premium	Amount Below Long-Term Avg.	Risk-Free Rate	Amount Below Long-Term Avg.
Long-Term Historical Avg.	**7.52%**		**4.84%**	
Kroll - Normalized	5.00%	-2.52%	4.71%	-0.13%
Damodaran - Implied ERP	5.03%	-2.49%	4.71%	-0.13%

[61] *See e.g.*, S. Keith Berry, "Interest Rate Risk and Utility Risk Premia during 1982-93," *Managerial and Decision Economics*, Vol. 19, No. 2, March 1998. *See also*, Robert S. Harris, "Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return," *Financial Management*, Spring 1986, at 66.

[62] *Kroll* (1926-2022), *S&P Capital IQ* for S&P 500 Return (2023-2025), *Kroll* from Income-Only Return on bonds (2023-2025).

Q: Does Dr. Won acknowledge the historical relationship between interest rates and the market risk premium?

A: Yes. In Figure 6 of his testimony, Dr. Won specifically acknowledges this relationship when discussing his BYRP analysis.[63] Therefore, given that Dr. Won's risk-free rate is below the historical average interest rate of those same bonds, the market risk premium should be *greater than* the long-term historical average market risk premium – which is not the case for Dr. Won's CAPM analyses that rely on the *Kroll* recommended market risk premium or the Professor Damodaran implied equity risk premium.

Q: Has Dr. Won previously relied on a forward-looking estimate of the market risk premium in his CAPM analysis such as you have done in your direct testimony?

A: Yes. In Missouri-American Water's 2020 rate proceeding, Dr. Won relied on two estimates of a historical market risk premium, as well as an estimate of a forward-looking market risk premium based on the market return of the S&P 500 less the current risk-free rate.[64]

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[63] Won Direct, at 55-56.

[64] Missouri Public Service Commission, Case No. WR-2020-0344, Staff Report Cost of Service, at 26 and Schedule SJW-14, columns [8] through [10].

Q: How would the results of Dr. Won's CAPM analysis change if he had calculated the market risk premium in this proceeding using the methodology that he relied on in the Missouri-American Water 2020 rate proceeding?

A: The results of Dr. Won's CAPM analysis would have been higher in this proceeding had he relied on a forward-looking market risk premium such as he had done previously.

Q: Dr. Won also relies on two estimates of the historical market risk premium in his CAPM analyses. Do you agree with the use of these historical estimates?

A: No. The cost of equity that is being set in this proceeding is the return that investors expect on current and future investments in the Company. Therefore, the market return and market risk premium should be forward-looking. Dr. Won has not provided any evidence that the historical average market return or the market risk premium that he relies on reflect the expected market conditions during the period in which the Company's proposed rates will be in effect. *Morningstar*, which is the prior publisher of the historical dataset relied on by Dr. Won for his CAPM that is now published by *Kroll*, specifically supports that the market risk premium should be a forward-looking, not historical, analysis:

> It is important to note that the expected equity risk premium, as it is used in discount rates and the cost of capital analysis, is a forward-looking concept. That is, the equity risk premium that is used in the discount rate should be reflective of what investors think the risk premium will be going forward.[65]

Given that the current and projected market conditions that both Dr. Won and I have discussed affect the current and projected equity risk premium, a forward-looking market

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[65] *Morningstar Inc*., 2010 Ibbotson SBBI Valuation Yearbook, at 55.

return and market risk premium should be used in the CAPM analysis for estimating the cost of equity.

Q: Has *Kroll* also highlighted a potential inconsistency with relying on historical data for a forward-looking analysis such as the CAPM?

A: Yes. *Kroll* has stated that, "[i]n using a historical measure of the equity risk premium, one assumes that what has happened in the past is representative of what might be expected in the future."[66] Given the inverse relationship between interest rates and the market risk premium, and since the current interest rate that Dr. Won relies on for his risk-free rate is *lower* than the historical average, it is reasonable to expect that the current market risk premium should be *higher* than the historical average market risk premium.

Q: Is there also evidence that the use of a historical market premium can produce counter-intuitive results?

A: Yes. Figure 5 illustrates the problem with relying on a historical market risk premium such as Dr. Won has done. Specifically, the figure shows that from 2007-2009, the historical market risk premium decreased even as market volatility (the primary statistical measure of risk) significantly increased. Further, this figure demonstrates the significant swings in the annual equity risk premium that are averaged into the long-term historical average calculations. As shown, in 2008, the annual equity risk "premium" was actually negative, which implies a discount for equity holders relative to the cost of debt. It is incomprehensible that the perceived risk for equity was negative (implying a required

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[66] *Kroll*, 2022 SBBI Yearbook, at 198.

equity return lower than the cost of debt) in the height of the financial market collapse when the overall market return for equities was negative 37 percent. The assumption that investors would expect or require an equity risk "premium" below the cost of debt during periods of increased volatility is counter-intuitive and leads to unreliable analytical results. In fact, as shown, this individual observation alone, which runs counter to the theory of the equity risk premium, reduces the historical average market risk premium for the prior 80 years by 60 basis points.

FIGURE 5: HISTORICAL MARKET RISK PREMIUM AND MARKET VOLATILITY

	Market Volatility	Market Return	Annual Equity Risk Premium	Long-term Average Historical Market Risk Premium[67]
2007	17.54	5.49%	0.63%	7.10%
2008	32.69	-37.00%	-41.45%	6.50%
2009	31.48	26.46%	3.47%	6.70%

The relevant objective in the application of the CAPM is to ensure that all three components of the model (*i.e.*, the risk-free rate, the beta, and the market risk premium) are consistent with market conditions and investor perceptions. The forecasted market risk premium estimates used in my CAPM analyses specifically address this concern.

[67] Ibbotson SBBI Yearbook. *Morningstar Inc*. 2008, at 28. *Ibbotson SBBI Yearbook. Morningstar Inc*. 2009, at 23; Ibbotson SBBI Yearbook. *Morningstar Inc*. 2010, at 23. The historical market risk premium equals the total return on large company stocks less the income-only return on long-term government securities.

Q: How does Dr. Won develop his estimates of the historical market risk premium?

A: Dr. Won develops two estimates of the historical market risk premia. He calculates the total return on the market using a geometric average return over the period from 1928 to 2025, and an arithmetic average return on the market over that time period. The market risk premia that he estimates are the difference between the market return estimates just discussed and the average total return on long-term government bonds over the same time period.[68]

Q: Are the calculations that Dr. Won has performed using the historical market data appropriate estimates of the historical market risk premium??

A: No. Dr. Won's use of the total return on government bonds to estimate the market risk premium is inconsistent with the methodology supported by the company that compiled the historical data. *Morningstar*, the former publisher of the historical data on which Dr. Won has previously relied on for purposes of his market risk premium, and which is now owned by *Kroll*,[69] states that a historical market risk premium is appropriately calculated by subtracting the *income-only* portion of the government bond return from the total return on large company stocks:

> Another point to keep in mind when calculating the equity risk premium is that the income return on the appropriate-horizon Treasury security, rather than the total return, is used in the calculation. The total return is comprised of three return components: the income return, the capital appreciation return, and the reinvestment return…The income return is thus used in the

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[68] Won Direct, at 54.

[69] Missouri Public Service Commission, Direct Testimony of Seoung Joun Won, PhD, Case No. GR-2024-0369, February 28, 2025; Missouri Public Service Commission, Direct Testimony of Seoung Joun Won, PhD, Case No. ER-2024-0319, December 3, 2024.

estimation of the equity risk premium because it represents the truly riskless portion of the return.[70]

Q: What is wrong with using the total return on government bonds in the calculation of the market risk premium?

A: The market risk premium is the premium necessary for an investor to hold equity as compared to a risk-free investment. The problem with Dr. Won's use of the total return on long-term government bonds is that it reflects the sum of both (i) the income-only return, which is the return expected by investors at the time of investment since the interest rate on the bond is known at that time; plus (ii) the capital appreciation of the bond, which is the return associated with the investor selling the bond at a higher price. However, the income-only return is the only portion of the total return on long-term government bonds that can be considered risk-free. The capital appreciation portion of the return is not without risk since the price of the bond could increase or decrease depending on the market.

As Dr. Won acknowledges in his testimony, "investors demand a greater return in exchange for taking on higher levels of risk," and that an investment in "a company's common stock equity is riskier than its corporate bonds because equity holders have residual claims on a company's assets and earnings, which means they are not guaranteed fixed returns and may face greater volatility in their investment."[71]

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[70] *Morningstar Inc.*, Ibbotson SBBI 2012 Valuation Yearbook, Market Results for Stocks, Bonds, Bills, and Inflation 1926-2011, at 55.

[71] Won Direct, at 54-55.

Therefore, the proper calculation of the market risk premium is the return on the market less the *income-only* return on the risk-free investment.

Q: How does this error affect the market risk premia that Dr. Won relies on?

A: By subtracting the total return on the risk-free investment from the market return as Dr. Won has done, instead of the income-only return on the risk-free investment, he has understated the market risk premium. As shown previously in Figure 4, the historical arithmetic average market return for large company stocks from 1926 to 2025 reported by *Kroll*, less the income-only return over this same historical period, the market risk premium is 7.52 percent.

Q: Dr. Won relies on the historical average of the 10-year Treasury bond yield in the calculation of the market risk premium. Is this the appropriate bond yield to use in that analysis?

A: No. Dr. Won should be using the income-only returns of the 30-year Treasury bonds, not 10-year Treasury bonds, to be consistent with the risk-free rate he uses in this CAPM analyses.

Q: Is it appropriate to rely on the geometric mean to estimate a historical market return for the CAPM?

A: No. Geometric and arithmetic means are used for different purposes. The geometric mean is used to determine the exact rate of compounded return between a specific starting and ending point. The geometric mean is most appropriately used for series that exhibit serial correlation. It is also commonly referred to as a "holding period return." The arithmetic

mean is the appropriate calculation to estimate the market risk premium because it is the simple average of single period rates of return and therefore best approximates the uncertainty associated with returns from year to year. The important distinction between the two methods is that the arithmetic mean assumes each periodic return is an independent observation and, therefore, incorporates uncertainty into the calculation of the long-term average. In contrast, the geometric mean does not incorporate the same degree of uncertainty because it assumes that returns remain constant from year to year.

This view is supported by academic analyses. Cooper (2006) reviewed the literature on the topic and 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.[72]

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

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

> 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.[73]

Q: Have you revised Dr. Won's CAPM analysis to address the issues that you have identified?

A: Yes. Although the market risk premium should be forward-looking since the forward-looking cost of equity is being estimated in this proceeding for purposes of setting the authorized ROE, I have corrected Dr. Won's CAPM analysis to, at a minimum, appropriately reflect a historically-based market risk premium. Although I do not agree with the use of a historical market return and historical market risk premium to estimate the forward-looking cost of equity for all of the reasons discussed, at a minimum this calculation at least derives the market risk premium from the risk-free rate being used in the CAPM to estimate the cost of equity, which is more appropriate than the calculation performed by Dr. Won that fails to reflect the inverse relationship between interest rates and the market risk premium. Specifically, Schedule AEB-10R presents Dr. Won's CAPM analysis that calculates the market risk premium as the historical arithmetic average market return minus the income-only returns on long-term government bonds from 1926 through 2025.[74] In addition, I have also updated Dr. Won's CAPM analysis to reflect the current risk-free rate as of the 3 months ending June 30, 2026 and the current *Value Line* betas. As

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

[74] Note Dr. Won's historical sources begin in 1928, while the historical data provided by *Kroll* begin in 1926.

shown on Schedule AEB-10R, when Dr. Won's CAPM analysis is updated and corrected, the average cost of equity is 11.86 percent.

V.D. BYRP Analysis

Q: Please summarize Dr. Won's BYRP analysis.

A: Dr. Won's BYRP analysis is similar to the BYRP analysis that I have also conducted, with the exception that he evaluates the inverse relationship between A-rated and Baa-rated utility bond yields and authorized ROEs for vertically integrated electric utilities to estimate the risk premium, while I evaluate the inverse relationship using 30-year Treasury bond yields and authorized ROEs for vertically integrated electric utilities to estimate the risk premium. In addition, Dr. Won's regression of utility bond yields and authorized ROEs is based on authorized ROEs for the 12-year period 2014 to 2026, while the regression analysis developed in my direct testimony relies on a longer data set of authorized ROEs from 1980 to current.

Q: Do you agree with Dr. Won's BYRP analysis?

A: No, while Dr. Won has conducted a regression analysis for his BYRP analysis, there are a elements of his analysis with which I disagree. Specifically:

- Dr. Won only utilizes a 12-year period (2014-2025) of data for the analysis when a significantly longer period of utility bond yield and authorized ROE data is available that incorporates a much broader set of market conditions and is more appropriate to be considered in setting the return on equity.
- As shown in Figure 6 and Exhibit SJW-d14-2 of Dr. Won's testimony, he has conducted a single regression of the risk premium and bond yield for both A-rated and Baa-rated utility bond yields, which he then uses to estimate a forward-looking market risk premium associated with both current A-rated and Baa-rated utility

bond yields. However, it is unclear why Dr. Won did not conduct separate regressions of the risk premium and bond yield for A-rated versus Baa-rated utility bond yields, which would then be used separately to estimate a forward-looking market risk premium for the current A-rated bond yield and separately for the current Baa-rated bond yield.

Q: Have you adjusted Dr. Won's BYRP analysis to address the issues you just identified?

A: Yes. Given that the Company is currently rated Baa1 by Moody's, Schedule AEB-11R updates Dr. Won's BYRP analysis using the Baa-rated utility bond yield data from January 1993 (the date back to which utility bond yield data is available) to June 2026 and the corresponding quarterly authorized ROEs over that same period. As shown, when a longer period of data is appropriately utilized, when Dr. Won's regression results are applied to the current 30-day average of the Baa-rated public utility bond yield, the result of Dr. Won's BYRP analysis is an ROE of 10.40 percent.

V.E. Overall Cost of Equity Results

Q: Please summarize the results of the analyses you have performed that make reasonable adjustments to Dr. Won's DCF, CAPM, and BYRP analyses to address the issues you discuss in your rebuttal testimony?

A: Figure 6 presents the results of Dr. Won's analyses when they are updated to use the most current data available and corrected for the issues that I have discussed. Specifically, the changes to Dr. Won's two-step DCF, CAPM, and BYRP analyses are shown on Schedule AEB-9R through Schedule AEB-11R, respectively. As shown in Figure 6, the resulting average cost of equity is 10.74 percent – which is higher than the Company's proposed ROE of 10.50 percent in this proceeding.

FIGURE 6: RESULTS FROM DR. WON'S ADJUSTED REVISED ANALYSES

	Dr. Won As Filed	Dr. Won Updated/ Revised
Two-Step DCF	8.18%	9.94%
CAPM	9.16%	11.86%
BYRP	9.73%	10.40%
Average	**9.02%**	**10.74%**

VI. RESPONSE TO MR. MURRAY

VI.A. Overview

Q: Please summarize Mr. Murray's cost of equity analyses.

A: Mr. Murray estimates the cost of equity by conducting multiple scenarios of a multi-stage DCF and CAPM analysis. In these analyses, Mr. Murray relies on a proxy group of comparable electric utilities. Mr. Murray also uses an ad hoc "rule of thumb" bond risk premium approach as a reasonableness test on the results of his multi-stage DCF and CAPM analyses. Mr. Murray presents the results for nine multi-stage DCF analyses, which average 8.01 percent, and the results of twenty-five CAPM analyses, which average 7.80 percent.[75] Based on the results of his multi-stage DCF and CAPM analysis, Mr. Murray contends that his multi-stage DCF analysis indicates a cost of range of 7.85 percent to 8.05

[75] Schedule DM-D-3, Schedule DM-D-4, Schedule DM-D-5 and Schedule DM-D-7.

percent[76] while his CAPM indicates a cost of range of 7.75 percent to 8.50 percent.[77] Mr. Murray considers a reasonable range for the Company's ROE to be 9.00 percent to 9.50 percent, and recommends an ROE of 9.25 percent despite the fact that the cost of equity range that his multi-stage DCF and CAPM models support are well below his recommended ROE range.[78]

Q: Is the cost of equity range supported by Mr. Murray's models consistent with his ROE recommendation for the Company?

A: No. The cost of equity range supported by Mr. Murray's multi-stage DCF and CAPM analyses is well below his recommended ROE of 9.25 percent in this proceeding.

Q: How does Mr. Murray reconcile the significant difference between the results of his cost of equity analyses and his overall ROE recommendation?

A: Mr. Murray's position is that regulators have authorized ROEs higher than the cost of equity.[79] As a result, Mr. Murray states that he first estimates Evergy Metro's cost of equity, and then compares those estimates to his own historical estimates of the cost of equity for the electric utility industry as well as considers recent average authorized returns

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[76] Murray Direct, at 33.

[77] *Id.*, at 43.

[78] *Id.*, at 2.

[79] *Id.*, at 6 and 26.

for electric utilities and the "expected significant capex cycle" for the electric utility industry.[80]

Q: Do you agree with Mr. Murray that regulators consistently have authorized ROEs that overstate the cost of equity?

A: No. I disagree with Mr. Murray that regulatory commissions, including this Commission, have consistently erred for decades in establishing utilities' ROEs. While I agree with Mr. Murray that: (1) there is a distinction between the cost of equity and the ROE authorized by regulatory commissions in setting just and reasonable rates; (2) the cost of equity cannot be definitively determined and therefore must be estimated by analysts; and (3) there is significant disagreement as to the way in which to estimate the cost of equity; there is no basis to conclude that that regulators have consistently incorrectly authorized ROEs substantially higher than the cost of equity.

Q: Why is this disagreement with Mr. Murray so fundamental?

A: Regulatory commissions have an obligation to establish rates that balance the interests of customers and shareholders and that are just and reasonable. There is no evidence that Mr. Murray's estimate of the cost of equity is in fact reasonable and that regulatory commissions have been consistently approving unjust and unreasonable rates. As discussed, Mr. Murray estimates the cost of equity using both a multi-stage DCF analysis and a CAPM analysis. However, a majority of the results of his multi-stage DCF and CAPM analyses are substantially lower than any ROE that has been authorized by a

[80] *Id*., at 6.

regulatory commission in the past. In fact, Mr. Murray's conclusion is solely reliant on the assumption that he has "correctly" specified his cost of equity models, even though the cost of equity is not observable and his models produce results that even he does not rely on in establishing his recommended ROE. Given regulatory commissions' obligation for setting just and reasonable rates, it has to be concluded that the ROEs that these commissions authorized were deemed by those agencies to reflect the investor-required return and produced just and reasonable rates at that time based on the information presented in those proceedings.

Q: Are you aware of any other regulatory jurisdiction in the United States that has adopted Mr. Murray's views?

A: No. I am not aware of any regulatory commission in the United States – state or Federal – that has adopted Mr. Murray's position that regulatory commissions have consistently and predictably authorized ROEs that exceed the investor-required return. Mr. Murray's proposal represents a significant departure from all forms of utility rate regulation in the United States, and likely would be viewed adversely by credit rating agencies and equity analysts

Q: Are you aware of any regulatory commissions that have specifically disagreed with Mr. Murray's notion that there is and has been a substantial difference between authorized ROEs and the cost of equity for utilities?

A: Yes. The Minnesota Public Utilities Commission has considered testimony offered by witnesses on behalf of the Minnesota Department of Commerce, Division of Energy

Resources ("Department") and the Citizens Utility Boad that contended authorized ROEs have historically exceeded the cost of equity. The Minnesota Public Utilities Commission has continued, however, to rely on its long-standing cost of equity estimation methodologies and other industry information to inform their decisions and has not specifically relied on the viewpoint that the cost of equity is lower than authorized ROEs. For example:

> The Department's recommended cost of equity of 9.30% is informed by an underlying assumption that the cost of equity and the return on equity are distinct concepts in the sense that utility earnings exceed the cost of equity over time. This understanding, according to the Department, undermines the reliability of earnings' estimates in predicting long-term growth and instead justifies the use of a multi-stage DCF analysis that uses GDP to forecast the long-term cost of equity. ***The Commission does not share this concern***.[81]

In addition, the North Carolina Utilities Commission ("NCUC") has also rejected the claim, similar to Mr. Murray's position in this proceeding, that the cost of equity is much lower than what regulatory commissions have authorized in the past. For example, in a proceeding for Duke Energy Carolina ("DEC"), the NCUC concluded that model results and ROE recommendation of 6.15 percent of one witness in the proceeding was inconsistent with the *Hope* and *Bluefield* decisions and would not allow the Company to attract capital at reasonable terms:

> In this case, the Commission considered the application of these models in the context of the witnesses' testimony and other evidence, in order to

[81] Minnesota Public Utilities Commission, Docket No. E-015/GR-21-335, Findings of Fact, Conclusions, and Order. February 28, 2023, at 45; emphasis added.

ensure that its rate of return on equity conclusion of 10.1% is adequately supported by the evidentiary record. However, the Commission first will discuss — and reject — the recommendations of witness Ellis. In sum, both his individual model results and his overall recommendation of a rate of return on equity of 6.15% show that witness Ellis' cost of equity estimate is an outlier, entitled to no weight, and should be rejected. Aside from being more than 300 basis points below any rate of return on equity ever approved by this Commission for DEC, a rate of return on equity at that level, is scarcely 150 basis points above DEC's embedded cost of debt, a premium that is clearly insufficient to compensate investors for the added risks associated with equity ownership relative to a debtholder's claim on the same enterprise. Worse, DEC witness Newlin testified that that the interest rate DEC could expect today in issuing a 30-year bond is 5.72%. Tr. vol. 16, 85. This is a mere 43 basis points below witness Ellis' rate of return on common equity recommendation of 6.15%. ***The Commission finds it inconceivable that an investor would make an equity investment in DEC to realize a 6.15% expected return when that same investor could obtain a much less risky return merely 43 basis points lower simply by purchasing bonds issued by DEC. The Commission does not believe that a 6.15% rate of return on common equity will allow DEC to attract equity capital on reasonable terms, which is the essence of the Bluefield/Hope test***.[82]

Q: What has Mr. Murray stated regarding the "zone of reasonableness" for the ROE to be established in this proceeding?

A: Mr. Murray notes that the Commission has developed a "zone of reasonableness standard" with the starting point for establishing such zone as 100 basis points above and below a recent industry average authorized ROE. Mr. Murray contends that the zone of

[82] North Carolina Utilities Commission, Docket No. E-7, Sub 1276, Order Accepting Stipulations, Granting Partial Rate Increase, Requiring Public Notice and Modifying Lincoln CT CPCN Conditions, December 15, 2023, at 200 (emphasis added). *See, also*, North Carolina Utilities Commission, Docket No. E-2, Sub 1300, Order Accepting Stipulations, Granting Partial Rate Increase, and Requiring Public Notice, August 18, 2023, at 159.

reasonableness in this proceeding should be 8.70 percent to 10.70 percent, based on the recent average authorized ROE of 9.70 percent.[83]

Q: Do the results of Mr. Murray's multi-stage DCF or CAPM analyses fall within the zone of reasonableness that he suggests should be applicable in this proceeding?

A: No. As shown in Figure 7, none of the results of Mr. Murray's multi-stage DCF analyses, regardless of the variation of the proxy group utilized, are within his proposed zone of reasonableness, but rather are all below the low-end of such zone. Similarly, as shown in Figure 8, all but five of his individual CAPM results fall below the low-end of his zone of reasonableness. Furthermore, the five CAPM results that fall within his zone of reasonableness were based on a historical arithmetic average market risk premium, which Mr. Murray contends is "unreasonably high".[84] Therefore, Mr. Murray's ROE recommendation in this proceeding is based simply on his own judgment and not on any of his cost of equity analyses.

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[83] Murray Direct, at 6.

[84] *Id.*, at 43.

FIGURE 7: COMPARISON OF THE RESULTS OF MR. MURRAY'S MULTI-STAGE DCF ANALYSES RELATIVE TO HIS PROPOSED ZONE OF REASONABLENESS[85]

	Cost of Equity	Mr. Murray Zone of Reasonableness	Within Zone?
Multi-Stage DCF			
2.5% Perpetual Growth Rate			
Avg. of Total Mr. Murray Proxy Group	8.00%		No
Avg. of Excluding Companies w/ 10% Unreg. or Intl. Operations	7.84%		No
Avg. of Mr. Murray Proxy Companies since 2012/2014	7.84%		No
3.0% Perpetual Growth Rate			
Avg. of Total Mr. Murray Proxy Group	8.11%		No
Avg. of Excluding Companies w/ 10% Unreg. or Intl. Operations	7.96%	8.70% - 10.70%	No
Avg. of Mr. Murray Proxy Companies since 2012/2014	7.96%		No
3.5% Perpetual Growth Rate			
Avg. of Total Mr. Murray Proxy Group	8.21%		No
Avg. of Excluding Companies w/ 10% Unreg. or Intl. Operations	8.07%		No
Avg. of Mr. Murray Proxy Companies since 2012/2014	8.07%		No

[85] Schedule DM-D-3 through Schedule DM-D-5.

FIGURE 8: COMPARISON OF THE RESULTS OF MR. MURRAY'S CAPM ANALYSES RELATIVE TO HIS PROPOSED ZONE OF REASONABLENESS[86]

CAPM	Cost of Equity Low	Cost of Equity High	Mr. Murray Zone of Reasonableness	Within Zone? Low	Within Zone? High
20-Year Treas. Bond Yld. / DMS MRP Range					
Avg. of Total Mr. Murray Proxy Group	6.33%	7.39%		No	No
Avg. of Excluding Companies w/ 10% Unreg. or Intl. Operations	6.28%	7.32%		No	No
Avg. of Mr. Murray Proxy Companies since 2012/2014	6.24%	7.24%		No	No
Historical Electric Utility Beta	6.52%	7.74%		No	No
20-Year Treas. Bond Yld. / DMS Hist. Geo. & Arith. MRP					
Avg. of Total Mr. Murray Proxy Group	7.95%	9.09%		No	Low-end
Avg. of Excluding Companies w/ 10% Unreg. or Intl. Operations	7.86%	8.97%		No	Low-end
Avg. of Mr. Murray Proxy Companies since 2012/2014	7.76%	8.84%		No	Low-end
Historical Electric Utility Beta	8.37%	9.67%		No	Low-end
10-Year Treas. Bond Yld. / Damodaran MRP					
Avg. of Total Mr. Murray Proxy Group	7.00%			No	
Avg. of Excluding Companies w/ 10% Unreg. or Intl. Operations	6.92%		8.7% - 10.7%	No	
Avg. of Mr. Murray Proxy Companies since 2012/2014	6.84%			No	
Historical Electric Utility Beta	7.37%			No	
10-Year Treas. Bond Yld. / Damodaran Hist. Geo. & Arith. MRP					
Avg. of Total Mr. Murray Proxy Group	7.72%	8.68%		No	No
Avg. of Excluding Companies w/ 10% Unreg. or Intl. Operations	7.62%	8.55%		No	No
Avg. of Mr. Murray Proxy Companies since 2012/2014	7.52%	8.41%		No	No
Historical Electric Utility Beta	8.19%	9.27%		No	Low-end
10-Year Treas. Bond Yld. / Kroll MRP					
Avg. of Total Mr. Murray Proxy Group	8.11%			No	
Avg. of Excluding Companies w/ 10% Unreg. or Intl. Operations	8.01%			No	
Avg. of Mr. Murray Proxy Companies since 2012/2014	7.92%			No	
Historical Electric Utility Beta	8.53%			No	

Q: Are the results of Mr. Murray's multi-stage DCF or CAPM analyses reasonable?

A: No. Given the results of Mr. Murray's cost of equity analyses, it is not surprising that he does not rely on them for purposes of developing his recommended ROE in this proceeding. The results of Mr. Murray's multi-stage DCF and CAPM analyses are either

[86] Schedule DM-D-7.

well below or at the very low-end of the range of comparable authorized ROEs that have been approved for vertically integrated electric utilities since at least 1980. I recognize that Mr. Murray contends that the results of his cost of equity analyses are reasonable based on his claim that utility commissions have consistently authorized ROEs well in excess of the cost of equity. However, as I have discussed, his position is based solely on his estimates of the cost of equity being correct which is very unlikely given the various methods relied on by analysts to estimate the cost of equity and his position has been specifically rejected previously.

Q: In prior rate proceedings in Missouri, has Mr. Murray relied on the results of his cost of equity analyses for purposes of his ROE recommendation?

A: No. As shown in Figure 9, the cost of equity range indicated by Mr. Murray's model results have consistently been well below his ROE recommendation.

FIGURE 9: COMPARISON OF THE RESULTS OF MR. MURRAY'S COST OF EQUITY ESTIMATION METHODOLOGIES AND RECOMMENDED ROE IN RECENT PRIOR EVERGY METRO AND EVERGY MISSOURI WEST RATE PROCEEDINGS

Methodology	Case Noe. ER-2022-0129/ER-2022-0130 Evergy Metro and West	Case No. ER-2024-0189 Evergy West	Current Proceeding Evergy Metro
Multi-Stage DCF (EVRG, 3.5% lt growth rate)[87]	7.75%	9.14%	8.36%
Multi-Stage DCF (EVRG, 3.0% lt growth rate)[88]	7.60%	9.10%	8.26%

[87] Case No. ER-2022-0129 and ER-2022-0130, Direct Testimony of David Murray, June 8, 2022, at Schedule DM-D-2; Case No. ER-2024-0189, Direct Testimony of David Murray, June 27, 2024, at Schedule DM-D-2; and Schedule DM-D-4.

[88] Case Nos. ER-2022-0129 and ER-2022-0130, Direct Testimony of David Murray, June 8, 2022, at Schedule DM-D-2; Case No. ER-2024-0189, Direct Testimony of David Murray, June 27, 2024, at Schedule DM-D-2; and Schedule DM-D-3.

Methodology	Case Noe. ER-2022-0129/ER-2022-0130 Evergy Metro and West	Case No. ER-2024-0189 Evergy West	Current Proceeding Evergy Metro
Multi-Stage DCF (EVRG, 2.5% lt growth rate) [89]	7.45%	9.06%	8.16%
Multi-Stage DCF (Electric Utility Group, 3.5% lt growth rate)[90]	N/A	N/A	8.07% - 8.21%
Multi-Stage DCF (Electric Utility Group, 3.0%, lt growth rate) [91]	7.00% - 7.34%	8.45% - 8.63%	7.96% - 8.11%
Multi-Stage DCF (Electric Utility Group, 2.5%, lt growth rate) [92]	N/A	N/A	7.84% - 8.00%
CAPM[93]	7.18% - 7.75%	7.80% - 8.94%	6.24% - 9.67%
Rule of Thumb[94]	7.60%	8.30% - 8.70%	8.75%
Cost of Equity Range[95]	7.00% - 7.50%	8.50% - 8.75%	7.75% - 8.25%
ROE Recommendation[96]	9.00%	9.50%	9.25%
Amount by which Mr. Murray's ROE recommendation is greater than his cost of equity range	**1.50% - 2.00%**	**0.75% - 1.00%**	**1.00% - 1.50%**

89 Case Nos. ER-2022-0129 and ER-2022-0130, Direct Testimony of David Murray, June 8, at Schedule DM-D-2; Case No. ER-2024-0189, Direct Testimony of David Murray, June 27, 2024, at Schedule DM-D-2; and Schedule DM-D-5.

90 Schedule DM-D-4.

91 Case Nos. ER-2022-0129 and ER-2022-0130, Direct Testimony of David Murray, June 8, 2022, at Schedule DM-D-4; Case No. ER-2024-0189, Direct Testimony of David Murray, June 27, 2024, at Schedule DM-D-3; and Schedule DM-D-3.

92 Schedule DM-D-5.

93 Case Nos. ER-2022-0129 and ER-2022-0130, Direct Testimony of David Murray, June 8, 2022, at Schedule DM-D-6; Case No. ER-2024-0189, Direct Testimony of David Murray, June 27, 2024, at Schedule DM-D-5; and Schedule DM-D-7.

94 Case Nos. ER-2022-0129 and ER-2022-0130, Direct Testimony of David Murray, June 8, 2022, at 30; Case No. ER-2024-0189, Direct Testimony of David Murray, June 27, 2024, at 28; and Murray Direct, at 43.

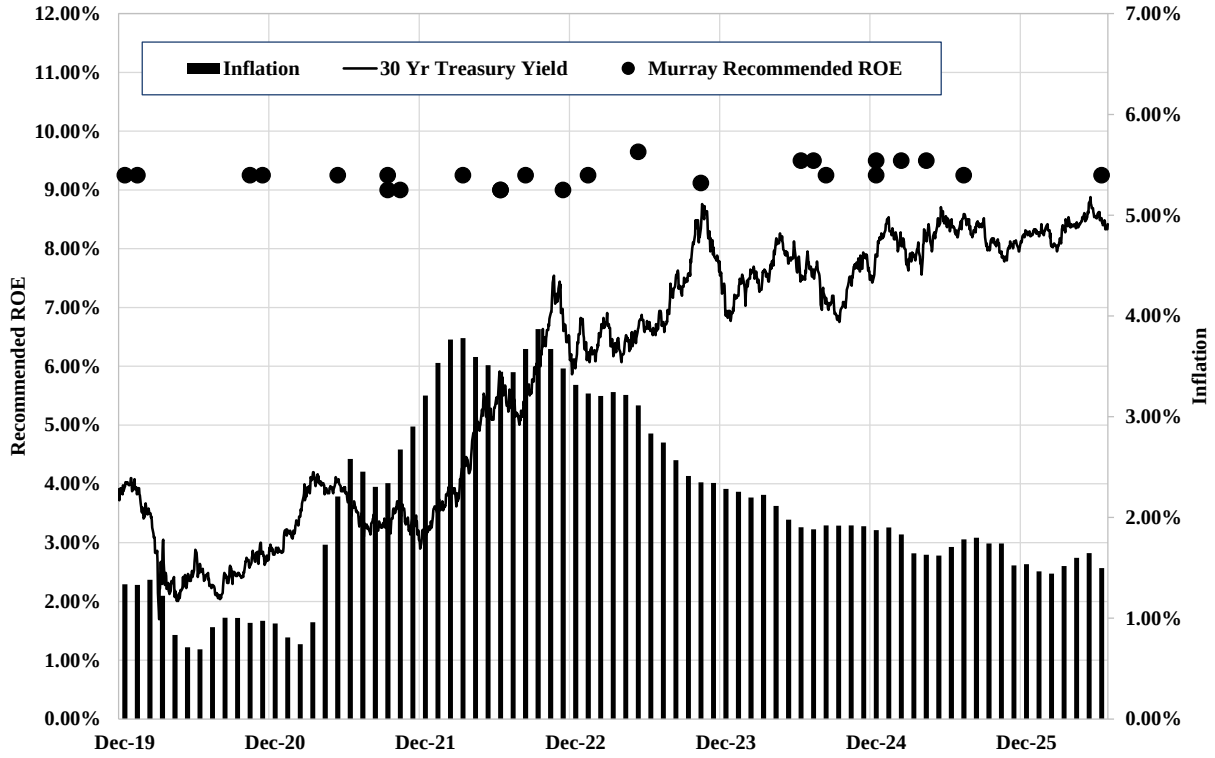
95 Case Nos. ER-2022-0129 and ER-2022-0130, Direct Testimony of David Murray, June 8, 2022, at 31; Case No. ER-2024-0189, Direct Testimony of David Murray, June 27, 2024, at 5; and Murray Direct, at 6.

96 Case Nos. ER-2022-0129 and ER-2022-0130, Direct Testimony of David Murray, June 8, 2022, at 31; Case No. ER-2024-0189, Direct Testimony of David Murray, June 27 , 2024, at 29; and Murray Direct, at 6.

Q: Have Mr. Murray's ROE recommendations changed with the changes in capital market conditions over time?

A: No. As shown in Figure 10, Mr. Murray's recommended ROEs have consistently been between 9.00 percent and 9.50 percent since 2019 – regardless of capital market conditions, with exception of recommending 9.65 percent for Confluence Rivers in WR-2023-0006. While long-term interest rates have varied over this period and increased substantially beginning in late 2021, Mr. Murray's ROE recommendations have remained constant over the past five years and well above the results of his cost of equity modeling. This demonstrates two important points, first, that Mr. Murray does not rely on his own cost of equity analyses when recommending an appropriate ROE and second, Mr. Murray does not meaningfully recognize how changes in market conditions affect the investor-required return on equity.

FIGURE 10: MR. MURRAY'S ROE RECOMMENDATIONS COMPARED TO CHANGING MARKET CONDITIONS



VI.B. Proxy Group

Q: What proxy group does Mr. Murray utilize to estimate the cost of equity?

A: Mr. Murray relies on a broad proxy group of utilities classified as "regulated and "mostly regulated" as compiled by Edison Electric Institute ("EEI"), which includes Evergy Metro's parent company, Evergy, and develops cost of equity estimates that consider the entire proxy group, as well as two subsets of this broad proxy group: (1) companies that have less than 10 percent of their operations exposed to non-regulated or international markets; and (2) companies that Mr. Murray has consistently followed in electric rate cases since 2012.[97] Mr. Murray includes Evergy in his "regulated" and "mostly regulated" proxy

[97] Murray Direct, at 30.

group and the proxy group that includes only companies that have less than 10 percent of their operations exposed to non-regulated or international markets.[98]

Q: Do you agree with the proxy group on which Mr. Murray relies for his cost of equity analyses?

A: No. Mr. Murray applies no screening criteria to his first proxy group that relies on all of the companies compiled by EEI, and provides no support for the very limited screening criteria that he applies in establishing his other two proxy groups (*i.e.*, companies with more than 10.00 percent of their operations as unregulated or international; and companies that Mr. Murray has used since 2012). Mr. Murray's proxy groups are overly broad and include numerous companies that are not comparable to Evergy Metro (*e.g.*, those that are only electric transmission and distribution-only companies). Further, Mr. Murray includes Evergy in his proxy group which as I discuss in my direct testimony is not appropriate due to the circular logic that would occur.[99] However, given that Mr. Murray's ROE recommendation is not based on the results of any of his cost of equity analyses, I have limited my response to focus on those issues that cause the unreasonably low cost of equity results of Mr. Murray's multi-stage DCF and CAPM analyses.

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[98] *Id*.

[99] Bulkley Direct, at 19.

VI.C. Multi-Stage DCF Model

Q: Please summarize Mr. Murray's DCF analysis.

A: Mr. Murray utilizes a multi-stage DCF analysis using average stock prices for the period of January 1, 2026 through May 29, 2026 that includes three stages, the first two of which have defined time horizons, while the third assumes cash flows in perpetuity. In the first-stage (2026-2030), Mr. Murray uses analyst projected DPS growth from *S&P Capital IQ*. In the second-stage (2030-2040), Mr. Murray projects future dividends by relying on a linear transition of: (1) analysts' projected 5-year EPS growth rates for each proxy company as reported by S&P to his assumed long-term growth rate of 2.50 percent to 3.50 percent in 2040; and (2) the payout ratio from the ratio in 2030 based on analysts' projected EPS and DPS for each proxy company to the long-term payout ratio in 2040 based on his long-term growth rate of 2.50 percent to 3.50 percent. As noted, Mr. Murray's third-stage assumes a long-term growth rate of 2.50 percent to 3.50 percent in 2040.[100] The results of Mr. Murray's multi-stage DCF analyses are shown previously in Figure 7.

Q: Do you agree with Mr. Murray's specification of his multi-stage DCF model?

A: No. I disagree with multiple aspects of Mr. Murray's multi-stage DCF model; however, as noted previously, he does not rely on the results of his DCF model for purposes of his ROE recommendation in this proceeding. Therefore, I recommend that the Commission also not rely on his multi-stage DCF results.

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[100] Murray Direct, at 32-33.

Q: Do the results of Mr. Murray's multi-stage DCF analysis indicate that the cost of equity has increased for electric utilities since the Company's last rate proceeding?

A: Yes. While I disagree with the specification of Mr. Murray's multi-stage DCF model, the results of his analysis in the current proceeding indicate an increase in the cost of equity since the Company's last rate proceeding. Specifically, as shown in Figure 11, the results of Mr. Murray's multi-stage DCF analyses are approximately 73 to 96 basis points greater than the results of his equivalent multi-stage DCF analyses in the Company's last rate proceeding.[101]

[101] Missouri Public Service Commission, Case No. ER-2022-0129, June 8, 2022, at Schedule DM-D-4 pages 1. The results of Mr. Murray's multi-stage DCF analysis ranged from 7.00 percent to 7.34 percent, depending on which of his proxy group scenarios is utilized.

FIGURE 11: RESULTS OF MR. MURRAY'S MULTI-STAGE DCF ANALYSES IN THE CURRENT PROCEEDING AS COMPARED TO EVERY METRO'S LAST RATE PROCEEDING[102]

	Current Case	Prior Case	Basis Point Increase
Multi-Stage DCF			
2.5% Perpetual Growth Rate			
Avg. of Total Mr. Murray Proxy Group	8.00%	n/a	n/a
Avg. of Excluding Companies w/ 10% Unreg. or Intl. Operations	7.84%	n/a	n/a
Avg. of Mr. Murray Proxy Companies since 2012/2014	7.84%	n/a	n/a
3.0% Perpetual Growth Rate			
Avg. of Total Mr. Murray Proxy Group	8.11%	7.34%	0.77%
Avg. of Excluding Companies w/ 10% Unreg. or Intl. Operations	7.96%	7.23%	0.73%
Avg. of Mr. Murray Proxy Companies since 2012/2014	7.96%	7.00%	0.96%
3.5% Perpetual Growth Rate			
Avg. of Total Mr. Murray Proxy Group	8.21%	n/a	n/a
Avg. of Excluding Companies w/ 10% Unreg. or Intl. Operations	8.07%	n/a	n/a
Avg. of Mr. Murray Proxy Companies since 2012/2014	8.07%	n/a	n/a

Q: Does a multi-stage DCF model necessarily increase the accuracy of the DCF results?

A: No. Since the cost of equity is not observable, it is not possible to conclude that the results of a multi-stage DCF model are more accurate than the results of a constant growth DCF model. The multi-stage DCF model introduces additional assumptions and potential analyst bias. Specifically, the multi-stage DCF model presented by Mr. Murray in this proceeding reflects the following additional assumptions that require subjective judgment:

- Specification of the Model: In this case, Mr. Murray presents a multi-stage DCF model with three stages of growth; however, there are other forms of the multi-stage DCF model such as the two-stage DCF model with only two stages of growth.

[102] Murray Direct, at Schedule DM-D-3 through Schedule DM-D-5; Case No. ER-2022-0129, Direct Testimony of David Murray, June 8, 2022, at Schedule DM-D-4.

- Selection of the Growth Rates: Mr. Murray's multi-stage DCF model requires selecting a short-term, intermediate term and long-term growth rate.
- Duration of Each Stage of the Multi-Stage DCF Model: For his multi-stage DCF model with three stages of growth, Mr. Murray assumes first stage growth from years 1-5, second stage growth from years 6-15, and then perpetual growth thereafter.

Given the number of additional subjective assumptions required, it is reasonable to conclude that a multi-stage DCF analysis creates greater opportunity for an analyst to influence the results of the DCF model.

Q: Is there academic research that challenges the use of perpetual growth rate that is based on GDP growth as the long-term estimate of growth in the DCF model?

A. Yes. For example, *Modern Regulatory Finance* notes the following:

> One central assumption in Multi-Stage DCF models, and a potential Achilles' heel, in my view, is that utility growth rates will eventually match the growth of the macroeconomy usually measured by the growth of the Gross Domestic Product (GDP). I am not aware of any financial literature supporting the notion that utility earnings per share are expected to grow at the average growth of the economy, or GDP.
>
> As discussed in Chapter 10, based upon the wealth of empirical and academic literature that supports the superiority of analyst's forecasts as a measure of investor expectations for the use of such forecasts in the DCF model, current earnings growth forecasts are the appropriate growth rates to use in a DCF analysis. Besides, to the extent that economic trends influence growth, it is reasonable to assume that they are already captured in analysts' growth estimates for utilities.
>
> Multi-stage DCF applications appear somewhat disconnected from the assumptions of the method and the consensus expectations of investors. The investment community does not look to GDP growth over the next several decades when evaluating an investment in utility stocks, nor does it anticipate a series of discrete multi-stage decennial stages. *I am not aware of any evidence that investors evaluate the future based on the assumptions*

and data sources required to apply the two-stage or three-stage DCF model.[103]

Q: Do you agree with the projected long-term growth rate that Mr. Murray uses in his DCF analysis?

A: No. As I discussed in my response to Dr. Won, the methodology that Mr. Murray uses to estimate the long-term growth rate is not supported by the publisher of the data he relies on for purposes of his CAPM analysis.

Morningstar, the former publisher of the SBBI Yearbook that is now owned by *Kroll*, which is the data source Mr. Murray relies on in his CAPM analysis, recommends estimating the projected long-term nominal GDP growth rate by first calculating the historical growth in real GDP and then adding the expected inflation rate:

> Once the long-term expected inflation rate is estimated, the real growth rate must be determined. The growth rate in real Gross Domestic Product (GDP) for the period 1929 to 2012 was approximately 3.22 percent. Growth in real GDP (with only a few exceptions) has been reasonably stable over time; therefore, its historical performance is a good estimate of expected long-term future performance. *By combining the inflation estimate with the real growth rate estimate, a long-term estimate of nominal growth is formed*.[104]

Applying *Morningstar's* methodology, the long-term growth rate is 5.28 percent as shown in Schedule AEB-8R**,** which is substantially higher than the long-term growth rate range of 2.50 percent to 3.50 percent relied on by Mr. Murray.

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[103] Roger A. Morin, *Modern Regulatory Finance*, Public Utilities Reports, Inc., 2021, at 486 (emphasis added).

[104] *Morningstar, Inc*., Ibbotson Stocks, Bonds, Bills and Inflation, 1926-2012, 2013 Valuation Yearbook, at 52; emphasis added.

Q: Has Mr. Murray acknowledged that the long-term growth rate assumption could have a significant effect on the result of the multi-stage DCF model?

A: Yes, Mr. Murray acknowledged in his testimony on behalf of Staff in Ameren Missouri's 2014/2015 Electric Rate Case that the, "[c]ost of equity estimates using multi-stage DCF methodologies are **extremely sensitive** to the assumed perpetual growth rate."[105] Mr. Murray's reliance on a low long-term growth rate with the current stock prices of the companies in his proxy group results in a significantly understated cost of equity estimate. If Mr. Murray were to assume a long-term growth rate more consistent with the result from applying the *Morningstar* methodology, he would have obtained a much higher cost of equity estimate.

Q: Are there other assumptions that Mr. Murray has relied on to estimate his multi-stage DCF analysis that bias the results of his multi-stage DCF analysis downwards?

A: Yes. While Mr. Murray contends that EPS growth for utilities is expected to remain elevated for some time, he relies on a multi-stage DCF model that transitions to his long-term growth rate in year 15 (*i.e.,* 2040). Given the increased capex referenced by Mr. Murray related to data centers and to "grid modernization, grid hardening, and renewable generation projects", it is unreasonable to assume that investors expect the growth in utilities to converge to a perpetual growth rate in only 15 years.[106] In fact, Mr. Murray

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[105] Missouri Public Service Commission, Case No. ER-2014-0258, Staff Cost of Service Report, December 5, 2014, at 34; emphasis in original.

[106] Murray Direct, at 8

compared EIA's compound annual growth rate for purchased electricity in its 2022 Annual Energy Outlook and its 2026 Annual Energy Outlook and noted the following:

> In 2022, the Energy Information Administration's ("EIA") 2022 Annual Energy Outlook projected a compound annual growth rate ("CAGR") in purchased electricity of approximately 0.7% through 2050.4 However, in EIA's 2026 Annual Energy Outlook, the projected CAGR in purchased electricity increased to 1.3% through 2050.5 *While this difference may seem minor, this annual difference results in an approximate 18% overall increase in expected electricity use by 2050 based on 2026 estimates compared to 2022 estimates*.[107]

Therefore, by assuming that utilities begin a transition towards long term growth in year five and converge to his long-term growth rate in year 15, which is not consistent with the expectation of investors, his multi-stage DCF analysis understates the cost of equity. This is because the current electric utility stock prices relied on by Mr. Murray are only sustainable if the current long-term EPS growth are assumed to continue over the longer-term – not trend towards the low long-term growth rate assumed by Mr. Murray in year 15 (i.e., 2040). Therefore, by decreasing his second stage growth on a linear basis to his long-term growth rate in year 15, which is lower than the long-term EPS growth, Mr. Murray is assuming a decline in utility growth beginning in year six of his model, which is inconsistent with the capital expenditure plans for the industry. The result is that his multi-stage model understates the cost of equity.

Looking at it in a different way, the only way to maintain the current stock price valuations with a low long-term growth rate is to assume an extremely low cost of equity, which is

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[107] *Id.* (emphasis added)

what Mr. Murray has done, but that is inconsistent with the market's expectation of electric utility stock prices. Instead, if Mr. Murray were to assume his second stage growth rate which is based on projected EPS growth over a longer period than the next 15 years. He would have obtained a much higher cost of equity estimate.

Q: Is the transition that is built into Mr. Murray's multi-stage DCF model consistent with the analysis he presents about historical growth in the industry?

A: No. Mr. Murray noted that historical EPS growth for the electric utility industry has been well above his estimate of long-term GDP growth:

> This expanding expectation for a higher CAGR in EPS follows a couple of decades of electric utilities generally growing their EPS at a CAGR range of 4-6%.[108]

Mr. Murray acknowledges that utilities have had EPS growth in the range of 4 percent to 6 percent for "a couple of decades". As a result, it seems unreasonable for Mr. Murray to assume in his multi-stage DCF model that: (1) the growth in the industry will begin to decline in year 6 of his model; (2) the industry will converge to long-term growth rate in year 15 (i.e., 2040); and (3) the long-term growth range is 2.5 percent to 3.5 percent.

VI.D. CAPM Analysis

Q: Please summarize Mr. Murray's CAPM analysis.

A: Mr. Murray develops five separate specifications of the CAPM, which are summarized in Figure 12 below. As shown in Figure 12, Mr. Murray's CAPM analyses produce a range

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[108] Murray Direct, at 9.

of results from 6.24 percent to 9.67 percent. However, while Mr. Murray develops five separate specifications of the CAPM, for purposes of determining the cost of equity for Evergy Metro, he only considers the results of the CAPM scenarios that rely on the 10-year and 20-year Treasury bond yields as the estimate of the risk-free rate, the historical electric utility beta of 0.7 and a risk premium that falls within the range of 4 percent to 5 percent.[109] As a result, Mr. Murray concludes that his CAPM analysis supports a cost of equity in the range of 7.75 percent to 8.50 percent.[110]

FIGURE 12: SUMMARY OF MR. MURRAY'S CAPM ANALYSES[111]

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Risk-Free Rate	20-Yr. Treasury	20-Yr. Treasury	10-Yr. Treasury	10-Yr. Treasury	20-Yr. Treasury
Beta	S&P 5-Yr. Adj. Beta & Hist. Elec. Utility Beta	S&P 5-Yr. Adj. Beta & Hist. Elec. Utility	S&P 5-Yr. Adj. Beta & Hist. Elec. Utility	S&P 5-Yr. Adj. Beta & Hist. Elec. Utility	S&P 5-Yr. Adj. Beta & Hist. Elec. Utility
Market Risk Premium	DMS Implied MRP	DMS Hist. Geo. & Arith. Avg.	Damodaran Implied MRP	Damodaran Hist. Geo. & Arith. Avg.	Kroll Recommended
Cost of Equity	6.24% - 7.74%	7.76% - 9.67%	6.84% - 7.37%	7.52% - 9.27%	7.92% - 8.53%

Q: Do you agree with Mr. Murray's specification of the CAPM?

A: No. I disagree with several assumptions relied on by Mr. Murray in his CAPM analyses; however, it is important to recognize that he does not rely on the results of his CAPM model for purposes of his ROE recommendation in this proceeding. Therefore, I recommend that the Commission also not rely on his CAPM results.

[109] Murray Direct, at 43.

[110] *Id.*

[111] *Id.*, at DM-D-7.

Q: Does Mr. Murray's assumed market risk premia have similar flaws that you have identified in your response to Dr. Won?

A: Yes. Mr. Murray's estimated risk premia suffer from the same issues that I identified earlier when addressing Mr. Won, including:

- Relying on the *Kroll*, Professor Damodaran and Dimson, Marsh, and Staunton ("DMS") implied market risk premia that fail to reflect the inverse relationship between interest rates and market risk premium;
- Relying on the historical geometric and arithmetic average market risk premia from DMS and Professor Damodaran with a current interest rate as the estimate of the risk-free rate in the CAPM disregards the the relationship demonstrated between interest rates and the market risk premium;
- Relying on the historical geometric and arithmetic average market risk premia from DMS and Professor Damodaran, which means Mr. Murray is relying on historical data to estimate a forward-looking market return and market risk premium;
- Relying on the historical geometric and arithmetic average market risk premia from DMS and Professor Damodaran, which incorrectly uses the total return instead of the income-only return on the risk-free investment to estimate the historical market risk premia; and
- Relying on the historical geometric average market risk premia from DMS and Professor Damodaran, which incorrectly rely on the geometric average to estimate the historical market risk premium.

Q: Is the cost of equity range resulting from Mr. Murray's CAPM analyses reasonable?

A: No. Mr. Murray states that his CAPM analyses support a cost of equity range of 7.75 percent to 8.50 percent which is well below any authorized return for a vertically integrated electric utility in a comparable regulatory jurisdiction since at least 1980.[112] While I recognize the concern related to the circularity of relying exclusively on authorized ROEs,

[112] Excludes returns set using an approach that is different than the approach relied on by the Commission in determining the ROE (*i.e.,* ROEs set using a formula, ROEs in Arizona which relies on fair value ratemaking, returns that include a utility specific penalty.)

it is reasonable and appropriate to expect that investors consider the range of returns that have been authorized for companies of similar risk in similar market conditions in addition to the market data used in the cost of equity estimation models in setting their return expectations. Instead of concluding that regulatory commissions have consistently set the return on equity at levels that exceeded the cost of equity and using that as justification for his CAPM results as well as his multi-stage DCF results discussed above, he should have questioned whether the inputs he relied on to estimate his CAPM were reasonable.

Q: Is there recent market information demonstrating that the results produced by Mr. Murray's CAPM do not reflect the investor-required return on equity?

A: Yes. There are numerous examples of utilities that have experienced a negative market response, including credit rating downgrades and material stock price declines, related to the financial effects of a rate decision that included a below average authorized ROE at a level that is above the cost of equity range of 7.75 percent to 8.50 percent supported by Mr. Murray's CAPM results. For example, ALLETE, Inc.,[113] CenterPoint Energy Houston Electric,[114] and Pinnacle West Capital Corporation[115] each received credit rating downgrades following rate case decisions in the past few years for reasons that included

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[113] Moody's Investors Service, Credit Opinion: ALLETE, Inc. Update following downgrade, April 3, 2019, at 3.

[114] Fitch Ratings, Fitch Downgrades CenterPoint Energy Houston Electric to BBB+; Affirms CNP; Outlooks Negative, February 19, 2020.

[115] S&P Capital IQ Pro; Fitch Ratings, Fitch Downgrades Pinnacle West Capital & Arizona Public Service to 'BBB+'; Outlooks Remain Negative, October 12, 2021; Moody's Investors Service, Rating Actions: Moody's downgrades Pinnacle West to Baa1 and Arizona Public Service to A3; outlook negative, November 17, 2021.

below average authorized ROEs. The two most recent examples are in Illinois and Connecticut.

Q: Please summarize the market reaction to the decisions in Illinois.

A: In December 2023, the Illinois Commerce Commission ("ICC") rejected the multiyear grid plan proposals of Ameren Illinois Co. ("Ameren IL") and Commonwealth Edison Co. ("ComEd") and authorized lower-than-expected ROEs for both utilities. Specifically, the ICC authorized an ROE for Ameren IL of 8.72 percent and 8.905 percent for ComEd.[116] Market reactions to the ICC's decisions were universally negative and both parent companies considered shifting investment to their other utility operating subsidiaries outside of Illinois. Specifically, while the S&P 500 Index was increasing, the share prices of the parent companies of both Ameren IL and ComEd (*i.e.*, Ameren Corp. ("Ameren") and Exelon Corp., ("Exelon") respectively) each dropped more than 7 percent on December 14, 2023, after the ICC's decision, and declined again by more than 4.4 percent and 6.4 percent the following day, respectively.[117] As of the market close on January 5, 2024, Ameren and Exelon's stock prices were, respectively, 8.9 percent and 11.4 percent below where their stock prices closed on December 13, 2023, or the day immediately prior to the ICC's decisions.[118]

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[116] Allison Good, "Ameren, Exelon shares fall after Illinois regulators reject grid plans," *Platts*, December 15, 2023.

[117] *Yahoo! Finance*; stock prices for AEE and EXC from November 1, 2023, through January 5, 2024.

[118] Ameren Corp.'s stock price closed at $81.32 on December 13, 2023 and $74.05 on January 5, 2023. Exelon Corp.'s stock price closed at $41.00 on December 13, 2023 and $36.31 on January 5, 2023.

In addition, the reactions of equity analysts were universally negative and questioned whether the parents of both Ameren IL and ComEd (*i.e.*, Ameren Corp. and Exelon Corp., respectively) would shift their capital spending out of the jurisdiction as a result of the uncertainty associated with the multiyear rate plan and low authorized ROEs. For example:

- Barclays characterized the ICC's ROE authorizations as "draconian" and "one of the lowest awarded in recent memory, especially in an elevated interest rate and cost of capital environment."[119] Barclays also stated it found it hard to believe utilities "can deploy capital under the same magnitude on the updated grid plans to be filed, especially under the current proposed ROE framework."
- In its assessment of the impact on Exelon, the parent of ComEd, UBS stated that, "[t]he actions taken by the ICC today call into question, in our view, the regulatory backdrop in which EXC operates."[120]
- Wells Fargo stated that it was not mincing words, and that the ICC's orders were "onerous" and that:

  > We now view IL as one of the worst regulatory jurisdictions in the U.S. (nipping at CT's heels). We think the totality of the recent orders suggest that the regulatory balancing act between customers and investors is currently heavily skewed toward customers. As a result, we wonder if AEE & EXC will allocate capital away from IL. Keep in mind, IL represents ~25% of both AEE's & EXC's total rate base.[121]

- In its evaluation of Ameren IL, BofA Securities characterized the ICC's decision as "punitive" and stated that it was a surprise based on numerous conversations with investors that believed the ICC may authorize an ROE above the ALJ's recommendation, not substantially lower, and that the downside surprise was one of the biggest in recent memory for their regulated utility coverage.[122] While BofA Securities acknowledged that Ameren IL represents less than 20 percent of Ameren Corp.'s consolidated rate base, it will nonetheless need offsets or capital expenditures elsewhere in order to hit its earnings growth rate targets.[123]

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[119] Barclays, "AEE/EXC: Coal Stocking-Stuffer in Illinois," December 14, 2023.

[120] UBS, First Read Exelon Corp., "Negative Rate Case Outcome – Rating and PT Under Review," December 14, 2023.

[121] Wells Fargo, "The ICC Delivers a Lump of Coal for AEE & EXC," December 14, 2023.

[122] BofA Securities, Ameren Corporation, "Illinois delivers downside surprise," December 15, 2023.

[123] *Id.*

- After the decisions, Guggenheim questioned, "Is Illinois Becoming the Next Connecticut?" Guggenheim noted that investors questioned whether Illinois was "slowly becoming a CT-esque jurisdiction," and that equity and debt holders are going to be wary of Illinois as a jurisdiction going forward and that the ICC is "simply sending a negative message to investors."[124]

Also, after the ICC's decisions, Regulatory Research Associates ("RRA") lowered its rating of the Illinois regulatory jurisdiction from Average/2 to Average/3 due to the "concerning pattern of restrictive" rate actions in the state.

Q: What was the market response to recent decisions in Connecticut?

A: Based on recent rate case outcomes, the Connecticut regulatory jurisdiction is viewed by research analysts, equity analysts, and investors as among the least credit supportive jurisdictions in the United States for utilities. This jurisdiction is a recent example of where investors have clearly identified regulatory decisions as contributing to increased investment risk and have increased the cost of capital. For example, Eversource Energy and its subsidiaries, including its Connecticut-based subsidiaries Connecticut Light & Power ("CL&P"), Yankee Gas, and Aquarion Water, were downgraded by S&P in December 2024. Eversource and CL&P were downgraded one notch while Yankee Gas and Aquarion were downgraded two notches. S&P highlighted "a recent pattern of adverse regulatory developments for investor-owned utilities operating in Connecticut, which we believe has increased business risk for Eversource Energy and its Connecticut-based subsidiaries."[125]

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[124] Guggenheim, "IL: Is Illinois Becoming the Next Connecticut? To Be Determined, but Taking a Neutral Stance on the State," December 15, 2023.

[125] S&P Global Ratings, "Eversource Energy Issuer Credit Rating Lowered To 'BBB+' From 'A-'; Subsidiaries Ratings Also Lowered; Outlooks Stable," December 9, 2024.

Similarly, Avangrid's utility operating subsidiaries in Connecticut *(i.e.*, Connecticut Natural Gas Corporation ("CNG") and Southern Connecticut Gas Company ("SCG")) had their credit ratings downgraded on December 6, 2024, by S&P to BBB+ which was a two notch downgrade for CNG (*i.e.*, A to BBB+) and one notch downgrade for SCG (*i.e.*, A- to BBB+) based primarily on the downward assessment of the Connecticut regulatory environment.[126]

Finally, Avangrid has indicated that it experienced difficulties in attracting adequate subscription levels for debt issuances by its Connecticut utilities that closed in December 2023, and the bonds priced at a higher coupon rate than anticipated.[127] Specifically, as stated in a recent rate proceeding:

> The debt issuance was a private offering in which four banks served as lead placement agents and worked with the Company to market the transaction to investors in advance of pricing. On the day of pricing, November 15th, the subscriptions sought for CNG and SCG were only 65% and 50% fulfilled, respectively. This compares to the offering for one of the other Avangrid utilities, which was more than two-times subscribed. After some additional negotiation, the banks were able to get one investor to fill the remaining portions of the issuance sought for CNG and SCG and the full transaction priced on the following day; however, the credit spreads were wider than anticipated across the Avangrid Connecticut utilities, raising the financing cost by approximately 10-15 basis points. ***The bankers informed Avangrid that the difficulty in fulfilling the necessary subscription levels and the wider credit spreads attracted were caused in part by the limited***

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[126] S&P Global Ratings, Research Update: Connecticut Natural Gas Corp. And Southern Connecticut Gas Co. Downgraded to 'BBB+' on Final Rate Order, Outlook Stable, December 6, 2024.

[127] Public Utilities Regulatory Authority, Docket No. 23-11-02, Response of Connecticut Natural Gas Corporation to data request RRU-402, February 27, 2024.

interest to invest in Connecticut utilities due to concerns over the regulatory environment and potential impacts to current ratings.[128]

VI.E. "Rule of Thumb" BYRP Analysis

Q: Please summarize Mr. Murray's BYRP analysis.

A: Mr. Murray conducts a BYRP analysis that he characterizes as a simple "rule of thumb" methodology and uses this as a check on the reasonableness of his DCF and CAPM results. Mr. Murray's "rule of thumb" BYRP analysis estimates the cost of equity by adding an estimated equity risk premium to an average utility bond yield in order to estimate the cost of equity. He relies on a yield to maturity on Every Metro's recent long-term bonds of 5.75 percent, and proposes to add a "rule of thumb" risk premium of 3.00 percent to 4.00 percent, although he contends that the risk premium should be no higher than 3.00 percent since utility stocks are viewed by the investment community as bond substitutes. From this analysis, Mr. Murray concludes that his "rule of thumb" BYRP analysis supports a cost of equity 8.75 percent.[129]

Q: Is this "rule of thumb" approach employed by Mr. Murray reasonable?

A: No. Mr. Murray's "rule of thumb" does not provide any meaningful insight into the cost of equity for the Company in this proceeding given that multiple ranges for this "rule of thumb" have been offered in testimony in prior cases before the Commission. For example, in the Company's last rate proceeding, Dr. Won testified that the "rule of thumb" risk

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[128] *Id.;* (emphasis added).
[129] Murray Direct, at 43.

premium ranged from 3.50 percent to 5.50 percent.[130] In addition, Dr. Won has previously testified that the range of the "rule of thumb" market risk premium was 4.00 percent to 6.00 percent.[131] Given Mr. Murray's position that the yield to maturity on Evergy Metro's recent long-term bonds is about 5.75 percent, if Dr. Won's prior "rule of thumb" range of 4.00 percent to 6.00 percent were utilized, it would suggest that Mr. Murray's estimated cost of equity should be in the range of 9.75 percent to 11.75 percent, or an average of 10.75 percent – which is clearly not supportive of Mr. Murray's ROE recommendation and is in fact higher than the Company's requested ROE of 10.50 percent in this proceeding.

Lastly, Mr. Murray's "rule of thumb" produces material differences in the results that are inconsistent with his ROE recommendations over time. In Ameren Missouri's 2021 rate proceeding, Mr. Murray testified that his "rule of thumb" analysis suggested a cost of equity of 5.75 percent, and he recommended an ROE of 9.00 percent.[132] However, in this proceeding, Mr. Murray claims that this "rule of thumb" analysis indicates a cost of equity of 8.75 percent, while he is recommending an ROE of 9.25 percent.[133] In other words, while Mr. Murray suggests that this methodology offers a reasonableness check on his results, it yields a cost of equity result 300 basis points higher in the current proceeding

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130 Missouri Public Service Commission, Case Nos. ER-2022-0129 and ER-2022-0130, Direct Testimony of Seoung Joun Won, June 8, 2022, at 29.

131 Missouri Public Service Commission, Case No. WR-2020-0344, Staff Cost of Service Report, November 2020, at 27.

132 Missouri Public Service Commission, Case No. GR-2021-0241, Direct Testimony of David Murray, September 3, 2021, at 28-29.

133 Murray Direct, at 35-36.

than he indicated in the prior Ameren Missouri rate proceeding, yet his ROE recommendation is just 25 basis points higher.

In summary Mr. Murray's "rule of thumb" analysis is not credible, and the results of this methodology do not offer any reasonable "check" on the results of his own models, nor does this result support his ROE recommendation.

VII. BUSINESS AND REGULATORY RISKS

Q: What have Dr. Won and Mr. Murray stated regarding the Company's business and regulatory risk?

A: Dr. Won states that the Company's credit ratings are comparable to those of the average electric utilities in the U.S., and thus the Company's authorized ROE should fall within a reasonable range of the average authorized ROE of electric utilities in the U.S.[134] Mr. Murray contends that Missouri's regulatory framework is perceived as investor friendly (*i.e.*, lower business risk), noting that the jurisdiction includes the ability of the electric utilities to utilize plant in service accounting ("PISA"), the availability of securitization, and the ability to include construction work in progress ("CWIP') in rate base, all of which reduces business risk for Evergy Metro.[135]

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[134] Won Direct, at 36.

[135] Murray Direct, at 4, 62.

Q: Do you agree with these witnesses' assessments of the relative risk of the Company?

A: No. Both Dr. Won and Mr. Murray estimate the cost of equity for those proxy companies to create a range of estimated market required returns. Although Dr. Won notes that the credit rating of Evergy Metro is comparable to those of average electric utilities in the U.S., it is important to acknowledge that credit ratings are assessments of the likelihood that a company could default on its debt, whereas the topic of the current proceeding is to determine the riskiness and cost of the Company's equity, not debt. In addition, credit rating agencies consider the business risks of an individual company, they do not conduct a comparative analysis of business risks relative to the proxy group when establishing its debt credit rating. Estimating the investor-required return is based on a proxy group of risk-comparable companies, and in developing the proxy group, it is essential to balance the relative risk of the companies included in the proxy group with the overall size of the group. Therefore, it is always the case that the proxy companies do not have exactly the same risk profile as the subject company. For the purposes of establishing the appropriate ROE for Evergy Metro, it is therefore necessary to evaluate the Company's risk as compared to that of the proxy group of companies. Simply because the Company has certain mechanisms that provide the opportunity for more timely recovery of costs incurred such as PISA or CWIP in rate base, that information alone is insufficient for the purpose of setting the authorized ROE, as the existence of such mechanisms does not provide any insight into the *relative* risk of the Company as compared to the proxy group. The relevant comparison is the Company's risk *relative* to the proxy group in setting the ROE, which neither Dr. Won nor Mr. Murray have done. Furthermore, as noted in my direct testimony, Moody's noted that PISA is only viewed as "slightly positive" due to its limitations on

capital cost recovery such as only 85.00 percent a regulatory asset's value being recovered over a 20-year period.[136] A comparison of the Company's risk with or without any of the recovery mechanisms that it has available is by itself, an incomplete analysis and does not provide the Commission with any meaningful information about how the Company's ROE should compare to the range of market data that has been developed for the proxy group companies.

VIII. CAPITAL STRUCTURE

Q: Please summarize Dr. Won and Mr. Murray's positions on capital structure.

A: Dr. Won concludes that Evergy Metro's standalone capital structure is more suitable for ratemaking purposes than Evergy's capital structure given that Evergy Metro has a stand-alone capital structure that supports its individual credit rating and that Evergy's assets do not secure Evergy Metro's debt.[137] As a result, Dr. Won recommends Evergy Metro's standalone capital structure as of December 31, 2025 consisting of 51.38 percent equity and 48.62 percent long-term debt.[138] However, Dr. Won notes that he will continue to monitor the Company's capital structure through the end of the true-up period, June 30, 2026 and will update his recommended capital structure for Evergy Metro at that time.[139]

In contrast, Mr. Murray recommends a capital structure that consists of 45.00 percent equity and 55.00 percent long-term debt, which he states reflects Evergy's consolidated

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136 Bulkley Direct, at 39.
137 Won Direct, at 42-44.
138 *Id.*, at 46.
139 *Id*.

equity ratio, which has been in the range of 44.00 percent and 46.00 percent from June 30, 2024 through March 31, 2026.[140] While Mr. Murray acknowledges that the Commission has shown a preference for using a subsidiary capital structure if that subsidiary issues its own long-term debt, he nonetheless supports his recommendation on the basis that he is not confident that the utility subsidiaries' capital structures are a consequence of arms-length transactions intended to optimize the subsidiary capital structure in order to minimize costs charged to ratepayers and to preserve the subsidiaries' credit capacity by not letting the parent take borrowing capacity and lower costs of capital from its subsidiaries.[141]

Q: Is the use of a consolidated capital structure as suggested by Mr. Murray appropriate to set the Company's capital structure for ratemaking purposes in this proceeding?

No. In addition to the fact that Mr. Murray's position is counter to the standalone principle, which is appropriately applied to all ratemaking, including capital costs, the Company's proposed capital structure is consistent with the way the Company is financed, electric industry norms and is supported by Dr. Won.

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[140] Murray Direct, at 46-47.

[141] *Id.*, at 60.

Q: Please explain in more detail why the Company's proposed capital structure is appropriate.

A: First, Evergy Metro's proposed capital structure is consistent with the way in which the Company is financed, which is a threshold test used by other regulatory commissions, such as the FERC.

Second, as discussed in my direct testimony, the Company's proposed equity ratio is consistent with the average actual equity ratios of the utility operating companies in the proxy group. Specifically, as shown in Schedule AEB-12, the Company's proposed equity ratio of 52.0749 percent is well within the range of equity ratios of the proxy group and reasonably consistent with the proxy group average of 51.98 percent.

Third, the Company's proposed equity ratio is also consistent with the capital structures that have recently been authorized for vertically-integrated electric utilities. As shown in Figure 14, Evergy Metro's proposed equity ratio is well within the range of authorized equity ratios authorized for companies of comparable risk, and consistent with the average and median equity ratios since 2021. In contrast, Mr. Murray's proposed equity ratio of 45.00 percent for the Company is at the very low-end of the range of authorized equity ratios over this time period.

FIGURE 13: AUTHORIZED EQUITY RATIOS OF VERTICALLY-INTEGRATED[142][143]

Year	Average	Median	Min.	Max.
2021	51.42%	52.00%	43.25%	55.00%
2022	52.62%	52.00%	48.90%	58.22%
2023	52.74%	52.50%	48.02%	60.70%
2024	51.35%	51.93%	41.25%	56.54%
2025	51.28%	52.00%	44.00%	57.00%
2026	52.00%	52.50%	46.13%	55.00%

Q: Has Mr. Murray provided any evidence that Evergy Metro's proposed capital structure is not a consequence of an arms-length transaction?

A: No. Mr. Murray simply speculates that he has "no confidence" that Evergy Metro's proposed capital structure is not a consequence of arms-length transactions.[144]

Q: What does Mr. Murray state regarding Evergy's capital structure?

A: Mr. Murray states that ** [redacted] **[145] Mr. Murray also states that Evergy previously had an incentive to limit the amount of holding company debt until recently since the condition

[143] S&P Capital IQ Pro. The average for 2026 is based on returns authorized from January 1, 2026 through June 30, 2026.

[144] Murray Direct, at 60.

[145] *Id.*, at 56.

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related to the Earnings Review and Sharing Plan in Kansas that was specified in the settlement approved in the Merger Proceeding is no longer applicable.[146]

Q: Is Mr. Murray's capital structure proposal consistent with financial theory?

A: No. Mr. Murray's proposal ignores the important fact that the cost of capital reflects the risk of the investment, not the risk of the funds used for the investment. While the capital structure and the cost of capital to be authorized in this proceeding are intended to reflect the risks of the operations of Evergy Metro, Mr. Murray's argument suggests that the value of the equity in Evergy Metro would differ based on its parent's source of funds rather than the Company's own risks, which is illogical, since the cost of capital depends on the use to which the capital is put and the risk to which the capital is exposed, not the source of the funds.

Q: Mr. Murray claims Evergy Metro's business risk is reduced and thus allows for greater debt capacity.[147] Do you agree with Mr. Murray's conclusion?

A: No. As discussed previously, Mr. Murray has no basis for determining that Evergy Metro's business risk is reduced since he has not conducted any comparative analysis of the risk of Evergy Metro to any of his proxy groups.

Q: Does this conclude your rebuttal testimony?

A: Yes.

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[146] *Id*., at 56-57.

[147] *Id*., at 4.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Evergy Metro, Inc. d/b/a Evergy Missouri Metro's Request for Authority to Implement A General Rate Increase for Electric Service	))))	Case No. ER-2026-0143

AFFIDAVIT OF ANN E. BULKLEY

COMMONWEALTH OF MASSACHUSETTS)
) ss
COUNTY OF SUFFOLK _____)

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

1. My name is Ann E. Bulkley. I work in Boston, Massachusetts, and I am employed by The Brattle Group, Inc. as Principal.

2. Attached hereto and made a part hereof for all purposes is my Rebuttal Testimony on behalf of Evergy Missouri Metro consisting of eighty (80) pages, having been prepared in written form for introduction into evidence in the above-captioned docket.

3. I have knowledge of the matters set forth therein. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereto, are true and accurate to the best of my knowledge, information and belief.

Ann Bulkley
Ann E. Bulkley

Subscribed and sworn before me this 7 day of August 2026.

Sera M. McCarthy
Notary Public

My commission expires: 8/5/27

Sera M. McCarthy
Notary Public
COMMONWEALTH OF MASSACHUSETTS
My Commission Expires
August 5, 2027

COST OF EQUITY ANALYSES
SUMMARY OF RESULTS AS OF JUNE 30, 2026

Constant Growth DCF

	Minimum Growth Rate	Average Growth Rate	Maximum Growth Rate
Mean Results:			
30-Day Avg. Stock Price	9.99%	10.86%	11.73%
90-Day Avg. Stock Price	9.98%	10.86%	11.72%
180-Day Avg. Stock Price	10.12%	10.99%	11.85%
Average	10.03%	10.90%	11.77%
Median Results:			
30-Day Avg. Stock Price	9.88%	10.58%	11.52%
90-Day Avg. Stock Price	9.87%	10.55%	11.47%
180-Day Avg. Stock Price	10.03%	10.70%	11.60%
Average	9.93%	10.61%	11.53%

CAPM / ECAPM / Bond Yield Risk Premium

	30-Year Treasury Bond Yield		
	Current 30-Day Avg	Near-Term Projected	Longer-Term Projected
CAPM:			
Current *Value Line* Beta	11.15%	11.11%	11.07%
Long-term Avg. *Value Line* Beta	11.44%	11.41%	11.37%
ECAPM:			
Current *Value Line* Beta	11.70%	11.67%	11.64%
Long-term Avg. *Value Line* Beta	11.92%	11.90%	11.87%
Bond Yield Risk Premium	10.87%	10.80%	10.70%

CONSTANT GROWTH DCF
30-DAY AVERAGE STOCK PRICES

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Projected EPS Growth Rate	Zacks Projected EPS Growth Rate	S&P Capital IQ Projected EPS Growth Rate	Average Projected EPS Growth Rate	Cost of Equity: Minimum Growth Rate	Cost of Equity: Mean Growth Rate	Cost of Equity: Maximum Growth Rate
Alliant Energy Corporation	LNT	$2.14	$73.26	2.92%	3.03%	6.00%	7.20%	8.17%	7.12%	9.01%	10.15%	11.21%
Ameren Corporation	AEE	$3.00	$109.41	2.74%	2.85%	7.50%	9.30%	7.90%	8.23%	10.34%	11.09%	12.17%
American Electric Power Company, Inc.	AEP	$3.80	$130.03	2.92%	3.03%	5.50%	7.90%	8.59%	7.33%	8.50%	10.36%	11.64%
Avista Corporation	AVA	$1.97	$41.24	4.78%	4.90%	5.00%	4.10%	5.78%	4.96%	8.98%	9.86%	10.70%
CMS Energy Corporation	CMS	$2.28	$73.65	3.10%	3.22%	8.50%	7.10%	7.55%	7.72%	10.31%	10.93%	11.73%
DTE Energy Company	DTE	$4.66	$145.32	3.21%	3.31%	6.00%	5.90%	7.59%	6.50%	9.20%	9.81%	10.92%
Entergy Corporation	ETR	$2.56	$111.27	2.30%	2.45%	11.50%	13.30%	13.39%	12.73%	13.93%	15.18%	15.84%
IDACORP, Inc.	IDA	$3.52	$142.64	2.47%	2.55%	5.00%	7.80%	8.38%	7.06%	7.53%	9.62%	10.96%
OGE Energy Corporation	OGE	$1.70	$47.76	3.56%	3.67%	6.00%	5.60%	6.79%	6.13%	9.26%	9.80%	10.47%
Pinnacle West Capital Corporation	PNW	$3.64	$102.67	3.55%	3.66%	6.00%	5.80%	7.94%	6.58%	9.45%	10.24%	11.63%
Portland General Electric Company	POR	$2.21	$49.87	4.42%	4.57%	6.50%	7.00%	6.49%	6.66%	11.05%	11.23%	11.58%
PPL Corporation	PPL	$1.14	$35.62	3.20%	3.32%	8.00%	7.50%	7.89%	7.80%	10.82%	11.12%	11.33%
Southern Company	SO	$3.04	$93.53	3.25%	3.37%	7.00%	7.20%	8.08%	7.43%	10.36%	10.80%	11.46%
Xcel Energy Inc.	XEL	$2.37	$78.93	3.00%	3.13%	8.00%	9.40%	8.96%	8.79%	11.12%	11.92%	12.54%
Mean				3.24%	3.36%	6.89%	7.51%	8.11%	7.50%	9.99%	10.86%	11.73%
Median				3.15%	3.26%	6.25%	7.20%	7.92%	7.23%	9.88%	10.58%	11.52%

Notes:
[1] Bloomberg Professional as of June 30, 2026
[2] Bloomberg Professional 30-day average as of June 30, 2026
[3] Equals [1]/[2]
[4] Equals [3] x (1 + 0.5 x [8])
[5] Value Line
[6] Zacks
[7] S&P Capital IQ
[8] Equals average of [5], [6], [7]
[9] Equals [3] x (1 + 0.5 x (min([5], [6], [7])) + (min([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.5 x (max([5], [6], [7])) + (max([5], [6], [7])

CONSTANT GROWTH DCF
90-DAY AVERAGE STOCK PRICES

Company	Ticker	[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Value Line Projected EPS Growth Rate	[6] Zacks Projected EPS Growth Rate	[7] S&P Capital IQ Projected EPS Growth Rate	[8] Average Projected EPS Growth Rate	[9] Cost of Equity: Minimum Growth Rate	[10] Cost of Equity: Mean Growth Rate	[11] Cost of Equity: Maximum Growth Rate
Alliant Energy Corporation	LNT	$2.14	$72.10	2.97%	3.07%	6.00%	7.20%	8.17%	7.12%	9.06%	10.20%	11.26%
Ameren Corporation	AEE	$3.00	$109.76	2.73%	2.85%	7.50%	9.30%	7.90%	8.23%	10.34%	11.08%	12.16%
American Electric Power Company, Inc.	AEP	$3.80	$131.01	2.90%	3.01%	5.50%	7.90%	8.59%	7.33%	8.48%	10.34%	11.61%
Avista Corporation	AVA	$1.97	$40.46	4.87%	4.99%	5.00%	4.10%	5.78%	4.96%	9.07%	9.95%	10.79%
CMS Energy Corporation	CMS	$2.28	$75.19	3.03%	3.15%	8.50%	7.10%	7.55%	7.72%	10.24%	10.87%	11.66%
DTE Energy Company	DTE	$4.66	$145.02	3.21%	3.32%	6.00%	5.90%	7.59%	6.50%	9.21%	9.81%	10.92%
Entergy Corporation	ETR	$2.56	$110.10	2.33%	2.47%	11.50%	13.30%	13.39%	12.73%	13.96%	15.20%	15.87%
IDACORP, Inc.	IDA	$3.52	$142.69	2.47%	2.55%	5.00%	7.80%	8.38%	7.06%	7.53%	9.62%	10.95%
OGE Energy Corporation	OGE	$1.70	$47.74	3.56%	3.67%	6.00%	5.60%	6.79%	6.13%	9.26%	9.80%	10.48%
Pinnacle West Capital Corporation	PNW	$3.64	$101.19	3.60%	3.72%	6.00%	5.80%	7.94%	6.58%	9.50%	10.30%	11.68%
Portland General Electric Company	POR	$2.21	$50.70	4.35%	4.49%	6.50%	7.00%	6.49%	6.66%	10.98%	11.16%	11.50%
PPL Corporation	PPL	$1.14	$36.97	3.08%	3.20%	8.00%	7.50%	7.89%	7.80%	10.70%	11.00%	11.21%
Southern Company	SO	$3.04	$94.30	3.22%	3.34%	7.00%	7.20%	8.08%	7.43%	10.34%	10.77%	11.43%
Xcel Energy Inc.	XEL	$2.37	$79.57	2.98%	3.11%	8.00%	9.40%	8.96%	8.79%	11.10%	11.90%	12.52%
Mean				3.24%	3.35%	6.89%	7.51%	8.11%	7.50%	9.98%	10.86%	11.72%
Median				3.06%	3.18%	6.25%	7.20%	7.92%	7.23%	9.87%	10.55%	11.47%

Notes:
[1] Bloomberg Professional as of June 30, 2026
[2] Bloomberg Professional 90-day average as of June 30, 2026
[3] Equals [1]/[2]
[4] Equals [3] x (1 + 0.5 x [8])
[5] Value Line
[6] Zacks
[7] S&P Capital IQ
[8] Equals average of [5], [6], [7]
[9] Equals [3] x (1 + 0.5 x (min([5], [6], [7])) + (min([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.5 x (max([5], [6], [7])) + (max([5], [6], [7])

CONSTANT GROWTH DCF
180-DAY AVERAGE STOCK PRICES

Company	Ticker	[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Value Line Projected EPS Growth Rate	[6] Zacks Projected EPS Growth Rate	[7] S&P Capital IQ Projected EPS Growth Rate	[8] Average Projected EPS Growth Rate	[9] Cost of Equity: Minimum Growth Rate	[10] Cost of Equity: Mean Growth Rate	[11] Cost of Equity: Maximum Growth Rate
Alliant Energy Corporation	LNT	$2.14	$69.02	3.10%	3.21%	6.00%	7.20%	8.17%	7.12%	9.19%	10.34%	11.40%
Ameren Corporation	AEE	$3.00	$105.47	2.84%	2.96%	7.50%	9.30%	7.90%	8.23%	10.45%	11.19%	12.28%
American Electric Power Company, Inc.	AEP	$3.80	$124.03	3.06%	3.18%	5.50%	7.90%	8.59%	7.33%	8.65%	10.51%	11.78%
Avista Corporation	AVA	$1.97	$39.58	4.98%	5.10%	5.00%	4.10%	5.78%	4.96%	9.18%	10.06%	10.90%
CMS Energy Corporation	CMS	$2.28	$73.22	3.11%	3.23%	8.50%	7.10%	7.55%	7.72%	10.32%	10.95%	11.75%
DTE Energy Company	DTE	$4.66	$138.79	3.36%	3.47%	6.00%	5.90%	7.59%	6.50%	9.36%	9.96%	11.07%
Entergy Corporation	ETR	$2.56	$102.15	2.51%	2.67%	11.50%	13.30%	13.39%	12.73%	14.15%	15.40%	16.06%
IDACORP, Inc.	IDA	$3.52	$136.04	2.59%	2.68%	5.00%	7.80%	8.38%	7.06%	7.65%	9.74%	11.08%
OGE Energy Corporation	OGE	$1.70	$45.66	3.72%	3.84%	6.00%	5.60%	6.79%	6.13%	9.43%	9.97%	10.64%
Pinnacle West Capital Corporation	PNW	$3.64	$95.15	3.83%	3.95%	6.00%	5.80%	7.94%	6.58%	9.74%	10.53%	11.92%
Portland General Electric Company	POR	$2.21	$49.00	4.50%	4.65%	6.50%	7.00%	6.49%	6.66%	11.13%	11.31%	11.66%
PPL Corporation	PPL	$1.14	$36.12	3.16%	3.28%	8.00%	7.50%	7.89%	7.80%	10.77%	11.08%	11.28%
Southern Company	SO	$3.04	$91.45	3.32%	3.45%	7.00%	7.20%	8.08%	7.43%	10.44%	10.87%	11.54%
Xcel Energy Inc.	XEL	$2.37	$77.91	3.04%	3.18%	8.00%	9.40%	8.96%	8.79%	11.16%	11.96%	12.59%
Mean				3.37%	3.49%	6.89%	7.51%	8.11%	7.50%	10.12%	10.99%	11.85%
Median				3.13%	3.26%	6.25%	7.20%	7.92%	7.23%	10.03%	10.70%	11.60%

Notes:
[1] Bloomberg Professional as of June 30, 2026
[2] Bloomberg Professional 180-day average as of June 30, 2026
[3] Equals [1]/[2]
[4] Equals [3] x (1 + 0.5 x [8])
[5] Value Line
[6] Zacks
[7] S&P Capital IQ
[8] Equals average of [5], [6], [7]
[9] Equals [3] x (1 + 0.5 x (min([5], [6], [7])) + (min([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.5 x (max([5], [6], [7])) + (max([5], [6], [7])

CAPITAL ASSET PRICING MODEL
CURRENT RISK FREE RATE AND VALUE LINE BETA

Company	Ticker	[1] Current 30-day average of 30-year U.S. Treasury bond yield	[2] Beta	[3] Market Return	[4] Market Risk Premium	[5] Cost of Equity: CAPM	[6] Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.98%	0.80	13.36%	8.38%	11.68%	12.10%
Ameren Corporation	AEE	4.98%	0.75	13.36%	8.38%	11.27%	11.79%
American Electric Power Company, Inc.	AEP	4.98%	0.70	13.36%	8.38%	10.85%	11.47%
Avista Corporation	AVA	4.98%	0.70	13.36%	8.38%	10.85%	11.47%
CMS Energy Corporation	CMS	4.98%	0.70	13.36%	8.38%	10.85%	11.47%
DTE Energy Company	DTE	4.98%	0.75	13.36%	8.38%	11.27%	11.79%
Entergy Corporation	ETR	4.98%	0.75	13.36%	8.38%	11.27%	11.79%
IDACORP, Inc.	IDA	4.98%	0.65	13.36%	8.38%	10.43%	11.16%
OGE Energy Corporation	OGE	4.98%	0.85	13.36%	8.38%	12.10%	12.42%
Pinnacle West Capital Corporation	PNW	4.98%	0.75	13.36%	8.38%	11.27%	11.79%
Portland General Electric Company	POR	4.98%	0.75	13.36%	8.38%	11.27%	11.79%
PPL Corporation	PPL	4.98%	0.80	13.36%	8.38%	11.68%	12.10%
Southern Company	SO	4.98%	0.65	13.36%	8.38%	10.43%	11.16%
Xcel Energy Inc.	XEL	4.98%	0.70	13.36%	8.38%	10.85%	11.47%
Mean						11.15%	11.70%
Median						11.27%	11.79%

Notes:

[1] Bloomberg Professional 30-day average as of June 30, 2026

[2] Value Line

[3] Schedule AEB-6

[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 AND VALUE LINE BETA

Company	Ticker	[1] Near-term projected 30-year U.S. Treasury bond yield (Q4 2026 - Q4 2027)	[2] Beta	[3] Market Return	[4] Market Risk Premium	[5] Cost of Equity: CAPM	[6] Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.86%	0.80	13.36%	8.50%	11.66%	12.08%
Ameren Corporation	AEE	4.86%	0.75	13.36%	8.50%	11.23%	11.77%
American Electric Power Company, Inc.	AEP	4.86%	0.70	13.36%	8.50%	10.81%	11.45%
Avista Corporation	AVA	4.86%	0.70	13.36%	8.50%	10.81%	11.45%
CMS Energy Corporation	CMS	4.86%	0.70	13.36%	8.50%	10.81%	11.45%
DTE Energy Company	DTE	4.86%	0.75	13.36%	8.50%	11.23%	11.77%
Entergy Corporation	ETR	4.86%	0.75	13.36%	8.50%	11.23%	11.77%
IDACORP, Inc.	IDA	4.86%	0.65	13.36%	8.50%	10.38%	11.13%
OGE Energy Corporation	OGE	4.86%	0.85	13.36%	8.50%	12.08%	12.40%
Pinnacle West Capital Corporation	PNW	4.86%	0.75	13.36%	8.50%	11.23%	11.77%
Portland General Electric Company	POR	4.86%	0.75	13.36%	8.50%	11.23%	11.77%
PPL Corporation	PPL	4.86%	0.80	13.36%	8.50%	11.66%	12.08%
Southern Company	SO	4.86%	0.65	13.36%	8.50%	10.38%	11.13%
Xcel Energy Inc.	XEL	4.86%	0.70	13.36%	8.50%	10.81%	11.45%
Mean						11.11%	11.67%
Median						11.23%	11.77%

Notes:
[1] Blue Chip Financial Forecasts, Vol. 45, No. 7, July 1, 2026, at 9
[2] Value Line
[3] Schedule AEB-6
[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 AND VALUE LINE BETA

Company	Ticker	[1] Projected 30-year U.S. Treasury bond yield (2028 - 2032)	[2] Beta	[3] Market Return	[4] Market Risk Premium	[5] Cost of Equity: CAPM	[6] Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.70%	0.80	13.36%	8.66%	11.63%	12.06%
Ameren Corporation	AEE	4.70%	0.75	13.36%	8.66%	11.19%	11.74%
American Electric Power Company, Inc.	AEP	4.70%	0.70	13.36%	8.66%	10.76%	11.41%
Avista Corporation	AVA	4.70%	0.70	13.36%	8.66%	10.76%	11.41%
CMS Energy Corporation	CMS	4.70%	0.70	13.36%	8.66%	10.76%	11.41%
DTE Energy Company	DTE	4.70%	0.75	13.36%	8.66%	11.19%	11.74%
Entergy Corporation	ETR	4.70%	0.75	13.36%	8.66%	11.19%	11.74%
IDACORP, Inc.	IDA	4.70%	0.65	13.36%	8.66%	10.33%	11.09%
OGE Energy Corporation	OGE	4.70%	0.85	13.36%	8.66%	12.06%	12.38%
Pinnacle West Capital Corporation	PNW	4.70%	0.75	13.36%	8.66%	11.19%	11.74%
Portland General Electric Company	POR	4.70%	0.75	13.36%	8.66%	11.19%	11.74%
PPL Corporation	PPL	4.70%	0.80	13.36%	8.66%	11.63%	12.06%
Southern Company	SO	4.70%	0.65	13.36%	8.66%	10.33%	11.09%
Xcel Energy Inc.	XEL	4.70%	0.70	13.36%	8.66%	10.76%	11.41%
Mean						11.07%	11.64%
Median						11.19%	11.74%

Notes:

[1] Blue Chip Financial Forecasts, Vol. 45, No. 6, June 1, 2026, at 14

[2] Value Line

[3] Schedule AEB-6

[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 AND LONG-TERM VALUE LINE BETA

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.98%	0.78	13.36%	8.38%	11.49%	11.96%
Ameren Corporation	AEE	4.98%	0.75	13.36%	8.38%	11.30%	11.81%
American Electric Power Company, Inc.	AEP	4.98%	0.70	13.36%	8.38%	10.81%	11.45%
Avista Corporation	AVA	4.98%	0.80	13.36%	8.38%	11.68%	12.10%
CMS Energy Corporation	CMS	4.98%	0.72	13.36%	8.38%	10.98%	11.57%
DTE Energy Company	DTE	4.98%	0.79	13.36%	8.38%	11.62%	12.05%
Entergy Corporation	ETR	4.98%	0.78	13.36%	8.38%	11.52%	11.98%
IDACORP, Inc.	IDA	4.98%	0.74	13.36%	8.38%	11.20%	11.74%
OGE Energy Corporation	OGE	4.98%	0.95	13.36%	8.38%	12.91%	13.02%
Pinnacle West Capital Corporation	PNW	4.98%	0.77	13.36%	8.38%	11.43%	11.91%
Portland General Electric Company	POR	4.98%	0.78	13.36%	8.38%	11.49%	11.96%
PPL Corporation	PPL	4.98%	0.85	13.36%	8.38%	12.13%	12.44%
Southern Company	SO	4.98%	0.70	13.36%	8.38%	10.85%	11.47%
Xcel Energy Inc.	XEL	4.98%	0.69	13.36%	8.38%	10.75%	11.40%
Mean						11.44%	11.92%
Median						11.46%	11.93%

Notes:

[1] Bloomberg Professional 30-day average as of June 30, 2026

[2] Schedule AEB-5

[3] Schedule AEB-6

[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 AND LONG-TERM VALUE LINE BETA

Company	Ticker	[1] Near-term projected 30-year U.S. Treasury bond yield (Q4 2026 - Q4 2027)	[2] Beta	[3] Market Return	[4] Market Risk Premium	[5] Cost of Equity: CAPM	[6] Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.86%	0.78	13.36%	8.50%	11.46%	11.94%
Ameren Corporation	AEE	4.86%	0.75	13.36%	8.50%	11.27%	11.79%
American Electric Power Company, Inc.	AEP	4.86%	0.70	13.36%	8.50%	10.78%	11.42%
Avista Corporation	AVA	4.86%	0.80	13.36%	8.50%	11.66%	12.08%
CMS Energy Corporation	CMS	4.86%	0.72	13.36%	8.50%	10.94%	11.54%
DTE Energy Company	DTE	4.86%	0.79	13.36%	8.50%	11.59%	12.03%
Entergy Corporation	ETR	4.86%	0.78	13.36%	8.50%	11.50%	11.96%
IDACORP, Inc.	IDA	4.86%	0.74	13.36%	8.50%	11.17%	11.72%
OGE Energy Corporation	OGE	4.86%	0.95	13.36%	8.50%	12.90%	13.02%
Pinnacle West Capital Corporation	PNW	4.86%	0.77	13.36%	8.50%	11.40%	11.89%
Portland General Electric Company	POR	4.86%	0.78	13.36%	8.50%	11.46%	11.94%
PPL Corporation	PPL	4.86%	0.85	13.36%	8.50%	12.12%	12.43%
Southern Company	SO	4.86%	0.70	13.36%	8.50%	10.81%	11.45%
Xcel Energy Inc.	XEL	4.86%	0.69	13.36%	8.50%	10.71%	11.37%
Mean						11.41%	11.90%
Median						11.43%	11.91%

Notes:
[1] Blue Chip Financial Forecasts, Vol. 45, No. 7, July 1, 2026, at 9
[2] Schedule AEB-5
[3] Schedule AEB-6
[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 AND LONG-TERM VALUE LINE BETA

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2028 - 2032)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.70%	0.78	13.36%	8.66%	11.43%	11.91%
Ameren Corporation	AEE	4.70%	0.75	13.36%	8.66%	11.23%	11.76%
American Electric Power Company, Inc.	AEP	4.70%	0.70	13.36%	8.66%	10.73%	11.39%
Avista Corporation	AVA	4.70%	0.80	13.36%	8.66%	11.63%	12.06%
CMS Energy Corporation	CMS	4.70%	0.72	13.36%	8.66%	10.89%	11.51%
DTE Energy Company	DTE	4.70%	0.79	13.36%	8.66%	11.56%	12.01%
Entergy Corporation	ETR	4.70%	0.78	13.36%	8.66%	11.46%	11.94%
IDACORP, Inc.	IDA	4.70%	0.74	13.36%	8.66%	11.13%	11.69%
OGE Energy Corporation	OGE	4.70%	0.95	13.36%	8.66%	12.89%	13.01%
Pinnacle West Capital Corporation	PNW	4.70%	0.77	13.36%	8.66%	11.36%	11.86%
Portland General Electric Company	POR	4.70%	0.78	13.36%	8.66%	11.43%	11.91%
PPL Corporation	PPL	4.70%	0.85	13.36%	8.66%	12.09%	12.41%
Southern Company	SO	4.70%	0.70	13.36%	8.66%	10.76%	11.41%
Xcel Energy Inc.	XEL	4.70%	0.69	13.36%	8.66%	10.66%	11.34%
Mean						11.37%	11.87%
Median						11.39%	11.89%

Notes:

[1] Blue Chip Financial Forecasts, Vol. 45, No. 6, June 1, 2026, at 14

[2] Schedule AEB-5

[3] Schedule AEB-6

[4] Equals [3]-[1]

[5] Equals [1] + [2] x [4]

[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

HISTORICAL VALUE LINE BETA

Company	Ticker	[1] 2013	[2] 2014	[3] 2015	[4] 2016	[5] 2017	[6] 2018	[7] 2019	[8] 2020	[9] 2021	[10] 2022	[11] 2023	[12] 2024	[13] 2025	[14] Average
Alliant Energy Corporation	LNT	0.75	0.80	0.80	0.70	0.70	0.60	0.60	0.85	0.85	0.85	0.90	0.90	0.80	0.78
Ameren Corporation	AEE	0.80	0.75	0.75	0.65	0.70	0.55	0.55	0.85	0.80	0.85	0.90	0.90	0.75	0.75
American Electric Power Company, Inc.	AEP	0.70	0.70	0.70	0.65	0.65	0.55	0.55	0.75	0.75	0.75	0.80	0.80	0.70	0.70
Avista Corporation	AVA	0.75	0.80	0.80	0.70	0.75	0.65	0.60	0.95	0.95	0.90	0.90	0.95	0.70	0.80
CMS Energy Corporation	CMS	0.70	0.70	0.75	0.65	0.65	0.55	0.50	0.80	0.80	0.80	0.85	0.85	0.70	0.72
DTE Energy Company	DTE	0.80	0.75	0.75	0.65	0.65	0.55	0.55	0.95	0.95	0.95	0.95	1.00	0.80	0.79
Entergy Corporation	ETR	0.70	0.70	0.70	0.65	0.65	0.60	0.60	0.95	0.95	0.95	0.95	1.00	0.75	0.78
IDACORP, Inc.	IDA	0.75	0.80	0.80	0.75	0.70	0.55	0.55	0.80	0.80	0.80	0.85	0.85	0.65	0.74
OGE Energy Corporation	OGE	0.85	0.90	0.95	0.90	0.95	0.85	0.75	1.10	1.05	1.00	1.05	1.10	0.85	0.95
Pinnacle West Capital Corporation	PNW	0.75	0.70	0.75	0.70	0.70	0.55	0.50	0.90	0.90	0.90	0.95	0.95	0.75	0.77
Portland General Electric Company	POR	0.75	0.80	0.80	0.70	0.70	0.60	0.55	0.85	0.90	0.85	0.90	0.95	0.75	0.78
PPL Corporation	PPL	0.65	0.60	0.70	0.70	0.75	0.70	0.70	1.15	1.10	1.05	1.10	1.10	0.80	0.85
Southern Company	SO	0.55	0.55	0.60	0.55	0.55	0.50	0.50	0.90	0.95	0.90	0.95	0.95	0.65	0.70
Xcel Energy Inc.	XEL	0.65	0.65	0.65	0.60	0.60	0.50	0.50	0.80	0.80	0.80	0.85	0.85	0.70	0.69
Mean		0.73	0.73	0.75	0.68	0.69	0.59	0.57	0.90	0.90	0.88	0.92	0.94	0.74	0.77

Notes:

[1] Value Line, dated December 26, 2013.
[2] Value Line, dated December 31, 2014.
[3] Value Line, dated December 30, 2015.
[4] Value Line, dated December 29, 2016.
[5] Value Line, dated December 28, 2017.
[6] Value Line, dated December 27, 2018.
[7] Value Line, dated December 26, 2019.
[8] Value Line, dated December 30, 2020.
[9] Value Line, dated December 29, 2021.
[10] Value Line, dated December 30, 2022.
[11] Value Line, Dated December 29, 2023.
[12] Value Line, Dated December 27, 2024.
[13] Value Line, Dated December 26, 2025.

MARKET RISK PREMIUM DERIVED FROM S&P 500 INDEX

[1] Estimate of the S&P 500 Dividend Yield	1.27%
[2] Estimate of the S&P 500 Growth Rate	12.01%
[3] S&P 500 Estimated Required Market Return	13.36%

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Estimated Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Avg. Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Agilent Technologies Inc	A	282.43194	132.83	37,515.43	0.08%	0.77%	0.00%	8.44%	0.01%
Apple Inc	AAPL	14687.356	289.36	4,249,933.33	8.60%	0.37%	0.03%	12.15%	1.04%
AbbVie Inc	ABBV	1766.7928	251.64	444,595.75	0.90%	2.75%	0.02%	16.43%	0.15%
Airbnb Inc	ABNB	417.93023	143.1	59,805.82	0.12%			15.74%	0.02%
Abbott Laboratories	ABT	1741.8124	90.74	158,052.06	0.32%	2.78%	0.01%	8.40%	0.03%
Arch Capital Group Ltd	ACGL	349.38959	97.06	33,911.75	0.07%			4.33%	0.00%
Accenture PLC	ACN	613.93927	124.44	76,398.60	0.15%	5.24%	0.01%	5.50%	0.01%
Adobe Inc	ADBE	397.5	205.02	81,495.45	0.16%			16.00%	0.03%
Analog Devices Inc	ADI	487.08704	397.17	193,456.36		1.11%		21.52%	
Archer-Daniels-Midland Co	ADM	481.95653	76.4	36,821.48	0.07%	2.72%	0.00%	7.00%	0.01%
Automatic Data Processing Inc	ADP	399.73428	223.95	89,520.49	0.18%	3.04%	0.01%	6.50%	0.01%
Autodesk Inc	ADSK	211	194.42	41,022.62	0.08%			15.61%	0.01%
Ameren Corp	AEE	276.7	113.04	31,278.17	0.06%	2.65%	0.00%	7.85%	0.00%
American Electric Power Co Inc	AEP	567.64834	136.81	77,659.97	0.16%	2.78%	0.00%	6.77%	0.01%
AES Corp/The	AES	713.15771	14.66	10,454.89		4.80%		30.00%	
Aflac Inc	AFL	508.9849	117.25	59,678.48	0.12%	2.08%	0.00%	7.53%	0.01%
American International Group Inc	AIG	530.20622	74.53	39,516.27	0.08%	2.68%	0.00%	9.05%	0.01%
Assurant Inc	AIZ	49.54764	268.53	13,305.03	0.03%	1.31%	0.00%	9.50%	0.00%
Arthur J Gallagher & Co	AJG	256.9	229.57	58,976.53	0.12%	1.22%	0.00%	15.50%	0.02%
Akamai Technologies Inc	AKAM	145.38545	118.21	17,186.01	0.03%			8.15%	0.00%
Albemarle Corp	ALB	117.93465	135.03	15,924.72		1.20%		91.03%	
Align Technology Inc	ALGN	71.61813	168.66	12,079.11	0.02%			11.15%	0.00%
Allstate Corp/The	ALL	257.42093	237.94	61,250.74	0.12%	1.82%	0.00%	9.77%	0.01%
Allegion plc	ALLE	85.93586	140.49	12,073.13	0.02%	1.57%	0.00%	6.01%	0.00%
Applied Materials Inc	AMAT	793.95943	723	574,032.67	1.16%	0.29%	0.00%	18.76%	0.22%
Amcor PLC	AMCR	462.34569	43.35	20,042.69	0.04%	6.00%	0.00%	7.92%	0.00%
Advanced Micro Devices Inc	AMD	1630.6006	580.91	947,232.22				42.92%	
AMETEK Inc	AME	229.203	241.94	55,453.37	0.11%	0.56%	0.00%	8.79%	0.01%
Amgen Inc	AMGN	539.70827	362.12	195,439.16	0.40%	2.78%	0.01%	5.31%	0.02%
Ameriprise Financial Inc	AMP	90.68967	458.76	41,604.79	0.08%	1.48%	0.00%	11.56%	0.01%
American Tower Corp	AMT	465.89307	163.57	76,206.13	0.15%	4.38%	0.01%	3.13%	0.00%
Amazon.com Inc	AMZN	10757.109	238.34	2,563,849.46	5.19%			17.82%	0.92%
Arista Networks Inc	ANET	1259.2026	169.88	213,913.34	0.43%			16.43%	0.07%
Aon PLC	AON	213.57695	331.69	70,841.34	0.14%	0.99%	0.00%	8.49%	0.01%
A O Smith Corp	AOS	111.96547	62.72	7,022.47	0.01%	2.30%	0.00%	7.50%	0.00%
APA Corp	APA	353.47023	32.57	11,512.53	0.02%	3.07%	0.00%	8.50%	0.00%
Air Products and Chemicals Inc	APD	222.68069	291.37	64,882.45	0.13%	2.48%	0.00%	6.18%	0.01%
Amphenol Corp	APH	1230.2345	176.32	216,914.94		0.57%		23.76%	
Apollo Global Management Inc	APO	576.51751	118.31	68,207.79	0.14%	1.90%	0.00%	13.06%	0.02%
AppLovin Corp	APP	305.732	515.23	157,522.30				41.55%	
Aptiv PLC	APTV	211.62053	61.38	12,989.27	0.03%			13.56%	0.00%
Alexandria Real Estate Equities Inc	ARE	174.26948	52.85	9,210.14		5.45%		-7.88%	
Ares Management Corp	ARES	222.02842	111.31	24,713.98		4.85%		25.37%	
Atmos Energy Corp	ATO	166.91982	172.27	28,755.28	0.06%	2.32%	0.00%	8.50%	0.00%
AvalonBay Communities Inc	AVB	139.11207	188.69	26,249.06	0.05%	3.77%	0.00%	4.59%	0.00%
Broadcom Inc	AVGO	4757.5802	377.75	1,797,175.92		0.69%		37.84%	
Avery Dennison Corp	AVY	76.49039	162.35	12,418.21	0.03%	2.46%	0.00%	4.88%	0.00%
American Water Works Co Inc	AWK	195.28052	131.58	25,695.01	0.05%	2.72%	0.00%	7.28%	0.00%
Axon Enterprise Inc	AXON	80.60208	560.61	45,186.33				27.33%	
American Express Co	AXP	682.32644	338.25	230,796.92	0.47%	1.12%	0.01%	12.88%	0.06%
AutoZone Inc	AZO	16.32535	3195.94	52,174.84	0.11%			9.85%	0.01%
Boeing Co/The	BA	788.30233	216.47	170,643.81					
Bank of America Corp	BAC	7096.5907	56.98	404,363.74	0.82%	1.97%	0.02%	11.00%	0.09%
Ball Corp	BALL	266.24651	62.4	16,613.78	0.03%	1.28%	0.00%	12.31%	0.00%
Baxter International Inc	BAX	516.25251	21.32	11,006.50		0.19%		-2.15%	
Best Buy Co Inc	BBY	210.76713	75.88	15,993.01	0.03%	5.06%	0.00%	3.58%	0.00%
Becton Dickinson & Co	BDX	275.54043	151.33	41,697.53	0.08%	2.78%	0.00%	0.76%	0.00%
Franklin Resources Inc	BEN	519.63716	33.27	17,288.33	0.03%	3.97%	0.00%	9.18%	0.00%

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Estimated Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Avg. Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Brown-Forman Corp	BF/B	290.38342	26.65	7,738.72	0.02%	3.47%	0.00%	3.85%	0.00%
Bunge Global SA	BG	194.01812	106.73	20,707.55	0.04%	2.70%	0.00%	3.00%	0.00%
Biogen Inc	BIIB	147.63712	216.06	31,898.48	0.06%			3.49%	0.00%
Booking Holdings Inc	BKNG	774.87844	178.24	138,114.33	0.28%	0.94%	0.00%	14.02%	0.04%
Baker Hughes Co	BKR	992.0687	55.5	55,059.81	0.11%	1.66%	0.00%	12.09%	0.01%
Builders FirstSource Inc	BLDR	107.55988	89.48	9,624.46	0.02%			3.64%	0.00%
Blackrock Inc	BLK	155.23399	961.56	149,266.80	0.30%	2.38%	0.01%	12.02%	0.04%
Bristol-Myers Squibb Co	BMY	2042.0713	57.62	117,664.15		4.37%		26.00%	
Bank of New York Mellon Corp/The	BNY	686.37905	144.61	99,257.27	0.20%	1.47%	0.00%	14.05%	0.03%
Broadridge Financial Solutions Inc	BR	115.6583	136.95	15,839.40	0.03%	2.85%	0.00%	9.50%	0.00%
Berkshire Hathaway Inc	BRK/B	1398.3087	500.39	699,699.68	1.42%			9.50%	0.13%
Brown & Brown Inc	BRO	338.94784	64.15	21,743.50	0.04%	1.03%	0.00%	7.16%	0.00%
Boston Scientific Corp	BSX	1486.3552	42.68	63,437.64	0.13%			9.31%	0.01%
Blackstone Inc	BX	742.87981	117.67	87,414.67	0.18%	3.94%	0.01%	19.00%	0.03%
BXP Inc	BXP	159.47739	66.31	10,574.95	0.02%	4.22%	0.00%	0.67%	0.00%
Citigroup Inc	C	1705.577	139.96	238,712.55		1.71%		21.31%	
Cardinal Health Inc	CAH	234.20586	237.044	55,517.16	0.11%	0.87%	0.00%	7.86%	0.01%
Carrier Global Corp	CARR	830.58042	73.35	60,923.07	0.12%	1.31%	0.00%	11.70%	0.01%
Casey's General Stores Inc	CASY	37.00491	794.79	29,411.13	0.06%	0.33%	0.00%	13.37%	0.01%
Caterpillar Inc	CAT	460.59198	1064.9	490,484.40		0.61%		20.55%	
Chubb Ltd	CB	387.86011	340.74	132,159.45	0.27%	1.20%	0.00%	5.81%	0.02%
Cboe Global Markets Inc	CBOE	104.65378	242.67	25,396.33	0.05%	1.19%	0.00%	13.14%	0.01%
CBRE Group Inc	CBRE	292.81658	134.69	39,439.47	0.08%			13.00%	0.01%
Crown Castle Inc	CCI	436.45198	75.73	33,052.51		5.61%		27.60%	
Carnival Corp Ltd	CCL	1369.6491	28.57	39,130.88	0.08%	2.10%	0.00%	7.16%	0.01%
Cadence Design Systems Inc	CDNS	275.816	375.32	103,519.26	0.21%			15.53%	0.03%
CDW Corp/DE	CDW	127.75345	140.64	17,967.25	0.04%	1.79%	0.00%	9.70%	0.00%
Constellation Energy Corp	CEG	362.29467	248.37	89,983.13	0.18%	0.69%	0.00%	14.12%	0.03%
CF Industries Holdings Inc	CF	153.62927	108.26	16,631.90	0.03%	1.85%	0.00%	5.80%	0.00%
Citizens Financial Group Inc	CFG	422.88194	70.07	29,631.34		2.63%		24.42%	
Church & Dwight Co Inc	CHD	236.9436	96.88	22,955.10	0.05%	1.27%	0.00%	11.52%	0.01%
CH Robinson Worldwide Inc	CHRW	117.85041	188.34	22,195.95	0.04%	1.34%	0.00%	12.47%	0.01%
Charter Communications Inc	CHTR	122.98454	142.21	17,489.63	0.04%			14.39%	0.01%
Cigna Group/The	CI	264.5324	275.68	72,926.29	0.15%	2.26%	0.00%	7.40%	0.01%
Ciena Corp	CIEN	141.55292	490.56	69,440.20				39.53%	
Cincinnati Financial Corp	CINF	155.6862	185.14	28,823.74	0.06%	2.03%	0.00%	17.18%	0.01%
Colgate-Palmolive Co	CL	800.18931	91.68	73,361.36	0.15%	2.31%	0.00%	7.62%	0.01%
Clorox Co/The	CLX	120.92135	95.44	11,540.73	0.02%	5.20%	0.00%	4.01%	0.00%
Comcast Corp	CMCSA	3562.7842	24.22	86,290.63	0.17%	5.45%	0.01%	0.30%	0.00%
CME Group Inc	CME	362.35621	220.83	80,019.12	0.16%	2.35%	0.00%	6.51%	0.01%
Chipotle Mexican Grill Inc	CMG	1282.734	34	43,612.96	0.09%			8.85%	0.01%
Cummins Inc	CMI	137.98907	713.21	98,415.18	0.20%	1.12%	0.00%	16.22%	0.03%
CMS Energy Corp	CMS	308.9196	76.5	23,632.35	0.05%	2.98%	0.00%	7.83%	0.00%
Centene Corp	CNC	493.797	64.19	31,696.83				28.03%	
CenterPoint Energy Inc	CNP	652.87158	44.04	28,752.46	0.06%	2.09%	0.00%	9.18%	0.01%
Capital One Financial Corp	COF	622.29278	200.62	124,844.38	0.25%	1.60%	0.00%	10.51%	0.03%
Coherent Corp	COHR	195.63932	394.47	77,173.84				30.15%	
Coinbase Global Inc	COIN	222.42688	146.19	32,516.59	0.07%			17.38%	0.01%
Cooper Cos Inc/The	COO	195.03063	71.71	13,985.65	0.03%			13.13%	0.00%
ConocoPhillips	COP	1218.853	103.96	126,711.96	0.26%	3.23%	0.01%	9.00%	0.02%
Cencora Inc	COR	194.56106	282.98	55,056.89	0.11%	0.85%	0.00%	6.32%	0.01%
Costco Wholesale Corp	COST	443.4788	935.47	414,861.11	0.84%	0.63%	0.01%	9.28%	0.08%
Corpay Inc	CPAY	65.36192	333.27	21,783.17	0.04%			10.77%	0.00%
Copart Inc	CPRT	925.81148	28.19	26,098.63	0.05%			14.00%	0.01%
Camden Property Trust	CPT	100.51973	114.49	11,508.50	0.02%	3.70%	0.00%	3.98%	0.00%
CRH PLC	CRH	668.20022	107	71,497.42	0.14%	1.46%	0.00%	8.90%	0.01%
Charles River Laboratories International Inc	CRL	48.16773	226.79	10,923.96	0.02%			1.10%	0.00%
Salesforce Inc	CRM	819	156.66	128,304.54	0.26%	1.12%	0.00%	13.92%	0.04%
Crowdstrike Holdings Inc	CRWD	254.56482	763.14	194,268.60				20.83%	
Cisco Systems Inc	CSCO	3941.4347	117.46	462,960.92	0.94%	1.43%	0.01%	16.05%	0.15%
CoStar Group Inc	CSGP	408.35572	28.32	11,564.63				37.06%	
CSX Corp	CSX	1858.1389	47.53	88,317.34	0.18%	1.18%	0.00%	11.28%	0.02%
Cintas Corp	CTAS	400.08712	170.08	68,046.82	0.14%	1.06%	0.00%	17.65%	0.02%
Cognizant Technology Solutions Corp	CTSH	473.86947	38.73	18,352.96	0.04%	3.41%	0.00%	8.50%	0.00%
Corteva Inc	CTVA	671.3565	84.69	56,857.18	0.11%	0.85%	0.00%	11.48%	0.01%
Carvana Co	CVNA	716.28839	65.82	47,146.10	0.10%			6.38%	0.01%
CVS Health Corp	CVS	1275.9273	103.45	131,994.68	0.27%	2.57%	0.01%	11.72%	0.03%

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Chevron Corp	CVX	1991.5977	165.76	330,127.24	0.67%	4.30%	0.03%	19.24%	0.13%
Dominion Energy Inc	D	879.4554	68.29	60,058.01	0.12%	3.91%	0.00%	4.55%	0.01%
Delta Air Lines Inc	DAL	656.99434	93.66	61,534.09	0.12%	0.92%	0.00%	7.73%	0.01%
DoorDash Inc	DASH	411.33661	184.53	75,903.94				24.71%	
DuPont de Nemours Inc	DD	136.64044	135.64	18,533.91	0.04%	1.77%	0.00%	14.55%	0.01%
Datadog Inc	DDOG	330.8258	260.36	86,133.81	0.17%			15.33%	0.03%
Deere & Co	DE	269.93743	634.33	171,229.41	0.35%	1.02%	0.00%	9.16%	0.03%
Deckers Outdoor Corp	DECK	138.88096	99.29	13,789.49	0.03%			11.15%	0.00%
Dell Technologies Inc	DELL	325.04669	431.46	140,244.64		0.58%		22.10%	
Dollar General Corp	DG	220.58665	115.11	25,391.73	0.05%	2.05%	0.00%	9.40%	0.00%
Quest Diagnostics Inc	DGX	110.69643	211.95	23,462.11	0.05%	1.62%	0.00%	9.02%	0.00%
DR Horton Inc	DHI	283.57961	162.88	46,189.45	0.09%	1.11%	0.00%	7.62%	0.01%
Danaher Corp	DHR	707.77063	190.48	134,816.15	0.27%	0.84%	0.00%	8.37%	0.02%
Walt Disney Co/The	DIS	1736.5114	96.25	167,139.22	0.34%	1.56%	0.01%	8.34%	0.03%
Digital Realty Trust Inc	DLR	351.40607	179.58	63,105.50	0.13%	2.72%	0.00%	4.82%	0.01%
Dollar Tree Inc	DLTR	192.17459	120.95	23,243.52	0.05%			14.53%	0.01%
Healthpeak Properties Inc	DOC	689.4197	21.4	14,753.58	0.03%	5.70%	0.00%	6.34%	0.00%
Dover Corp	DOV	134.66141	224.28	30,201.86	0.06%	0.93%	0.00%	19.09%	0.01%
Dow Inc	DOW	720.74144	27.36	19,719.49		5.12%		30.38%	
Domino's Pizza Inc	DPZ	33.26187	296.04	9,846.84	0.02%	2.69%	0.00%	8.83%	0.00%
Darden Restaurants Inc	DRI	114.535	206.01	23,595.36	0.05%	3.15%	0.00%	12.40%	0.01%
DTE Energy Co	DTE	208.02812	152.37	31,697.24	0.06%	3.06%	0.00%	10.35%	0.01%
Duke Energy Corp	DUK	778.21667	126.58	98,506.67	0.20%	3.37%	0.01%	8.30%	0.02%
DaVita Inc	DVA	64.2	222.48	14,283.22	0.03%			15.91%	0.00%
Devon Energy Corp	DVN	1153.4031	41.32	47,658.62	0.10%	3.10%	0.00%	6.50%	0.01%
Dexcom Inc	DXCM	385.87298	67.35	25,988.55	0.05%			15.56%	0.01%
Electronic Arts Inc	EA	250.75148	205.04	51,414.08		0.37%		-2.00%	
eBay Inc	EBAY	444	111.75	49,617.00	0.10%	1.11%	0.00%	13.66%	0.01%
EchoStar Corp	ECHO	158.46502	101.5	16,084.20	0.03%			9.50%	0.00%
Ecolab Inc	ECL	281.4375	278.61	78,411.30	0.16%	1.05%	0.00%	15.61%	0.02%
Consolidated Edison Inc	ED	368.52971	110.63	40,770.44	0.08%	3.21%	0.00%	6.75%	0.01%
Equifax Inc	EFX	119.07241	158.72	18,899.17	0.04%	1.41%	0.00%	12.29%	0.00%
Everest Group Ltd	EG	39.5716	357.23	14,136.16	0.03%	2.24%	0.00%	10.69%	0.00%
Edison International	EIX	384.79394	74.45	28,647.91	0.06%	4.71%	0.00%	5.40%	0.00%
Estee Lauder Cos Inc/The	EL	247.28757	78.95	19,523.35		1.77%		22.39%	
Elevance Health Inc	ELV	217.16238	386.73	83,983.21	0.17%	1.78%	0.00%	6.15%	0.01%
EMCOR Group Inc	EME	44.44028	829.88	36,880.10	0.07%	0.19%	0.00%	5.50%	0.00%
Emerson Electric Co	EMR	560.1	143.15	80,178.32	0.16%	1.55%	0.00%	12.22%	0.02%
EOG Resources Inc	EOG	532.62853	129.73	69,097.90	0.14%	3.14%	0.00%	12.50%	0.02%
Equinix Inc	EQIX	98.62425	1042.39	102,804.93	0.21%	1.98%	0.00%	12.76%	0.03%
Equity Residential	EQR	374.67174	67.93	25,451.45	0.05%	4.14%	0.00%	6.04%	0.00%
EQT Corp	EQT	625.478	53.17	33,256.67	0.07%	1.24%	0.00%	11.50%	0.01%
Erie Indemnity Co	ERIE	46.18907	239.75	11,073.83	0.02%	2.44%	0.00%	4.00%	0.00%
Eversource Energy	ES	376.08003	72.27	27,179.30	0.05%	4.36%	0.00%	8.86%	0.00%
Essex Property Trust Inc	ESS	64.26287	291.59	18,738.41	0.04%	3.55%	0.00%	7.97%	0.00%
Eaton Corp PLC	ETN	388.3	426.12	165,462.40	0.33%	1.03%	0.00%	9.44%	0.03%
Entergy Corp	ETR	477.13464	114.86	54,803.68	0.11%	2.23%	0.00%	9.57%	0.01%
Evergy Inc	EVRG	229.74594	86.43	19,856.94	0.04%	3.22%	0.00%	11.04%	0.00%
Edwards Lifesciences Corp	EW	575.8	90.46	52,086.87	0.11%			7.78%	0.01%
Exelon Corp	EXC	1023.1751	46.62	47,700.42	0.10%	3.60%	0.00%	5.60%	0.01%
Expand Energy Corp	EXE	239.22885	91.19	21,815.28	0.04%	2.52%	0.00%	8.50%	0.00%
Expeditors International of Washington Inc	EXPD	130.79113	162.98	21,316.34	0.04%	0.99%	0.00%	8.57%	0.00%
Expedia Group Inc	EXPE	114.49863	255.88	29,297.91	0.06%	0.75%	0.00%	19.79%	0.01%
Extra Space Storage Inc	EXR	211.26094	145.3	30,696.21	0.06%	4.46%	0.00%	3.09%	0.00%
Ford Motor Co	F	3913.8406	13.9	54,402.38		4.32%		23.67%	
Diamondback Energy Inc	FANG	281.3133	175.78	49,449.25		2.50%		-0.50%	
Fastenal Co	FAST	1148.0351	48.03	55,140.12	0.11%	2.00%	0.00%	11.12%	0.01%
Freeport-McMoRan Inc	FCX	1437.5599	62.89	90,408.14	0.18%	0.95%	0.00%	15.29%	0.03%
FactSet Research Systems Inc	FDS	36.43113	230.08	8,382.07	0.02%	2.02%	0.00%	6.66%	0.00%
FedEx Corp	FDX	238.60676	313.13	74,714.93	0.15%	1.56%	0.00%	14.04%	0.02%
Fedex Freight Holding Co Inc	FDXF	148.90616	151	22,484.83	0.05%			6.50%	0.00%
FirstEnergy Corp	FE	578.43118	47.54	27,498.62	0.06%	3.91%	0.00%	7.06%	0.00%
F5 Inc	FFIV	56.41925	415.96	23,468.15	0.05%			6.67%	0.00%
Fair Isaac Corp	FICO	23.19091	1194.78	27,708.04	0.06%			18.38%	0.01%
Fidelity National Information Services Inc	FIS	516.87915	38.88	20,096.26	0.04%	4.53%	0.00%	8.50%	0.00%
Fiserv Inc	FISV	533.25399	49.05	26,156.11	0.05%			18.00%	0.01%
Fifth Third Bancorp	FITB	906.31155	56.37	51,088.78	0.10%	2.84%	0.00%	10.00%	0.01%

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Comfort Systems USA Inc	FIX	35.20242	1981.95	69,769.44	0.14%	0.16%	0.00%	5.50%	0.01%
Flex Ltd	FLEX	366.38955	162.07	59,380.75				28.63%	
Fox Corp	FOX	220.70512	46.84	10,337.83	0.02%	1.20%	0.00%	18.34%	0.00%
Fox Corp	FOXA	199.4812	52.16	10,404.94	0.02%	1.07%	0.00%	6.17%	0.00%
Federal Realty Investment Trust	FRT	86.3892	122.31	10,566.26	0.02%	3.70%	0.00%	6.80%	0.00%
First Solar Inc	FSLR	107.45336	235.96	25,354.69	0.05%			2.00%	0.00%
Fortinet Inc	FTNT	732.64839	153.62	112,549.45				20.31%	
Fortive Corp	FTV	304.86102	61.09	18,623.96	0.04%	0.39%	0.00%	12.50%	0.00%
General Dynamics Corp	GD	270.43019	354.24	95,797.19	0.19%	1.80%	0.00%	6.50%	0.01%
GoDaddy Inc	GDDY	132.40985	84.88	11,238.95	0.02%			10.00%	0.00%
General Electric Co	GE	1043.3372	373.73	389,926.43	0.79%	0.50%	0.00%	10.34%	0.08%
GE HealthCare Technologies Inc	GEHC	454.89179	64.01	29,117.62	0.06%	0.22%	0.00%	13.02%	0.01%
Gen Digital Inc	GEN	602.43385	24.89	14,994.58	0.03%	2.01%	0.00%	7.50%	0.00%
GE Vernova Inc	GEV	268.72	1174.86	315,708.38		0.17%		37.65%	
Gilead Sciences Inc	GILD	1241.5699	126.34	156,859.94	0.32%	2.60%	0.01%	5.90%	0.02%
General Mills Inc	GIS	533.68122	34.8	18,572.11	0.04%	7.01%	0.00%	2.56%	0.00%
Globe Life Inc	GL	77.64476	178.68	13,873.57		0.74%		0.00%	
Corning Inc	GLW	859.01484	255.43	219,418.16		0.44%		20.41%	
General Motors Co	GM	901.6652	77.08	69,500.35		0.93%		22.58%	
Generac Holdings Inc	GNRC	58.86868	292.81	17,237.34	0.03%			9.00%	0.00%
Alphabet Inc	GOOG	5485.2786	353.33	1,938,113.50	3.92%	0.25%	0.01%	18.10%	0.71%
Alphabet Inc	GOOGL	5853.2786	357.37	2,091,786.19	4.23%	0.25%	0.01%	17.10%	0.72%
Genuine Parts Co	GPC	137.62455	117.98	16,236.94		3.60%			
Global Payments Inc	GPN	273.54351	72.56	19,848.32	0.04%	1.38%	0.00%	2.00%	0.00%
Garmin Ltd	GRMN	192.85621	237.54	45,811.06	0.09%	1.77%	0.00%	8.00%	0.01%
Goldman Sachs Group Inc/The	GS	295.00742	1011.37	298,361.65	0.60%	1.78%	0.01%	10.64%	0.06%
WW Grainger Inc	GWW	47.21312	1360.4	64,228.73	0.13%	0.73%	0.00%	11.68%	0.02%
Halliburton Co	HAL	835.39774	33.95	28,361.75	0.06%	2.00%	0.00%	7.44%	0.00%
Hasbro Inc	HAS	141.49069	82.59	11,685.72	0.02%	3.39%	0.00%	7.16%	0.00%
Huntington Bancshares Inc/OH	HBAN	2027.1306	17.73	35,941.03	0.07%	3.50%	0.00%	10.82%	0.01%
HCA Healthcare Inc	HCA	221.8398	389.89	86,493.12	0.17%	0.80%	0.00%	8.69%	0.02%
Home Depot Inc/The	HD	997.11668	352.68	351,663.11	0.71%	2.64%	0.02%	8.39%	0.06%
Hartford Insurance Group Inc/The	HIG	274.13082	132.52	36,327.82	0.07%	1.81%	0.00%	4.47%	0.00%
Huntington Ingalls Industries Inc	HII	39.40403	279.89	11,028.79	0.02%	1.97%	0.00%	7.00%	0.00%
Hilton Worldwide Holdings Inc	HLT	227.64837	330.46	75,228.68	0.15%	0.18%	0.00%	12.94%	0.02%
Honeywell International Inc	HON	316.93975	223.9	70,962.81	0.14%	4.25%	0.01%	10.54%	0.02%
Honeywell Aerospace Inc	HONA	316.93975	221.08	70,069.04	0.14%			7.50%	0.01%
Robinhood Markets Inc	HOOD	791.1847	100.28	79,340.00				23.14%	
Hewlett Packard Enterprise Co	HPE	1324.2035	45.11	59,734.82	0.12%	1.26%	0.00%	18.74%	0.02%
HP Inc	HPQ	914.52269	21.94	20,064.63	0.04%	5.47%	0.00%	3.50%	0.00%
Hormel Foods Corp	HRL	550.31496	24.82	13,658.82	0.03%	4.71%	0.00%	5.81%	0.00%
Henry Schein Inc	HSIC	114.42468	83.52	9,556.75	0.02%			11.29%	0.00%
Host Hotels & Resorts Inc	HST	684.87928	23.71	16,238.49	0.03%	3.37%	0.00%	5.10%	0.00%
Hershey Co/The	HSY	148.22986	175.45	26,006.93	0.05%	3.31%	0.00%	13.00%	0.01%
Hubbell Inc	HUBB	52.84178	523.2	27,646.82	0.06%	1.09%	0.00%	7.50%	0.00%
Humana Inc	HUM	120.0615	397.22	47,690.83	0.10%	0.89%	0.00%	9.20%	0.01%
Howmet Aerospace Inc	HWM	400.10748	268.86	107,572.90	0.22%	0.18%	0.00%	18.00%	0.04%
Interactive Brokers Group Inc	IBKR	445.48436	87.04	38,774.96	0.08%	0.40%	0.00%	14.41%	0.01%
International Business Machines Corp	IBM	939.88528	281.21	264,305.14	0.53%	2.40%	0.01%	7.29%	0.04%
Intercontinental Exchange Inc	ICE	565.51249	123.11	69,620.24	0.14%	1.69%	0.00%	12.35%	0.02%
IDEXX Laboratories Inc	IDXX	78.883	526.44	41,527.17	0.08%			12.23%	0.01%
IDEX Corp	IEX	74.01505	226.95	16,797.72	0.03%	1.29%	0.00%	4.50%	0.00%
International Flavors & Fragrances Inc	IFF	255.30347	79.22	20,225.14	0.04%	2.02%	0.00%	8.23%	0.00%
Incyte Corp	INCY	199.78216	113.36	22,647.31	0.05%			17.12%	0.01%
Intel Corp	INTC	5026	139.63	701,780.38				51.27%	
Intuit Inc	INTU	273.537	261	71,393.16	0.14%	1.84%	0.00%	14.42%	0.02%
Invitation Homes Inc	INVH	594.04196	30.21	17,946.01	0.04%	3.97%	0.00%	6.51%	0.00%
International Paper Co	IP	529.51697	38.1	20,174.60	0.04%	4.86%	0.00%	9.50%	0.00%
IQVIA Holdings Inc	IQV	166.9	193.22	32,248.42	0.07%			8.02%	0.01%
Ingersoll Rand Inc	IR	391.33683	81.99	32,085.71	0.06%	0.10%	0.00%	8.50%	0.01%
Iron Mountain Inc	IRM	297.52468	126.31	37,580.34	0.08%	2.74%	0.00%	9.50%	0.01%
Intuitive Surgical Inc	ISRG	354.16284	397.68	140,843.48	0.28%			13.01%	0.04%
Gartner Inc	IT	66.95189	129.62	8,678.30	0.02%			9.14%	0.00%
Illinois Tool Works Inc	ITW	287.7	270.47	77,814.22	0.16%	2.38%	0.00%	9.04%	0.01%
Invesco Ltd	IVZ	443.29663	26.39	11,698.60		3.26%		22.56%	
Jacobs Solutions Inc	J	118.08088	126	14,878.19	0.03%	1.14%	0.00%	10.64%	0.00%
JB Hunt Transport Services Inc	JBHT	94.2992	289.43	27,293.02	0.06%	0.62%	0.00%	15.23%	0.01%

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Jabil Inc	JBL	104.78709	385.48	40,393.33		0.08%		21.52%	
Johnson Controls International plc	JCI	610.1156	146.11	89,143.99	0.18%	1.10%	0.00%	18.01%	0.03%
Jack Henry & Associates Inc	JKHY	71.05078	137.74	9,786.53	0.02%	1.77%	0.00%	6.50%	0.00%
Johnson & Johnson	JNJ	2407.217	253.97	611,360.89	1.24%	2.11%	0.03%	7.24%	0.09%
JPMorgan Chase & Co	JPM	2679.5114	327.33	877,084.47	1.77%	1.83%	0.03%	9.60%	0.17%
Keurig Dr Pepper Inc	KDP	1360.5595	32.73	44,531.11	0.09%	2.81%	0.00%	10.22%	0.01%
KeyCorp	KEY	1079.3686	23.05	24,879.45	0.05%	3.56%	0.00%	12.92%	0.01%
Keysight Technologies Inc	KEYS	170.89537	350.07	59,825.34	0.12%			13.72%	0.02%
Kraft Heinz Co/The	KHC	1185.7776	23.62	28,008.07		6.77%		-0.33%	
Kimco Realty Corp	KIM	674.40321	25.35	17,096.12	0.03%	4.10%	0.00%	10.59%	0.00%
KKR & Co Inc	KKR	897.87294	91.78	82,406.78	0.17%	0.85%	0.00%	7.00%	0.01%
KLA Corp	KLAC	1306.2752	301.71	394,116.29	0.80%	0.30%	0.00%	16.24%	0.13%
Kimberly-Clark Corp	KMB	331.94036	109.77	36,437.09	0.07%	4.66%	0.00%	4.96%	0.00%
Kinder Morgan Inc	KMI	2224.8258	31.97	71,127.68	0.14%	3.72%	0.01%	8.03%	0.01%
Coca-Cola Co/The	KO	4302.4824	81.27	349,662.75	0.71%	2.61%	0.02%	7.36%	0.05%
Kroger Co/The	KR	612.64728	55.53	34,020.30	0.07%	2.81%	0.00%	6.29%	0.00%
Kenvue Inc	KVUE	1920.0087	19.11	36,691.37	0.07%	4.34%	0.00%	14.81%	0.01%
Loews Corp	L	205.76887	113.21	23,295.09	0.05%	0.22%	0.00%	14.00%	0.01%
Leidos Holdings Inc	LDOS	125.78547	102.97	12,952.13	0.03%	1.67%	0.00%	7.28%	0.00%
Lennar Corp	LEN	210.506	90.49	19,048.69		2.21%		-1.73%	
Labcorp Holdings Inc	LH	82	280	22,960.00	0.05%	1.03%	0.00%	8.42%	0.00%
L3Harris Technologies Inc	LHX	186.29495	290.59	54,135.45	0.11%	1.72%	0.00%	16.00%	0.02%
Lennox International Inc	LII	34.79997	572.95	19,938.64	0.04%	0.95%	0.00%	11.00%	0.00%
Linde PLC	LIN	462.59954	518.94	240,061.41	0.49%	1.23%	0.01%	7.93%	0.04%
Lumentum Holdings Inc	LITE	77.8	858.06	66,757.07				138.65%	
Eli Lilly & Co	LLY	941.74141	1199.43	1,129,552.90		0.58%		26.00%	
Lockheed Martin Corp	LMT	230.56361	509.46	117,462.94	0.24%	2.71%	0.01%	16.33%	0.04%
Alliant Energy Corp	LNT	258.27704	76.29	19,703.96	0.04%	2.81%	0.00%	6.63%	0.00%
Lowe's Cos Inc	LOW	560.70704	220.49	123,630.30	0.25%	2.27%	0.01%	4.60%	0.01%
Lam Research Corp	LRCX	1250.571	433.33	541,909.93		0.24%		22.85%	
Lululemon Athletica Inc	LULU	108.43796	114.18	12,381.45	0.03%			0.18%	0.00%
Southwest Airlines Co	LUV	488.77371	51.42	25,132.74		1.40%		51.30%	
Las Vegas Sands Corp	LVS	662.63733	46.19	30,607.22		2.60%		20.86%	
LyondellBasell Industries NV	LYB	322.78477	52.65	16,994.62		5.24%		25.69%	
Live Nation Entertainment Inc	LYV	235.54707	183.11	43,131.02				75.55%	
Mastercard Inc	MA	877.03623	513.6	450,445.81	0.91%	0.68%	0.01%	13.82%	0.13%
Mid-America Apartment Communities Inc	MAA	116.3848	138.94	16,170.50	0.03%	4.40%	0.00%	1.04%	0.00%
Marriott International Inc/MD	MAR	263.68862	370.59	97,720.37	0.20%	0.79%	0.00%	10.94%	0.02%
Masco Corp	MAS	201.73444	81.37	16,415.13	0.03%	1.57%	0.00%	8.65%	0.00%
McDonald's Corp	MCD	710.50586	270.31	192,056.84	0.39%	2.75%	0.01%	8.08%	0.03%
Microchip Technology Inc	MCHP	542.07928	91.2	49,437.63		2.00%		20.66%	
McKesson Corp	MCK	117.07775	755.6	88,463.95	0.18%	0.43%	0.00%	12.12%	0.02%
Moody's Corp	MCO	174.7	452.92	79,125.12	0.16%	0.91%	0.00%	10.86%	0.02%
Mondelez International Inc	MDLZ	1283.6498	57.84	74,246.30	0.15%	3.46%	0.01%	7.36%	0.01%
Medtronic PLC	MDT	1280.0452	78.23	100,137.94	0.20%	3.68%	0.01%	6.69%	0.01%
MetLife Inc	MET	643.43678	84.61	54,441.19	0.11%	2.80%	0.00%	10.43%	0.01%
Meta Platforms Inc	META	2196.0456	563.29	1,237,010.52	2.50%	0.37%	0.01%	15.42%	0.39%
MGM Resorts International	MGM	255.85124	47.81	12,232.25				33.68%	
McCormick & Co Inc/MD	MKC	254.05515	50.42	12,809.46	0.03%	3.81%	0.00%	5.64%	0.00%
Martin Marietta Materials Inc	MLM	60.25621	576.7	34,749.76	0.07%	0.58%	0.00%	12.22%	0.01%
3M Co	MMM	521.56726	161.91	84,446.96		1.93%		31.03%	
Monster Beverage Corp	MNST	978.00811	96.12	94,006.14	0.19%			10.65%	0.02%
Altria Group Inc	MO	1669.8912	71.95	120,148.67	0.24%	5.89%	0.01%	5.01%	0.01%
Mosaic Co/The	MOS	317.84664	21.19	6,735.17	0.01%	4.15%	0.00%	10.14%	0.00%
Marathon Petroleum Corp	MPC	291.93664	255.67	74,639.44	0.15%	1.56%	0.00%	10.39%	0.02%
Monolithic Power Systems Inc	MPWR	49.13	1382.36	67,915.35	0.14%	0.58%	0.00%	15.00%	0.02%
Merck & Co Inc	MRK	2469.8244	128.5	317,372.44	0.64%	2.65%	0.02%	10.77%	0.07%
Moderna Inc	MRNA	396.78626	70.03	27,786.94				27.21%	
Marsh & McLennan Cos Inc	MRSH	481.7945	166.67	80,300.69	0.16%	2.16%	0.00%	7.75%	0.01%
Marvell Technology Inc	MRVL	874.8	297.89	260,594.17		0.08%		32.78%	
Morgan Stanley	MS	1577.2848	209.04	329,715.62	0.67%	1.91%	0.01%	9.82%	0.07%
MSCI Inc	MSCI	73.12021	560.04	40,950.24	0.08%	1.46%	0.00%	13.11%	0.01%
Microsoft Corp	MSFT	7428.4347	373.02	2,770,954.71	5.60%	0.98%	0.05%	13.71%	0.77%
Motorola Solutions Inc	MSI	165.99558	415.29	68,936.30	0.14%	1.17%	0.00%	7.97%	0.01%
M&T Bank Corp	MTB	146.44506	238.01	34,855.39	0.07%	2.52%	0.00%	9.13%	0.01%
Mettler-Toledo International Inc	MTD	20.2076	1277.51	25,815.41	0.05%			10.29%	0.01%
Micron Technology Inc	MU	1129.3932	1154.29	1,303,647.22		0.05%		88.68%	

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Norwegian Cruise Line Holdings Ltd	NCLH	459.11014	21.11	9,691.82	0.02%			6.28%	0.00%
Nasdaq Inc	NDAQ	565.5408	78.82	44,575.93	0.09%	1.57%	0.00%	10.57%	0.01%
Nordson Corp	NDSN	55.71795	301.69	16,809.55	0.03%	1.09%	0.00%	8.50%	0.00%
NextEra Energy Inc	NEE	2085.3415	87.77	183,030.42	0.37%	2.84%	0.01%	15.80%	0.06%
Newmont Corp	NEM	1067.5528	93.4	99,709.43	0.20%	1.11%	0.00%	12.52%	0.03%
Netflix Inc	NFLX	4210.7985	71.4	300,651.02	0.61%			16.01%	0.10%
NiSource Inc	NI	479.43925	47.55	22,797.34	0.05%	2.52%	0.00%	5.40%	0.00%
NIKE Inc	NKE	1199.4993	41.05	49,239.45	0.10%	4.00%	0.00%	6.92%	0.01%
Northrop Grumman Corp	NOC	142.03348	509.31	72,339.07	0.15%	1.94%	0.00%	12.10%	0.02%
ServiceNow Inc	NOW	1031	99.28	102,357.68	0.21%			20.00%	0.04%
NRG Energy Inc	NRG	210.98647	146.06	30,816.68	0.06%	1.30%	0.00%	8.50%	0.01%
Norfolk Southern Corp	NSC	224.594	314.59	70,655.03	0.14%	1.72%	0.00%	9.00%	0.01%
NetApp Inc	NTAP	195.91993	154.76	30,320.57	0.06%	1.34%	0.00%	7.39%	0.00%
Northern Trust Corp	NTRS	185.04726	173.84	32,168.62	0.07%	1.84%	0.00%	11.29%	0.01%
Nucor Corp	NUE	227.74095	222.75	50,729.30		1.01%		26.92%	
NVIDIA Corp	NVDA	24200	200.09	4,842,178.00		0.50%		30.14%	
NVR Inc	NVR	2.69929	6813.4	18,391.34	0.04%			3.62%	0.00%
News Corp	NWS	184.3403	28.06	5,172.59	0.01%	0.71%	0.00%	19.50%	0.00%
News Corp	NWSA	364.89493	24.83	9,060.34	0.02%	0.81%	0.00%	8.00%	0.00%
NXP Semiconductors NV	NXPI	252.47108	281.03	70,951.95	0.14%	1.44%	0.00%	11.44%	0.02%
Realty Income Corp	O	932.49253	61.96	57,777.24	0.12%	5.25%	0.01%	5.44%	0.01%
Old Dominion Freight Line Inc	ODFL	207.96828	216.6	45,045.93	0.09%	0.54%	0.00%	14.11%	0.01%
ONEOK Inc	OKE	630.03285	86.94	54,775.06	0.11%	4.92%	0.01%	6.67%	0.01%
Omnicom Group Inc	OMC	285.0062	72.83	20,757.00	0.04%	4.39%	0.00%	8.61%	0.00%
ON Semiconductor Corp	ON	391.90319	94.54	37,050.53				25.19%	
Oracle Corp	ORCL	2880.471	146.55	422,133.03	0.85%	1.36%	0.01%	18.04%	0.15%
O'Reilly Automotive Inc	ORLY	828.71508	92.09	76,316.37	0.15%			9.74%	0.02%
Otis Worldwide Corp	OTIS	383.71608	71.6	27,474.07		2.46%			
Occidental Petroleum Corp	OXY	994.6347	48.57	48,309.41		2.14%		31.50%	
Palo Alto Networks Inc	PANW	815	341.02	277,931.30	0.56%			9.66%	0.05%
Paychex Inc	PAYX	355.6	98.33	34,966.15		4.84%		-1.00%	
PACCAR Inc	PCAR	526.28623	120.12	63,217.50	0.13%	1.17%	0.00%	14.14%	0.02%
PG&E Corp	PCG	2202.2247	16.82	37,041.42	0.07%	1.19%	0.00%	8.20%	0.01%
Public Service Enterprise Group Inc	PEG	498.3214	81.16	40,443.76	0.08%	3.30%	0.00%	6.48%	0.01%
PepsiCo Inc	PEP	1366.7683	135.4	185,060.43	0.37%	4.37%	0.02%	7.42%	0.03%
Pfizer Inc	PFE	5699.4442	24.08	137,242.62		7.14%		-1.99%	
Principal Financial Group Inc	PFG	216.01238	107.78	23,281.81	0.05%	3.04%	0.00%	7.59%	0.00%
Procter & Gamble Co/The	PG	2328.599	146.64	341,465.75	0.69%	2.97%	0.02%	8.70%	0.06%
Progressive Corp/The	PGR	583.5	218.45	127,465.58	0.26%	0.18%	0.00%	5.97%	0.02%
Parker-Hannifin Corp	PH	126.08639	978.12	123,327.62	0.25%	0.82%	0.00%	7.00%	0.02%
PulteGroup Inc	PHM	190.48635	137.21	26,136.63	0.05%	0.76%	0.00%	5.64%	0.00%
Packaging Corp of America	PKG	89.09865	238.28	21,230.43	0.04%	2.52%	0.00%	6.06%	0.00%
Prologis Inc	PLD	932.23068	135.47	126,289.29	0.26%	3.16%	0.01%	7.46%	0.02%
Palantir Technologies Inc	PLTR	2296.0713	116.67	267,882.64				28.37%	
Philip Morris International Inc	PM	1558.5589	180.91	281,958.88	0.57%	3.25%	0.02%	10.04%	0.06%
PNC Financial Services Group Inc/The	PNC	401.56463	246.22	98,873.24	0.20%	2.76%	0.01%	14.03%	0.03%
Pentair PLC	PNR	161.60554	76.66	12,388.68	0.03%	1.41%	0.00%	7.81%	0.00%
Pinnacle West Capital Corp	PNW	121.18717	107	12,967.03	0.03%	3.40%	0.00%	18.95%	0.00%
Insulet Corp	PODD	69.26467	152.25	10,545.55	0.02%			13.92%	0.00%
PPG Industries Inc	PPG	222.9	121.29	27,035.54	0.05%	2.34%	0.00%	6.08%	0.00%
PPL Corp	PPL	752.35036	36.35	27,347.94	0.06%	3.14%	0.00%	7.81%	0.00%
Prudential Financial Inc	PRU	347	107.93	37,451.71	0.08%	5.19%	0.00%	5.95%	0.00%
Public Storage	PSA	175.54575	318.31	55,877.97	0.11%	3.77%	0.00%	4.91%	0.01%
Paramount Skydance Corp	PSKY	1087.673	9.86	10,724.46	0.02%	2.03%	0.00%	19.03%	0.00%
Phillips 66	PSX	400.93502	169.05	67,778.07		3.01%		26.09%	
PTC Inc	PTC	115.50579	113.61	13,122.61	0.03%			9.93%	0.00%
Quanta Services Inc	PWR	150.06015	719.93	108,032.77		0.06%		21.34%	
PayPal Holdings Inc	PYPL	882.10549	43.18	38,089.32	0.08%	1.30%	0.00%	7.41%	0.01%
Qnity Electronics Inc	Q	209.33921	163.31	34,187.19		0.20%			
QUALCOMM Inc	QCOM	1054	184.79	194,768.66	0.39%	1.99%	0.01%	4.86%	0.02%
Royal Caribbean Cruises Ltd	RCL	268.19498	317.53	85,159.95	0.17%	1.89%	0.00%	14.40%	0.02%
Regency Centers Corp	REG	183.09679	79.74	14,600.14	0.03%	3.79%	0.00%	5.68%	0.00%
Regeneron Pharmaceuticals Inc	REGN	103.02189	623.54	64,238.27	0.13%	0.60%	0.00%	10.24%	0.01%
Regions Financial Corp	RF	853.37954	30.2	25,772.06	0.05%	3.51%	0.00%	9.33%	0.00%
Raymond James Financial Inc	RJF	194.88303	151.49	29,522.83	0.06%	1.43%	0.00%	12.33%	0.01%
Ralph Lauren Corp	RL	37.63507	401.41	15,107.09	0.03%	1.00%	0.00%	12.95%	0.00%
ResMed Inc	RMD	145.05638	194.88	28,268.59	0.06%	1.23%	0.00%	10.11%	0.01%

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Rockwell Automation Inc	ROK	111.27395	495.08	55,089.51	0.11%	1.11%	0.00%	13.18%	0.01%
Rollins Inc	ROL	481.46366	41.74	20,096.29	0.04%	1.75%	0.00%	10.80%	0.00%
Roper Technologies Inc	ROP	100.91736	338.39	34,149.43	0.07%	1.08%	0.00%	8.00%	0.01%
Ross Stores Inc	ROST	320.78108	212.85	68,278.25	0.14%	0.84%	0.00%	10.41%	0.01%
Republic Services Inc	RSG	307.66409	213.08	65,557.06	0.13%	1.17%	0.00%	8.48%	0.01%
RTX Corp	RTX	1346.6834	189.73	255,506.25	0.52%	1.54%	0.01%	11.56%	0.06%
Revvity Inc	RVTY	111.55977	111.26	12,412.14	0.03%	0.25%	0.00%	7.34%	0.00%
SBA Communications Corp	SBAC	106.06302	176.46	18,715.88		2.83%		-0.99%	
Starbucks Corp	SBUX	1139.7	102.19	116,465.94	0.24%	2.43%	0.01%	16.95%	0.04%
Charles Schwab Corp/The	SCHW	1739.1355	92.27	160,470.03	0.32%	1.39%	0.00%	8.30%	0.03%
Sherwin-Williams Co/The	SHW	246.63562	344.32	84,921.58	0.17%	0.93%	0.00%	11.43%	0.02%
J M Smucker Co/The	SJM	106.88069	112.5	12,024.08	0.02%	3.91%	0.00%	8.80%	0.00%
SLB Ltd	SLB	1495.0577	46.49	69,505.23	0.14%	2.54%	0.00%	8.01%	0.01%
Super Micro Computer Inc	SMCI	646.83238	29.33	18,971.59	0.04%			18.20%	0.01%
Snap-on Inc	SNA	51.80192	402.4	20,845.09	0.04%	2.43%	0.00%	15.22%	0.01%
Sandisk Corp	SNDK	148.08976	2273.73	336,716.13	0.68%			4.50%	0.03%
Synopsys Inc	SNPS	191.47933	446.07	85,413.18	0.17%			15.36%	0.03%
Southern Co/The	SO	1128.3198	95.71	107,991.49	0.22%	3.18%	0.01%	9.68%	0.02%
Solventum Corp	SOLV	173.17471	77.15	13,360.43	0.03%			8.43%	0.00%
Simon Property Group Inc	SPG	324.28191	223.65	72,525.65	0.15%	4.02%	0.01%	5.86%	0.01%
S&P Global Inc	SPGI	303.2	385.21	116,795.67	0.24%	1.01%	0.00%	8.15%	0.02%
Sempra	SRE	653.69005	92.71	60,603.60	0.12%	2.84%	0.00%	8.38%	0.01%
STERIS PLC	STE	97.45768	210.57	20,521.66	0.04%	1.20%	0.00%	7.00%	0.00%
Steel Dynamics Inc	STLD	144.21278	229.46	33,091.06	0.07%	0.92%	0.00%	19.35%	0.01%
State Street Corp	STT	276.76703	168.76	46,707.20	0.09%	1.99%	0.00%	7.66%	0.01%
Seagate Technology Holdings PLC	STX	224.22899	965	216,380.98		0.31%		37.91%	
Constellation Brands Inc	STZ	172.17254	139.09	23,947.48		2.96%		20.05%	
Smurfit Westrock PLC	SW	524.51499	46.26	24,264.06	0.05%	3.91%	0.00%	3.50%	0.00%
Stanley Black & Decker Inc	SWK	155.45556	94.12	14,631.48		3.53%			
Skyworks Solutions Inc	SWKS	150.40596	67.8	10,197.52	0.02%	4.19%	0.00%	20.00%	0.00%
Synchrony Financial	SYF	336.95134	76.05	25,625.15	0.05%	1.58%	0.00%	8.89%	0.00%
Stryker Corp	SYK	383.36076	314.84	120,697.30	0.24%	1.12%	0.00%	9.22%	0.02%
Sysco Corp	SYY	478.18261	83.58	39,966.50	0.08%	2.63%	0.00%	10.50%	0.01%
AT&T Inc	T	6948.3388	20.7	143,830.61	0.29%	5.36%	0.02%	8.63%	0.03%
Molson Coors Beverage Co	TAP	175.21542	38.96	6,826.39	0.01%	4.93%	0.00%	0.07%	0.00%
TransDigm Group Inc	TDG	55.93358	1332.04	74,505.77	0.15%			10.78%	0.02%
Teledyne Technologies Inc	TDY	46.32914	666.9	30,896.90	0.06%			11.59%	0.01%
Bio-Techne Corp	TECH	156.56875	70.65	11,061.58	0.02%	0.45%	0.00%	10.00%	0.00%
TE Connectivity PLC	TEL	291.8958	201.61	58,849.11	0.12%	1.55%	0.00%	15.27%	0.02%
Teradyne Inc	TER	156.54216	483.84	75,741.36		0.11%		28.26%	
Truist Financial Corp	TFC	1245.8793	49.82	62,069.71	0.13%	4.18%	0.01%	18.52%	0.02%
Target Corp	TGT	454.19111	130.61	59,321.90	0.12%	3.55%	0.00%	7.32%	0.01%
TJX Cos Inc/The	TJX	1104.7045	151.5	167,362.72	0.34%	1.27%	0.00%	7.40%	0.03%
TKO Group Holdings Inc	TKO	74.96767	201.31	15,091.74	0.03%	1.57%	0.00%	12.50%	0.00%
Thermo Fisher Scientific Inc	TMO	371.62147	501.36	186,316.14	0.38%	0.37%	0.00%	10.09%	0.04%
T-Mobile US Inc	TMUS	1082.2047	167.73	181,518.20	0.37%	2.43%	0.01%	9.00%	0.03%
Texas Pacific Land Corp	TPL	68.97443	437.64	30,185.97	0.06%	0.55%	0.00%	16.50%	0.01%
Tapestry Inc	TPR	202.04471	146.38	29,575.30	0.06%	1.09%	0.00%	13.18%	0.01%
Targa Resources Corp	TRGP	214.6439	268.14	57,554.62	0.12%	1.86%	0.00%	16.09%	0.02%
Trimble Inc	TRMB	233.11152	51.18	11,930.65	0.02%			18.50%	0.00%
T Rowe Price Group Inc	TROW	214.26661	113.69	24,359.97	0.05%	4.57%	0.00%	3.65%	0.00%
Travelers Cos Inc/The	TRV	212.64469	330.12	70,198.27	0.14%	1.51%	0.00%	3.12%	0.00%
Tractor Supply Co	TSCO	524.44962	31.61	16,577.85	0.03%	3.04%	0.00%	8.12%	0.00%
Tesla Inc	TSLA	3755.7239	420.6	1,579,657.46	3.19%			10.00%	0.32%
Tyson Foods Inc	TSN	282.1204	57.25	16,151.39	0.03%	3.56%	0.00%	11.44%	0.00%
Trane Technologies PLC	TT	221.05548	491.16	108,573.61	0.22%	0.86%	0.00%	14.62%	0.03%
Trade Desk Inc/The	TTD	426.99973	18.08	7,720.16	0.02%			11.90%	0.00%
Take-Two Interactive Software Inc	TTWO	185.66666	249.98	46,412.95				21.00%	
Texas Instruments Inc	TXN	910.09279	298.07	271,271.36		1.91%		25.41%	
Textron Inc	TXT	173.88898	91.73	15,950.84	0.03%	0.09%	0.00%	7.32%	0.00%
Tyler Technologies Inc	TYL	42.16746	292.46	12,332.30	0.02%			13.50%	0.00%
United Airlines Holdings Inc	UAL	324.64938	135.99	44,149.07	0.09%			12.87%	0.01%
Uber Technologies Inc	UBER	2035.599	72.16	146,888.82	0.30%			7.50%	0.02%
UDR Inc	UDR	324.91565	39.92	12,970.63	0.03%	4.36%	0.00%	1.17%	0.00%
Universal Health Services Inc	UHS	53.28761	148.69	7,923.33	0.02%	0.54%	0.00%	5.39%	0.00%
Ulta Beauty Inc	ULTA	42.98931	450.98	19,387.32	0.04%			11.74%	0.00%
UnitedHealth Group Inc	UNH	908.1444	415.63	377,452.06	0.76%	2.23%	0.02%	10.87%	0.08%

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Estimated Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Avg. Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Union Pacific Corp	UNP	593.71321	272	161,489.99	0.33%	2.03%	0.01%	4.91%	0.02%
United Parcel Service Inc	UPS	746.58182	107.5	80,257.55	0.16%	6.10%	0.01%	8.91%	0.01%
United Rentals Inc	URI	62.64656	1132.89	70,971.66	0.14%	0.70%	0.00%	9.38%	0.01%
US Bancorp	USB	1557.7317	60.4	94,087.00	0.19%	3.44%	0.01%	10.64%	0.02%
Visa Inc	V	1659.7099	343.09	569,429.88	1.15%	0.78%	0.01%	11.28%	0.13%
Veeva Systems Inc	VEEV	162.44329	177.47	28,828.81	0.06%			10.50%	0.01%
VICI Properties Inc	VICI	1092.8419	26.55	29,014.95	0.06%	6.78%	0.00%	6.53%	0.00%
Valero Energy Corp	VLO	296.93278	260.44	77,333.17	0.16%	1.84%	0.00%	16.79%	0.03%
Veralto Corp	VLTO	245.59927	88.68	21,779.74	0.04%	0.59%	0.00%	4.00%	0.00%
Vulcan Materials Co	VMC	129.75489	295.01	38,278.99	0.08%	0.71%	0.00%	12.30%	0.01%
Verisk Analytics Inc	VRSK	131.02184	179.53	23,522.35	0.05%	1.11%	0.00%	8.74%	0.00%
VeriSign Inc	VRSN	91	251.56	22,891.96	0.05%	1.29%	0.00%	6.50%	0.00%
Vertiv Holdings Co	VRT	384.10882	334.82	128,607.32		0.07%		20.79%	
Vertex Pharmaceuticals Inc	VRTX	253.80542	496.73	126,072.77				21.74%	
Vistra Corp	VST	337.18247	158.63	53,487.26		0.58%		53.85%	
Ventas Inc	VTR	486.16972	88.8	43,171.87		2.34%		22.00%	
Viatris Inc	VTRS	1164.5527	15.88	18,493.10	0.04%	3.02%	0.00%	13.59%	0.01%
Verizon Communications Inc	VZ	4175.5589	42.34	176,793.16	0.36%	6.68%	0.02%	5.10%	0.02%
Westinghouse Air Brake Technologies Corp	WAB	169.67735	269.6	45,745.01	0.09%	0.46%	0.00%	7.84%	0.01%
Waters Corp	WAT	98.18586	375.04	36,823.62	0.07%			13.06%	0.01%
Warner Bros Discovery Inc	WBD	2507.1367	26.66	66,840.26	0.14%			9.50%	0.01%
Workday Inc	WDAY	201	122.42	24,606.42					
Western Digital Corp	WDC	365.97207	638.72	233,753.68		0.09%		63.78%	
WEC Energy Group Inc	WEC	325.72568	116.77	38,034.99	0.08%	3.26%	0.00%	6.85%	0.01%
Welltower Inc	WELL	705.91445	226.97	160,221.40	0.32%	1.30%	0.00%	12.86%	0.04%
Wells Fargo & Co	WFC	3060.1895	82.64	252,894.06	0.51%	2.18%	0.01%	19.46%	0.10%
Waste Management Inc	WM	401.57575	222.88	89,503.20	0.18%	1.70%	0.00%	10.01%	0.02%
Williams Cos Inc/The	WMB	1222.857	74.34	90,907.19	0.18%	2.82%	0.01%	15.78%	0.03%
Walmart Inc	WMT	7958.0792	113.26	901,332.05	1.82%	0.87%	0.02%	9.59%	0.17%
W R Berkley Corp	WRB	372.27673	70.53	26,256.68	0.05%	0.57%	0.00%	7.02%	0.00%
Williams-Sonoma Inc	WSM	117.74661	233.1	27,446.73	0.06%	1.30%	0.00%	10.33%	0.01%
West Pharmaceutical Services Inc	WST	70.6476	359	25,362.49	0.05%	0.25%	0.00%	9.41%	0.00%
Willis Towers Watson PLC	WTW	94.44798	261.37	24,685.87	0.05%	1.47%	0.00%	10.48%	0.01%
Weyerhaeuser Co	WY	721.043	23.94	17,261.77		3.51%		33.68%	
Wynn Resorts Ltd	WYNN	103.78673	97.09	10,076.65	0.02%	1.03%	0.00%	10.90%	0.00%
Xcel Energy Inc	XEL	624.26956	80.3	50,128.85		2.95%		27.00%	
Exxon Mobil Corp	XOM	4144.4556	136.72	566,629.96	1.15%	3.01%	0.03%	14.66%	0.17%
Xylem Inc/NY	XYL	237.69349	118.21	28,097.75	0.06%	1.46%	0.00%	2.50%	0.00%
Block Inc	XYZ	535.195	76	40,674.82	0.08%			8.50%	0.01%
Yum! Brands Inc	YUM	275.6212	159.86	44,060.81	0.09%	1.88%	0.00%	10.95%	0.01%
Zimmer Biomet Holdings Inc	ZBH	193.46248	86.09	16,655.18	0.03%	1.12%	0.00%	5.54%	0.00%
Zebra Technologies Corp	ZBRA	47.63339	263.26	12,539.97	0.03%			6.50%	0.00%
Zoetis Inc	ZTS	419.22812	71.86	30,125.73	0.06%	2.95%	0.00%	8.83%	0.01%

Notes:

[1] Equals sum of Col. [9]

[2] Equals sum of Col. [11]

[3] Equals ([1] x (1 + (0.5 x [2]))) + [2]

[4] Bloomberg Professional as of June 30, 2026

[5] Bloomberg Professional as of June 30, 2026

[6] Equals [4] x [5]

[7] Equals weight in S&P 500 based on market capitalization [6] if Growth Rate >0% and ≤20%

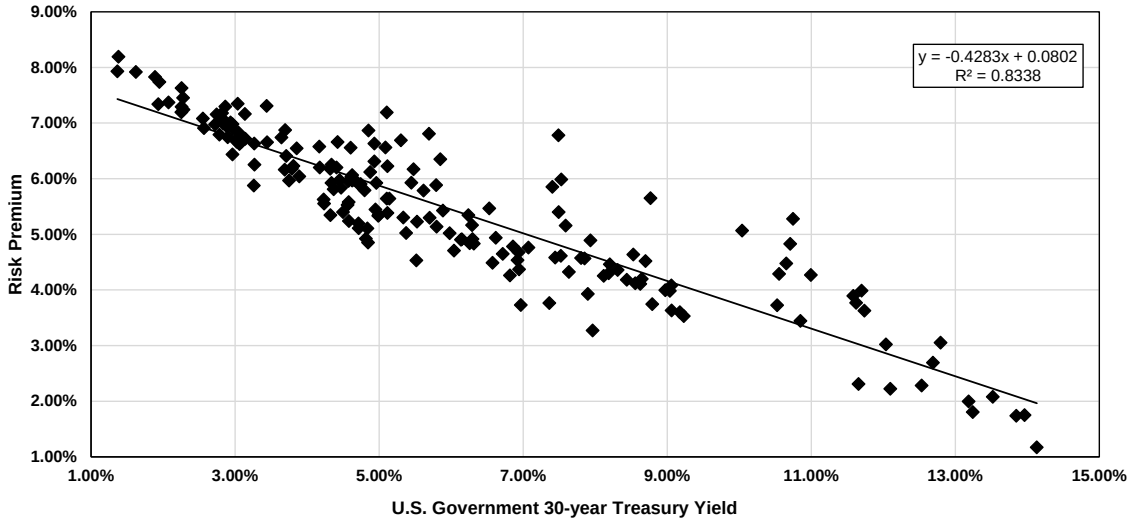
[8] Source: Bloomberg Professional, as of June 30, 2026

[9] Equals [7] x [8]

[10] Average of Bloomberg Professional and Value Line, as of June 30, 2026

[11] Equals [7] x [10]

BOND YIELD PLUS RISK PREMIUM



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.9131065
R Square	0.8337635
Adjusted R Square	0.8328601
Standard Error	0.0057621
Observations	186

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.03064	0.03064	922.85694	0.00000
Residual	184	0.00611	0.00003		
Total	185	0.03675			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.0802	0.00	84.70	0.0000	0.0783	0.0820	0.0783	0.0820
U.S. Govt. 30-year Treasury	(0.4283)	0.01	(30.38)	0.0000	(0.4561)	(0.4005)	(0.4561)	(0.4005)

	[7] U.S. Govt. 30-year Treasury [7]	[8] Risk Premium [8]	[9] ROE [9]
Current 30-day average of 30-year U.S. Treasury bond yield [4]	4.98%	5.88%	10.87%
Blue Chip Near-Term Projected Forecast (Q1 2026 - Q1 2027) [5]	4.86%	5.94%	10.80%
Blue Chip Long-Term Projected Forecast (2027-2031) [6]	4.70%	6.00%	10.70%
AVERAGE			10.79%

Notes:
[1] Regulatory Research Associates, rate cases through June 30, 2026
[2] Source: S&P Capital IQ Pro, quarterly bond yields are the average of each trading day in the quarter
[3] Equals Column [1] − Column [2]
[4] S&P Capital IQ Pro, 30-day average as of June 30, 2026
[5] Blue Chip Financial Forecasts, Vol. 45, No. 7, July 1, 2026, at 9
[6] Blue Chip Financial Forecasts, Vol. 45, No. 6, June 1, 2026, at 14
[7] See notes [4], [5] & [6]
[8] Equals 0.080166 + (-0.428293 x Column [7])
[9] Equals Column [7] + Column [8]

BOND YIELD PLUS RISK PREMIUM

Quarter	[1] Average Authorized VI Electric ROE	[2] U.S. Govt. 30-year Treasury	[3] Risk Premium
1980.1	13.97%	11.66%	2.31%
1980.2	14.25%	10.52%	3.73%
1980.3	14.30%	10.85%	3.45%
1980.4	14.32%	12.10%	2.23%
1981.1	14.82%	12.53%	2.28%
1981.2	15.05%	13.24%	1.81%
1981.3	15.31%	14.13%	1.17%
1981.4	15.59%	13.85%	1.74%
1982.1	15.71%	13.96%	1.75%
1982.2	15.60%	13.52%	2.08%
1982.3	15.85%	12.79%	3.06%
1982.4	16.03%	10.75%	5.28%
1983.1	15.54%	10.71%	4.83%
1983.2	15.13%	10.65%	4.48%
1983.3	15.39%	11.62%	3.77%
1983.4	15.37%	11.74%	3.63%
1984.1	15.06%	12.04%	3.02%
1984.2	15.18%	13.18%	2.00%
1984.3	15.38%	12.69%	2.69%
1984.4	15.69%	11.70%	3.99%
1985.1	15.48%	11.58%	3.90%
1985.2	15.27%	11.00%	4.27%
1985.3	14.84%	10.55%	4.29%
1985.4	15.11%	10.04%	5.07%
1986.1	14.42%	8.77%	5.65%
1986.2	14.27%	7.49%	6.78%
1986.3	13.26%	7.40%	5.86%
1986.4	13.52%	7.53%	5.99%
1987.1	12.90%	7.49%	5.40%
1987.2	13.17%	8.53%	4.64%
1987.3	13.14%	9.06%	4.08%
1987.4	12.76%	9.23%	3.53%
1988.1	12.74%	8.63%	4.11%
1988.2	12.70%	9.06%	3.63%
1988.3	12.78%	9.18%	3.60%
1988.4	12.97%	8.97%	4.00%
1989.1	13.02%	9.04%	3.99%
1989.2	13.22%	8.70%	4.52%
1989.3	12.38%	8.12%	4.26%
1989.4	12.83%	7.93%	4.90%
1990.1	12.62%	8.44%	4.19%
1990.2	12.85%	8.65%	4.20%
1990.3	12.54%	8.79%	3.75%
1990.4	12.68%	8.56%	4.12%
1991.1	12.66%	8.20%	4.46%
1991.2	12.67%	8.31%	4.36%
1991.3	12.49%	8.19%	4.30%
1991.4	12.42%	7.85%	4.57%
1992.1	12.38%	7.81%	4.58%
1992.2	11.83%	7.90%	3.93%
1992.3	12.03%	7.45%	4.59%
1992.4	12.14%	7.52%	4.62%
1993.1	11.84%	7.07%	4.76%
1993.2	11.64%	6.86%	4.78%
1993.3	11.15%	6.32%	4.84%
1993.4	11.04%	6.14%	4.91%
1994.1	11.07%	6.58%	4.49%

BOND YIELD PLUS RISK PREMIUM

Quarter	[1] Average Authorized VI Electric ROE	[2] U.S. Govt. 30-year Treasury	[3] Risk Premium
1994.2	11.13%	7.36%	3.77%
1994.3	12.75%	7.59%	5.16%
1994.4	11.24%	7.96%	3.28%
1995.1	11.96%	7.63%	4.33%
1995.2	11.32%	6.94%	4.37%
1995.3	11.37%	6.72%	4.65%
1995.4	11.58%	6.24%	5.35%
1996.1	11.46%	6.29%	5.17%
1996.2	11.46%	6.92%	4.54%
1996.3	10.70%	6.97%	3.73%
1996.4	11.56%	6.62%	4.94%
1997.1	11.08%	6.82%	4.26%
1997.2	11.62%	6.94%	4.68%
1997.3	12.00%	6.53%	5.47%
1997.4	11.06%	6.15%	4.91%
1998.1	11.31%	5.88%	5.43%
1998.2	12.20%	5.85%	6.35%
1998.3	11.65%	5.48%	6.17%
1998.4	12.30%	5.11%	7.19%
1999.1	10.40%	5.37%	5.03%
1999.2	10.94%	5.80%	5.14%
1999.3	10.75%	6.04%	4.71%
1999.4	11.10%	6.26%	4.84%
2000.1	11.21%	6.30%	4.92%
2000.2	11.00%	5.98%	5.02%
2000.3	11.68%	5.79%	5.89%
2000.4	12.50%	5.69%	6.81%
2001.1	11.38%	5.45%	5.93%
2001.2	11.00%	5.70%	5.30%
2001.3	10.76%	5.53%	5.23%
2001.4	11.99%	5.30%	6.69%
2002.1	10.05%	5.52%	4.53%
2002.2	11.41%	5.62%	5.79%
2002.3	11.65%	5.09%	6.56%
2002.4	11.57%	4.93%	6.63%
2003.1	11.72%	4.85%	6.87%
2003.2	11.16%	4.60%	6.56%
2003.3	10.50%	5.11%	5.39%
2003.4	11.34%	5.11%	6.23%
2004.1	11.00%	4.88%	6.12%
2004.2	10.64%	5.34%	5.30%
2004.3	10.75%	5.11%	5.64%
2004.4	11.24%	4.93%	6.31%
2005.1	10.63%	4.71%	5.92%
2005.2	10.31%	4.47%	5.84%
2005.3	11.08%	4.42%	6.66%
2005.4	10.63%	4.65%	5.98%
2006.1	10.70%	4.63%	6.07%
2006.2	10.79%	5.14%	5.64%
2006.3	10.35%	5.00%	5.35%
2006.4	10.65%	4.74%	5.91%
2007.1	10.59%	4.80%	5.79%
2007.2	10.33%	4.99%	5.34%
2007.3	10.40%	4.95%	5.45%
2007.4	10.65%	4.61%	6.04%
2008.1	10.62%	4.41%	6.21%

BOND YIELD PLUS RISK PREMIUM

Quarter	[1] Average Authorized VI Electric ROE	[2] U.S. Govt. 30-year Treasury	[3] Risk Premium
2008.2	10.54%	4.57%	5.96%
2008.3	10.43%	4.45%	5.98%
2008.4	10.39%	3.64%	6.74%
2009.1	10.75%	3.44%	7.31%
2009.2	10.75%	4.17%	6.58%
2009.3	10.50%	4.32%	6.18%
2009.4	10.59%	4.34%	6.25%
2010.1	10.59%	4.62%	5.97%
2010.2	10.18%	4.37%	5.81%
2010.3	10.40%	3.86%	6.55%
2010.4	10.38%	4.17%	6.20%
2011.1	10.09%	4.56%	5.53%
2011.2	10.26%	4.34%	5.92%
2011.3	10.57%	3.70%	6.88%
2011.4	10.39%	3.04%	7.35%
2012.1	10.30%	3.14%	7.17%
2012.2	9.95%	2.94%	7.01%
2012.3	9.90%	2.74%	7.16%
2012.4	10.16%	2.86%	7.30%
2013.1	9.85%	3.13%	6.72%
2013.2	9.86%	3.14%	6.72%
2013.3	10.12%	3.71%	6.41%
2013.4	9.97%	3.79%	6.18%
2014.1	9.86%	3.69%	6.16%
2014.2	10.10%	3.44%	6.66%
2014.3	9.90%	3.27%	6.63%
2014.4	9.94%	2.96%	6.98%
2015.1	9.64%	2.55%	7.08%
2015.2	9.83%	2.88%	6.94%
2015.3	9.40%	2.96%	6.44%
2015.4	9.86%	2.96%	6.90%
2016.1	9.70%	2.72%	6.98%
2016.2	9.48%	2.57%	6.91%
2016.3	9.74%	2.28%	7.46%
2016.4	9.83%	2.83%	7.00%
2017.1	9.72%	3.05%	6.67%
2017.2	9.64%	2.90%	6.75%
2017.3	10.00%	2.82%	7.18%
2017.4	9.91%	2.82%	7.09%
2018.1	9.69%	3.02%	6.66%
2018.2	9.75%	3.09%	6.66%
2018.3	9.69%	3.06%	6.63%
2018.4	9.52%	3.27%	6.25%
2019.1	9.72%	3.01%	6.70%
2019.2	9.58%	2.78%	6.79%
2019.3	9.53%	2.29%	7.25%
2019.4	9.89%	2.26%	7.63%
2020.1	9.72%	1.89%	7.83%
2020.2	9.58%	1.38%	8.19%
2020.3	9.30%	1.37%	7.93%
2020.4	9.54%	1.62%	7.92%
2021.1	9.45%	2.07%	7.38%
2021.2	9.55%	2.26%	7.30%
2021.3	9.27%	1.93%	7.34%
2021.4	9.69%	1.95%	7.74%
2022.1	9.45%	2.25%	7.20%

BOND YIELD PLUS RISK PREMIUM

	[1]	[2]	[3]
Quarter	Average Authorized VI Electric ROE	U.S. Govt. 30-year Treasury	Risk Premium
2022.2	9.88%	3.05%	6.83%
2022.3	9.14%	3.26%	5.88%
2022.4	9.94%	3.89%	6.04%
2023.1	9.72%	3.75%	5.97%
2023.2	10.04%	3.81%	6.23%
2023.3	9.79%	4.23%	5.55%
2023.4	9.82%	4.58%	5.24%
2024.1	9.67%	4.32%	5.35%
2024.2	10.16%	4.58%	5.58%
2024.3	9.86%	4.23%	5.63%
2024.4	9.90%	4.50%	5.40%
2025.1	9.83%	4.72%	5.11%
2025.2	9.95%	4.84%	5.11%
2025.3	9.70%	4.85%	4.85%
2025.4	9.91%	4.71%	5.20%
2026.1	9.74%	4.82%	4.93%
2026.2	10.89%	4.96%	5.92%
AVERAGE	11.45%	6.01%	5.44%
MEDIAN	10.91%	5.11%	5.57%

Dr. Won's DCF Analysis
Stock Prices

As Filed

		[1]	[2]	[3]	[4]	[5]	[6]	[7]
		October 2025		November 2025		December 2025		
Company	Ticker	Max Stock Price	Min Stock Price	Max Stock Price	Min Stock Price	Max Stock Price	Min Stock Price	Aveage Stock Price
Alliant Energy Corporation	LNT	$ 68.42	$ 67.51	$ 68.12	$ 67.23	$ 65.98	$ 65.19	$ 67.08
Ameren Corporation	AEE	$ 104.92	$ 103.53	$ 104.87	$ 103.33	$ 100.37	$ 99.01	$ 102.67
American Electric Power Company, Inc	AEP	$ 118.10	$ 116.19	$ 122.52	$ 120.75	$ 116.98	$ 115.42	$ 118.33
Avista Corporation	AVA	$ 38.25	$ 37.70	$ 41.02	$ 40.43	$ 39.10	$ 38.48	$ 39.16
CMS Energy Corporation	CMS	$ 74.46	$ 73.27	$ 74.27	$ 73.27	$ 71.21	$ 70.26	$ 72.79
DTE Energy Company	DTE	$ 142.09	$ 140.12	$ 137.47	$ 135.64	$ 131.06	$ 129.31	$ 135.95
Duke Energy Corporation	DUK	$ 127.01	$ 125.22	$ 124.21	$ 122.50	$ 117.81	$ 116.30	$ 122.18
Entergy Corporation	ETR	$ 97.03	$ 95.09	$ 96.54	$ 94.91	$ 93.82	$ 92.42	$ 94.97
IDACORP, Inc.	IDA	$ 135.59	$ 133.35	$ 129.85	$ 127.79	$ 127.94	$ 126.00	$ 130.09
OGE Energy Corp.	OGE	$ 46.34	$ 45.65	$ 44.95	$ 44.24	$ 43.58	$ 43.01	$ 44.63
Pinnacle West Capital Corporation	PNW	$ 92.12	$ 90.76	$ 89.61	$ 88.32	$ 88.70	$ 87.64	$ 89.53
Portland General Electric Company	POR	$ 44.84	$ 44.20	$ 49.50	$ 48.61	$ 48.79	$ 48.10	$ 47.34
PPL Corporation	PPL							
The Southern Company	SO	$ 97.05	$ 95.65	$ 91.43	$ 90.14	$ 87.32	$ 86.04	$ 91.27
Xcel Energy Inc.	XEL	$ 81.59	$ 80.14	$ 81.33	$ 80.06	$ 76.03	$ 74.82	$ 79.00

[1] Schedule SJW-d11
[2] Schedule SJW-d11
[3] Schedule SJW-d11
[4] Schedule SJW-d11
[5] Schedule SJW-d11
[6] Schedule SJW-d11
[7] Average of [1] through [6]

Dr. Won's DCF Analysis
Stock Prices

Updated to Reflect Most Current Data as of the Filing of Dr. Won's Testimony

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	
		January 2026		February 2026		March 2026		April 2026		May 2026		June 2026			
Company	Ticker	Max Stock Price	Min Stock Price	Max Stock Price	Min Stock Price	Max Stock Price	Min Stock Price	Max Stock Price	Min Stock Price	Max Stock Price	Min Stock Price	Max Stock Price	Min Stock Price	6 Month Average Stock Price	3 Month Average Stock Price
Alliant Energy Corporation	LNT	$ 66.40	$ 63.60	$ 71.80	$ 64.63	$ 72.49	$ 68.20	$ 73.43	$ 70.43	$ 74.06	$ 70.90	$ 77.25	$ 69.57	$ 70.23	$ 72.61
Ameren Corporation	AEE	$ 102.70	$ 97.71	$ 111.73	$ 101.00	$ 112.07	$ 105.32	$ 113.52	$ 108.48	$ 112.77	$ 105.62	$ 118.32	$104.35	$ 107.80	$ 110.51
American Electric Power Company,	AEP	$ 118.16	$ 111.99	$ 132.86	$ 116.56	$ 133.18	$ 124.75	$ 136.16	$ 130.67	$ 136.05	$ 125.15	$ 138.69	$123.79	$ 127.33	$ 131.75
Avista Corporation	AVA	$ 40.33	$ 37.56	$ 42.07	$ 39.29	$ 39.98	$ 37.91	$ 41.59	$ 39.65	$ 41.71	$ 39.93	$ 42.43	$ 39.40	$ 40.15	$ 40.78
CMS Energy Corporation	CMS	$ 70.95	$ 68.42	$ 77.47	$ 69.49	$ 77.69	$ 73.85	$ 79.32	$ 74.15	$ 75.44	$ 71.64	$ 78.81	$ 70.22	$ 73.95	$ 74.93
DTE Energy Company	DTE	$ 134.93	$ 126.26	$ 145.92	$ 130.85	$ 148.16	$ 140.45	$ 150.49	$ 142.34	$ 147.62	$ 138.68	$ 154.43	$138.73	$ 141.57	$ 145.38
Duke Energy Corporation	DUK	$ 119.29	$ 114.22	$ 129.73	$ 117.47	$ 132.32	$ 125.72	$ 131.86	$ 124.18	$ 127.50	$ 120.95	$ 128.40	$119.89	$ 124.29	$ 125.46
Entergy Corporation	ETR	$ 95.43	$ 90.10	$ 106.53	$ 94.35	$ 111.75	$ 99.36	$ 117.27	$ 109.87	$ 117.36	$ 109.03	$ 116.33	$104.97	$ 106.03	$ 112.47
IDACORP, Inc.	IDA	$ 132.92	$ 124.31	$ 143.39	$ 129.53	$ 143.56	$ 134.67	$ 147.93	$ 142.65	$ 146.21	$ 139.96	$ 152.88	$135.01	$ 139.42	$ 144.11
OGE Energy Corp.	OGE	$ 43.48	$ 41.79	$ 48.71	$ 42.70	$ 48.82	$ 45.74	$ 49.86	$ 46.04	$ 48.54	$ 46.27	$ 49.58	$ 45.66	$ 46.43	$ 47.66
Pinnacle West Capital Corporation	PNW	$ 93.01	$ 85.79	$ 99.42	$ 90.89	$ 102.17	$ 96.42	$ 103.53	$ 99.91	$ 102.94	$ 98.40	$ 108.08	$ 97.48	$ 98.17	$ 101.72
Portland General Electric Company	POR	$ 49.39	$ 47.16	$ 52.88	$ 49.07	$ 53.04	$ 49.91	$ 53.65	$ 49.81	$ 50.61	$ 46.78	$ 52.53	$ 47.96	$ 50.23	$ 50.22
PPL Corporation	PPL	$ 36.61	$ 33.91	$ 38.38	$ 34.59	$ 38.43	$ 36.26	$ 39.49	$ 37.14	$ 37.50	$ 34.60	$ 37.02	$ 34.24	$ 36.52	$ 36.67
The Southern Company	SO	$ 87.89	$ 84.89	$ 96.58	$ 86.78	$ 98.30	$ 92.62	$ 96.79	$ 91.12	$ 95.92	$ 91.05	$ 97.16	$ 89.03	$ 92.34	$ 93.51
Xcel Energy Inc.	XEL	$ 75.38	$ 72.14	$ 82.67	$ 73.40	$ 82.56	$ 76.20	$ 82.33	$ 77.53	$ 81.96	$ 77.34	$ 82.23	$ 75.84	$ 78.30	$ 79.54

[1] - [12] Bloomberg Professional; adjusted closing prices.
[13] Average of [1] through [12]
[14] Average of [7] through [12]

Calculation of Long-Term GDP Growth Rate Consistent with *Morningstar* Methodology

Description	Notes	Year	Amount
Change in Real GDP			
Real GDP ($ Billions)	[1]	1929	$ 1,191.1
Real GDP ($ Billions)	[1]	2025	$ 23,850.4
Compound Annual Growth Rate			**3.17%**
Consumer Price Index (YoY % Change)	[2]	2033-2037	2.20%
Consumer Price Index (All-Urban)	[3]	2035	3.98
Consumer Price Index (All-Urban)	[3]	2050	5.35
Compound Annual Growth Rate			1.99%
GDP Chain-type Price Index (2012=1.000)	[3]	2035	1.71
GDP Chain-type Price Index (2012=1.000)	[3]	2050	2.28
Compound Annual Growth Rate			1.93%
Average Inflation Forecast	[4]		**2.04%**
Long-Term GDP Growth Rate	[5]		**5.28%**

Notes:

[1] Bureau of Economic Analysis, May 31, 2026

[2] Blue Chip Financial Forecasts, Vol. 45, No. 6, June 1, 2026, at 14

[3] Energy Information Administration, Annual Energy Outlook 2026, Table 20, April 8, 2026

[4] Average of 3 inflation sources

[5] Equals (1+0.0317) x (1+ 0.0204) - 1

Dr. Won's Two-Step DCF Analysis

As Filed

Company	Ticker	[1] 2025 Dividend per Share	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Projected *Value Line* EPS, DPS & BVPS Gwth Rate	[6] Projected Long Term Gwth Rate	[7] Wgtd. Average Gwth Rate	[8] Cost of Equity
					Weight:	80%	20%		
Data through December 31, 2025									
Alliant Energy Corporation	LNT	$ 2.04	$ 67.08	3.04%	3.12%	5.33%	3.80%	5.03%	8.14%
Ameren Corporation	AEE	$ 2.85	$ 102.67	2.78%	2.86%	6.50%	3.80%	5.96%	8.82%
American Electric Power Company, Inc	AEP	$ 3.80	$ 118.33	3.21%	3.30%	6.00%	3.80%	5.56%	8.86%
Avista Corporation	AVA	$ 1.96	$ 39.16	5.00%	5.11%	4.17%	3.80%	4.09%	9.20%
CMS Energy Corporation	CMS	$ 2.17	$ 72.79	2.98%	3.07%	6.83%	3.80%	6.23%	9.30%
DTE Energy Company	DTE	$ 4.41	$ 135.95	3.24%	3.29%	2.83%	3.80%	3.03%	6.32%
Duke Energy Corporation	DUK	$ 4.30	$ 122.18	3.52%	3.60%	4.50%	3.80%	4.36%	7.96%
Entergy Corporation	ETR	$ 2.44	$ 94.97	2.57%	2.62%	4.33%	3.80%	4.23%	6.85%
IDACORP, Inc.	IDA	$ 3.48	$ 130.09	2.68%	2.74%	4.83%	3.80%	4.63%	7.36%
OGE Energy Corp.	OGE	$ 1.71	$ 44.63	3.83%	3.92%	5.00%	3.80%	4.76%	8.68%
Pinnacle West Capital Corporation	PNW	$ 3.61	$ 89.53	4.03%	4.10%	3.50%	3.80%	3.56%	7.66%
Portland General Electric Company	POR	$ 2.08	$ 47.34	4.39%	4.51%	5.50%	3.80%	5.16%	9.67%
PPL Corporation	PPL								
The Southern Company	SO	$ 3.04	$ 91.27	3.33%	3.40%	4.50%	3.80%	4.36%	7.76%
Xcel Energy Inc.	XEL	$ 2.28	$ 79.00	2.89%	2.97%	6.33%	3.80%	5.83%	8.80%
							Average:		**8.24%**

Dr. Won Outlier Methodology

Lower Bound:	7.11%
Upper Bound:	9.25%
Cost of Equity / Avg. of Lower & Upper Bound:	**8.18%**

FERC Outlier Methodology (Lower Bound):

30-Day Average Yield on Moody's Baa-rated Corporate Bonds:	5.86%
Avg. of Dr. Won's Market Risk Premia in the CAPM:	5.64%
FERC Percent of Market Risk Premium in CAPM for Outlier Test:	20.00%
Lower Bound Threshold:	6.99%

FERC Outlier Methodology (Upper Bound):

Median DCF Result:	8.41%
Upper Bound Threshold (200% of Median DCF Result):	16.83%

Notes:
[1] - [8] Schedule SJW-d12

Dr. Won's Two-Step DCF Analysis

Corrected Proxy Group, Short Term Growth Rates, and Updated to Reflect Data through June 2026

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Company	**Ticker**	**2026 Dividend per Share**	**Stock Price**	**Dividend Yield**	**Expected Dividend Yield**	***Value Line* Projected EPS Gwth Rate**	**Projected Long Term Gwth Rate**	**Wgtd. Average Gwth Rate**	**Cost of Equity**
					Weight:	80%	20%		
Data through June 30, 2026									
Alliant Energy Corporation	LNT	$ 2.15	$ 72.61	2.96%	3.04%	6.00%	3.90%	5.58%	8.62%
Ameren Corporation	AEE	$ 3.00	$ 110.51	2.71%	2.81%	7.50%	3.90%	6.78%	9.59%
American Electric Power Company, Inc	AEP	$ 3.98	$ 131.75	3.02%	3.10%	5.50%	3.90%	5.18%	8.28%
Avista Corporation	AVA	$ 2.10	$ 40.78	5.15%	5.27%	5.00%	3.90%	4.78%	10.05%
CMS Energy Corporation	CMS	$ 2.30	$ 74.93	3.07%	3.19%	8.50%	3.90%	7.58%	10.77%
DTE Energy Company	DTE	$ 4.71	$ 145.38	3.24%	3.33%	6.00%	3.90%	5.58%	8.91%
Duke Energy Corporation	DUK	$ 4.30	$ 125.46	3.43%	3.53%	6.50%	3.90%	5.98%	9.51%
Entergy Corporation	ETR	$ 2.60	$ 112.47	2.31%	2.43%	11.50%	3.90%	9.98%	12.41%
IDACORP, Inc.	IDA	$ 3.65	$ 144.11	2.53%	2.59%	5.00%	3.90%	4.78%	7.37%
OGE Energy Corp.	OGE	$ 1.70	$ 47.66	3.57%	3.67%	6.00%	3.90%	5.58%	9.25%
Pinnacle West Capital Corporation	PNW	$ 3.67	$ 101.72	3.61%	3.71%	6.00%	3.90%	5.58%	9.29%
Portland General Electric Company	POR	$ 2.20	$ 50.22	4.38%	4.51%	6.50%	3.90%	5.98%	10.49%
PPL Corporation	PPL	$ 1.14	$ 36.67	3.11%	3.22%	8.00%	3.90%	7.18%	10.40%
The Southern Company	SO	$ 3.04	$ 93.51	3.25%	3.35%	7.00%	3.90%	6.38%	9.73%
Xcel Energy Inc.	XEL	$ 2.37	$ 79.54	2.98%	3.09%	8.00%	3.90%	7.18%	10.27%
							Average:		**9.66%**

Dr. Won Outlier Methodology

Lower Bound:	8.45%
Upper Bound:	10.63%
Cost of Equity (Avg. of Lower & Upper Bound):	**9.54%**

FERC Outlier Methodology

Average Cost of Equity:	**9.66%**

FERC Outlier Methodology (Lower Bound):

30-Day Average Yield on Moody's Baa-rated Corporate Bonds:	5.86%
Avg. of Dr. Won's Market Risk Premia in the CAPM:	5.64%
FERC Percent of Market Risk Premium in CAPM for Outlier Test:	20.00%
Lower Bound Threshold:	6.99%

FERC Outlier Methodology (Upper Bound):

Median DCF Result:	9.59%
Upper Bound Threshold (200% of Median DCF Result):	19.17%

Notes:
[1] *Value Line* ; most current as of 6/30/2026
[2] Schedule AEB-1R, Attachment 8, p. 2
[3] Equals [1] / [2]
[4] Equals [3] x (1+[7]x50%)
[5] *Value Line* ; most current as of 6/30/26
[6] Schedule SJW-d15
[7] Equals ([5] x 80%) + ([6] x 20%)
[8] Equals [4] + [7]

Dr. Won's Two-Step DCF Analysis

Corrected Proxy Group, Short Term and Long Term Growth Rates, and Updated to Reflect Data through June 2026

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Company	**Ticker**	**2026 Dividend per Share**	**Stock Price**	**Dividend Yield**	**Expected Dividend Yield**	***Value Line* Projected EPS Gwth Rate**	**Projected Long Term Gwth Rate**	**Wgtd. Average Gwth Rate**	**Cost of Equity**
					Weight:	80%	20%		
Data through June 30, 2026									
Alliant Energy Corporation	LNT	$ 2.15	$ 72.61	2.96%	3.05%	6.00%	5.28%	5.86%	8.90%
American Electric Power Company, Inc.	AEP	$ 3.00	$ 110.51	2.71%	2.81%	7.50%	5.28%	7.06%	9.87%
Avista Corporation	AVA	$ 3.98	$ 131.75	3.02%	3.10%	5.50%	5.28%	5.46%	8.56%
CMS Energy Corporation	CMS	$ 2.10	$ 40.78	5.15%	5.28%	5.00%	5.28%	5.06%	10.33%
Duke Energy Corporation	DUK	$ 2.30	$ 74.93	3.07%	3.19%	8.50%	5.28%	7.86%	11.05%
Entergy Corporation	ETR	$ 4.71	$ 145.38	3.24%	3.33%	6.00%	5.28%	5.86%	9.19%
Evergy, Inc.	EVRG	$ 4.30	$ 125.46	3.43%	3.53%	6.50%	5.28%	6.26%	9.79%
IDACORP, Inc.	IDA	$ 2.60	$ 112.47	2.31%	2.43%	11.50%	5.28%	10.26%	12.69%
Northwestern Corporation	NWE	$ 3.65	$ 144.11	2.53%	2.60%	5.00%	5.28%	5.06%	7.65%
OGE Energy Corp.	OGE	$ 1.70	$ 47.66	3.57%	3.67%	6.00%	5.28%	5.86%	9.53%
Pinnacle West Capital Corporation	PNW	$ 3.67	$ 101.72	3.61%	3.71%	6.00%	5.28%	5.86%	9.57%
Portland General Electric Company	POR	$ 2.20	$ 50.22	4.38%	4.52%	6.50%	5.28%	6.26%	10.77%
PPL Corporation	PPL	$ 1.14	$ 36.67	3.11%	3.22%	8.00%	5.28%	7.46%	10.68%
The Southern Company	SO	$ 3.04	$ 93.51	3.25%	3.36%	7.00%	5.28%	6.66%	10.01%
Xcel Energy Inc.	XEL	$ 2.37	$ 79.54	2.98%	3.09%	8.00%	5.28%	7.46%	10.55%
							Average:		**9.94%**

Dr. Won Outlier Methodology

Lower Bound:	8.73%
Upper Bound:	10.91%
Cost of Equity (Avg. of Lower & Upper Bound):	**9.82%**

FERC Outlier Methodology

Average Cost of Equity:	**9.94%**

FERC Outlier Methodology (Lower Bound):

30-Day Average Yield on Moody's Baa-rated Corporate Bonds:	5.86%
Avg. of Dr. Won's Market Risk Premia in the CAPM:	5.64%
FERC Percent of Market Risk Premium in CAPM for Outlier Test:	20.00%
Lower Bound Threshold:	6.99%

FERC Outlier Methodology (Upper Bound):

Median DCF Result:	9.87%
Upper Bound Threshold (200% of Median DCF Result):	19.73%

Notes:
[1] Value Line; most current as of 6/30/2026
[2] Schedule AEB-1R, Attachment 8, p. 2
[3] Equals [1] / [2]
[4] Equals [3] x (1+[7]x50%)
[5] *Value Line* ; most current as of 6/30/26
[6] Schedule AEB-1R, Attachment 9
[7] Equals ([5] x 80%) + ([6] x 20%)
[8] Equals [4] + [7]

Dr. Won's Adjusted CAPM Analysis

Company	Ticker	[1] Risk-Free Rate	[2] Historical Arithmetic Avg. Return on Lg. Cap Stocks (1926-2025)	[3] Historical Arithmetic Avg. Income-Only Return on LT Govt. Bonds (1926-2026)	[4] Historical Market Risk Premium	[5] *Value Line* Beta	[6] Cost of Equity
Alliant Energy Corporation	LNT	4.96%	12.35%	4.96%	7.39%	0.90	11.61%
Ameren Corporation	AEP	4.96%	12.35%	4.96%	7.39%	0.85	11.24%
American Electric Power Company, Inc	AVA	4.96%	12.35%	4.96%	7.39%	0.95	11.98%
Avista Corporation	CMS	4.96%	12.35%	4.96%	7.39%	0.85	11.24%
CMS Energy Corporation	DUK	4.96%	12.35%	4.96%	7.39%	0.90	11.61%
DTE Energy Company	ETR	4.96%	12.35%	4.96%	7.39%	1.00	12.35%
Duke Energy Corporation	EVRG	4.96%	12.35%	4.96%	7.39%	0.95	11.98%
Entergy Corporation	IDA	4.96%	12.35%	4.96%	7.39%	0.85	11.24%
IDACORP, Inc.	NWE	4.96%	12.35%	4.96%	7.39%	0.95	11.98%
OGE Energy Corp.	OGE	4.96%	12.35%	4.96%	7.39%	1.05	12.72%
Pinnacle West Capital Corporation	PNW	4.96%	12.35%	4.96%	7.39%	0.95	11.98%
Portland General Electric Company	POR	4.96%	12.35%	4.96%	7.39%	0.90	11.61%
PPL Corporation	PPL	4.96%	12.35%	4.96%	7.39%	1.15	13.46%
The Southern Company	SO	4.96%	12.35%	4.96%	7.39%	0.90	11.61%
Xcel Energy Inc.	XEL	4.96%	12.35%	4.96%	7.39%	0.85	11.24%
						Average:	**11.86%**

[1] 3-month average 30-year Treasury bond yield ending June 30, 2026
[2] Kroll (1926-2022), S&P Capital IQ for S&P 500 Return (2023-2025), Kroll from Income Only Return on bonds (2023-2025)
[3] Assumes historical arithmetic avg. income-only return on long-term government bonds equals the current risk-free rate in [1]
[4] Equals [2] - [3]
[5] *Value Line*
[6] Equals [1] + ([4] x [5])

BOND YIELD PLUS RISK PREMIUM

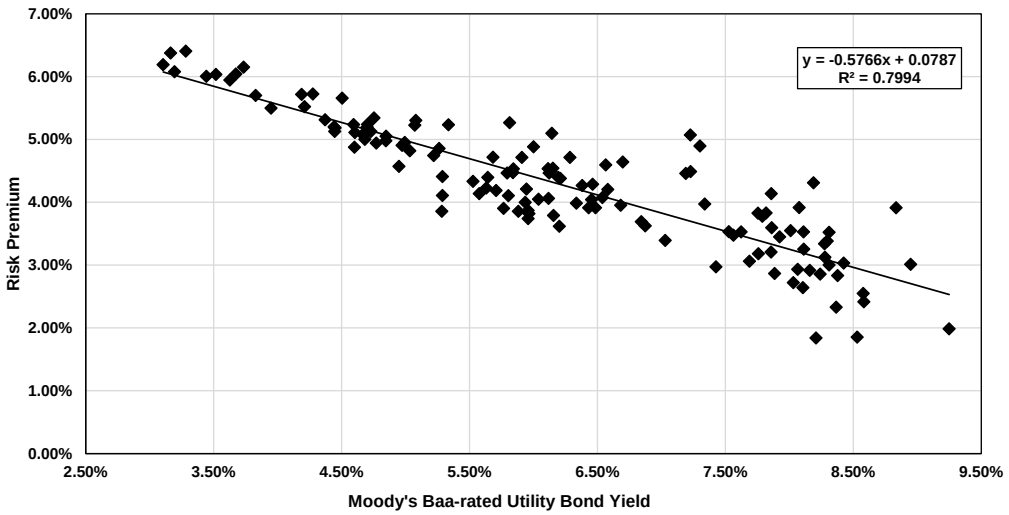
Quarter	[1] Avg. Authorized Electric ROE	[2] Avg. Baa-Rated Utiliity Bond Yield	[3] Risk Premium
1993.1	11.84%	8.31%	3.53%
1993.2	11.64%	8.11%	3.53%
1993.3	11.15%	7.62%	3.53%
1993.4	11.04%	7.56%	3.48%
1994.1	11.07%	7.86%	3.21%
1994.2	11.13%	8.58%	2.55%
1994.3	12.75%	8.83%	3.92%
1994.4	11.24%	9.25%	1.99%
1995.1	11.96%	8.95%	3.01%
1995.2	11.32%	8.31%	3.01%
1995.3	11.37%	8.11%	3.26%
1995.4	11.58%	7.76%	3.83%
1996.1	11.46%	7.86%	3.60%
1996.2	11.46%	8.42%	3.04%
1996.3	10.70%	8.37%	2.33%
1996.4	11.56%	8.01%	3.55%
1997.1	11.08%	8.16%	2.92%
1997.2	11.62%	8.27%	3.34%
1997.3	12.00%	7.86%	4.14%
1997.4	11.06%	7.53%	3.53%
1998.1	11.31%	7.34%	3.97%
1998.2	12.20%	7.30%	4.90%
1998.3	11.65%	7.19%	4.46%
1998.4	12.30%	7.23%	5.07%
1999.1	10.40%	7.43%	2.97%
1999.2	10.94%	7.76%	3.18%
1999.3	10.75%	8.11%	2.64%
1999.4	11.10%	8.24%	2.86%
2000.1	11.21%	8.38%	2.84%
2000.2	11.00%	8.58%	2.42%
2000.3	11.68%	8.30%	3.38%
2000.4	12.50%	8.19%	4.31%
2001.1	11.38%	7.92%	3.45%
2001.2	11.00%	8.06%	2.94%
2001.3	10.76%	8.03%	2.72%
2001.4	11.99%	8.08%	3.92%
2002.1	10.05%	8.21%	1.84%
2002.2	11.41%	8.28%	3.13%
2002.3	11.65%	7.82%	3.83%
2002.4	11.57%	7.79%	3.78%
2003.1	11.72%	7.23%	4.49%
2003.2	11.16%	6.57%	4.60%
2003.3	10.50%	6.87%	3.63%
2003.4	11.34%	6.70%	4.64%
2004.1	11.00%	6.28%	4.72%
2004.2	10.64%	6.68%	3.96%
2004.3	10.75%	6.46%	4.29%
2004.4	11.24%	6.14%	5.10%
2005.1	10.63%	5.91%	4.72%
2005.2	10.31%	5.84%	4.47%
2005.3	11.08%	5.81%	5.27%
2005.4	10.63%	6.14%	4.50%
2006.1	10.70%	6.15%	4.54%
2006.2	10.79%	6.58%	4.21%
2006.3	10.35%	6.43%	3.91%
2006.4	10.65%	6.11%	4.54%
2007.1	10.59%	6.12%	4.47%
2007.2	10.33%	6.34%	3.99%
2007.3	10.40%	6.49%	3.91%
2007.4	10.65%	6.38%	4.27%
2008.1	10.62%	6.54%	4.08%

BOND YIELD PLUS RISK PREMIUM

Quarter	[1] Avg. Authorized Electric ROE	[2] Avg. Baa-Rated Utiliity Bond Yield	[3] Risk Premium
2008.2	10.54%	6.84%	3.69%
2008.3	10.43%	7.03%	3.40%
2008.4	10.39%	8.53%	1.86%
2009.1	10.75%	7.88%	2.87%
2009.2	10.75%	7.69%	3.06%
2009.3	10.50%	6.45%	4.05%
2009.4	10.59%	6.19%	4.40%
2010.1	10.59%	6.21%	4.38%
2010.2	10.18%	6.12%	4.06%
2010.3	10.40%	5.68%	4.72%
2010.4	10.38%	5.84%	4.54%
2011.1	10.09%	6.04%	4.05%
2011.2	10.26%	5.79%	4.47%
2011.3	10.57%	5.34%	5.24%
2011.4	10.39%	5.08%	5.31%
2012.1	10.30%	5.07%	5.23%
2012.2	9.95%	4.99%	4.96%
2012.3	9.90%	4.85%	5.05%
2012.4	10.16%	4.51%	5.66%
2013.1	9.85%	4.71%	5.14%
2013.2	9.86%	4.73%	5.13%
2013.3	10.12%	5.26%	4.86%
2013.4	9.97%	5.22%	4.75%
2014.1	9.86%	5.03%	4.82%
2014.2	10.10%	4.75%	5.35%
2014.3	9.90%	4.70%	5.20%
2014.4	9.94%	4.70%	5.24%
2015.1	9.64%	4.45%	5.19%
2015.2	9.83%	4.85%	4.98%
2015.3	9.40%	5.29%	4.11%
2015.4	9.86%	5.53%	4.33%
2016.1	9.70%	5.29%	4.41%
2016.2	9.48%	4.60%	4.88%
2016.3	9.74%	4.21%	5.52%
2016.4	9.83%	4.59%	5.24%
2017.1	9.72%	4.60%	5.11%
2017.2	9.64%	4.44%	5.20%
2017.3	10.00%	4.28%	5.73%
2017.4	9.91%	4.19%	5.72%
2018.1	9.69%	4.37%	5.32%
2018.2	9.75%	4.67%	5.08%
2018.3	9.69%	4.68%	5.00%
2018.4	9.52%	4.95%	4.57%
2019.1	9.72%	4.77%	4.95%
2019.2	9.58%	4.45%	5.13%
2019.3	9.53%	3.83%	5.70%
2019.4	9.89%	3.74%	6.15%
2020.1	9.72%	3.67%	6.04%
2020.2	9.58%	3.63%	5.95%
2020.3	9.30%	3.11%	6.19%
2020.4	9.54%	3.16%	6.38%
2021.1	9.45%	3.44%	6.01%
2021.2	9.55%	3.52%	6.04%
2021.3	9.27%	3.20%	6.08%
2021.4	9.69%	3.28%	6.41%
2022.1	9.45%	3.95%	5.50%
2022.2	9.88%	4.97%	4.91%
2022.3	9.14%	5.28%	3.86%
2022.4	9.94%	5.93%	4.00%
2023.1	9.72%	5.58%	4.14%

BOND YIELD PLUS RISK PREMIUM

Quarter	[1] Avg. Authorized Electric ROE	[2] Avg. Baa-Rated Utiliity Bond Yield	[3] Risk Premium
2023.2	10.04%	5.64%	4.40%
2023.3	9.79%	5.97%	3.82%
2023.4	9.82%	6.20%	3.62%
2024.1	9.67%	5.77%	3.91%
2024.2	10.16%	5.94%	4.21%
2024.3	9.86%	5.63%	4.23%
2024.4	9.90%	5.71%	4.19%
2025.1	9.83%	5.96%	3.87%
2025.2	9.95%	6.16%	3.79%
2025.3	9.70%	5.96%	3.74%
2025.4	9.91%	5.80%	4.11%
2026.1	9.74%	5.88%	3.86%
2026.2	10.89%	6.00%	4.88%
AVERAGE	10.49%	6.21%	4.28%
MEDIAN	10.39%	6.12%	4.28%



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.894101932
R Square	0.799418264
Adjusted R Square	0.797898706
Standard Error	0.004449304
Observations	134

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.010414558	0.010414558	526.0858392	6.91617E-48
Residual	132	0.002613113	1.97963E-05		
Total	133	0.013027671			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.078650793	0.001607683	48.92182252	1.80728E-86	0.075470637	0.08183095	0.075470637	0.08183095
Baa-rated utility bond yield	-0.576601408	0.025138965	-22.93656119	6.91617E-48	-0.626328766	-0.526874051	-0.626328766	-0.526874051

	[4]	[5]	[6]
	Moody's Baa-Rated Utility Bond Yld	Risk Premium	ROE
Current 30-day average of Baa-rated utility bond yield	5.99%	4.41%	10.40%

Notes:
[1] Regulatory Research Associates, rate cases through June 30, 2026
[2] Bloomberg Professional, quarterly bond yields are the average of each trading day in the quarter
[3] Equals Column [1] − Column [2]
[4]Bloomberg Professional, 30-day average as of June 30, 2026
[5] Equals 0.078651 + (-0.576601 x Column [4])
[9] Equals Column [4] + Column [5]

Evergy Metro, Inc. d/b/a Evergy Missouri Metro

Docket No.: ER-2026-0143
Date: August 11, 2026

CONFIDENTIAL INFORMATION

The following information is provided to the Missouri Public Service Commission under CONFIDENTIAL SEAL:

Document/Page	**Reason for Confidentiality from List Below**
Bulkley Rebuttal, p. 79, lns. 8-12	3, 4, and 6.

Rationale for the "confidential" designation pursuant to 20 CSR 4240-2.135 is documented below:

1. Customer-specific information;

2. Employee-sensitive personnel information;

3. Marketing analysis or other market-specific information relating to services offered in competition with others;

4. Marketing analysis or other market-specific information relating to goods or services purchased or acquired for use by a company in providing services to customers;

5. Reports, work papers, or other documentation related to work produced by internal or external auditors, consultants, or attorneys, except that total amounts billed by each external auditor, consultant, or attorney for services related to general rate proceedings shall always be public;

6. Strategies employed, to be employed, or under consideration in contract negotiations;

7. Relating to the security of a company's facilities; or

8. Concerning trade secrets, as defined in section 417.453, RSMo.

9. Other (specify) _____.

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