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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. ER-2024-0319

SURREBUTTAL TESTIMONY

OF

ANN E. BULKLEY

ON

BEHALF OF

UNION ELECTRIC COMPANY

D/B/A AMEREN MISSOURI

**St. Louis, Missouri
February 2025**

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**SURREBUTTAL TESTIMONY
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FILE NO. ER-2024-0319**

1 **I. INTRODUCTION**

2 **Q: Are you the same Ann E. Bulkley that previously filed direct and rebuttal**
3 **testimony in this proceeding?**

4 A. Yes. I previously submitted direct and rebuttal testimony before the Missouri Public
5 Service Commission (“Commission”) in this proceeding on behalf of Ameren
6 Missouri (“Company” or “Ameren Missouri”), a wholly-owned subsidiary of Ameren
7 Corporation (“Ameren”), regarding the Company’s electric utility operations.

8 **Q: What is the purpose of your surrebuttal testimony?**

9 A. The purpose of my surrebuttal testimony is to respond to the rebuttal testimonies of
10 Dr. Seoung Joun Won on behalf of the Missouri Public Service Commission Staff
11 (“Staff”),¹ David Murray on behalf of the Missouri Office of the Public Counsel
12 (“OPC”),² and Christopher C. Walters on behalf of the Missouri Industrial Energy
13 Consumers³ regarding their respective proposals for the return on equity for the

¹ Missouri Public Service Commission, Case No. ER-2024-03197, Rebuttal Testimony of Seoung Joun Won, PhD, January 17, 2025 (“Won Rebuttal”).

² Missouri Public Service Commission, Case No. ER-2024-03197, Rebuttal Testimony of David Murray, January 17, 2025 (“Murray Rebuttal”).

³ Missouri Public Service Commission, Case No. ER-2024-03197, Rebuttal Testimony and Schedules of Christopher C. Walters, January 17, 2025 (“Walters Rebuttal”).

1 Company in this proceeding. In addition, my surrebuttal testimony also responds to
2 the rebuttal testimony of Mr. Keith Majors on behalf of Staff regarding the regulatory
3 and business risks of the Company.⁴ To the extent that I do not address a particular
4 issue raised by these witnesses in my surrebuttal testimony should not be viewed
5 as acceptance of that issue.

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

7 A. Yes. I am sponsoring Schedule AEB-SR1, Attachments 1 through 3, which have
8 been prepared by me or under my direction.

9 **II. SUMMARY AND CONCLUSIONS**

10 **Q: Please briefly summarize your surrebuttal testimony and your key**
11 **conclusions and recommendations regarding the appropriate ROE for**
12 **Ameren Missouri in this proceeding.**

13 A. Nothing in the rebuttal testimonies of Dr. Won, Mr. Murray, Mr. Walters, or Mr.
14 Comings has caused me to change my conclusions or recommendations. Based
15 on my review of their respective rebuttal testimonies, my key conclusions regarding
16 a reasonable ROE for the Company in this proceeding are as follows:

- 17 • It is not credible for Mr. Murray to suggest that I should have relied on the
18 assumptions used by his cost of equity estimation models when he does
19 not directly rely on the results of those models to support his recommended
20 ROE.

⁴ Missouri Public Service Commission, Case No. ER-2024-0319, Rebuttal Testimony of Keith Majors, January 17, 2025 ("Majors Rebuttal").

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- Neither Dr. Won nor Mr. Murray have demonstrated that their suggested changes to my proxy group are supported.
 - As a practical matter, they have identified only two out of the seventeen companies in my proxy group that they believe have significant unregulated operations.
 - Regardless, there is no basis to exclude utilities with unregulated operations but that derive the majority of their operating income from regulated electric operations and thus are comparable to Ameren Missouri.
 - In addition, there is no discernible trend in the constant growth discounted cash flow (“DCF”) results for the companies in my proxy group that would indicate companies with a relatively higher percentage of unregulated operations have a higher cost of equity than companies with a relatively lower percentage of unregulated operations, and neither Dr. Won nor Mr. Murray have conducted any analysis or provided evidence that supports this view.
 - Finally, Mr. Walters also relies on the same seventeen company proxy group to estimate the ROE for Ameren Missouri.
 - There is no basis to Mr. Murray’s claim that regulators, including the Commission, have incorrectly authorized ROEs for years that are substantially higher than the cost of equity.
 - While Dr. Won, Mr. Murray and Mr. Walters dispute various assumptions that are used in my cost of equity estimation models, nothing in their rebuttal testimonies has caused me to modify or adjust my analyses or ROE recommendation.
 - Dr. Won’s, Mr. Murray’s and Mr. Walters’s criticism regarding the use of projected earnings growth rates in the constant growth DCF model is unfounded.
 - While Dr. Won, Mr. Murray and Mr. Walters essentially suggest that I should have relied on the multi-stage DCF model using their assumptions, the results of their multi-stage DCF models are below each of their ROE recommendations.
 - Earnings are the fundamental driver of dividend growth rates, and there is significant academic research demonstrating that EPS growth rates are most relevant in stock price valuation.
 - Dr. Won’s, Mr. Murray’s and Mr. Walters’s allegation that the market return in my Capital Asset Pricing Model (“CAPM”) and Empirical CAPM (“ECAPM”) analyses is too high is contradicted by the fact that the methodology that I have used to estimate the market return:
 - Is consistent with historical average returns.

- 1 ○ Has been accepted by various regulators.
- 2 ○ Is consistent with the results of a study by the Federal Reserve Bank
3 of New York that evaluated various market risk premium estimates.
- 4 ○ Furthermore, there are critical errors in Dr. Won’s “adjustment” to my
5 CAPM and ECAPM analyses, that when corrected, continues to
6 support an ROE of 10.25 percent and fails to support Dr. Won’s
7 conclusion.
- 8 ● Neither Dr. Won, Mr. Murray nor Mr. Walters have provided any evidence
9 that the results of my Bond Yield Plus Risk Premium analysis (“BYRP”) are
10 unreliable.
- 11 ○ The regression analysis that I have conducted demonstrates a
12 strong inverse relationship between interest rates and the equity risk
13 premium for utilities.
- 14 ○ Dr. Won’s concern regarding the data used in my BYRP analysis
15 applies equally to his own analysis and given that his ROE
16 recommendation in this proceeding is equivalent to the result of his
17 BYRP and CAPM analyses, the concern that he raises in regard to
18 the BYRP could affect his ROE recommendation in this proceeding.
- 19 ○ Mr. Walters’s relies incorrectly on risk premium and interest rate data
20 from a single year (2023) to conclude that my BYRP analysis does
21 not reflect the inverse relationship between the risk premium and
22 interest rates. However, had he relied on the 39-year period that he
23 used to calculate his BRYP analysis, he would have concluded that
24 the resulting risk premia from my BYRP analysis correctly reflect the
25 inverse relationship between the risk premium and interest rates.
- 26 ● Dr. Won, Mr. Majors and Mr. Murray fail to consider the relevant comparison
27 point when evaluating the Company’s business and regulatory risks.
- 28 ○ Each fail to recognize that the appropriate comparison is not the
29 Company’s risk with or without regulatory mechanisms, but rather
30 the Company’s risk as compared to the proxy group companies.
- 31 ○ All else equal, while I agree that regulatory mechanisms that reduce
32 a utility’s regulatory lag in cost recovery help to mitigate risk, the
33 appropriate analysis for purposes of establishing the Company’s
34 ROE in this proceeding is to evaluate how Ameren Missouri’s
35 regulatory risk compares to the other companies in the proxy group.

1 **III. CAPITAL MARKET CONDITIONS**

2 **Q: What is Mr. Murray’s concern with your position on how current market**
3 **conditions affect the cost of equity for utilities?**

4 A. Mr. Murray suggests that share prices reflect all known information about a stock,
5 essentially the efficient market hypothesis (“EMH”).⁵ Based on this theory, he
6 concludes that the analyst views I have provided about the performance of the utility
7 sector price are not relevant.⁶ Rather, he suggests that the prices used in the DCF
8 model will reflect all known information and therefore the DCF model results should
9 be relied upon to estimate the cost of equity.⁷

10 **Q: What is the EMH?**

11 A. The theory of the EMH contends that all information that is currently known by
12 investors is already reflected in current stock prices.⁸ For example, as shown in
13 Equation 1 in my direct testimony, the theory of the DCF model is that the current
14 share price is equal to the present value of all expected future dividends.⁹
15 Therefore, if markets were fully efficient as espoused by Mr. Murray, changes in

⁵ Murray Rebuttal, at 27-28.

⁶ *Id.*, at 21-29.

⁷ *Id.*, at 28.

⁸ R.J. Shiller, “Do Stock Prices Move Too Much to be Justified by Subsequent Changes in Dividends?,” *The American Economic Review*, Vol. 71, No. 3, 1981, at 421–436.

⁹ Missouri Public Service Commission, Case No. ER-2024-03197, Direct Testimony of Ann E. Bulkley, June 28, 2024 (“Bulkley Direct”), at 34.

1 share prices could only be explained by new information that results in a change to
2 the expected dividends.

3 **Q: Have economists evaluated the theory of the EMH using historical market**
4 **data?**

5 A. Yes, they have. In fact, Nobel Prize-winning economist Dr. Robert Shiller tested the
6 theory of the EMH in his 1981 study titled “Do Stock Prices Move Too Much to be
7 Justified by Subsequent Changes in Dividends?” where he examined if the volatility
8 in share prices could be fully explained by new information regarding future
9 dividends. Dr. Shiller found that the historical volatility of share prices has been far
10 too high to be fully explained by changes in expectations for future dividends:

11 We have seen that measures of stock price volatility over the past
12 century appear to be far too high – five to thirteen times too high – to
13 be attributed to new information about future real dividends if
14 uncertainty about future dividends is measured by the sample
15 standard deviations of real dividends around their long-run
16 exponential growth path. The lower bound of a 95 percent one-sided
17 χ^2 confidence interval for the standard deviation of annual changes
18 in real stock prices is over five times higher than the upper bound
19 allowed by our measure of the observed variability of real dividends.
20 The failure of the efficient markets model is thus so dramatic that it
21 would seem impossible to attribute the failure to such things as data
22 errors, price index problems, or changes in tax laws.¹⁰

23 Thus, Dr. Shiller concluded that the DCF model does not fully explain stock prices.

¹⁰ R.J. Shiller, “Do Stock Prices Move Too Much to be Justified by Subsequent Changes in Dividends?,”
The American Economic Review, Vol. 71, No. 3, 1981, at 421–436.

1 **Q: How does Dr. Shiller's work affect the estimation of the cost of equity?**

2 A. Because the theory of the EMH and the DCF model did not hold based on Dr.
3 Shiller's examination of actual market data, it is reasonable to conclude that Mr.
4 Murray's estimates of the cost of equity for Ameren Missouri likely do not reflect the
5 true cost of equity for Ameren Missouri as he alleges.¹¹

6 **Q: Are there practical examples that show the DCF model does not entirely**
7 **explain share prices?**

8 A. Yes. Large sudden declines in the market such as Black Monday in 1987, the Great
9 Recession of 2008/09, and the COVID-19 crash in March 2020 would not be
10 explained by new information regarding dividends. Moreover, Dr. Shiller contended
11 that there were "asset bubbles" such as the "tech boom" from 1994 to 2000 that
12 resulted in substantial increases in share prices that could not be explained by
13 market fundamentals.¹²

14 **Q: Does the CAPM also rely on the EMH?**

15 A. Yes, it does. As discussed in my direct testimony, the CAPM develops an estimate
16 of the expected return for an asset based on the level of systematic/non-diversifiable
17 risk (*i.e.*, beta). Assuming securities are correctly priced (*i.e.*, markets are efficient
18 and all information is equally available to investors), the expected return produced

¹¹ See *also*, Werner F. M. De Bondt and Richard Thaler, "Does the Stock Market Overreact?," *The Journal of Finance*, Vol. 40, No. 3, 1985, at 793-805; Andrei Shleifer and Lawrence H. Summers, "The Noise Trader Approach to Finance," *Journal of Economic Perspectives*, Vol. 4, No. 2, 1990, at 19-33.

¹² R.J. Shiller, "From Efficient Markets Theory to Behavioral Finance," *Journal of Economic Perspectives*, Vol. 17, No. 1, 2003, at 83-104.

1 by the CAPM should be equivalent to the actual returns achieved in the market.
2 However, as has been documented in academic literature, the returns produced by
3 the CAPM have not accurately predicted the returns achieved by investors in the
4 market either.¹³ Specifically, there are two primary reasons why the CAPM under-
5 predicts returns: (1) as noted in my direct testimony, the CAPM is mis-specified and
6 alternative models such as the ECAPM better reflect returns achieved in the market;
7 and, (2) as shown by Dr. Shiller, share prices are not priced consistent with the
8 EMH, in which case the CAPM will not fully explain the actual returns in the market.

9 **Q: Is there a cost of equity estimation model that will produce the actual cost of**
10 **equity for Ameren Missouri?**

11 A. No, each of the models that Dr. Won, Mr. Murray, Mr. Walters and I have relied on
12 can only be used to *estimate* the cost of equity. Each model has limiting
13 assumptions that make it incorrect to conclude that any one model produces the
14 actual cost of equity for Ameren Missouri.

15 **Q: What does this mean for establishing the ROE in this proceeding?**

16 A. Because each model can be affected by the assumptions relied upon, and the
17 market data used for these assumptions cannot factor in all information consistently,
18 it is important that the analyst consider multiple models to estimate the cost of
19 equity. Therefore, I consider the results of multiple models, along with qualitative
20 information such as capital market conditions that can have an effect on the

¹³ Roger A. Morin, *Modern Regulatory Finance*, Public Utilities Reports, Inc., 2021, at 206-208.

1 assumptions and thus the cost of equity estimate produced by the models, to
2 determine where within the range of results I recommend that the Commission
3 establish the ROE in a given proceeding. Mr. Murray dismisses consideration of
4 market conditions based on the incorrect assumption that all information is
5 accurately reflected in current share prices and bond yields. However, Dr. Shiller's
6 conclusion regarding the failure of the EMH demonstrates that it is important to
7 consider multiple models, as well as overall market conditions and the effect of those
8 conditions on the models.

9 **Q: Has Mr. Murray's reliance on the EMH resulted in an incorrect conclusion**
10 **regarding the prospective cost of equity for utilities in a prior rate proceeding?**

11 A. Yes. Mr. Murray's failure to acknowledge key market indicators in the Company's
12 last rate proceeding caused him to underestimate the cost of equity for Ameren
13 Missouri. In the Company's last rate proceeding in 2022, Mr. Murray stated:

14 Yes, Ms. Bulkley's opinion violates basic tenets of efficient market
15 prices. Apparently Ms. Bulkley believes Ameren Missouri's ROE
16 should be set based on market prognostications that long-term rates
17 will continue to increase and cause utility stocks to decrease. Ms.
18 Bulkley surmises that if such prognostications materialize, this will
19 cause Ameren Missouri's cost of equity to be higher in future
20 periods.¹⁴

21 Mr. Murray concluded that it was incorrect to rely on forecast data and instead
22 should have relied on current share prices, which more appropriately reflect

¹⁴ Missouri Public Service Commission, Case No. ER-2022-0337, Rebuttal Testimony of David Murray, February 15, 2023, at 23.

1 investors' expectations of the cost of equity for the Company over the near-term.
2 However, as Mr. Murray acknowledges in the current proceeding, interest rates
3 increased substantially in 2022 and 2023 subsequent to the filing of his rebuttal
4 testimony in the Company's 2022 rate proceeding, which ultimately resulted in a
5 "contraction in utility P/E ratios" or a decline in the share prices of utilities.¹⁵ This is
6 important because in a rate proceeding the cost of equity is being estimated for the
7 future period when rates will be in effect. Because Mr. Murray relied on the EMH,
8 he understated Ameren Missouri's cost of equity during the period that the
9 Company's rates from the last rate proceeding were in effect.

10 **Q: Can you provide an example of how Mr. Murray's reliance on the EMH could**
11 **result in an incorrect conclusion regarding the cost of equity for Ameren**
12 **Missouri in the current proceeding?**

13 A. Yes. As I discussed in my rebuttal testimony, the Federal Open Market Committee
14 ("FOMC") forecasts two 25 basis point cuts in the federal funds rate in 2025.
15 However, the CME Group, which publishes a "FedWatch" probability chart of FOMC
16 activity, reported as of January 27, 2025, that the federal funds rate futures contracts
17 reflect an expectation of one 25 basis point rate cut by the end of 2025.¹⁶ Therefore,
18 the market is currently assuming that the federal funds rate will be reduced by 25
19 basis points less than what is predicted by the FOMC.

¹⁵ Murray Rebuttal, at 16-17.

¹⁶ CME Group, FedWatch Tool.

1 Since the last FOMC meeting on December 18, 2024, investors have been
2 processing economic data such as employment and inflation reports and developing
3 expectations regarding how the FOMC may factor the updated data into their
4 upcoming policy decisions. Based on the recent economic data releases, investors
5 expect the Federal Reserve will deviate from the forecast provided in December
6 2024 and only reduce the federal funds rate once in 2025. However, investors can
7 draw incorrect conclusions regarding Federal Reserve policy. For example, the
8 CME Group reported as of December 29, 2023, that the federal funds rate futures
9 contracts reflected an expectation that the FOMC would reduce the federal funds
10 rate from the then range of 5.25 percent to 5.50 to a range of 3.50 percent to 3.75
11 percent, a decrease of 175 basis points.¹⁷ However, the FOMC only decreased the
12 federal funds rate by 100 basis points, or 75 basis points less than expected by
13 investors.

14 Because changes in the federal funds rate are viewed as an indicator of the FOMC's
15 view of the economy, investors' expectations as reflected in the CME Group data
16 would be reflected in investment decisions, which would have an effect on both the
17 long-term government bond yields relied on in the CAPM and share prices of utilities
18 relied on in the DCF model. Therefore, if the FOMC deviates from investors'
19 expectations as has occurred in the past, investment strategies will be altered

¹⁷ *Id.*

1 causing changes in the yields on long-term government bonds and the share prices
2 of utilities.

3 **Q: Have investors changed their expectation of the federal funds rate since Mr.**
4 **Murray filed his rebuttal testimony?**

5 A. Yes. As discussed in my rebuttal testimony, *Reuters* noted that as of November
6 2024, investors expected the federal funds rate to decline to 3.70 percent by the
7 end of 2025, implying a range of 3.50 percent to 3.75 percent; however, as just
8 noted, as of January 2025, investors currently expect the federal funds rate to range
9 from 4.00 percent to 4.25 percent, or 50 basis points higher. As discussed,
10 significant changes in the expectations of the federal funds rate can result in a shift
11 in investment strategies as investors respond to changes in Federal Reserve policy
12 due to updated economic data, including inflation, which has remained elevated.
13 This is exactly what occurred as the 30-day average yield on the 30-year Treasury
14 bond increased from 4.31 percent as of October 31, 2024 (*i.e.*, the end of Mr.
15 Murray's analytical period) to 4.79 percent as of January 24, 2025. The increase in
16 the 30-year Treasury bond yield implies that the cost of equity has increased since
17 the end of the analytical period that Mr. Murray relied on in his cost of equity models.

18 **Q: Are the yields on long-term bond expected to remain elevated?**

19 A. Yes. The consensus estimate of the yield on the 30-year Treasury bond reported
20 by *Blue Chip Financial Forecasts* is 4.50 percent as of the end of 2025, which is
21 higher than 30-day average yield on the 30-year Treasury bond of 4.31 percent as

1 of October 31, 2024, or the end of the analytical period relied on by Mr. Murray in
2 his direct testimony.

3 **IV. PROXY GROUP**

4 **Q: Please summarize the disagreements that Dr. Won and Mr. Murray have with**
5 **the proxy group that you relied on for Ameren Missouri.**

6 A. The disagreements offered by the other witnesses in this proceeding relate the use
7 of an asset screen rather than income screen and the consideration of unregulated
8 operations. It is important to note that the issues raised by Dr. Won and Mr. Murray
9 result in contradictory conclusions regarding what companies should be included in
10 the proxy group. Mr. Walters agrees with and relies on the same proxy group used
11 in my analyses.

12 Dr. Won suggests that my analysis is flawed because I did not rely on an asset
13 screen to determine whether a company's assets are regulated and suggests that
14 NextEra Energy, Inc. ("NEE") should not have been included in the proxy group
15 because it has regulated assets that represent less than 80 percent of total assets.¹⁸

16 Mr. Murray also suggests that I do not recognize that some of the companies
17 contained in my proxy group have "significant exposure" (which he defines as
18 greater than 10 percent) to unregulated operations. Mr. Murray suggests that
19 companies with a higher percentage of unregulated operations have greater risk,

¹⁸ Won Rebuttal, at 9 and 11.

1 and therefore, concludes that I have not accounted for the increased risk of
2 unregulated operations when comparing the business risk of Ameren Missouri to
3 the proxy group.¹⁹ Mr. Murray suggests that NEE and DTE Energy Company
4 (“DTE”) have significant unregulated operations, and that others have had such
5 exposure in the past although not currently.²⁰ Finally, Mr. Murray contends that my
6 cost of equity analysis is “incomplete” because I have not considered Ameren in my
7 assessment of Ameren Missouri’s cost of equity.²¹ Neither Dr. Won nor Mr. Walters
8 has included Ameren in their analyses.

9 **Q: Do you agree with Dr. Won that an asset screen is more appropriate than an**
10 **income screen in developing the proxy group?**

11 A. No. The fundamental driver of the value of a company is earnings not assets.
12 Therefore, the more relevant screening criterion to use to establish the proportion
13 of a utility’s operations that are regulated versus unregulated is the relative
14 contribution to earnings.

15 **Q: Do you agree with Dr. Won and Mr. Murray that your proxy group includes**
16 **companies with significant unregulated operations that result in greater risk**
17 **for the proxy group companies?**

18 A. No. First, Dr. Won and Mr. Murray agree on only one out of the seventeen
19 companies in my proxy group, NEE, that they collectively identify should have been

¹⁹ *Id.*, at 17.

²⁰ Murray Rebuttal, at 16-17.

²¹ *Id.*

1 excluded from my proxy group. In addition, Mr. Murray suggests that DTE should
2 also be removed due to unregulated operations.

3 Second, as discussed in my direct testimony, I apply a screening criterion that
4 requires a company to derive at least 60 percent of its operating income from
5 regulated electric operations, which ensures that, together with my other screening
6 criteria, the companies used in my cost of equity analyses have operating and
7 financial risk characteristics that are substantially comparable to Ameren Missouri,
8 including substantial regulated electric operations.²² As shown in Schedule AEB-
9 D2, Attachment 2 of my direct testimony, NEE and DTE derived over 88 percent
10 and 71 percent, respectively, of their operating income from regulated electric
11 operations over the most recent three-year period. In addition, over the past three
12 years, DTE and NEE have averaged over 94 percent and 88 percent, respectively,
13 of their total operating income from regulated operations.²³

14 Third, while I have both screened the proxy group to limit unregulated operations
15 and have shown there is no evidence that companies in my proxy group with
16 unregulated operations are perceived to have higher risk, neither Dr. Won nor Mr.
17 Murray have conducted any analysis to support their conclusions that the

²² Bulkley Direct, at 30.

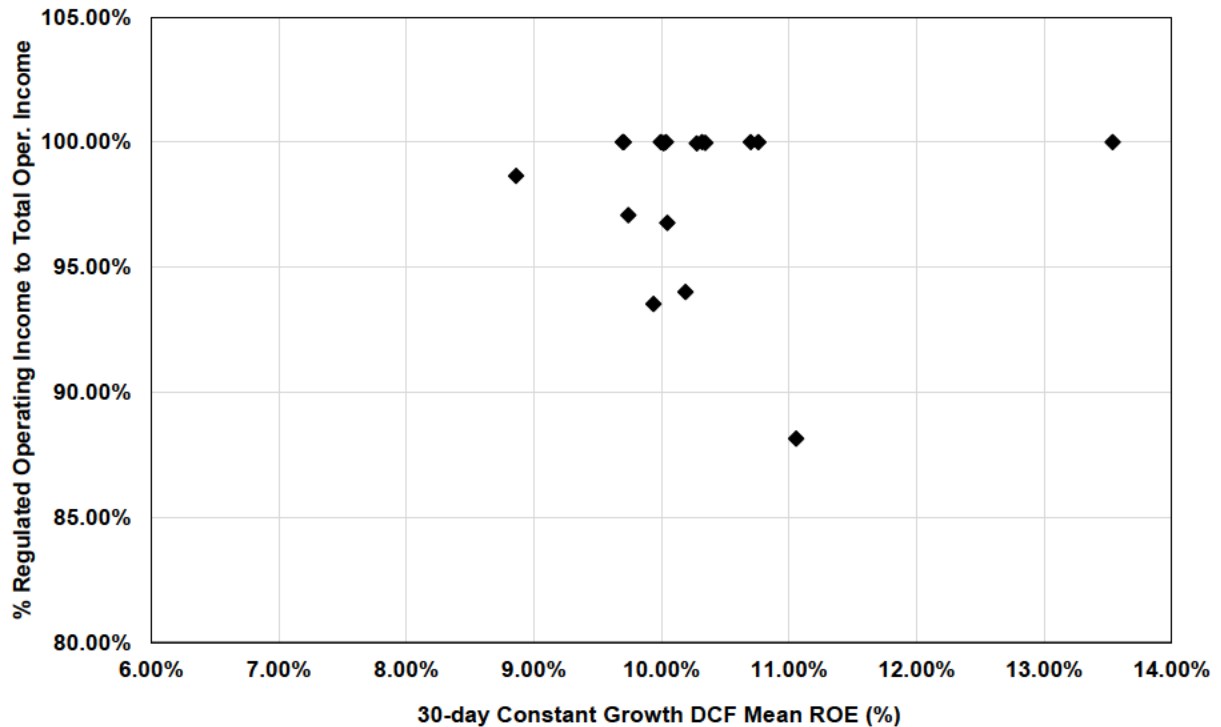
²³ DTE Energy Company, 2023 Form 10-K, 2022 Form 10-K, and 2021 Form 10-K and NextEra Energy, Inc., 2023 Form 10K, 2022 Form 10-K, and 2021 Form 10-K.

1 companies such as either NEE or DTE with a higher percentage of unregulated
2 assets in my proxy group have greater risk than Ameren Missouri.

3 **Q: Have you conducted any analyses to test whether the unregulated operations**
4 **of the proxy companies that you have relied upon have biased the results of**
5 **your analyses?**

6 A. Yes. Figure 1 graphs the percentage of regulated operations, as determined by
7 operating income, and the constant growth DCF results for my proxy group. As
8 shown, there is no discernible trend in the constant growth DCF results for the
9 companies in my proxy group that would indicate companies with a relatively higher
10 percentage of unregulated operations have a higher cost of equity than companies
11 with a relatively lower percentage of unregulated operations. This further supports
12 that the operating risk of companies with a relatively higher percentage of
13 unregulated operations in the proxy group are not perceived to have greater risk
14 than companies in the proxy group with a relatively lower percentage of unregulated
15 operations.

1 **FIGURE 1: COMPARISON OF 30-DAY CONSTANT GROWTH DCF RESULTS AS OF**
2 **NOVEMBER 30, 2024 AND PERCENTAGE OF REGULATED OPERATING INCOME²⁴**



3

4 Therefore, I disagree with Dr. Won and Mr. Murray that my proxy group does not
5 reasonably address unregulated operations for the proxy companies.

6 **Q: Does Mr. Walters include DTE and NEE in his proxy group?**

7 A. Yes, Mr. Walters has included both DTE and NEE in his proxy group used to
8 estimate the ROE for Ameren Missouri.²⁵

²⁴ Missouri Public Service Commission, Case No. ER-2024-03197, Rebuttal Testimony of Ann E. Bulkley, January 17, 2025 ("Bulkley Rebuttal"), Schedule AEB-R1, Attachment 2.

²⁵ Walters Direct, at 26-27.

1 **Q: Do you agree with Mr. Murray that the cost of equity for Ameren should be**
2 **used to determine the cost of equity for Ameren Missouri?**

3 A. No. First, while Ameren Missouri is a subsidiary of Ameren, it is important to treat
4 Ameren Missouri as a stand-alone entity and evaluate the Company based on its
5 utility operations in Missouri. The *Hope* and *Bluefield* decisions require that the
6 return that is established for a regulated utility be based on the returns for other
7 entities of comparable risk. It does not suggest that the return be based on the
8 return available to the parent company or affiliates.

9 As Dr. Roger Morin states:

10 A utility operating company, segment, division, or line of business
11 must be treated as a separate stand-alone entity, distinct from its
12 parent company because it is the cost of capital for the division that
13 we are attempting to measure and not the cost of capital for the
14 parent company's consolidated activities.²⁶

15 Second, I have excluded Ameren from the proxy group used to estimate the cost of
16 equity for Ameren Missouri because of the circularity that results from the use of the
17 parent company market return to establish the return for the operating utility, which
18 in turn contributes to the ROE of the parent company.

²⁶ Roger A. Morin, *Modern Regulatory Finance*, Public Utilities Reports, Inc., 2021, at 252.

1 **V. COST OF EQUITY ESTIMATES VERSUS AUTHORIZED**
2 **ROES**

3 **Q: What is Mr. Murray's position regarding the cost of equity for utilities and**
4 **authorized ROEs?²⁷**

5 A. Mr. Murray contends that that the Commission has authorized ROEs that exceed
6 the cost of equity because the market-to-book ratios for utilities have exceeded
7 1.0.²⁸

8 **Q: Do you agree with Mr. Murray that authorized ROEs are above investors'**
9 **required returns because the market-to-book ratios for utilities are greater**
10 **than 1.0?**

11 A. No. There are several reasons why the market-to-book ratio for utilities may exceed
12 1.0 other than the ROE exceeding the cost of equity. For example, Dr. Lawrence
13 Kolbe and Dr. Michael Vilbert outlined a few factors in a 2016 presentation to the
14 California Public Utilities Commission. As Drs. Kolbe and Vilbert noted, even if one
15 assumes that the theory of the EMH holds (which, as previously discussed, various
16 experts do not support), there are several important conditions that must hold before

²⁷ Dr. Won cites my direct testimony where I state that I use the terms ROE and cost of equity interchangeably. While this has been common practice among regulators, I recognize and have correctly established in my testimony that the cost of equity is the cost required by the investor for making an equity investment while the ROE is the return that is authorized by the Commission. Therefore, Dr. Won and I agree as to the difference in the meaning of these terms.

²⁸ Murray Rebuttal, at 20-21; Murray Direct, at 4-5.

1 one can assume that the ROE equals the cost of equity at a market-to-book ratio of
2 1.0 for regulated utilities. Those conditions include:

- 3 • A utility has to be regulated on rate base identical to its GAAP book value.
- 4 • A utility has to have 100 percent regulated operations.
- 5 • The regulatory system has to be in full equilibrium (*i.e.*, there cannot be a
6 lag in the adjustment of the authorized ROE to the market cost of equity);
7 and,
- 8 • The ROE expected, on average, has to equal the authorized ROE.²⁹

9 Drs. Kolbe and Vilbert concluded that it is very unlikely that all of these conditions
10 will be satisfied. For example, changes in cost trends or regulatory lag can cause a
11 utility to earn more or less than the allowed return, and if the expected return
12 deviates from the allowed return, then the allowed return will not equal the cost of
13 equity and the market-to-book ratio will not equal 1.0.

14 Moreover, as also noted by Dr. Kolbe and Dr. Vilbert: (1) there is no consensus
15 among economists regarding whether the theory of the EMH holds and share prices
16 are rationally priced; and (2) even if the EMH holds, there is also no consensus
17 regarding which model (*i.e.*, DCF, CAPM, ECAPM) produces reasonable estimates
18 of the cost of equity. As noted previously, Dr. Robert Shiller and others have
19 provided compelling evidence against the EMH, concluding that share prices are
20 not rationally priced, and that the DCF model does not fully explain changes in share

²⁹ A. Lawrence Kolbe, Ph.D. and Michael J. Vilbert, Ph.D., "Moving Toward Value in Utility Compensation Shareholder Value Concept," Presented to the California Public Utilities Commission, June 13, 2016.

1 prices and thus will not accurately estimate the required return of investors.³⁰
2 Moreover, if share prices are not necessarily rationally priced and cannot be
3 explained by the DCF model, then a market-to-book ratio greater than 1.0 cannot
4 be attributed to the ROE exceeding the cost of equity as Mr. Murray suggests (*i.e.*,
5 the DCF model will not produce an accurate estimate of the return required by
6 investors given the level of prices and, as a result, the resulting cost of equity
7 estimate produced by the DCF model, if set as the allowed ROE, would not produce
8 a market-to-book ratio of 1.0 – meaning prices would not adjust in the way described
9 by Mr. Murray).

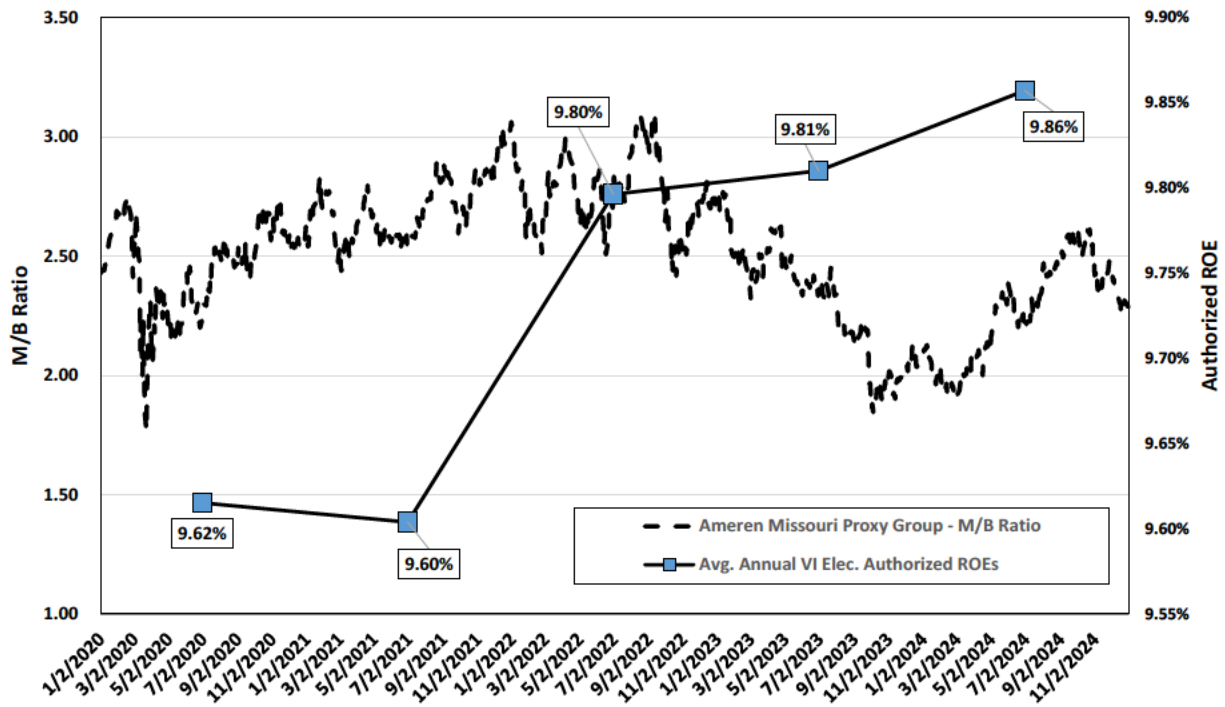
10 **Q: Do recent trends in authorized ROEs and market-to-book ratios support Mr.**
11 **Murray’s claim that authorized ROEs have exceeded the cost of equity?**

12 A. No, they do not. To test Mr. Murray’s theory, I compared the average market-to-
13 book ratio for the companies in my proxy group for the period of January 1, 2020
14 through December 31, 2024 to the average annual authorized ROEs for vertically-
15 integrated electric utilities for 2020 through 2024 shown in Figure 6 of my rebuttal
16 Testimony. As shown in Figure 2, the market-to-book ratio for the companies in my
17 proxy group are currently lower than in January 2020; however, the average annual
18 authorized ROE for vertically-integrated electric utilities has increased.

³⁰ R. J. Shiller, “Do Stock Prices Move Too Much to be Justified by Subsequent Changes in Dividends?,”
The American Economic Review, 1981, Vol. 71, No. 3, at 42-436.

1 Mr. Murray contends that authorized ROEs have been set higher than the cost of
 2 equity, and given that authorized ROEs increased over the period of 2020-2024, Mr.
 3 Murray's theory is that the market-to-book ratios for utilities should have also
 4 increased. However, the opposite has occurred and the market-to-book ratio for the
 5 companies in my proxy group declined over this period. Therefore, Mr. Murray's
 6 theory is inconsistent with market evidence and should be disregarded by the
 7 Commission.

8 **FIGURE 2: COMPARISON OF THE AVERAGE MARKET-TO-BOOK RATIO FOR MS.**
 9 **BULKLEY'S PROXY GROUP AND THE AVERAGE ANNUAL AUTHORIZED ROES FOR**
 10 **VERTICALLY-INTEGRATED ELECTRIC UTILITIES – 2020-2024³¹**



11

³¹ S&P Capital IQ Pro.

1 **VI. DCF ANALYSIS**

2 **Q: Please summarize the positions of Dr. Won, Mr. Murray, and Mr. Walters**
3 **regarding your DCF analyses.**

4 A. Each of these witnesses contend that the use of projected EPS growth rates in the
5 constant growth DCF model overstates the cost of equity.³² Dr. Won and Mr.
6 Walters suggest that it would be more appropriate to rely on a long-term growth rate
7 that approximates the level of long-term gross domestic product (“GDP”) growth.³³
8 Mr. Murray suggests that, by relying on projected EPS growth rates, I have assumed
9 that 58.75 percent of total returns will be in form of capital gains with the remaining
10 portion related to dividends, which he testifies is “illogical” since utility companies
11 pay out approximately two-thirds of their earnings as dividends to investors.³⁴

12 **Q: Do you agree with these assessments of your DCF analyses?**

13 A. No. It is important to recognize that while these witnesses essentially suggest that
14 I should have relied on either a two-step DCF (Dr. Won) or a multi-stage DCF model
15 (Mr. Murray and Mr. Walters) using their assumptions, none of them directly rely on
16 the output of those DCF models for their respective ROE recommendations.
17 Specifically:

³² Won Rebuttal, at 11-13; Murray Rebuttal, at 29-30; Walters Rebuttal, at 4-5.

³³ Won Rebuttal, at 11-13; Walters Rebuttal, at 4-5.

³⁴ Murray Rebuttal, at 30.

- 1 • The result of Dr. Won’s two-step DCF is 8.60 percent, or 114 basis points
2 lower than his ROE recommendation of 9.74 percent.³⁵
- 3 • The results of Mr. Murray’s multi-stage DCF range from 7.71 percent to 8.38
4 percent, yet his ROE recommendation, or approximately 110 to 180 basis
5 points lower than his ROE recommendation of 9.50 percent.³⁶
- 6 • The results of Mr. Walters’s multi-stage DCF range from 8.43 percent to
7 8.67 percent, or approximately 85 to 105 basis points lower than his ROE
8 recommendation of 9.50 percent.³⁷

9 Since each of these witnesses essentially abandon their cost of equity estimates
10 from their respective DCF analyses for purposes of their ROE recommendation, it
11 is unreasonable to suggest that the assumptions or methodologies they rely on are
12 superior to the DCF analyses that I have presented in my testimonies.

13 **Q: What is your response to these witnesses regarding the use of projected EPS**
14 **growth rates in the constant growth DCF model?**

15 A. First, as discussed in my rebuttal testimony, there are multiple reasons why earnings
16 growth rates are the appropriate measure of growth in the DCF model including, but
17 not limited to, the fact that earnings are the fundamental driver of dividend growth
18 rates (*i.e.*, over the long-term, dividend growth can only be sustained by earnings
19 growth) and there is significant academic research demonstrating that EPS growth
20 rates are most relevant in stock price valuation.³⁸

³⁵ Missouri Public Service Commission, Case No. ER-2024-03197, Direct Testimony Revenue Requirement of Seoung Joun Won, PhD, December 3, 2024 (“Won Direct”), at 3 and 43.

³⁶ Missouri Public Service Commission, Case No. ER-2024-03197, Direct Testimony of David Murray, December 3, 2024 (“Murray Direct”), at 2, Schedule DM-D-2, and Schedule DM-D-4.

³⁷ Walters Rebuttal, at 5.

³⁸ Bulkley Rebuttal, at 37-38.

1 Second, as discussed in my direct and rebuttal testimonies, I have not relied
2 exclusively on the results of the constant growth DCF model. Rather, I have
3 considered the results of multiple cost of equity estimation models in determining
4 the range of ROEs that are appropriate to consider for the Company.

5 Third, it is important to note that Mr. Walters also relies on consensus EPS growth
6 rate projections in the constant growth DCF model, although his average growth
7 rate of 6.90 percent is higher than what I have relied on in my DCF analyses.

8 Fourth, as discussed in my rebuttal testimony, it is reasonable to assume that
9 earnings growth for utilities could exceed GDP growth over the long-term
10 considering the empirical studies comparing the TFP growth of the utility industry
11 relative to the economy.³⁹

12 Finally, while each of these witnesses criticizes the use of analysts' projected EPS
13 growth rates in the constant growth DCF model, as noted, their preferred
14 specification of the DCF model produces cost of equity estimates for their respective
15 proxy groups that are below any authorized ROE in nearly half of a century for a
16 vertically-integrated electric utility in a jurisdiction with a comparable regulatory
17 framework to Missouri, and, as I just discussed, are also more than 100 basis points
18 below their own ROE recommendations for Ameren Missouri.

³⁹ Bulkley Rebuttal, at 93-94.

1 **Q: Is it reasonable that you did not conduct a two-step or multi-stage DCF such**
2 **as suggested by Dr. Won, Mr. Murray, and Mr. Walters?**

3 A. Yes. I did not conduct a two-step or multi-stage DCF analysis because, as
4 discussed in my rebuttal testimony, there are multiple issues with the multi-stage
5 DCF analysis, and particularly with the specifications of Dr. Won, Mr. Murray, and
6 Mr. Walters, that indicate the constant growth DCF model is the appropriate DCF
7 model to estimate the cost of equity in this proceeding.⁴⁰

8 **Q: Did you review the academic research Dr. Won references to support the use**
9 **of a GDP growth rate in the DCF model?**

10 A. Yes. Dr. Won references the text *New Regulatory Finance*, in which Dr. Morin notes
11 that all growth rates eventually converge to a level consistent with the growth in
12 GDP.⁴¹ However, it is first important to note that Dr. Won's characterization of Dr.
13 Morin's *New Regulatory Finance* is misleading. Dr. Morin stated that:

14 ***[s]ome financial economists*** are uncomfortable with the
15 assumption that the DCF growth rates are perpetual growth rates,
16 and argue that above average growth can be expected to prevail for
17 a fixed number of years and then the growth rate will settle down to
18 a steady-state long-run level, consistent with that of the economy.⁴²

19 Therefore, Dr. Morin did not note that "[a]nalysts are of the concurring opinion" that
20 long-term growth rates will converge to GDP. Furthermore, in Dr. Morin's most

⁴⁰ *Id.*, at 33-42, 72-78, and 90-94.

⁴¹ Won Rebuttal, at 12.

⁴² Roger A. Morin, *New Regulatory Finance*, Public Utilities Reports, Inc., 2006, at 302; emphasis added.

1 recent 2021 text, he addresses the shortcomings of using GDP growth as proposed
2 by Dr. Won as the long-term growth rate estimate in the multi-stage DCF model:

3 One central assumption in Multi-Stage DCF models, and a potential
4 Achilles' heel, in my view, is that utility growth rates will eventually
5 match the growth of the macroeconomy usually measured by the
6 growth of the Gross Domestic Product (GDP). I am not aware of any
7 financial literature supporting the notion that utility earnings per share
8 are expected to grow at the average growth of the economy, or GDP
9 growth.

10 ***

11 Multi-Stage DCF applications appear somewhat disconnected from
12 the assumptions of the method and the consensus expectations of
13 investors. The investment community does not look to GDP growth
14 over the next several decades when evaluating an investment in
15 utility stocks, nor does it anticipate a series of discrete multi-stage
16 decennial stages. I am not aware of any evidence that investors
17 evaluate the future based on the assumptions and data sources
18 required to apply the two-stage or three stage DCF model.⁴³

19 **Q: Is Dr. Won's GDP growth rate consistent with the growth rate that Dr. Morin**
20 **relies on in the multi-stage DCF analysis?**

21 A. No. While Dr. Won relies on Dr. Morin for as support for the use of GDP growth, he
22 fails to discuss, and chooses not to rely on, the methodology that Dr. Morin *employs*
23 to estimate the long-term growth in GDP in his multi-stage DCF analysis.

⁴³ Roger A. Morin, *Modern Regulatory Finance*, Pubic Utilities Reports, Inc., 2021, at 486.

1 Dr. Morin estimates the long-term growth rate in nominal GDP by first calculating
2 the growth in real GDP and then adding the expected inflation rate.⁴⁴ In his text, Dr.
3 Morin indicates that the growth rate in real GDP is estimated by calculating the
4 compound annual growth rate in real GDP from 1929 through the present, and the
5 expected inflation rate is estimated as the difference between the yield on the 20-
6 year Treasury bond and the yield on the 20-year Treasury Inflation Protected bond,
7 resulting in a long-term GDP growth rate of 5.50 percent in 2020.⁴⁵

8 **Q: How does Dr. Won's growth rate differ from the approach supported by Dr.**
9 **Morin?**

10 A. Dr. Won relies on the projected GDP growth rate of 3.90 percent projected by the
11 Congressional Budget Office ("CBO") for the period for the 10-year period of 2024
12 through 2034 as the estimate of long-term growth in his two-stage DCF model.⁴⁶
13 Thus, Dr. Won is relying on a long-term growth rate using CBO data that only reflects
14 growth for a ten-year forward-looking period. However, Dr. Won applies this growth
15 rate for a long-term period that is inconsistent with the period for which the CBO has
16 established this estimate. Therefore, Dr. Won's long-term growth estimate does not
17 reflect the CBO's views for the entire period for which he has relied on this
18 projection.

⁴⁴ *Id.*, at 388.

⁴⁵ *Id.*

⁴⁶ Won Direct, Schedule SJW-d10.

1 **Q: Have you reviewed any additional academic research that supports Dr.**
2 **Morin’s methodology for estimating the long-term nominal GDP growth rate?**

3 A. Yes. As discussed in my rebuttal testimony, similar to Dr. Morin’s methodology,
4 *Morningstar* recommends estimating the projected long-term nominal GDP growth
5 rate by first calculating the historical growth in real GDP and then adding the
6 expected inflation rate.⁴⁷ As shown on Schedule AEB-R1, Attachment 9 of my direct
7 testimony, when longer-term GDP growth is estimated consistent with the
8 methodology outlined by *Morningstar*, the long-term nominal GDP growth rate is
9 5.51 percent – or significantly higher than the growth rate relied on by Dr. Won.

10 **Q: Have you compared the long-term GDP growth rate that is consistent with the**
11 **methodology outlined by Dr. Morin and *Morningstar* to the EPS growth rates**
12 **you relied on in your constant growth DCF model?**

13 A. Yes. The long-term GDP growth rate consistent with the methodology outlined by
14 Dr. Morin and *Morningstar* is 5.51 percent. The proxy group average EPS growth
15 rate is 6.31 percent in my direct testimony as shown on Schedule AEB-D2,
16 Attachment 3, and 6.55 percent in my rebuttal testimony as shown on Exhibit AEB-
17 R1, Attachment 2. Therefore, the long-term GDP growth rate is more supportive of
18 the average analysts’ projected EPS growth rates that I have relied on as opposed
19 to the GDP growth rate assumed by Dr. Won, which is approximately 160 basis

⁴⁷ Bulkley Rebuttal, at 41.

1 points lower than the methodology outlined by *Morningstar* and consistent with Dr.
2 Morin.

3 Therefore, while Dr. Won suggests that if I had used his two-step DCF approach the
4 resulting cost of equity would be 9.64 percent,⁴⁸ there is no basis for his analysis
5 given that his GDP growth rate is inconsistent with the methodology of the source
6 that he cites in his testimony. In addition, Dr. Won's derivation of the 9.64 percent
7 also only reflects the minimum growth rates for my proxy group, and fails to evaluate
8 the analysts' average or maximum growth rates for the proxy group.

9 **Q: Why does Mr. Murray conclude that your reliance on projected EPS growth**
10 **rates is “illogical?”⁴⁹**

11 A. Mr. Murray states that by relying on projected EPS growth rates, I have assumed
12 that approximately 58.75 percent of investors' returns will be in the form of capital
13 gains (*i.e.*, price appreciation) with the remaining portion attributable to dividends.⁵⁰
14 According to Mr. Murray, this assumption is illogical given that utilities typically have
15 a payout ratio that is approximately two-thirds of their annual EPS, meaning payout
16 approximately 67 percent of earnings as dividends. Mr. Murray contends that if it is
17 assumed that 58.75 percent of an investor's return is attributable to dividends (*i.e.*,
18 closer to his assumed payout ratio for utilities), the cost of equity would be 7.54

⁴⁸ Won Rebuttal, at 13.

⁴⁹ Murray Rebuttal, at 30.

⁵⁰ Mr. Murray's referenced 58.75 percent is calculated as the proxy group median projected EPS growth rate of 6.31 percent divided by the result of the proxy group average constant growth DCF result assuming 90-day average stock prices of 10.74 percent.

1 percent, which is closer to the investors' return requirements than a cost of equity
2 of 10.74 percent.⁵¹

3 **Q: Is there any merit to Mr. Murray's contention?**

4 A. No. First, it is important to note that a cost of equity estimate of 7.54 percent is
5 significantly lower than any authorized return for a vertically-integrated electric utility
6 since at least 1980 in a jurisdiction with a comparable regulatory framework to
7 Missouri. A return of 7.54 percent is clearly unreasonable and nearly 200 basis
8 points lower than Mr. Murray's own ROE recommendation in this proceeding, and
9 which clearly would not satisfy the comparable return standard of *Hope* and
10 *Bluefield*.

11 Second, Mr. Murray's analysis is in direct conflict with at least one of the equity
12 analyst reports that he cites in his testimony. For example, Mr. Murray quotes a
13 report from Wells Fargo in which they note the current growth rate targets for utilities
14 are approximately 6.00 percent,⁵² which is generally consistent with the proxy group
15 average EPS growth rate used in the constant growth DCF analysis in my direct and
16 rebuttal testimonies of 6.31 percent and 6.55 percent, respectively – but significantly
17 greater than the 3.00 percent growth rate assumed in Mr. Murray's DCF analyses.
18 Given that growth rates in earnings relied on by the equity analysts are much greater
19 than Mr. Murray's long-term growth rate assumption of 3.00 percent, it is reasonable

⁵¹ Murray Rebuttal, at 30.

⁵² *Id.*, at 25.

1 to conclude that the investor-required return on electric utilities is higher than
2 estimated by Mr. Murray's model assumptions. In other words, if Mr. Murray's long-
3 term growth rate assumption were reflected, utility stock prices would have to be
4 significantly lower and thus their dividend yields higher – meaning an increase in
5 the cost of equity.

6 **Q: Mr. Walters's contends that the combination of his multi-stage DCF results**
7 **(i.e., 8.43 percent and 8.67 percent) and the average result of your constant**
8 **growth DCF based on the lowest analysts' projected EPS growth rates (i.e.,**
9 **10.07 percent) supports an ROE closer to 9.25 percent.⁵³ What is your**
10 **response to Mr. Walters?**

11 A. As discussed in my direct testimony, it is important to consider the results of multiple
12 models when establishing a recommended ROE. It is disingenuous of Mr. Walters
13 to suggest that an ROE of 9.25 percent can be supported by only comparing the
14 very low results of his multi-stage DCF analysis and the lowest growth rate scenario
15 of my constant growth DCF model, without considering the remainder of the model
16 results that he and I have both developed in our testimonies. Reviewing the broader
17 range of results from the models that Mr. Walters and I have both developed, it is
18 clear that the results of Mr. Walters's multi-stage DCF are a low-end outlier when
19 compared with the remainder of the results of our respective models.⁵⁴

⁵³ Walters Direct, at 5.

⁵⁴ See, e.g., Bulkley Rebuttal, at 7, Figure 1; Schedule AEB-D2, Attachment 1; Schedule AEB-R1, Attachment 1.

1 **VII. CAPM ANALYSIS**

2 **Q: What are the positions of Dr. Won, Mr. Murray, and Mr. Walters regarding your**
3 **CAPM analyses?**

4 A. Each of these witnesses contend that the market return used in my CAPM analysis
5 is unreasonable. Specifically:

- 6 • Dr. Won suggests that the calculation of the market return should exclude
7 companies that do not pay dividends and should not rely on short-term
8 growth rates.⁵⁵ Dr. Won states that when companies that do not pay
9 dividends are removed from the market return calculation, and his two-step
10 DCF approach is also applied to the derivation of the market return, the
11 result is a market return of 10.75 percent. Dr. Won contends that when this
12 market return of 10.75 percent is applied to my CAPM, the resulting cost of
13 equity would be 9.72 percent.⁵⁶
- 14 • Mr. Murray states that he is unaware of any authoritative sources that
15 calculate the market return such as I have done (*i.e.*, using a constant
16 growth DCF model with projected earnings growth rates as the estimate of
17 growth).⁵⁷ Mr. Murray states that the sources he has reviewed recommend
18 using a growth rate no higher than the growth rate of GDP when estimating
19 the long-term return for the market.⁵⁸ Finally, Mr. Murray asserts that the
20 Wilshire 5000, which is an index of the value of all American stocks traded
21 in the United States, would be approximately 47 times the value of GDP in
22 50 years if the index grew at the earnings growth rate that I have relied on
23 to calculate my market return.⁵⁹
- 24 • Mr. Walters contends that my market return is inflated and that I should have
25 instead considered multiple methodologies to estimate the expected market
26 return and market risk premium.⁶⁰

55 Won Rebuttal, at 15-18.

56 *Id.*, at 16 and 18; see also Dr. Won's workpapers titled "1 Summary," "4 CAPM," and "6 Mkt Return."

57 Murray Rebuttal, at 31

58 *Id.*

59 *Id.*, at 32.

60 Walters Rebuttal, at 6-7.

1 **Q: Do you agree with Dr. Won's proposed adjustment to your market return**
2 **calculation to remove non-dividend paying companies?**

3 A. No. While Dr. Won attempts to recalculate the market return used in my CAPM
4 analysis by excluding non-dividend paying companies, his calculation contains
5 multiple errors. Therefore, neither his adjustment to my market return nor his CAPM
6 result of 9.72 percent based on that incorrect market return can be relied upon.

7 **Q: Please explain the error in Dr. Won's re-calculation of your market return**
8 **calculation, excluding non-dividend paying companies.**

9 A. The market return calculation relied upon in my direct testimony, which Dr. Won
10 adjusts and then uses in his modifications to my CAPM and ECAPM analyses, is a
11 market return weighted by the market capitalization of the companies in the S&P
12 500 Index. However, there are two errors with Dr. Won's adjustment to remove non-
13 dividend paying companies.

14 First, as shown on Dr. Won's rebuttal testimony workpaper "6 Market Return," his
15 calculation does not properly reflect the weightings of the companies in the market
16 return when he attempts to remove the non-dividend paying companies. Therefore,
17 his adjusted market return of 10.75 percent is incorrect. In order for this calculation
18 to be performed correctly, it is necessary that the dividend yield and growth rate are
19 weighted by the market capitalization of the companies that are included in the
20 calculation. In other words, when the non-dividend paying companies are removed
21 from the calculation, the market capitalization of the non-dividend paying companies

1 also must be removed from the weighting factor as it affects both the dividend yield
2 and growth rate.

3 **Q: Can you provide a specific example that demonstrates the error in the market**
4 **weightings in Dr. Won's market return calculation?**

5 A. Yes. While I disagree with removing the non-dividend paying companies from the
6 market return calculation, I can provide an example of the error that resulted when
7 Dr. Won attempted to remove these companies from his estimated market return.
8 As shown on his workpaper "6 Market Return," the company AutoZone Inc. ("AZO")
9 does not have an estimated dividend yield. When removing AZO from the
10 calculation, Dr. Won should have also removed AZO from his weighting of the
11 companies by market capitalization. However, as shown on his workpaper, Dr. Won
12 did not remove AZO but rather has incorrectly included the company in the overall
13 index weighting. While AZO is one example, this same error also applies for
14 numerous additional companies in the S&P 500 where Dr. Won has failed to
15 consistently remove non-dividend paying companies consistent with his stated
16 methodology.

17 **Q: Are there other errors in Dr. Won's revised market return calculation?**

18 A. Yes. As noted, if the market return were calculated correctly, both the dividend yield
19 and growth rate components of the market return would be weighted by the same
20 market capitalization of the companies included in the calculation. However, Dr.
21 Won has incorrectly applied *different* weightings to the dividend yield and growth
22 rate components of the market return, thereby rendering his adjustment to my

1 market return unusable. Specifically, in calculating the weighted dividend yield, Dr.
2 Won applies his incorrectly adjusted weighting, referenced previously, to establish
3 the weighting of each company's dividend yield in the overall market return, resulting
4 in an incorrect weighted dividend yield. Next, Dr. Won relies on the original
5 weighting reflected in my market return calculation, which includes all companies
6 (*i.e.*, those paying dividends and those not paying dividends), to calculate the growth
7 rate component of his market return. Therefore, Dr. Won has applied two different
8 weightings to the components of his market return calculation, neither of which is
9 appropriate for the companies that he has included in the calculation.

10 As noted, while I do not agree with excluding the non-dividend companies from the
11 calculation of the market return, nonetheless, the correct application of Dr. Won's
12 approach should have relied on the same weighting by market capitalization for *both*
13 the dividend yield and the growth rate.

14 **Q: Can you provide an example of the error in how Dr. Won applies the**
15 **weightings to the growth rate used in his market return calculation?**

16 A. Yes. As shown on his workpaper "6 Market Return," the first company listed in the
17 S&P 500 Index is LyondellBassell Industries NV ("LYB"). In my calculation of the
18 market return, this company had a weight in the overall S&P 500 Index based on
19 market capitalization of 0.09512 percent. However, based on Dr. Won's removal of
20 certain, although not all, of the non-dividend paying companies, he recalculates the
21 weighting for LYB within the S&P 500 Index as 0.10018 percent. As shown on his

1 workpaper “6 Market Return,” Dr. Won applies his “adjusted” weighting of 0.10018
2 percent for purposes of calculating his weighted dividend yield for LYB, but
3 incorrectly applies my original weighting of 0.09512 percent (which includes both
4 dividend and non-dividend paying companies) for purposes of calculating his
5 weighted growth rate for LYB. Dr. Won’s error applies to each of the companies in
6 the S&P 500 Index.

7 **Q: Do you agree with Dr. Won’s application of the two-step DCF when adjusting**
8 **your calculation of the market return?**

9 A. No. Dr. Won’s application of the two-step DCF to his recalculation of my market
10 return is not appropriate for several reasons. First, it relies on a long-term GDP
11 growth rate that is not consistent with the methodologies supported by Dr. Morin,
12 whom Dr. Won cites in his testimony, as well as *Morningstar*, which is the publication
13 that has maintained historical market return data. Further it is inconsistent with the
14 method that the Federal Energy Regulatory Commission (“FERC”) uses to calculate
15 the market return used in the CAPM analysis, even though Dr. Won cites the FERC
16 in his direct testimony to support his use of a two-step DCF analysis to estimate the
17 cost of equity for the Company. Specifically, Dr. Won calculates the dividend yield
18 component of the market return in the same general manner as I have done
19 (although, as noted, he removes only a portion of the non-dividend paying
20 companies), but he applies a two-step DCF for purposes of calculating the growth
21 rate component of the market return. For his two-step DCF, Dr. Won calculates the
22 growth rate by applying a weight of 80 percent to his derived growth rate of the S&P

1 500 Index (which, as just discussed, was derived incorrectly) and applying a weight
2 of 20 percent to the GDP growth rate of 3.90 percent that he assumes in his CAPM
3 analysis. Dr. Won does not discuss in his testimony why or how this two-step DCF
4 approach to calculating the growth rate component of the market returns is
5 appropriate, but rather simply states that, “[w]ith more reasonable assumptions,
6 such as a market return of 10.75%,” my average CAPM result would be 9.72
7 percent.⁶¹ Thus, Dr. Won fails to acknowledge that the FERC has continued to rely
8 on the constant growth DCF model to calculate the market return such as I have
9 done in my CAPM analyses, not the use of a two-step DCF model using GDP growth
10 as suggested by Dr. Won:

11 We also continue to find that the CAPM should use a one-step DCF
12 for its risk premium. This is because the rationale for using a two-
13 step DCF methodology for a specific group of utilities does not apply
14 when conducting a DCF study of the dividend-paying companies in
15 the S&P 500, as the Commission found in Opinion Nos. 531-B and
16 569. A long-term component is unnecessary because of the regular
17 updates to the S&P 500, which allows it to continue to grow at a
18 short-term growth rate and because S&P 500 companies include
19 stocks that are both new and mature, the latter of which have a
20 moderating effect on the short-term growth rates.⁶²

21 In addition, the U.S. Court of Appeals for the District of Columbia recently addressed
22 this issue in its review of FERC Opinion No. 569-B. In the Court’s decision, it
23 acknowledged that the FERC has relied on the use of EPS growth rates in the

⁶¹ Won Rebuttal, at 18.

⁶² *Ass’n. of Businesses Advocating Tariff Equity, et. al. v. Midcontinent Indep. Sys. Operator, Inc., et. al.*, 171 FERC ¶ 61,154 (2020) (“Opinion No. 569-A”), at ¶ 85; emphasis added; footnotes omitted.

1 calculation of the market return on the S&P 500 because the S&P 500 is regularly
2 updated to include companies with high market capitalization and it includes
3 companies at all stages of growth, including lower and higher growth potential. The
4 Court determined that FERC's rationale for using projected EPS growth rates was
5 sufficient and rejected the challenge to this assumption.⁶³

6 Furthermore, not only does Dr. Won utilize a two-step DCF to calculate the market
7 return, but he also does so assuming a GDP growth rate of 3.90 percent, which, as
8 discussed in my rebuttal testimony, is inconsistent with the approach for determining
9 a long-term growth rate as cited by *Morningstar*⁶⁴ as well as Dr. Morin, who is
10 referenced by Dr. Won as support for the use of a GDP growth rate in the DCF
11 model.

12 **Q: What are your conclusions regarding Dr. Won's adjustments to your CAPM**
13 **and ECAPM analyses?**

14 A. As noted previously, there are fundamental errors with Dr. Won's adjustment to
15 market return that render his recalculation of the results of my CAPM and ECAPM
16 analyses unusable.

⁶³ *MISO Transmission Owners v. FERC*, 45 F.4th 248, 259-60, (D.C. Cir. 2022).

⁶⁴ Bulkley Rebuttal, at 40-41.

1 **Q: Have you corrected Dr. Won's calculation of the market return to properly**
2 **reflect the exclusion of non-dividend paying companies?**

3 Yes. Schedule AEB-SR1, Attachment 1, pages 1 and 2 present the market return
4 calculation as filed in my direct testimony of 12.51 percent and Dr. Won's erroneous
5 adjustment to my market return of 10.75 percent, respectively. However, as shown
6 on Schedule AEB-SR1, Attachment 1, page 3, while I do not agree with excluding
7 non-dividend paying companies from the calculation of the overall market return, I
8 have first corrected each of the errors in Dr. Won's market return calculation and
9 then separately shown the impact to the market return of using the GDP growth rate
10 based on the *Morningstar* methodology and removing Dr. Won's application of the
11 two-step DCF to calculate the market return. As shown on Schedule AEB-SR1,
12 Attachment 1, page 3, these analyses demonstrate that my market return is not an
13 "extreme outlier" as Dr. Won suggests.

14 Specifically, as shown on the top of Schedule AEB-SR1, Attachment 1, page 3,
15 when the non-dividend paying companies are correctly removed from the
16 calculation, *and no other changes are made to Dr. Won's market return calculation,*
17 the overall market return is 11.17 percent.⁶⁵ As shown on the top of that same page,
18 when two errors are corrected (*i.e.*, removing non-dividend paying companies but
19 doing so correctly and then also correcting the GDP growth rate to be consistent
20 with the approach supported by *Morningstar*) but Dr. Won's two-step DCF approach

⁶⁵ This adjustment maintains Dr. Won's two-step DCF methodology that is inconsistent with the FERC approach and relies on a GDP growth rate that is inconsistent with the approach supported by Dr. Morin and *Morningstar* for calculating the long-term GDP growth rate.

1 to calculating the market return is retained, the resulting market return is 11.50
2 percent. Lastly, as also shown on the top of that same page, when Dr. Won's market
3 return is reasonably adjusted to (1) remove non-dividend paying companies
4 correctly from the market return calculation; and (2) rely on a constant growth DCF
5 analysis instead of a two-step DCF analysis, the market return is 12.55 percent, or
6 4 basis point *higher* than my calculation of the market return that includes both
7 dividend paying and non-dividend paying companies. Therefore, when the errors in
8 Dr. Won's analysis are corrected, the resulting projected market return supports my
9 analyses and demonstrates that my market return is not an "extreme outlier" as Dr.
10 Won contends.⁶⁶

11 **Q: How would the results of your CAPM analyses change if you relied on this**
12 **adjusted market return calculation?**

13 A. Schedule AEB-SR1, Attachment 2 compares the results of the CAPM and ECAPM
14 analyses reflected in my direct testimony when each of the three market return
15 calculations presented on the top of Schedule AEB-SR1, Attachment 1, page 3
16 correcting Dr. Won's adjustments are reflected. Specifically, as shown on Schedule
17 AEB-SR1, Attachment 2, the first change shows that even when relying on the
18 lowest market return of 11.17 percent,⁶⁷ the average CAPM result is 10.07 percent,

⁶⁶ Won Rebuttal, at 18.

⁶⁷ Note, while this market return scenario excludes the non-dividend paying companies and derives the resulting weighting of the dividend paying companies remaining in the index correctly, I disagree with this market return estimate given (1) its exclusion of non-dividend paying companies; (2) retains Dr. Won's two-step DCF methodology inconsistent with FERC's approach; and (3) retains Dr. Won's GDP growth rate inconsistent with the approach supported by Dr. Morin and *Morningstar*.

1 which is 35 basis points higher than the 9.72 percent claimed by Dr. Won's
2 erroneous adjustment to my CAPM. When relying on a fully corrected market return
3 of 12.55 percent as shown on Schedule AEB-SR1, Attachment 2, the results of the
4 CAPM would be 11.22 percent, which demonstrates that the Company's requested
5 ROE of 10.25 percent is reasonable.

6 **Q: Do you agree with Dr. Won, Mr. Murray, and Mr. Walters that the forward-**
7 **looking market risk premium in your CAPM analysis is overstated?**

8 A. No. The market risk premium is the difference between the market return and the
9 risk-free rate. As discussed, the market return used in my CAPM analyses is
10 reasonable, consistent with the range established by historical market return data,⁶⁸
11 and has been relied upon in other regulatory jurisdictions. It is also important to
12 note that Mr. Walters also calculates a market risk premium using a forward-looking
13 single stage DCF analysis. As shown in Schedule CCW-15, the market return in his
14 analysis was 12.18 percent and the market risk premium was 8.00 percent. Mr.
15 Walters's market return calculation and market risk premium are both higher than
16 the market return and market risk premium provided in my updated analyses in my
17 rebuttal testimony.⁶⁹ As shown in Schedule AEB-R1, Attachment 3, the market risk
18 premium in my updated analyses range from 7.54 percent to 7.75 percent.
19 Comparing these market risk premium estimates to the estimates developed by Mr.
20 Walters demonstrates that the range of market risk premia established in the

⁶⁸ Bulkley Direct, at 42-43.

⁶⁹ Schedule AEB-R1, Attachment 3.

1 updated analyses presented in my rebuttal testimony are lower than two of the three
2 market risk premia estimates developed by Mr. Walters and are lower than the
3 average DCF based market risk premium that Mr. Walters uses in his analyses.

4 The following summarizes the use of methodologies that are consistent with the
5 approach I relied upon to develop the market risk premium in my CAPM:

- 6 • In a recent cost of capital proceeding for the electric utilities, the California
7 Public Utilities Commission noted that all parties recognized that historical
8 market returns and economically logical projections fall within the range of
9 12 percent.⁷⁰ This recognition is consistent with the market return utilized
10 in the initial CAPM analyses in my direct testimony (*i.e.*, 12.51 percent) and
11 in the updated CAPM analyses in my rebuttal testimony (*i.e.*, 12.05
12 percent).
- 13 • As just discussed, the FERC has supported the use of a constant growth
14 DCF model to estimate the market return in the CAPM such as I have done,
15 and the U.S. State Court of Appeals for the District of Columbia has
16 addressed the concern regarding the use of projected EPS growth rates in
17 a constant growth DCF model to estimate the market return.
- 18 • Various state utility regulatory commissions have also supported the use of
19 a constant growth DCF model to estimate the market return in the CAPM.
20 As shown in Figure 3, the Staff of the Illinois Commerce Commission
21 (“ICC”), the Bureau of Investigation and Enforcement (“I&E”) of the
22 Pennsylvania Public Utility Commission (“Pennsylvania PUC”), and the
23 Staff of the Maine Public Utilities Commission (“Maine PUC”) have each
24 supported the forward-looking market risk premium, and the market return
25 estimates using the constant growth DCF model. In each of these cases,
26 the respective regulatory commission relied on the estimated CAPM results
27 by these parties to determine the authorized ROE and did not dispute the
28 use of the constant growth DCF model to calculate the market return.

⁷⁰ California Public Utilities Commission, Application 22-04-008, *et al.*, Decision 22-12-031, at 23, December 15, 2022.

1 **FIGURE 3: REGULATORY COMMISSIONS – MARKET RETURN ESTIMATED USING THE**
2 **CONSTANT GROWTH DCF MODEL**

Intervening Party	Company	Docket No.	Market Return	Date of Order	Did the Commission Rely on the Party's CAPM?
Staff of the ICC	North Shore Gas Company	Docket 20-0810	CGDCF of the dividend-paying companies in the S&P 500 (11.95%) ⁷¹	9/8/21	Yes ⁷²
I&E	Aqua Pennsylvania, Inc.	Docket No. R-2021-3027385	CGDCF of the <i>Value Line</i> Universe and S&P 500 (12.14%) ⁷³	5/12/22	Yes, the PPUC placed primary weight on I&E's CAPM ⁷⁴
Staff of the Maine PUC	Northern Utilities, Inc.	Docket No. 2019-00092	CGDCF of the dividend-paying companies in the S&P 500 (11.33% - 13.49%) ⁷⁵	4/1/20	Yes ⁷⁶

3

4 • Moreover, given the fact that the expected market return estimated in my
5 direct testimony is consistent with the range of annual equity returns that
6 have been observed over the past century, and the expected market return
7 estimated in my rebuttal testimony is lower, my market return continues to
8 be consistent with the frequency of historical market returns at or above my
9 market return estimate, further demonstrating that it my estimate is a
10 reasonable expectation for the market.

11 All of these factors support the market return and market risk premium used in my
12 CAPM and ECAPM analyses and invalidate the claim made by Dr. Won, Mr. Murray,

71 Illinois Commerce Commission, Docket No. 20-0810, Order, September 8, 2021, at 71.

72 *Id.*, at 86-87.

73 Pennsylvania Public Utility Commission, Aqua Pennsylvania, Inc., Opinion and Order, Public Meeting held May 12, 2022, at 147.

74 *Id.*, at 178.

75 Maine Public Utilities Commission, Docket No. 2019-00092, Bench Analysis, October 29, 2019, at 21.

76 *Id.*, Order Part II, April 1, 2020, at 58.

1 and Mr. Walters regarding the reasonableness of my market return and thus market
2 risk premium.

3 **Q: What is your response to Mr. Murray’s contention that he is not “aware of any**
4 **authoritative sources” that use your approach to estimating the market**
5 **return?**

6 A. I do not believe that is a true statement. I have filed testimony in this jurisdiction in
7 numerous cases in response to Mr. Murray and have discussed the regulatory
8 support for the calculation of the market return that I have relied upon.⁷⁷
9 Accordingly, as just discussed, there are multiple authoritative sources that have
10 relied on the constant growth DCF to estimate the market return in the CAPM of
11 which I am aware and previously have made Mr. Murray aware.

12 **Q: How do you respond to Dr. Won’s view that your market risk premium is an**
13 **“extreme outlier”?**⁷⁸

14 A. I disagree. The analysis prepared by Mr. Walters and the decisions of other
15 regulators that I have just discussed contradict Dr. Won’s conclusion that my market
16 return is an outlier. Further, the estimates that Dr. Won summarizes in Figure 2 of
17 his rebuttal testimony have been addressed in my rebuttal testimony since they are
18 used in Dr. Won’s CAPM analyses, and in part in Mr. Murray’s and Mr. Walters’s

⁷⁷ See, e.g., Missouri Public Service Commission, Case No. ER-2022-0337, Surrebuttal Testimony of Ann E. Bulkley, March 13, 2023, at 35-36; Missouri Public Service Commission, Case No. WR-2022-0303, Surrebuttal Testimony of Ann E. Bulkley, at 46-48.

⁷⁸ Won Rebuttal, at 18.

1 CAPM analyses.⁷⁹ The additional estimates that he provides in his rebuttal
2 testimony are misleading, in that they were proposed by parties in a FERC
3 proceeding, but not accepted by the FERC. Therefore, Dr. Won has provided no
4 evidence demonstrating that a regulator has relied on these estimates.

5 Specifically, Dr. Won presents forward-looking market risk premium estimates from
6 *Value Line*, Duff & Phelps (now *Kroll*), and American Appraisal in Figure 2 of his
7 rebuttal testimony, and he cites the FERC's Opinion No. 569 as the source for those
8 estimate.⁸⁰ However, Dr. Won fails to acknowledge that the market risk premia that
9 he cites from Opinion No. 569 were not agreed upon by the FERC in that
10 proceeding. Rather, these estimates were raised by a specific intervenor group in
11 that proceeding and summarized as such in Opinion No. 569 as part of the summary
12 of the record.⁸¹ The FERC did not agree with that intervenor's position in calculating
13 the market return and thus market risk premium, and it instead adopted an approach
14 that is similar to the methodology I use to estimate the market risk premium.⁸²
15 Moreover, Opinion No. 569 was issued in November 2019, approximately five years
16 ago, which means that the specific estimates of the market risk premia that he
17 summarizes, while not supported by FERC, are also outdated and not relevant for
18 purposes of determining the cost of equity in the current proceeding.

⁷⁹ Bulkley Rebuttal, at 44-55.

⁸⁰ Won Rebuttal, at 16, footnote 53.

⁸¹ *Ass'n. of Businesses Advocating Tariff Equity, et al. v. Midcontinent Indep. Sys. Operator, Inc., et al.*, 169 FERC ¶ 61,129 (2019) ("Opinion No. 569"), at ¶ 249.

⁸² *Id.*, at ¶ 260-261.

1 **Q: Dr. Won also references the market risk premium resulting from a 2021 survey**
2 **conducted by the IESE Business School. Is this supportive of Dr. Won's**
3 **position?**

4 A. No. Dr. Won ignores the fact that the authors of this study caution against the use
5 of survey data estimate the market return and market risk premium. Specifically,
6 the survey notes:

7 We can find out the REP [Required Equity Premium] and the EEP
8 [Expected Equity Premium] of an investor by asking him, although
9 for many investors the REP is not an explicit parameter but, rather,
10 it is implicit in the price they are prepared to pay for the shares.
11 However, it is not possible to determine the REP for the market as a
12 whole, because it does not exist: even if we knew the REPs of all the
13 investors in the market, it would be meaningless to talk of a REP for
14 the market as a whole. There is a distribution of REPs and we can
15 only say that some percentage of investors have REPs contained in
16 a range. The average of that distribution cannot be interpreted as
17 the REP of the market nor as the REP of a representative investor.⁸³

18 **Q: Have you reviewed any studies that have evaluated the reasonableness of**
19 **market risk premium estimates?**

20 A. Yes. The Federal Reserve Bank of New York published an analysis in 2015 that
21 reviewed 20 methodologies over the period 1960 through 2013 for estimating the
22 market risk premium.⁸⁴ This analysis included several studies referenced by Dr.
23 Won in Figure 2 of his rebuttal testimony such as the historical market risk premium,

⁸³ Pablo Fernandez, Sofia Bañuls and Pablo F. Acin, "Survey: Market Risk Premium and Risk-Free Rate used for 88 countries in 2021," IESE Business School, June 2021, at 10.

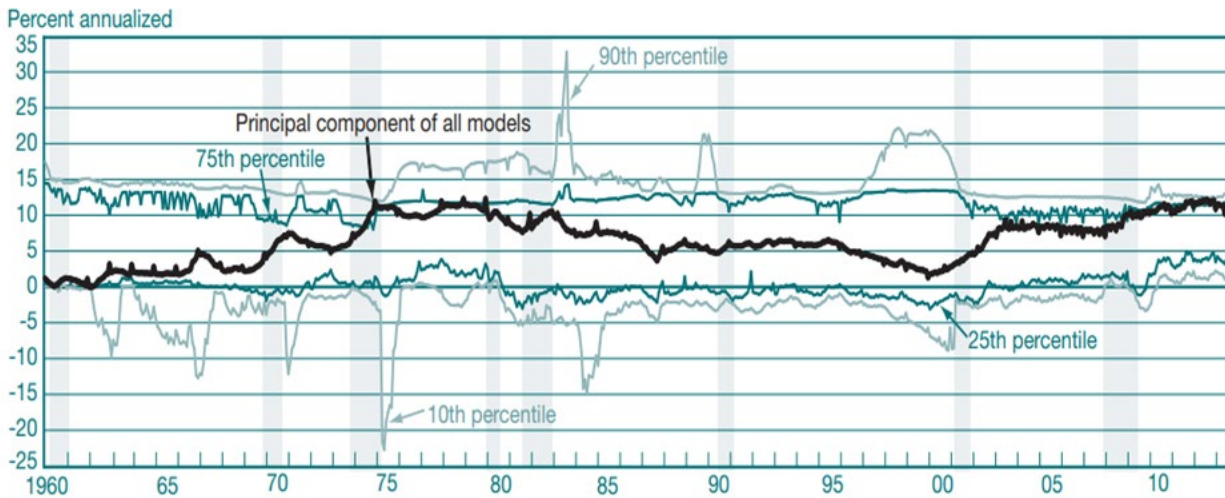
⁸⁴ Fernando Duarte and Carla Rosa, "The Equity Risk Premium: A Review of Models," Federal Reserve Bank of New York, 2015.

1 survey results similar to the survey conducted by the IESE Business School, and
2 the methodology relied on by Professor Damodaran. The results of the Federal
3 Reserve Bank study demonstrate that both the market risk premia estimates in my
4 direct testimony, which range from 7.86 percent to 8.21 percent, as well as the
5 market risk premia estimates in my rebuttal testimony, which range from 7.54
6 percent to 7.75 percent, are reasonable. Specifically, the key conclusions from this
7 study are:

- 8 • The 20 methodologies reviewed reflected a range for the market risk
9 premium of between -1.0 percent to 14.5 percent.
- 10 • As shown in Figure 4, the principal component analysis of the 20 models
11 (*i.e.*, the bold black line) produced a range for the market risk premium of
12 approximately 0 percent to over 10 percent from 1960 through 2013.
- 13 • The one-year-ahead market risk premium was consistently greater than 10
14 percent following the financial crisis of 2008/09.

15

1 **FIGURE 4: THE FEDERAL RESERVE BANK OF NEW YORK, ONE-YEAR-AHEAD MARKET RISK**
2 **PREMIUM⁸⁵**



4 Further, the Federal Reserve Bank of New York also noted the following:

5 Chart 2 shows the first principal component of all twenty models in
6 black (the black line is the same principal component shown in black
7 in each of the panels of Chart 1). **As expected, the principal**
8 **component tends to peak during financial turmoil, recessions,**
9 **and periods of low real GDP growth or high inflation.** It tends to
10 bottom out after periods of sustained bullish stock markets and high
11 real GDP growth. Evaluated by the first principal component, the
12 one-year ahead ERP [equity risk premium] reaches a local peak in
13 June 2012 at 12.2 percent. The surrounding months have ERP
14 estimates of similar magnitude, with the most recent estimate in June
15 2013 at 11.2 percent. This behavior is not so clearly seen by simply
16 looking at the collection of individual models in Chart 1, a finding that
17 highlights the usefulness of principal component analysis. Similarly
18 high levels were observed in the mid- and late 1970s, during a period

⁸⁵ *Id.*, at 50.

1 of stagflation, while the recent financial crisis had slightly lower ERP
2 estimates, closer to 10 percent.⁸⁶

3 Thus, the Federal Reserve Bank of New York noted that the market risk premium is
4 higher during periods of increased inflation. While inflation has declined as a result
5 of the Federal Reserve's monetary policy over the past two years, as discussed in
6 my rebuttal testimony, inflation fears have once again increased as result of the
7 campaign promises made by President Trump.⁸⁷ For example, the threat of
8 increased tariffs on imported goods and cuts in taxes all are likely to put upward
9 pressure on inflation. Given the results of the analysis conducted by the Federal
10 Reserve Bank of New York, it is clear that my estimates of the market risk premium
11 are reasonable.

12 **Q: Please summarize the analysis that Mr. Murray performed using the Wilshire**
13 **5000 Index.**

14 A. Mr. Murray calculates the market capitalization of the Wilshire 5000 index in 50
15 years using the earnings growth rate that I relied on to calculate my market return,
16 as well as GDP in 50 years using a long-term GDP growth rate of 4.00 percent. Mr.
17 Murray concluded that in 50 years the value of the Wilshire 5000 would be
18 approximately 47 times higher than GDP, which he notes is unreasonable.⁸⁸

⁸⁶ *Id.*; emphasis and clarification added.

⁸⁷ Bulkley Rebuttal, at 17-18.

⁸⁸ Murray Rebuttal at 32.

1 **Q: Is this analysis meaningful?**

2 A. No. First, Mr. Murray has ignored the fact that the annualized ten-year total return
3 on the Wilshire 5000 as of December 31, 2024, was 12.26 percent, which is
4 consistent with the market return estimate in both my direct and rebuttal testimonies.

5 Further, Mr. Murray's comparison is entirely dependent on his selection of an
6 assumed GDP growth rate of 4.00 percent. This analysis has no probative value,
7 as he has not provided any support for his GDP growth rate, which is fundamental
8 to the point of his analysis. It is simply a demonstration in compound annual growth
9 at two different rates. As shown previously in Schedule AEB-R1, Attachment 9 of
10 my rebuttal testimony, Mr. Murray's assumed growth rate is significantly below a
11 long-term projected GDP growth rate of 5.51 percent.

12 **Q: Are you aware of additional information that addresses Mr. Murray's**
13 **assumption that growth in the overall market is constrained over the long-**
14 **term by the growth rate in U.S. GDP?**

15 A. Yes. A recent Morgan Stanley article challenges the link between GDP and
16 earnings in the context of the Buffett indicator (*i.e.*, ratio of the market value of all
17 publicly-traded equity securities to gross national product ("GNP")). In a modern
18 global economy, as "U.S. companies now get more of their sales from outside the
19 U.S. than they did in the past. GDP does not include those sales."⁸⁹ A recent

⁸⁹ Michael J. Mauboussin and Dand Callahan, "Charts from the Vault," Morgan Stanley Investment Management, Counterpoint Global Insights, December 5, 2024.

1 Wellington Management article provides an intuitive example of this disconnect
2 between GDP and EPS can be observed between the U.S. and China. “China EPS
3 growth has stagnated while U.S. EPS growth has been exceptional, despite China’s
4 economy growing at twice the speed of the U.S. ... When EPS is diluted by
5 additional company share issuance, it can further exacerbate this misalignment with
6 GDP growth.”⁹⁰ U.S. companies selling goods and services to China and other
7 countries contribute to EPS but not GDP. Both earnings derived from international
8 sales and share issuances/buybacks weaken the link between EPS growth and
9 GDP growth.

10 Furthermore, Economist Martin Feldstein observed that with the rise of services in
11 the economy, GDP “official measures provide at best a lower bound on the true real
12 growth rate with no indication of the size of the underestimation.”⁹¹

13 Accordingly, the referenced articles support my conclusion that it is not appropriate
14 to assume that the long-term growth of the S&P 500 is constrained by U.S. GDP
15 growth.

⁹⁰ N. Samouihan and A. King, “Chart in focus: The need to differentiate market growth from macro growth,” Wellington Management, September 2024.

⁹¹ Martin Feldstien, “Underestimating the real growth of GDP, personal income, and productivity,” *Journal of Economic Perspectives*, 31(2), at 145-164 (2017).

1 **VIII. ECAPM ANALYSIS**

2 **Q: What are the positions of Dr. Won, Mr. Murray, and Mr. Walters regarding your**
3 **ECAPM analysis?**

4 A. Dr. Won states that my ECAPM analyses rely on a market risk premium that is too
5 high. In addition, Dr. Won disagrees with the adjustment made in the ECAPM to
6 account for the tendency of the CAPM to underestimate the cost of equity for
7 companies with betas less than 1.00.⁹² Specifically, Dr. Won states that there is a
8 fairly wide range of alpha estimates between academic studies primarily due to the
9 methodologies employed and time periods used which means the estimates of
10 alpha are not strictly comparable.⁹³ Further, Dr. Won contends that Dr. Morin
11 presented other studies that produced returns between -9.61 percent to 13.56
12 percent, which Dr. Won claims means that the CAPM overestimated the return in
13 some instances and that such findings do not lend credibility to the use of the
14 ECAPM.⁹⁴

15 Mr. Murray's response to my ECAPM simply reiterates his concern regarding the
16 market risk premium of my CAPM, which I have already addressed; however, he
17 does not specifically discuss the ECAPM.⁹⁵

⁹² Won Rebuttal, at 19.

⁹³ *Id.*

⁹⁴ *Id.*

⁹⁵ Murray Rebuttal, at 33.

1 Mr. Walters states that the use of an adjusted beta in the ECAPM is duplicative and
2 thus produces overstated results.⁹⁶ In addition, Mr. Walters states that reliance on
3 an adjusted beta in the ECAPM is not widely accepted in regulated rate proceedings
4 of which he is aware.⁹⁷

5 **Q: Do you agree with Dr. Won’s conclusions on the ECAPM studies?**

6 A. No, I do not. The concept of the ECAPM and the conclusion that the risk-return
7 relationship is flatter than predicted by the CAPM is generally accepted in financial
8 literature. In *Modern Regulatory Finance*, Dr. Morin provides a list of studies each
9 of which concludes that the CAPM understates the returns for companies with betas
10 less than 1.0 (which is typically utilities) and overstates the return for companies
11 with betas greater than 1.0.⁹⁸ It is these empirical studies that formed the basis of
12 the development of alternative models such as the ECAPM that would better predict
13 the risk return-relationship observed when reviewing actual market data.

14 Academics and researchers use the equation shown below to determine the value
15 of the constant term (α) or “alpha factor” using historical market data:

$$K_e = r_f + \alpha + \beta (r_m - r_f) - \alpha \quad [1]$$

17 Where:

18 K_e = the required market ROE;

19 α = a constant term;

⁹⁶ Walters Rebuttal, at 8.

⁹⁷ *Id.*, at 11.

⁹⁸ Roger A. Morin, *Modern Regulatory Finance*, Public Utilities Reports, Inc., 2021, at 206-208.

1 β = beta coefficient of an individual security;
2 r_f = the risk-free ROR; and
3 r_m = the required return on the market as a whole.

4 There have been numerous additional studies published to estimate the value of the
5 constant term or alpha factor in the ECAPM equation. Figure 5 provides the list of
6 studies summarized by Dr. Morin and referenced by Dr. Won as support for his
7 conclusion that the ECAPM is not credible. However, Dr. Won's conclusion
8 improperly masks the fact that, as shown, six of the eight studies estimated positive
9 values of the constant term, which indicates that the consensus among the studies
10 is that the CAPM understates the observed return. Additionally, among the six
11 studies that estimate only positive values of the constant term, the range of the
12 constant term was 1.63 percent to 13.56 percent. Dr. Morin relied on a constant
13 term in the range of 1 to 2 percent to develop the 0.25 and 0.75 factors included in
14 the ECAPM, and considering the range of the constant term provided in Figure 5, it
15 would appear Dr. Morin's estimate is conservative.

1 **FIGURE 5: EMPIRICAL EVIDENCE ON THE ALPHA FACTOR (CONSTANT TERM)⁹⁹**

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

2

3 **Q: Do you agree with Mr. Walters that it is not appropriate to use adjusted betas**
4 **in the ECAPM?**

5 A. No. The purpose of adjusting beta in the CAPM is to account for the tendency of
6 beta to trend back over time to the market beta of 1.00. The betas published by
7 *Value Line* include this adjustment, which was first proposed by Marshall E. Blume
8 in 1975.¹⁰⁰ The use of adjusted betas in the CAPM is important because if beta
9 trends towards 1.00, as Blume noted, then the adjusted beta will be more reflective
10 of the beta that can be expected over the near-term. This is equally important in the
11 specification of the CAPM in this case since we are estimating the cost of equity for
12 the Company over the near-term.

⁹⁹ *Id.*, at 222.

¹⁰⁰ Marshall E. Blume, "Betas And Their Regression Tendencies," *The Journal of Finance*, Vol. 30, No. 3, 1975, at 785-795.

1 The ECAPM does not account for the tendency of beta to trend toward 1.00. The
2 purpose of the ECAPM is to account for the fact that the risk-return relationship is
3 flatter than what is estimated by the CAPM, even when using adjusted betas. While
4 beta is not observable and must be estimated, the theory behind the ECAPM is that
5 even if the true value of a stock's beta were observable, the CAPM would understate
6 the results for stocks with betas less than 1.00 and overstate the results for stocks
7 with betas greater than 1.00. Therefore, contrary to the assertion of Mr. Walters,
8 the purpose of each adjustment is different and thus applying both adjustments in
9 the ECAPM is not duplicative.

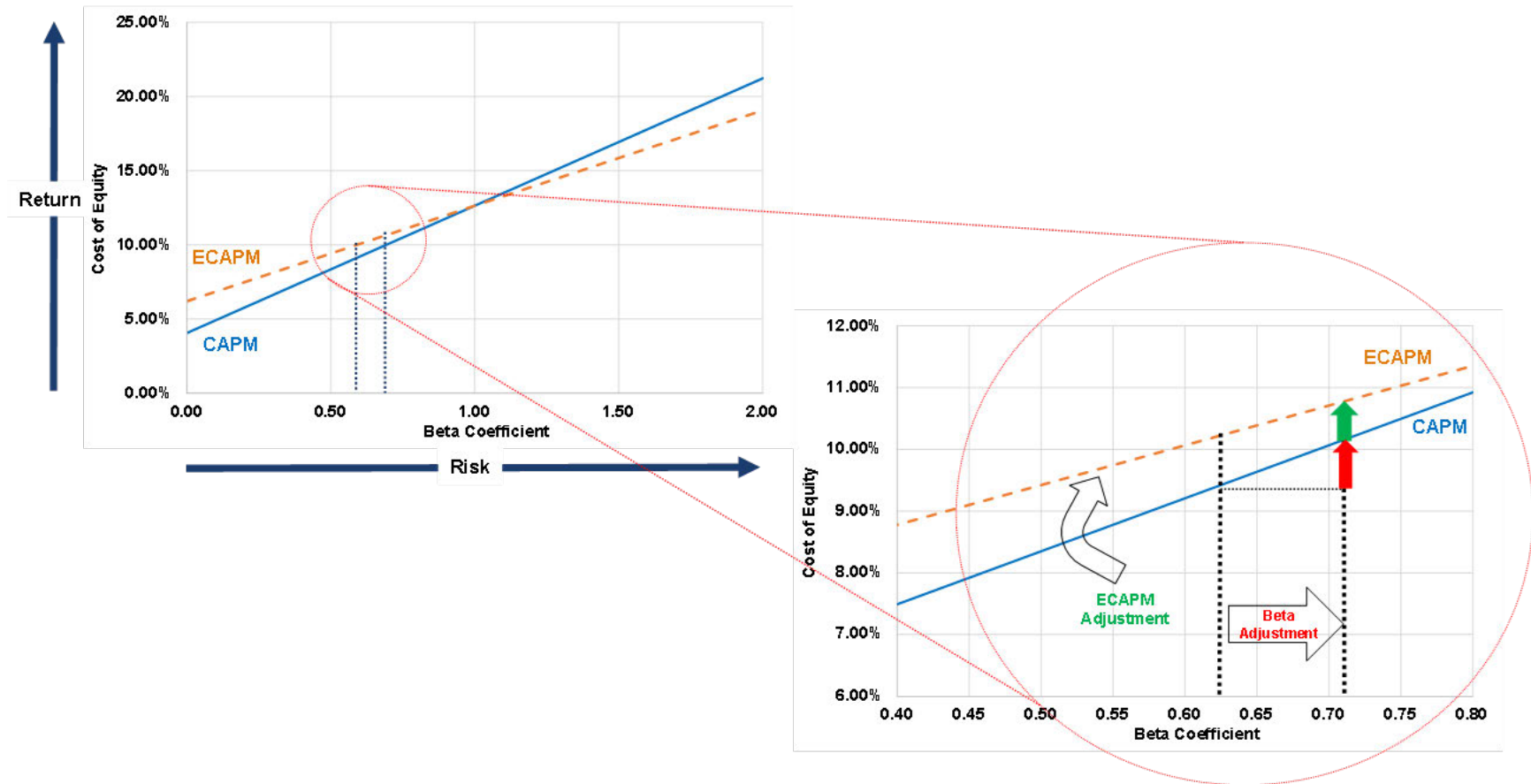
10 **Q: Can you demonstrate that using adjusted betas in the CAPM and relying on**
11 **the ECAPM are two distinct adjustments to the CAPM?**

12 A. Yes. Figure 6 demonstrates the point that adjusting betas and adjusting the slope
13 of the risk/return relationship through the ECAPM are two distinct adjustments and
14 are not duplicative as alleged by Mr. Walters. As shown in Figure 6, when beta is
15 adjusted to recognize that betas revert to the market mean of 1.0 over time and
16 used in the CAPM, the resulting adjustment is shown by the red arrow in the lower
17 right-hand corner. Separately, when the ECAPM is employed to recognize that the
18 risk/return relationship is flatter than predicted by the CAPM, the resulting
19 adjustment is shown by the green arrow in the lower right-hand corner. To the extent
20 that a company with a beta greater than 1.0 were being evaluated, the same process
21 of two separate adjustments would apply, albeit in the opposite direction from what

- 1 is shown in Figure 6, and would result in a decrease in the cost of equity otherwise
- 2 predicted by the CAPM.

1

FIGURE 6: RISK/RETURN RELATIONSHIP BETWEEN CAPM AND ECAPM



2

1 **Q: Are you aware of any academic studies that have used adjusted betas to**
2 **estimate the ECAPM?**

3 A. Yes. For example, Chrétien and Coggins (2011) studied the CAPM and its ability to
4 estimate the risk premium for the utility industry in particular subgroups of utilities
5 for a data set that included market data through the end of 2006.¹⁰¹ Chrétien and
6 Coggins considered the CAPM, the Fama-French three-factor model and a model
7 similar to the ECAPM. The study shows that the ECAPM significantly outperformed
8 the traditional CAPM at predicting the observed risk premium for the various utility
9 subgroups.

10 Additionally, Litzenberger, Ramaswamy, and Howard (1980), which was cited by
11 Dr. Morin and referenced previously in Figure 5, also studied the ability of the CAPM
12 to estimate the returns for utilities.¹⁰² The authors found that the CAPM tends to
13 understate the return for stocks such as utilities, which have a beta less than 1.00.
14 To develop their analysis, the authors used historical (*i.e.*, “raw”) betas to estimate
15 the “alpha” factor in the ECAPM. However, the authors also showed that an “alpha”
16 factor can be derived for betas adjusted using the Blume procedure discussed
17 above and the results of their analysis for raw betas. The Blume adjustment is
18 shown in the following equation:

19
$$\beta_i = \omega\beta_{i(\text{historical})} + (1 - \omega) \quad [2]$$

¹⁰¹ Stéphane Chrétien and Frank Coggins, “Cost Of Equity For Energy Utilities: Beyond The CAPM,” *Energy Studies Review*, Vol. 18, No. 2, 2011.

¹⁰² Robert Litzenberger, *et al.*, “On the CAPM Approach to the Estimation of A Public Utility’s Cost of Equity Capital,” *The Journal of Finance*, Vol. 35, No. 2, 1980, at 369-383.

1 Where:

2 β_i = adjusted beta

3 β_i [historical] = raw beta

4 ω = Blume Adjustment factor (*i.e.*, 0.67)

5 The estimate of “alpha” using Blume-adjusted betas can be derived using the results
6 presented in the “Raw Beta” section of Table 1 on page 380 and the equations on
7 page 376:

8
$$a = a' - b' \left(\frac{1-\omega}{\omega} \right) = 0.326 - 0.330 \left(\frac{0.33}{0.67} \right) = 0.163 \qquad [3]$$

9 Where:

10 a = estimated alpha factor for Blume adjusted betas

11 a' = estimated alpha factor using raw betas

12 b' = estimated excess return over the risk-free rate using raw betas

13 Because the authors relied on monthly returns for stocks in the New York Stock
14 Exchange, the estimated “alpha” factor using adjusted betas of 0.163 percent must
15 be annualized.¹⁰³ When annualized, the estimated “alpha” factor is 1.97 percent
16 using Blume-adjusted betas, which is consistent with the “alpha” factor relied on by
17 Dr. Morin of 1 to 2 percent to develop the 0.25 and 0.75 factors included in the
18 ECAPM that I rely on in both my direct and rebuttal testimonies.

19 Finally, Mr. Walters’ concern with the ECAPM analysis is addressed directly by
20 Roger Morin in his 2021 text *Modern Regulatory Finance* as follows:

¹⁰³ (1.00163)¹²-1 = 1.97 percent

1 Because of this adjustment, some critics of the ECAPM argue that
2 the use of Value Line adjusted betas in the traditional CAPM
3 amounts to using an ECAPM. This is incorrect. The use of adjusted
4 betas in a CAPM analysis is not equivalent to the ECAPM. Betas are
5 adjusted because of the regression tendency of betas to converge
6 towards 1.0 over time. We have seen that numerous empirical
7 studies have determined that the SML [Security Market Line]
8 described by the CAPM formula at *any given moment* in time is not
9 as steeply sloped as the predicted SML. The slope of the SML should
10 not be confused with Beta. On the point, Eugene F. Brigham, finance
11 professor and the author of many financial textbooks states:

12 The Slope of the SML (5% in Figure 6-16) reflects the
13 degree of risk aversion in the economy. The greater the
14 average investor's aversion to risk, then (a) the steeper
15 the slope of the line, (b) the greater the risk premium
16 for all stocks, and (c) the higher required rate of return
17 on all stocks. Students sometimes confuse beta with
18 the slope of the SML. This is a mistake.

19 The use of an adjusted beta by Value Line is correcting for a different
20 problem than the ECAPM. The adjusted beta captures the fact that
21 betas regress towards one over time. The ECAPM corrects for the
22 fact that the CAPM under-predicts observed returns when beta is
23 less than one and over-predicts observed returns when beta is
24 greater than one.¹⁰⁴

25 **Q: Are you aware of state regulatory commissions that have accepted the use**
26 **of the ECAPM?**

27 A. Yes. There are various regulatory commissions that have supported the use of the
28 ECAPM in establishing an authorized ROE and have done so when adjusted betas
29 are used in the ECAPM analysis. For example, the New York Public Service

¹⁰⁴ Roger A. Morin, *Modern Regulatory Finance*, Public Utilities Report, Inc. (2021), at 223-224 (emphasis added).

1 Commission (“NYPSC”) and North Carolina Utilities Commission (“NCUC”) have
2 accepted the ECAPM analysis with the use of adjusted beta coefficients in
3 establishing the authorized ROE for regulated utilities. Specifically, the NYPSC
4 gives equal weight to the CAPM and ECAPM (which it refers to as the “Zero Beta”
5 CAPM) results,¹⁰⁵ and the NCUC has recently found that both the adjustment to
6 beta in the CAPM and the adjustment in the ECAPM were needed because they
7 correct for different things.¹⁰⁶

8 **Q: Is Dr. Won’s recalculation of your ECAPM analyses reasonable?** ¹⁰⁷

9 A. No. Dr. Won’s recalculation relies on the same incorrect market return and thus
10 market risk premium “adjustment” that he developed in response to my CAPM, and
11 as a result, renders his ECAPM unusable as an estimate of the cost of equity.
12 Further, as summarized on Schedule AEB-SR1, Attachment 2, when the error in Dr.
13 Won’s recalculation of my ECAPM analysis is corrected, *and yet no other changes*
14 *are made to Dr. Won’s market return calculation*, which includes retaining his two-
15 step DCF methodology inconsistent with FERC’s approach and his GDP growth rate

¹⁰⁵ New York Public Service Commission, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Corning Natural Gas Corporation for Gas Service, Case No. 20-G-0101, Order, at 44-46, May 19, 2021.

¹⁰⁶ North Carolina Utilities Commission, In the Matter of Duke Energy Progress, LLC for Adjustments of Rates and Charges Applicable to Electric Service in North Carolina and Performance Based Regulation, Docket No. E-2, SUB 1300, Order Accepting Stipulations, Granting Partial Rate Increase, and Requiring Public Notice, at 162-63, August 18, 2023.

¹⁰⁷ Won Rebuttal, Workpaper “4 CAPM.”

1 inconsistent with *Morningstar's* approach, the overall resulting cost of equity is 10.34
2 percent, or higher than the Company's proposed ROE in this proceeding.

3 **IX. RISK PREMIUM ANALYSIS**

4 **Q: What are the positions of Dr. Won, Mr. Murray, and Mr. Walters regarding your**
5 **Bond Yield Plus Risk Premium ("BYRP" or "Risk Premium") analysis?**

6 A. These witnesses offer the following positions regarding the Risk Premium approach
7 generally, and my analyses specifically:

- 8 • Dr. Won's primary concerns with the BYRP analysis are that: (1) the
9 analysis is determined based on the yield on the 30-year Treasury bond
10 yield, which is affected by government intervention through the Federal
11 Reserve's monetary policy and not solely through the financial market; (2)
12 the 30-year Treasury yield increased too much as a result of the COVID-19
13 pandemic to accurately estimate an ROE; and (3) the relationship between
14 the 30-year Treasury bond yield and the ROE is not constant over time.¹⁰⁸
15 In addition, Dr. Won states that he agrees with the FERC that the BYRP is
16 likely to provide a less accurate current cost of equity estimate than the DCF
17 or CAPM models because it relies on previous ROE determinations that
18 may not be directly determined by a market-based methodology.¹⁰⁹
- 19 • Mr. Murray contends that I have concluded from my BYRP analysis that
20 ROEs have not changed as much as interest rates, and thus an adjustment
21 needs to be made to recognize that regulators have been hesitant to adjust
22 authorized ROEs as much as interest rates would suggest. Mr. Murray
23 states that this is circular because the regression coefficient is dependent
24 on regulatory commissions' decisions and not on market required
25 returns.¹¹⁰
- 26 • Mr. Walters states that the estimated equity risk premium in my BYRP
27 analysis is "significantly overstated" and inconsistent with the hypothesis
28 that there is an inverse relationship between interest rates and risk

¹⁰⁸ Won Rebuttal, at 20-23.

¹⁰⁹ *Id.*, at 23.

¹¹⁰ Murray Rebuttal, at 33.

1 premia.¹¹¹ To support his conclusion, Mr. Walters states that the risk
2 premium was 5.50 percent in 2023, while the average yield on the 30-year
3 Treasury bond was 4.09 percent. Therefore, Mr. Walters contends that
4 since the current yield on the 30-year Treasury bond is higher than average
5 30-year Treasury bond yield in 2023,¹¹² the risk premium should be lower
6 than the risk premium of 5.50 percent in 2023. Mr. Walters concludes that
7 the equity risk premia used in my BYRP analysis range from 6.12 percent
8 to 6.21 percent, which are higher than the 2023 risk premium of 5.50
9 percent and would not reflect the inverse relationship between interest rates
10 and the risk premium.

11 **Q: Is there any merit to Dr. Won's concerns that your BYRP analysis?**

12 A. No. Regardless of my use of authorized ROE and Treasury bond yield data back
13 to 1980 and the changes in that data over time, the regression analysis that I have
14 conducted nonetheless demonstrates a strong inverse relationship between interest
15 rates and the equity risk premium for utilities. As shown in Schedule AEB-R1,
16 Attachment 6 of my rebuttal testimony, the regression in my BYRP analysis has an
17 R² of approximately 0.83, which means that 83 percent of the variation in historical
18 implied utility equity risk premia can be explained by changes in interest rates. The
19 regression indicates that there indeed exists a strong negative correlation between
20 utility equity risk premia and interest rates, and that the regression equation is an
21 effective tool for predicting authorized ROEs at specified interest rate levels,
22 whether current or projected interest rates.

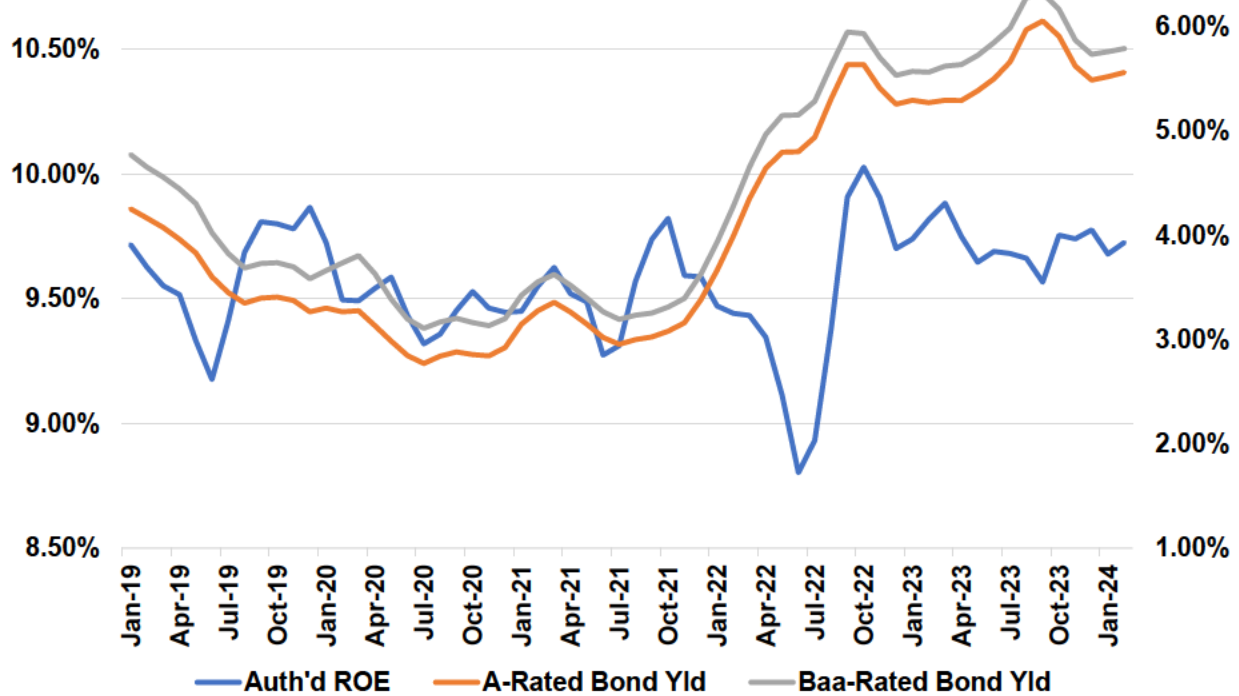
¹¹¹ Walters Rebuttal, at 12-13.

¹¹² Mr. Walters references the six-month average yield on the 30-year Treasury bond from April 2024 to September 2024 of 4.22 percent.

1 **Q: Is Dr. Won's criticism of your BYRP analysis inconsistent with his own BYRP**
2 **analysis?**

3 A. Yes. In Figure 3 of Dr. Won's rebuttal testimony, he claims that the results of my
4 BYRP analysis are unreliable because of a divergence in the relationship between
5 authorized ROEs and 30-year Treasury bond yields post-COVID. However, as
6 shown in Figure 7 below, the same divergence is present in the authorized ROE
7 and utility bond yield data that Dr. Won relies on for his BYRP analysis. Further, if
8 Dr. Won believes that such a divergence in the authorized ROE and utility bond yield
9 data produces an unreliable result, then he has invalidated the result of his own
10 BYRP analysis. More importantly, given that Dr. Won's ROE recommendation in
11 this proceeding is equivalent to the result of his BYRP analysis, he has also
12 invalidated his ROE recommendation in this proceeding.

1 **FIGURE 7: DR. WON'S AUTHORIZED ROE AND MOODY'S UTILITY BOND YIELD DATA¹¹³**



2

3 **Q: Is Mr. Murray's position regarding your BYRP analysis consistent with his**
4 **own analyses?**

5 A. No. While Mr. Murray suggests that the relationship between authorized ROEs and
6 bond yields does not reflect investor behavior,¹¹⁴ he evaluates authorized ROEs and
7 long-term Treasury bond yields as support for his recommended ROE.¹¹⁵
8 Therefore, to the extent that Mr. Murray believes that my BYRP analysis cannot be
9 relied upon, he has invalidated his own analyses.

¹¹³ Data sourced from Dr. Won's "BYRP Model.xls" workpaper.

¹¹⁴ Murray Rebuttal at 33.

¹¹⁵ Murray Direct at 4-6.

1 It is unquestionable that both credit rating agencies and investors consider the
2 authorized ROE data in their determination of the valuation of utility stocks. As I
3 discussed in my direct and rebuttal testimonies, both credit rating agencies and
4 investors have responded negatively to authorized ROEs deemed to be too low.¹¹⁶
5 Therefore, the relationship between recently authorized ROEs and the prevailing
6 interest rates at the time that the ROE was authorized is reasonable to consider
7 when setting the ROE in the context of a rate proceeding.

8 Lastly, while Mr. Murray criticizes my BYRP analysis for not reflecting a market
9 required return, his own “rule of thumb” risk premium analysis is simply that – a rule
10 of thumb – which is certainly not derived based on current or projected market
11 conditions.

12 Therefore, for all of these reasons, there is no basis to Mr. Murray’s criticism
13 regarding my BYRP analysis.

14 **Q: Do you agree with Mr. Walters that your BYRP does not reflect the inverse**
15 **relationship between the risk premium and interest rates?**

16 A. No, because Mr. Walters has based his conclusion on a comparison to the risk
17 premium and average yield on the 30-year Treasury bond in 2023, which is flawed
18 for two reasons. First, Mr. Walters relies on the risk premium for 2023 reported by
19 S&P which is calculated as the difference between the average authorized return
20 for electric utilities including both vertically-integrated electric utilities and

¹¹⁶ Bulkley Rebuttal, at 23-29.

1 transmission and distribution (“T&D”) electric utilities and the yield on the 30-year
2 Treasury bond. However, Ameren Missouri is a vertically-integrated electric utility;
3 therefore, T&D electric utilities should have been excluded from the calculation of
4 the average authorized return for 2023 because utilities that own generation typically
5 have greater risk than T&D electric utilities. In fact, credit rating agencies such as
6 Moody’s have noted that generation ownership causes vertically-integrated electric
7 utilities to have higher business risk than either electric transmission and distribution
8 companies, or natural gas distribution or transportation companies.¹¹⁷ As a result,
9 the inclusion of T&D electric utilities in the calculation of the average authorized return
10 for 2023 likely biases the average downward and results in an understated estimate
11 of the risk premium.

12 Second, Mr. Walters’ comparison only utilizes data for one year, 2023; however, this
13 is inconsistent with his own risk premium analysis where Mr. Walters relied on the
14 average annual authorized returns and average annual yield on the 30-year
15 Treasury bond for 39 years (*i.e.*, 1986 through September 2024). It is more
16 appropriate to rely on a longer period of utility bond yield and authorized ROE data
17 that incorporates a much broader set of market conditions than would be considered
18 in one year.

¹¹⁷ Moody’s Investors Service. Rating Methodology: Regulated Electric and Gas Utilities, August 2024, at 14.

1 **Q: If Mr. Walters had relied on the 39-year historical period that he used to**
2 **conduct his BYRP analysis, would he have concluded that your BYRP**
3 **analysis does in fact reflect the inverse relationship between interest rates**
4 **and the risk premium?**

5 A. Yes. While Mr. Walters relied on authorized returns for all electric utilities and thus
6 his long-term risk premium is likely understated, only adjusting to rely on his long-
7 term average risk premium still supports the fact that my BYRP analysis reflects the
8 inverse relationship between interest rates and the risk premium. For example, as
9 shown on Mr. Walters's Schedule CCW-10, his long-term historical average risk
10 premium for electric utilities is 5.70 percent, which corresponds to a long-term
11 historical 30-year Treasury bond yield of 5.14 percent. As also shown on Schedule
12 CCW-10, the average 30-year Treasury bond yield for 2024 is 4.37 percent, or
13 substantially lower than his long-term historical average. Thus, given the inverse
14 relationship between equity risk premia and interest rates, the current risk premium
15 should be higher than the 5.70 percent long-term historical average that Mr. Walters
16 cites. Consistent with this inverse relationship, the risk premia resulting from my
17 regression analysis in my BYRP analysis are higher than Mr. Walters's long-term
18 historical average.

19 Therefore, contrary to Mr. Walters's contention, the risk premia derived from my
20 regression analysis are consistent with the historical data that Mr. Walters presents
21 and are not overstated such as he incorrectly suggests.

1 **X. BUSINESS RISK FACTORS**

2 **Q: What are the positions of Dr. Won, Mr. Majors, and Mr. Murray regarding the**
3 **Company's business risks and the effect on the Company's ROE?**

4 A. Dr. Won states that he considers Ameren Missouri's business and regulatory risks
5 when recommending his ROE in this proceeding; however, he alleges that I have a
6 biased approach that inflates the Company's business and regulatory risks.¹¹⁸
7 While acknowledging that the Company does have some regulatory lag and time
8 limits, Dr. Won contends that Ameren Missouri does not have greater risk than the
9 proxy group, stating that the Company takes advantage of several alternative
10 regulatory mechanisms such as Plant-In-Service Accounting ("PISA") and the
11 Renewable Energy Standard Rate Adjustment Mechanism ("RESRAM"), and that
12 he has not found any evidence that Ameren Missouri has significantly greater risk
13 than the proxy group that requires an upward adjustment to the ROE to be
14 authorized in this proceeding.¹¹⁹

15 Mr. Majors states that Ameren Missouri has several alternative regulatory
16 mechanisms such as PISA, RESRAM, and a property tax tracker that mitigate
17 regulatory lag and reduce the business risk for the Company.¹²⁰ As a result, Mr.
18 Majors recommends that the Commission consider the effect of the Company's
19 mechanisms when determining the return for Ameren Missouri; however, he

¹¹⁸ Won Rebuttal, at 28.

¹¹⁹ *Id.*, at 30.

¹²⁰ Majors Rebuttal, at 29.

1 acknowledges that he has not evaluated other aspects of Ameren Missouri's
2 business risk nor has he conducted a comparison of the Company's business risks
3 relative to "any of its peers."¹²¹ Rather, he refers to Dr. Won for an assessment of
4 the effect of the Company's business risk on the cost of equity.¹²²

5 Similarly, Mr. Murray contends that Ameren Missouri has reduced business risk
6 related to its ability to utilize PISA. Mr. Murray states that the Commission should
7 explicitly recognize this reduced risk by authorizing a capital structure for Ameren
8 Missouri that is based on the capital structure ratios "targeted and maintained" by
9 the Company's parent company, Ameren.¹²³ In addition, Mr. Murray states that I
10 have failed to recognize that my proxy group contains companies with significant
11 non-regulated business risk exposure, specifically DTE and NEE.¹²⁴

12 **Q: What is your response to these witnesses' positions regarding the Company's**
13 **business and regulatory risks?**

14 A. Dr. Won, Mr. Majors, and Mr. Murray fail to recognize the purpose for the business
15 risk analysis in the estimation of the appropriate ROE for a company from within the
16 range of cost of equity estimates developed. Since the cost of equity estimates are
17 based on market data for the proxy group companies, which reflects the risk profiles
18 of these companies, it is necessary to evaluate the Company's business and

¹²¹ *Id.*, at 11.

¹²² *Id.*

¹²³ Murray Rebuttal, at 37.

¹²⁴ *Id.*, at 34.

1 regulatory risk *relative to the proxy group*. This analysis allows the analyst to make
2 a more informed determination as to where, within the range of returns established
3 for the proxy group, the return on equity should reasonably be established.

4 Neither Mr. Murray nor Mr. Majors evaluate the Company's business and regulatory
5 risks *relative to the proxy group*. Indeed, Mr. Majors acknowledges that he has not
6 conducted a comparison of the Company's business risks relative to "any of its
7 peers" and instead refers to Dr. Won for an assessment of the effect of the
8 Company's business risk on its cost of equity.¹²⁵ However, Dr. Won also largely
9 omits this comparative analysis with the exception of his discussion regarding
10 Ameren Missouri's expected capital expenditures as a percentage of net utility plant
11 relative to the average ratio of the proxy group. Dr. Won, Mr. Majors and Mr. Murray
12 simply claim that the Company's business risk has been reduced in absolute terms
13 because of PISA and RESRAM, which provides no information as to *where in the*
14 *range of market data* the authorized ROE should be established.¹²⁶ Thus, these
15 witnesses focus solely or nearly solely on the ratemaking mechanisms in use by
16 Ameren Missouri to support their conclusions that the Company has reduced overall
17 business risk. In contrast, I evaluated various regulatory and business risks to which
18 Ameren Missouri is subject relative to the proxy group in my direct testimony and

¹²⁵ Majors Rebuttal, at 11.

¹²⁶ Since Dr. Won himself did not perform the proper comparative analysis to the business risk of the proxy group, Mr. Majors' opinions about risk reduction are completely irrelevant.

1 concluded that the Company has relatively greater regulatory and business risk than
2 the proxy group.¹²⁷

3 **Q: Do you agree with Mr. Murray that you have failed to consider the non-**
4 **regulated business risk exposure of your proxy group?**

5 A. No. As discussed previously, Mr. Murray contends that my proxy group contains
6 significant non-regulated business risk exposure, but only identifies 2 companies
7 out of the 17 companies in my proxy group that he views as currently having
8 significant exposure. In developing a proxy group, it is essential to balance the
9 relative risk of the companies included in the proxy group with the overall size of the
10 group, and thus it is always the case that the proxy companies do not have exactly
11 the same risk profile as the subject company. However, as stated in my direct
12 testimony, I have developed the proxy group to ensure that all of the companies
13 used in my cost of equity analyses possess a set of operating and financial risk
14 characteristics that are substantially comparable to Ameren Missouri, and,
15 therefore, provide a reasonable basis to estimate the appropriate cost of equity for
16 the Company. This includes a screening criterion that requires a substantial portion
17 of a utility's total operating income to be from regulated electric operations.¹²⁸

¹²⁷ Bulkley Direct, at 59-70.

¹²⁸ *Id.*, at 29-30.

1 **Q: What is your conclusion regarding the Company's business and regulatory**
2 **risks and its effect on the ROE to be authorized in this proceeding?**

3 A. The results of the cost of equity analyses alone do not provide an appropriate
4 estimate of the cost of equity, and several additional factors must be considered
5 when determining where the Company's cost of equity falls within the range of
6 analytical results. However, Dr. Won, Mr. Majors and Mr. Murray have not evaluated
7 the Company's business and regulatory risk relative to the proxy group, and thus
8 cannot simply conclude that Ameren Missouri has lower risk because it has
9 regulatory mechanisms such as PISA and RESRAM.

10 All else equal, I agree that regulatory mechanisms that reduce a utility's regulatory
11 lag in cost recovery help to mitigate risk. However, in setting the ROE, the data
12 relied upon is based on the risk profile of a proxy group of companies. Therefore,
13 the appropriate analysis for purposes of establishing the Company's ROE in this
14 proceeding is not to identify whether Ameren Missouri has regulatory mechanisms
15 that mitigate its regulatory lag, but rather how does Ameren Missouri's regulatory
16 risk compare to the other companies in the proxy group. Dr. Won, Mr. Majors and
17 Mr. Murray each highlight the regulatory mechanisms that Ameren Missouri has for
18 cost recovery, yet neither evaluates Ameren Missouri's cost recovery risk relative to
19 the proxy group.

20 **Q: Does this conclude your surrebuttal testimony?**

21 A. Yes.

**Calculation of Market Return from Analysts' Long-Term Growth Estimates
in Bulkley Direct Testimony**

Estimated Weighted Average Dividend Yield [1] **1.60%**

Estimated Weighted Average Long-Term Growth Rate [2] **10.83%**

S&P 500 Estimated Required Market Return [3] **12.51%**

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Shares Out/g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Value Line Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.
LyondellBasell Industries NV	LYB	325.62	98.08	31,937	0.10%	5.46%	0.01%	10.72%	0.01%
American Express Co	AXP	719.30	240.00	172,633	0.51%	1.17%	0.01%	15.23%	0.08%
Verizon Communications Inc	VZ	4,209.26	41.15	173,211	0.52%	6.46%	0.03%	1.22%	0.01%
Broadcom Inc	AVGO	463.42	1,328.55	615,678	1.83%	1.58%	0.03%	14.54%	0.27%
Boeing Co/The	BA	613.88	177.61	109,032				50.92%	
Solventum Corp	SOLV	172.71	59.34	10,249					
Caterpillar Inc	CAT	489.05	338.52	165,554	0.49%	1.54%	0.01%	7.70%	0.04%
JPMorgan Chase & Co	JPM	2,871.67	202.63	581,886	1.73%	2.27%	0.04%	3.03%	0.05%
Chevron Corp	CVX	1,847.32	162.30	299,820		4.02%			
Coca-Cola Co/The	KO	4,307.96	62.93	271,100	0.81%	3.08%	0.02%	6.36%	0.05%
AbbVie Inc	ABBV	1,765.87	161.24	284,729	0.85%	3.85%	0.03%	8.34%	0.07%
Walt Disney Co/The	DIS	1,823.04	103.91	189,432		0.87%		20.89%	
Corpay Inc	CPAY	70.27	267.67	18,809	0.06%			14.22%	0.01%
Extra Space Storage Inc	EXR	211.73	144.77	30,651	0.09%	4.48%	0.00%	1.86%	0.00%
Exxon Mobil Corp	XOM	4,485.93	117.26	526,020	1.57%	3.24%	0.05%	6.00%	0.09%
Phillips 66	PSX	423.95	142.11	60,248		3.24%			
General Electric Co	GE	1,094.61	165.14	180,763		0.68%		32.59%	
HP Inc	HPO	978.56	36.50	35,717	0.11%	3.02%	0.00%	5.12%	0.01%
Home Depot Inc/The	HD	991.61	334.87	332,062	0.99%	2.69%	0.03%	3.43%	0.03%
Monsielectric Power Systems Inc	MPWR	48.67	735.63	35,805	0.11%	0.68%	0.00%	18.00%	0.02%
International Business Machines Corp	IBM	918.60	166.85	153,269	0.46%	4.00%	0.02%	3.19%	0.01%
Johnson & Johnson	JNJ	2,406.68	146.67	352,988	1.05%	3.38%	0.04%	4.99%	0.05%
Lululemon Athletica Inc	LULU	120.89	311.99	37,717	0.11%			9.86%	0.01%
McDonald's Corp	MCD	720.68	257.22	185,374	0.55%	2.60%	0.01%	7.51%	0.04%
Merck & Co Inc	MRK	2,532.81	125.54	317,968		2.45%		53.01%	
3M Co	MMM	553.36	100.14	55,414		2.80%		-7.15%	
American Water Works Co Inc	AWK	194.82	130.77	25,477	0.08%	2.34%	0.00%	7.70%	0.01%
Bank of America Corp	BAC	7,820.37	39.99	312,737		2.40%		-6.00%	
Pfizer Inc	PFE	5,666.59	28.66	162,405	0.48%	5.86%	0.03%	8.39%	0.04%
Procter & Gamble Co/The	PG	2,980.14	164.54	388,337	1.16%	2.45%	0.03%	8.09%	0.09%
AT&T Inc	T	7,170.17	18.22	130,640	0.39%	6.09%	0.02%	2.55%	0.01%
Travelers Cos Inc/The	TRV	228.99	215.70	49,394	0.15%	1.95%	0.00%	18.34%	0.03%
RTX Corp	RTX	1,329.51	107.81	143,334	0.43%	2.34%	0.01%	10.62%	0.05%
Analog Devices Inc	ADI	496.22	233.56	115,897		1.58%		-2.75%	
Walmart Inc	WMT	8,058.05	65.76	529,897	1.58%	1.26%	0.02%	8.23%	0.13%
Cisco Systems Inc	CSCO	4,049.19	46.50	188,287	0.56%	3.44%	0.02%	0.93%	0.01%
Intel Corp	INTC	4,256.87	30.85	131,325	0.39%	1.62%	0.01%	11.40%	0.04%
General Motors Co	GM	1,140.40	44.99	51,306	0.15%	1.07%	0.00%	16.07%	0.02%
Microsoft Corp	MSFT	7,432.31	415.13	3,085,373	9.19%	0.72%	0.07%	14.81%	1.36%
Dollar General Corp	DG	219.90	136.91	30,106		1.72%		-2.08%	
Cigna Group/The	CI	284.07	343.21	97,496	0.29%	1.63%	0.00%	11.65%	0.01%
Kinder Morgan Inc	KMI	2,219.38	19.49	43,256	0.13%	5.90%	0.01%	5.86%	0.01%
Citigroup Inc	C	1,907.44	62.31	118,853		3.40%		26.67%	
American International Group Inc	AIG	663.67	78.82	52,310	0.16%	2.03%	0.00%	11.85%	0.02%
Altria Group Inc	MO	1,717.63	46.25	79,440	0.24%	8.48%	0.02%	3.89%	0.01%
HCA Healthcare Inc	HCA	261.91	339.75	88,985	0.27%	0.78%	0.00%	9.57%	0.03%
International Paper Co	IP	347.33	45.09	15,661		4.10%		-2.00%	
Hewlett Packard Enterprise Co	HPE	1,300.00	17.65	22,945	0.07%	2.95%	0.00%	2.86%	0.00%
Abbott Laboratories	ABT	1,739.63	102.19	177,773	0.53%	2.15%	0.01%	8.00%	0.04%
Aflac Inc	AFL	568.22	89.87	51,066	0.15%	2.23%	0.00%	7.55%	0.01%
Air Products and Chemicals Inc	APD	222.31	266.70	59,289	0.18%	2.65%	0.00%	9.63%	0.02%
Super Micro Computer Inc	SMCI	58.56	784.51	45,939				53.18%	
Royal Caribbean Cruises Ltd	RCL	257.35	147.68	38,005				29.92%	
Hess Corp	HES	308.11	154.10	47,480	0.14%	1.14%	0.00%	18.00%	0.03%
Archer-Daniels-Midland Co	ADM	494.44	62.44	30,873		3.20%		-2.85%	
Automatic Data Processing Inc	ADP	409.29	244.92	100,244	0.30%	2.29%	0.01%	11.31%	0.03%
Verisk Analytics Inc	VRSK	142.68	252.78	36,065	0.11%	0.62%	0.00%	11.71%	0.01%
AutoZone Inc	AZO	17.30	2,769.94	47,928	0.14%			14.66%	0.02%
Linde PLC	LIN	480.68	434.13	208,674	0.62%	1.28%	0.01%	11.82%	0.07%
Avery Dennison Corp	AVY	80.55	227.59	18,333	0.05%	1.55%	0.00%	11.67%	0.01%
Enphase Energy Inc	ENPH	136.06	127.90	17,402	0.05%			18.17%	0.01%
MSCI Inc	MSCI	79.22	495.18	39,230	0.12%	1.29%	0.00%	11.58%	0.01%
Ball Corp	BALL	310.38	69.23	21,487	0.06%	1.16%	0.00%	11.78%	0.01%
Axon Enterprise Inc	AXON	75.47	281.67	21,257					
Dayforce Inc	DAY	155.56	49.46	7,694					
Carrier Global Corp	CARR	901.01	63.19	56,935	0.17%	1.20%	0.00%	7.87%	0.01%
Bank of New York Mellon Corp/The	BK	747.82	59.61	44,577	0.13%	2.82%	0.00%	10.01%	0.01%
Otis Worldwide Corp	OTIS	404.32	99.20	40,109	0.12%	1.57%	0.00%	9.00%	0.01%
Baxter International Inc	BAX	699.58	34.09	17,372	0.05%	3.40%	0.00%	9.78%	0.01%
Becton Dickinson & Co	BDX	289.01	231.97	67,041	0.20%	1.64%	0.00%	7.77%	0.02%
Berkshire Hathaway Inc	BRK/B	1,311.39	414.40	543,438					
Best Buy Co Inc	BBY	215.38	84.82	18,269	0.05%	4.43%	0.00%	0.05%	0.00%
Boston Scientific Corp	BSX	1,470.18	75.57	111,102	0.33%			12.08%	0.04%
Bristol-Myers Squibb Co	BMY	2,027.10	41.09	83,294		5.84%		-4.12%	
Brown-Forman Corp	BF/B	303.42	45.86	13,915	0.04%	1.90%	0.00%	3.39%	0.00%
Coltera Energy Inc	CTRA	744.23	28.52	21,226		2.95%			
Campbell Soup Co	CPB	298.10	44.38	13,230	0.04%	3.33%	0.00%	4.87%	0.00%
Hilton Worldwide Holdings Inc	HLT	250.05	200.80	50,159	0.15%	0.30%	0.00%	15.52%	0.02%
Genial Corp	GCL	1,122.32	15.08	16,925					
Qorvo Inc	QRVO	95.63	98.39	8,409				20.04%	
Builders FirstSource Inc	BLDR	122.06	160.79	19,626	0.06%			8.54%	0.00%
UDR Inc	UDR	329.31	38.62	12,718	0.04%	4.40%	0.00%	1.85%	0.00%
Clorox Co/The	CLX	124.19	131.56	16,338	0.05%	3.65%	0.00%	15.46%	0.01%
Paycom Software Inc	PAYC	58.11	145.32	8,445	0.03%	1.03%	0.00%	6.00%	0.00%
CMS Energy Corp	CMS	298.64	62.93	18,793	0.06%	3.27%	0.00%	7.42%	0.00%
Colgate-Palmolive Co	CL	820.44	92.96	76,268	0.23%	2.15%	0.00%	8.36%	0.02%
EPAM Systems Inc	EPAM	57.97	177.93	10,315	0.03%			5.54%	0.00%
Comerica Inc	CMA	132.59	51.24	6,794	0.02%	5.54%	0.00%	9.79%	0.00%
Conagra International Inc	CAG	478.06	29.88	14,285	0.04%	4.69%	0.00%	1.82%	0.00%
Airbnb Inc	ABNB	441.50	144.93	63,987				20.22%	
Consolidated Edison Inc	ED	344.92	94.55	32,613	0.10%	3.51%	0.00%	5.70%	0.01%
Corning Inc	GLW	856.62	37.26	31,918	0.10%	3.01%	0.00%	12.03%	0.01%

**Calculation of Market Return from Analysts' Long-Term Growth Estimates
in Bulkley Direct Testimony**

Estimated Weighted Average Dividend Yield [1]	1.60%
Estimated Weighted Average Long-Term Growth Rate [2]	10.83%
S&P 500 Estimated Required Market Return [3]	12.51%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Shares Outstg	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Value Line Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.
Cummins Inc	CMI	136.78	281.73	38,535	0.11%	2.39%	0.00%	7.56%	0.01%
Caesars Entertainment Inc	CZR	216.42	35.56	7,696				32.44%	
Danaher Corp	DHR	740.69	256.80	190,208	0.57%	0.42%	0.00%	3.84%	0.02%
Target Corp	TGT	462.64	156.16	72,245	0.22%	2.82%	0.01%	13.97%	0.03%
Deere & Co	DE	275.57	374.76	103,273		1.57%		-6.84%	
Dominion Energy Inc	D	837.59	53.92	45,163	0.13%	4.95%	0.01%	14.16%	0.02%
Dover Corp	DOV	137.43	183.82	25,262	0.08%	1.11%	0.00%	7.56%	0.01%
Alliant Energy Corp	LNT	256.38	51.49	13,201	0.04%	3.73%	0.00%	7.00%	0.00%
Steel Dynamics Inc	STLD	157.13	133.87	21,035		1.37%		-3.32%	
Duke Energy Corp	DUK	771.00	103.57	79,852	0.24%	3.96%	0.01%	6.53%	0.02%
Regency Centers Corp	REG	184.58	61.40	11,333	0.03%	4.36%	0.00%	3.27%	0.00%
Eaton Corp PLC	ETN	399.89	332.85	133,104	0.40%	1.13%	0.00%	13.83%	0.05%
Ecobab Inc	ECL	285.57	232.20	66,309	0.20%	0.98%	0.00%	17.31%	0.03%
Revvity Inc	RVTY	123.39	109.26	13,482	0.04%	0.26%	0.00%	8.26%	0.00%
Emerson Electric Co	EMR	572.10	112.16	64,167	0.19%	1.87%	0.00%	15.07%	0.03%
EOG Resources Inc	EOG	574.71	124.55	71,580		2.92%			
Aon PLC	AON	217.43	281.64	61,237	0.18%	0.96%	0.00%	10.38%	0.02%
Entergy Corp	ETR	213.27	112.49	23,991	0.07%	4.02%	0.00%	6.98%	0.00%
Equifax Inc	EFX	123.61	231.39	28,602	0.09%	0.67%	0.00%	15.31%	0.01%
EQT Corp	EQT	441.59	41.09	18,145		1.53%			
IQVIA Holdings Inc	IQV	182.20	219.09	39,918	0.12%			10.44%	0.01%
Gartner Inc	IT	77.63	419.67	32,579	0.10%			9.89%	0.01%
FedEx Corp	FDX	246.08	253.96	62,495	0.19%	1.98%	0.00%	17.71%	0.03%
FMC Corp	FMC	124.82	60.95	7,608	0.02%	3.81%	0.00%	18.88%	0.00%
Brown & Brown Inc	BRO	285.25	89.51	25,533	0.08%	0.58%	0.00%	9.77%	0.01%
Ford Motor Co	F	3,921.49	12.13	47,568	0.14%	4.95%	0.01%	1.67%	0.00%
NextEra Energy Inc	NEE	2,055.00	79.51	163,383	0.49%	2.59%	0.01%	8.10%	0.04%
Franklin Resources Inc	BEN	526.09	23.60	12,416		5.25%			
Grmin Ltd	GRMN	192.08	163.85	31,472	0.09%	1.83%	0.00%	8.04%	0.01%
Freight-McMoran Inc	FCX	1,436.49	52.73	75,746	0.23%	1.14%	0.00%	16.49%	0.04%
Dexcom Inc	DXCM	397.68	116.77	47,233				23.63%	
General Dynamics Corp	GD	274.36	299.77	82,246	0.24%	1.89%	0.00%	14.18%	0.03%
General Mills Inc	GIS	564.55	68.75	38,813		3.43%		0.00%	
Genuine Parts Co	GPC	139.30	144.14	20,079		2.78%			
Atmos Energy Corp	ATO	150.88	115.92	17,490	0.05%	2.78%	0.00%	7.00%	0.00%
WW Grainger Inc	GWW	49.07	921.46	45,215		0.89%			
Halliburton Co	HAL	885.30	36.70	32,491	0.10%	1.85%	0.00%	11.60%	0.01%
L3Harris Technologies Inc	LHX	189.68	223.08	42,427	0.13%	2.07%	0.00%	8.53%	0.01%
Healthpeak Properties Inc	DIG	703.78	19.90	14,905	0.04%	6.03%	0.00%	4.48%	0.00%
Insulet Corp	PODD	70.04	177.19	12,410				28.44%	
Catalent Inc	CTLT	180.98	53.79	9,735				28.24%	
Fortive Corp	FTV	352.03	74.44	26,205	0.08%	0.43%	0.00%	8.98%	0.01%
Hershey Co/The	HSY	147.62	197.83	29,203	0.09%	2.77%	0.00%	2.36%	0.00%
Synchrony Financial	SYF	401.54	43.80	17,588		2.28%			
Hormel Foods Corp	HLR	548.31	30.98	16,986	0.05%	3.65%	0.00%	6.59%	0.00%
Arthur J Gallagher & Co	AJG	218.50	253.33	55,353	0.16%	0.95%	0.00%	12.49%	0.02%
Mondelez International Inc	MDLZ	1,341.36	68.53	91,923	0.27%	2.48%	0.01%	7.65%	0.02%
CenterPoint Energy Inc	CNP	639.72	30.51	19,518	0.06%	2.62%	0.00%	7.95%	0.00%
Humana Inc	HUM	120.50	358.12	43,154		0.99%		-1.30%	
Wills Towers Watson PLC	WTW	102.24	255.29	26,100	0.08%	1.38%	0.00%	12.41%	0.01%
Illinois Tool Works Inc	ITW	298.40	242.75	72,437	0.22%	2.31%	0.00%	7.26%	0.02%
CDW Corp/DE	CDW	134.40	223.62	30,054	0.09%	1.11%	0.00%	7.02%	0.01%
Trane Technologies PLC	TT	226.35	327.46	74,121	0.22%	1.03%	0.00%	13.47%	0.03%
Interpublic Group of Cos Inc/The	IPG	377.42	31.04	11,714	0.03%	4.25%	0.00%	3.91%	0.00%
International Flavors & Fragrances Inc	IFF	255.35	96.18	24,560	0.07%	1.66%	0.00%	0.23%	0.00%
Generac Holdings Inc	GNRC	60.61	147.21	8,923	0.03%			7.00%	0.00%
NXP Semiconductors NV	NXPI	255.68	272.10	69,572	0.21%	1.49%	0.00%	6.92%	0.01%
Kellanova	K	341.88	59.78	20,438	0.06%	3.75%	0.00%	8.42%	0.01%
Broadridge Financial Solutions Inc	BR	118.18	200.77	23,727		1.59%			
Kimberly-Clark Corp	KMB	336.71	133.30	44,883	0.13%	3.66%	0.00%	7.72%	0.01%
Kimco Realty Corp	KIM	674.12	19.36	13,051	0.04%	4.96%	0.00%	3.25%	0.00%
Oracle Corp	ORCL	2,748.51	117.19	322,098	0.96%	1.37%	0.01%	11.24%	0.11%
Kroger Co/The	KR	721.69	52.37	37,795	0.11%	2.22%	0.00%	6.00%	0.01%
Lennar Corp	LEN	245.04	160.35	39,292	0.12%	1.25%	0.00%	8.82%	0.01%
Eli Lilly & Co	LLY	950.41	820.34	779,655		0.63%		40.01%	
Bath & Body Works Inc	BBWI	223.67	51.94	11,617	0.03%	1.54%	0.00%	13.65%	0.00%
Charter Communications Inc	CHTR	144.39	287.12	41,456		0.12%		5.89%	0.01%
Loews Corp	L	221.41	76.80	17,004		0.33%			
Loews Cos Inc	LCO	589.84	221.29	128,099	0.38%	2.08%	0.01%	1.52%	0.01%
Hubbell Inc	HUBB	53.69	388.89	20,878	0.06%	1.25%	0.00%	18.00%	0.01%
IDEX Corp	IEX	75.70	208.64	15,793		1.32%			
Marsh & McLennan Cos Inc	MMC	492.72	207.58	102,280	0.30%	1.37%	0.00%	8.12%	0.02%
Masco Corp	MAS	220.24	69.92	15,399	0.05%	1.66%	0.00%	8.64%	0.00%
S&P Global Inc	SPGI	320.26	427.51	136,913	0.41%	0.85%	0.00%	13.11%	0.05%
Medtronic PLC	MDT	1,327.82	81.37	108,045	0.32%	3.44%	0.01%	5.61%	0.02%
Viatris Inc	VTRS	1,190.68	10.60	12,621		4.53%		-2.57%	
CVS Health Corp	CVS	1,255.37	59.60	74,820	0.22%	4.46%	0.01%	4.01%	0.01%
DuPont de Nemours Inc	DD	418.10	82.16	34,351	0.10%	1.85%	0.00%	1.03%	0.00%
Miron Technology Inc	MU	1,107.37	125.00	138,421		0.37%		-4.00%	
Motorola Solutions Inc	MSI	166.79	364.91	60,862	0.18%	1.07%	0.00%	8.89%	0.02%
Chob Global Markets Inc	CBOE	105.15	172.99	18,191	0.05%	1.27%	0.00%	14.28%	0.01%
Newmont Corp	NEM	1,153.16	41.69	48,075		2.40%			
NIKE Inc	NKE	1,211.46	94.68	114,701	0.34%	1.56%	0.01%	10.85%	0.04%
NISource Inc	NI	448.31	29.06	13,028	0.04%	3.65%	0.00%	7.00%	0.00%
Norfolk Southern Corp	NSC	225.91	224.80	50,785	0.15%	2.40%	0.00%	8.84%	0.01%
Principal Financial Group Inc	PFG	234.38	81.33	19,062	0.06%	3.49%	0.00%	12.40%	0.01%
Eversource Energy	ES	350.73	59.23	20,774	0.06%	4.83%	0.00%	4.83%	0.00%
Northrop Grumman Corp	NOC	147.99	450.77	66,709	0.20%	1.83%	0.00%	18.34%	0.04%
Wells Fargo & Co	WFG	3,486.32	59.92	208,900	0.62%	2.34%	0.01%	7.97%	0.05%
Nucor Corp	NUE	239.76	168.85	40,484		1.28%			
Occidental Petroleum Corp	OXY	886.64	62.50	55,415	0.17%	1.41%	0.00%	20.00%	0.03%
Omicron Group Inc	OMC	195.83	92.96	18,205	0.05%	3.01%	0.00%	7.48%	0.00%

**Calculation of Market Return from Analysts' Long-Term Growth Estimates
 in Bulkley Direct Testimony**

Estimated Weighted Average Dividend Yield [1] **1.60%**

Estimated Weighted Average Long-Term Growth Rate [2] **10.83%**

S&P 500 Estimated Required Market Return [3] **12.51%**

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Shares Outstg	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Value Line Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.
OKE	583.65	81.00	47,275	0.14%	4.89%	0.01%	2.55%	0.00%	
Raymond James Financial Inc	RJF	207.28	122.75	25,443	0.08%	1.47%	0.00%	15.38%	0.01%
PC&E Corp	PCG	2,133.51	18.54	39,555	0.12%	0.22%	0.00%	10.10%	0.01%
Parker-Hannifin Corp	PH	128.54	531.52	68,322	0.20%	1.23%	0.00%	13.84%	0.03%
Rollins Inc	ROL	484.23	45.69	22,124	0.07%	1.31%	0.00%	13.04%	0.01%
PPL Corp	PPL	737.12	29.33	21,620	0.06%	3.51%	0.00%	7.34%	0.00%
ConocoPhillips	COP	1,169.53	116.48	136,227	0.41%	2.68%	0.01%	9.00%	0.04%
PulteGroup Inc	PHM	210.34	117.32	24,677	0.07%	0.68%	0.00%	7.65%	0.01%
Charles Schwab Corp/The	SCHW	1,777.28	73.28	130,299	0.39%	1.36%	0.01%	14.20%	0.06%
PNC Financial Services Group Inc/The	PNC	397.91	157.39	62,627	0.23%	3.94%	0.00%	31.00%	0.00%
PPG Industries Inc	PPG	235.36	131.41	30,929	0.09%	1.98%	0.00%	8.03%	0.01%
Progressive Corp/The	PGR	585.70	211.18	123,688	0.19%	0.19%	0.00%	32.49%	0.00%
Veralto Corp	VLTO	246.85	98.58	24,334	0.37%	0.00%	0.00%	5.99%	0.01%
Public Service Enterprise Group Inc	PEG	498.59	75.76	37,773	0.11%	3.17%	0.00%	5.99%	0.01%
Robert Half Inc	RHI	104.93	64.23	6,740	0.02%	3.30%	0.00%	4.20%	0.00%
Cooper Cos Inc/The	COO	199.12	94.31	18,779	0.06%	0.00%	0.00%	10.00%	0.01%
Edison International	EIX	383.93	76.85	29,505	0.09%	4.06%	0.00%	7.80%	0.01%
Schlumberger NV	SLB	1,429.34	45.89	65,592	0.20%	2.40%	0.00%	14.81%	0.03%
W R Berkley Corp	WRB	255.66	81.03	20,716	0.06%	0.54%	0.00%	13.64%	0.01%
Sherwin-Williams Co/The	SHW	253.55	303.80	77,028	0.23%	0.94%	0.00%	9.56%	0.02%
West Pharmaceutical Services Inc	WST	72.84	331.41	24,141	0.07%	0.24%	0.00%	7.72%	0.01%
J M Smucker Co/The	SJM	106.18	111.64	11,853	0.04%	3.80%	0.00%	7.04%	0.00%
Snap-on Inc	SNA	52.72	272.86	14,385	0.04%	2.73%	0.00%	3.83%	0.00%
AMETEK Inc	AME	231.47	169.58	39,253	0.12%	0.66%	0.00%	7.43%	0.01%
Uber Technologies Inc	UBER	2,089.52	64.56	134,899	0.00%	0.00%	0.00%	61.05%	0.00%
Southern Co/The	SO	1,094.63	80.14	87,724	0.26%	3.59%	0.01%	7.10%	0.02%
Truist Financial Corp	TFC	1,338.10	37.75	50,513	0.15%	5.51%	0.01%	10.51%	0.02%
Southwest Airlines Co	LUV	598.46	26.84	16,063	0.28%	2.68%	0.00%	21.33%	0.00%
Stanley Black & Decker Inc	SWK	153.88	86.36	13,289	0.04%	3.75%	0.00%	7.00%	0.00%
Public Storage	PSA	175.83	273.83	48,147	0.14%	4.38%	0.01%	3.24%	0.00%
Arista Networks Inc	ANET	313.36	297.65	93,272	0.28%	0.00%	0.00%	12.42%	0.03%
Sysco Corp	SYYS	497.98	72.82	36,263	0.11%	2.80%	0.00%	13.00%	0.01%
Corteva Inc	CTVA	687.80	55.78	38,365	0.11%	1.15%	0.00%	11.33%	0.01%
Texas Instruments Inc	TXN	910.48	195.01	177,553	0.26%	2.67%	0.00%	-1.14%	0.00%
Textron Inc	TXT	190.70	87.61	16,707	0.05%	0.09%	0.00%	10.05%	0.01%
Thermo Fisher Scientific Inc	TMO	381.72	567.98	216,807	0.65%	0.27%	0.00%	7.40%	0.05%
TJX Cos Inc/The	TJX	1,130.15	103.10	116,518	0.35%	1.45%	0.01%	8.13%	0.03%
Globe Life Inc	GL	92.27	92.76	7,638	0.02%	1.16%	0.00%	7.00%	0.00%
Johnson Controls International plc	JCI	673.68	71.91	48,444	0.14%	2.06%	0.00%	9.45%	0.01%
Ulta Beauty Inc	ULTA	47.72	395.09	18,852	0.06%	0.00%	0.00%	6.34%	0.00%
Union Pacific Corp	UNP	610.12	232.82	142,049	0.42%	2.23%	0.01%	12.88%	0.05%
Keysight Technologies Inc	KEYS	174.54	138.48	24,170	-1.09%	0.00%	0.00%	-1.09%	0.00%
UnitedHealth Group Inc	UNH	920.39	495.37	455,931	1.36%	1.52%	0.02%	10.38%	0.14%
Blackstone Inc	BX	714.65	120.50	86,115	0.26%	2.76%	0.00%	23.93%	0.00%
Marathon Oil Corp	MRO	564.04	28.96	16,334	1.52%	0.00%	0.00%	0.00%	0.00%
Bio-Rad Laboratories Inc	BIO	23.45	286.86	6,726	0.00%	0.00%	0.00%	6.19%	0.00%
Ventas Inc	VTR	404.77	50.26	20,344	0.06%	3.58%	0.00%	6.19%	0.00%
Labcorp Holdings Inc	LH	84.29	194.91	16,430	0.05%	1.48%	0.00%	1.23%	0.00%
Vulcan Materials Co	VMC	132.25	255.77	33,826	0.10%	0.72%	0.00%	15.71%	0.02%
Weyerhaeuser Co	WY	729.62	30.03	21,910	0.26%	2.66%	0.00%	-0.33%	0.00%
Williams Cos Inc/The	WMB	1,218.75	41.51	50,590	0.15%	4.58%	0.01%	3.94%	0.01%
Constellation Energy Corp	CEG	315.12	217.25	68,460	0.20%	0.65%	0.00%	11.80%	0.02%
WEC Energy Group Inc	WEC	315.82	81.03	25,591	0.08%	4.12%	0.00%	6.85%	0.01%
Adobe Inc	ADBE	448.00	444.76	199,252	0.59%	0.88%	0.00%	16.73%	0.10%
Vistra Corp	VST	347.46	99.08	34,426	0.88%	0.00%	0.00%	0.00%	0.00%
AES Corp/The	AES	710.67	21.59	15,343	3.20%	0.00%	0.00%	0.00%	0.00%
Expeditors International of Washington Inc	EXPD	141.25	120.17	16,974	0.05%	1.21%	0.00%	3.78%	0.00%
Amgyn Inc	AMGN	536.44	305.85	164,069	0.49%	2.94%	0.01%	6.22%	0.03%
Apple Inc	AAPL	15,334.08	192.25	2,947,977	8.78%	0.52%	0.05%	12.73%	1.12%
Autodesk Inc	ADSK	213.92	201.60	43,125	0.13%	0.00%	0.00%	12.76%	0.02%
Cintas Corp	CTAS	101.46	677.97	68,789	0.20%	0.80%	0.00%	12.04%	0.02%
Comcast Corp	CMCSA	3,914.18	40.03	156,685	0.47%	3.10%	0.01%	8.33%	0.04%
Molson Coors Beverage Co	TAP	197.55	54.81	10,828	0.03%	3.21%	0.00%	4.65%	0.00%
KLA Corp	KLAC	134.64	759.53	102,283	0.30%	0.76%	0.00%	8.99%	0.03%
Mariott International Inc/MD	MAR	285.62	231.17	66,027	0.20%	1.09%	0.00%	5.56%	0.01%
Fiserv Inc	FI	585.10	149.76	87,625	0.26%	0.00%	0.00%	15.47%	0.04%
McCormick & Co Inc/MD	MKC	251.75	72.22	18,181	0.05%	2.33%	0.00%	5.96%	0.00%
PCAR Inc	PCAR	524.15	107.50	59,346	1.12%	0.00%	0.00%	-2.16%	0.00%
Costco Wholesale Corp	COST	443.50	809.89	359,189	1.07%	0.57%	0.01%	9.64%	0.10%
Stryker Corp	SYK	380.95	341.09	129,938	0.39%	0.94%	0.00%	8.39%	0.03%
Tyson Foods Inc	TSN	286.02	57.25	16,374	3.42%	0.00%	0.00%	53.92%	0.00%
Lamb Weston Holdings Inc	LW	144.39	88.29	12,748	0.04%	1.63%	0.00%	11.56%	0.00%
Applied Materials Inc	AMAT	827.98	215.08	178,081	0.53%	0.74%	0.00%	15.06%	0.08%
American Airlines Group Inc	AAL	653.54	11.50	7,516	0.07%	2.04%	0.00%	-4.75%	0.00%
Cardinal Health Inc	CAH	243.57	99.27	24,179	0.07%	2.04%	0.00%	13.47%	0.01%
Cincinnati Financial Corp	CINF	156.56	117.58	18,408	0.05%	2.76%	0.00%	7.35%	0.00%
Paramount Global	PARA	625.78	11.91	7,453	1.68%	0.00%	0.00%	48.12%	0.01%
DR Horton Inc	DHI	229.31	147.80	48,672	0.14%	0.81%	0.00%	4.37%	0.01%
Electronic Arts Inc	EA	266.38	132.88	35,396	0.11%	0.57%	0.00%	12.24%	0.01%
Fair Isaac Corp	FICO	24.71	1,289.93	31,875	0.00%	0.00%	0.00%	0.00%	0.00%
Fastenal Co	FAST	572.43	65.98	37,769	2.36%	0.00%	0.00%	0.00%	0.00%
M&T Bank Corp	MTB	166.85	150.25	25,070	0.07%	3.59%	0.00%	5.82%	0.00%
Xcel Energy Inc	XEL	555.64	55.45	30,810	0.09%	3.95%	0.00%	6.70%	0.01%
Fifth Third Bancorp	FITB	684.05	37.42	25,597	3.74%	0.00%	0.00%	25.00%	0.00%
Gilead Sciences Inc	GILD	1,245.85	64.27	80,071	0.24%	4.79%	0.01%	14.38%	0.03%
Hasbro Inc	HAS	139.22	59.78	8,322	0.02%	4.68%	0.00%	17.10%	0.00%
Huntington Bancshares Inc/OH	HBAN	1,449.25	13.92	20,174	0.06%	4.45%	0.00%	4.46%	0.00%
Waltower Inc	WELL	597.92	103.67	61,986	0.18%	2.35%	0.00%	14.68%	0.03%
BioGen Inc	BIIB	145.60	224.94	32,751	0.10%	5.26%	0.00%	5.36%	0.01%
Northern Trust Corp	NTRS	204.59	84.24	17,235	0.05%	3.56%	0.00%	10.80%	0.01%
Packaging Corp of America	PKG	89.80	183.49	16,477	0.05%	2.72%	0.00%	2.83%	0.00%

**Calculation of Market Return from Analysts' Long-Term Growth Estimates
in Bulkley Direct Testimony**

Estimated Weighted Average Dividend Yield [1]	1.60%
Estimated Weighted Average Long-Term Growth Rate [2]	10.83%
S&P 500 Estimated Required Market Return [3]	12.51%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Shares Outstg	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Value Line Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.
Paychex Inc	PAYX	359.96	120.16	43,253	0.13%	3.26%	0.00%	6.17%	0.01%
QUALCOMM Inc	QCOM	1,116.00	204.05	227,720	0.68%	1.67%	0.01%	11.88%	0.08%
Ross Stores Inc	ROST	335.17	139.76	46,844		1.05%		188.00%	
IDEXX Laboratories Inc	IDXX	82.59	496.95	41,042	0.12%			11.11%	0.01%
Starbucks Corp	SBUX	1,132.20	80.22	90,825	0.27%	2.84%	0.01%	12.42%	0.03%
KeyCorp	KEY	942.86	14.37	13,549	0.04%	5.71%	0.00%	19.11%	0.01%
Fox Corp	FOXA	231.15	34.43	7,958	0.02%	1.51%	0.00%	6.61%	0.00%
Fox Corp	FOX	235.58	31.94	7,524	0.02%	1.63%	0.00%	6.61%	0.00%
State Street Corp	SITT	301.26	75.59	22,772	0.07%	3.65%	0.00%	8.07%	0.01%
Norwegian Cruise Line Holdings Ltd	NCLH	429.04	16.60	7,122				51.83%	
US Bancorp	USB	1,560.46	40.55	63,277	0.19%	4.83%	0.01%	2.71%	0.01%
A O Smith Corp	AOS	120.78	83.64	10,102		1.53%			
Gen Digital Inc	GEN	626.15	24.83	15,547	0.05%	2.01%	0.00%	10.16%	0.00%
T Rowe Price Group Inc	TROW	223.30	117.83	26,311	0.08%	4.21%	0.00%	5.88%	0.00%
Waste Management Inc	WM	401.08	210.73	84,520	0.25%	1.42%	0.00%	11.11%	0.03%
Constellation Brands Inc	STZ	182.95	250.23	45,780	0.14%	1.61%	0.00%	11.21%	0.02%
Invesco Ltd	IVZ	449.83	15.71	7,067	0.02%	5.22%	0.00%	8.71%	0.00%
Intuit Inc	INTU	279.55	578.44	161,142	0.48%	0.62%	0.00%	15.15%	0.07%
Morgan Stanley	MS	1,625.16	97.84	159,006	0.47%	3.48%	0.02%	9.49%	0.04%
Microchip Technology Inc	MCHP	536.89	97.23	52,201		1.86%		-9.29%	
Chubb Ltd	CB	406.06	270.82	109,969	0.33%	1.34%	0.00%	2.45%	0.01%
Hologic Inc	HOLX	233.38	73.78	17,219	0.05%			7.36%	0.00%
Citizens Financial Group Inc	CFG	455.02	35.29	16,058		4.76%			
Jabil Inc	JBL	120.60	118.90	14,339	0.04%	0.27%	0.00%	10.30%	0.00%
O'Reilly Automotive Inc	ORLY	58.89	963.26	56,730	0.17%			11.00%	0.02%
Alistair Corp/The	ALL	263.92	167.52	44,211		2.20%		175.32%	
Equity Residential	EQR	378.94	65.03	24,642	0.07%	4.15%	0.00%	3.98%	0.00%
BorgWarner Inc	BWA	227.84	35.55	8,100	0.02%	1.24%	0.00%	4.17%	0.00%
Kroger Co	KDP	1,355.57	34.25	46,428	0.14%	2.51%	0.00%	7.12%	0.01%
Host Hotels & Resorts Inc	HST	703.60	17.94	12,823		4.46%		-0.49%	
Incyte Corp	INCY	224.86	57.79	12,994	0.04%			19.22%	0.01%
Simon Property Group Inc	SPG	325.77	151.31	49,292	0.15%	5.29%	0.01%	1.31%	0.00%
Eastman Chemical Co	EMN	117.65	101.33	11,921	0.04%	3.20%	0.00%	6.19%	0.00%
AvalonBay Communities Inc	AVB	142.19	192.68	27,396	0.08%	3.53%	0.00%	7.71%	0.01%
Prudential Financial Inc	PRU	359.00	120.35	43,206	0.13%	4.32%	0.01%	9.96%	0.01%
United Parcel Service Inc	UPS	729.40	138.93	101,335	0.30%	4.69%	0.01%	8.77%	0.03%
Walgreens Boots Alliance Inc	WBA	862.71	16.22	13,993		6.17%		-4.38%	
STERIS PLC	STE	98.90	222.88	22,043		0.93%			
Mikesson Corp	MCK	129.99	568.97	73,958	0.22%	0.44%	0.00%	11.67%	0.03%
Lockheed Martin Corp	LMT	239.94	467.19	112,097	0.33%	2.70%	0.01%	2.21%	0.01%
Cencora Inc	COR	196.93	226.57	44,618	0.13%	0.90%	0.00%	10.82%	0.01%
Capital One Financial Corp	COF	381.92	137.63	52,564	0.16%	1.74%	0.00%	12.55%	0.02%
Waters Corp	WAT	59.32	308.90	18,324	0.05%			5.12%	0.00%
Nordson Corp	NDSN	57.27	234.72	13,442		1.16%			
Dollar Tree Inc	DLTR	217.98	117.95	25,711	0.08%			14.10%	0.01%
Darden Restaurants Inc	DRI	119.36	150.39	17,950	0.05%	3.48%	0.00%	10.89%	0.01%
Evergy Inc	EVERG	229.75	54.66	12,558	0.04%	4.70%	0.00%	5.00%	0.00%
Match Group Inc	MTCH	265.67	30.63	8,137				35.69%	
Dominos Pizza Inc	DPZ	34.88	508.58	17,739	0.05%	1.19%	0.00%	14.43%	0.01%
NVR Inc	NVR	3.13	7,680.73	24,056	0.07%			4.87%	0.00%
NetApp Inc	NTAP	206.38	120.43	24,854		1.73%			
Old Dominion Freight Line Inc	ODFL	217.29	175.25	38,079	0.11%	0.59%	0.00%	13.12%	0.01%
DaVita Inc	DVA	87.70	147.12	12,902	0.04%			15.98%	0.01%
Hartford Financial Services Group Inc/The	HIG	295.76	102.98	30,457	0.09%	1.83%	0.00%	12.22%	0.01%
Iron Mountain Inc	IRM	293.13	80.69	23,653	0.07%	3.22%	0.00%	4.00%	0.00%
Estee Lauder Cos Inc/The	EL	233.02	123.36	28,746	0.09%	2.14%	0.00%	16.13%	0.01%
Cadence Design Systems Inc	CDNS	272.13	286.31	77,915	0.23%			15.67%	0.04%
Tyler Technologies Inc	TYL	42.46	480.36	20,394					
Universal Health Services Inc	UHS	59.88	189.60	11,315	0.03%	0.42%	0.00%	17.84%	0.01%
Skyworks Solutions Inc	SKW	160.45	92.66	14,867		2.94%		-1.59%	
Quest Diagnostics Inc	DGX	111.09	141.97	15,772		2.11%		-0.82%	
Rockwell Automation Inc	ROK	114.00	257.53	29,359	0.09%	1.94%	0.00%	5.23%	0.00%
Kraft Heinz Co/The	KHC	1,214.30	35.37	42,950	0.13%	4.52%	0.01%	3.77%	0.00%
American Tower Corp	AMT	466.98	195.74	91,406	0.27%	3.31%	0.01%	11.49%	0.03%
Regeneron Pharmaceuticals Inc	REGN	108.37	980.16	106,217	0.32%			6.96%	0.02%
Amazon.com Inc	AMZN	10,406.63	176.44	1,836,145				28.96%	
Jack Henry & Associates Inc	JKHY	72.90	164.68	12,005	0.04%	1.34%	0.00%	7.46%	0.00%
Ralph Lauren Corp	RL	40.63	198.88	7,593	0.02%	1.77%	0.00%	11.05%	0.00%
Boston Properties Inc	BXP	157.05	60.67	15,534	0.03%	6.46%	0.00%	0.21%	0.00%
Amphenol Corp	APH	600.60	132.37	79,502	0.24%	0.33%	0.00%	13.49%	0.03%
Howmet Aerospace Inc	HWMT	408.18	84.65	34,553	0.10%	0.24%	0.00%	19.82%	0.02%
Valero Energy Corp	VLO	327.00	157.14	51,384		2.72%		-24.00%	
Synopsys Inc	SNPS	153.22	560.80	85,924	0.26%			16.59%	0.04%
Etsy Inc	ETSY	116.93	63.47	7,422	0.02%			7.51%	0.00%
CH Robinson Worldwide Inc	CHRW	117.10	86.37	10,113	0.03%	2.83%	0.00%	11.80%	0.00%
Accenture PLC	ACN	670.42	282.29	189,253	0.56%	1.83%	0.01%	6.68%	0.04%
TransDigm Group Inc	TDG	55.96	1,343.23	75,164	0.22%			18.82%	0.04%
Yum! Brands Inc	YUM	281.63	137.43	38,705	0.12%	1.95%	0.00%	10.66%	0.01%
Prologis Inc	PLD	925.84	110.49	102,297	0.30%	3.48%	0.01%	7.57%	0.02%
FIRSTENERGY Corp	FE	575.52	40.26	23,170	0.07%	4.22%	0.00%	6.65%	0.00%
VeriSign Inc	VRSN	100.14	174.32	17,456					
Quanta Services Inc	PWR	146.39	275.94	40,394	0.12%	0.13%	0.00%	12.00%	0.01%
Henry Schein Inc	HSIC	128.05	69.34	8,879	0.03%			7.53%	0.00%
Ameren Corp	AEE	266.51	73.37	19,554	0.06%	3.65%	0.00%	6.00%	0.00%
ANSYS Inc	ANSS	87.30	317.45	27,713	0.08%			6.37%	0.01%
FactSet Research Systems Inc	FDS	38.12	404.26	15,409	0.05%	1.03%	0.00%	9.42%	0.00%
NVIDIA Corp	NVDA	2,460.00	1,096.33	2,696,972		0.00%		35.80%	
Cognizant Technology Solutions Corp	CTSH	497.20	66.15	32,890	0.10%	1.81%	0.00%	5.15%	0.01%
Intuitive Surgical Inc	ISRG	354.71	402.12	142,834	0.42%			16.21%	0.07%
Take-Two Interactive Software Inc	TTWO	171.39	180.36	27,483					
Republic Services Inc	RSG	314.98	185.19	58,330	0.17%	1.16%	0.00%	10.52%	0.02%
eBay Inc	EBAY	506.00	54.22	27,435	0.08%	1.99%	0.00%	7.83%	0.01%

**Calculation of Market Return from Analysts' Long-Term Growth Estimates
in Bulkley Direct Testimony**

Estimated Weighted Average Dividend Yield [1]	1.60%
Estimated Weighted Average Long-Term Growth Rate [2]	10.83%
S&P 500 Estimated Required Market Return [3]	12.51%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Shares Out/g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Value Line Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.
Goldman Sachs Group Inc/The	GS	322.46	456.52	147,211	0.44%	2.41%	0.01%	14.02%	0.06%
SBA Communications Corp	SBAC	107.44	196.68	21,132		1.99%		23.41%	
Sempra	SRE	632.85	77.03	48,748	0.15%	3.22%	0.00%	3.85%	0.01%
Moody's Corp	MCO	182.60	396.99	72,490	0.22%	0.86%	0.00%	11.79%	0.03%
ON Semiconductor Corp	ON	430.23	73.04	31,424	0.09%			2.64%	0.00%
Booking Holdings Inc	BKNG	33.93	3,776.35	128,124	0.38%	0.93%	0.00%	15.03%	0.06%
FFIV Inc	FFIV	58.61	168.97	9,904	0.03%			7.81%	0.00%
Akamai Technologies Inc	AKAM	152.32	92.24	14,050	0.04%			1.54%	0.00%
Charles River Laboratories International Inc	CRL	51.51	208.44	10,737	0.03%			9.81%	0.00%
MarketAxess Holdings Inc	MKTX	37.90	198.93	7,539	0.02%	1.49%	0.00%	3.07%	0.00%
Devon Energy Corp	DVN	632.00	48.08	31,019		2.85%			
Bio-Techne Corp	TECH	157.59	77.19	12,164		0.41%			
Alphabet Inc	GOOGL	5,874.00	172.50	1,013,265	3.02%	0.46%	0.01%	15.01%	0.45%
Teleflex Inc	TFX	47.10	209.07	9,848	0.03%	0.65%	0.00%	7.51%	0.00%
Netflix Inc	NFLX	430.97	641.62	276,516				35.61%	
Allelog plc	ALLE	87.44	121.82	10,652	0.03%	1.58%	0.00%	7.25%	0.00%
Agilent Technologies Inc	A	293.06	130.41	38,217	0.11%	0.72%	0.00%	5.23%	0.01%
Warner Bros Discovery Inc	WBD	2,450.31	8.24	20,191				34.78%	
Elevance Health Inc	ELV	232.42	538.48	125,152	0.37%	1.21%	0.00%	12.03%	0.04%
Trimble Inc	TRMB	244.21	55.68	13,596	0.04%			10.00%	0.00%
CME Group Inc	CME	360.06	202.98	73,085	0.22%	2.27%	0.00%	4.90%	0.01%
Juniper Networks Inc	JNPR	324.99	35.45	11,521	0.03%	2.48%	0.00%	4.78%	0.00%
BlackRock Inc	BLK	148.60	772.03	114,724	0.34%	2.64%	0.01%	11.89%	0.04%
DTE Energy Co	DTE	206.93	116.53	24,113	0.07%	3.50%	0.00%	8.70%	0.01%
Nasdaq Inc	NDAQ	576.53	59.03	34,033	0.10%	1.63%	0.00%	5.72%	0.01%
Celanese Corp	CE	109.22	152.04	16,606		1.84%		22.38%	
Philip Morris International Inc	PM	1,554.56	101.38	157,601	0.47%	5.13%	0.02%	8.23%	0.04%
Salesforce Inc	CRM	969.00	234.44	227,172	0.68%	0.68%	0.00%	17.34%	0.12%
Ingersoll Rand Inc	IR	403.43	93.05	37,559	0.11%	0.99%	0.00%	16.00%	0.02%
Huntington Ingalls Industries Inc	HII	39.43	263.10	9,960	0.03%	2.05%	0.00%	7.78%	0.00%
Roper Technologies Inc	ROP	107.05	532.76	57,029		0.56%			
MetLife Inc	MET	711.12	72.37	51,464	0.15%	3.01%	0.00%	13.85%	0.02%
Tapestry Inc	TPR	229.77	43.49	9,993	0.03%	3.22%	0.00%	9.91%	0.00%
CSX Corp	CSX	1,954.93	33.75	65,979	0.20%	1.42%	0.00%	10.76%	0.02%
Edwards Lifesciences Corp	EW	601.30	86.89	52,247	0.16%			10.03%	0.02%
Ameriprise Financial Inc	AMP	99.33	436.61	43,366		1.36%			
Zebra Technologies Corp	ZBRA	51.42	312.34	16,060					
Zimmer Biomet Holdings Inc	ZBH	205.73	115.15	23,690	0.07%	0.83%	0.00%	7.00%	0.00%
CBRE Group Inc	CBRE	306.82	88.07	27,022					
Camden Property Trust	CPT	106.54	102.65	10,936	0.03%	4.01%	0.00%	1.59%	0.00%
Mastercard Inc	MA	922.47	447.07	412,409	1.23%	0.59%	0.01%	15.54%	0.19%
CarMax Inc	KMX	157.33	70.26	11,054	0.03%			18.69%	0.01%
Intercontinental Exchange Inc	ICE	573.59	133.90	76,803	0.23%	1.34%	0.00%	8.96%	0.02%
Fidelity National Information Services Inc	FIS	556.25	75.88	42,208		1.90%		21.47%	
Chipotle Mexican Grill Inc	CMG	27.47	3,129.52	85,959				22.95%	
Wynn Resorts Ltd	WYNN	112.07	94.88	10,633		1.05%		-4.07%	
Live Nation Entertainment Inc	LYV	231.44	93.74	21,695					
Assurant Inc	AIZ	51.99	173.47	9,018	0.03%	1.66%	0.00%	6.19%	0.00%
NRG Energy Inc	NRG	208.48	81.00	16,887	0.05%	2.01%	0.00%	3.00%	0.00%
Regions Financial Corp	RF	915.83	19.11	17,501	0.05%	5.02%	0.00%	4.18%	0.00%
Monster Beverage Corp	MNST	1,041.73	51.92	54,087	0.16%			12.72%	0.02%
Mosaic Co/The	MOS	321.39	30.93	9,941		2.72%		-18.32%	
Baker Hughes Co	BKR	998.00	33.48	33,413		2.51%		27.93%	
Expedia Group Inc	EXPE	127.22	112.86	14,359				22.40%	
CF Industries Holdings Inc	CF	182.78	79.73	14,573		2.51%		-4.63%	
Lidos Holdings Inc	LDOS	135.21	147.05	19,883	0.06%	1.03%	0.00%	10.53%	0.01%
APA Corp	APA	371.19	30.53	11,332		3.28%			
Alphabet Inc	GOOG	5,617.00	173.96	977,133	2.91%	0.46%	0.01%	15.01%	0.44%
First Solar Inc	FSLR	107.04	271.76	29,089				29.00%	
TE Connectivity Ltd	TEL	306.23	149.70	45,842	0.14%	1.74%	0.00%	5.04%	0.01%
Discover Financial Services	DFS	250.60	122.66	30,738		2.28%		61.19%	
Visa Inc	V	1,574.15	272.46	428,893	1.28%	0.76%	0.01%	13.05%	0.17%
Mid-America Apartment Communities Inc	MAA	116.69	133.71	15,602	0.05%	4.40%	0.00%	0.83%	0.00%
Xylem Inc/NY	XYL	242.45	141.02	34,190		1.02%			
Marathon Petroleum Corp	MPC	352.33	176.61	62,225		1.87%			
Advanced Micro Devices Inc	AMD	1,616.31	166.90	269,763				31.82%	
Tractor Supply Co	TSCO	107.81	285.29	30,757	0.09%	1.54%	0.00%	5.15%	0.00%
ResMed Inc	RMD	146.91	206.33	30,311	0.09%	0.93%	0.00%	13.45%	0.01%
Mettler-Toledo International Inc	MTD	21.36	1,404.09	29,987	0.09%			9.29%	0.01%
Jacobs Solutions Inc	J	125.21	139.34	17,447	0.05%	0.83%	0.00%	10.76%	0.01%
Copart Inc	CPRT	962.30	53.06	51,060					
VICI Properties Inc	VICI	1,043.14	28.71	29,948	0.09%	5.78%	0.01%	5.44%	0.00%
Fortinet Inc	FTNT	763.94	59.32	45,317	0.13%			9.59%	0.01%
Albermarle Corp	ALB	117.53	122.59	14,408		1.31%		-12.70%	
Moderna Inc	MRNA	383.24	142.55	54,631	0.16%			17.59%	0.03%
Essex Property Trust Inc	ESS	64.21	259.79	16,680	0.05%	3.77%	0.00%	4.64%	0.00%
CoStar Group Inc	CSGP	408.34	78.17	31,920	0.10%			15.09%	0.01%
Realty Income Corp	O	870.77	52.80	45,975	0.14%	5.97%	0.01%	5.24%	0.01%
Westrock Co	WRK	258.15	53.64	13,947	0.04%	2.26%	0.00%	7.48%	0.00%
Westinghouse Air Brake Technologies Corp	WAB	176.39	169.23	29,850	0.09%	0.47%	0.00%	15.49%	0.01%
Pool Corp	POOL	38.33	363.55	13,935	0.04%	1.32%	0.00%	4.73%	0.00%
Western Digital Corp	WDC	326.53	75.29	24,584				-10.00%	
PepsiCo Inc	PEP	1,374.79	172.90	237,700	0.71%	3.13%	0.02%	7.91%	0.06%
Diamondback Energy Inc	FANG	178.34	199.26	35,537		3.95%			
Palo Alto Networks Inc	PANW	323.80	294.91	95,492	0.28%			11.00%	0.03%
ServiceNow Inc	NOW	205.00	656.93	134,671				25.00%	
Church & Dwight Co Inc	CHD	244.52	107.01	26,166	0.08%	1.06%	0.00%	11.04%	0.01%
Federal Realty Investment Trust	FRT	82.78	100.95	8,356	0.02%	4.32%	0.00%	4.11%	0.00%
MGM Resorts International	MGM	513.68	40.17	12,601	0.04%			15.86%	0.01%
American Electric Power Co Inc	AEP	826.59	90.25	47,525	0.14%	3.90%	0.01%	6.10%	0.01%
Invitation Homes Inc	INVH	612.54	34.79	21,310	0.06%	3.22%	0.00%	5.86%	0.00%
PTC Inc	PTC	119.74	176.24	21,104	0.06%			14.94%	0.01%

**Calculation of Market Return from Analysts' Long-Term Growth Estimates
in Bulkley Direct Testimony**

Estimated Weighted Average Dividend Yield [1]	1.60%
Estimated Weighted Average Long-Term Growth Rate [2]	10.83%
S&P 500 Estimated Required Market Return [3]	12.51%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Shares Outstg	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Value Line Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.
JB Hunt Transport Services Inc	JBHT	103.20	160.75	16,589	0.05%	1.07%	0.00%	13.58%	0.01%
Lam Research Corp	LRCX	130.74	932.44	121,903	0.36%	0.86%	0.00%	8.61%	0.03%
Mohawk Industries Inc	MHK	63.86	121.93	7,787	0.02%			2.74%	0.00%
Pentair PLC	PNR	166.03	81.38	13,511	0.04%	1.13%	0.00%	13.13%	0.01%
GE HealthCare Technologies Inc	GEHC	456.47	78.00	35,604	0.11%	0.15%	0.00%	11.26%	0.01%
Vertex Pharmaceuticals Inc	VRTX	258.05	455.34	117,502	0.35%			12.79%	0.04%
Amcor PLC	AMCR	1,445.34	10.17	14,699	0.04%	4.92%	0.00%	2.63%	0.00%
Meta Platforms Inc	META	2,191.45	486.83	1,023,033	3.05%	0.43%	0.01%	18.58%	0.57%
T-Mobile US Inc	TMUS	1,171.85	174.96	205,028	0.61%	1.49%	0.01%	5.00%	0.03%
United Rentals Inc	URI	66.59	669.41	44,576	0.13%	0.97%	0.00%	5.27%	0.01%
Honeywell International Inc	HON	651.19	202.19	131,663	0.39%	2.14%	0.01%	8.50%	0.03%
Alexandria Real Estate Equities Inc	ARE	174.88	119.00	20,811	0.06%	4.27%	0.00%	4.21%	0.00%
Delta Air Lines Inc	DAL	645.31	51.02	32,924	0.10%	0.78%	0.00%	12.00%	0.01%
Seagate Technology Holdings PLC	STX	209.99	93.24	19,579		3.00%			
United Airlines Holdings Inc	UAL	328.80	52.99	17,423	0.05%			12.79%	0.01%
News Corp	NWS	190.68	27.88	5,316		0.72%			
Centene Corp	CNC	534.91	71.59	38,294	0.11%			5.16%	0.01%
Martin Marietta Materials Inc	MLM	61.64	571.34	35,217	0.10%	0.52%	0.00%	9.71%	0.01%
Teradyne Inc	TER	156.11	140.94	22,002	0.07%	0.34%	0.00%	17.47%	0.01%
PayPal Holdings Inc	PYPL	1,046.05	62.99	65,890	0.20%			8.69%	0.02%
Tesla Inc	TSLA	3,189.20	178.08	567,932					
Arch Capital Group Ltd	ACGL	375.49	102.63	38,537	0.11%			3.53%	0.00%
Dow Inc	DOW	703.27	57.63	40,529	0.12%	4.86%	0.01%	2.46%	0.00%
Everest Group Ltd	EG	43.46	390.93	16,989	0.05%	2.05%	0.00%	1.85%	0.00%
Teledyne Technologies Inc	TDY	47.42	396.95	18,824	0.06%			7.34%	0.00%
GE Vernova Inc	GEV	274.09	175.90	48,212				63.97%	
News Corp	NWSA	379.21	27.19	10,311		0.74%			
Exelon Corp	EXC	999.74	37.55	37,540	0.11%	4.05%	0.00%	5.27%	0.01%
Global Payments Inc	GPW	255.25	101.85	25,997	0.08%	0.98%	0.00%	11.80%	0.01%
Crown Castle Inc	CCI	434.52	102.50	44,539		6.11%		-8.74%	
Aptiv PLC	APTIV	272.06	83.26	22,652				24.81%	
Align Technology Inc	ALGN	75.28	257.21	19,363	0.06%			11.74%	0.01%
Illumina Inc	ILMN	159.30	104.28	16,612				40.05%	
Kenvue Inc	KVUE	1,914.81	19.30	36,956	0.11%	4.15%	0.00%	15.93%	0.02%
Targa Resources Corp	TRGP	221.72	118.23	26,214		2.54%		21.12%	
Bunge Global SA	BG	141.60	107.59	15,234		2.53%		-8.30%	
Deckers Outdoor Corp	DECK	25.44	1,093.92	27,832	0.08%			8.39%	0.01%
LKQ Corp	LKQ	266.78	43.03	11,479		2.79%			
Zoetis Inc	ZTS	456.30	169.56	77,369	0.23%		0.00%	10.36%	0.02%
Digital Realty Trust Inc	DLR	324.50	145.34	47,163		3.36%		-15.66%	
Equinix Inc	EQIX	94.91	762.98	72,411	0.22%	2.23%	0.00%	10.10%	0.02%
Las Vegas Sands Corp	LVS	745.05	45.03	33,549		1.78%			
Molina Healthcare Inc	MOH	59.00	314.58	18,560	0.06%			11.72%	0.01%

Notes:

- [1] Equals sum of Col. [9]
- [2] Equals sum of Col. [11]
- [3] Equals $([1] \times (1 + (0.5 \times [2]))) + [2]$
- [4] Bloomberg Professional as of May 31, 2024
- [5] Bloomberg Professional as of May 31, 2024
- [6] Equals [4] x [5]
- [7] Equals weight in S&P 500 based on market capitalization [6] if growth rate >0% and <20%
- [8] Bloomberg Professional, as of May 31, 2024
- [9] Equals [7] x [8]
- [10] Value Line, as of May 31, 2024
- [11] Equals [7] x [10]

**Dr. Won's Incorrect Proposed Adjustment to
 Calculation of Market Return from Analysts' Long-Term Growth Estimates
 in Bulkley Direct Testimony**

Estimated Weighted Average Dividend Yield [1]	1.69%
	Won Proposed Weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	10.26% 80% weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	3.90% 20% weightings
Total [4]	8.99%
S&P 500 Estimated Required Market Return [5]	10.75%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[6] Shares Outst'g	[7] Price	[8] Market Capitalization	[9] Weight in Index	[10] Estimated Dividend Yield	[11] Capitalization Weighted Dividend Yield	[12] Value Line Long-Term Growth Est.	[13] Capitalization Weighted Long-Term Growth Est.	100.00%
LyondellBasell Industries NV	LYB	325.62	98.08	31,937	0.10%	5.46%	0.01%	10.72%	0.01%	0.10%
American Express Co	AXP	719.30	240.00	172,633	0.51%	1.17%	0.01%	15.23%	0.08%	0.54%
Verizon Communications Inc	VZ	4,209.26	41.15	173,211	0.52%	6.46%	0.04%	1.22%	0.01%	0.54%
Broadcom Inc	AVGO	463.42	1,328.55	615,678	1.83%	1.58%	0.03%	14.54%	0.27%	1.93%
Boeing Co/The	BA	613.88	177.61	109,032				50.92%		0.00%
Solventum Corp	SOLV	172.71	59.34	10,249						0.00%
Caterpillar Inc	CAT	489.05	338.52	165,554	0.49%	1.54%	0.01%	7.70%	0.04%	0.52%
JPMorgan Chase & Co	JPM	2,871.67	202.63	581,886	1.73%	2.27%	0.04%	3.03%	0.05%	1.83%
Chevron Corp	CVX	1,847.32	162.30	299,820		4.02%	0.00%			0.00%
Coca-Cola Co/The	KO	4,307.96	62.83	271,100	0.81%	3.08%	0.03%	6.36%	0.05%	0.85%
AbbVie Inc	ABBV	1,765.87	161.24	284,729	0.85%	3.85%	0.03%	8.34%	0.07%	0.89%
Walt Disney Co/The	DIS	1,823.04	103.91	189,432		0.87%	0.00%	20.89%		0.00%
Corpay Inc	CPAY	70.27	267.67	18,809				14.22%	0.00%	0.00%
Extra Space Storage Inc	EXR	211.73	144.77	30,651	0.09%	4.48%	0.00%	1.86%	0.00%	0.10%
Exxon Mobil Corp	XOM	4,485.93	117.26	526,020	1.57%	3.24%	0.05%	6.00%	0.09%	1.65%
Phillips 66	PSX	423.95	142.11	60,248		3.24%	0.00%			0.00%
General Electric Co	GE	1,094.61	165.14	180,763		0.68%	0.00%	32.59%		0.00%
HP Inc	HPQ	978.56	36.50	35,717	0.11%	3.02%	0.00%	5.12%	0.01%	0.11%
Home Depot, Inc/The	HD	991.61	334.67	332,092	0.99%	2.69%	0.03%	3.43%	0.03%	1.04%
Monolithic Power Systems Inc	MPWR	48.67	735.63	35,805	0.11%	0.68%	0.00%	18.00%	0.02%	0.11%
International Business Machines Corp	IBM	918.60	166.85	153,269	0.46%	4.00%	0.02%	3.19%	0.01%	0.48%
Johnson & Johnson	JNJ	2,406.68	146.67	352,988	1.05%	3.38%	0.04%	4.99%	0.05%	1.11%
Lululemon Athletica Inc	LULU	120.89	311.99	37,717				9.86%	0.00%	0.00%
McDonald's Corp	MCD	720.68	257.22	185,374	0.55%	2.60%	0.02%	7.51%	0.04%	0.58%
Merck & Co Inc	MRK	2,532.81	125.54	317,968		2.45%	0.00%	53.01%		0.00%
3M Co	MMM	553.36	100.14	55,414		2.80%	0.00%	-7.15%		0.00%
American Water Works Co Inc	AWK	194.82	130.77	25,477	0.08%	2.34%	0.00%	7.70%	0.01%	0.08%
Bank of America Corp	BAC	7,820.37	39.99	312,737		2.40%	0.00%	-6.00%		0.00%
Pfizer Inc	PFE	5,666.39	28.66	162,405	0.48%	5.96%	0.03%	8.39%	0.04%	0.51%
Procter & Gamble Co/The	PG	2,360.14	164.54	388,337	1.18%	2.45%	0.03%	8.09%	0.09%	1.22%
AT&T Inc	T	7,170.17	18.22	130,640	0.39%	6.09%	0.02%	2.55%	0.01%	0.41%
Travelers Cos Inc/The	TRV	228.99	215.70	49,394	0.15%	1.95%	0.00%	18.34%	0.03%	0.15%
RTX Corp	RTX	1,329.51	107.81	143,334	0.43%	2.34%	0.01%	10.62%	0.05%	0.45%
Analog Devices Inc	ADI	496.22	233.56	115,897		1.58%	0.00%	-2.75%		0.00%
Walmart Inc	WMT	8,058.05	65.76	529,897	1.58%	1.26%	0.02%	8.23%	0.13%	1.66%
Cisco Systems Inc	CSCO	4,049.19	46.50	188,287	0.56%	3.44%	0.02%	0.93%	0.01%	0.59%
Intel Corp	INTC	4,256.87	30.85	131,325	0.39%	1.62%	0.01%	11.40%	0.04%	0.41%
General Motors Co	GM	1,140.40	44.99	51,306	0.15%	1.07%	0.00%	16.07%	0.02%	0.16%
Microsoft Corp	MSFT	7,432.31	415.13	3,085,373	9.19%	0.72%	0.07%	14.81%	1.36%	9.69%
Collier General Corp	DG	216.90	138.91	30,106		1.72%	0.00%	-2.08%		0.00%
Cigna Group/The	CI	284.07	343.21	97,496	0.29%	1.63%	0.00%	11.65%	0.03%	0.31%
Kinder Morgan Inc	KMI	2,219.38	19.49	43,256	0.13%	5.90%	0.01%	5.86%	0.01%	0.14%
Citigroup Inc	C	1,907.44	62.31	118,853		3.40%	0.00%	26.67%		0.00%
American International Group Inc	AIG	663.67	78.82	52,310	0.16%	2.03%	0.00%	11.85%	0.02%	0.16%
Altria Group Inc	MO	1,717.63	46.25	79,440	0.24%	8.48%	0.02%	3.89%	0.01%	0.25%
HCA Healthcare Inc	HCA	261.91	339.75	88,985	0.27%	0.78%	0.00%	9.57%	0.03%	0.28%
International Paper Co	IP	347.33	45.09	15,661		4.10%	0.00%	-2.00%		0.00%
Hewlett Packard Enterprise Co	HPE	1,300.00	17.65	22,945	0.07%	2.95%	0.00%	2.86%	0.00%	0.07%
Abbott Laboratories	ABT	1,739.63	102.19	177,773	0.53%	2.15%	0.01%	8.00%	0.04%	0.56%
Altria Inc	AFL	568.22	69.87	51,066	0.15%	2.23%	0.00%	7.55%	0.01%	0.16%
Air Products and Chemicals Inc	APD	222.31	266.70	59,289	0.18%	2.65%	0.00%	9.63%	0.02%	0.19%
Super Micro Computer Inc	SMCI	58.56	784.51	45,939				53.18%		0.00%
Royal Caribbean Cruises Ltd	RCL	257.35	147.68	38,005				29.92%		0.00%
Hess Corp	HES	308.11	154.10	47,480	0.14%	1.14%	0.00%	18.00%	0.03%	0.15%
Archer-Daniels-Midland Co	ADM	494.44	62.44	30,873		3.20%	0.00%	-2.85%		0.00%
Automatic Data Processing Inc	ADP	409.29	244.92	100,244	0.30%	2.29%	0.01%	11.31%	0.03%	0.31%
Verisk Analytics Inc	VRSK	142.68	252.78	36,065	0.11%	0.62%	0.00%	11.71%	0.01%	0.11%
AutoZone Inc	AZO	17.30	2,769.94	47,928	0.14%			14.66%	0.02%	0.15%
Linde PLC	LIN	480.68	434.13	208,674	0.62%	1.28%	0.01%	11.82%	0.07%	0.65%
Avery Dennison Corp	AVY	80.55	227.59	18,333	0.05%	1.55%	0.00%	11.67%	0.01%	0.06%
Enphase Energy Inc	ENPH	136.06	127.90	17,402	0.05%			18.17%	0.01%	0.05%
MSCI Inc	MSCI	79.22	495.18	39,230	0.12%	1.29%	0.00%	11.58%	0.01%	0.12%
Ball Corp	BALL	310.38	69.23	21,487	0.06%	1.16%	0.00%	11.78%	0.01%	0.07%
Axon Enterprise Inc	AXON	75.47	281.67	21,257						0.00%
Dayforce Inc	DAY	155.56	49.46	7,694						0.00%
Carrier Global Corp	CARR	901.01	63.19	56,935	0.17%	1.20%	0.00%	7.87%	0.01%	0.18%
Bank of New York Mellon Corp/The	BK	747.82	59.61	44,577	0.13%	2.82%	0.00%	10.01%	0.01%	0.14%
Otis Worldwide Corp	OTIS	404.32	99.20	40,109	0.12%	1.57%	0.00%	9.00%	0.01%	0.13%
Baxter International Inc	BAX	509.58	34.09	17,372	0.05%	3.40%	0.00%	9.78%	0.01%	0.05%
Becton Dickinson & Co	BDX	289.01	231.07	67,041	0.20%	1.64%	0.00%	7.77%	0.02%	0.21%
Berkshire Hathaway Inc	BRK/B	1,311.39	414.40	543,438						0.00%
Best Buy Co Inc	BBY	215.38	84.82	18,269	0.05%	4.43%	0.00%	0.05%	0.00%	0.06%
Boston Scientific Corp	BSX	1,470.18	75.57	111,102				12.08%	0.00%	0.00%
Bristol-Myers Squibb Co	BMJ	2,027.10	41.09	83,294		5.84%	0.00%	-4.12%		0.00%
Brown-Forman Corp	BF/B	303.42	45.86	13,915	0.04%	1.90%	0.00%	3.39%	0.00%	0.04%
Coterra Energy Inc	CTRA	744.23	28.52	21,226		2.95%	0.00%			0.00%
Campbell Soup Co	CPB	298.10	44.38	13,230	0.04%	3.33%	0.00%	4.87%	0.00%	0.04%
Hilton Worldwide Holdings Inc	HLT	250.05	200.60	50,159	0.15%	0.30%	0.00%	15.52%	0.02%	0.16%
Carnival Corp	CCL	1,122.32	15.08	16,925						0.00%
Corvo Inc	CRVO	95.63	28.39	9,409				20.04%		0.00%
Builders FirstSource Inc	BLDR	122.06	160.79	19,626				8.54%	0.00%	0.00%
UDR Inc	UDR	329.31	38.62	12,718	0.04%	4.40%	0.00%	1.85%	0.00%	0.04%
Clorox Co/The	CLX	124.19	131.56	16,338	0.05%	3.65%	0.00%	15.46%	0.01%	0.05%
Paycom Software Inc	PAYC	58.11	145.32	8,445	0.03%	1.03%	0.00%	6.00%	0.00%	0.03%
CMS Energy Corp	CMS	298.64	62.93	18,793	0.06%	3.27%	0.00%	7.42%	0.00%	0.06%
Colgate-Palmolive Co	CL	820.44	92.96	76,268	0.23%	2.15%	0.01%	8.36%	0.02%	0.24%
EPAM Systems Inc	EPAM	57.97	177.93	10,315				5.54%	0.00%	0.00%
Comerica Inc	CMA	132.59	51.24	6,794	0.02%	5.54%	0.00%	9.79%	0.00%	0.02%
Conagra Brands Inc	CAG	478.06	29.88	14,285	0.04%	4.69%	0.00%	1.82%	0.00%	0.04%
Airbnb Inc	ABNB	441.50	144.93	63,987				20.22%		0.00%
Consolidated Edison Inc	ED	344.92	94.55	32,613	0.10%	3.51%	0.00%	5.70%	0.01%	0.10%

Calculation of Market Return from Analysts' Long-Term Growth Estimates in Bulkley Direct Testimony

Estimated Weighted Average Dividend Yield [1] **1.69%**

	Won Proposed
	Weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	10.26%
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	3.80%
Total [4]	8.99%

S&P 500 Estimated Required Market Return [5] **10.75%**

STANDARD AND POOR'S 500 INDEX

Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Value Line Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.	[6]		[7]		[8]		[9]		[10]		[11]		[12]		[13]		
Corning Inc	GLW	856.62	37.26	31,918	0.10%	3.01%	0.00%	12.03%	0.01%	0.10%																
Cummins Inc	CMI	136.78	281.73	38,535	0.11%	2.39%	0.00%	7.56%	0.01%	0.12%																
Caesars Entertainment Inc	CZR	216.42	35.56	7,696				-32.44%	0.00%	0.00%																
Danaher Corp	DHR	740.69	256.80	190,208	0.57%	0.42%	0.00%	3.84%	0.02%	0.60%																
Target Corp	TGT	462.64	156.16	72,245	0.22%	2.82%	0.01%	13.97%	0.03%	0.23%																
Deere & Co	DE	275.57	374.76	103,273		1.57%	0.00%	-6.84%	0.00%	0.00%																
Dominion Energy Inc	D	837.59	53.92	45,163	0.13%	4.95%	0.01%	14.16%	0.02%	0.14%																
Dover Corp	DOV	137.43	193.82	25,262	0.08%	1.11%	0.00%	7.56%	0.01%	0.08%																
Alliant Energy Corp	LNT	255.38	51.49	13,201	0.04%	3.73%	0.00%	7.00%	0.00%	0.04%																
Steel Dynamics Inc	STLD	157.13	133.87	21,035		1.37%	0.00%	-3.32%	0.00%	0.00%																
Duke Energy Corp	DUK	771.00	103.57	79,852	0.24%	3.96%	0.01%	6.53%	0.02%	0.25%																
Regency Centers Corp	REG	184.58	61.40	11,333	0.03%	4.36%	0.00%	3.27%	0.00%	0.04%																
Edison Int	ETN	399.89	332.85	133,104	0.40%	1.13%	0.00%	13.83%	0.05%	0.42%																
Ecolab Inc	ECL	285.57	232.20	66,309	0.20%	0.98%	0.00%	17.31%	0.03%	0.21%																
Revvity Inc	RVTY	123.39	109.26	13,482	0.04%	0.26%	0.00%	8.26%	0.00%	0.04%																
Emerson Electric Co	EMR	572.10	112.16	64,167	0.19%	1.87%	0.00%	15.07%	0.03%	0.20%																
EOG Resources Inc	EOG	574.71	124.55	71,580		2.92%	0.00%		0.00%	0.00%																
Aon PLC	AON	217.43	281.64	61,237	0.18%	0.96%	0.00%	10.38%	0.02%	0.19%																
Entergy Corp	ETR	213.27	112.49	23,991	0.07%	4.02%	0.00%	6.98%	0.00%	0.08%																
Equifax Inc	EFX	123.61	231.39	28,602	0.09%	0.67%	0.00%	15.31%	0.01%	0.09%																
EQT Corp	EQT	441.59	41.09	18,145		1.53%	0.00%		0.00%	0.00%																
IQVIA Holdings Inc	IQV	182.20	219.09	39,918				10.44%	0.00%	0.00%																
Gartner Inc	IT	77.63	419.67	32,579				9.89%	0.00%	0.00%																
FedEx Corp	FDX	246.08	253.96	62,495	0.19%	1.98%	0.00%	17.71%	0.03%	0.20%																
FMC Corp	FMC	124.82	60.95	7,608	0.02%	3.81%	0.00%	18.88%	0.00%	0.02%																
Brown & Brown Inc	BRO	285.25	89.51	25,533	0.08%	0.58%	0.00%	9.77%	0.01%	0.08%																
Ford Motor Co	F	3,921.49	12.13	47,568	0.14%	4.95%	0.01%	1.67%	0.00%	0.15%																
NexEra Energy Inc	NEE	2,055.00	79.51	163,383	0.49%	2.99%	0.01%	8.10%	0.04%	0.51%																
Franklin Resources Inc	FRN	328.09	23.80	12,416		5.25%	0.00%		0.00%	0.00%																
Garmin Ltd	GRMN	192.08	163.85	31,472	0.09%	1.83%	0.00%	8.04%	0.01%	0.10%																
Fraport-McMoRan Inc	FCX	1,436.49	52.73	75,746	0.23%	1.14%	0.00%	16.49%	0.04%	0.24%																
Dexcom Inc	DXCM	397.68	118.77	47,233				23.63%	0.00%	0.00%																
General Dynamics Corp	GD	274.36	299.77	82,246	0.24%	1.89%	0.00%	14.18%	0.03%	0.26%																
General Mills Inc	GIS	564.55	68.75	38,813		3.43%	0.00%	0.00%	0.00%	0.00%																
Genuine Parts Co	GPC	139.30	144.14	20,079		2.78%	0.00%		0.00%	0.00%																
Atmos Energy Corp	ATO	150.88	115.92	17,490	0.05%	2.78%	0.00%	7.00%	0.00%	0.05%																
VW Grainger Inc	GWV	49.07	921.46	45,215		0.89%	0.00%		0.00%	0.00%																
Halliburton Co	HAL	885.30	36.70	32,491	0.10%	1.85%	0.00%	11.60%	0.01%	0.10%																
L3Harris Technologies Inc	LHX	180.68	223.88	42,427	0.13%	2.07%	0.00%	8.53%	0.01%	0.13%																
Healthpeak Properties Inc	DOC	703.78	19.90	14,005	0.04%	6.03%	0.00%	4.48%	0.00%	0.04%																
Insulet Corp	PODD	70.04	177.19	12,410				28.44%	0.00%	0.00%																
Catalent Inc	CTLT	180.98	53.79	9,735				28.24%	0.00%	0.00%																
Fortive Corp	FTV	352.03	74.44	26,205	0.08%	0.43%	0.00%	8.98%	0.01%	0.08%																
Hershey Co/The	HSY	147.62	197.83	29,203	0.09%	2.77%	0.00%	2.36%	0.00%	0.09%																
Synchrony Financial	SYF	401.54	43.80	17,588		2.28%	0.00%		0.00%	0.00%																
Hormel Foods Corp	HRL	548.31	30.98	16,986	0.05%	3.65%	0.00%	6.59%	0.00%	0.05%																
Arthur J Gallagher & Co	AJG	218.50	253.33	55,353	0.16%	0.95%	0.00%	12.49%	0.02%	0.17%																
Mondelēz International Inc	MDLZ	1,341.36	68.53	91,923	0.27%	2.48%	0.01%	7.65%	0.02%	0.29%																
CenterPoint Energy Inc	CNP	639.72	30.51	19,518	0.06%	2.82%	0.00%	7.95%	0.00%	0.06%																
Humana Inc	HUM	120.50	358.12	43,154	0.09%	0.99%	0.00%	-1.30%	0.00%	0.00%																
Willis Towers Watson PLC	WTW	102.24	255.29	26,100	0.08%	1.38%	0.00%	12.41%	0.01%	0.08%																
Illinois Tool Works Inc	ITW	298.40	242.75	72,437	0.22%	2.31%	0.01%	7.26%	0.02%	0.23%																
CDW Corp/DE	CDW	134.40	223.62	30,054	0.09%	1.11%	0.00%	7.02%	0.01%	0.09%																
Trane Technologies PLC	TT	226.35	327.46	74,121	0.22%	1.03%	0.00%	13.47%	0.03%	0.23%																
Interpublic Group of Cos Inc/The	IPG	377.42	31.04	11,714	0.03%	4.25%	0.00%	3.91%	0.00%	0.04%																
International Flavors & Fragrances Inc	IFF	255.35	96.18	24,560	0.07%	1.66%	0.00%	0.23%	0.00%	0.08%																
Generac Holdings Inc	GNRC	60.61	147.21	8,923				7.00%	0.00%	0.00%																
NXP Semiconductors NV	NXPI	255.68	272.10	69,572	0.21%	1.49%	0.00%	6.92%	0.01%	0.22%																
Kellanova	K	341.88	59.78	20,438	0.06%			8.42%	0.01%	0.06%																
Broadridge Financial Solutions Inc	BR	118.18	200.77	23,727		1.59%	0.00%		0.00%	0.00%																
Kimberly-Clark Corp	KMB	338.71	133.30	44,883	0.13%	3.66%	0.01%	7.72%	0.01%	0.14%																
Kimco Realty Corp	KIM	674.12	19.36	13,051	0.04%	4.96%	0.00%	3.25%	0.00%	0.04%																
Oracle Corp	ORCL	2,748.51	117.19	322,098	0.96%	1.37%	0.01%	11.24%	0.11%	1.01%																
Kroger Co/The	KR	721.69	52.37	37,795	0.11%	2.22%	0.00%	6.00%	0.01%	0.12%																
Lennar Corp	LEN	245.04	160.35	39,292	0.12%	1.25%	0.00%	8.82%	0.01%	0.12%																
Eli Lilly & Co	LLY	950.41	820.34	779,655		0.63%	0.00%	40.01%	0.00%	0.00%																
Bath & Body Works Inc	BBWI	223.67	51.94	11,617	0.03%	1.54%	0.00%	13.65%	0.00%	0.04%																
Charter Communications Inc	CHTR																									

**Calculation of Market Return from Analysts' Long-Term Growth Estimates
 in Bulkeley Direct Testimony**

Estimated Weighted Average Dividend Yield [1] **1.69%**

	Won Proposed Weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	10.26% 80% weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	3.90% 20% weighting
Total [4]	8.99%

S&P 500 Estimated Required Market Return [5] **10.75%**

STANDARD AND POOR'S 500 INDEX

Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Value Line Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.	100.00%
										[6]
Omicron Group Inc	OMC	195.83	92.96	18,205	0.05%	3.01%	0.00%	7.48%	0.00%	0.06%
ONEOK Inc	OKE	583.65	81.00	47,275	0.14%	4.89%	0.01%	2.55%	0.00%	0.15%
Raymond James Financial Inc	RJF	207.28	122.75	25,443	0.08%	1.47%	0.00%	15.38%	0.01%	0.08%
PG&E Corp	PCG	2,133.51	18.54	39,555	0.12%	0.22%	0.00%	10.10%	0.01%	0.12%
Parker-Hannifin Corp	PH	128.54	531.52	68,322	0.20%	1.23%	0.00%	13.84%	0.03%	0.21%
Rollins Inc	ROL	484.23	45.69	22,124	0.07%	1.31%	0.00%	13.04%	0.01%	0.07%
PPL Corp	PPL	737.12	29.33	21,620	0.06%	3.51%	0.00%	7.34%	0.00%	0.07%
ConocoPhillips	COP	1,169.53	116.48	136,227	0.41%	2.68%	0.01%	9.00%	0.04%	0.43%
PublicGroup Inc	PHM	210.34	117.32	24,677	0.07%	0.88%	0.00%	7.65%	0.01%	0.08%
Pinnacle West Capital Corp	PNW	113.56	78.86	8,955	0.03%	4.46%	0.00%	7.61%	0.00%	0.03%
PNC Financial Services Group Inc/The	PNC	397.91	157.39	62,627	0.20%	3.94%	0.00%	31.00%	0.00%	0.00%
PPG Industries Inc	PPG	235.36	131.41	30,929	0.09%	1.98%	0.00%	8.03%	0.01%	0.10%
Progressive Corp/The	PGR	585.70	211.18	123,688	0.19%	0.00%	0.00%	32.49%	0.00%	0.00%
Verato Corp	VLTO	246.85	98.58	24,334	0.37%	0.00%	0.00%	0.00%	0.00%	0.00%
Public Service Enterprise Group Inc	PEG	498.59	75.76	37,773	0.11%	3.17%	0.00%	5.99%	0.01%	0.12%
Robert Half Inc	RHI	104.93	64.23	6,740	0.02%	3.30%	0.00%	4.20%	0.00%	0.02%
Cooper Cos Inc/The	COO	199.12	94.31	18,779	0.06%	0.00%	0.00%	10.00%	0.00%	0.00%
Edison International	EIX	383.93	76.85	29,505	0.09%	4.06%	0.00%	7.80%	0.01%	0.09%
Schlumberger NV	SLB	1,429.34	45.89	65,592	0.20%	2.40%	0.00%	14.81%	0.03%	0.21%
Charles Schwab Corp/The	SCHW	1,777.28	73.28	130,239	0.39%	1.36%	0.01%	14.20%	0.06%	0.41%
Sherwin-Williams Co/The	SHW	253.55	303.80	77,028	0.23%	0.94%	0.00%	9.56%	0.02%	0.24%
West Pharmaceutical Services Inc	WST	72.84	331.41	24,141	0.07%	0.24%	0.00%	7.72%	0.01%	0.08%
J M Smucker Co/The	SJM	106.18	111.64	11,853	0.04%	3.80%	0.00%	7.04%	0.00%	0.04%
Snap-on Inc	SNA	52.72	272.86	14,385	0.04%	2.73%	0.00%	3.83%	0.00%	0.05%
AMETEK Inc	AME	231.47	169.58	39,253	0.12%	0.66%	0.00%	7.43%	0.01%	0.12%
Uber Technologies Inc	UBER	2,089.52	64.56	134,899	0.42%	0.00%	0.00%	61.05%	0.00%	0.00%
Southern Co/The	SO	1,094.63	80.14	87,724	0.28%	3.59%	0.01%	7.10%	0.02%	0.28%
Trust Financial Corp	TFC	1,338.10	37.75	50,513	0.15%	5.51%	0.01%	10.51%	0.02%	0.16%
Southwest Airlines Co	LUV	599.46	26.94	16,063	0.05%	2.88%	0.00%	21.33%	0.00%	0.00%
W R Berkley Corp	WRB	255.66	81.03	20,716	0.06%	0.54%	0.00%	12.64%	0.01%	0.06%
Stanley Black & Decker Inc	SWK	153.88	86.36	13,289	0.04%	3.75%	0.00%	7.00%	0.00%	0.04%
Public Storage	PSA	175.83	273.83	48,147	0.14%	4.38%	0.01%	3.24%	0.00%	0.15%
Arista Networks Inc	ANET	313.36	297.65	93,272	0.28%	0.00%	0.00%	12.42%	0.03%	0.29%
Sysco Corp	SY	497.98	72.82	36,263	0.11%	2.80%	0.00%	13.00%	0.01%	0.11%
Corteva Inc	CTVA	687.80	55.78	38,365	0.11%	1.15%	0.00%	11.33%	0.01%	0.12%
Texas Instruments Inc	TXN	910.48	195.01	177,553	0.53%	2.67%	0.00%	-1.14%	0.00%	0.00%
Textron Inc	TXT	190.70	87.61	16,707	0.05%	0.90%	0.00%	10.05%	0.01%	0.05%
Thermo Fisher Scientific Inc	TMO	381.72	567.98	216,807	0.65%	0.27%	0.00%	7.40%	0.05%	0.89%
TJX Cos Inc/The	TJX	1,130.15	103.10	116,518	0.35%	1.45%	0.01%	8.13%	0.03%	0.37%
Globe Life Inc	GL	92.27	82.76	7,636	0.02%	1.16%	0.00%	7.00%	0.00%	0.02%
Johnson Controls International plc	JCI	673.68	71.91	48,444	0.14%	2.06%	0.00%	9.45%	0.01%	0.15%
Ulta Beauty Inc	ULTA	47.72	395.09	18,852	0.06%	0.00%	0.00%	6.34%	0.00%	0.00%
Union Pacific Corp	UNP	610.12	232.82	142,049	0.42%	2.23%	0.01%	12.88%	0.05%	0.45%
Keysight Technologies Inc	KEYS	174.54	138.48	24,170	0.08%	0.00%	0.00%	-1.09%	0.00%	0.00%
UnitedHealth Group Inc	UNH	920.39	495.37	455,931	1.36%	1.52%	0.02%	10.38%	0.14%	1.43%
Blackstone Inc	BX	714.65	120.50	86,115	0.27%	0.00%	0.00%	23.93%	0.00%	0.00%
Marathon Oil Corp	MRO	564.04	28.96	16,334	0.05%	1.52%	0.00%	0.00%	0.00%	0.00%
Bio-Rad Laboratories Inc	BIO	23.45	286.86	6,728	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%
Ventas Inc	VTR	404.77	50.26	20,344	0.06%	3.58%	0.00%	6.19%	0.00%	0.06%
Labcorp Holdings Inc	LH	84.29	194.91	16,430	0.05%	1.48%	0.00%	1.23%	0.00%	0.05%
Vulcan Materials Co	VMC	132.25	255.77	33,826	0.10%	0.72%	0.00%	15.71%	0.02%	0.11%
Weyerhaeuser Co	WY	729.62	30.03	21,910	0.06%	2.66%	0.00%	-0.33%	0.00%	0.00%
Williams Cos Inc/The	WMB	1,218.75	41.51	50,590	0.15%	4.58%	0.01%	3.94%	0.01%	0.16%
Constellation Energy Corp	CEG	315.12	217.25	68,460	0.20%	0.65%	0.00%	11.80%	0.02%	0.21%
WEC Energy Group Inc	WEC	315.82	81.03	25,591	0.08%	4.12%	0.00%	6.85%	0.01%	0.08%
Adobe Inc	ADBE	448.00	444.76	199,252	0.59%	0.00%	0.00%	16.73%	0.10%	0.63%
Vistra Corp	VST	347.46	99.08	34,426	0.11%	0.88%	0.00%	0.00%	0.00%	0.00%
AES Corp/The	AES	710.67	21.59	15,343	0.05%	3.20%	0.00%	0.00%	0.00%	0.00%
Exposits International of Washington Inc	EXPD	141.25	120.17	16,974	0.05%	1.21%	0.00%	3.78%	0.00%	0.05%
Amgen Inc	AMGN	536.44	305.85	164,069	0.49%	2.94%	0.02%	6.22%	0.03%	0.51%
Apple Inc	AAPL	15,334.08	192.25	2,947,977	8.78%	0.52%	0.05%	12.73%	1.12%	9.25%
Autodesk Inc	ADSK	213.92	201.60	43,125	0.14%	0.00%	0.00%	12.76%	0.00%	0.00%
Cintas Corp	CTAS	101.46	677.97	68,789	0.20%	0.80%	0.00%	12.04%	0.02%	0.22%
Comcast Corp	CMCSA	3,914.18	40.03	156,685	0.47%	3.10%	0.02%	8.33%	0.04%	0.49%
Molson Coors Beverage Co	TAP	197.55	54.81	10,828	0.03%	3.21%	0.00%	4.65%	0.00%	0.03%
KLA Corp	KLAC	134.64	759.53	102,263	0.30%	0.76%	0.00%	8.99%	0.03%	0.32%
Mariott International Inc/MD	MAR	285.62	231.17	66,027	0.20%	1.09%	0.00%	5.56%	0.01%	0.21%
Fiserv Inc	FI	585.10	149.76	87,625	0.25%	0.00%	0.00%	15.47%	0.00%	0.00%
McCormick & Co Inc/MD	MKC	251.75	72.22	18,191	0.06%	2.33%	0.00%	5.95%	0.00%	0.06%
PACCAR Inc	PCAR	524.15	107.50	56,346	0.12%	0.00%	0.00%	-2.16%	0.00%	0.00%
Costco Wholesale Corp	COST	443.50	809.89	359,189	1.07%	0.57%	0.01%	9.64%	0.10%	1.13%
Stryker Corp	SYK	380.95	341.09	129,938	0.39%	0.94%	0.00%	8.39%	0.03%	0.41%
Tyson Foods Inc	TSN	286.02	57.25	16,374	0.04%	3.42%	0.00%	53.92%	0.00%	0.00%
Lamb Weston Holdings Inc	LW	144.39	88.29	12,748	0.04%	1.63%	0.00%	11.56%	0.00%	0.04%
Applied Materials Inc	AMAT	827.98	215.08	178,081	0.53%	0.74%	0.00%	15.06%	0.08%	0.56%
American Airlines Group Inc	AAL	653.54	11.50	7,516	0.02%	0.00%	0.00%	-4.75%	0.00%	0.00%
Cardinal Health Inc	CAH	243.57	99.27	24,179	0.07%	2.04%	0.00%	13.47%	0.01%	0.08%
Cincinnati Financial Corp	CINF	156.56	117.58	18,408	0.05%	2.76%	0.00%	7.35%	0.00%	0.06%
Paramount Global	PARA	625.78	11.91	7,453	0.03%	1.88%	0.00%	48.12%	0.00%	0.00%
DR Horton Inc	DHI	329.31	147.80	48,672	0.14%	0.81%	0.00%	4.37%	0.01%	0.15%
Electronic Arts Inc	EA	266.38	132.88	35,396	0.11%	0.57%	0.00%	12.24%	0.01%	0.11%
Fair Isaac Corp	FICO	24.71	1,289.93	31,875	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%
Fastenal Co	FAST	572.43	65.98	37,769	0.07%	2.36%	0.00%	5.82%	0.00%	0.08%
M&T Bank Corp	MTB	166.85	150.25	25,070	0.07%	3.59%	0.00%	8.22%	0.00%	0.08%
Xcel Energy Inc	XEL	555.64	55.45	30,810	0.09%	3.95%	0.00%	6.70%	0.01%	0.10%
Fifth Third Bancorp	FITB	684.05	37.42	25,597	0.07%	3.74%	0.00%	25.00%	0.00%	0.00%
Gilead Sciences Inc	GILD	1,245.85	64.27	80,071	0.24%	4.79%	0.01%	14.38%	0.03%	0.25%
Hasbro Inc	HAS	139.22	59.78	8,322	0.02%	4.68%	0.00%	17.10%	0.00%	0.03%
Huntington Bancshares Inc/OH	HBAN	1,449.25	13.92	20,174	0.06%	4.45%	0.00%	4.46%	0.00%	0.06%
Welltower Inc	WELL	597.92	103.67	61,986	0.18%	2.35%	0.00%	14.68%	0.03%	0.19%
Biogen Inc	BIIB	145.60	224.94	32,751	0.10%	0.00%	0.00%	5.36%	0.00%	0.00%
Northern Trust Corp	NTRS	204.59	84.24	17,235	0.05%	3.56%	0.00%	10.80%	0.01%	0.05%

**Calculation of Market Return from Analysts' Long-Term Growth Estimates
in Bulkeley Direct Testimony**

Estimated Weighted Average Dividend Yield [1] **1.69%**

	Won Proposed Weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	10.26% 80% weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	3.90% 20% weighting
Total [4]	8.99%

S&P 500 Estimated Required Market Return [5] **10.75%**

STANDARD AND POOR'S 500 INDEX

Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Value Line Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.	100.00%
										[6]
Packaging Corp of America	PKG	89.80	183.49	16,477	0.05%	2.72%	0.00%	2.83%	0.00%	0.05%
Paychex Inc	PAYX	359.96	120.16	43,253	0.13%	3.26%	0.00%	6.17%	0.01%	0.14%
QUALCOMM Inc	QCOM	1,116.00	204.05	227,720	0.68%	1.67%	0.01%	11.88%	0.08%	0.71%
Ross Stores Inc	ROST	335.17	139.76	46,844	1.05%	0.00%	188.00%	0.00%	0.00%	0.00%
IDEXX Laboratories Inc	IDXX	82.59	496.95	41,042				11.11%	0.00%	0.00%
Starbucks Corp	SBUX	1,132.20	80.22	90,825	0.27%	2.84%	0.01%	12.42%	0.03%	0.28%
KeyCorp	KEY	942.86	14.37	13,549	0.04%	5.71%	0.00%	19.11%	0.01%	0.04%
Fox Corp	FOXA	231.15	34.43	7,958	0.02%	1.51%	0.00%	6.61%	0.00%	0.02%
Fox Corp	FOX	235.58	31.94	7,524	0.02%	1.63%	0.00%	6.61%	0.00%	0.02%
State Street Corp	STT	301.26	75.59	22,772	0.07%	3.65%	0.00%	8.07%	0.01%	0.07%
Norwegian Cruise Line Holdings Ltd	NCLH	429.04	16.60	7,122				51.83%	0.00%	0.00%
US Bancorp	USB	1,560.46	40.55	63,277	0.19%	4.83%	0.01%	2.71%	0.01%	0.20%
A O Smith Corp	AOS	120.78	83.64	10,102		1.53%	0.00%		0.00%	0.00%
Gen Digital Inc	GEN	626.15	24.83	15,547	0.05%	2.01%	0.00%	10.16%	0.00%	0.05%
T Rowe Price Group Inc	TROW	223.30	117.83	26,311	0.08%	4.21%	0.00%	5.88%	0.00%	0.08%
Waste Management Inc	WM	401.08	210.73	84,520	0.25%	1.42%	0.00%	11.11%	0.03%	0.27%
Constellation Brands Inc	STZ	182.95	250.23	45,780	0.14%	1.61%	0.00%	11.21%	0.02%	0.14%
Invesco Ltd	IVZ	449.83	15.71	7,067	0.02%	5.22%	0.00%	8.71%	0.00%	0.02%
Intuit Inc	INTU	279.55	576.44	161,142	0.48%	0.62%	0.00%	15.15%	0.07%	0.51%
Morgan Stanley	MS	1,625.16	97.84	158,006	0.47%	3.48%	0.02%	9.49%	0.04%	0.50%
Microchip Technology Inc	MCHP	536.89	97.23	52,201	1.86%	0.00%	-9.39%	0.00%	0.00%	0.00%
Chubb Ltd	CB	406.06	270.82	109,969	0.33%	1.34%	0.00%	2.45%	0.01%	0.34%
Hologic Inc	HOLX	233.38	73.78	17,219				7.36%	0.00%	0.00%
Citizens Financial Group Inc	CFG	455.02	35.29	16,058		4.76%	0.00%		0.00%	0.00%
Jabil Inc	JBL	120.60	118.90	14,339	0.04%	0.27%	0.00%	10.30%	0.00%	0.04%
O'Reilly Automotive Inc	ORLY	58.89	963.26	56,730	0.17%			11.00%	0.02%	0.18%
Allstate Corp/The	ALL	263.92	167.52	44,211		2.20%	0.00%	175.32%	0.00%	0.00%
Equity Residential	EQR	378.94	65.03	24,642	0.07%	4.15%	0.00%	3.98%	0.00%	0.08%
BorgWarner Inc	BWA	227.84	35.55	8,100	0.02%	1.24%	0.00%	4.17%	0.00%	0.03%
Kaigui Dr Pepper Inc	KDP	1,355.67	34.25	46,428	0.14%	2.51%	0.00%	7.12%	0.01%	0.15%
Host Hotels & Resorts Inc	HST	703.60	17.94	12,623		4.46%	0.00%	-0.49%	0.00%	0.00%
Incyte Corp	INCY	224.86	57.79	12,994	0.04%			19.22%	0.01%	0.04%
Simon Property Group Inc	SPG	325.77	151.31	49,292	0.15%	5.29%	0.01%	1.31%	0.00%	0.15%
Eastman Chemical Co	EMN	117.65	101.33	11,921	0.04%	3.20%	0.00%	6.19%	0.00%	0.04%
AvalonBay Communities Inc	AVB	142.19	192.68	27,396	0.08%	3.53%	0.00%	7.71%	0.01%	0.09%
Prudential Financial Inc	PRU	359.00	120.35	43,206	0.13%	4.32%	0.01%	9.96%	0.01%	0.14%
United Parcel Service Inc	UPS	729.40	138.93	101,335	0.30%	4.69%	0.01%	8.77%	0.03%	0.32%
Walgreens Boots Alliance Inc	WBA	866.71	16.22	13,993		6.17%	0.00%	-4.38%	0.00%	0.00%
STERIS PLC	STE	98.90	222.88	22,043	0.03%	0.00%		0.00%	0.00%	0.00%
McKesson Corp	MCK	129.99	568.97	73,958	0.22%	0.44%	0.00%	11.67%	0.03%	0.23%
Lockheed Martin Corp	LMT	239.94	467.19	112,097	0.33%	2.70%	0.01%	2.21%	0.01%	0.35%
Cencora Inc	COR	196.93	226.57	44,618	0.13%	0.90%	0.00%	10.82%	0.01%	0.14%
Capital One Financial Corp	COF	381.92	137.63	52,564	0.16%	1.74%	0.00%	12.55%	0.02%	0.16%
Waters Corp	WAT	59.32	308.90	18,324				5.12%	0.00%	0.00%
Nordson Corp	NDSN	57.27	234.72	13,442		1.16%	0.00%		0.00%	0.00%
Dollar Tree Inc	DLTR	217.98	117.95	25,711				14.10%	0.00%	0.00%
Darden Restaurants Inc	DRI	119.36	150.39	17,950	0.05%	3.48%	0.00%	10.89%	0.01%	0.06%
Evergy Inc	EVER	229.75	54.68	12,558	0.04%	4.70%	0.00%	5.00%	0.00%	0.04%
Match Group Inc	MATCH	265.67	30.63	8,137				35.69%	0.00%	0.00%
Dominos Pizza Inc	DPZ	34.88	508.58	17,739	0.05%	1.19%	0.00%	14.43%	0.01%	0.06%
NVR Inc	NVR	3.13	7,880.73	24,056				4.87%	0.00%	0.00%
NetApp Inc	NTAP	206.38	120.43	24,854		1.73%	0.00%		0.00%	0.00%
Old Dominion Freight Line Inc	ODFL	217.29	175.25	38,079	0.11%	0.59%	0.00%	13.12%	0.01%	0.12%
DaVita Inc	DVA	87.70	147.12	12,902				15.98%	0.00%	0.00%
Hartford Financial Services Group Inc/The	HIG	295.76	102.98	30,457	0.09%	1.83%	0.00%	12.22%	0.01%	0.10%
Iron Mountain Inc	IRM	293.13	80.69	23,653	0.07%	3.22%	0.00%	4.00%	0.00%	0.07%
Estee Lauder Cos Inc/The	EL	233.02	123.36	28,746	0.09%	2.14%	0.00%	16.13%	0.01%	0.09%
Cadence Design Systems Inc	CDNS	272.13	286.31	77,915				15.67%	0.00%	0.00%
Tyler Technologies Inc	TYL	42.46	480.36	20,394					0.00%	0.00%
Universal Health Services Inc	UHS	59.68	189.60	11,315	0.03%	0.42%	0.00%	17.84%	0.01%	0.04%
Skyworks Solutions Inc	SKWKS	160.45	92.66	14,867		2.94%	0.00%	-1.59%	0.00%	0.00%
Quest Diagnostics Inc	DGX	111.09	141.97	15,772		2.11%	0.00%	-0.82%	0.00%	0.00%
Rockwell Automation Inc	ROK	114.00	257.53	29,359	0.09%	1.94%	0.00%	5.23%	0.00%	0.09%
Kraft Heinz Co/The	KHC	1,214.30	35.37	42,950	0.13%	4.52%	0.01%	3.77%	0.00%	0.13%
American Tower Corp	AMT	466.98	195.74	91,406	0.27%	3.31%	0.01%	11.49%	0.03%	0.29%
Regeneron Pharmaceuticals Inc	REGN	108.37	980.16	106,217				6.96%	0.00%	0.00%
Amazon.com Inc	AMZN	10,406.63	176.44	1,836,145				28.96%	0.00%	0.00%
Jack Henry & Associates Inc	JKHY	72.90	164.68	12,005	0.04%	1.34%	0.00%	7.46%	0.00%	0.04%
Ralph Lauren Corp	RL	49.83	196.99	7,593	0.02%	1.77%	0.00%	11.65%	0.00%	0.02%
Boston Properties Inc	BXP	157.05	60.67	9,528	0.03%	6.46%	0.00%	0.21%	0.00%	0.03%
Amphenol Corp	APH	600.60	132.37	79,502	0.24%	0.33%	0.00%	13.49%	0.03%	0.25%
Howmet Aerospace Inc	HWM	408.18	84.65	34,553	0.10%	0.24%	0.00%	19.82%	0.02%	0.11%
Valero Energy Corp	VLO	327.00	157.14	51,384		2.72%	0.00%	-24.00%	0.00%	0.00%
Synopsys Inc	SNPS	153.22	560.80	85,924	0.26%			16.59%	0.04%	0.27%
Etsy Inc	ETSY	116.93	63.47	7,422	0.02%			7.51%	0.00%	0.02%
CH Robinson Worldwide Inc	CHRW	117.10	86.37	10,113	0.03%	2.83%	0.00%	11.80%	0.00%	0.03%
Accenture PLC	ACN	670.42	282.29	189,253	0.56%	1.83%	0.01%	6.68%	0.04%	0.59%
TransDigm Group Inc	TDG	55.96	1,343.23	75,164	0.22%			18.82%	0.04%	0.24%
Yum! Brands Inc	YUM	281.63	137.43	38,705	0.12%	1.95%	0.00%	10.65%	0.01%	0.12%
Prologis Inc	PLD	925.84	110.49	102,297	0.30%	3.48%	0.01%	7.57%	0.02%	0.32%
FirstEnergy Corp	FE	575.52	40.26	23,170	0.07%	4.22%	0.00%	6.65%	0.00%	0.07%
VeriSign Inc	VRSN	100.14	174.32	17,456					0.00%	0.00%
Quanta Services Inc	PWR	146.39	275.94	40,394	0.12%	0.13%	0.00%	12.00%	0.01%	0.13%
Henry Schein Inc	HSIC	128.05	69.34	8,879	0.03%			7.53%	0.00%	0.03%
Ameren Corp	AEE	266.51	73.37	19,554	0.06%	3.65%	0.00%	6.00%	0.00%	0.06%
ANSYS Inc	ANSS	87.30	317.45	27,713	0.08%			6.37%	0.01%	0.09%
FACTSet Research Systems Inc	FDS	38.12	404.26	15,409	0.05%	1.03%	0.00%	9.42%	0.00%	0.05%
NVIDIA Corp	NVDA	2,460.00	1,096.33	2,696,972		0.00%	0.00%	35.80%	0.00%	0.00%
Cognizant Technology Solutions Corp	CTSH	497.20	66.15	32,890	0.10%	1.81%	0.00%	5.15%	0.01%	0.10%
Intuitive Surgical Inc	ISRG	354.71	402.12	142,634				16.21%	0.00%	0.00%
Take-Two Interactive Software Inc	TTWO	171.39	160.36	27,483					0.00%	0.00%
Republic Services Inc	RSG	314.98	185.19	58,330	0.17%	1.16%	0.00%	10.52%	0.02%	0.18%

Calculation of Market Return from Analysts' Long-Term Growth Estimates
in Bulkeley Direct Testimony

Estimated Weighted Average Dividend Yield [1]	1.69%
	Won Proposed Weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	10.26%
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	3.80%
Total [4]	8.99%
S&P 500 Estimated Required Market Return [5]	10.75%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	Shares Out/sg	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Value Line Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.	84.98%	100.00%
										[6]	[7]
eBAY	EBAY	506.00	54.22	27,435	0.08%	1.99%	0.00%	7.83%	0.01%	0.09%	0.00%
Goldman Sachs Group Inc/The	GS	322.46	456.52	147,211	0.44%	2.41%	0.01%	14.02%	0.06%	0.46%	0.00%
SBA Communications Corp	SBAC	107.44	196.68	21,132	1.99%	0.00%	0.00%	23.41%	0.00%	0.00%	0.00%
Sempra	SRE	632.85	77.03	48,748	0.15%	3.22%	0.00%	3.85%	0.01%	0.15%	0.00%
Moody's Corp	MCO	182.60	396.99	72,490	0.22%	0.86%	0.00%	11.79%	0.03%	0.23%	0.00%
ON Semiconductor Corp	ON	430.23	73.04	31,424	0.09%	0.00%	0.00%	2.64%	0.00%	0.10%	0.00%
Booking Holdings Inc	BKNG	33.93	3,776.35	126,124	0.38%	0.93%	0.00%	15.03%	0.06%	0.40%	0.00%
F5 Inc	FFIV	58.61	168.97	9,904	0.03%	0.00%	0.00%	7.81%	0.00%	0.03%	0.00%
Akamai Technologies Inc	AKAM	152.32	92.24	14,050	0.04%	0.00%	0.00%	1.54%	0.00%	0.04%	0.00%
Charles River Laboratories International Inc	CR	51.51	208.44	10,737	0.03%	0.00%	0.00%	9.81%	0.00%	0.03%	0.00%
MarketAxess Holdings Inc	MKTX	37.90	198.93	7,530	0.02%	1.49%	0.00%	3.07%	0.00%	0.02%	0.00%
Devon Energy Corp	DVN	632.00	49.08	31,019	0.00%	2.85%	0.00%	0.00%	0.00%	0.00%	0.00%
Bio-Techne Corp	TECH	157.59	77.19	12,164	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Alphabet Inc	GOOGL	5,874.00	172.50	1,013,265	3.02%	0.46%	0.01%	15.01%	0.45%	3.18%	0.00%
Teleflex Inc	TFX	47.10	209.07	9,848	0.03%	0.65%	0.00%	7.51%	0.00%	0.03%	0.00%
Neflix Inc	NFLX	430.97	641.62	276,516	0.00%	0.00%	0.00%	35.61%	0.00%	0.00%	0.00%
Allegron plc	ALLE	87.44	121.82	10,652	0.03%	1.58%	0.00%	7.25%	0.00%	0.03%	0.00%
Agilent Technologies Inc	A	293.06	130.41	38,217	0.11%	0.72%	0.00%	5.23%	0.01%	0.12%	0.00%
Warner Bros Discovery Inc	WBND	2,450.31	8.24	20,191	0.00%	0.00%	0.00%	34.78%	0.00%	0.00%	0.00%
Elevance Health Inc	ELV	232.42	538.48	125,152	0.37%	1.21%	0.00%	12.03%	0.04%	0.39%	0.00%
Trimble Inc	TRMB	244.21	55.68	13,598	0.00%	0.00%	0.00%	10.00%	0.00%	0.00%	0.00%
CME Group Inc	CME	360.06	202.98	73,085	0.22%	2.27%	0.01%	4.90%	0.01%	0.23%	0.00%
Juniper Networks Inc	JNPR	324.99	35.45	11,521	0.03%	2.48%	0.00%	4.78%	0.00%	0.04%	0.00%
BlackRock Inc	BLK	148.60	772.03	114,724	0.34%	2.64%	0.01%	11.89%	0.04%	0.36%	0.00%
DTE Energy Co	DTE	206.93	116.53	24,113	0.07%	3.50%	0.00%	8.70%	0.01%	0.08%	0.00%
Nasdaq Inc	NDAQ	576.53	59.03	34,033	0.10%	1.63%	0.00%	5.72%	0.01%	0.11%	0.00%
Celanese Corp	CE	109.22	152.04	16,606	0.00%	1.84%	0.00%	22.38%	0.00%	0.00%	0.00%
Philip Morris International Inc	PM	1,554.56	101.38	157,801	0.47%	5.13%	0.03%	8.23%	0.04%	0.49%	0.00%
Salesforce Inc	CRM	989.00	234.44	227,172	0.68%	0.88%	0.00%	17.34%	0.12%	0.71%	0.00%
Ingersoll Rand Inc	IR	403.43	93.05	37,539	0.11%	0.09%	0.00%	16.00%	0.02%	0.12%	0.00%
Huntington Ingalls Industries Inc	HI	39.43	253.10	9,980	0.03%	2.05%	0.00%	7.78%	0.00%	0.03%	0.00%
Roper Technologies Inc	ROP	107.05	532.76	57,029	0.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MetLife Inc	MET	711.12	72.37	51,464	0.15%	3.01%	0.00%	13.85%	0.02%	0.16%	0.00%
Tapescy Inc	TPR	229.77	43.49	9,993	0.03%	3.22%	0.00%	9.91%	0.00%	0.03%	0.00%
CSX Corp	CSX	1,954.93	33.75	65,979	0.20%	1.42%	0.00%	10.76%	0.02%	0.21%	0.00%
Edwards Lifesciences Corp	EW	601.30	86.89	52,247	0.00%	0.00%	0.00%	10.03%	0.00%	0.00%	0.00%
Ameriprise Financial Inc	AMP	99.33	436.61	43,366	0.00%	1.36%	0.00%	0.00%	0.00%	0.00%	0.00%
Zebra Technologies Corp	ZBRA	51.42	312.34	16,060	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Zimmer Biomet Holdings Inc	ZBH	205.73	115.15	23,890	0.07%	0.83%	0.00%	7.00%	0.00%	0.07%	0.00%
CBRE Group Inc	CBRE	306.62	88.07	27,022	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Camden Property Trust	CPT	106.54	102.65	10,936	0.03%	4.01%	0.00%	1.59%	0.00%	0.03%	0.00%
Mastercard Inc	MA	922.47	447.07	412,409	1.23%	0.59%	0.01%	15.54%	0.19%	1.29%	0.00%
CarMax Inc	KMX	157.33	70.26	11,054	0.00%	0.00%	0.00%	18.69%	0.00%	0.00%	0.00%
Intercontinental Exchange Inc	ICE	573.59	133.90	76,803	0.23%	1.34%	0.00%	8.96%	0.02%	0.24%	0.00%
Fidelity National Information Services Inc	FIS	556.25	75.88	42,208	1.90%	0.00%	0.00%	21.47%	0.00%	0.00%	0.00%
Chipotle Mexican Grill Inc	CMG	27.47	3,129.52	85,959	0.00%	0.00%	0.00%	22.95%	0.00%	0.00%	0.00%
Wynn Resorts Ltd	WYNN	112.07	94.88	10,633	0.00%	1.05%	0.00%	-4.07%	0.00%	0.00%	0.00%
Live Nation Entertainment Inc	LYV	231.44	93.74	21,695	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Assurant Inc	AIZ	51.99	173.47	9,018	0.03%	1.66%	0.00%	6.19%	0.00%	0.03%	0.00%
NRG Energy Inc	NRG	208.48	81.00	16,887	0.05%	2.01%	0.00%	3.00%	0.00%	0.05%	0.00%
Regions Financial Corp	RF	915.83	19.11	17,501	0.05%	5.02%	0.00%	4.18%	0.00%	0.05%	0.00%
Monster Beverage Corp	MNST	1,041.73	51.92	54,087	0.16%	0.00%	0.00%	12.72%	0.02%	0.17%	0.00%
Mosaic Co/The	MOS	321.39	30.93	9,941	0.00%	2.72%	0.00%	-18.32%	0.00%	0.00%	0.00%
Baker Hughes Co	BKR	998.00	33.48	33,413	0.00%	2.51%	0.00%	27.93%	0.00%	0.00%	0.00%
Expedia Group Inc	EXPE	127.22	112.86	14,359	0.00%	0.00%	0.00%	22.40%	0.00%	0.00%	0.00%
CF Industries Holdings Inc	CF	182.78	79.73	14,573	0.00%	2.51%	0.00%	-4.63%	0.00%	0.00%	0.00%
Leidos Holdings Inc	LDO	135.21	147.05	19,883	0.06%	1.03%	0.00%	10.53%	0.01%	0.06%	0.00%
APA Corp	APA	371.19	30.53	11,332	0.00%	3.28%	0.00%	0.00%	0.00%	0.00%	0.00%
Alphabet Inc	GOOG	5,617.00	173.96	977,133	2.91%	0.46%	0.01%	15.01%	0.44%	3.07%	0.00%
First Solar Inc	FSLR	107.04	271.76	29,089	0.00%	0.00%	0.00%	29.00%	0.00%	0.00%	0.00%
TE Connectivity Ltd	TEL	306.23	149.70	45,842	0.14%	1.74%	0.00%	5.04%	0.01%	0.14%	0.00%
Discover Financial Services	DFS	250.60	122.66	30,738	0.00%	2.28%	0.00%	61.19%	0.00%	0.00%	0.00%
Visa Inc	V	1,574.15	272.46	428,893	1.28%	0.76%	0.01%	13.05%	0.17%	1.35%	0.00%
Mid-America Apartment Communities Inc	MAA	116.69	133.71	15,602	0.05%	4.40%	0.00%	0.83%	0.00%	0.05%	0.00%
Xylem Inc/NY	XYL	242.45	141.02	34,190	0.00%	1.02%	0.00%	0.00%	0.00%	0.00%	0.00%
Marathon Petroleum Corp	MPC	352.33	176.61	62,225	0.00%	1.87%	0.00%	0.00%	0.00%	0.00%	0.00%
Advanced Micro Devices Inc	AMD	1,616.31	166.90	269,763	0.00%	0.00%	0.00%	31.82%	0.00%	0.00%	0.00%
Tractor Supply Co	TSCO	107.81	285.29	30,757	0.09%	1.54%	0.00%	5.15%	0.00%	0.10%	0.00%
ResMed Inc	RMED	145.81	206.33	30,311	0.09%	0.93%	0.00%	13.45%	0.01%	0.10%	0.00%
Mettler-Toledo International Inc	MTD	21.36	1,404.09	29,987	0.00%	0.00%	0.00%	9.29%	0.00%	0.00%	0.00%
Jacobs Solutions Inc	J	125.21	139.34	17,447	0.05%	0.83%	0.00%	10.76%	0.01%	0.05%	0.00%
Copart Inc	CPRT	962.30	53.06	51,060	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
VICI Properties Inc	VICI	1,043.14	28.71	29,948	0.09%	5.78%	0.01%	5.44%	0.00%	0.09%	0.00%
Fortinet Inc	FTNT	763.94	59.32	45,317	0.00%	9.59%	0.00%	9.59%	0.00%	0.00%	0.00%
Albermarle Corp	ALB	117.53	122.59	14,408	0.00%	1.31%	0.00%	-12.70%	0.00%	0.00%	0.00%
Moderna Inc	MRNA	383.24	142.55	54,631	0.00%	0.00%	0.00%	17.59%	0.00%	0.00%	0.00%
Essex Property Trust Inc	ESS	64.21	259.79	16,680	0.05%	3.77%	0.00%	4.64%	0.00%	0.05%	0.00%
CoStar Group Inc	CSGP	408.34	78.17	31,920	0.10%	5.97%	0.01%	15.09%	0.01%	0.10%	0.00%
Realty Income Corp	O	870.77	52.80	45,975	0.14%	5.97%	0.01%	5.24%	0.01%	0.14%	0.00%
Westrock Co	WRK	258.15	53.64	13,847	0.04%	2.26%	0.00%	7.48%	0.00%	0.04%	0.00%
Westinghouse Air Brake Technologies Corp	WAB	176.39	169.23	29,850	0.09%	0.47%	0.00%	15.49%	0.01%	0.09%	0.00%
Pool Corp	POOL	38.33	363.55	13,935	0.04%	1.32%	0.00%	4.73%	0.00%	0.04%	0.00%
Western Digital Corp	WDC	326.53	75.29	24,584	0.00%	0.00%	0.00%	-10.00%	0.00%	0.00%	0.00%
PepsiCo Inc	PEP	1,374.79	172.90	237,700	0.71%	3.13%	0.02%	7.91%	0.06%	0.75%	0.00%
Diamondback Energy Inc	FANG	178.34	199.26	35,537	0.00%	3.95%	0.00%	0.00%	0.00%	0.00%	0.00%
Palo Alto Networks Inc	PANW	323.80	294.91	95,492	0.00%	0.00%	0.00%	11.00%	0.00%	0.00%	0.00%
ServiceNow Inc	NOW	205.00	656.93	134,671	0.00%	0.00%	0.00%	25.00%	0.00%	0.00%	0.00%
Church & Dwight Co Inc	CHD	244.52	107.01	26,166	0.08%	1.06%	0.00%	11.04%	0.01%	0.08%	0.00%
Federal Realty Investment Trust	FRT	62.78	200.95	8,356	0.02%	4.32%	0.00%	4.11%	0.00%	0.03%	0.00%
MGM Resorts International	MGM	313.68	40.17	12,601	0.00%	0.00%	0.00%	15.86%	0.00%	0.00%	0.00%
American Electric Power Co Inc	AEP	528.59	90.25	47,525	0.14%	3.90%	0.01%	6.10%	0.01%	0.15%	0.00%
Inivation Homes Inc	INVH	612.54	34.79	21,310	0.06%	3.22%	0.00%	5.86%	0.00%	0.07%	0.00%

**Calculation of Market Return from Analysts' Long-Term Growth Estimates
 in Bulkeley Direct Testimony**

Estimated Weighted Average Dividend Yield [1] **1.69%**

	10.26%	80% weighting	3.90%	20% weighting	8.99%
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	10.26%	80% weighting	3.90%	20% weighting	8.99%
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]					
Total [4]					8.99%

S&P 500 Estimated Required Market Return [5] **10.75%**

STANDARD AND POOR'S 500 INDEX

Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Value Line Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.	100.00%
										94.96%
PTC Inc	PTC	119.74	176.24	21,104				14.94%	0.00%	0.00%
JB Hunt Transport Services Inc	JBHT	103.20	160.75	16,589	0.05%	1.07%	0.00%	13.58%	0.01%	0.05%
Lam Research Corp	LRCX	130.74	932.44	121,903	0.36%	0.86%	0.00%	8.61%	0.03%	0.38%
Mohawk Industries Inc	MHK	63.86	121.93	7,787				2.74%	0.00%	0.00%
Pentair PLC	PNR	166.03	81.38	13,511	0.04%	1.13%	0.00%	13.13%	0.01%	0.04%
GE HealthCare Technologies Inc	GEHC	456.47	78.00	35,604	0.11%	0.15%	0.00%	11.26%	0.01%	0.11%
Vertex Pharmaceuticals Inc	VRTX	258.05	455.34	117,502				12.79%	0.00%	0.00%
Amcor PLC	AMCR	1,445.34	10.17	14,699	0.04%	4.92%	0.00%	2.63%	0.00%	0.05%
Meta Platforms Inc	META	2,191.45	466.83	1,023,053	3.05%	0.43%	0.01%	18.58%	0.57%	3.21%
T-Mobile US Inc	TMUS	1,171.85	174.96	205,028	0.61%	1.49%	0.01%	5.00%	0.03%	0.64%
United Rentals Inc	URI	66.59	669.41	44,576	0.13%	0.97%	0.00%	5.27%	0.01%	0.14%
Honeywell International Inc	HON	651.19	202.19	131,663	0.39%	2.14%	0.01%	8.50%	0.03%	0.41%
Alexandria Real Estate Equities Inc	ARE	174.88	119.00	20,811	0.06%	4.27%	0.00%	4.21%	0.00%	0.07%
Delta Air Lines Inc	DAL	645.31	51.02	32,924	0.10%	0.78%	0.00%	12.00%	0.01%	0.10%
Seagate Technology Holdings PLC	STX	209.99	93.24	19,579		3.00%	0.00%			0.00%
United Airlines Holdings Inc	UAL	328.80	52.99	17,423				12.79%	0.00%	0.00%
News Corp	NWS	190.68	27.88	5,316		0.72%	0.00%			0.00%
Centene Corp	CNC	534.91	71.59	38,294				5.16%	0.00%	0.00%
Martin Marietta Materials Inc	MLM	61.64	571.34	35,217	0.10%	0.52%	0.00%	9.71%	0.01%	0.11%
Teradyne Inc	TER	156.11	140.94	22,002	0.07%	0.34%	0.00%	17.47%	0.01%	0.07%
PayPal Holdings Inc	PYPL	1,046.05	62.99	65,890				8.69%	0.00%	0.00%
Tesla Inc	TSLA	3,189.20	178.08	567,932						0.00%
Arch Capital Group Ltd	ACGL	375.49	102.63	38,537				3.53%	0.00%	0.00%
Dow Inc	DOW	703.27	57.63	40,529	0.12%	4.86%	0.01%	2.46%	0.00%	0.13%
Everest Group Ltd	EG	43.46	390.93	16,989	0.05%	2.05%	0.00%	1.85%	0.00%	0.05%
Teledyne Technologies Inc	TDY	47.42	396.95	18,824				7.34%	0.00%	0.00%
GE Vernova Inc	GEV	274.09	175.90	48,212				63.97%	0.00%	0.00%
News Corp	NWSA	379.21	27.19	10,311		0.74%	0.00%			0.00%
Exelon Corp	EXC	999.74	37.55	37,540	0.11%	4.05%	0.00%	5.27%	0.01%	0.12%
Global Payments Inc	GPN	255.25	101.85	25,997	0.08%	0.98%	0.00%	11.80%	0.01%	0.08%
Crown Castle Inc	CCI	434.52	102.50	44,539		6.11%	0.00%	-8.74%		0.00%
Aptiv PLC	APTIV	272.06	83.26	22,652				24.81%		0.00%
Algn Technology Inc	ALGN	75.28	257.21	19,363				11.74%	0.00%	0.00%
Illumina Inc	ILMN	159.30	104.28	16,612				40.05%		0.00%
Kenvue Inc	KVUE	1,914.81	19.30	36,956	0.11%	4.15%	0.00%	15.93%	0.02%	0.12%
Targa Resources Corp	TRGP	221.72	118.23	26,214		2.54%	0.00%	21.12%		0.00%
Bunge Global SA	BG	141.60	107.59	15,234		2.53%	0.00%	-8.30%		0.00%
Deckers Outdoor Corp	DECK	25.44	1,093.92	27,832				8.39%	0.00%	0.00%
LKQ Corp	LKQ	266.78	43.03	11,479		2.79%	0.00%			0.00%
Zoetis Inc	ZTS	456.30	169.56	77,369	0.23%	1.02%	0.00%	10.36%	0.02%	0.24%
Digital Realty Trust Inc	DLR	324.50	145.34	47,163		3.96%	0.00%	-15.66%		0.00%
Equinix Inc	EQIX	94.91	762.98	72,411	0.22%	2.23%	0.01%	10.10%	0.02%	0.23%
Las Vegas Sands Corp	LVS	745.05	45.03	33,549		1.78%	0.00%			0.00%
Molina Healthcare Inc	MOH	59.00	314.58	18,560				11.72%	0.00%	0.00%

Notes:

- [1] Equals sum of Col. [9]
- [2] Equals sum of Col. [11]
- [3] Dr. Won's proposed GDP growth rate
- [4] Equals (2) x 80% + (3) x 20%
- [5] Equals ([1] x (1 + (0.5 x [4]))) + [4]
- [6] Bloomberg Professional as of May 31, 2024
- [7] Bloomberg Professional as of May 31, 2024
- [8] Equals [6] x [7]
- [9] Equals weight in S&P 500 based on market capitalization [6] if growth rate >0% and s20% and dividend yield > 0%
- [10] Bloomberg Professional, as of May 31, 2024
- [11] Equals [10] x Adj. Weighting factor
- [12] Value Line, as of May 31, 2024
- [13] Equals [9] x [12]

**Correction to Dr. Won's Adjustment to the
 Calculation of Market Return from Analysts' Long-Term Growth Estimates
 in Bulkley Direct Testimony**

Estimated Weighted Average Dividend Yield [1]	1.73%	1.73%	1.73%
	Won Proposed Weighting	Won Proposed Weighting	FERC Method No Weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	10.73%	10.73%	10.73%
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	3.95%	8.00%	100.00%
Total [4]	9.36%	20.00%	n/a
S&P 500 Estimated Required Market Return [5]	11.17%	11.50%	12.55%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	Shares Out/g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Value Line Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.
LyondellBasell Industries NV	LYB	325.62	98.08	31,937	0.10%	5.46%	0.01%	10.72%	0.01%
American Express Co	AXP	719.30	240.00	172,633	0.56%	1.17%	0.01%	15.23%	0.08%
Verizon Communications Inc	VZ	4,209.26	41.15	173,211	0.56%	6.46%	0.04%	1.22%	0.01%
Broadcom Inc	AVGO	463.42	1,328.55	615,678	1.98%	1.58%	0.03%	14.54%	0.29%
Boeing Co/The	BA	613.88	177.61	109,032				50.92%	
Solventum Corp	SOLV	172.71	59.34	10,249					
Caterpillar Inc	CAT	489.05	338.52	165,554	0.53%	1.54%	0.01%	7.70%	0.04%
JPMorgan Chase & Co	JPM	2,871.67	202.63	581,886	1.87%	2.27%	0.04%	3.03%	0.06%
Chevron Corp	CVX	1,847.32	162.30	299,620		4.02%			
Coca-Cola Co/The	KO	4,307.96	62.83	271,100	0.87%	3.08%	0.03%	6.36%	0.06%
AbbVie Inc	ABBV	1,765.87	161.24	284,729	0.92%	3.85%	0.04%	8.34%	0.08%
Walt Disney Co/The	DIS	1,823.04	103.91	189,432		0.87%		20.89%	
Corpay Inc	CPAY	70.27	267.67	18,809				14.22%	
Extra Space Storage Inc	EXR	211.73	144.77	30,651	0.10%	4.48%	0.00%	1.86%	0.00%
Exxon Mobil Corp	XOM	4,485.93	117.26	526,020	1.69%	3.24%	0.05%	6.00%	0.10%
Phillips 66	PSX	423.95	142.11	60,248		3.24%			
General Electric Co	GE	1,094.61	165.14	180,763		0.68%		32.59%	
HP Inc	HPQ	978.56	36.50	35,717	0.11%	3.02%	0.00%	5.12%	0.01%
Home Depot Inc/The	HD	991.61	334.67	332,062	1.07%	2.69%	0.03%	3.43%	0.04%
Metric Power Systems Inc	MPWR	48.67	735.63	35,805	0.12%	0.68%	0.00%	18.00%	0.02%
International Business Machines Corp	IBM	918.60	166.85	153,269	0.49%	4.00%	0.02%	3.19%	0.02%
Johnson & Johnson	JNJ	2,406.68	146.67	352,988	1.14%	3.38%	0.04%	4.99%	0.06%
Lululemon Athletica Inc	LULU	120.89	311.99	37,717				9.86%	
McDonald's Corp	MCD	720.68	257.22	185,374	0.60%	2.60%	0.02%	7.51%	0.04%
Merck & Co Inc	MRK	2,532.81	125.54	317,968		2.45%		53.01%	
3M Co	MMM	553.36	100.14	55,414		2.80%		-7.15%	
American Water Works Co Inc	AWK	194.82	130.77	25,477	0.08%	2.34%	0.00%	7.70%	0.01%
Bank of America Corp	BAC	7,820.37	39.99	312,737		2.40%		-6.00%	
Pfizer Inc	PFE	5,666.59	28.66	162,405	0.52%	5.96%	0.03%	8.39%	0.04%
Procter & Gamble Co/The	PG	2,360.14	164.54	388,337	1.25%	2.45%	0.03%	8.09%	0.10%
AT&T Inc	T	7,170.17	18.22	130,640	0.42%	6.09%	0.03%	2.55%	0.01%
Travelers Cos Inc/The	TRV	228.99	215.70	49,394	0.16%	1.95%	0.00%	18.34%	0.03%
RTX Corp	RTX	1,329.51	107.81	143,334	0.46%	2.34%	0.01%	10.62%	0.05%
Analog Devices Inc	ADI	496.22	233.56	115,897		1.58%		-2.75%	
Walmart Inc	WMT	8,058.05	65.76	529,897	1.70%	1.26%	0.02%	8.23%	0.14%
Cisco Systems Inc	CSCO	4,049.19	46.50	188,287	0.61%	3.44%	0.02%	0.93%	0.01%
Intel Corp	INTC	4,256.87	30.85	131,325	0.42%	1.62%	0.01%	11.40%	0.05%
General Motors Co	GM	1,140.40	44.99	51,306	0.17%	1.07%	0.00%	16.07%	0.03%
Microsoft Corp	MSFT	7,432.31	415.13	3,085,373	9.92%	0.72%	0.07%	14.81%	1.47%
Dollar General Corp	DG	219.90	136.91	30,106		1.72%		-2.08%	
Cigna Group/The	CI	284.07	343.21	97,496	0.31%	1.63%	0.01%	11.65%	0.04%
Kinder Morgan Inc	KMI	2,219.38	19.49	43,256	0.14%	5.90%	0.01%	5.86%	0.01%
Citigroup Inc	C	1,907.44	62.31	118,853		3.40%		26.67%	
American International Group Inc	AIG	663.67	78.82	52,310	0.17%	2.03%	0.00%	11.85%	0.02%
Altria Group Inc	MO	1,717.63	46.25	79,440	0.26%	8.48%	0.02%	3.89%	0.01%
HCA Healthcare Inc	HCA	261.91	339.75	88,985	0.29%	0.78%	0.00%	9.57%	0.03%
International Paper Co	IP	347.33	45.09	15,661		4.10%		-2.00%	
Hewlett Packard Enterprise Co	HPE	1,300.00	17.65	22,945	0.07%	2.95%	0.00%	2.86%	0.00%
Abbott Laboratories	ABT	1,739.63	102.19	177,773	0.57%	2.15%	0.01%	8.00%	0.05%
Atlas Inc	AFL	588.22	69.87	61,066	0.16%	2.23%	0.00%	7.55%	0.01%
Air Products and Chemicals Inc	APD	222.31	266.70	59,289	0.19%	2.65%	0.01%	9.63%	0.02%
Super Micro Computer Inc	SMCI	58.56	784.51	45,939				53.18%	
Royal Caribbean Cruises Ltd	RCL	257.35	147.68	38,005				29.92%	
Hess Corp	HES	308.11	154.10	47,480	0.15%	1.14%	0.00%	18.00%	0.03%
Archer-Daniels-Midland Co	ADM	494.44	62.44	30,873		3.20%		-2.85%	
Automatic Data Processing Inc	ADP	409.29	244.92	100,244	0.32%	2.29%	0.01%	11.31%	0.04%
Verisk Analytics Inc	VRSK	142.68	252.78	36,065	0.12%	0.62%	0.00%	11.71%	0.01%
AutoZone Inc	AZO	17.30	2,769.94	47,928				14.66%	
Linde PLC	LIN	480.68	434.13	208,674	0.67%	1.28%	0.01%	11.82%	0.08%
Avery Dennison Corp	AUY	80.55	227.59	18,333	0.06%	1.55%	0.00%	11.67%	0.01%
Enphase Energy Inc	ENPH	136.06	127.90	17,402				18.17%	
MSCI Inc	MSCI	79.22	495.18	39,230	0.13%	1.29%	0.00%	11.58%	0.01%
Ball Corp	BALL	310.38	69.23	21,487	0.07%	1.16%	0.00%	11.78%	0.01%
Axon Enterprise Inc	AXON	75.47	281.67	21,257					
Dayforce Inc	DAY	155.56	49.46	7,694					
Carrier Global Corp	CARR	901.01	63.19	56,935	0.18%	1.20%	0.00%	7.87%	0.01%
Bank of New York Mellon Corp/The	BK	747.82	59.61	44,577	0.14%	2.82%	0.00%	10.01%	0.01%
Ots Worldwide Corp	OTIS	404.32	99.20	40,109	0.13%	1.57%	0.00%	9.00%	0.01%
Baxter International Inc	BAX	509.58	34.09	17,372	0.06%	3.40%	0.00%	9.78%	0.01%
Becton Dickinson & Co	BDX	280.01	231.07	67,941	0.22%	1.64%	0.00%	7.77%	0.02%
Berkshire Hathaway Inc	BRK/B	1,311.39	414.40	543,438					
Best Buy Co Inc	BBY	215.38	84.82	18,269	0.06%	4.43%	0.00%	0.05%	0.00%
Boston Scientific Corp	BSX	1,470.18	75.57	111,102				12.08%	
Bristol-Myers Squibb Co	BMY	2,027.10	41.09	83,294		5.84%		-4.12%	
Brown-Forman Corp	BF/B	303.42	45.86	13,915	0.04%	1.90%	0.00%	3.39%	0.00%
Colerra Energy Inc	CTRA	744.23	28.52	21,226		2.95%			
Campbell Soup Co	CPB	298.10	44.38	13,230	0.04%	3.33%	0.00%	4.87%	0.00%
Hilton Worldwide Holdings Inc	HLT	250.05	200.60	50,159	0.16%	0.30%	0.00%	15.52%	0.03%
Carnival Corp	CCL	1,122.32	15.08	16,925					
Qorvo Inc	QNO	95.63	98.39	9,469				20.04%	
Builders FirstSource Inc	BLDR	122.06	160.79	19,626				8.54%	
UDR Inc	UDR	329.31	38.62	12,718	0.04%	4.40%	0.00%	1.85%	0.00%
Clorex Co/The	CLX	124.19	131.56	16,338	0.05%	3.65%	0.00%	15.46%	0.01%
Paycom Software Inc	PAYC	58.11	145.32	8,445	0.03%	1.03%	0.00%	6.00%	0.00%
CMS Energy Corp	CMS	298.64	62.93	18,793	0.06%	3.27%	0.00%	7.42%	0.00%
Colgate-Palmolive Co	CL	820.44	92.96	76,288	0.25%	2.15%	0.01%	8.36%	0.02%
EPAM Systems Inc	EPAM	57.97	177.93	10,315				5.54%	
Comerica Inc	CMA	132.59	51.24	6,794	0.02%	5.54%	0.00%	9.79%	0.00%
Conagra Brands Inc	CAG	478.06	29.88	14,285	0.05%	4.69%	0.00%	1.82%	0.00%
Atrio Inc	ATNB	441.50	144.93	63,987				20.22%	
Consolidated Edison Inc	ED	344.92	94.55	32,613	0.10%	3.51%	0.00%	5.70%	0.01%

**Calculation of Market Return from Analysts' Long-Term Growth Estimates
 in Bulkley Direct Testimony**

Estimated Weighted Average Dividend Yield [1]	1.73%	1.73%	1.73%
	Won Proposed Weighting	Won Proposed Weighting	FERC Method No Weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	10.73%	10.73%	10.73%
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	3.90%	5.51%	n/a
Total [4]	9.36%	9.89%	10.73%
S&P 500 Estimated Required Market Return [5]	11.17%	11.50%	12.55%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	Shares Outstg	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Value Line Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.
Comring Inc	GLW	856.62	37.26	31,918	0.10%	3.01%	0.00%	12.03%	0.01%
Cummins Inc	CMI	136.78	281.73	38,535	0.12%	2.39%	0.00%	7.56%	0.01%
Caesars Entertainment Inc	CZR	216.42	35.56	7,696				-32.44%	
Danaher Corp	DHR	740.69	256.80	190,208	0.61%	0.42%	0.00%	3.84%	0.02%
Target Corp	TGT	462.64	156.16	72,245	0.23%	2.82%	0.01%	13.97%	0.03%
Deere & Co	DE	275.57	374.76	103,273		1.57%		-6.84%	
Dominion Energy Inc	D	837.59	53.92	45,163	0.15%	4.95%	0.01%	14.16%	0.02%
Dover Corp	DOV	137.43	193.82	25,262	0.08%	1.11%	0.00%	7.56%	0.01%
Alliant Energy Corp	LNT	256.38	51.49	13,201	0.04%	3.73%	0.00%	7.00%	0.00%
Steel Dynamics Inc	STLD	157.13	133.87	21,035		-1.37%		-3.32%	
Duke Energy Corp	DUK	771.00	103.57	79,852	0.26%	3.96%	0.01%	6.53%	0.02%
Regency Centers Corp	REG	184.58	61.40	11,333	0.04%	4.36%	0.00%	3.27%	0.00%
Eaton Corp PLC	ETN	399.89	332.85	133,104	0.43%	1.13%	0.00%	13.83%	0.06%
Ecolab Inc	ECL	285.57	232.20	66,309	0.21%	0.98%	0.00%	17.31%	0.04%
Revitly Inc	RVTY	123.39	109.26	13,482	0.04%	0.26%	0.00%	8.26%	0.00%
Emerson Electric Co	EMR	572.10	112.16	64,167	0.21%	1.87%	0.00%	15.07%	0.03%
EOG Resources Inc	EOG	574.71	124.55	71,580		2.92%			
Aon PLC	AON	217.43	281.64	61,237	0.20%	0.96%	0.00%	10.38%	0.02%
Enbridge Corp	ETR	213.27	112.49	23,991	0.08%	4.02%	0.00%	6.98%	0.01%
Equifax Inc	EFX	123.61	231.39	28,602	0.09%	0.67%	0.00%	15.31%	0.01%
EQT Corp	EQT	441.59	41.09	18,145		1.53%			
IQVIA Holdings Inc	IQV	182.20	219.09	39,918				10.44%	
Gartner Inc	IT	77.63	419.67	32,579				9.89%	
FedEx Corp	FDX	246.08	253.96	62,495	0.20%	1.98%	0.00%	17.71%	0.04%
FMC Corp	FMC	124.82	60.95	7,608	0.02%	3.81%	0.00%	18.88%	0.00%
Brown & Brown Inc	BRO	285.25	89.51	25,533	0.08%	0.58%	0.00%	9.77%	0.01%
Ford Motor Co	F	3,921.49	12.13	47,568	0.15%	4.95%	0.01%	1.67%	0.00%
NextEra Energy Inc	NEE	2,055.00	79.51	163,383	0.53%	2.59%	0.01%	8.10%	0.04%
Franklin Resources Inc	BEN	526.09	23.60	12,416		5.25%			
Garmin Ltd	GRMN	162.08	163.95	31,472	0.10%	1.83%	0.00%	8.04%	0.01%
Fresport-McMoRan Inc	FCX	1,436.49	52.73	75,746	0.24%	1.14%	0.00%	16.49%	0.04%
Dexcom Inc	DXCM	397.68	118.77	47,233				23.63%	
General Dynamics Corp	GD	274.36	299.77	82,246	0.26%	1.89%	0.01%	14.18%	0.04%
General Mills Inc	GIS	564.55	68.75	38,813		3.43%		0.00%	
Genuine Parts Co	GPC	139.30	144.14	20,079		2.78%			
Atmos Energy Corp	ATO	150.88	115.92	17,490	0.06%	2.78%	0.00%	7.00%	0.00%
WW Grainger Inc	GWV	49.07	921.46	45,215		0.89%			
Halliburton Co	HAL	985.30	36.70	32,491	0.10%	1.85%	0.00%	11.60%	0.01%
L3Harris Technologies Inc	LHX	189.68	223.68	42,427	0.14%	2.07%	0.00%	8.53%	0.01%
Healthpeak Properties Inc	DOC	703.78	19.90	14,005	0.05%	6.03%	0.00%	4.48%	0.00%
Inselet Corp	PODD	70.04	177.19	12,410				28.44%	
Catalent Inc	CTLT	180.98	53.79	9,735				28.24%	
Fortive Corp	FTV	352.03	74.44	26,205	0.08%	0.43%	0.00%	8.98%	0.01%
Hershey Co/The	HSY	147.62	197.83	29,203	0.09%	2.77%	0.00%	2.36%	0.00%
Synchrony Financial	SYF	401.54	43.80	17,588		2.28%			
Hormel Foods Corp	HLR	548.31	30.98	16,986	0.05%	3.65%	0.00%	6.59%	0.00%
Arthur J Gallagher & Co	AJG	218.50	253.33	55,353	0.18%	0.95%	0.00%	12.49%	0.02%
Mondelēz International Inc	MDLZ	1,341.36	68.53	91,923	0.30%	2.48%	0.01%	7.65%	0.02%
CenterPoint Energy Inc	CNP	639.72	35.51	19,518	0.06%	2.62%	0.00%	7.95%	0.00%
Humana Inc	HUM	120.50	358.12	43,154		0.99%		-1.30%	
Willis Towers Watson PLC	WTW	102.24	255.29	26,100	0.08%	1.38%	0.00%	12.41%	0.01%
Illinois Tool Works Inc	ITW	298.40	242.75	72,437	0.23%	2.31%	0.01%	7.26%	0.02%
CDW Corp/DE	CDW	134.40	223.62	30,054	0.10%	1.11%	0.00%	7.02%	0.01%
Trane Technologies PLC	TT	226.35	327.46	74,121	0.24%	1.03%	0.00%	13.47%	0.03%
Interpublic Group of Cos Inc/The	IPG	377.42	31.04	11,714	0.04%	4.25%	0.00%	3.91%	0.00%
International Flavors & Fragrances Inc	IFF	255.35	96.18	24,560	0.08%	1.66%	0.00%	0.23%	0.00%
Generac Holdings Inc	GNRC	60.61	147.21	8,923				7.00%	
NXP Semiconductors NV	NXPI	255.68	272.10	69,572	0.22%	1.49%	0.00%	6.92%	0.02%
Kellanova	K	341.88	59.78	20,438	0.07%	3.75%	0.00%	8.42%	0.01%
Broadridge Financial Solutions Inc	BR	118.18	200.77	23,727		1.59%			
Kimberly-Clark Corp	KMB	336.71	133.30	44,883	0.14%	3.66%	0.01%	7.72%	0.01%
Kimco Realty Corp	KIM	674.12	19.36	13,051	0.04%	4.96%	0.00%	3.25%	0.00%
Oracle Corp	ORCL	2,748.51	117.19	322,098	1.04%	1.37%	0.01%	11.24%	0.12%
Kroger Co/The	KR	721.69	52.37	37,795	0.12%	2.22%	0.00%	6.00%	0.01%
Lennar Corp	LEN	245.04	160.35	39,292	0.13%	1.25%	0.00%	8.82%	0.01%
Eli Lilly & Co	LLY	950.41	820.34	779,655		0.63%		40.01%	
Bath & Body Works Inc	BBWI	223.67	51.94	11,617	0.04%	1.54%	0.00%	13.65%	0.01%
Charter Communications Inc	CHTR	144.39	287.12	41,456				5.89%	
Loews Corp	L	221.41	76.80	17,004		0.33%			
Lowes Cos Inc	LOW	569.84	221.29	126,099	0.41%	2.08%	0.01%	1.52%	0.01%
Hubbell Inc	HUBB	53.69	388.89	20,878	0.07%	1.25%	0.00%	18.00%	0.01%
IDEX Corp	IEX	75.70	208.64	15,793		1.32%			
Marsh & McLennan Cos Inc	MMC	492.72	207.58	102,280	0.33%	1.37%	0.00%	8.12%	0.03%
Masco Corp	MAS	220.24	69.92	15,399	0.05%	1.60%	0.00%	8.64%	0.00%
S&P Global Inc	SPGI	320.26	427.51	136,913	0.44%	0.85%	0.00%	13.11%	0.06%
Medtronic PLC	MDT	1,327.82	81.37	108,045	0.35%	3.44%	0.01%	5.61%	0.02%
Viatri Inc	VTRS	1,190.68	10.60	12,621		4.53%		-2.57%	
CVS Health Corp	CVS	1,255.37	59.60	74,820	0.24%	4.46%	0.01%	4.01%	0.01%
DuPont de Nemours Inc	DD	418.10	82.16	34,351	0.11%	1.85%	0.00%	1.03%	0.00%
Micron Technology Inc	MU	1,107.37	125.00	138,421		0.37%		-4.00%	
Motorola Solutions Inc	MSI	166.79	364.91	60,862	0.20%	1.07%	0.00%	8.89%	0.02%
Cboe Global Markets Inc	CBOE	105.15	172.99	18,191	0.06%	1.27%	0.00%	14.28%	0.01%
Newmont Corp	NEM	1,153.16	41.69	48,075		2.40%			
NIKE Inc	NKE	1,211.46	94.68	114,701	0.37%	1.56%	0.01%	10.85%	0.04%
NISource Inc	NI	448.31	29.06	13,028	0.04%	3.65%	0.00%	7.00%	0.00%
Norfolk Southern Corp	NSC	225.91	224.80	50,785	0.16%	2.40%	0.00%	8.84%	0.01%
Principal Financial Group Inc	PFG	234.38	81.33	19,062	0.06%	3.49%	0.00%	12.40%	0.01%
Eversource Energy	ES	350.73	59.23	20,774	0.07%	4.83%	0.00%	4.83%	0.00%
Northrop Grumman Corp	NOC	147.99	450.77	66,709	0.21%	1.83%	0.00%	16.34%	0.04%
Wells Fargo & Co	WFC	3,486.32	59.92	208,900	0.67%	2.34%	0.02%	7.97%	0.05%
Nucor Corp	NUE	239.76	168.85	40,484		1.28%			
Occidental Petroleum Corp	OXY	886.64	62.50	55,415	0.18%	1.41%	0.00%	20.00%	0.04%

**Calculation of Market Return from Analysts' Long-Term Growth Estimates
 in Bulkeley Direct Testimony**

Estimated Weighted Average Dividend Yield [1]	1.73%	1.73%	1.73%
	Won Proposed	Won Proposed	FERC Method
	Weighting	Weighting	No Weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	10.73%	10.73%	10.73%
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	3.90%	5.51%	n/a
Total [4]	9.36%	9.69%	10.73%
S&P 500 Estimated Required Market Return [5]	11.17%	11.50%	12.55%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	Shares Outstg	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Value Line Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.
Omnicom Group Inc	OMC	195.83	92.96	18,205	0.06%	3.01%	0.00%	7.48%	0.00%
ONEOK Inc	OKE	583.65	81.00	47,275	0.15%	4.89%	0.01%	2.55%	0.00%
Raymond James Financial Inc	RJF	207.28	122.75	25,443	0.08%	1.47%	0.00%	15.38%	0.01%
PG&E Corp	PCG	2,133.51	18.54	39,555	0.13%	0.22%	0.00%	10.10%	0.01%
Parker-Hannifin Corp	PH	128.54	531.52	68,322	0.22%	1.23%	0.00%	13.84%	0.03%
Rollins Inc	ROL	484.23	45.69	22,124	0.07%	1.31%	0.00%	13.04%	0.01%
PPL Corp	PPL	737.12	29.33	21,620	0.07%	3.51%	0.00%	7.34%	0.01%
ConocoPhillips	CP	1,169.53	116.48	136,227	0.44%	2.68%	0.01%	9.00%	0.04%
PulteGroup Inc	PHM	210.34	117.32	24,677	0.08%	0.68%	0.00%	7.65%	0.01%
Pinnacle West Capital Corp	PNW	113.56	78.86	8,955	0.03%	4.46%	0.00%	7.61%	0.00%
PNC Financial Services Group Inc/The	PNC	397.91	157.39	62,627	0.10%	3.94%	0.00%	31.00%	0.01%
PPG Industries Inc	PPG	235.36	131.41	30,929	0.10%	1.98%	0.00%	8.03%	0.01%
Progressive Corp/The	PGR	585.70	211.18	123,888	0.19%	0.37%	0.00%	32.49%	0.01%
Verato Corp	VLTO	246.85	98.58	24,334	0.07%	0.37%	0.00%	0.00%	0.01%
Public Service Enterprise Group Inc	PEG	498.59	75.76	37,773	0.12%	3.17%	0.00%	5.99%	0.01%
Robert Half Inc	RHI	104.93	64.23	6,740	0.02%	3.30%	0.00%	4.20%	0.00%
Cooper Cos Inc/The	COO	199.12	94.31	18,779	0.07%	0.00%	0.00%	10.00%	0.01%
Edison International	EIX	383.93	76.85	29,505	0.09%	4.06%	0.00%	7.80%	0.01%
Schlumberger NV	SLB	1,429.34	45.89	65,992	0.21%	2.40%	0.01%	14.81%	0.03%
Charles Schwab Corp/The	SCHW	1,777.28	73.28	130,239	0.42%	1.36%	0.01%	14.20%	0.06%
Sherwin-Williams Co/The	SHW	253.55	303.80	77,028	0.25%	0.94%	0.00%	9.56%	0.02%
West Pharmaceutical Services Inc	WST	72.84	331.41	24,141	0.08%	0.24%	0.00%	7.72%	0.01%
J M Smucker Co/The	SJM	106.18	111.64	11,853	0.04%	3.80%	0.00%	7.04%	0.00%
Snap-on Inc	SNA	52.72	272.86	14,385	0.05%	2.73%	0.00%	3.83%	0.00%
AMETEK Inc	AME	231.47	169.58	39,253	0.13%	0.66%	0.00%	7.43%	0.01%
Uber Technologies Inc	UBER	2,089.52	64.56	134,899	0.44%	0.00%	0.00%	61.05%	0.01%
Southern Co/The	SO	1,094.63	80.14	87,724	0.28%	3.59%	0.01%	7.10%	0.02%
Truist Financial Corp	TFC	1,338.10	37.75	50,513	0.16%	5.51%	0.01%	10.51%	0.02%
Southwest Airlines Co	LUV	598.46	26.84	16,063	0.06%	2.68%	0.00%	21.33%	0.01%
W R Berkley Corp	WRB	255.66	81.03	20,716	0.07%	0.54%	0.00%	13.64%	0.01%
Stanley Black & Decker Inc	SWK	153.88	86.36	13,289	0.04%	3.75%	0.00%	7.00%	0.00%
Public Storage	PSA	175.83	273.83	48,147	0.15%	4.38%	0.01%	3.24%	0.01%
Arista Networks Inc	ANET	313.36	297.65	93,272	0.12%	0.00%	0.00%	12.42%	0.01%
Sysco Corp	SY	497.98	72.82	36,263	0.12%	2.80%	0.00%	13.00%	0.02%
Corteva Inc	CTVA	687.80	55.78	38,365	0.12%	1.15%	0.00%	11.33%	0.01%
Texas Instruments Inc	TXN	910.48	195.01	177,553	0.27%	2.67%	0.00%	-1.14%	0.01%
Textron Inc	TXT	190.70	87.61	16,707	0.05%	0.09%	0.00%	10.05%	0.01%
Thermo Fisher Scientific Inc	TMO	381.72	567.98	216,807	0.70%	0.27%	0.00%	7.40%	0.05%
TJX Cos Inc/The	TJX	1,130.15	103.10	116,518	0.37%	1.45%	0.01%	8.13%	0.03%
Globe Life Inc	GL	92.27	82.76	7,636	0.02%	1.16%	0.00%	7.00%	0.00%
Johnson Controls International plc	JCI	673.68	71.91	48,444	0.16%	2.06%	0.00%	9.45%	0.01%
Ulta Beauty Inc	ULTA	47.72	395.09	18,852	0.07%	0.00%	0.00%	6.34%	0.01%
Union Pacific Corp	UNP	610.12	232.82	142,049	0.46%	2.23%	0.01%	12.88%	0.06%
Keysight Technologies Inc	KEYS	174.54	138.48	24,170	0.08%	0.00%	0.00%	-1.09%	0.01%
UnitedHealth Group Inc	UNH	920.39	495.37	455,931	1.47%	1.52%	0.02%	10.38%	0.15%
Blackstone Inc	BX	714.65	120.50	86,115	0.27%	2.76%	0.00%	23.93%	0.01%
Marathon Oil Corp	MRO	564.04	28.96	16,334	0.05%	1.52%	0.00%	0.00%	0.01%
Bio-Rad Laboratories Inc	BIO	23.45	286.86	6,726	0.07%	3.58%	0.00%	6.19%	0.00%
Ventris Inc	VTR	404.77	50.26	20,344	0.07%	0.05%	0.00%	1.23%	0.00%
Labcorp Holdings Inc	LH	84.29	194.91	16,430	0.05%	1.48%	0.00%	12.33%	0.00%
Vulcan Materials Co	VMC	132.25	255.77	33,826	0.11%	0.72%	0.00%	15.71%	0.02%
Weyerhaeuser Co	WY	729.62	30.03	21,910	0.07%	2.66%	0.00%	-0.33%	0.01%
Williams Cos Inc/The	WMB	1,218.75	41.51	50,590	0.16%	4.58%	0.01%	3.94%	0.01%
Constellation Energy Corp	CEG	315.12	217.25	68,460	0.22%	0.65%	0.00%	11.80%	0.03%
WEC Energy Group Inc	WEC	315.82	81.03	25,591	0.08%	4.12%	0.00%	6.85%	0.01%
Adobe Inc	ADBE	448.00	444.76	199,252	0.63%	0.00%	0.00%	16.73%	0.01%
Vistra Corp	VST	347.46	99.08	34,426	0.11%	0.88%	0.00%	0.00%	0.01%
AES Corp/The	AES	710.67	21.59	15,343	0.05%	3.20%	0.00%	0.00%	0.01%
Expeditors International of Washington Inc	EXPD	141.25	120.17	16,974	0.05%	1.21%	0.00%	3.78%	0.00%
Amgen Inc	AMGN	536.44	305.85	164,069	0.53%	2.94%	0.02%	6.22%	0.03%
Apple Inc	AAPL	15,334.08	192.25	2,947,977	9.48%	0.52%	0.05%	12.73%	1.21%
Autodesk Inc	ADSK	213.92	201.60	43,125	0.14%	0.00%	0.00%	12.76%	0.01%
Cintas Corp	CTAS	101.46	677.97	68,789	0.22%	0.80%	0.00%	12.04%	0.03%
Comcast Corp	CMCSA	3,914.18	40.03	156,885	0.50%	3.10%	0.02%	8.33%	0.04%
Molson Coors Beverage Co	TAP	197.55	54.81	10,828	0.03%	3.21%	0.00%	4.65%	0.00%
KLA Corp	KLAC	134.64	759.53	102,263	0.33%	0.76%	0.00%	8.99%	0.03%
Mariott International Inc/MD	MAR	285.62	231.17	66,027	0.21%	1.09%	0.00%	5.56%	0.01%
Fiserv Inc	FI	585.10	149.76	87,625	0.29%	0.00%	0.00%	15.47%	0.01%
McCormick & Co Inc/MD	MCK	251.75	72.22	19,181	0.06%	2.33%	0.00%	5.96%	0.00%
PACCAR Inc	PCAR	524.15	107.50	56,346	0.12%	1.12%	0.00%	-2.16%	0.01%
Costco Wholesale Corp	COST	443.50	809.89	359,189	1.16%	0.57%	0.01%	9.64%	0.11%
Stryker Corp	SYK	380.95	341.09	129,938	0.42%	0.94%	0.00%	8.39%	0.04%
Tyson Foods Inc	TSN	286.02	57.25	16,374	0.08%	3.42%	0.00%	53.92%	0.01%
Lamb Weston Holdings Inc	LW	144.39	88.29	12,748	0.04%	1.63%	0.00%	11.56%	0.00%
Applied Materials Inc	AMAT	827.98	215.08	178,081	0.57%	0.74%	0.00%	15.06%	0.09%
American Airlines Group Inc	AAL	653.54	11.50	7,516	0.02%	0.00%	0.00%	-4.75%	0.00%
Cardinal Health Inc	CAH	243.57	99.27	24,179	0.08%	2.04%	0.00%	13.47%	0.01%
Cincinnati Financial Corp	CNF	156.56	117.58	18,408	0.06%	2.76%	0.00%	7.35%	0.00%
Paramount Global	PARA	625.78	11.91	7,453	0.06%	1.68%	0.00%	48.12%	0.00%
DR Horton Inc	DHI	329.31	147.80	48,672	0.16%	0.81%	0.00%	4.37%	0.01%
Electronic Arts Inc	EA	266.38	132.88	35,396	0.11%	0.57%	0.00%	12.24%	0.01%
Fair Isaac Corp	FICO	24.71	1,289.93	31,875	0.08%	0.00%	0.00%	0.00%	0.01%
Fastenal Co	FAST	572.43	65.98	37,769	0.09%	2.36%	0.00%	0.00%	0.01%
M&T Bank Corp	MTB	166.85	150.25	25,070	0.08%	3.59%	0.00%	5.82%	0.00%
Xcel Energy Inc	XEL	555.64	55.45	30,810	0.10%	3.95%	0.00%	6.70%	0.01%
Fifth Third Bancorp	FITB	684.05	37.42	25,597	0.07%	3.74%	0.00%	25.00%	0.01%
Gilead Sciences Inc	GILD	1,245.85	64.27	80,071	0.26%	4.79%	0.01%	14.38%	0.04%
Hasbro Inc	HAS	139.22	59.78	8,322	0.03%	4.68%	0.00%	17.10%	0.00%
Huntington Bancshares Inc/OH	HBAN	1,449.25	13.92	20,174	0.06%	4.45%	0.00%	4.46%	0.00%
Welltower Inc	WELL	597.92	103.67	61,966	0.20%	2.35%	0.00%	14.68%	0.03%
Biogen Inc	BIB	145.60	224.94	32,751	0.08%	0.00%	0.00%	5.36%	0.01%
Northern Trust Corp	NTRS	204.59	84.24	17,235	0.06%	3.56%	0.00%	10.80%	0.01%

Calculation of Market Return from Analysts' Long-Term Growth Estimates
in Bulkeley Direct Testimony

Estimated Weighted Average Dividend Yield [1]	1.73%	1.73%	1.73%
	Won Proposed Weighting	Won Proposed Weighting	FERC Method No Weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	10.73%	10.73%	10.73%
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	3.90%	5.51%	n/a
Total [4]	9.36%	9.69%	10.73%
S&P 500 Estimated Required Market Return [5]	11.17%	11.50%	12.55%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	Shares Out/g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Value Line Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.
Packaging Corp of America	PKG	89.80	183.49	16,477	0.05%	2.72%	0.00%	2.83%	0.00%
Paychex Inc	PAYX	359.96	120.16	43,253	0.14%	3.26%	0.00%	6.17%	0.01%
QUALCOMM Inc	QCOM	1,116.00	204.05	227,270	0.73%	1.67%	0.01%	11.88%	0.09%
Ross Stores Inc	ROST	335.17	139.76	46,844		1.05%		188.00%	
IDEXX Laboratories Inc	IDXX	82.69	496.95	41,042				11.11%	
Starbucks Corp	SBUX	1,132.20	80.22	90,825	0.29%	2.84%	0.01%	12.42%	0.04%
KeyCorp	KEY	942.86	14.37	13,549	0.04%	5.71%	0.00%	19.11%	0.01%
Fox Corp	FOXA	231.15	34.43	7,958	0.03%	1.51%	0.00%	6.61%	0.00%
Fox Corp	FOX	235.58	31.94	7,524	0.02%	1.63%	0.00%	6.61%	0.00%
State Street Corp	STT	301.26	75.59	22,772	0.07%	3.65%	0.00%	8.07%	0.01%
Norwegian Cruise Line Holdings Ltd	NCLH	429.04	16.60	7,122				51.83%	
US Bancorp	USB	1,560.46	40.55	63,277	0.20%	4.83%	0.01%	2.71%	0.01%
A O Smith Corp	AOS	120.78	83.64	10,102		1.53%			
Gen Digital Inc	GEN	626.15	24.83	15,547	0.05%	2.01%	0.00%	10.16%	0.01%
T Rowe Price Group Inc	TROW	223.30	117.83	26,311	0.08%	4.21%	0.00%	5.88%	0.00%
Waste Management Inc	WM	401.08	210.73	84,520	0.27%	1.42%	0.00%	11.11%	0.03%
Constellation Brands Inc	STZ	182.95	250.23	45,780	0.15%	1.61%	0.00%	11.21%	0.02%
Invesco Ltd	IVZ	449.83	15.71	7,067	0.02%	5.22%	0.00%	8.71%	0.00%
Intuit Inc	INTU	279.55	576.44	161,142	0.52%	0.62%	0.00%	15.15%	0.08%
Morgan Stanley	MS	1,625.16	97.84	159,006	0.51%	3.48%	0.02%	9.49%	0.05%
Microchip Technology Inc	MCHP	536.89	97.23	52,201	1.86%			-9.39%	
Chubb Ltd	CB	406.06	270.82	109,969	0.35%	1.34%	0.00%	2.45%	0.01%
Hologic Inc	HOLX	233.38	73.78	17,219				7.36%	
Citizens Financial Group Inc	CFG	455.02	35.29	16,058		4.76%			
Jabil Inc	JBL	120.60	118.90	14,339	0.05%	0.27%	0.00%	10.30%	0.00%
O'Reilly Automotive Inc	ORLY	58.89	963.26	56,730				11.00%	
Allstate Corp/The	ALL	263.92	167.52	44,211		2.20%		175.32%	
Equity Residential	EDR	378.94	65.03	24,642	0.08%	4.15%	0.00%	3.98%	0.00%
BorgWarner Inc	BWA	227.84	35.55	8,100	0.03%	1.24%	0.00%	4.17%	0.00%
Keurig Dr Pepper Inc	KDP	1,355.57	34.25	46,428	0.15%	2.51%	0.00%	7.12%	0.01%
Host Hotels & Resorts Inc	HST	703.60	17.94	12,623		4.46%		-0.49%	
Incyte Corp	INCY	224.86	57.79	12,994				19.22%	
Simon Property Group Inc	SPG	325.77	151.31	49,292	0.16%	5.29%	0.01%	1.31%	0.00%
Eastman Chemical Co	EMN	117.65	101.33	11,921	0.04%	3.20%	0.00%	6.19%	0.00%
AvalonBay Communities Inc	AVB	142.19	192.68	27,396	0.09%	3.53%	0.00%	7.71%	0.01%
Prudential Financial Inc	PRU	359.00	120.35	43,206	0.14%	4.32%	0.01%	9.96%	0.01%
United Parcel Service Inc	UPS	729.40	138.93	101,335	0.33%	4.69%	0.02%	8.77%	0.03%
Walgreens Boots Alliance Inc	WBA	862.71	16.22	13,993		6.17%		-4.38%	
STERIS PLC	STE	98.90	222.88	22,913		0.93%			
McKesson Corp	MCK	129.99	568.97	73,958	0.24%	0.44%	0.00%	11.67%	0.03%
Lockheed Martin Corp	LMT	239.94	467.19	112,097	0.36%	2.70%	0.01%	2.21%	0.01%
Cencora Inc	COR	196.93	226.57	44,618	0.14%	0.90%	0.00%	10.82%	0.02%
Capital One Financial Corp	COF	381.92	137.63	52,564	0.17%	1.74%	0.00%	12.55%	0.02%
Waters Corp	WAT	59.32	308.90	18,324				5.12%	
Nordson Corp	NDSN	57.27	234.72	13,442		1.16%			
Dollar Tree Inc	DLTR	217.98	117.95	25,711				14.10%	
Darden Restaurants Inc	DRI	119.36	150.39	17,950	0.06%	3.48%	0.00%	10.89%	0.01%
Energy Inc	EVRG	229.75	54.66	12,558	0.04%	4.70%	0.00%	5.00%	0.00%
Match Group Inc	MATCH	255.67	30.63	8,137				35.69%	
Dominos Pizza Inc	DPZ	34.88	508.58	17,739	0.06%	1.19%	0.00%	14.43%	0.01%
NVR Inc	NVR	3.13	7,880.73	24,056				4.87%	
NetApp Inc	NTAP	206.38	120.43	24,854		1.73%			
Old Dominion Freight Line Inc	ODFL	217.29	175.25	38,079	0.12%	0.59%	0.00%	13.12%	0.02%
DaVita Inc	DVA	87.70	147.12	12,902				15.98%	
Hartford Financial Services Group Inc/The	HIG	295.76	102.98	30,457	0.10%	1.83%	0.00%	12.22%	0.01%
Iron Mountain Inc	IRM	293.13	80.69	23,653	0.08%	3.22%	0.00%	4.00%	0.00%
Estee Lauder Cos Inc/The	EL	233.02	123.36	28,746	0.09%	2.14%	0.00%	16.13%	0.01%
Cadence Design Systems Inc	CDNS	272.13	286.31	77,915				15.67%	
Tyler Technologies Inc	TYL	42.46	480.36	20,384					
Universal Health Services Inc	UHS	59.68	189.60	11,315	0.04%	0.42%	0.00%	17.84%	0.01%
Skyworks Solutions Inc	SKWS	160.45	92.66	14,867		2.94%		-1.59%	
Quest Diagnostics Inc	DGX	111.09	141.97	15,772		2.11%		-0.82%	
Rockwell Automation Inc	ROK	114.00	257.53	29,359	0.09%	1.94%	0.00%	5.23%	0.00%
Kraft Heinz Co/The	KHC	1,214.30	35.37	42,950	0.14%	4.52%	0.01%	3.77%	0.01%
American Tower Corp	AMT	466.98	195.74	91,406	0.29%	3.31%	0.01%	11.49%	0.03%
Regeneron Pharmaceuticals Inc	REGN	108.37	980.16	106,217				6.96%	
Amazon.com Inc	AMZN	10,406.63	176.44	1,836,145				28.96%	
Jack Henry & Associates Inc	JKHY	72.90	164.68	12,005	0.04%	1.34%	0.00%	7.46%	0.00%
Ralph Lauren Corp	RL	40.63	186.58	7,593	0.02%	1.77%	0.00%	11.05%	0.00%
Boston Properties Inc	BXP	157.05	60.67	9,528	0.03%	6.46%	0.00%	0.21%	0.00%
Amphenol Corp	APH	600.60	132.37	79,502	0.26%	0.33%	0.00%	13.49%	0.03%
Howmet Aerospace Inc	HWM	408.18	84.65	34,553	0.11%	0.24%	0.00%	19.82%	0.02%
Valero Energy Corp	VLO	327.00	157.14	51,384		2.72%		-24.00%	
Synopsys Inc	SNPS	153.22	560.80	85,924				16.59%	
Etsy Inc	ETSY	116.93	63.47	7,422				7.51%	
CH Robinson Worldwide Inc	CHRW	117.10	86.37	10,113	0.03%	2.83%	0.00%	11.80%	0.00%
Accenture PLC	ACN	670.42	282.29	189,253	0.61%	1.83%	0.01%	6.68%	0.04%
TransDigm Group Inc	TG	55.96	1,343.23	75,164				18.82%	
Yum! Brands Inc	YUM	281.63	137.43	38,705	0.12%	1.95%	0.00%	10.66%	0.01%
Prologis Inc	PLD	825.64	110.49	102,297	0.33%	3.48%	0.01%	7.57%	0.02%
FirstEnergy Corp	FE	575.52	40.26	23,170	0.07%	4.22%	0.00%	6.65%	0.00%
VeriSign Inc	VERI	100.14	174.32	17,456					
Quanta Services Inc	PWR	146.39	275.94	40,394	0.13%	0.13%	0.00%	12.00%	0.02%
Henry Schein Inc	HSIC	128.05	69.34	8,879				7.53%	
Ameren Corp	AEE	266.51	73.37	19,554	0.06%	3.65%	0.00%	6.00%	0.00%
ANSYS Inc	ANSS	87.30	317.45	27,713				6.37%	
FactSet Research Systems Inc	FDS	38.12	404.26	15,409	0.05%	1.03%	0.00%	9.42%	0.00%
NVIDIA Corp	NVDA	2,460.00	1,096.33	2,696,972		0.00%		35.80%	
Cognizant Technology Solutions Corp	CTSH	497.20	66.15	32,890	0.11%	1.81%	0.00%	5.15%	0.01%
Intuitive Surgical Inc	ISRG	354.71	402.12	142,634				16.21%	
Take-Two Interactive Software Inc	TTWO	171.39	160.36	27,483					
Republic Services Inc	RSG	314.98	185.19	58,330	0.19%	1.16%	0.00%	10.52%	0.02%

**Calculation of Market Return from Analysts' Long-Term Growth Estimates
in Bulkley Direct Testimony**

Estimated Weighted Average Dividend Yield [1]	1.73%	1.73%	1.73%
	Won Proposed Weighting	Won Proposed Weighting	FERC Method No Weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	10.73%	10.73%	10.73%
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	3.90%	5.51%	n/a
Total [4]	9.36%	9.89%	10.73%
S&P 500 Estimated Required Market Return [5]	11.17%	11.50%	12.55%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	Shares Out/g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Value Line Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.
eBay Inc	EBAY	506.00	54.22	27,435	0.09%	1.99%	0.00%	7.83%	0.01%
Goldman Sachs Group Inc/The	GS	322.46	456.52	147,211	0.47%	2.41%	0.01%	14.02%	0.07%
SBA Communications Corp	SBAC	107.44	196.68	21,132	1.99%	1.99%	0.01%	23.41%	0.03%
Sempra	SRE	632.85	77.03	48,748	0.16%	3.22%	0.01%	3.85%	0.01%
Moody's Corp	MCO	182.60	396.99	72,490	0.23%	0.86%	0.00%	11.79%	0.03%
ON Semiconductor Corp	ON	430.23	73.04	31,424				2.64%	
Booking Holdings Inc	BKNG	33.93	3,776.35	128,124	0.41%	0.93%	0.00%	15.03%	0.06%
FS Inc	FFIV	58.61	168.97	9,904				7.81%	
Akamai Technologies Inc	AKAM	152.32	92.24	14,050				1.54%	
Charles River Laboratories International Inc	CRL	51.51	208.44	10,737				9.81%	
MarketAxess Holdings Inc	MKTX	37.90	198.93	7,539	0.02%	1.49%	0.00%	3.07%	0.00%
Devon Energy Corp	DVN	632.00	49.08	31,019				2.85%	
Bio-Techne Corp	TECH	157.59	77.19	12,164				0.41%	
Alphabet Inc	GOOGL	5,874.00	172.50	1,013,265	3.26%	0.46%	0.02%	15.01%	0.49%
Teleflex Inc	TFX	47.10	209.07	9,848	0.03%	0.65%	0.00%	7.51%	0.00%
Netflix Inc	NFLX	430.97	641.62	276,516				35.61%	
Allegion plc	ALLE	87.44	121.82	10,652	0.03%	1.58%	0.00%	7.25%	0.00%
Agilent Technologies Inc	A	293.06	130.41	38,217	0.12%	0.72%	0.00%	5.23%	0.01%
Warner Bros Discovery Inc	WB	2,450.31	8.24	20,191				34.78%	
Elevance Health Inc	ELV	232.42	538.48	125,152	0.40%	1.21%	0.00%	12.02%	0.05%
Trimble Inc	TRMB	244.21	55.68	13,598				10.00%	
CME Group Inc	CME	360.06	202.98	73,085	0.24%	2.27%	0.01%	4.90%	0.01%
Juniper Networks Inc	JNPR	324.99	35.45	11,521	0.04%	2.48%	0.00%	4.78%	0.00%
BlackRock Inc	BLK	148.60	772.03	114,724	0.37%	2.64%	0.01%	11.89%	0.04%
DTE Energy Co	DTE	206.93	116.53	24,113	0.08%	3.50%	0.00%	8.70%	0.01%
Nasdaq Inc	NDAQ	576.53	59.03	34,033	0.11%	1.63%	0.00%	5.72%	0.01%
Celanese Corp	CE	109.22	152.04	16,606				22.38%	
Philip Morris International Inc	PM	1,554.56	101.38	157,801	0.51%	5.13%	0.03%	8.23%	0.04%
Salesforce Inc	CRM	989.00	234.44	227,172	0.73%	0.68%	0.00%	17.34%	0.13%
Ingersoll Rand Inc	IR	403.43	93.05	37,539	0.12%	0.09%	0.00%	16.00%	0.02%
Huntington Ingalls Industries Inc	HII	39.43	253.10	9,980	0.03%	2.05%	0.00%	7.78%	0.00%
Roper Technologies Inc	ROP	107.05	532.76	57,029				0.56%	
MelLife Inc	MET	711.12	72.37	51,464	0.17%	3.01%	0.00%	13.85%	0.02%
Tapestry Inc	TPR	229.77	43.49	9,993	0.03%	3.22%	0.00%	9.91%	0.00%
CSX Corp	CSX	1,954.93	33.75	65,979	0.21%	1.42%	0.00%	10.76%	0.02%
Edwards Lifesciences Corp	EW	601.30	86.89	52,247				10.03%	
Ameriprise Financial Inc	AMP	99.33	436.61	43,366				1.36%	
Zebra Technologies Corp	ZBRA	51.42	312.34	16,060				7.00%	0.01%
Zimmer Biomet Holdings Inc	ZBH	205.73	115.15	23,690	0.08%	0.83%	0.00%	7.00%	0.01%
CBRE Group Inc	CBRE	306.82	88.07	27,022				16.00%	
Camden Property Trust	CPT	106.54	102.65	10,936	0.04%	4.01%	0.00%	1.59%	0.00%
Mastercard Inc	MA	922.47	447.07	412,409	1.33%	0.59%	0.01%	15.54%	0.21%
CarMax Inc	KMX	157.33	70.26	11,054				18.69%	
Intercontinental Exchange Inc	ICE	573.59	133.90	76,803	0.25%	1.34%	0.00%	8.96%	0.02%
Fidelity National Information Services Inc	FIS	556.25	75.88	42,208				21.47%	
Chipotle Mexican Grill Inc	CMG	27.47	3,129.52	85,959				22.95%	
Wynn Resorts Ltd	WYNN	112.07	94.88	10,633				-4.07%	
Live Nation Entertainment Inc	LIV	231.44	93.74	21,695				6.19%	0.00%
Assurant Inc	AIZ	51.99	173.47	9,018	0.03%	1.66%	0.00%	6.19%	0.00%
NRG Energy Inc	NRG	208.48	81.00	16,687	0.05%	2.01%	0.00%	3.00%	0.00%
Regions Financial Corp	RF	915.83	19.11	17,501	0.06%	5.02%	0.00%	4.18%	0.00%
Monster Beverage Corp	MNST	1,041.73	51.92	54,087				12.72%	
Mosaic Co/The	MOS	321.39	30.93	9,941				-18.32%	
Baker Hughes Co	BKR	998.00	33.48	33,413				27.93%	
Expedia Group Inc	EXPE	127.22	112.86	14,359				22.40%	
CF Industries Holdings Inc	CF	182.78	79.73	14,573				-4.63%	
Lidos Holdings Inc	LDOS	135.21	147.05	19,883	0.06%	1.03%	0.00%	10.53%	0.01%
APA Corp	APA	371.19	30.53	11,332				3.28%	
Alphabet Inc	GOOG	5,817.00	173.36	977,133	3.14%	0.46%	0.01%	15.01%	0.47%
First Solar Inc	FSLR	107.04	271.76	29,089				29.00%	
TE Connectivity Ltd	TEL	306.23	149.70	45,842	0.15%	1.74%	0.00%	5.04%	0.01%
Discover Financial Services	DFS	250.60	122.66	30,738				61.19%	
Visa Inc	V	1,574.15	272.46	428,893	1.38%	0.76%	0.01%	13.05%	0.18%
Mid-America Apartment Communities Inc	MAA	116.69	133.71	15,602	0.05%	4.40%	0.00%	0.83%	0.00%
Xylem Inc/NY	XYL	242.45	141.02	34,190				1.02%	
Marathon Petroleum Corp	MPC	352.33	176.61	62,225				1.87%	
Advanced Micro Devices Inc	AMD	1,616.31	166.90	269,763				31.82%	
Tractor Supply Co	TSCO	107.81	285.29	30,757	0.10%	1.54%	0.00%	5.15%	0.01%
ResMed Inc	RESM	146.91	206.33	30,311	0.10%	0.93%	0.00%	13.45%	0.01%
Mettler-Toledo International Inc	METD	21.36	1,404.09	29,987				9.29%	
Jacobs Solutions Inc	J	125.21	139.34	17,447	0.06%	0.83%	0.00%	10.76%	0.01%
Copart Inc	CPRT	962.30	53.06	51,060				11.00%	
VICI Properties Inc	VICI	1,043.14	28.71	29,948	0.10%	5.78%	0.01%	5.44%	0.01%
Fortinet Inc	FTNT	763.94	59.32	45,317				9.59%	
Albemarle Corp	ALB	117.53	122.59	14,408				-12.70%	
Moderna Inc	MRNA	383.24	142.55	54,631				17.59%	
Essex Property Trust Inc	ESS	64.21	259.79	16,880	0.05%	3.77%	0.00%	4.64%	0.00%
CoStar Group Inc	CSGP	408.34	78.17	31,920				15.09%	
Realty Income Corp	O	870.77	52.80	45,975	0.15%	5.97%	0.01%	5.24%	0.01%
Westrock Co	WRK	258.15	53.64	13,847	0.04%	2.26%	0.00%	7.48%	0.00%
Westinghouse Air Brake Technologies Corp	WAB	176.39	169.23	29,850	0.10%	0.47%	0.00%	15.49%	0.01%
Pool Corp	POOL	38.33	363.55	13,935	0.04%	1.32%	0.00%	4.73%	0.00%
Western Digital Corp	WDC	326.53	75.29	24,584				-10.00%	
PepsiCo Inc	PEP	1,374.79	172.90	237,700	0.76%	3.13%	0.02%	7.91%	0.06%
Diamondback Energy Inc	FANG	178.34	199.26	35,537				3.95%	
Palo Alto Networks Inc	PANW	323.80	294.91	95,492				11.00%	
ServiceNow Inc	NOW	205.00	656.93	134,671				25.00%	
Church & Dwight Co Inc	CHD	244.52	107.01	26,166	0.08%	1.06%	0.00%	11.04%	0.01%
Federal Realty Investment Trust	FRT	82.78	100.95	9,356	0.03%	4.32%	0.00%	4.11%	0.00%
MGM Resorts International	MGM	313.68	40.17	12,601				15.86%	
American Electric Power Co Inc	AEP	526.59	90.25	47,525	0.15%	3.90%	0.01%	6.10%	0.01%
Invitation Homes Inc	INVH	612.54	34.79	21,310	0.07%	3.22%	0.00%	5.86%	0.00%

**Calculation of Market Return from Analysts' Long-Term Growth Estimates
 in Bulkley Direct Testimony**

Estimated Weighted Average Dividend Yield [1]	1.73%	1.73%	1.73%
	Won Proposed Weighting	Won Proposed Weighting	FERC Method No Weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	10.73%	10.73%	10.73%
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	3.90%	5.51%	n/a
Total [4]	9.36%	9.69%	n/a
S&P 500 Estimated Required Market Return [5]	11.17%	11.50%	12.55%

STANDARD AND POOR'S 500 INDEX

	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
Name	Shares Outstg	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Value Line Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.
PTC Inc	119.74	176.24	21,104				14.94%	
JB Hunt Transport Services Inc	103.20	160.75	16,589	0.05%	1.07%	0.00%	13.58%	0.01%
Lam Research Corp	130.74	932.44	121,903	0.39%	0.86%	0.00%	8.61%	0.03%
Mohawk Industries Inc	63.86	121.93	7,787				2.74%	
Pentair PLC	166.03	81.38	13,511	0.04%	1.13%	0.00%	13.13%	0.01%
GE HealthCare Technologies Inc	456.47	78.00	35,604	0.11%	0.15%	0.00%	11.26%	0.01%
Vertex Pharmaceuticals Inc	258.05	455.34	117,502				12.79%	
Amcor PLC	1,445.34	10.17	14,699	0.05%	4.92%	0.00%	2.63%	0.00%
Meta Platforms Inc	2,191.45	466.83	1,023,033	3.22%	0.43%	0.01%	18.58%	0.81%
T-Mobile US Inc	1,171.85	174.96	205,028	0.66%	1.49%	0.01%	5.00%	0.03%
United Rentals Inc	66.59	669.41	44,576	0.14%	0.97%	0.00%	5.27%	0.01%
Honeywell International Inc	651.19	202.19	131,663	0.42%	2.14%	0.01%	8.50%	0.04%
Alexandria Real Estate Equities Inc	174.88	119.00	20,811	0.07%	4.27%	0.00%	4.21%	0.00%
Delta Air Lines Inc	645.31	51.02	32,924	0.11%	0.78%	0.00%	12.00%	0.01%
Seagate Technology Holdings PLC	209.99	93.24	19,579		3.00%			
United Airlines Holdings Inc	328.80	52.99	17,423				12.79%	
News Corp	190.68	27.88	5,316		0.72%			
Centene Corp	534.91	71.59	38,294				5.16%	
Martin Marietta Materials Inc	61.64	571.34	35,217	0.11%	0.52%	0.00%	9.71%	0.01%
Teradyne Inc	156.11	140.94	22,002	0.07%	0.34%	0.00%	17.47%	0.01%
PayPal Holdings Inc	1,046.05	62.99	65,890				8.69%	
Tesla Inc	3,189.20	178.08	567,932					
Arch Capital Group Ltd	375.49	102.63	38,537				3.53%	
Dow Inc	703.27	57.63	40,529	0.13%	4.80%	0.01%	2.46%	0.00%
Everest Group Ltd	43.46	390.93	16,989	0.05%	2.05%	0.00%	1.85%	0.00%
Teledyne Technologies Inc	47.42	396.95	18,824				7.34%	
GE Vernova Inc	274.09	175.90	48,212				63.97%	
News Corp	379.21	27.19	10,311		0.74%			
Exelon Corp	999.74	37.55	37,540	0.12%	4.05%	0.00%	5.27%	0.01%
Global Payments Inc	255.25	101.85	25,997	0.08%	0.98%	0.00%	11.80%	0.01%
Crown Castle Inc	434.52	102.50	44,539		6.11%		-8.74%	
Aptiv PLC	272.06	83.26	22,652				24.81%	
Align Technology Inc	75.28	257.21	19,363				11.74%	
illumina Inc	159.30	104.28	16,612				40.05%	
Kenvue Inc	1,914.81	19.30	36,956	0.12%	4.15%	0.00%	15.93%	0.02%
Targa Resources Corp	221.72	118.23	26,214		2.54%		21.12%	
Bunge Global SA	141.60	107.59	15,234		2.53%		-8.30%	
Deckers Outdoor Corp	25.44	1,093.92	27,832				8.39%	
LKQ Corp	266.78	43.03	11,479		2.79%			
Zoetis Inc	456.50	169.56	77,369	0.25%	1.02%	0.00%	10.36%	0.03%
Digital Realty Trust Inc	324.50	145.34	47,163		3.36%		-15.66%	
Equinix Inc	94.91	762.98	72,411	0.23%	2.23%	0.01%	10.10%	0.02%
Las Vegas Sands Corp	745.05	45.03	33,549		1.78%			
Molina Healthcare Inc	59.00	314.58	18,560				11.72%	

Notes:
 [1] Equals sum of Col. [9]
 [2] Equals sum of Col. [11]
 [3] Dr. Wan's proposed GDP growth rate / GDP growth based on Morningstar methodology / No GDP growth rate per FERC approach
 [4] Equals (2) x 80% + (3) x 20%
 [5] Equals ((1) x (1 + (0.5 x [4]))) + [4]
 [6] Bloomberg Professional as of May 31, 2024
 [7] Bloomberg Professional as of May 31, 2024
 [8] Equals [6] x [7]
 [9] Equals weight in S&P 500 based on market capitalization [6] if growth rate >0% and <20% and dividend yield > 0
 [10] Bloomberg Professional, as of May 31, 2024
 [11] Equals [10] x [9]
 [12] Value Line, as of May 31, 2024
 [13] Equals [9] x [12]

Summary of CAPM Results Based on Correction of Dr. Won's Adjustment to My Forward-Looking Market Return

Assumed Market Return of: 11.17% (Schedule SR1, Attachment 1)

Assumes:

- Correction to Dr. Won's adjustment to my market return
- Dr. Won's as-filed two-step DCF approach to calculating the market return
- Dr. Won's as-filed GDP growth rate for second step of two-step DCF approach

	30-Year Treasury Bond Yield		
	Current 30-Day Avg	Near-Term Projected	Longer-Term Projected
CAPM:			
Current Value Line Beta	10.79%	10.78%	10.77%
Current Bloomberg Beta	9.86%	9.81%	9.79%
Long-term Avg. Value Line Beta	9.65%	9.59%	9.56%
Average Cost of Equity		10.07%	
ECAPM:			
Current Value Line Beta	10.89%	10.87%	10.87%
Current Bloomberg Beta	10.19%	10.15%	10.13%
Long-term Avg. Value Line Beta	10.03%	9.98%	9.97%
Average Cost of Equity		10.34%	

Summary of CAPM Results Based on Correction of Dr. Won's Adjustment to My Forward-Looking Market Return

Assumed Market Return of: 11.50% (Schedule SR1, Attachment 1)

Assumes:

- Correction to Dr. Won's adjustment to my market return
- Dr. Won's as-filed two-step DCF approach to calculating the market return
- GDP growth rate per *Morningstar* approach for second step of two-step DCF approach

	30-Year Treasury Bond Yield		
	Current 30-Day Avg	Near-Term Projected	Longer-Term Projected
CAPM:			
Current Value Line Beta	11.10%	11.08%	11.07%
Current Bloomberg Beta	10.12%	10.07%	10.05%
Long-term Avg. Value Line Beta	9.90%	9.84%	9.81%
Average Cost of Equity		10.34%	
ECAPM:			
Current Value Line Beta	11.20%	11.19%	11.18%
Current Bloomberg Beta	10.46%	10.43%	10.41%
Long-term Avg. Value Line Beta	10.30%	10.25%	10.23%
Average Cost of Equity		10.63%	

Summary of CAPM Results Based on Correction of Dr. Won's Adjustment to My Forward-Looking Market Return

Assumed Market Return of: 12.55% (Schedule SR1, Attachment 1)

Assumes:

- Correction to Dr. Won's adjustment to my market return
- Constant growth DCF approach to calculating market return consistent with FERC approach

	30-Year Treasury Bond Yield		
	Current 30-Day Avg	Near-Term Projected	Longer-Term Projected
CAPM:			
Current Value Line Beta	12.09%	12.07%	12.07%
Current Bloomberg Beta	10.96%	10.91%	10.89%
Long-term Avg. Value Line Beta	10.70%	10.64%	10.62%
Average Cost of Equity		11.22%	
ECAPM:			
Current Value Line Beta	12.20%	12.19%	12.19%
Current Bloomberg Beta	11.36%	11.32%	11.30%
Long-term Avg. Value Line Beta	11.16%	11.12%	11.10%
Average Cost of Equity		11.55%	

**CAPITAL ASSET PRICING MODEL
CURRENT RISK FREE RATE AND 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	4.66%	0.90	11.17%	6.52%	10.52%	10.68%
American Electric Power Company, Inc.	AEP	4.66%	0.80	11.17%	6.52%	9.87%	10.20%
Avista Corporation	AVA	4.66%	0.95	11.17%	6.52%	10.85%	10.93%
CMS Energy Corporation	CMS	4.66%	0.85	11.17%	6.52%	10.20%	10.44%
DTE Energy Company	DTE	4.66%	1.00	11.17%	6.52%	11.17%	11.17%
Duke Energy Corporation	DUK	4.66%	0.90	11.17%	6.52%	10.52%	10.68%
Entergy Corporation	ETR	4.66%	0.95	11.17%	6.52%	10.85%	10.93%
Evergy, Inc.	EVRG	4.66%	0.95	11.17%	6.52%	10.85%	10.93%
IDACORP, Inc.	IDA	4.66%	0.85	11.17%	6.52%	10.20%	10.44%
NextEra Energy, Inc.	NEE	4.66%	1.05	11.17%	6.52%	11.50%	11.42%
NorthWestern Corporation	NWE	4.66%	0.95	11.17%	6.52%	10.85%	10.93%
OGE Energy Corporation	OGE	4.66%	1.05	11.17%	6.52%	11.50%	11.42%
Pinnacle West Capital Corporation	PNW	4.66%	0.95	11.17%	6.52%	10.85%	10.93%
Portland General Electric Company	POR	4.66%	0.90	11.17%	6.52%	10.52%	10.68%
PPL Corporation	PPL	4.66%	1.15	11.17%	6.52%	12.15%	11.91%
Southern Company	SO	4.66%	0.95	11.17%	6.52%	10.85%	10.93%
Xcel Energy Inc.	XEL	4.66%	0.85	11.17%	6.52%	10.20%	10.44%
Mean						10.79%	10.89%
Median						10.85%	10.93%

Notes:

- [1] Bloomberg Professional, as of May 31, 2024.
- [2] Value Line
- [3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies)
- [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

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q3 2024 - Q3 2025)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.40%	0.90	11.17%	6.77%	10.50%	10.67%
American Electric Power Company, Inc.	AEP	4.40%	0.80	11.17%	6.77%	9.82%	10.16%
Avista Corporation	AVA	4.40%	0.95	11.17%	6.77%	10.83%	10.92%
CMS Energy Corporation	CMS	4.40%	0.85	11.17%	6.77%	10.16%	10.41%
DTE Energy Company	DTE	4.40%	1.00	11.17%	6.77%	11.17%	11.17%
Duke Energy Corporation	DUK	4.40%	0.90	11.17%	6.77%	10.50%	10.67%
Entergy Corporation	ETR	4.40%	0.95	11.17%	6.77%	10.83%	10.92%
Evergy, Inc.	EVRG	4.40%	0.95	11.17%	6.77%	10.83%	10.92%
IDACORP, Inc.	IDA	4.40%	0.85	11.17%	6.77%	10.16%	10.41%
NextEra Energy, Inc.	NEE	4.40%	1.05	11.17%	6.77%	11.51%	11.43%
NorthWestern Corporation	NWE	4.40%	0.95	11.17%	6.77%	10.83%	10.92%
OGE Energy Corporation	OGE	4.40%	1.05	11.17%	6.77%	11.51%	11.43%
Pinnacle West Capital Corporation	PNW	4.40%	0.95	11.17%	6.77%	10.83%	10.92%
Portland General Electric Company	POR	4.40%	0.90	11.17%	6.77%	10.50%	10.67%
PPL Corporation	PPL	4.40%	1.15	11.17%	6.77%	12.19%	11.94%
Southern Company	SO	4.40%	0.95	11.17%	6.77%	10.83%	10.92%
Xcel Energy Inc.	XEL	4.40%	0.85	11.17%	6.77%	10.16%	10.41%
Mean						10.78%	10.87%
Median						10.83%	10.92%

Notes:

- [1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 2
- [2] Value Line
- [3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies)
- [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

	[1]	[2]	[3]	[4]	[5]	[6]	
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2023 - 2027)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.30%	0.90	11.17%	6.87%	10.49%	10.66%
American Electric Power Company, Inc.	AEP	4.30%	0.80	11.17%	6.87%	9.80%	10.14%
Avista Corporation	AVA	4.30%	0.95	11.17%	6.87%	10.83%	10.92%
CMS Energy Corporation	CMS	4.30%	0.85	11.17%	6.87%	10.14%	10.40%
DTE Energy Company	DTE	4.30%	1.00	11.17%	6.87%	11.17%	11.17%
Duke Energy Corporation	DUK	4.30%	0.90	11.17%	6.87%	10.49%	10.66%
Entergy Corporation	ETR	4.30%	0.95	11.17%	6.87%	10.83%	10.92%
Evergy, Inc.	EVRG	4.30%	0.95	11.17%	6.87%	10.83%	10.92%
IDACORP, Inc.	IDA	4.30%	0.85	11.17%	6.87%	10.14%	10.40%
NextEra Energy, Inc.	NEE	4.30%	1.05	11.17%	6.87%	11.52%	11.43%
NorthWestern Corporation	NWE	4.30%	0.95	11.17%	6.87%	10.83%	10.92%
OGE Energy Corporation	OGE	4.30%	1.05	11.17%	6.87%	11.52%	11.43%
Pinnacle West Capital Corporation	PNW	4.30%	0.95	11.17%	6.87%	10.83%	10.92%
Portland General Electric Company	POR	4.30%	0.90	11.17%	6.87%	10.49%	10.66%
PPL Corporation	PPL	4.30%	1.15	11.17%	6.87%	12.20%	11.95%
Southern Company	SO	4.30%	0.95	11.17%	6.87%	10.83%	10.92%
Xcel Energy Inc.	XEL	4.30%	0.85	11.17%	6.87%	10.14%	10.40%
Mean						10.77%	10.87%
Median						10.83%	10.92%

Notes:

- [1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 14
- [2] Value Line
- [3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies)
- [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 BLOOMBERG 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	4.66%	0.78	11.17%	6.52%	9.75%	10.10%
American Electric Power Company, Inc.	AEP	4.66%	0.75	11.17%	6.52%	9.58%	9.97%
Avista Corporation	AVA	4.66%	0.76	11.17%	6.52%	9.58%	9.98%
CMS Energy Corporation	CMS	4.66%	0.74	11.17%	6.52%	9.49%	9.91%
DTE Energy Company	DTE	4.66%	0.81	11.17%	6.52%	9.96%	10.26%
Duke Energy Corporation	DUK	4.66%	0.71	11.17%	6.52%	9.31%	9.77%
Entergy Corporation	ETR	4.66%	0.85	11.17%	6.52%	10.22%	10.46%
Evergy, Inc.	EVRG	4.66%	0.77	11.17%	6.52%	9.70%	10.07%
IDACORP, Inc.	IDA	4.66%	0.79	11.17%	6.52%	9.79%	10.13%
NextEra Energy, Inc.	NEE	4.66%	0.81	11.17%	6.52%	9.94%	10.25%
NorthWestern Corporation	NWE	4.66%	0.86	11.17%	6.52%	10.26%	10.49%
OGE Energy Corporation	OGE	4.66%	0.91	11.17%	6.52%	10.58%	10.73%
Pinnacle West Capital Corporation	PNW	4.66%	0.81	11.17%	6.52%	9.94%	10.25%
Portland General Electric Company	POR	4.66%	0.78	11.17%	6.52%	9.73%	10.09%
PPL Corporation	PPL	4.66%	0.93	11.17%	6.52%	10.73%	10.84%
Southern Company	SO	4.66%	0.77	11.17%	6.52%	9.69%	10.06%
Xcel Energy Inc.	XEL	4.66%	0.72	11.17%	6.52%	9.38%	9.83%
Mean						9.86%	10.19%
Median						9.75%	10.10%

Notes:

- [1] Bloomberg Professional, as of May 31, 2024.
- [2] Bloomberg Professional, based on 10-year weekly returns, as of May 31, 2024
- [3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies)
- [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 BLOOMBERG BETA**

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q3 2024 - Q3 2025)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.40%	0.78	11.17%	6.77%	9.69%	10.06%
American Electric Power Company, Inc.	AEP	4.40%	0.75	11.17%	6.77%	9.51%	9.93%
Avista Corporation	AVA	4.40%	0.76	11.17%	6.77%	9.51%	9.93%
CMS Energy Corporation	CMS	4.40%	0.74	11.17%	6.77%	9.43%	9.86%
DTE Energy Company	DTE	4.40%	0.81	11.17%	6.77%	9.91%	10.22%
Duke Energy Corporation	DUK	4.40%	0.71	11.17%	6.77%	9.23%	9.72%
Entergy Corporation	ETR	4.40%	0.85	11.17%	6.77%	10.18%	10.43%
Evergy, Inc.	EVRG	4.40%	0.77	11.17%	6.77%	9.64%	10.03%
IDACORP, Inc.	IDA	4.40%	0.79	11.17%	6.77%	9.73%	10.09%
NextEra Energy, Inc.	NEE	4.40%	0.81	11.17%	6.77%	9.90%	10.21%
NorthWestern Corporation	NWE	4.40%	0.86	11.17%	6.77%	10.23%	10.46%
OGE Energy Corporation	OGE	4.40%	0.91	11.17%	6.77%	10.56%	10.71%
Pinnacle West Capital Corporation	PNW	4.40%	0.81	11.17%	6.77%	9.90%	10.22%
Portland General Electric Company	POR	4.40%	0.78	11.17%	6.77%	9.67%	10.05%
PPL Corporation	PPL	4.40%	0.93	11.17%	6.77%	10.71%	10.83%
Southern Company	SO	4.40%	0.77	11.17%	6.77%	9.63%	10.02%
Xcel Energy Inc.	XEL	4.40%	0.72	11.17%	6.77%	9.31%	9.78%
Mean						9.81%	10.15%
Median						9.69%	10.06%

Notes:

- [1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 2
- [2] Bloomberg Professional, based on 10-year weekly returns, as of May 31, 2024
- [3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies)
- [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 BLOOMBERG BETA

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2023 - 2027)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.30%	0.78	11.17%	6.87%	9.67%	10.05%
American Electric Power Company, Inc.	AEP	4.30%	0.75	11.17%	6.87%	9.49%	9.91%
Avista Corporation	AVA	4.30%	0.76	11.17%	6.87%	9.49%	9.91%
CMS Energy Corporation	CMS	4.30%	0.74	11.17%	6.87%	9.40%	9.84%
DTE Energy Company	DTE	4.30%	0.81	11.17%	6.87%	9.89%	10.21%
Duke Energy Corporation	DUK	4.30%	0.71	11.17%	6.87%	9.20%	9.70%
Entergy Corporation	ETR	4.30%	0.85	11.17%	6.87%	10.16%	10.42%
Evergy, Inc.	EVRG	4.30%	0.77	11.17%	6.87%	9.62%	10.01%
IDACORP, Inc.	IDA	4.30%	0.79	11.17%	6.87%	9.71%	10.08%
NextEra Energy, Inc.	NEE	4.30%	0.81	11.17%	6.87%	9.88%	10.20%
NorthWestern Corporation	NWE	4.30%	0.86	11.17%	6.87%	10.21%	10.45%
OGE Energy Corporation	OGE	4.30%	0.91	11.17%	6.87%	10.55%	10.71%
Pinnacle West Capital Corporation	PNW	4.30%	0.81	11.17%	6.87%	9.88%	10.20%
Portland General Electric Company	POR	4.30%	0.78	11.17%	6.87%	9.65%	10.03%
PPL Corporation	PPL	4.30%	0.93	11.17%	6.87%	10.70%	10.82%
Southern Company	SO	4.30%	0.77	11.17%	6.87%	9.61%	10.00%
Xcel Energy Inc.	XEL	4.30%	0.72	11.17%	6.87%	9.28%	9.76%
Mean						9.79%	10.13%
Median						9.67%	10.05%

Notes:

- [1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 14
- [2] Bloomberg Professional, based on 10-year weekly returns, as of May 31, 2024
- [3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies)
- [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	4.66%	0.76	11.17%	6.52%	9.63%	10.02%
American Electric Power Company, Inc.	AEP	4.66%	0.69	11.17%	6.52%	9.13%	9.64%
Avista Corporation	AVA	4.66%	0.80	11.17%	6.52%	9.84%	10.17%
CMS Energy Corporation	CMS	4.66%	0.70	11.17%	6.52%	9.25%	9.73%
DTE Energy Company	DTE	4.66%	0.77	11.17%	6.52%	9.69%	10.06%
Duke Energy Corporation	DUK	4.66%	0.69	11.17%	6.52%	9.13%	9.64%
Entergy Corporation	ETR	4.66%	0.76	11.17%	6.52%	9.63%	10.02%
Evergy, Inc.	EVRG	4.66%	0.94	11.17%	6.52%	10.77%	10.87%
IDACORP, Inc.	IDA	4.66%	0.74	11.17%	6.52%	9.49%	9.91%
NextEra Energy, Inc.	NEE	4.66%	0.75	11.17%	6.52%	9.57%	9.97%
NorthWestern Corporation	NWE	4.66%	0.76	11.17%	6.52%	9.63%	10.02%
OGE Energy Corporation	OGE	4.66%	0.94	11.17%	6.52%	10.79%	10.88%
Pinnacle West Capital Corporation	PNW	4.66%	0.75	11.17%	6.52%	9.57%	9.97%
Portland General Electric Company	POR	4.66%	0.76	11.17%	6.52%	9.63%	10.02%
PPL Corporation	PPL	4.66%	0.84	11.17%	6.52%	10.11%	10.37%
Southern Company	SO	4.66%	0.68	11.17%	6.52%	9.10%	9.62%
Xcel Energy Inc.	XEL	4.66%	0.67	11.17%	6.52%	9.04%	9.57%
Mean						9.65%	10.03%
Median						9.63%	10.02%

Notes:

- [1] Bloomberg Professional, as of May 31, 2024.
- [2] Schedule AEB-D2, Attachment 5
- [3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies)
- [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

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q3 2024 - Q3 2025)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.40%	0.76	11.17%	6.77%	9.57%	9.97%
American Electric Power Company, Inc.	AEP	4.40%	0.69	11.17%	6.77%	9.05%	9.58%
Avista Corporation	AVA	4.40%	0.80	11.17%	6.77%	9.79%	10.13%
CMS Energy Corporation	CMS	4.40%	0.70	11.17%	6.77%	9.17%	9.67%
DTE Energy Company	DTE	4.40%	0.77	11.17%	6.77%	9.63%	10.02%
Duke Energy Corporation	DUK	4.40%	0.69	11.17%	6.77%	9.05%	9.58%
Entergy Corporation	ETR	4.40%	0.76	11.17%	6.77%	9.57%	9.97%
Evergy, Inc.	EVRG	4.40%	0.94	11.17%	6.77%	10.75%	10.86%
IDACORP, Inc.	IDA	4.40%	0.74	11.17%	6.77%	9.42%	9.86%
NextEra Energy, Inc.	NEE	4.40%	0.75	11.17%	6.77%	9.51%	9.93%
NorthWestern Corporation	NWE	4.40%	0.76	11.17%	6.77%	9.57%	9.97%
OGE Energy Corporation	OGE	4.40%	0.94	11.17%	6.77%	10.77%	10.87%
Pinnacle West Capital Corporation	PNW	4.40%	0.75	11.17%	6.77%	9.51%	9.93%
Portland General Electric Company	POR	4.40%	0.76	11.17%	6.77%	9.57%	9.97%
PPL Corporation	PPL	4.40%	0.84	11.17%	6.77%	10.07%	10.34%
Southern Company	SO	4.40%	0.68	11.17%	6.77%	9.02%	9.56%
Xcel Energy Inc.	XEL	4.40%	0.67	11.17%	6.77%	8.96%	9.51%
Mean						9.59%	9.98%
Median						9.57%	9.97%

Notes:

- [1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 2
- [2] Schedule AEB-D2, Attachment 5
- [3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies)
- [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 (2023 - 2027)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.30%	0.76	11.17%	6.87%	9.55%	9.96%
American Electric Power Company, Inc.	AEP	4.30%	0.69	11.17%	6.87%	9.02%	9.56%
Avista Corporation	AVA	4.30%	0.80	11.17%	6.87%	9.77%	10.12%
CMS Energy Corporation	CMS	4.30%	0.70	11.17%	6.87%	9.14%	9.65%
DTE Energy Company	DTE	4.30%	0.77	11.17%	6.87%	9.61%	10.00%
Duke Energy Corporation	DUK	4.30%	0.69	11.17%	6.87%	9.02%	9.56%
Entergy Corporation	ETR	4.30%	0.76	11.17%	6.87%	9.55%	9.96%
Evergy, Inc.	EVRG	4.30%	0.94	11.17%	6.87%	10.74%	10.85%
IDACORP, Inc.	IDA	4.30%	0.74	11.17%	6.87%	9.39%	9.84%
NextEra Energy, Inc.	NEE	4.30%	0.75	11.17%	6.87%	9.49%	9.91%
NorthWestern Corporation	NWE	4.30%	0.76	11.17%	6.87%	9.55%	9.96%
OGE Energy Corporation	OGE	4.30%	0.94	11.17%	6.87%	10.77%	10.87%
Pinnacle West Capital Corporation	PNW	4.30%	0.75	11.17%	6.87%	9.49%	9.91%
Portland General Electric Company	POR	4.30%	0.76	11.17%	6.87%	9.55%	9.96%
PPL Corporation	PPL	4.30%	0.84	11.17%	6.87%	10.05%	10.33%
Southern Company	SO	4.30%	0.68	11.17%	6.87%	8.99%	9.53%
Xcel Energy Inc.	XEL	4.30%	0.67	11.17%	6.87%	8.92%	9.49%
Mean						9.56%	9.97%
Median						9.55%	9.96%

Notes:

- [1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 14
- [2] Schedule AEB-D2, Attachment 5
- [3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies)
- [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 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	4.66%	0.90	11.50%	6.84%	10.81%	10.99%
American Electric Power Company, Inc.	AEP	4.66%	0.80	11.50%	6.84%	10.13%	10.47%
Avista Corporation	AVA	4.66%	0.95	11.50%	6.84%	11.16%	11.24%
CMS Energy Corporation	CMS	4.66%	0.85	11.50%	6.84%	10.47%	10.73%
DTE Energy Company	DTE	4.66%	1.00	11.50%	6.84%	11.50%	11.50%
Duke Energy Corporation	DUK	4.66%	0.90	11.50%	6.84%	10.81%	10.99%
Entergy Corporation	ETR	4.66%	0.95	11.50%	6.84%	11.16%	11.24%
Evergy, Inc.	EVRG	4.66%	0.95	11.50%	6.84%	11.16%	11.24%
IDACORP, Inc.	IDA	4.66%	0.85	11.50%	6.84%	10.47%	10.73%
NextEra Energy, Inc.	NEE	4.66%	1.05	11.50%	6.84%	11.84%	11.75%
NorthWestern Corporation	NWE	4.66%	0.95	11.50%	6.84%	11.16%	11.24%
OGE Energy Corporation	OGE	4.66%	1.05	11.50%	6.84%	11.84%	11.75%
Pinnacle West Capital Corporation	PNW	4.66%	0.95	11.50%	6.84%	11.16%	11.24%
Portland General Electric Company	POR	4.66%	0.90	11.50%	6.84%	10.81%	10.99%
PPL Corporation	PPL	4.66%	1.15	11.50%	6.84%	12.52%	12.27%
Southern Company	SO	4.66%	0.95	11.50%	6.84%	11.16%	11.24%
Xcel Energy Inc.	XEL	4.66%	0.85	11.50%	6.84%	10.47%	10.73%
Mean						11.10%	11.20%
Median						11.16%	11.24%

Notes:

[1] Bloomberg Professional, as of May 31, 2024.

[2] Value Line

[3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP)

[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

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q3 2024 - Q3 2025)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.40%	0.90	11.50%	7.10%	10.79%	10.97%
American Electric Power Company, Inc.	AEP	4.40%	0.80	11.50%	7.10%	10.08%	10.43%
Avista Corporation	AVA	4.40%	0.95	11.50%	7.10%	11.14%	11.23%
CMS Energy Corporation	CMS	4.40%	0.85	11.50%	7.10%	10.43%	10.70%
DTE Energy Company	DTE	4.40%	1.00	11.50%	7.10%	11.50%	11.50%
Duke Energy Corporation	DUK	4.40%	0.90	11.50%	7.10%	10.79%	10.97%
Entergy Corporation	ETR	4.40%	0.95	11.50%	7.10%	11.14%	11.23%
Evergy, Inc.	EVRG	4.40%	0.95	11.50%	7.10%	11.14%	11.23%
IDACORP, Inc.	IDA	4.40%	0.85	11.50%	7.10%	10.43%	10.70%
NextEra Energy, Inc.	NEE	4.40%	1.05	11.50%	7.10%	11.85%	11.76%
NorthWestern Corporation	NWE	4.40%	0.95	11.50%	7.10%	11.14%	11.23%
OGE Energy Corporation	OGE	4.40%	1.05	11.50%	7.10%	11.85%	11.76%
Pinnacle West Capital Corporation	PNW	4.40%	0.95	11.50%	7.10%	11.14%	11.23%
Portland General Electric Company	POR	4.40%	0.90	11.50%	7.10%	10.79%	10.97%
PPL Corporation	PPL	4.40%	1.15	11.50%	7.10%	12.56%	12.30%
Southern Company	SO	4.40%	0.95	11.50%	7.10%	11.14%	11.23%
Xcel Energy Inc.	XEL	4.40%	0.85	11.50%	7.10%	10.43%	10.70%
Mean						11.08%	11.19%
Median						11.14%	11.23%

Notes:

[1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 2

[2] Value Line

[3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP)

[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

	[1]	[2]	[3]	[4]	[5]	[6]	
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2023 - 2027)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.30%	0.90	11.50%	7.20%	10.78%	10.96%
American Electric Power Company, Inc.	AEP	4.30%	0.80	11.50%	7.20%	10.06%	10.42%
Avista Corporation	AVA	4.30%	0.95	11.50%	7.20%	11.14%	11.23%
CMS Energy Corporation	CMS	4.30%	0.85	11.50%	7.20%	10.42%	10.69%
DTE Energy Company	DTE	4.30%	1.00	11.50%	7.20%	11.50%	11.50%
Duke Energy Corporation	DUK	4.30%	0.90	11.50%	7.20%	10.78%	10.96%
Entergy Corporation	ETR	4.30%	0.95	11.50%	7.20%	11.14%	11.23%
Evergy, Inc.	EVRG	4.30%	0.95	11.50%	7.20%	11.14%	11.23%
IDACORP, Inc.	IDA	4.30%	0.85	11.50%	7.20%	10.42%	10.69%
NextEra Energy, Inc.	NEE	4.30%	1.05	11.50%	7.20%	11.86%	11.77%
NorthWestern Corporation	NWE	4.30%	0.95	11.50%	7.20%	11.14%	11.23%
OGE Energy Corporation	OGE	4.30%	1.05	11.50%	7.20%	11.86%	11.77%
Pinnacle West Capital Corporation	PNW	4.30%	0.95	11.50%	7.20%	11.14%	11.23%
Portland General Electric Company	POR	4.30%	0.90	11.50%	7.20%	10.78%	10.96%
PPL Corporation	PPL	4.30%	1.15	11.50%	7.20%	12.58%	12.31%
Southern Company	SO	4.30%	0.95	11.50%	7.20%	11.14%	11.23%
Xcel Energy Inc.	XEL	4.30%	0.85	11.50%	7.20%	10.42%	10.69%
Mean						11.07%	11.18%
Median						11.14%	11.23%

Notes:

- [1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 14
- [2] Value Line
- [3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP)
- [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 BLOOMBERG 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	4.66%	0.78	11.50%	6.84%	10.00%	10.38%
American Electric Power Company, Inc.	AEP	4.66%	0.75	11.50%	6.84%	9.82%	10.24%
Avista Corporation	AVA	4.66%	0.76	11.50%	6.84%	9.82%	10.24%
CMS Energy Corporation	CMS	4.66%	0.74	11.50%	6.84%	9.74%	10.18%
DTE Energy Company	DTE	4.66%	0.81	11.50%	6.84%	10.22%	10.54%
Duke Energy Corporation	DUK	4.66%	0.71	11.50%	6.84%	9.54%	10.03%
Entergy Corporation	ETR	4.66%	0.85	11.50%	6.84%	10.49%	10.74%
Evergy, Inc.	EVRG	4.66%	0.77	11.50%	6.84%	9.95%	10.34%
IDACORP, Inc.	IDA	4.66%	0.79	11.50%	6.84%	10.04%	10.41%
NextEra Energy, Inc.	NEE	4.66%	0.81	11.50%	6.84%	10.21%	10.53%
NorthWestern Corporation	NWE	4.66%	0.86	11.50%	6.84%	10.54%	10.78%
OGE Energy Corporation	OGE	4.66%	0.91	11.50%	6.84%	10.88%	11.03%
Pinnacle West Capital Corporation	PNW	4.66%	0.81	11.50%	6.84%	10.21%	10.53%
Portland General Electric Company	POR	4.66%	0.78	11.50%	6.84%	9.98%	10.36%
PPL Corporation	PPL	4.66%	0.93	11.50%	6.84%	11.03%	11.15%
Southern Company	SO	4.66%	0.77	11.50%	6.84%	9.94%	10.33%
Xcel Energy Inc.	XEL	4.66%	0.72	11.50%	6.84%	9.62%	10.09%
Mean						10.12%	10.46%
Median						10.00%	10.38%

Notes:

[1] Bloomberg Professional, as of May 31, 2024.

[2] Bloomberg Professional, based on 10-year weekly returns, as of May 31, 2024

[3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP)

[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 BLOOMBERG BETA

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q3 2024 - Q3 2025)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.40%	0.78	11.50%	7.10%	9.95%	10.33%
American Electric Power Company, Inc.	AEP	4.40%	0.75	11.50%	7.10%	9.76%	10.19%
Avista Corporation	AVA	4.40%	0.76	11.50%	7.10%	9.76%	10.19%
CMS Energy Corporation	CMS	4.40%	0.74	11.50%	7.10%	9.67%	10.13%
DTE Energy Company	DTE	4.40%	0.81	11.50%	7.10%	10.17%	10.50%
Duke Energy Corporation	DUK	4.40%	0.71	11.50%	7.10%	9.47%	9.97%
Entergy Corporation	ETR	4.40%	0.85	11.50%	7.10%	10.46%	10.72%
Evergy, Inc.	EVRG	4.40%	0.77	11.50%	7.10%	9.90%	10.30%
IDACORP, Inc.	IDA	4.40%	0.79	11.50%	7.10%	9.99%	10.36%
NextEra Energy, Inc.	NEE	4.40%	0.81	11.50%	7.10%	10.16%	10.49%
NorthWestern Corporation	NWE	4.40%	0.86	11.50%	7.10%	10.51%	10.75%
OGE Energy Corporation	OGE	4.40%	0.91	11.50%	7.10%	10.86%	11.02%
Pinnacle West Capital Corporation	PNW	4.40%	0.81	11.50%	7.10%	10.16%	10.49%
Portland General Electric Company	POR	4.40%	0.78	11.50%	7.10%	9.93%	10.32%
PPL Corporation	PPL	4.40%	0.93	11.50%	7.10%	11.01%	11.13%
Southern Company	SO	4.40%	0.77	11.50%	7.10%	9.88%	10.29%
Xcel Energy Inc.	XEL	4.40%	0.72	11.50%	7.10%	9.55%	10.03%
Mean						10.07%	10.43%
Median						9.95%	10.33%

Notes:

- [1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 2
- [2] Bloomberg Professional, based on 10-year weekly returns, as of May 31, 2024
- [3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP)
- [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 BLOOMBERG BETA

	[1]	[2]	[3]	[4]	[5]	[6]	
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2023 - 2027)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.30%	0.78	11.50%	7.20%	9.92%	10.32%
American Electric Power Company, Inc.	AEP	4.30%	0.75	11.50%	7.20%	9.73%	10.17%
Avista Corporation	AVA	4.30%	0.76	11.50%	7.20%	9.74%	10.18%
CMS Energy Corporation	CMS	4.30%	0.74	11.50%	7.20%	9.64%	10.11%
DTE Energy Company	DTE	4.30%	0.81	11.50%	7.20%	10.15%	10.49%
Duke Energy Corporation	DUK	4.30%	0.71	11.50%	7.20%	9.44%	9.95%
Entergy Corporation	ETR	4.30%	0.85	11.50%	7.20%	10.44%	10.71%
Evergy, Inc.	EVRG	4.30%	0.77	11.50%	7.20%	9.87%	10.28%
IDACORP, Inc.	IDA	4.30%	0.79	11.50%	7.20%	9.96%	10.35%
NextEra Energy, Inc.	NEE	4.30%	0.81	11.50%	7.20%	10.14%	10.48%
NorthWestern Corporation	NWE	4.30%	0.86	11.50%	7.20%	10.49%	10.74%
OGE Energy Corporation	OGE	4.30%	0.91	11.50%	7.20%	10.85%	11.01%
Pinnacle West Capital Corporation	PNW	4.30%	0.81	11.50%	7.20%	10.14%	10.48%
Portland General Electric Company	POR	4.30%	0.78	11.50%	7.20%	9.90%	10.30%
PPL Corporation	PPL	4.30%	0.93	11.50%	7.20%	11.01%	11.13%
Southern Company	SO	4.30%	0.77	11.50%	7.20%	9.86%	10.27%
Xcel Energy Inc.	XEL	4.30%	0.72	11.50%	7.20%	9.52%	10.01%
Mean						10.05%	10.41%
Median						9.92%	10.32%

Notes:

- [1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 14
[2] Bloomberg Professional, based on 10-year weekly returns, as of May 31, 2024
[3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP)
[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	4.66%	0.76	11.50%	6.84%	9.88%	10.29%
American Electric Power Company, Inc.	AEP	4.66%	0.69	11.50%	6.84%	9.35%	9.89%
Avista Corporation	AVA	4.66%	0.80	11.50%	6.84%	10.10%	10.45%
CMS Energy Corporation	CMS	4.66%	0.70	11.50%	6.84%	9.48%	9.98%
DTE Energy Company	DTE	4.66%	0.77	11.50%	6.84%	9.94%	10.33%
Duke Energy Corporation	DUK	4.66%	0.69	11.50%	6.84%	9.35%	9.89%
Entergy Corporation	ETR	4.66%	0.76	11.50%	6.84%	9.88%	10.29%
Evergy, Inc.	EVRG	4.66%	0.94	11.50%	6.84%	11.07%	11.18%
IDACORP, Inc.	IDA	4.66%	0.74	11.50%	6.84%	9.73%	10.17%
NextEra Energy, Inc.	NEE	4.66%	0.75	11.50%	6.84%	9.82%	10.24%
NorthWestern Corporation	NWE	4.66%	0.76	11.50%	6.84%	9.88%	10.29%
OGE Energy Corporation	OGE	4.66%	0.94	11.50%	6.84%	11.09%	11.20%
Pinnacle West Capital Corporation	PNW	4.66%	0.75	11.50%	6.84%	9.82%	10.24%
Portland General Electric Company	POR	4.66%	0.76	11.50%	6.84%	9.88%	10.29%
PPL Corporation	PPL	4.66%	0.84	11.50%	6.84%	10.38%	10.66%
Southern Company	SO	4.66%	0.68	11.50%	6.84%	9.32%	9.87%
Xcel Energy Inc.	XEL	4.66%	0.67	11.50%	6.84%	9.26%	9.82%
Mean						9.90%	10.30%
Median						9.88%	10.29%

Notes:

[1] Bloomberg Professional, as of May 31, 2024.

[2] Schedule AEB-D2, Attachment 5

[3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP)

[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

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q3 2024 - Q3 2025)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.40%	0.76	11.50%	7.10%	9.82%	10.24%
American Electric Power Company, Inc.	AEP	4.40%	0.69	11.50%	7.10%	9.27%	9.83%
Avista Corporation	AVA	4.40%	0.80	11.50%	7.10%	10.05%	10.41%
CMS Energy Corporation	CMS	4.40%	0.70	11.50%	7.10%	9.40%	9.93%
DTE Energy Company	DTE	4.40%	0.77	11.50%	7.10%	9.89%	10.29%
Duke Energy Corporation	DUK	4.40%	0.69	11.50%	7.10%	9.27%	9.83%
Entergy Corporation	ETR	4.40%	0.76	11.50%	7.10%	9.82%	10.24%
Evergy, Inc.	EVRG	4.40%	0.94	11.50%	7.10%	11.05%	11.17%
IDACORP, Inc.	IDA	4.40%	0.74	11.50%	7.10%	9.66%	10.12%
NextEra Energy, Inc.	NEE	4.40%	0.75	11.50%	7.10%	9.76%	10.19%
NorthWestern Corporation	NWE	4.40%	0.76	11.50%	7.10%	9.82%	10.24%
OGE Energy Corporation	OGE	4.40%	0.94	11.50%	7.10%	11.08%	11.18%
Pinnacle West Capital Corporation	PNW	4.40%	0.75	11.50%	7.10%	9.76%	10.19%
Portland General Electric Company	POR	4.40%	0.76	11.50%	7.10%	9.82%	10.24%
PPL Corporation	PPL	4.40%	0.84	11.50%	7.10%	10.34%	10.63%
Southern Company	SO	4.40%	0.68	11.50%	7.10%	9.24%	9.80%
Xcel Energy Inc.	XEL	4.40%	0.67	11.50%	7.10%	9.18%	9.76%
Mean						9.84%	10.25%
Median						9.82%	10.24%

Notes:

- [1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 2
- [2] Schedule AEB-D2, Attachment 5
- [3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP)
- [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 (2023 - 2027)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.30%	0.76	11.50%	7.20%	9.80%	10.22%
American Electric Power Company, Inc.	AEP	4.30%	0.69	11.50%	7.20%	9.24%	9.81%
Avista Corporation	AVA	4.30%	0.80	11.50%	7.20%	10.03%	10.39%
CMS Energy Corporation	CMS	4.30%	0.70	11.50%	7.20%	9.37%	9.90%
DTE Energy Company	DTE	4.30%	0.77	11.50%	7.20%	9.86%	10.27%
Duke Energy Corporation	DUK	4.30%	0.69	11.50%	7.20%	9.24%	9.81%
Entergy Corporation	ETR	4.30%	0.76	11.50%	7.20%	9.80%	10.22%
Evergy, Inc.	EVRG	4.30%	0.94	11.50%	7.20%	11.05%	11.16%
IDACORP, Inc.	IDA	4.30%	0.74	11.50%	7.20%	9.63%	10.10%
NextEra Energy, Inc.	NEE	4.30%	0.75	11.50%	7.20%	9.73%	10.17%
NorthWestern Corporation	NWE	4.30%	0.76	11.50%	7.20%	9.80%	10.22%
OGE Energy Corporation	OGE	4.30%	0.94	11.50%	7.20%	11.07%	11.18%
Pinnacle West Capital Corporation	PNW	4.30%	0.75	11.50%	7.20%	9.73%	10.17%
Portland General Electric Company	POR	4.30%	0.76	11.50%	7.20%	9.80%	10.22%
PPL Corporation	PPL	4.30%	0.84	11.50%	7.20%	10.32%	10.61%
Southern Company	SO	4.30%	0.68	11.50%	7.20%	9.21%	9.78%
Xcel Energy Inc.	XEL	4.30%	0.67	11.50%	7.20%	9.14%	9.73%
Mean						9.81%	10.23%
Median						9.80%	10.22%

Notes:

- [1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 14
- [2] Schedule AEB-D2, Attachment 5
- [3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP)
- [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 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	4.66%	0.90	12.55%	7.89%	11.76%	11.96%
American Electric Power Company, Inc.	AEP	4.66%	0.80	12.55%	7.89%	10.97%	11.37%
Avista Corporation	AVA	4.66%	0.95	12.55%	7.89%	12.16%	12.26%
CMS Energy Corporation	CMS	4.66%	0.85	12.55%	7.89%	11.37%	11.66%
DTE Energy Company	DTE	4.66%	1.00	12.55%	7.89%	12.55%	12.55%
Duke Energy Corporation	DUK	4.66%	0.90	12.55%	7.89%	11.76%	11.96%
Entergy Corporation	ETR	4.66%	0.95	12.55%	7.89%	12.16%	12.26%
Evergy, Inc.	EVRG	4.66%	0.95	12.55%	7.89%	12.16%	12.26%
IDACORP, Inc.	IDA	4.66%	0.85	12.55%	7.89%	11.37%	11.66%
NextEra Energy, Inc.	NEE	4.66%	1.05	12.55%	7.89%	12.95%	12.85%
NorthWestern Corporation	NWE	4.66%	0.95	12.55%	7.89%	12.16%	12.26%
OGE Energy Corporation	OGE	4.66%	1.05	12.55%	7.89%	12.95%	12.85%
Pinnacle West Capital Corporation	PNW	4.66%	0.95	12.55%	7.89%	12.16%	12.26%
Portland General Electric Company	POR	4.66%	0.90	12.55%	7.89%	11.76%	11.96%
PPL Corporation	PPL	4.66%	1.15	12.55%	7.89%	13.74%	13.44%
Southern Company	SO	4.66%	0.95	12.55%	7.89%	12.16%	12.26%
Xcel Energy Inc.	XEL	4.66%	0.85	12.55%	7.89%	11.37%	11.66%
Mean						12.09%	12.20%
Median						12.16%	12.26%

Notes:

[1] Bloomberg Professional, as of May 31, 2024.

[2] Value Line

[3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP, CGDCF)

[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

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q3 2024 - Q3 2025)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.40%	0.90	12.55%	8.15%	11.74%	11.94%
American Electric Power Company, Inc.	AEP	4.40%	0.80	12.55%	8.15%	10.92%	11.33%
Avista Corporation	AVA	4.40%	0.95	12.55%	8.15%	12.14%	12.25%
CMS Energy Corporation	CMS	4.40%	0.85	12.55%	8.15%	11.33%	11.63%
DTE Energy Company	DTE	4.40%	1.00	12.55%	8.15%	12.55%	12.55%
Duke Energy Corporation	DUK	4.40%	0.90	12.55%	8.15%	11.74%	11.94%
Entergy Corporation	ETR	4.40%	0.95	12.55%	8.15%	12.14%	12.25%
Evergy, Inc.	EVRG	4.40%	0.95	12.55%	8.15%	12.14%	12.25%
IDACORP, Inc.	IDA	4.40%	0.85	12.55%	8.15%	11.33%	11.63%
NextEra Energy, Inc.	NEE	4.40%	1.05	12.55%	8.15%	12.96%	12.86%
NorthWestern Corporation	NWE	4.40%	0.95	12.55%	8.15%	12.14%	12.25%
OGE Energy Corporation	OGE	4.40%	1.05	12.55%	8.15%	12.96%	12.86%
Pinnacle West Capital Corporation	PNW	4.40%	0.95	12.55%	8.15%	12.14%	12.25%
Portland General Electric Company	POR	4.40%	0.90	12.55%	8.15%	11.74%	11.94%
PPL Corporation	PPL	4.40%	1.15	12.55%	8.15%	13.77%	13.47%
Southern Company	SO	4.40%	0.95	12.55%	8.15%	12.14%	12.25%
Xcel Energy Inc.	XEL	4.40%	0.85	12.55%	8.15%	11.33%	11.63%
Mean						12.07%	12.19%
Median						12.14%	12.25%

Notes:

[1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 2

[2] Value Line

[3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP, CGDCF)

[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

	[1]	[2]	[3]	[4]	[5]	[6]	
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2023 - 2027)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.30%	0.90	12.55%	8.25%	11.73%	11.93%
American Electric Power Company, Inc.	AEP	4.30%	0.80	12.55%	8.25%	10.90%	11.31%
Avista Corporation	AVA	4.30%	0.95	12.55%	8.25%	12.14%	12.24%
CMS Energy Corporation	CMS	4.30%	0.85	12.55%	8.25%	11.31%	11.62%
DTE Energy Company	DTE	4.30%	1.00	12.55%	8.25%	12.55%	12.55%
Duke Energy Corporation	DUK	4.30%	0.90	12.55%	8.25%	11.73%	11.93%
Entergy Corporation	ETR	4.30%	0.95	12.55%	8.25%	12.14%	12.24%
Evergy, Inc.	EVRG	4.30%	0.95	12.55%	8.25%	12.14%	12.24%
IDACORP, Inc.	IDA	4.30%	0.85	12.55%	8.25%	11.31%	11.62%
NextEra Energy, Inc.	NEE	4.30%	1.05	12.55%	8.25%	12.96%	12.86%
NorthWestern Corporation	NWE	4.30%	0.95	12.55%	8.25%	12.14%	12.24%
OGE Energy Corporation	OGE	4.30%	1.05	12.55%	8.25%	12.96%	12.86%
Pinnacle West Capital Corporation	PNW	4.30%	0.95	12.55%	8.25%	12.14%	12.24%
Portland General Electric Company	POR	4.30%	0.90	12.55%	8.25%	11.73%	11.93%
PPL Corporation	PPL	4.30%	1.15	12.55%	8.25%	13.79%	13.48%
Southern Company	SO	4.30%	0.95	12.55%	8.25%	12.14%	12.24%
Xcel Energy Inc.	XEL	4.30%	0.85	12.55%	8.25%	11.31%	11.62%
Mean						12.07%	12.19%
Median						12.14%	12.24%

Notes:

- [1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 14
- [2] Value Line
- [3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP, CGDCF)
- [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 BLOOMBERG 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	4.66%	0.78	12.55%	7.89%	10.82%	11.26%
American Electric Power Company, Inc.	AEP	4.66%	0.75	12.55%	7.89%	10.62%	11.10%
Avista Corporation	AVA	4.66%	0.76	12.55%	7.89%	10.62%	11.10%
CMS Energy Corporation	CMS	4.66%	0.74	12.55%	7.89%	10.52%	11.03%
DTE Energy Company	DTE	4.66%	0.81	12.55%	7.89%	11.08%	11.44%
Duke Energy Corporation	DUK	4.66%	0.71	12.55%	7.89%	10.29%	10.86%
Entergy Corporation	ETR	4.66%	0.85	12.55%	7.89%	11.39%	11.68%
Evergy, Inc.	EVRG	4.66%	0.77	12.55%	7.89%	10.77%	11.21%
IDACORP, Inc.	IDA	4.66%	0.79	12.55%	7.89%	10.87%	11.29%
NextEra Energy, Inc.	NEE	4.66%	0.81	12.55%	7.89%	11.06%	11.43%
NorthWestern Corporation	NWE	4.66%	0.86	12.55%	7.89%	11.45%	11.72%
OGE Energy Corporation	OGE	4.66%	0.91	12.55%	7.89%	11.84%	12.02%
Pinnacle West Capital Corporation	PNW	4.66%	0.81	12.55%	7.89%	11.06%	11.43%
Portland General Electric Company	POR	4.66%	0.78	12.55%	7.89%	10.80%	11.24%
PPL Corporation	PPL	4.66%	0.93	12.55%	7.89%	12.01%	12.15%
Southern Company	SO	4.66%	0.77	12.55%	7.89%	10.75%	11.20%
Xcel Energy Inc.	XEL	4.66%	0.72	12.55%	7.89%	10.38%	10.92%
Mean						10.96%	11.36%
Median						10.82%	11.26%

Notes:

[1] Bloomberg Professional, as of May 31, 2024.

[2] Bloomberg Professional, based on 10-year weekly returns, as of May 31, 2024

[3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP, CGDCF)

[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 BLOOMBERG BETA**

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q3 2024 - Q3 2025)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.40%	0.78	12.55%	8.15%	10.77%	11.21%
American Electric Power Company, Inc.	AEP	4.40%	0.75	12.55%	8.15%	10.55%	11.05%
Avista Corporation	AVA	4.40%	0.76	12.55%	8.15%	10.56%	11.05%
CMS Energy Corporation	CMS	4.40%	0.74	12.55%	8.15%	10.45%	10.98%
DTE Energy Company	DTE	4.40%	0.81	12.55%	8.15%	11.03%	11.41%
Duke Energy Corporation	DUK	4.40%	0.71	12.55%	8.15%	10.22%	10.80%
Entergy Corporation	ETR	4.40%	0.85	12.55%	8.15%	11.35%	11.65%
Evergy, Inc.	EVRG	4.40%	0.77	12.55%	8.15%	10.71%	11.17%
IDACORP, Inc.	IDA	4.40%	0.79	12.55%	8.15%	10.81%	11.25%
NextEra Energy, Inc.	NEE	4.40%	0.81	12.55%	8.15%	11.01%	11.40%
NorthWestern Corporation	NWE	4.40%	0.86	12.55%	8.15%	11.41%	11.70%
OGE Energy Corporation	OGE	4.40%	0.91	12.55%	8.15%	11.81%	12.00%
Pinnacle West Capital Corporation	PNW	4.40%	0.81	12.55%	8.15%	11.01%	11.40%
Portland General Electric Company	POR	4.40%	0.78	12.55%	8.15%	10.75%	11.20%
PPL Corporation	PPL	4.40%	0.93	12.55%	8.15%	11.99%	12.13%
Southern Company	SO	4.40%	0.77	12.55%	8.15%	10.69%	11.16%
Xcel Energy Inc.	XEL	4.40%	0.72	12.55%	8.15%	10.31%	10.87%
Mean						10.91%	11.32%
Median						10.77%	11.21%

Notes:

- [1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 2
- [2] Bloomberg Professional, based on 10-year weekly returns, as of May 31, 2024
- [3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP, CGDCF)
- [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 BLOOMBERG BETA

	[1]	[2]	[3]	[4]	[5]	[6]	
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2023 - 2027)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.30%	0.78	12.55%	8.25%	10.75%	11.20%
American Electric Power Company, Inc.	AEP	4.30%	0.75	12.55%	8.25%	10.53%	11.03%
Avista Corporation	AVA	4.30%	0.76	12.55%	8.25%	10.53%	11.04%
CMS Energy Corporation	CMS	4.30%	0.74	12.55%	8.25%	10.42%	10.96%
DTE Energy Company	DTE	4.30%	0.81	12.55%	8.25%	11.01%	11.39%
Duke Energy Corporation	DUK	4.30%	0.71	12.55%	8.25%	10.19%	10.78%
Entergy Corporation	ETR	4.30%	0.85	12.55%	8.25%	11.34%	11.64%
Evergy, Inc.	EVRG	4.30%	0.77	12.55%	8.25%	10.69%	11.15%
IDACORP, Inc.	IDA	4.30%	0.79	12.55%	8.25%	10.79%	11.23%
NextEra Energy, Inc.	NEE	4.30%	0.81	12.55%	8.25%	10.99%	11.38%
NorthWestern Corporation	NWE	4.30%	0.86	12.55%	8.25%	11.40%	11.69%
OGE Energy Corporation	OGE	4.30%	0.91	12.55%	8.25%	11.80%	11.99%
Pinnacle West Capital Corporation	PNW	4.30%	0.81	12.55%	8.25%	11.00%	11.38%
Portland General Electric Company	POR	4.30%	0.78	12.55%	8.25%	10.72%	11.18%
PPL Corporation	PPL	4.30%	0.93	12.55%	8.25%	11.99%	12.13%
Southern Company	SO	4.30%	0.77	12.55%	8.25%	10.67%	11.14%
Xcel Energy Inc.	XEL	4.30%	0.72	12.55%	8.25%	10.28%	10.85%
Mean						10.89%	11.30%
Median						10.75%	11.20%

Notes:

- [1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 14
[2] Bloomberg Professional, based on 10-year weekly returns, as of May 31, 2024
[3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP, CGDCF)
[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	4.66%	0.76	12.55%	7.89%	10.69%	11.15%
American Electric Power Company, Inc.	AEP	4.66%	0.69	12.55%	7.89%	10.08%	10.69%
Avista Corporation	AVA	4.66%	0.80	12.55%	7.89%	10.94%	11.34%
CMS Energy Corporation	CMS	4.66%	0.70	12.55%	7.89%	10.22%	10.80%
DTE Energy Company	DTE	4.66%	0.77	12.55%	7.89%	10.76%	11.21%
Duke Energy Corporation	DUK	4.66%	0.69	12.55%	7.89%	10.08%	10.69%
Entergy Corporation	ETR	4.66%	0.76	12.55%	7.89%	10.69%	11.15%
Evergy, Inc.	EVRG	4.66%	0.94	12.55%	7.89%	12.06%	12.18%
IDACORP, Inc.	IDA	4.66%	0.74	12.55%	7.89%	10.51%	11.02%
NextEra Energy, Inc.	NEE	4.66%	0.75	12.55%	7.89%	10.61%	11.10%
NorthWestern Corporation	NWE	4.66%	0.76	12.55%	7.89%	10.69%	11.15%
OGE Energy Corporation	OGE	4.66%	0.94	12.55%	7.89%	12.08%	12.20%
Pinnacle West Capital Corporation	PNW	4.66%	0.75	12.55%	7.89%	10.61%	11.10%
Portland General Electric Company	POR	4.66%	0.76	12.55%	7.89%	10.69%	11.15%
PPL Corporation	PPL	4.66%	0.84	12.55%	7.89%	11.26%	11.58%
Southern Company	SO	4.66%	0.68	12.55%	7.89%	10.04%	10.67%
Xcel Energy Inc.	XEL	4.66%	0.67	12.55%	7.89%	9.97%	10.61%
Mean						10.70%	11.16%
Median						10.69%	11.15%

Notes:

[1] Bloomberg Professional, as of May 31, 2024.

[2] Schedule AEB-D2, Attachment 5

[3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP, CGDCF)

[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

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q3 2024 - Q3 2025)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.40%	0.76	12.55%	8.15%	10.62%	11.11%
American Electric Power Company, Inc.	AEP	4.40%	0.69	12.55%	8.15%	9.99%	10.63%
Avista Corporation	AVA	4.40%	0.80	12.55%	8.15%	10.88%	11.30%
CMS Energy Corporation	CMS	4.40%	0.70	12.55%	8.15%	10.14%	10.74%
DTE Energy Company	DTE	4.40%	0.77	12.55%	8.15%	10.70%	11.16%
Duke Energy Corporation	DUK	4.40%	0.69	12.55%	8.15%	9.99%	10.63%
Entergy Corporation	ETR	4.40%	0.76	12.55%	8.15%	10.62%	11.11%
Evergy, Inc.	EVRG	4.40%	0.94	12.55%	8.15%	12.04%	12.17%
IDACORP, Inc.	IDA	4.40%	0.74	12.55%	8.15%	10.44%	10.97%
NextEra Energy, Inc.	NEE	4.40%	0.75	12.55%	8.15%	10.55%	11.05%
NorthWestern Corporation	NWE	4.40%	0.76	12.55%	8.15%	10.62%	11.11%
OGE Energy Corporation	OGE	4.40%	0.94	12.55%	8.15%	12.07%	12.19%
Pinnacle West Capital Corporation	PNW	4.40%	0.75	12.55%	8.15%	10.55%	11.05%
Portland General Electric Company	POR	4.40%	0.76	12.55%	8.15%	10.62%	11.11%
PPL Corporation	PPL	4.40%	0.84	12.55%	8.15%	11.22%	11.55%
Southern Company	SO	4.40%	0.68	12.55%	8.15%	9.96%	10.61%
Xcel Energy Inc.	XEL	4.40%	0.67	12.55%	8.15%	9.88%	10.55%
Mean						10.64%	11.12%
Median						10.62%	11.11%

Notes:

- [1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 2
- [2] Schedule AEB-D2, Attachment 5
- [3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP, CGDCF)
- [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 (2023 - 2027)	Beta	Market Return	Market Risk Premium	Cost of Equity: CAPM	Cost of Equity: ECAPM
Alliant Energy Corporation	LNT	4.30%	0.76	12.55%	8.25%	10.60%	11.09%
American Electric Power Company, Inc.	AEP	4.30%	0.69	12.55%	8.25%	9.96%	10.61%
Avista Corporation	AVA	4.30%	0.80	12.55%	8.25%	10.86%	11.29%
CMS Energy Corporation	CMS	4.30%	0.70	12.55%	8.25%	10.11%	10.72%
DTE Energy Company	DTE	4.30%	0.77	12.55%	8.25%	10.68%	11.14%
Duke Energy Corporation	DUK	4.30%	0.69	12.55%	8.25%	9.96%	10.61%
Entergy Corporation	ETR	4.30%	0.76	12.55%	8.25%	10.60%	11.09%
Evergy, Inc.	EVRG	4.30%	0.94	12.55%	8.25%	12.04%	12.16%
IDACORP, Inc.	IDA	4.30%	0.74	12.55%	8.25%	10.41%	10.95%
NextEra Energy, Inc.	NEE	4.30%	0.75	12.55%	8.25%	10.53%	11.03%
NorthWestern Corporation	NWE	4.30%	0.76	12.55%	8.25%	10.60%	11.09%
OGE Energy Corporation	OGE	4.30%	0.94	12.55%	8.25%	12.06%	12.19%
Pinnacle West Capital Corporation	PNW	4.30%	0.75	12.55%	8.25%	10.53%	11.03%
Portland General Electric Company	POR	4.30%	0.76	12.55%	8.25%	10.60%	11.09%
PPL Corporation	PPL	4.30%	0.84	12.55%	8.25%	11.20%	11.54%
Southern Company	SO	4.30%	0.68	12.55%	8.25%	9.93%	10.58%
Xcel Energy Inc.	XEL	4.30%	0.67	12.55%	8.25%	9.85%	10.53%
Mean						10.62%	11.10%
Median						10.60%	11.09%

Notes:

- [1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 14
[2] Schedule AEB-D2, Attachment 5
[3] Schedule AEB-SR1, Attachment 1 (Cor. Excl. of Non-Dividend Paying Companies, Morningstar GDP, CGDCF)
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company)
d/b/a Ameren Missouri's Tariffs to Adjust)
Its Revenues for Electric Service.)

Case No. ER-2024-0319

AFFIDAVIT OF ANN E. BULKLEY

COMMONWEALTH OF MASSACHUSETTS)
CITY OF BOSTON) ss
)

Ann E. Bulkley, being first duly sworn states:

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


Ann E. Bulkley

Sworn to me this 10th day of February, 2025.