Exhibit No.: Issue(s): Cost of Capital Witness: Ann E. Bulkley Type of Exhibit: Surrebuttal Testimony Sponsoring Party: Union Electric Company File No.: GR-2024-0369 Date Testimony Prepared: May 2, 2025

MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. GR-2024-0369

SURREBUTTAL TESTIMONY

OF

ANN E. BULKLEY

ON

BEHALF OF

UNION ELECTRIC COMPANY

D/B/A AMEREN MISSOURI

St. Louis, Missouri May 2025

TABLE OF CONTENTS

I.	INTRODUCTION	3
II.	SUMMARY AND CONCLUSIONS	4
III.	PROXY GROUP	6
IV.	COST OF EQUITY ESTIMATES VERSUS AUTHORIZED ROES	14
v.	DCF ANALYSIS	18
VI.	CAPM ANALYSIS	27
VII.	ECAPM ANALYSIS	43
VIII.	. RISK PREMIUM ANALYSIS	47
IX.	BUSINESS RISK FACTORS	51

SURREBUTTAL TESTIMONY OF ANN E. BULKLEY FILE NO. GR-2024-0369

I I. INTRODUCTION

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

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 gas utility operations.

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

A. The purpose of my surrebuttal testimony is to respond to the rebuttal testimonies of
Dr. Seoung Joun Won on behalf of the Missouri Public Service Commission Staff
("Staff"),¹ and David Murray on behalf of the Missouri Office of the Public Counsel
("OPC")² regarding their respective proposals for the return on equity for the
Company in this proceeding. In addition, my surrebuttal testimony responds to the
rebuttal testimony of Mr. Keith Majors on behalf of Staff regarding the regulatory and

¹ Missouri Public Service Commission, Case No. GR-2024-0369, Rebuttal Testimony of Seoung Joun Won, PhD, April 4, 2025 ("Won Rebuttal").

² Missouri Public Service Commission, Case No. GR-2024-0369, Rebuttal Testimony of David Murray, April 4, 2025 ("Murray Rebuttal").

- business risks of the Company.³ To the extent that I do not address a particular
 issue raised by these witnesses in my surrebuttal testimony should not be viewed
 as acceptance of that issue.
- 4 Q: Are you sponsoring any exhibits in support of rebuttal direct testimony?
- A. Yes. I am sponsoring Schedule AEB-SR1, Attachments 1 through 3, which have
 been prepared by me or under my direction.

7 II. SUMMARY AND CONCLUSIONS

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

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

It is not credible for Mr. Murray to suggest that I should have relied on the • 15 assumptions used by his cost of equity estimation models when he does 16 not directly rely on the results of those models to support his recommended 17 ROE. 18 Neither Dr. Won nor Mr. Murray demonstrate that their suggested changes 19 • to my proxy group are supported. 20 It is unreasonable for Dr. Won to exclude NiSource Inc. ("NI") from 21 the proxy group because of a dividend cut in 2015. Dr. Won has 22

³ Missouri Public Service Commission, Case No. GR-2024-0369, Rebuttal Testimony of Keith Majors, April 4, 2025 ("Majors Rebuttal").

1	provided no evidence in either his direct or rebuttal testimonies to
2	show that NI's dividend cut in 2015 affected the recent market data
3	he relies on to develop both his DCF and CAPM analyses. Further,
4	his consideration of 10-year period in the application of his dividend
5	screen is inconsistent his application of the dividend screen in prior
6	proceedings.
7	• There is no basis for Mr. Murray's exclusion of utilities comparable
8	to Ameren Missouri that have unregulated operations but derive the
9	majority of their operating income from regulated gas operations.
10	\circ In addition, there is no discernible trend in the constant growth
11	discounted cash flow ("DCF") results for the companies in my proxy
12	group that would indicate companies with a relatively higher
13	percentage of unregulated operations have a higher cost of equity
14	than companies with a relatively lower percentage of unregulated
15	operations, and Mr. Murray has not conducted any analysis or
16	provided evidence that supports this view.
17	• There is no basis to Mr. Murray's claim that regulators, including the
18	Commission, have incorrectly authorized ROEs for years that are
19	substantially higher than the cost of equity.
20	• Dr. Won's and Mr. Murray's criticism regarding the use of projected earnings
21	growth rates in the constant growth DCF model is unfounded.
22	\circ While Dr. Won, and Mr. Murray essentially suggest that I should have
23	relied on the multi-stage DCF model using their assumptions, the
24	results of their multi-stage DCF models are below each of their ROE
25	recommendations.
26	$\circ~$ Earnings are the fundamental driver of dividend growth rates, and
27	there is significant academic research demonstrating that EPS
28	growth rates are most relevant in stock price valuation.
29	• Dr. Won's and Mr. Murray's allegation that the market return, used in my
30	Capital Asset Pricing Model ("CAPM") and Empirical CAPM ("ECAPM")
31	analyses, is too high is contradicted by the fact that the methodology that I
32	use to estimate the market return:
33	 Is consistent with historical average returns.
34	 Has been accepted by various regulators.
35	\circ Is consistent with the results of a study by the Federal Reserve Bank
36	of New York that evaluated various market risk premium estimates.
37	\circ Furthermore, there are critical errors in Dr. Won's "adjustment" to my
38	CAPM and ECAPM analyses, that when corrected, continues to
39	support an ROE of 10.25 percent and fails to support Dr. Won's
40	conclusion.

1	 Neither Dr. Won nor Mr. Murray provide any evidence that the results of my
2	Bond Yield Plus Risk Premium analysis ("BYRP") are unreliable.
3	 The regression analysis that I conducted demonstrates a strong
4	inverse relationship between interest rates and the equity risk
5	premium for utilities.
6	 Dr. Won's concern regarding the data used in my BYRP analysis
7	applies equally to his own analysis and given that his ROE
8	recommendation in this proceeding is equivalent to the result of his
9	BYRP, the concern that he raises in regard to the BYRP could affect
10	his ROE recommendation in this proceeding.
11 • 12	• Dr. Won, Mr. Majors and Mr. Murray fail to consider the relevant comparison point when evaluating the Company's business and regulatory risks.
13	 Each fail to recognize that the appropriate comparison is the
14	Company's risk relative to the proxy group companies, not the
15	Company's risk with or without regulatory mechanisms,
16	 All else equal, while I agree that regulatory mechanisms that reduce
17	a utility's regulatory lag in cost recovery help to mitigate risk, the
18	appropriate analysis for purposes of establishing the Company's
19	ROE in this proceeding is to evaluate how Ameren Missouri's
20	regulatory risk compares to the other companies in the proxy group.
21	 Dr. Won and Mr. Murray incorrectly dismiss consideration of the
22	small size risk of Ameren Missouri's natural gas operations because
23	Ameren Missouri also has electric operations and is a subsidiary of
24	Ameren. However, this reasoning violates the stand-alone principle
25	of ratemaking which requires regulated rates to be based on the risks
26	and benefits of the regulated utility, not its investors, parent or
27	affiliates.

28 III. PROXY GROUP

- 29 Q: Please summarize the disagreements that Dr. Won and Mr. Murray have with
- 30 the proxy group that you relied on for Ameren Missouri.

A. Dr. Won disagrees with the inclusion NiSource Inc. ("NI") in my proxy group.⁴ Dr.

32 Won believes that NI should be excluded because NI cut its dividend in 2015 and

⁴ Won Rebuttal, at 8.

2016. He believes companies that have cut their dividend should be excluded because: (1) a dividend cut could signal an increase in financial instability; (2) a past dividend cut lowers expected future dividends and could signal lower growth, each of which could result in the DCF model producing an inflated cost of equity estimate; and (3) dividend cuts can signal weaker financial performance and increase price volatility which would increase both the equity risk premium and beta thus also inflating the cost of equity estimate produced by the CAPM.⁵

Mr. Murray disagrees with the inclusion of Southwest Gas ("SWX") and Spire ("SR") 8 in my proxy group because they both have "significant exposure" (which he defines 9 as greater than 10 percent) to unregulated operations. Mr. Murray suggests that 10 companies with a higher percentage of unregulated operations have greater risk, 11 12 and therefore, concludes that I do not account for the increased risk of unregulated operations when comparing the business risk of Ameren Missouri to the proxy 13 group.⁶ Further, Mr. Murray also contends that my cost of equity analysis is 14 "incomplete" because I have not considered Ameren in my assessment of Ameren 15 Missouri's cost of equity.⁷ 16

⁵ *Id.,* at 8-9

⁶ Murray Rebuttal, at 19-20.

⁷ *Id.,* at 20.

Q: Do you agree with Dr. Won that NI should be excluded because of its dividend cuts in 2015 and 2016?

No. First, it is important to note that Dr. Won incorrectly states that NI had a dividend
cut in both 2015 and 2016. As I discussed in my rebuttal testimony and shown in
Figure 1 below, NI reduced its dividend in 2015 when the company spun—off
Columbia Pipeline Partners LP; however, NI did not cut its dividend in 2016. As
shown in Figure 1, it appears Dr. Won incorrectly assumes that because the annual
dividend for NI is lower in 2016 that it reduced its dividend in 2016, which is clearly
not the case. In fact, NI began to increase its dividend again in 2016.

10

FIGURE 1: NI – DIVIDEND PER SHARE ("DPS") – 2014-2016⁸

	2014	2015	2016
Quarter 1	\$0.25	\$0.26	\$0.16
Quarter 2	\$0.25	\$0.26	\$0.16
Quarter 3	\$0.26	\$0.16	\$0.17
Quarter 4	\$0.26	\$0.16	\$0.17
Annual	\$1.02	\$0.83	\$0.64

11

Second, as discussed in my rebuttal testimony, while I agree that companies included in the proxy group must pay a consistent cash dividend that has not been reduced, I disagree with Dr. Won's use of a ten-year historical review for the following reasons: ⁹

⁸ Bloomberg Professional.

⁹ Missouri Public Service Commission, Case No. GR-2024-0369, Rebuttal Testimony of Ann E. Bulkley, April 4, 2025 ("Bulkley Rebuttal"), at 36-39.

- Dr. Won's use of a ten-year historical review in the current proceeding is not consistent with the review period he relied on in Ameren Missouri's last rate case (six years). Had Dr. Won relied on the most recent six years in the application of the dividend screen, NI would have been included in his proxy group.
- Dr. Won's use of the ten-year period starting in 2015 is inconsistent with his 6 criteria in recent rate proceedings for both electric (review period started in 7 2019) and water (review period started in 2017) utilities. Dr. Won has 8 provided no evidence to suggest that the market would react differently 9 based on the regulated business (water, natural gas or electric utility), such 10 that it would make sense to change the duration of the dividend screen 11 period. Furthermore, NI would meet the dividend screen that Dr. Won has 12 applied in rate proceedings for electric and water utilities 13
- Dr. Won has provided no evidence in either his direct or rebuttal testimonies
 to show that NI's dividend cut in 2015 affected the recent market data he
 relies on to develop both his DCF and CAPM analyses.

17 Q: Do you agree with Mr. Murray that your proxy group includes companies with

18 significant unregulated operations that result in greater risk for the proxy

19 group companies?

- First, Mr. Murray's characterization of SWX's unregulated operations is Α. No. 20 incorrect. Mr. Murray's contends that SWX's unregulated operations "include its 21 nonregulated utility infrastructure construction business, Centuri Group, Inc. 22 ("Centuri"), which it is in the process of divesting."¹⁰ However, SWX is no longer "in 23 the process" of divesting Centuri as Centuri was spun-off in April 2024.¹¹ Therefore, 24 SWX divested the unregulated operations Mr. Murray references as the reason for 25 excluding SWX from the proxy group well before Mr. Murray filed his direct testimony 26
- 27

in February 2025. Further, while Mr. Murray contends that the transaction caused

¹⁰ Murray Rebuttal, at 19.

¹¹ Manya Saini and David French, "Southwest Gas unit jumps in strong market debut," *Reuters*, April 18, 2024.

volatility in SWX's share price, since the transaction closed in April 2024, it is
 reasonable to assume that the transaction would not have caused volatility in the
 share prices that Mr. Murray relied on to develop his multi-stage DCF analysis,
 which reflected the three-month average ending January 1, 2025. As a result, Mr.
 Murray should have included SWX in his proxy group.

Second, as discussed in my direct testimony, I apply a screening criterion that 6 requires a company to derive at least 70.00 percent of its operating income from 7 regulated operations, which ensures that, together with my other screening criteria, 8 9 the companies in my cost of equity analyses have operating and financial risk characteristics that are substantially comparable to Ameren Missouri, including 10 substantial regulated gas operations.¹² As shown in Schedule AEB-D2, Attachment 11 12 2 of my direct testimony, SWX and SR derive over 86.00 percent and 83.00 percent, respectively, of operating income from regulated operations over the most recent 13 three-year period of 2021-2023.¹³ 14

Third, while I screen the proxy group to limit unregulated operations and will show below that there is no evidence that companies in my proxy group with unregulated operations are perceived to have higher risk, Mr. Murray does not conduct any analysis to support his conclusions that the companies such as either SWX or SR

¹² Missouri Public Service Commission, Case No. GR-2024-0369, Direct Testimony of Ann E. Bulkley, September 30, 2024 ("Bulkley Direct"), at 22.

¹³ For SWG, the three-year period of 2021-2023 would include the unregulated operations of Centuri. Therefore, with the recent divesture of Centuri, SWX's percentage of operating income derived from regulated operations will increase going forward.

with a higher percentage of unregulated operations in my proxy group have greater
 risk than Ameren Missouri.

Q: Do you conduct any analyses to test whether the unregulated operations of the proxy companies that you have relied upon have biased the results of your analyses?

Α. Yes. Figure 2 graphs the percentage of regulated operations, as determined by 6 operating income, and the constant growth DCF results for my proxy group from my 7 rebuttal testimony. As shown, there is no discernible trend in the constant growth 8 DCF results for the companies in my proxy group that would indicate companies 9 with a relatively higher percentage of unregulated operations have a higher cost of 10 11 equity than companies with a relatively lower percentage of unregulated operations. This further supports that the operating risk of companies with a relatively higher 12 percentage of unregulated operations in the proxy group are not perceived to have 13 greater risk than companies in the proxy group with a relatively lower percentage of 14 unregulated operations. 15

1 2

3

FIGURE 2: COMPARISON OF 30-DAY CONSTANT GROWTH DCF RESULTS AS OF FEBRUARY 28, 2025 AND PERCENTAGE OF REGULATED OPERATING INCOME¹⁴



4 Therefore, I disagree with Mr. Murray that my proxy group does not reasonably

⁵ address unregulated operations for the proxy companies.

6 Q: Does Dr. Won include SWX and SR in his proxy group?

7 A. Yes, Dr. Won includes both SWX and SR in his proxy group used to estimate the

8 ROE for Ameren Missouri.¹⁵

¹⁴ Bulkley Rebuttal, Schedule AEB-R1, Attachment 2.

¹⁵ Missouri Public Service Commission, Case No. GR-2024-0369, Direct Testimony of Seoung Joun Won, PhD, February 28, 2025 ("Won Direct"), at 41.

Q: Do you agree with Mr. Murray that the cost of equity for Ameren should be used to determine the cost of equity for Ameren Missouri?¹⁶

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

9 As Dr. Roger Morin states:

A utility operating company, segment, division, or line of business must be treated as a separate stand-alone entity, distinct from its parent company because it is the cost of capital for the division that we are attempting to measure and not the cost of capital for the parent company's consolidated activities.¹⁷

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

¹⁶ Murray Rebuttal, at 20.

¹⁷ Roger A. Morin, *Modern Regulatory Finance*, Public Utilities Reports, Inc., 2021, at 252.

1 IV. COST OF EQUITY ESTIMATES VERSUS AUTHORIZED 2 ROES

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

A. Mr. Murray contends that authorized ROEs have exceeded the cost of equity
 because the market-to-book ratios for utilities have exceeded 1.0.¹⁸

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

No. There are several reasons why the market-to-book ratio for utilities may exceed Α. 10 1.0 other than the ROE exceeding the cost of equity. First, Mr. Murray's position 11 assumes that the Efficient Market Hypothesis ("EMH") holds true. The EMH theory 12 contends that all information currently known by investors is already reflected in 13 current stock prices.¹⁹ For example, the theory of the DCF model is that the current 14 share price is equal to the present value of all expected future dividends. Therefore, 15 if markets were fully efficient as suggested by Mr. Murray, changes in share prices 16 could only be explained by new information that results in a change to the expected 17 dividends. 18

¹⁸ Murray Rebuttal, at 34; Murray Direct, at 5, and 20-21.

¹⁹ 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, at 421-436 (1981).

However, as Dr. Lawrence Kolbe and Dr. Michael Vilbert outlined in their 2016 1 presentation to the California Public Utilities Commission, there is no consensus 2 among economists regarding whether the theory of the efficient market hypothesis 3 holds true and share prices are rationally priced, and even assuming for the sake of 4 argument that the efficient market hypothesis does in fact hold true, there is also no 5 consensus regarding which model produces reasonable estimates of the cost of 6 equity.²⁰ In fact, Nobel Prize-winning economist Dr. Robert Shiller and others have 7 provided compelling evidence against the efficient market hypothesis, concluding 8 that share prices are not rationally priced and that the DCF model does not fully 9 explain changes in share prices and thus will not accurately estimate the required 10 return of investors.²¹ There are numerous practical examples supporting this 11 position (e.g., large sudden declines in the market such as Black Monday in 1987, 12 the Great Recession of 2008/09, the COVID-19 crash in March 2020, and the "tech 13 bubble" of the late 1990s) that cannot be explained by new information regarding 14 dividends).²² 15

²⁰ 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). <u>https://www.brattle.com/insights-events/publications/moving-toward-value-in-utility-compensation-shareholder-value-concept/</u>

²¹ 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.

See, also, R. J. Shiller, "From Efficient Markets Theory to Behavioral Finance," Journal of Economic Perspectives, 2003, Vol. 17, No. 1, at 83–104. Dr. Shiller contended that there were "asset bubbles" such as the "tech boom" from 1994 to 2000 that resulted in substantial increases in share prices that could not be explained by market fundamentals.

1	If share prices are not necessarily rationally priced and cannot be explained by the
2	DCF model, then a market-to-book ratio greater than 1.0 cannot be attributed to the
3	ROE exceeding the cost of equity as Mr. Murray suggests (<i>i.e.</i> , the DCF model will
4	not necessarily produce an accurate estimate of the return required by investors
5	given the level of prices and, as a result, the resulting cost of equity estimate
6	produced by the DCF model, if set as the authorized ROE, would not produce a
7	market-to-book ratio of 1.0 – meaning prices would not adjust in the way described
8	by Mr. Murray).
9	Second, as Drs. Kolbe and Vilbert also noted, even if one assumes that the theory
10	of the EMH holds, there are several important conditions that must hold before one
11	can assume that the ROE equals the cost of equity at a market-to-book ratio of 1.0
12	for regulated utilities. Those conditions include:
13	• A utility has to be regulated on rate base identical to its GAAP book value.
14	 A utility has to have 100 percent regulated operations.
15 16	 The regulatory system has to be in full equilibrium (<i>i.e.</i>, there cannot be a lag in the adjustment of the authorized ROE to the market cost of equity); and
17	• The ROE expected, on average, has to equal the authorized ROE. ²³
18	As Drs. Kolbe and Vilbert concluded, it is very unlikely that all of these conditions
19	will be satisfied. For example, changes in cost trends or regulatory lag can cause a
20	utility to earn more or less than the allowed return, and if the expected return

²³ 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). <u>https://www.brattle.com/insights-events/publications/moving-toward-value-in-utility-compensation-shareholder-value-concept/</u>

deviates from the allowed return, then the allowed return will not equal the cost of
 equity, and the market-to-book ratio will not equal 1.0.

Q: Do recent trends in authorized ROEs and market-to-book ratios support Mr.

4 Murray's claim that authorized ROEs have exceeded the cost of equity?

A. No, they do not. To test Mr. Murray's theory, I compared the average market-tobook ratio for the companies in my proxy group for the period of January 1, 2020
through December 31, 2024 to the average annual authorized ROEs for natural gas
utilities for 2020 through 2024 shown in Figure 6 of my rebuttal testimony. As shown
in Figure 3, the market-to-book ratio for the companies in my proxy group are
currently lower than in January 2020; however, the average annual authorized ROE
for natural gas utilities has increased.

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

17



4

FIGURE 3: COMPARISON OF THE AVERAGE MARKET-TO-BOOK RATIO FOR MS. BULKLEY'S PROXY GROUP AND THE AVERAGE ANNUAL AUTHORIZED ROES FOR NATURAL GAS UTILITIES – 2020-2024²⁴



5 V. DCF ANALYSIS

Q: Please summarize the positions of Dr. Won and Mr. Murray regarding your
 DCF analyses.
 A. Both witnesses contend that the use of projected EPS growth rates in the constant

- growth DCF model overstates the cost of equity.²⁵ Dr. Won suggests that it would
- be more appropriate to rely on a long-term growth rate that approximates the level

²⁴ S&P Capital IQ Pro.

²⁵ Won Rebuttal, at 10-11; Murray Rebuttal, at 21-22.

1		of long-term gross domestic product ("GDP") growth. ²⁶ Mr. Murray suggests that, by
2		relying on projected EPS growth rates, I have assumed that 59.38 percent of total
3		returns will be in form of capital gains with the remaining portion related to dividends,
4		which he testifies is "illogical" since utility companies pay out approximately two-
5		thirds of their earnings as dividends to investors. ²⁷
6	Q:	Do you agree with these assessments of your DCF analyses?
7	Α.	No. It is important to recognize that while both witnesses essentially suggest that I
8		should rely on either a two-step DCF (Dr. Won) or a multi-stage DCF model (Mr.
9		Murray) using their assumptions, none of them directly rely on the output of those
10		DCF models for their respective ROE recommendations. Specifically:
11 12		 The result of Dr. Won's two-step DCF is 8.68 percent, or 96 basis points lower than his ROE recommendation of 9.64 percent.²⁸
13 14 15		 The results of Mr. Murray's multi-stage DCF range from 7.68 percent to 8.23 percent, or approximately 127 to 182 basis points lower than his ROE recommendation of 9.50 percent.²⁹
16		Since each of these witnesses essentially abandon their cost of equity estimates
17		from their respective DCF analyses for purposes of their ROE recommendation, it

²⁶ Won Rebuttal, at 11-12

²⁷ Murray Rebuttal, at 22

²⁸ Won Direct, at 3, and 43.

²⁹ Missouri Public Service Commission, Case No. GR-2024-0369, Direct Testimony of David Murray, February 28, 2025 ("Murray Direct"), at 2, Schedule DM-D-2 through Schedule DM-D-5.

is unreasonable to suggest that the assumptions or methodologies they rely on are
 superior to the DCF analyses that I have presented in my testimonies.

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

- A. First, as discussed in my rebuttal testimony, there are multiple reasons why earnings
 growth rates are the appropriate measure of growth in the DCF model including, but
 not limited to, the fact that earnings are the fundamental driver of dividend growth
 rates (*i.e.*, over the long-term, dividend growth can only be sustained by earnings
 growth) and there is significant academic research demonstrating that EPS growth
 rates are most relevant in stock price valuation.³⁰
- Second, as discussed in my direct and rebuttal testimonies, I have not relied exclusively on the results of the constant growth DCF model. Rather, I consider the results of multiple cost of equity estimation models in determining the range of ROEs that are appropriate to consider for the Company.³¹
- Third, considering the empirical studies comparing the total factor productivity ("TFP") growth of the utility industry relative to the economy, it is reasonable to assume that earnings growth for utilities could exceed GDP growth over the long term. In a study filed as part of the Rate Regulation Initiative of the Alberta Utilities

³⁰ Bulkley Rebuttal, at 44-46.

³¹ Bulkley Direct at 6, and 24-25; Bulkley Rebuttal, at 4.

Commission, the authors calculated TFP growth³² for 72 U.S. electric and 1 combination electric and natural gas utilities and for the U.S. economy for the period 2 of 1972 through 2009. For the U.S. utility group, TFP growth averaged 0.96 percent 3 over the period of 1972 to 2009,³³ while TFP growth for the U.S. economy was 0.91 4 percent,³⁴ indicating that electric and combination electric and natural gas utilities 5 were approximately 5 percent more productive than the U.S. economy over the 6 study period. Therefore, the authors showed that utility growth exceeded growth for 7 the U.S. economy for approximately 40 years. 8

Finally, while each of these witnesses criticizes the use of analysts' projected EPS growth rates in the constant growth DCF model, as noted, their preferred specification of the DCF model produces cost of equity estimates for their respective proxy groups that are below any authorized ROE in nearly half of a century for a natural gas utility in a jurisdiction with a comparable regulatory framework to Missouri, and, as I just discussed, are also more than 96 to 182 basis points below their own ROE recommendations for Ameren Missouri.

³⁴ *Id*., at 19.

³² TFP growth is a measure of productivity calculated as the difference between output growth and input growth. Higher TFP growth indicates that a company is converting inputs into higher levels of output growth (*i.e.*, increased productivity).

³³ Jeff Makholm, and Agustin Ros, "Update, Reply and PBR Plan Review for AUC Proceeding 566 – Rate Regulation Initiative", February 22, 2012, at 5.

Q: Is it reasonable that you did not conduct a two-step or multi-stage DCF such

2 as suggested by Dr. Won and Mr. Murray?

A. Yes. I did not conduct a two-step or multi-stage DCF analysis because, as
 discussed in my rebuttal testimony, there are multiple issues with the multi-stage
 DCF analysis, and particularly with the specifications of Dr. Won and Mr. Murray,
 that indicate the constant growth DCF model is the appropriate DCF model to
 estimate the cost of equity in this proceeding.³⁵

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?

- 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.³⁶ 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 economistsare uncomfortable with the15assumption that the DCF growth rates are perpetual growth rates,16and argue that above average growth can be expected to prevail for17a fixed number of years and then the growth rate will settle down to18a steady-state long-run level, consistent with that of the economy.
- Dr. Morin did not note that "[a]nalysts are of the concurring opinion" that long-term
- 20
- growth rates will converge to GDP. Furthermore, in Dr. Morin's most recent 2021

³⁵ Bulkley Rebuttal, at 42-51, and 81-91.

³⁶ Won Rebuttal, at 11.

³⁷ Roger A. Morin, *New Regulatory Finance*, Public Utilities Reports, Inc., 2006, at 302; emphasis added.

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

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

10 ***

Multi-Stage DCF applications appear somewhat disconnected from 11 the assumptions of the method and the consensus expectations of 12 investors. The investment community does not look to GDP growth 13 over the next several decades when evaluating an investment in 14 utility stocks, nor does it anticipate a series of discrete multi-stage 15 decennial stages. I am not aware of any evidence that investors 16 evaluate the future based on the assumptions and data sources 17 required to apply the two-stage or three stage DCF model.³⁸ 18

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

³⁸ 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. ³⁹ 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. ⁴⁰
8	Q:	How does Dr. Won's growth rate differ from the approach supported by Dr.
9		Morin?
9 10	A.	Morin? Dr. Won relies on the projected GDP growth rate of 3.90 percent projected by the
	A.	
10	A.	Dr. Won relies on the projected GDP growth rate of 3.90 percent projected by the
10 11	A.	Dr. Won relies on the projected GDP growth rate of 3.90 percent projected by the Congressional Budget Office ("CBO") for the period for the 10-year period of 2024
10 11 12	A.	Dr. Won relies on the projected GDP growth rate of 3.90 percent projected by the Congressional Budget Office ("CBO") for the period for the 10-year period of 2024 through 2034 as the estimate of long-term growth in his two-stage DCF model. ⁴¹
10 11 12 13	A.	Dr. Won relies on the projected GDP growth rate of 3.90 percent projected by the Congressional Budget Office ("CBO") for the period for the 10-year period of 2024 through 2034 as the estimate of long-term growth in his two-stage DCF model. ⁴¹ Thus, Dr. Won is relying on a long-term growth rate using CBO data that only reflects
10 11 12 13 14	A.	Dr. Won relies on the projected GDP growth rate of 3.90 percent projected by the Congressional Budget Office ("CBO") for the period for the 10-year period of 2024 through 2034 as the estimate of long-term growth in his two-stage DCF model. ⁴¹ Thus, Dr. Won is relying on a long-term growth rate using CBO data that only reflects growth for a ten-year forward-looking period. However, Dr. Won applies this growth

³⁹ *Id.,* at 388.

⁴⁰ *Id*.

⁴¹ Won Direct, Schedule SJW-d10.

Q: Have you reviewed any additional academic research that supports Dr. 1 Morin's methodology for estimating the long-term nominal GDP growth rate? 2 Yes. As discussed in my rebuttal testimony, similar to Dr. Morin's methodology, Α. 3 *Morningstar* recommends estimating the projected long-term nominal GDP growth 4 rate by first calculating the historical growth in real GDP and then adding the 5 expected inflation rate.⁴² As shown on Schedule AEB-R1, Attachment 9 of my 6 rebuttal testimony, when longer-term GDP growth is estimated consistent with the 7 methodology outlined by *Morningstar*, the long-term nominal GDP growth rate is 8 5.50 percent – or significantly higher than the growth rate that Dr. Won relies on. 9

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

Α. Yes. The long-term GDP growth rate consistent with the methodology outlined by 13 Dr. Morin and *Morningstar* is 5.50 percent. The proxy group average EPS growth 14 rate is 5.98 percent in my direct testimony as shown on Schedule AEB-D2, 15 Attachment 3, and 6.74 percent in my rebuttal testimony as shown on Exhibit AEB-16 R1, Attachment 2. Therefore, the long-term GDP growth rate is more supportive of 17 the average analysts' projected EPS growth rates that I have relied on as opposed 18 to the GDP growth rate assumed by Dr. Won, which is 160 basis points lower than 19 the methodology outlined by *Morningstar* and consistent with Dr. Morin. 20

⁴² Bulkley Rebuttal, at 47-48.

1		Therefore, while Dr. Won suggests that if I had used his two-step DCF approach the
2		resulting cost of equity would be 9.67 percent, ⁴³ there is no basis for his analysis
3		given that his GDP growth rate is inconsistent with the methodology of the source
4		that he cites in his testimony.
5	Q:	Why does Mr. Murray conclude that your reliance on projected EPS growth
6		rates is "illogical?" ⁴⁴
7	Α.	Mr. Murray states that by relying on projected EPS growth rates, I have assumed
8		that approximately 59.38 percent of investors' returns will be in the form of capital
9		gains (<i>i.e.</i> , price appreciation) with the remaining portion attributable to dividends. ⁴⁵
10		According to Mr. Murray, this assumption is illogical given that utilities typically have
11		a payout ratio that is approximately two-thirds of their annual EPS, meaning payout
12		approximately 67 percent of earnings as dividends. Mr. Murray contends that if it is
13		assumed that 59.38 percent of an investor's return is attributable to dividends (<i>i.e.</i> ,
14		closer to his assumed payout ratio for utilities), the cost of equity would be 6.96
15		percent, which is closer to the investors' return requirements than a cost of equity
16		of 10.07 percent. ⁴⁶

⁴³ Won Rebuttal, at 12.

⁴⁴ Murray Rebuttal, at 22.

⁴⁵ Murray Rebuttal, at 22; Mr. Murray's referenced 59.38 percent is calculated as the proxy group median projected EPS growth rate of 5.98 percent divided by the result of the proxy group average constant growth DCF result assuming 90-day average stock prices of 10.07 percent.

⁴⁶ Murray Rebuttal, at 22.

- **Q:** Is there any merit to Mr. Murray's contention?
- A. No. It is important to note that a cost of equity estimate of 6.96 percent is
 significantly lower than any authorized return for a natural gas utility since at least
 1980 in a jurisdiction with a comparable regulatory framework to Missouri. A return
 of 6.96 percent is clearly unreasonable and over 250 basis points lower than Mr.
 Murray's own ROE recommendation in this proceeding, and which clearly would not
 satisfy the comparable return standard of *Hope* and *Bluefield*.
- 8 VI. CAPM ANALYSIS

9 Q: What are the positions of Dr. Won and Mr. Murray regarding your CAPM

- 10 analyses?
- A. Each of these witnesses contend that the market return used in my CAPM analysis
- is unreasonable. Specifically:
- Dr. Won suggests that the calculation of the market return should exclude 13 • companies that do not pay dividends and should not rely on short-term 14 growth rates.⁴⁷ Dr. Won states that when companies that do not pay 15 dividends are removed from the market return calculation, and his two-step 16 DCF approach is also applied to the derivation of the market return, the 17 result is a market return of 10.02 percent. Dr. Won contends that when this 18 market return of 10.02 percent is applied to my CAPM, the resulting cost of 19 equity would be 8.79 percent.⁴⁸ 20
- Mr. Murray states that he is unaware of any authoritative sources that calculate the market return such as I have done (*i.e.*, using a constant growth DCF model with projected earnings growth rates as the estimate of

⁴⁷ Won Rebuttal, at 14.

⁴⁸ *Id.*, at 17; *see also* Dr. Won's workpapers titled "1 Summary," "4 CAPM," and "6 Mkt Return."

growth).⁴⁹ Mr. Murray states that the sources he has reviewed recommend using a growth rate no higher than the growth rate of GDP when estimating the long-term return for the market.⁵⁰ Finally, Mr. Murray asserts that the Wilshire 5000, which is an index of the value of all American stocks traded in the United States, would be approximately 40 times the value of GDP in 50 years if the index grew at the earnings growth rate that I have relied on to calculate my market return.⁵¹

8

Q: Do you agree with Dr. Won's proposed adjustment to your market return

9

calculation to remove non-dividend paying companies?

- A. No. While Dr. Won attempts to recalculate the market return used in my CAPM
- analysis by excluding non-dividend paying companies, his calculation contains an
- 12 error. Therefore, neither his adjustment to my market return nor his CAPM result of
- 13 8.79 percent based on that incorrect market return can be relied upon.

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

A. The market return calculation relied upon in my direct testimony, which Dr. Won adjusts and then uses in his modifications to my CAPM and ECAPM analyses, is a market return weighted by the market capitalization of the companies in the S&P 500 Index. However, there is an error in Dr. Won's adjustment to remove nondividend paying companies. Specifically, as shown on Dr. Won's rebuttal testimony workpaper "6 Market Return," his calculation does not properly reflect the weightings of the companies in the market return when he attempts to remove the non-dividend

⁵⁰ *Id.*

⁴⁹ Murray Rebuttal, at 23.

⁵¹ *Id.,* at 24.

paying companies. Therefore, his adjusted market return of 10.02 percent is incorrect. In order for this calculation to be performed correctly, it is necessary that the dividend yield and growth rate are weighted by the market capitalization of the companies that are included in the calculation. In other words, when the nondividend paying companies are removed from the calculation, the market capitalization of the non-dividend paying companies also must be removed from the weighting factor as it affects both the dividend yield and growth rate.

8 Q: Can you provide a specific example that demonstrates the error in the market

9

weightings in Dr. Won's market return calculation?

Α. Yes. While I disagree with removing the non-dividend paying companies from the 10 market return calculation, I can provide an example of the error that resulted when 11 Dr. Won attempted to remove these companies from his estimated market return. 12 As shown on his workpaper "6 Market Return," the company AutoZone Inc. ("AZO") 13 does not have an estimated dividend yield. When removing AZO from the 14 calculation, Dr. Won should have also removed AZO from his weighting of the 15 companies by market capitalization. However, as shown on his workpaper, Dr. Won 16 did not remove AZO but rather has incorrectly included the company in the overall 17 index weighting. While AZO is one example, this same error also applies for 18 numerous additional companies in the S&P 500 where Dr. Won has failed to 19 consistently remove non-dividend paying companies consistent with his stated 20 methodology. 21

29

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

No. Dr. Won's application of the two-step DCF to his recalculation of my market Α. 3 return is not appropriate for several reasons. First, it is inconsistent with the method 4 that the Federal Energy Regulatory Commission ("FERC") uses to calculate the 5 market return used in the CAPM analysis, even though Dr. Won cites the FERC in 6 his direct testimony to support his use of a two-step DCF analysis to estimate the 7 cost of equity for the Company. Specifically, Dr. Won calculates the dividend yield 8 component of the market return in the same general manner as I have done 9 (although, as noted, he removes only a portion of the non-dividend paying 10 companies), but he applies a two-step DCF for purposes of calculating the growth 11 rate component of the market return. For his two-step DCF, Dr. Won calculates the 12 growth rate by applying a weight of 80.00 percent to his derived growth rate of the 13 S&P 500 Index (which, as just discussed, was derived incorrectly) and applying a 14 weight of 20.00 percent to the GDP growth rate of 3.90 percent that he assumes in 15 his CAPM analysis. Dr. Won does not discuss in his testimony why or how this two-16 17 step DCF approach to calculating the growth rate component of the market returns is appropriate, but rather simply states that, "[w]ith more reasonable assumptions, 18 such as a market return of 10.02%," my average CAPM result would be 8.79 19 percent.⁵² Thus, Dr. Won fails to acknowledge that the FERC has continued to rely 20 on the constant growth DCF model to calculate the market return such as I have 21

⁵² Won Rebuttal, at 14 and 17.

- done in my CAPM analyses, not the use of a two-step DCF model using GDP growth
- 2 as suggested by Dr. Won:

We also continue to find that the CAPM should use a one-step DCF 3 for its risk premium. This is because the rationale for using a two-4 step DCF methodology for a specific group of utilities does not apply 5 when conducting a DCF study of the dividend-paying companies in 6 the S&P 500, as the Commission found in Opinion Nos. 531-B and 7 8 569. <u>A long-term component is unnecessary because of the regular</u> updates to the S&P 500, which allows it to continue to grow at a 9 short-term growth rate and because S&P 500 companies include 10 stocks that are both new and mature, the latter of which have a 11 moderating effect on the short-term growth rates.53 12

In addition, the U.S. Court of Appeals for the District of Columbia addressed this 13 issue in its review of FERC Opinion No. 569-B. In the Court's decision, it 14 acknowledged that the FERC has relied on the use of EPS growth rates in the 15 calculation of the market return on the S&P 500 because the S&P 500 is regularly 16 updated to include companies with high market capitalization and it includes 17 companies at all stages of growth, including lower and higher growth potential. The 18 Court determined that FERC's rationale for using projected EPS growth rates was 19 sufficient and rejected the challenge to this assumption.⁵⁴ 20

- 21 Second, not only does Dr. Won utilize a two-step DCF to calculate the market return,
- 22

but he also does so assuming a GDP growth rate of 3.90 percent, which, as

 ⁵³ 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.

⁵⁴ *MISO Transmission Owners v. FERC*, 45 F.4th 248, 259-60, (D.C. Cir. 2022).

discussed in my rebuttal testimony, is inconsistent with the approach for determining
 a long-term growth rate as cited by *Morningstar*⁵⁵ as well as Dr. Morin, who is
 referenced by Dr. Won as support for the use of a GDP growth rate in the DCF
 model.

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

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

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

Α. Yes. Schedule AEB-SR1, Attachment 1, pages 1 through 12 present the market 12 return calculation as filed in my direct testimony of 12.07 percent and Dr. Won's 13 erroneous adjustment to my market return of 10.02 percent, respectively. However, 14 as shown on Schedule AEB-SR1, Attachment 1, pages 13 through 18, while I do 15 not agree with excluding non-dividend paying companies from the calculation of the 16 overall market return. I correct the errors in Dr. Won's market return calculation and 17 remove Dr. Won's application of the two-step DCF so the calculation of the market 18 return is consistent with the methodology relied on by FERC. As shown on 19

⁵⁵ Bulkley Rebuttal, at 47-48.

Schedule AEB-SR1, Attachment 1, page 13, this analysis demonstrates that my
 market return is not an "extreme outlier" as Dr. Won suggests.

Specifically, as shown on Schedule AEB-SR1, Attachment 1, page 13, when Dr. 3 Won's market return is reasonably adjusted to (1) remove non-dividend paying 4 companies correctly from the market return calculation; and (2) rely on a constant 5 growth DCF analysis instead of a two-step DCF analysis, the market return is 12.05 6 percent, only 2 basis point lower than my calculation of the market return that 7 includes both dividend paying and non-dividend paying companies. Therefore, 8 when the error in Dr. Won's analysis is corrected and the constant growth DCF 9 model is applied consistent with the methodology relied on by FERC, the resulting 10 projected market return supports my analyses and demonstrates that my market 11 return is not "unreasonably high" as Dr. Won contends.⁵⁶ 12

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

A. As shown on Schedule AEB-SR1, Attachment 3, when relying on a fully corrected
 market return of 12.05 percent, the results of the CAPM would be 10.45 percent,
 which demonstrates that the Company's requested ROE of 10.25 percent is
 reasonable.

⁵⁶ Won Rebuttal, at 13.

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

No. The market risk premium is the difference between the market return and the risk-free rate. As discussed, the market return used in my CAPM analysis is reasonable, consistent with the range established by historical market return data,⁵⁷ and has been relied upon in other regulatory jurisdictions. Specifically, Figure 4 shows that my market return falls towards the middle of the distribution of historical annual returns.

⁵⁷ Bulkley Direct, at 32-33.



2

5

6

7

8

9

10

11



FIGURE 4: ANNUAL MARKET RETURNS DISTRIBUTION 1926-2024

³ Moreover, the following summarizes the use of methodologies that are consistent

4 with the approach I relied upon to develop the market risk premium in my CAPM:

- In a recent cost of capital proceeding for the electric utilities, the California Public Utilities Commission noted that all parties recognized that historical market returns and economically logical projections fall within the range of 12.00 percent.⁵⁸ This recognition is consistent with the market return utilized in the initial CAPM analyses in my direct testimony (*i.e.*, 12.07 percent) and in the updated CAPM analyses in my rebuttal testimony (*i.e.*, 12.15 percent).
- As just discussed, the FERC has supported the use of a constant growth DCF model to estimate the market return in the CAPM such as I have done, and the U.S. State Court of Appeals for the District of Columbia has addressed the concern regarding the use of projected EPS growth rates in a constant growth DCF model to estimate the market return.

⁵⁸ California Public Utilities Commission, Application 22-04-008, *et al.*, Decision 22-12-031, at 23, December 15, 2022.

Various state utility regulatory commissions have also supported the use of 1 • a constant growth DCF model to estimate the market return in the CAPM. 2 As shown in Figure 5, the Staff of the Illinois Commerce Commission 3 ("ICC"), the Bureau of Investigation and Enforcement ("I&E") of the 4 Pennsylvania Public Utility Commission ("Pennsylvania PUC"), and the 5 Staff of the Maine Public Utilities Commission ("Maine PUC") have each 6 supported the forward-looking market risk premium, and the market return 7 estimates using the constant growth DCF model. In each of these cases, 8 the respective regulatory commission relied on the estimated CAPM results 9 by these parties to determine the authorized ROE and did not dispute the 10 use of the constant growth DCF model to calculate the market return. 11

12 13

FIGURE 5: REGULATORY COMMISSIONS – MARKET RETURN ESTIMATED USING THE 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%) ⁵⁹	9/8/21	Yes ⁶⁰
I&E	Aqua Pennsylvania, Inc.	Docket No. R- 2021-3027385	CGDCF of the <i>Value</i> <i>Line</i> Universe and S&P 500 (12.14%) ⁶¹	5/12/22	Yes, the PPUC placed primary weight on I&E's CAPM ⁶²
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%) ⁶³	4/1/20	Yes ⁶⁴

14

15

16

17 18 • Finally, given the fact that the expected market return estimated in my direct testimony is consistent with the range of annual equity returns that have been observed over the past century, and the expected market return estimated in my rebuttal testimony is only slightly higher, my market return

⁵⁹ Illinois Commerce Commission, Docket No. 20-0810, Order, September 8, 2021, at 71.

⁶⁰ *Id.*, at 86-87.

⁶¹ Pennsylvania Public Utility Commission, Aqua Pennsylvania, Inc., Opinion and Order, Public Meeting held May 12, 2022, at 147.

⁶² *Id.*, at 178.

⁶³ Maine Public Utilities Commission, Docket No. 2019-00092, Bench Analysis, October 29, 2019, at 21.

⁶⁴ *Id.*, Order Part II, April 1, 2020, at 58.
- continues to be consistent with the frequency of historical market returns at
 or above my market return estimate, further demonstrating that it my
 estimate is a reasonable expectation for the market.
- 4 All of these factors support the market return and market risk premium used in my
- 5 CAPM and ECAPM analyses and invalidate the claim made by Dr. Won and Mr.
- 6 Murray regarding the reasonableness of my market return and thus market risk
- 7 premium.

Q: What is your response to Mr. Murray's contention that he is not "aware of any authoritative sources" that use your approach to estimating the market return?⁶⁵

A. I do not believe that is a true statement. I have filed testimony in this jurisdiction in numerous cases in response to Mr. Murray and have discussed the regulatory support for the calculation of the market return that I have relied upon.⁶⁶ Accordingly, as just discussed, there are multiple authoritative sources that have relied on the constant growth DCF to estimate the market return in the CAPM of which I am aware and previously have made Mr. Murray aware.

⁶⁵ Murray Rebuttal, at 23.

⁶⁶ 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.

Q: How do you respond to Dr. Won's view that your market risk premium is an "extreme outlier"?⁶⁷

I disagree. The decisions of other regulators that I have just discussed contradict Α. 3 Dr. Won's conclusion that my market return is an outlier. Further, the estimates that 4 Dr. Won summarizes in Figure 2⁶⁸ of his rebuttal testimony have been addressed in 5 my rebuttal testimony since they are used in Dr. Won's CAPM analyses, and in part 6 in Mr. Murray's CAPM analyses.⁶⁹ The additional estimates that he provides in his 7 rebuttal testimony are misleading, in that they were proposed by parties in a FERC 8 proceeding, but not accepted by the FERC. Therefore, Dr. Won has provided no 9 evidence demonstrating that a regulator has relied on these estimates. 10

Specifically, Dr. Won presents forward-looking market risk premium estimates from *Value Line*, Duff & Phelps (now *Kroll*), and American Appraisal in Figure 2 of his rebuttal testimony, and he cites the FERC's Opinion No. 569 as the source for those estimate.⁷⁰ However, Dr. Won fails to acknowledge that the market risk premia that he cites from Opinion No. 569 were not agreed upon by the FERC in that proceeding. Rather, these estimates were raised by a specific intervenor group in that proceeding and summarized as such in Opinion No. 569 as part of the summary

⁶⁷ Won Rebuttal, at 15.

⁶⁸ *Id*., 16

⁶⁹ Bulkley Rebuttal, at 52-65.

⁷⁰ Won Rebuttal, at 15, footnote 52.

1	of the record. ⁷¹ The FERC did not agree with that intervenor's position in calculating
2	the market return and thus market risk premium, and it instead adopted an approach
3	that is similar to the methodology I use to estimate the market risk premium.72
4	Moreover, Opinion No. 569 was issued in November 2019, approximately five years
5	ago, which means that the specific estimates of the market risk premia that he
6	summarizes, while not supported by FERC, are also outdated and not relevant for
7	purposes of determining the cost of equity in the current proceeding.

8 Q: Dr. Won also references the market risk premium resulting from a 2021 survey

conducted by the IESE Business School. Is this supportive of Dr. Won's
 position?

A. No. Dr. Won ignores the fact that the authors of this study caution against the use

of survey data estimate the market return and market risk premium. Specifically,

13 the survey notes:

We can find out the REP [Required Equity Premium] and the EEP 14 [Expected Equity Premium] of an investor by asking him, although 15 for many investors the REP is not an explicit parameter but, rather, 16 it is implicit in the price they are prepared to pay for the shares. 17 However, it is not possible to determine the REP for the market as a 18 whole, because it does not exist: even if we knew the REPs of all the 19 investors in the market, it would be meaningless to talk of a REP for 20 the market as a whole. There is a distribution of REPs and we can 21 only say that some percentage of investors have REPs contained in 22

⁷¹ 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.

⁷² *Id.,* at ¶ 260-261.

1 2 a range. The average of that distribution cannot be interpreted as the REP of the market nor as the REP of a representative investor.⁷³

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

5 Α. Yes. As discussed in my rebuttal testimony, I reviewed a study conducted by the Federal Reserve Bank of New York which examined 20 methodologies over the 6 period 1960 through 2013 for estimating the market risk premium and showed that: 7 8 (1) the 20 methodologies produced a market risk premium range of -1 percent to 14.5 percent and (2) the principal component analysis of the 20 models produced a 9 range for the market risk premium of approximately 0 percent to over 10 percent 10 from 1960 through 2013, with the market risk premium consistently exceeding 10 11 percent following the financial crisis of 2008/09 through the end of the study 12 period.⁷⁴ Further, as I also discuss in my rebuttal testimony, the Federal Reserve 13 Bank of New York concluded that the market risk premium is higher during period 14 of increased inflation which is consistent with current market conditions as inflation 15 16 currently remains above the Federal Reserve's target of 2 percent and inflation is likely to remain elevated over the near-term as a result of the significant tariffs 17 implemented by the Trump Administration.⁷⁵ Therefore, the results of the Federal 18 Reserve Bank of New York study demonstrate that both the market risk premia 19

⁷³ 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.

⁷⁴ Bulkley Rebuttal, at 97-98; Fernando Duarte and Carla Rosa, "The Equity Risk Premium: A Review of Models," Federal Reserve Bank of New York, 2015.

⁷⁵ *Id.,* at 99-100; Fernando Duarte and Carla Rosa, "The Equity Risk Premium: A Review of Models," Federal Reserve Bank of New York, 2015.

estimates in my direct testimony, which range from 7.84 percent to 7.95 percent, as
 well as the market risk premia estimates in my rebuttal testimony, which range from
 7.42 percent to 7.85 percent, are reasonable.

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

A. Mr. Murray calculates the market capitalization of the Wilshire 5000 index in 50
 years using the earnings growth rate that I relied on to calculate my market return,
 as well as GDP in 50 years using a long-term GDP growth rate of 4.00 percent. Mr.
 Murray concluded that in 50 years the value of the Wilshire 5000 would be
 approximately 40 times higher than GDP, which he notes is unreasonable.⁷⁶

11 Q: Is this analysis meaningful?

A. No. First, Mr. Murray ignores the fact that the annualized ten-year total return on
 the Wilshire 5000 as of March 31, 2025, was 11.27 percent, which is generally
 consistent with the market return estimate in both my direct and rebuttal testimonies.

Further, Mr. Murray's comparison is entirely dependent on his selection of an assumed GDP growth rate of 4.00 percent.⁷⁷ This analysis has no probative value, as he has not provided any support for his GDP growth rate, which is fundamental to the point of his analysis. It is simply a demonstration in compound annual growth

⁷⁷ *Id*.

⁷⁶ Murray Rebuttal at 24.

at two different rates. As shown previously in Schedule AEB-R1, Attachment 9 of
 my rebuttal testimony, Mr. Murray's assumed growth rate is significantly below a
 long-term projected GDP growth rate of 5.50 percent.

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

Α. Yes. A recent Morgan Stanley article challenges the link between GDP and 7 earnings in the context of the Buffett indicator (*i.e.*, ratio of the market value of all 8 publicly-traded equity securities to gross national product ("GNP")). In a modern 9 global economy, as "U.S. companies now get more of their sales from outside the 10 U.S. than they did in the past. GDP does not include those sales."⁷⁸ A recent 11 Wellington Management article provides an intuitive example of this disconnect 12 between GDP and EPS can be observed between the U.S. and China. "China EPS 13 growth has stagnated while U.S. EPS growth has been exceptional, despite China's 14 economy growing at twice the speed of the U.S. ... When EPS is diluted by 15 additional company share issuance, it can further exacerbate this misalignment with 16 GDP growth."⁷⁹ U.S. companies selling goods and services to China and other 17 countries contribute to EPS but not GDP. Both earnings derived from international 18

⁷⁸ Michael J. Mauboussin and Dand Callahan, "Charts from the Vault," Morgan Stanley Investment Management, Counterpoint Global Insights, December 5, 2024.

⁷⁹ N. Samouihan and A. King, "Chart in focus: The need to differentiate market growth from macro growth," Wellington Management, September 2024.

sales and share issuances/buybacks weaken the link between EPS growth and
 GDP growth.

Furthermore, Economist Martin Feldstein observed that with the rise of services in
 the economy, GDP "official measures provide at best a lower bound on the true real
 growth rate with no indication of the size of the underestimation."⁸⁰
 Accordingly, the referenced articles support my conclusion that it is not appropriate

to assume that the long-term growth of the S&P 500 is constrained by U.S. GDP
 growth.

9 VII. ECAPM ANALYSIS

Q: What are the positions of Dr. Won and Mr. Murray regarding your ECAPM analysis?

A. Dr. Won states that my ECAPM analyses rely on a market risk premium that is too high.⁸¹ In addition, Dr. Won disagrees with the adjustment made in the ECAPM to account for the tendency of the CAPM to underestimate the cost of equity for companies with betas less than 1.00.⁸² Specifically, Dr. Won states that there is a fairly wide range of alpha estimates between academic studies primarily due to the methodologies employed and time periods used which means the estimates of

⁸⁰ Martin Feldstien, "Underestimating the real growth of GDP, personal income, and productivity," *Journal of Economic Perspectives*, 31(2), at 145-164 (2017).

⁸¹ Won Rebuttal, at 17.

⁸² *Id*.

alpha are not strictly comparable.⁸³ Further, Dr. Won contends that Dr. Morin
 presented other studies that produced returns between -9.61 percent to 13.56
 percent, which Dr. Won claims means that the CAPM overestimated the return in
 some instances and that such findings do not lend credibility to the use of the
 ECAPM.⁸⁴

6 Mr. Murray's response to my ECAPM simply reiterates his concern regarding the 7 market risk premium of my CAPM, which I have already addressed in this testimony; 8 however, he does not specifically discuss the ECAPM.⁸⁵

9 Q: Do you agree with Dr. Won's conclusions on the ECAPM studies?

No, I do not. The concept of the ECAPM and the conclusion that the risk-return Α. 10 relationship is flatter than predicted by the CAPM is generally accepted in financial 11 literature. In *Modern Regulatory Finance*, Dr. Morin provides a list of studies each 12 of which concludes that the CAPM understates the returns for companies with betas 13 less than 1.0 (which is typically utilities) and overstates the return for companies 14 with betas greater than 1.0.⁸⁶ It is these empirical studies that formed the basis of 15 the development of alternative models such as the ECAPM that would better predict 16 the risk return-relationship observed when reviewing actual market data. 17

⁸³ *Id.*, at 17-18.

⁸⁴ *Id*., at 18.

⁸⁵ Murray Rebuttal, at 24-25.

⁸⁶ Roger A. Morin, *Modern Regulatory Finance*, Public Utilities Reports, Inc., 2021, at 206-208.

2

Academics and researchers use the equation shown below to determine the value 1 of the constant term (α) or "alpha factor" using historical market data:

3	$K_e = r_f + \alpha + \beta ((r_m - r_f) - \alpha))$	[1]
4	Where:	
5	K_{e} = the required market COE;	
6	α = a constant term;	
7	β = beta coefficient of an individual security;	
8	r _f = the risk-free ROR; and	
9	r _m = the required return on the market as a whole	·.

There have been numerous additional studies published to estimate the value of the 10 constant term or alpha factor in the ECAPM equation. Figure 6 provides the list of 11 12 studies summarized by Dr. Morin and referenced by Dr. Won as support for his conclusion that the ECAPM is not credible. However, Dr. Won's conclusion 13 improperly masks the fact that, as shown, six of the eight studies estimated positive 14 values of the constant term, which indicates that the consensus among the studies 15 is that the CAPM understates the observed return. Additionally, among the six 16 studies that estimate only positive values of the constant term, the range of the 17 constant term was 1.63 percent to 13.56 percent. Dr. Morin relied on a constant 18 term in the range of 1 to 2 percent to develop the 0.25 and 0.75 factors included in 19 the ECAPM, and considering the range of the constant term provided in Figure 6, it 20 would appear Dr. Morin's estimate is conservative. 21

45

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%

FIGURE 6: EMPIRICAL EVIDENCE ON THE ALPHA FACTOR (CONSTANT TERM)⁸⁷

2

1

Is Dr. Won's recalculation of your ECAPM analyses reasonable? 88 3 Q:

No. Dr. Won's recalculation relies on the same incorrect market return and market Α. 4 risk premium "adjustment" that he developed in response to my CAPM. As a result, 5 his ECAPM is unusable as an estimate of the cost of equity. Further, as summarized 6 on Schedule AEB-SR1, Attachment 3, when the error in Dr. Won's recalculation of 7 my ECAPM analysis is corrected, and the constant growth DCF model is applied to 8 calculate the market return consistent with the methodology relied on by FERC, the 9 overall resulting cost of equity is 10.85 percent, or higher than the Company's 10 proposed ROE in this proceeding. 11

⁸⁷ *Id.*, at 222.

⁸⁸ Won Rebuttal, Workpaper "4 CAPM."

VIII. RISK PREMIUM ANALYSIS

2 Q: What are the positions of Dr. Won and Mr. Murray regarding your Bond Yield

³ Plus Risk Premium ("BYRP" or "Risk Premium") analysis?

- A. These witnesses offer the following positions regarding the Risk Premium approach
- 5 generally, and my analyses specifically:
- Dr. Won's primary concerns with the BYRP analysis are that: (1) the 6 • analysis is determined based on the yield on the 30-year Treasury bond 7 vield, which is affected by government intervention through the Federal 8 Reserve's monetary policy and not solely through the financial market; (2) 9 the 30-year Treasury yield increased too much as a result of the COVID-19 10 pandemic to accurately estimate an ROE; and (3) the relationship between 11 the 30-year Treasury bond yield and the ROE is not constant over time.⁸⁹ 12 In addition, Dr. Won states that he agrees with the FERC that the BYRP is 13 likely to provide a less accurate current cost of equity estimate than the DCF 14 or CAPM models because it relies on previous ROE determinations that 15 may not be directly determined by a market-based methodology.⁹⁰ 16
- Mr. Murray contends that I have concluded from my BYRP analysis that ROEs have not changed as much as interest rates, and thus an adjustment needs to be made to recognize that regulators have been hesitant to adjust authorized ROEs as much as interest rates would suggest. Mr. Murray states that this is circular because the regression coefficient is dependent on regulatory commissions' decisions and not on market required returns.⁹¹
- 23 Q: Is there any merit to Dr. Won's concerns that your BYRP analysis?
- A. No. Regardless of my use of authorized ROE and Treasury bond yield data back
- to 1980 and the changes in that data over time, the regression analysis that I have
- 26 conducted nonetheless demonstrates a strong inverse relationship between interest
- rates and the equity risk premium for utilities. As shown in Schedule AEB-R1,

⁸⁹ Won Rebuttal, at 20-22.

⁹⁰ *Id*., at 22.

⁹¹ Murray Rebuttal, at 25.

Attachment 6 of my rebuttal testimony, the regression in my BYRP analysis has an 1 R² of approximately 0.85, which means that 85 percent of the variation in historical 2 implied utility equity risk premia can be explained by changes in interest rates. The 3 regression indicates that there indeed exists a strong negative correlation between 4 utility equity risk premia and interest rates, and that the regression equation is an 5 effective tool for predicting authorized ROEs at specified interest rate levels, 6 whether current or projected interest rates. Although I disagree with his specification 7 of the BYRP, Dr. Won's BYRP analysis also shows a strong negative relationship 8 between interest rates and the equity risk premium for utilities. 9

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

Yes. In Figure 3 of Dr. Won's rebuttal testimony, he claims that the results of my 12 Α. BYRP analysis are unreliable because of a divergence in the relationship between 13 authorized ROEs and 30-year Treasury bond yields post-COVID.⁹² However, as 14 shown in Figure 7 below, the same divergence is present in the authorized ROE 15 and utility bond yield data that Dr. Won relies on for his BYRP analysis.⁹³ Further, 16 if Dr. Won believes that such a divergence in the authorized ROE and utility bond 17 yield data produces an unreliable result, then he has invalidated the result of his 18 own BYRP analysis. More importantly, given that Dr. Won's ROE recommendation 19

⁹² Won Rebuttal, at 20-21.

⁹³ Won Direct, at 46-48.

SURREBUTTAL TESTIMONY OF ANN E. BULKLEY

in this proceeding is equivalent to the result of his BYRP analysis, he has also
 invalidated his ROE recommendation in this proceeding.



3 FIGURE 7: DR. WON'S AUTHORIZED ROE AND MOODY'S UTILITY BOND YIELD DATA⁹⁴

Q: Is Mr. Murray's position regarding your BYRP analysis consistent with his
 own analyses?
 A. No. While Mr. Murray suggests that the relationship between authorized ROEs and

- ⁸ bond yields does not reflect investor behavior,⁹⁵ he evaluates authorized ROEs and
- ⁹ long-term Treasury bond yields as support for his recommended ROE.⁹⁶ Therefore,

4

⁹⁴ Data sourced from Dr. Won's "BYRP Model.xls" workpaper.

⁹⁵ Murray Rebuttal at 25.

⁹⁶ Murray Direct at 3-6.

to the extent that Mr. Murray believes that my BYRP analysis cannot be relied upon,
 he invalidates his own analyses.

It is unquestionable that both credit rating agencies and investors consider the authorized ROE data in their determination of the valuation of utility stocks. As I discussed in my direct and rebuttal testimonies, both credit rating agencies and investors have responded negatively to authorized ROEs deemed to be too low.⁹⁷ Therefore, the relationship between recently authorized ROEs and the prevailing interest rates at the time that the ROE was authorized is reasonable to consider when setting the ROE in the context of a rate proceeding.

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

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

⁹⁷ Bulkley Direct, at 11; Bulkley Rebuttal, at 27-34.

IX. BUSINESS RISK FACTORS

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

Α. Dr. Won states that he considers Ameren Missouri's business and regulatory risks 4 when recommending his ROE in this proceeding; however, he alleges that I have a 5 biased approach that inflates the Company's business and regulatory risks.⁹⁸ 6 Furthermore, while acknowledging that the Company does have some regulatory 7 lag and time limits, Dr. Won contends that Ameren Missouri does not have greater 8 risk than the proxy group, stating that the Company takes advantage of several 9 alternative regulatory mechanisms such the Delivery Charge Adjustment ("DCA") 10 and that he finds no evidence that Ameren Missouri has significantly greater risk 11 than the proxy group that requires an upward adjustment to the ROE to be 12 authorized in this proceeding.⁹⁹ Finally, Dr. Won opposes my consideration of small 13 size risk because while Ameren Missouri's natural gas operations may be small, 14 Ameren Missouri's natural gas operations do not operate as a financially 15 independent entity as Ameren Missouri's natural gas and electric operations operate 16 as one entity in terms of financing.¹⁰⁰ 17

18

19

Mr. Majors states that Ameren Missouri has several alternative regulatory mechanisms such as a Weather Normalization Adjustment Rider ("WNAR") and a

⁹⁸ Won Rebuttal, at 27.

⁹⁹ *Id*., at 30.

¹⁰⁰ Won Rebuttal, at 28

SURREBUTTAL TESTIMONY OF ANN E. BULKLEY

Infrastructure System Replacement Surcharge ("ISRS") that mitigate regulatory lag 1 and reduce the business risk for the Company.¹⁰¹ As a result, Mr. Majors 2 recommends that the Commission consider the effect of the Company's 3 mechanisms when determining the return for Ameren Missouri; however, he 4 acknowledges that he has not evaluated other aspects of Ameren Missouri's 5 business risk nor has he conducted a comparison of the Company's business risks 6 relative to "any of its peers."¹⁰² Rather, he refers to Dr. Won for an assessment of 7 the effect of the Company's business risk on the cost of equity.¹⁰³ 8

Mr. Murray disagrees with my consideration of the small size of Ameren Missouri's 9 natural gas operations because it is based on the "hypothetical" assumption that 10 Ameren Missouri's natural gas operations are a stand-alone entity.¹⁰⁴ Further, Mr. 11 Murray contends that my proxy group "contains companies that have smaller market 12 capitalizations than the broader market" and suggests I could have weighted my 13 DCF estimates to account for smaller companies.¹⁰⁵ Finally, Mr. Murray states that 14 in my assessment of business risk, I have failed to recognize that my proxy group 15 contains companies with significant non-regulated business risk exposure.¹⁰⁶ 16

¹⁰³ *Id.*

¹⁰⁵ *Id.*, at 27.

¹⁰¹ Majors Rebuttal, at 3.

¹⁰² *Id.,* at 11.

¹⁰⁴ Murray Rebuttal, at 26.

¹⁰⁶ *Id.*, at 26.

SURREBUTTAL TESTIMONY OF ANN E. BULKLEY

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

Dr. Won, Mr. Majors, and Mr. Murray fail to recognize the purpose for the business Α. 3 risk analysis in the estimation of the appropriate ROE for a company from within the 4 range of cost of equity estimates developed. Since the cost of equity estimates are 5 based on market data for the proxy group companies, which reflects the risk profiles 6 of these companies, it is necessary to evaluate the Company's business and 7 regulatory risk *relative to the proxy group*. This analysis allows the analyst to make 8 a more informed determination as to where, within the range of returns established 9 for the proxy group, the return on equity should reasonably be established. 10

Neither Mr. Murray nor Mr. Majors evaluate the Company's business and regulatory 11 12 risks relative to the proxy group. Indeed, Mr. Majors acknowledges that he has not conducted a comparison of the Company's business risks relative to "any of its 13 peers" and instead refers to Dr. Won for an assessment of the effect of the 14 15 Company's business risk on its cost of equity.¹⁰⁷ However, Dr. Won also largely omits this comparative analysis with the exception of his discussion regarding 16 Ameren Missouri's expected capital expenditures as a percentage of net utility plant 17 relative to the average ratio of the proxy group.¹⁰⁸ Mr. Majors simply claims that the 18 Company's business risk has been reduced in absolute terms because of regulatory 19

¹⁰⁷ Majors Rebuttal, at 11.

¹⁰⁸ Won Rebuttal, at 29-30.

mechanisms such as the ISRS and WNAR¹⁰⁹ while Dr. Won and Mr. Murray 1 reference the ISRS and DCA as support for their conclusion that the Company does 2 not have greater risk relative to the proxy group. However, the simple existence of 3 regulatory mechanisms provides no information as to where in the range of market 4 data the authorized ROE should be established. In contrast, I evaluate various 5 regulatory and business risks to which Ameren Missouri is subject relative to the 6 proxy group in my direct testimony and conclude that the Company has relatively 7 greater regulatory and business risk than the proxy group.¹¹⁰ 8

Q: Do you agree with Dr. Won and Mr. Murray that the risk of Ameren Missouri's
 natural gas operations should not be considered on a stand-alone basis to
 determine the ROE?

A. No, I do not. Based on the stand-alone principle of ratemaking, regulated rates should be based on the risks and benefits of the regulated utility, not its investors, parent or affiliates.¹¹¹ Many state regulatory commissions have determined that the objective of a rate case is to establish the cost of equity for the jurisdictional utility as if it were a stand-alone entity. In that way, Commissions are able to insulate ratepayers from the risks associated with those higher risk non-jurisdictional activities.

¹⁰⁹ 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.

¹¹⁰ Bulkley Direct, at 39-58.

¹¹¹ Morin, Dr. Roger A. New Regulatory Finance. Public Utilities Reports, Inc., 2006, at 215-216.

SURREBUTTAL TESTIMONY OF ANN E. BULKLEY

As a result, the fact that Ameren Missouri also has electric operations in Missouri and is affiliated with Ameren Corp is not an appropriate consideration in this rate proceeding. Furthermore, even given the fact that Ameren Missouri may have greater access to capital, Ameren Missouri's natural gas operations still need to compete against electric operations in Missouri and other Ameren Corp subsidiaries to have capital allocated to it over another subsidiary, making the size of Ameren Missouri's natural gas operations a relevant determination in capital allocation.

8 Q: Does Mr. Murray recommend an approach for considering the small size risk

9 of a company?

A. Yes. Mr. Murray notes that the proxy group does contain companies that are smaller than the broader and therefore, to recognize the risk of small size, I could have placed greater weight on the DCF results of the smaller companies in my proxy group since the DCF results would reflect "all" of the risks of a company through the price an investor is willing to pay for the stock.¹¹² Although, Mr. Murray contends that the DCF results of the smaller companies in my proxy group do not support a small size premium.¹¹³

¹¹³ *Id.*

¹¹² Murray Rebuttal, at 27.

Q: Do you agree with Mr. Murray's approach of placing greater weight on the DCF results of the smaller companies in the proxy group to account for small size risk?

Α. I do not because as Mr. Murray noted the DCF results would reflect not only a 4 company's risk with respect to small size but also other business and financial risks 5 such that it would not be possible to isolate the specific effect of small size risk. 6 However, as I discussed in my direct testimony, I evaluated the business risks (*i.e.*, 7 small size, regulatory risk, capital expenditures) of the Company relative to the proxy 8 group to determine where amongst the range of results including the DCF the 9 Company's ROE should fall.¹¹⁴ This approach is similar to the approach 10 recommended by Mr. Murray but it is more appropriate because it considers multiple 11 business risks faced by the Company and the proxy companies as opposed to just 12 size. Further, it does not appear as though Mr. Murray oppose such an approach 13 since, he recommended considering the range of DCF results when considering 14 small size. As discussed in my direct testimony, I concluded that the Company has 15 greater business risk relative to the proxy group warranting an ROE towards the 16 high-end of the range of cost of equity results.¹¹⁵ 17

¹¹⁴ Bulkley Direct, at 6-7

¹¹⁵ Bulkley Direct, at 45, 50, 57-58.

- 1Q:Mr. Murray contends that you did not consider small size because your2recommend ROE for Ameren Missouri's natural gas operations is equivalent3to your recommended ROE in the recent proceeding for Ameren Missouri's4electric operations.¹¹⁶ How do you respond?
- Mr. Murray is incorrect. As I noted in my direct testimony in the current proceeding 5 Α. for Ameren Missouri's natural gas operations¹¹⁷ and my direct testimony in Case No. 6 ER-2024-0319 for Ameren Missouri's electric operations,¹¹⁸ the 10.25 percent ROE 7 is the company's request and not my recommendation. As I further note in my direct 8 testimony, the Company's request of 10.25 percent is conservative considering 9 current and projected market conditions as well as the business and financial risk of 10 the Company as compared to the proxy group.¹¹⁹ Therefore, it is misleading for Mr. 11 Murray to state that I have not considered the risk associated with the small size of 12 Ameren Missouri's natural gas operations in Missouri. 13

Q: Do you agree with Mr. Murray that you have failed to consider the nonregulated business risk exposure of your proxy group?

- A. No. As discussed in my proxy group discussion in Section III, Mr. Murray contends
- 17
- that my proxy group contains significant non-regulated business risk exposure with

¹¹⁶ Murray Rebuttal, at 27

¹¹⁷ Bulkley Direct, at 8.

¹¹⁸ Missouri Public Service Commission, Case No. ER-2024-0319, Direct Testimony of Ann E. Bulkley, June 28, 2024, at 9-10.

¹¹⁹ Bulkley Direct, at 8.

SURREBUTTAL TESTIMONY OF ANN E. BULKLEY

the inclusion of SWX and SR.¹²⁰ In developing a proxy group, it is essential to 1 balance the relative risk of the companies included in the proxy group with the 2 overall size of the group, and thus it is always the case that the proxy companies do 3 not have exactly the same risk profile as the subject company. However, as stated 4 in my direct testimony. I have developed the proxy group to ensure that all of the 5 companies used in my cost of equity analyses possess a set of operating and 6 financial risk characteristics that are substantially comparable to Ameren Missouri, 7 and, therefore, provide a reasonable basis to estimate the appropriate cost of equity 8 for the Company. This includes a screening criterion that requires a substantial 9 portion of a utility's total operating income to be from regulated operations.¹²¹ 10

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

A. The results of the cost of equity analyses alone do not provide an appropriate estimate of the cost of equity, and several additional factors must be considered when determining where the Company's cost of equity falls within the range of analytical results. However, Dr. Won, Mr. Majors and Mr. Murray have not evaluated the Company's business and regulatory risk relative to the proxy group. Absent this comparison, there is no basis for either Dr. Won, Mr. Majors or Mr. Murray to comment on the business risk of Ameren Missouri relative to the proxy group.

¹²⁰ Note that Dr. Won also includes SWX and SR in his proxy group.

¹²¹ Bulkley Direct, at 20-22.

SURREBUTTAL TESTIMONY OF ANN E. BULKLEY

All else equal, I agree that regulatory mechanisms that reduce a utility's regulatory 1 lag in cost recovery help to mitigate risk. However, in setting the ROE, the data 2 relied upon is based on the risk profile of a proxy group of companies. Therefore, 3 the appropriate analysis for purposes of establishing the Company's ROE in this 4 proceeding is not to identify whether Ameren Missouri has regulatory mechanisms 5 6 that mitigate its regulatory lag, but rather how does Ameren Missouri's regulatory risk compare to the other companies in the proxy group. Dr. Won, Mr. Majors and 7 Mr. Murray each highlight the regulatory mechanisms that Ameren Missouri has for 8 cost recovery, yet neither evaluates Ameren Missouri's cost recovery risk relative to 9 the proxy group. 10

- 11 Q: Does this conclude your surrebuttal testimony?
- 12 A. Yes.

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 1 of 18

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

Estimated Weighted Average Dividend Yield [1]	1.54%
Estimated Weighted Average Long-Term Growth Rate [2]	10.45%
S&P 500 Estimated Required Market Return [3]	12.07%

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
						Estimated	Capitalization Weighted	Bloomberg	Capitalization Weighted
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Dividend Yield	Dividend Yield	Long-Term Growth Est.	Long-Term Growth Est.
LyondellBasell Industries NV	LYB	325.09	98.70	32,086		5.43%		-8.07%	
American Express Co Verizon Communications Inc	AXP VZ	710.91	258.65	183,877	0.50%	1.08%	0.01%	15.74%	0.08%
Broadcom Inc	AVGO	4,209.52 4,654.88	41.78 162.82	175,874 757,908	0.48% 2.08%	6.37% 1.29%	0.03% 0.03%	0.86% 15.88%	0.00% 0.33%
Boeing Co/The	BA	616.17	173.74	107,053				38.60%	
Solventum Corp Caterpillar Inc	SOLV CAT	172.71 484.90	64.11 356.10	11,073 172,672	0.47%	1.58%	0.01%	-2.00% 8.38%	0.04%
JPMorgan Chase & Co	JPM	2,845.17	224.80	639,593	1.75%	2.05%	0.04%	4.05%	0.07%
Chevron Corp Coca-Cola Co/The	CVX KO	1,828.92 4,309.87	147.95 72.47	270,588 312,336	0.74% 0.86%	4.41% 2.68%	0.03% 0.02%	7.00% 6.36%	0.05% 0.05%
AbbVie Inc	ABBV	1,766.34	196.31	346,751	0.95%	3.16%	0.02%	8.80%	0.08%
Walt Disney Co/The	DIS	1,813.59	90.38	163,912	0.45%	1.00%	0.00%	18.89%	0.08%
Corpay Inc Extra Space Storage Inc	CPAY EXR	69.43 211.93	315.55 177.00	21,910 37,511	0.06%	3.66%		14.87% -0.20%	0.01%
Exxon Mobil Corp	XOM	4,442.83	117.94	523,987	1.44%	3.22%	0.05%	5.00%	0.07%
Phillips 66 General Electric Co	PSX GE	418.57 1,084.31	140.31 174.62	58,729 189,342		3.28% 0.64%		-9.00% 29.30%	
HP Inc	HPQ	963.72	36.18	34,867	0.10%	3.05%	0.00%	1.42%	0.00%
Home Depot Inc/The	HD	993.29	368.50	366,028	1.00%	2.44%	0.02%	3.87%	0.04%
Monolithic Power Systems Inc International Business Machines Corp	MPWR IBM	48.75 921.15	934.68 202.13	45,568 186,192	0.51%	0.53% 3.30%	0.02%	3.90%	0.02%
Johnson & Johnson	JNJ	2,407.24	165.86	399,265	1.09%	2.99%	0.03%	3.73%	0.04%
Lululemon Athletica Inc	LULU MCD	117.66	259.47 286.99	30,529	0.08%	0.000/	0.01%	7.00%	0.01%
McDonald's Corp Merck & Co Inc	MRK	717.34 2,534.81	200.99 118.45	205,870 300,248	0.56% 0.82%	2.33% 2.60%	0.01%	5.15% 14.00%	0.03% 0.12%
3M Co	MMM	549.35	134.69	73,992		2.08%		-5.37%	
American Water Works Co Inc Bank of America Corp	AWK BAC	194.86 7,759.58	143.12 40.75	27,889 316,203	0.08%	2.14% 2.55%	0.00%	8.00%	0.01%
Pfizer Inc	PFE	7,759.58 5,666.70	40.75 29.01	316,203 164,391	0.45%	2.55% 5.79%	0.03%	6.39%	0.03%
Procter & Gamble Co/The	PG	2,349.71	171.54	403,069	1.10%	2.35%	0.03%	7.37%	0.08%
AT&T Inc Travelers Cos Inc/The	T TRV	7,170.24 227.93	19.90 228.07	142,688 51,984	0.39% 0.14%	5.58% 1.84%	0.02% 0.00%	1.84% 18.21%	0.01% 0.03%
RTX Corp	RTX	1,330.24	123.34	164,072	0.45%	2.04%	0.00%	10.23%	0.05%
Analog Devices Inc	ADI	496.49	233.92	116,140		1.57%		-5.82%	
Walmart Inc Cisco Systems Inc	WMT CSCO	8,038.25 4,028.82	77.23 50.54	620,794 203,616	1.70% 0.56%	1.07% 3.17%	0.02% 0.02%	9.24% 3.40%	0.16% 0.02%
Intel Corp	INTC	4,276.00	22.04	94,243	0.26%	0.1770	0.0270	4.26%	0.01%
General Motors Co	GM	1,123.92	49.78	55,949	0.15%	0.96%	0.00%	11.02%	0.02%
Microsoft Corp Dollar General Corp	MSFT DG	7,433.04 219.92	417.14 82.97	3,100,617 18,246	8.50%	0.72% 2.84%	0.06%	16.10% -3.74%	1.37%
Cigna Group/The	CI	279.55	361.81	101,144	0.28%	1.55%	0.00%	11.65%	0.03%
Kinder Morgan Inc	KMI	2,219.46	21.57	47,874	0.13%	5.33%	0.01%	6.52%	0.01%
Citigroup Inc American International Group Inc	C AIG	1,907.80 643.95	62.64 77.05	119,504 49,616	0.14%	3.58% 2.08%	0.00%	27.26% 12.42%	0.02%
Altria Group Inc	MO	1,706.22	53.77	91,744	0.25%	7.59%	0.02%	4.14%	0.01%
HCA Healthcare Inc	HCA	258.07	395.59	102,091	0.28%	0.67%	0.00%	10.81%	0.03%
International Paper Co Hewlett Packard Enterprise Co	IP HPE	347.37 1,299.67	48.42 19.37	16,820 25,175	0.07%	3.82% 2.68%	0.00%	-2.00% 3.73%	0.00%
Abbott Laboratories	ABT	1,739.90	113.27	197,078	0.54%	1.94%	0.01%	8.12%	0.04%
Aflac Inc Air Products and Chemicals Inc	AFL APD	560.03 222.32	110.36 278.85	61,804 61,993	0.17% 0.17%	1.81% 2.54%	0.00% 0.00%	7.55% 9.52%	0.01% 0.02%
Super Micro Computer Inc	SMCI	58.56	437.70	25,630	0.1770	2.0470	0.00%	9.32% 69.00%	0.02%
Royal Caribbean Cruises Ltd	RCL	257.42	164.62	42,376		0.97%		30.00%	
Hess Corp Archer-Daniels-Midland Co	HES ADM	308.12 478.14	138.06 60.99	42,538 29,162	0.12%	1.27% 3.28%	0.00%	16.00% -3.62%	0.02%
Automatic Data Processing Inc	ADP	407.80	275.91	112,515		2.03%		-3.0270	
Verisk Analytics Inc	VRSK	142.42	272.82	38,856	0.11%	0.57%	0.00%	12.54%	0.01%
AutoZone Inc Linde PLC	AZO LIN	17.08 477.50	3,181.48 478.25	54,349 228,366	0.15% 0.63%	1.16%	0.01%	14.66% 11.76%	0.02% 0.07%
Avery Dennison Corp	AVY	80.52	221.85	17,863	0.05%	1.59%	0.00%	12.84%	0.01%
Enphase Energy Inc	ENPH	135.42	121.04	16,391	0.04%	4 400/	0.00%	7.45%	0.00%
MSCI Inc Ball Corp	MSCI BALL	78.65 303.57	580.59 63.61	45,663 19,310	0.13% 0.05%	1.10% 1.26%	0.00% 0.00%	11.93% 13.35%	0.01% 0.01%
Axon Enterprise Inc	AXON	75.57	364.97	27,582				20.81%	
Dayforce Inc	DAY CARR	158.10 902.75	57.17 72.79	9,039	0.18%	1.04%	0.00%	6.74%	0.01%
Carrier Global Corp Bank of New York Mellon Corp/The	BK	902.75 737.96	72.78 68.22	65,702 50,343	0.18%	2.76%	0.00% 0.00%	10.55%	0.01%
Otis Worldwide Corp	OTIS	400.56	94.69	37,929	0.10%	1.65%	0.00%	10.00%	0.01%
Baxter International Inc Becton Dickinson & Co	BAX BDX	510.18 289.04	37.94 242.41	19,356 70,067	0.05% 0.19%	3.06% 1.57%	0.00% 0.00%	6.50% 8.34%	0.00% 0.02%
Berkshire Hathaway Inc	BRK/B	1,325.19	475.92	630,686	0.1370	1.57 /0	0.0070	0.3470	0.0270
Best Buy Co Inc	BBY	215.71	100.40	21,658	0.06%	3.75%	0.00%	4.17%	0.00%
Boston Scientific Corp Bristol-Myers Squibb Co	BSX BMY	1,472.63 2,027.40	81.79 49.95	120,446 101,268	0.33%	4.80%		12.58% 33.60%	0.04%
Brown-Forman Corp	BF/B	303.54	45.37	13,772		1.92%		-2.38%	
Coterra Energy Inc	CTRA	739.27	24.33	17,987	0.05%	3.45%	0.00%	10.06%	0.00%
Hilton Worldwide Holdings Inc Carnival Corp	HLT CCL	246.43 1,122.46	219.64 16.50	54,125 18,521	0.15%	0.27%	0.00%	14.97%	0.02%
Qorvo Inc	QRVO	94.86	115.89	10,993	0.03%			17.09%	0.01%
Builders FirstSource Inc	BLDR	116.45	174.00	20,263	0.06%	0.00%	0.00%	1.45%	0.00%
UDR Inc Clorox Co/The	UDR CLX	329.82 123.86	44.51 158.31	14,680 19,609	0.04% 0.05%	3.82% 3.08%	0.00% 0.00%	1.85% 8.65%	0.00% 0.00%
Paycom Software Inc	PAYC	57.43	162.78	9,349	0.03%	0.92%	0.00%	9.41%	0.00%
CMS Energy Corp	CMS	298.64 817.09	67.86 106 50	20,265 87 020	0.06% 0.24%	3.04% 1.88%	0.00%	7.28% 8.73%	0.00%
Colgate-Palmolive Co EPAM Systems Inc	CL EPAM	817.09 56.94	106.50 200.76	87,020 11,430	0.24% 0.03%	1.88%	0.00%	8.73% 5.29%	0.02% 0.00%
Conagra Brands Inc	CAG	479.05	31.20	14,946	0.04%	4.49%	0.00%	1.81%	0.00%
Airbnb Inc Consolidated Edison Inc	ABNB ED	440.00 346.15	117.31 101.56	51,617 35,155	0.14% 0.10%	3.27%	0.00%	19.84% 5.58%	0.03% 0.01%
Consolidated Edison Inc Corning Inc	ED GLW	346.15 855.70	101.56 41.85	35,155 35,811	0.10% 0.10%	3.27% 2.68%	0.00%	5.58% 13.41%	0.01%
GoDaddy Inc	GDDY	140.97	167.41	23,600					
Cummins Inc Caesars Entertainment Inc	CMI CZR	137.05 216.34	312.85 37.64	42,875 8,143	0.12%	2.33%	0.00%	8.28% -35.64%	0.01%
Danaher Corp	DHR	722.21	269.31	0,143 194,499	0.53%	0.40%	0.00%	-35.64% 1.89%	0.01%
Target Corp	TGT	460.68	153.62	70,769	0.19%	2.92%	0.01%	14.38%	0.03%

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 2 of 18

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

Estimated Weighted Average Dividend Yield [1]	1.54%
Estimated Weighted Average Long-Term Growth Rate [2]	10.45%
S&P 500 Estimated Required Market Return [3]	12.07%

		[4]	[5]	[6]	[7]	[8]	[9] Capitalization	[10]	[11] Capitalization
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Weighted Long-Term Growth Est.
Deere & Co	DE	273.60	385.74	105,538	Шабх	1.52%	Tiola	-9.99%	Clowin Lot.
Dominion Energy Inc	D	838.94	55.90	46,897		4.78%		21.59%	
Dover Corp Alliant Energy Corp	DOV LNT	137.46 256.50	186.03 58.27	25,571 14,946	0.07% 0.04%	1.11% 3.30%	0.00% 0.00%	7.72% 7.34%	0.01% 0.00%
Steel Dynamics Inc	STLD	256.50 154.30	119.51	14,940	0.04%	3.30 <i>%</i> 1.54%	0.00%	-4.38%	0.00%
Duke Energy Corp	DUK	771.00	113.95	87,855	0.24%	3.67%	0.01%	6.61%	0.02%
Regency Centers Corp	REG	181.50	72.69	13,193	0.04%	3.69%	0.00%	3.79%	0.00%
Eaton Corp PLC Ecolab Inc	ETN ECL	398.10 284.54	306.93 253.18	122,189 72,039	0.33% 0.20%	1.23% 0.90%	0.00% 0.00%	14.60% 15.76%	0.05% 0.03%
Revvity Inc	RVTY	123.34	122.54	15,114	0.04%	0.23%	0.00%	9.44%	0.00%
Emerson Electric Co	EMR	572.70	105.39	60,357	0.17%	1.99%	0.00%	15.10%	0.02%
EOG Resources Inc Aon PLC	EOG AON	568.60 217.24	128.82 343.72	73,247 74,670	0.20% 0.20%	2.83% 0.79%	0.01% 0.00%	3.28% 11.10%	0.01% 0.02%
Entergy Corp	ETR	217.24	120.69	25,807	0.20%	3.75%	0.00%	7.17%	0.02 %
Equifax Inc	EFX	123.74	306.74	37,955		0.51%		21.48%	
	EQT	594.02	33.51	19,906	0.400/	1.88%		10.020/	0.040/
IQVIA Holdings Inc Gartner Inc	IQV IT	182.30 77.06	251.55 491.96	45,858 37,910	0.13% 0.10%			10.83% 7.67%	0.01% 0.01%
FedEx Corp	FDX	244.96	298.77	73,188	0.20%	1.85%	0.00%	13.35%	0.03%
FMC Corp	FMC	124.82	64.58	8,061	0.02%	3.59%	0.00%	15.67%	0.00%
Brown & Brown Inc	BRO	285.26	105.13	29,989	0.08%	0.49%	0.00%	10.85%	0.01%
Ford Motor Co NextEra Energy Inc	F NEE	3,904.40 2,055.00	11.19 80.51	43,690 165,448	0.12% 0.45%	5.36% 2.56%	0.01% 0.01%	1.34% 8.17%	0.00% 0.04%
Franklin Resources Inc	BEN	523.00	20.24	10,585	0.4070	6.13%	0.0170	0.1770	0.0470
Garmin Ltd	GRMN	192.21	183.29	35,231	0.10%	1.64%	0.00%	9.55%	0.01%
Freeport-McMoRan Inc	FCX	1,436.86	44.28	63,624	0.17%	1.36%	0.00%	17.59%	0.03%
Dexcom Inc General Dynamics Corp	DXCM GD	400.73 274.78	69.34 299.36	27,786 82,258	0.23%	1.90%	0.00%	21.07% 15.55%	0.04%
General Dynamics Corp General Mills Inc	GIS	556.62	299.36 72.29	82,258 40,238	0.23% 0.11%	1.90% 3.32%	0.00%	2.38%	0.04%
Genuine Parts Co	GPC	139.32	143.26	19,959		2.79%			
Atmos Energy Corp	ATO	155.23	130.74	20,295	0.06%	2.46%	0.00%	7.00%	0.00%
WW Grainger Inc Halliburton Co	GWW HAL	48.83	984.92	48,090	0.000/	0.83%	0.00%	0 170/	0.010/
L3Harris Technologies Inc	LHX	882.83 189.71	31.09 236.67	27,447 44,897	0.08% 0.12%	2.19% 1.96%	0.00% 0.00%	8.17% 8.77%	0.01% 0.01%
Healthpeak Properties Inc	DOC	699.29	22.28	15,580	0.04%	5.39%	0.00%	5.33%	0.00%
Insulet Corp	PODD	70.12	202.77	14,217	0.04%			17.61%	0.01%
Catalent Inc	CTLT	180.98	60.96	11,033	0.070/	0.400/	0.000/	10 40%	0.040/
Fortive Corp Hershey Co/The	FTV HSY	350.34 147.67	74.40 193.06	26,065 28,510	0.07% 0.08%	0.43% 2.84%	0.00% 0.00%	10.49% 2.21%	0.01% 0.00%
Synchrony Financial	SYF	395.23	50.26	19,864	0.0070	1.99%	0.0070	64.00%	0.0070
Hormel Foods Corp	HRL	548.31	32.55	17,847	0.05%	3.47%	0.00%	6.59%	0.00%
Arthur J Gallagher & Co	AJG	219.10	292.57	64,102	0.18%	0.82%	0.00%	12.87%	0.02%
Mondelez International Inc CenterPoint Energy Inc	MDLZ CNP	1,335.80 651.72	71.81 27.30	95,924 17,792	0.26% 0.05%	2.62% 2.93%	0.01% 0.00%	6.93% 8.00%	0.02% 0.00%
Humana Inc	HUM	120.40	354.47	42,679	0.0070	1.00%	0.0070	-1.30%	0.0070
Willis Towers Watson PLC	WTW	101.56	292.11	29,666	0.08%	1.21%	0.00%	11.69%	0.01%
Illinois Tool Works Inc	ITW	296.90	253.18	75,169	0.21%	2.37%	0.00%	6.90%	0.01%
CDW Corp/DE Trane Technologies PLC	CDW TT	133.58 225.67	225.64 361.66	30,140 81,616	0.08% 0.22%	1.10% 0.93%	0.00% 0.00%	7.02% 15.56%	0.01% 0.03%
Interpublic Group of Cos Inc/The	IPG	375.59	32.28	12,124	0.03%	4.09%	0.00%	3.20%	0.00%
International Flavors & Fragrances Inc	IFF	255.66	103.99	26,586	0.07%	1.54%	0.00%	2.12%	0.00%
Generac Holdings Inc	GNRC	60.15	156.53	9,416	0.03%	1 500/	0.00%	7.00%	0.00%
NXP Semiconductors NV Kellanova	NXPI K	254.73 343.95	256.36 80.04	65,303 27,530	0.18% 0.08%	1.58% 2.85%	0.00% 0.00%	5.89% 9.29%	0.01% 0.01%
Broadridge Financial Solutions Inc	BR	116.71	212.86	24,843		1.65%		0.2070	
Kimberly-Clark Corp	KMB	336.80	144.66	48,722	0.13%	3.37%	0.00%	8.36%	0.01%
Kimco Realty Corp	KIM	674.12	23.26 141.29	15,680	0.04%	4.13% 1.13%	0.00%	3.63%	0.00%
Oracle Corp Kroger Co/The	ORCL KR	2,755.86 721.79	53.21	389,375 38,406	1.07% 0.11%	2.41%	0.01% 0.00%	15.06% 3.11%	0.16% 0.00%
Lennar Corp	LEN	241.70	182.06	44,004	0.12%	1.10%	0.00%	4.30%	0.01%
Eli Lilly & Co	LLY	950.43	960.02	912,428		0.54%		33.00%	
Bath & Body Works Inc	BBWI	219.11	30.76	6,740	0.02%	2.60%	0.00%	14.74%	0.00%
Charter Communications Inc Loews Corp	CHTR	142.74 219.52	347.54 81.94	49,608 17,987	0.14%	0.31%		7.10%	0.01%
Lowe's Cos Inc	LOW	567.29	248.50	140,973		1.85%		-0.19%	
Hubbell Inc	HUBB	53.68	399.92	21,468		1.22%			
IDEX Corp Marsh & McLennan Cos Inc	IEX	75.70	206.48	15,631	0.210/	1.34%	0.00%	0.100/	0.020/
Marsh & McLennah Cos Inc Masco Corp	MMC MAS	491.76 218.25	227.51 79.56	111,879 17,364	0.31% 0.05%	1.43% 1.46%	0.00% 0.00%	9.10% 7.76%	0.03% 0.00%
S&P Global Inc	SPGI	320.20	513.24	164,339	0.45%	0.71%	0.00%	14.53%	0.07%
Medtronic PLC	MDT	1,282.49	88.58	113,603	0.31%	3.16%	0.01%	5.66%	0.02%
Viatris Inc	VTRS	1,193.52	12.08	14,418		3.97%		-3.41%	
CVS Health Corp DuPont de Nemours Inc	CVS DD	1,257.98 417.50	57.24 84.25	72,007 35,174	0.20% 0.10%	4.65% 1.80%	0.01% 0.00%	1.82% 2.50%	0.00% 0.00%
Micron Technology Inc	MU	1,108.84	96.24	106,715	0.1070	0.48%	0.0070	31.94%	0.0070
Motorola Solutions Inc	MSI	166.84	442.04	73,750	0.20%	0.89%	0.00%	9.36%	0.02%
Cboe Global Markets Inc	CBOE	104.63	205.40	21,492	0.06%	1.23%	0.00%	13.78%	0.01%
Newmont Corp NIKE Inc	NEM NKE	1,152.49 1,201.46	53.39 82.95	61,531 99,661	0.27%	1.87% 1.78%	0.00%	48.45% 4.46%	0.01%
NiKe inc	NI	448.51	33.06	14,828	0.27 %	3.21%	0.00%	4.40% 7.00%	0.00%
	NSC	226.10	256.16	57,917	0.16%	2.11%	0.00%	9.68%	0.02%
Norfolk Southern Corp		231.58	81.42	18,856	0.05%	3.54%	0.00%	13.00%	0.01%
Norfolk Southern Corp Principal Financial Group Inc	PFG		~ ^	04 404	0.07%	4.24%	0.00%	5.46%	0.00%
Norfolk Southern Corp Principal Financial Group Inc Eversource Energy	PFG ES	357.39	67.53 521.15	24,134 76,216				0 600/	0.000/
Norfolk Southern Corp Principal Financial Group Inc Eversource Energy Northrop Grumman Corp	PFG ES NOC	357.39 146.25	521.15	76,216	0.21%	1.58%	0.00%	8.68% 7.95%	0.02% 0.04%
Norfolk Southern Corp Principal Financial Group Inc Eversource Energy	PFG ES	357.39						8.68% 7.95% -1.48%	0.02% 0.04%
Norfolk Southern Corp Principal Financial Group Inc Eversource Energy Northrop Grumman Corp Wells Fargo & Co Nucor Corp Occidental Petroleum Corp	PFG ES NOC WFC NUE OXY	357.39 146.25 3,403.77 237.34 916.20	521.15 58.47 151.91 56.98	76,216 199,018 36,054 52,205	0.21% 0.55%	1.58% 2.74% 1.42% 1.54%	0.00% 0.01%	7.95%	0.04%
Norfolk Southern Corp Principal Financial Group Inc Eversource Energy Northrop Grumman Corp Wells Fargo & Co Nucor Corp Occidental Petroleum Corp Omnicom Group Inc	PFG ES NOC WFC NUE OXY OMC	357.39 146.25 3,403.77 237.34 916.20 195.65	521.15 58.47 151.91 56.98 100.43	76,216 199,018 36,054 52,205 19,649	0.21%	1.58% 2.74% 1.42% 1.54% 2.79%	0.00%	7.95% -1.48%	
Norfolk Southern Corp Principal Financial Group Inc Eversource Energy Northrop Grumman Corp Wells Fargo & Co Nucor Corp Occidental Petroleum Corp Omnicom Group Inc ONEOK Inc	PFG ES NOC WFC NUE OXY OMC OKE	357.39 146.25 3,403.77 237.34 916.20 195.65 584.07	521.15 58.47 151.91 56.98 100.43 92.36	76,216 199,018 36,054 52,205 19,649 53,945	0.21% 0.55% 0.05%	1.58% 2.74% 1.42% 1.54% 2.79% 4.29%	0.00% 0.01% 0.00%	7.95% -1.48% 24.00% 5.36%	0.04%
Norfolk Southern Corp Principal Financial Group Inc Eversource Energy Northrop Grumman Corp Wells Fargo & Co Nucor Corp Occidental Petroleum Corp Omnicom Group Inc ONEOK Inc Raymond James Financial Inc	PFG ES NOC WFC NUE OXY OMC OKE RJF	357.39 146.25 3,403.77 237.34 916.20 195.65 584.07 205.94	521.15 58.47 151.91 56.98 100.43 92.36 119.57	76,216 199,018 36,054 52,205 19,649 53,945 24,625	0.21% 0.55% 0.05% 0.07%	1.58% 2.74% 1.42% 1.54% 2.79% 4.29% 1.51%	0.00% 0.01% 0.00% 0.00%	7.95% -1.48% 24.00% 5.36% 15.40%	0.04% 0.00% 0.01%
Norfolk Southern Corp Principal Financial Group Inc Eversource Energy Northrop Grumman Corp Wells Fargo & Co Nucor Corp Occidental Petroleum Corp Omnicom Group Inc ONEOK Inc	PFG ES NOC WFC NUE OXY OMC OKE	357.39 146.25 3,403.77 237.34 916.20 195.65 584.07	521.15 58.47 151.91 56.98 100.43 92.36	76,216 199,018 36,054 52,205 19,649 53,945	0.21% 0.55% 0.05%	1.58% 2.74% 1.42% 1.54% 2.79% 4.29%	0.00% 0.01% 0.00%	7.95% -1.48% 24.00% 5.36%	0.04% 0.00%
Norfolk Southern Corp Principal Financial Group Inc Eversource Energy Northrop Grumman Corp Wells Fargo & Co Nucor Corp Occidental Petroleum Corp Omnicom Group Inc ONEOK Inc Raymond James Financial Inc PG&E Corp	PFG ES NOC WFC NUE OXY OMC OKE RJF PCG	357.39 146.25 3,403.77 237.34 916.20 195.65 584.07 205.94 2,137.46	521.15 58.47 151.91 56.98 100.43 92.36 119.57 19.70	76,216 199,018 36,054 52,205 19,649 53,945 24,625 42,108	0.21% 0.55% 0.05% 0.07% 0.12%	1.58% 2.74% 1.42% 1.54% 2.79% 4.29% 1.51% 0.20%	0.00% 0.01% 0.00% 0.00% 0.00%	7.95% -1.48% 24.00% 5.36% 15.40% 9.95%	0.04% 0.00% 0.01% 0.01%

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 3 of 18

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

Estimated Weighted Average Dividend Yield [1]	1.54%
Estimated Weighted Average Long-Term Growth Rate [2]	10.45%
S&P 500 Estimated Required Market Return [3]	12.07%

		[4]	[5]	[6]	[7]	[8]	[9] Capitalization	[10]	[11] Capitalization
Nama	Tieker	Shares	Drice	Market	Weight in		Weighted Dividend	Bloomberg Long-Term	Weighted Long-Term
Name	Ticker	Outst'g	Price	Capitalization	Index	Yield	Yield	Growth Est.	Growth Est.
PulteGroup Inc Pinnacle West Capital Corp	PHM PNW	207.52 113.61	131.65 87.52	27,321 9,943	0.07% 0.03%	0.61% 4.02%	0.00% 0.00%	8.99% 8.22%	0.01% 0.00%
PNC Financial Services Group Inc/The	PNC	397.50	185.09	73,573	0.20%	3.46%	0.01%	18.04%	0.04%
PPG Industries Inc Progressive Corp/The	PPG PGR	233.30 585.67	129.73 252.20	30,266 147,705	0.08%	2.10% 0.16%	0.00%	8.33% 36.31%	0.01%
Veralto Corp	VLTO	247.11	112.43	27,782		0.32%		50.51%	
Public Service Enterprise Group Inc	PEG	498.16	80.75	40,227	0.11%	2.97%	0.00%	7.47%	0.01%
Cooper Cos Inc/The Edison International	COO EIX	199.16 383.93	105.73 87.03	21,057 33,413	0.06% 0.09%	3.58%	0.00%	12.43% 6.00%	0.01% 0.01%
Schlumberger NV	SLB	1,419.84	43.99	62,459	0.17%	2.50%	0.00%	12.22%	0.02%
Charles Schwab Corp/The Sherwin-Williams Co/The	SCHW SHW	1,778.45 252.26	65.10 369.37	115,777 93,177	0.32% 0.26%	1.54% 0.77%	0.00% 0.00%	12.07% 9.88%	0.04% 0.03%
West Pharmaceutical Services Inc	WST	72.54	313.63	22,751	0.06%	0.26%	0.00%	2.89%	0.00%
J M Smucker Co/The	SJM	106.41	114.68	12,203	0.03%	3.77%	0.00%	6.07%	0.00%
Snap-on Inc AMETEK Inc	SNA AME	52.68 231.54	283.74 171.05	14,948 39,604	0.04% 0.11%	2.62% 0.65%	0.00% 0.00%	3.83% 7.02%	0.00% 0.01%
Uber Technologies Inc	UBER	2,100.94	73.13	153,642				60.59%	
Southern Co/The Truist Financial Corp	SO TFC	1,094.63 1,339.14	86.40 44.46	94,576 59,538	0.26% 0.16%	3.33% 4.68%	0.01% 0.01%	7.23% 10.91%	0.02% 0.02%
Southwest Airlines Co	LUV	599.16	28.92	17,328	0.1078	4.08 <i>%</i> 2.49%	0.0178	10.91%	0.0270
W R Berkley Corp	WRB	380.55	59.70	22,719	0.06%	0.54%	0.00%	13.27%	0.01%
Stanley Black & Decker Inc Public Storage	SWK PSA	153.96 175.83	101.54 343.72	15,633 60,436	0.17%	3.23% 3.49%	0.01%	1.23%	0.00%
Arista Networks Inc	ANET	314.15	353.38	111,015	0.30%	0.4070	0.0170	18.60%	0.06%
Sysco Corp	SYY	491.52	77.97	38,324	0.11%	2.62%	0.00%	7.00%	0.01%
Corteva Inc Texas Instruments Inc	CTVA TXN	687.80 913.05	57.13 214.34	39,294 195,702	0.11%	1.19% 2.43%	0.00%	9.85% -2.86%	0.01%
Textron Inc	ТХТ	187.36	91.20	17,088	0.05%	0.09%	0.00%	10.05%	0.00%
Thermo Fisher Scientific Inc	TMO	382.00	615.07	234,954	0.64%	0.25%	0.00%	8.70%	0.06%
TJX Cos Inc/The Globe Life Inc	TJX GL	1,127.87 89.82	117.27 105.05	132,266 9,436	0.36% 0.03%	1.28% 0.91%	0.00% 0.00%	8.20% 6.00%	0.03% 0.00%
Johnson Controls International plc	JCI	668.01	72.85	48,665	0.13%	2.03%	0.00%	8.72%	0.01%
Ulta Beauty Inc	ULTA	47.12	352.84	16,624	0.05%	2.00%	0.019/	1.64%	0.00%
Union Pacific Corp Keysight Technologies Inc	UNP KEYS	609.20 173.54	256.09 154.12	156,010 26,746	0.43%	2.09%	0.01%	11.33% -1.19%	0.05%
UnitedHealth Group Inc	UNH	923.42	590.20	545,001	1.49%	1.42%	0.02%	10.44%	0.16%
Blackstone Inc Marathon Oil Corp	BX MRO	720.08 559.38	142.36 28.65	102,510 16,026		2.30% 1.54%		24.48% -5.00%	
Bio-Rad Laboratories Inc	BIO	22.80	337.32	7,689	0.02%	1.5470		-3.00% 12.00%	0.00%
Ventas Inc	VTR	413.15	62.11	25,661	0.07%	2.90%	0.00%	8.22%	0.01%
Labcorp Holdings Inc Vulcan Materials Co	LH VMC	83.96 132.06	229.89 245.21	19,302 32,382	0.05%	1.25% 0.75%	0.00%	8.45%	0.00%
Weyerhaeuser Co	WY	727.32	30.49	22,176		2.62%		-13.66%	
Williams Cos Inc/The	WMB	1,218.93	45.77	55,790	0.15%	4.15%	0.01%	4.28%	0.01%
Constellation Energy Corp WEC Energy Group Inc	CEG WEC	315.12 316.08	196.70 93.03	61,984 29,405	0.08%	0.72% 3.59%	0.00%	20.39% 7.82%	0.01%
Adobe Inc	ADBE	443.40	574.41	254,693	0.70%			16.27%	0.11%
Vistra Corp AES Corp/The	VST AES	343.56	85.43	29,350		1.03% 4.03%			
Expeditors International of Washington Inc	EXPD	710.92 141.13	17.13 123.41	12,178 17,417	0.05%	4.03% 1.18%	0.00%	4.39%	0.00%
Amgen Inc	AMGN	537.33	333.83	179,377	0.49%	2.70%	0.01%	3.52%	0.02%
Apple Inc Autodesk Inc	AAPL ADSK	15,204.14 215.51	229.00 258.40	3,481,747 55,688	9.54% 0.15%	0.44%	0.04%	8.04% 10.23%	0.77% 0.02%
Cintas Corp	CTAS	100.77	805.12	81,131	0.22%	0.78%	0.00%	10.59%	0.02%
Comcast Corp	CMCSA	3,863.06	39.57	152,861	0.42%	3.13%	0.01%	7.32%	0.03%
Molson Coors Beverage Co KLA Corp	TAP KLAC	192.59 134.43	53.97 819.43	10,394 110,152	0.03% 0.30%	3.26% 0.71%	0.00% 0.00%	5.29% 10.00%	0.00% 0.03%
Marriott International Inc/MD	MAR	281.52	234.69	66,071	0.18%	1.07%	0.00%	4.25%	0.01%
Fiserv Inc McCormick & Co Inc/MD	FI MKC	575.73 252.02	174.60 80.03	100,522 20,169	0.28% 0.06%	2.10%	0.00%	11.52% 5.83%	0.03% 0.00%
PACCAR Inc	PCAR	524.22	96.18	50,420	0.14%	1.25%	0.00%	0.48%	0.00%
Costco Wholesale Corp	COST	443.34	892.38	395,623	1.08%	0.52%	0.01%	10.36%	0.11%
Stryker Corp Tyson Foods Inc	SYK TSN	381.08 285.82	360.42 64.31	137,347 18,381	0.38%	0.89% 3.05%	0.00%	8.60%	0.03%
Lamb Weston Holdings Inc	LW	143.67	61.92	8,896	0.02%	2.33%	0.00%	2.16%	0.00%
Applied Materials Inc	AMAT	824.40	197.26	162,622	0.45%	0.81%	0.00%	9.28%	0.04%
American Airlines Group Inc Cardinal Health Inc	AAL CAH	653.54 243.85	10.62 112.72	6,941 27,486	0.08%	1.79%	0.00%	-13.42% 9.84%	0.01%
Cincinnati Financial Corp	CINF	156.24	137.03	21,410	0.06%	2.36%	0.00%	7.83%	0.00%
Paramount Global DR Horton Inc	PARA DHI	626.01 326.04	10.47 188.76	6,554 61,543	0.17%	1.91% 0.64%	0.00%	49.00% 8.27%	0.01%
Electronic Arts Inc	EA	264.20	151.82	40,111	0.11%	0.50%	0.00%	12.85%	0.01%
Fair Isaac Corp	FICO	24.52	1,730.27	42,424				23.00%	
Fastenal Co M&T Bank Corp	FAST MTB	572.65 167.00	68.28 170.76	39,100 28,517	0.08%	2.28% 3.16%	0.00%	3.87%	0.00%
Xcel Energy Inc	XEL	557.50	61.23	34,136	0.09%	3.58%	0.00%	7.10%	0.01%
Fifth Third Bancorp	FITB	676.80	42.69	28,892	0.07%	3.28%	0.040/	25.00%	0.040/
Gilead Sciences Inc Hasbro Inc	GILD HAS	1,244.99 139.41	79.00 68.16	98,354 9,502	0.27%	3.90% 4.11%	0.01%	15.38% 33.11%	0.04%
Huntington Bancshares Inc/OH	HBAN	1,452.43	14.97	21,743	0.06%	4.14%	0.00%	3.32%	0.00%
Welltower Inc	WELL	609.15 145.66	120.68	73,512 20.826	0.20%	2.22%	0.00%	15.65% 6.10%	0.03%
Biogen Inc Northern Trust Corp	BIIB NTRS	145.66 201.64	204.76 91.21	29,826 18,391	0.08% 0.05%	3.29%	0.00%	6.10% 10.11%	0.00% 0.01%
Packaging Corp of America	PKG	89.81	209.54	18,819	0.05%	2.39%	0.00%	5.83%	0.00%
Paychex Inc QUALCOMM Inc	PAYX QCOM	359.74 1,114.00	131.20 175.30	47,198 195,284	0.13% 0.54%	2.99% 1.94%	0.00% 0.01%	7.54% 10.64%	0.01% 0.06%
		333.58	175.30	195,284 50,240	0.54% 0.14%	0.98%	0.01%	10.64% 8.85%	0.06%
Ross Stores Inc	ROST								0.01%
Ross Stores Inc IDEXX Laboratories Inc	IDXX	82.31	481.33	39,616	0.11%			11.25%	
IDEXX Laboratories Inc Starbucks Corp	IDXX SBUX	82.31 1,133.20	94.57	107,167	0.29%	2.41% 4 81%	0.01%	9.67%	0.03%
	IDXX	82.31				2.41% 4.81% 1.31%	0.01% 0.00% 0.00%		
IDEXX Laboratories Inc Starbucks Corp KeyCorp Fox Corp Fox Corp	IDXX SBUX KEY FOXA FOX	82.31 1,133.20 928.12 224.65 235.58	94.57 17.06 41.37 38.43	107,167 15,834 9,294 9,053	0.29% 0.04% 0.03% 0.02%	4.81% 1.31% 1.41%	0.00% 0.00% 0.00%	9.67% 20.00% 5.35% 5.35%	0.03% 0.01% 0.00% 0.00%
IDEXX Laboratories Inc Starbucks Corp KeyCorp Fox Corp	IDXX SBUX KEY FOXA	82.31 1,133.20 928.12 224.65	94.57 17.06 41.37	107,167 15,834 9,294	0.29% 0.04% 0.03%	4.81% 1.31%	0.00% 0.00%	9.67% 20.00% 5.35%	0.03% 0.01% 0.00%

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 4 of 18

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

Estimated Weighted Average Dividend Yield [1]	1.54%
Estimated Weighted Average Long-Term Growth Rate [2]	10.45%
S&P 500 Estimated Required Market Return [3]	12.07%

		[4]	[5]	[6]	[7]	[8]	[9] Capitalization	[10]	[11] Capitalization
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Weighted Long-Term Growth Est.
A O Smith Corp	AOS	119.96	83.72	10,043		1.53%			
Gen Digital Inc T Rowe Price Group Inc	GEN TROW	615.53	26.46 106.04	16,287	0.04%	1.89% 4.68%	0.00% 0.00%	10.49%	0.00%
Waste Management Inc	WM	222.60 401.32	212.04	23,604 85,095	0.06% 0.23%	4.68% 1.41%	0.00%	7.30% 13.29%	0.00% 0.03%
Constellation Brands Inc	STZ	182.19	240.71	43,855	0.12%	1.68%	0.00%	11.37%	0.01%
Invesco Ltd Intuit Inc	IVZ INTU	450.03 279.55	17.09 630.26	7,691 176,187	0.02% 0.48%	4.80% 0.66%	0.00% 0.00%	9.27% 18.79%	0.00% 0.09%
Morgan Stanley	MS	1,620.89	103.61	167,940	0.46%	3.57%	0.02%	9.60%	0.04%
Microchip Technology Inc	MCHP	536.51	82.16	44,079		2.21%		-10.99%	
Crowdstrike Holdings Inc Chubb Ltd	CRWD CB	232.72 403.93	277.28 284.18	64,528 114,790	0.31%	1.28%	0.00%	35.70% 2.20%	0.01%
Hologic Inc	HOLX	232.27	81.24	18,870	0.05%			8.86%	0.00%
Citizens Financial Group Inc Jabil Inc	CFG JBL	448.30 113.45	43.05 109.28	19,299 12,397	0.03%	3.90% 0.29%	0.00%	7.13%	0.00%
O'Reilly Automotive Inc	ORLY	58.01	1,129.97	65,545	0.18%	0.2070	0.0070	10.21%	0.02%
Allstate Corp/The	ALL EQR	264.04 379.14	188.94 74.88	49,888	0.08%	1.95% 3.61%	0.00%	168.00% 4.23%	0.00%
Equity Residential BorgWarner Inc	BWA	227.77	33.96	28,390 7,735	0.08%	1.30%	0.00%	4.23%	0.00%
Keurig Dr Pepper Inc	KDP	1,356.09	36.61	49,646	0.14%	2.35%	0.00%	6.90%	0.01%
Host Hotels & Resorts Inc Incyte Corp	HST INCY	702.44 192.60	17.70 65.66	12,433 12,646		4.52%		33.16%	
Simon Property Group Inc	SPG	326.04	167.35	54,562	0.15%	4.90%	0.01%	1.42%	0.00%
Eastman Chemical Co	EMN	116.86	102.37	11,963	0.03%	3.16%	0.00%	6.10%	0.00%
AvalonBay Communities Inc Prudential Financial Inc	AVB PRU	142.22 357.00	225.73 121.16	32,103 43,254	0.09% 0.12%	3.01% 4.29%	0.00% 0.01%	4.93% 9.72%	0.00% 0.01%
United Parcel Service Inc	UPS	732.51	128.55	94,164	0.26%	5.07%	0.01%	0.60%	0.00%
Walgreens Boots Alliance Inc	WBA STE	863.28	9.25 241 10	7,985 23 777		10.81% 0.95%		-14.70%	
STERIS PLC McKesson Corp	STE MCK	98.62 129.68	241.10 561.08	23,777 72,759	0.20%	0.95% 0.51%	0.00%	11.18%	0.02%
Lockheed Martin Corp	LMT	238.36	564.95	134,660	0.37%	2.23%	0.01%	2.11%	0.01%
Cencora Inc	COR CPB	196.01	239.57	46,958	0.13%	0.85%	0.00%	10.67%	0.01%
Campbell Soup Co Capital One Financial Corp	CPB	298.55 381.86	49.72 146.93	14,844 56,106	0.04% 0.15%	2.98% 1.63%	0.00% 0.00%	8.36% 12.32%	0.00% 0.02%
Waters Corp	WAT	59.36	346.35	20,560	0.06%			7.80%	0.00%
Nordson Corp Dollar Tree Inc	NDSN DLTR	57.18 214.94	256.56 84.49	14,671 18,161	0.05%	1.22%		12.39%	0.01%
Darden Restaurants Inc	DRI	118.46	158.15	18,735	0.05%	3.54%	0.00%	12.59%	0.01%
Evergy Inc	EVRG	229.75	59.14	13,587	0.04%	4.35%	0.00%	4.00%	0.00%
Match Group Inc Domino's Pizza Inc	MTCH DPZ	257.90 34.97	37.21 414.21	9,596 14,486	0.04%	1.46%	0.00%	36.15% 12.56%	0.00%
NVR Inc	NVR	3.08	9,172.46	28,233	0.08%	1.4070	0.0070	7.60%	0.01%
NetApp Inc	NTAP	204.78	120.72	24,721	0.07%	1.72%	0.00%	5.34%	0.00%
Old Dominion Freight Line Inc DaVita Inc	ODFL DVA	214.30 83.90	192.80 150.92	41,316 12,662	0.11% 0.03%	0.54%	0.00%	3.02% 20.00%	0.00% 0.01%
Hartford Financial Services Group Inc/The	HIG	293.01	115.63	33,881	0.09%	1.63%	0.00%	12.37%	0.01%
Iron Mountain Inc	IRM	293.34	113.26	33,223	0.000/	2.53%	0.000/	14 500/	0.040/
Estee Lauder Cos Inc/The Cadence Design Systems Inc	EL CDNS	233.18 273.82	91.66 268.93	21,373 73,638	0.06% 0.20%	2.88%	0.00%	14.58% 16.20%	0.01% 0.03%
Tyler Technologies Inc	TYL	42.67	587.87	25,086					
Universal Health Services Inc	UHS SWKS	59.46	237.77	14,138 17,502	0.04%	0.34% 2.55%	0.00%	15.50%	0.01%
Skyworks Solutions Inc Quest Diagnostics Inc	DGX	159.72 111.32	109.59 156.97	17,503 17,473	0.05%	2.55% 1.91%	0.00%	-2.57% 6.05%	0.00%
Rockwell Automation Inc	ROK	113.47	272.03	30,866	0.08%	1.84%	0.00%	1.73%	0.00%
Kraft Heinz Co/The American Tower Corp	KHC AMT	1,209.08 467.08	35.43 224.06	42,838 104,654	0.12% 0.29%	4.52% 2.89%	0.01% 0.01%	2.51% 12.31%	0.00% 0.04%
Regeneron Pharmaceuticals Inc	REGN	108.42	1,184.69	128,441	0.2970	2.0970	0.0170	52.50%	0.0470
Amazon.com Inc	AMZN	10,495.57	178.50	1,873,459				28.99%	/
Jack Henry & Associates Inc Ralph Lauren Corp	JKHY RL	72.91 40.06	173.03 171.26	12,615 6,860	0.03% 0.02%	1.27% 1.93%	0.00% 0.00%	9.73% 11.05%	0.00% 0.00%
BXP Inc	BXP	157.93	75.22	11,880	0.03%	5.21%	0.00%	0.40%	0.00%
Amphenol Corp	APH	1,204.29	67.45	81,229	0.22%	0.98%	0.00%	16.86%	0.04%
Howmet Aerospace Inc Valero Energy Corp	HWM VLO	408.15 320.38	96.66 146.73	39,451 47,009		0.33% 2.92%		22.11% -24.00%	
Synopsys Inc	SNPS	153.61	519.58	79,815	0.22%	2.0270		16.33%	0.04%
Etsy Inc	ETSY	114.75	55.09	6,322	0.02%	2.40%	0.000/	4.06%	0.00%
CH Robinson Worldwide Inc Accenture PLC	CHRW ACN	117.28 626.38	103.51 341.95	12,140 214,192	0.03% 0.59%	2.40% 1.51%	0.00% 0.01%	17.48% 5.80%	0.01% 0.03%
TransDigm Group Inc	TDG	56.11	1,373.21	77,052	0.21%			19.57%	0.04%
Yum! Brands Inc Prologis Inc	YUM PLD	281.17 925.91	134.92 127.82	37,935 118,350	0.10% 0.32%	1.99% 3.00%	0.00% 0.01%	11.41% 5.36%	0.01% 0.02%
FirstEnergy Corp	FE	575.92	43.92	25,294	0.32 %	3.87%	0.00%	7.02%	0.02%
VeriSign Inc	VRSN	97.60	183.90	17,949					
Quanta Services Inc Henry Schein Inc	PWR HSIC	147.33 126.71	275.13 70.55	40,535 8,939	0.02%	0.13%		9.01%	0.00%
Ameren Corp	AEE	266.51	82.51	21,990	0.02%	3.25%	0.00%	6.16%	0.00%
ANSYS Inc	ANSS	87.39	321.42	28,088					/
FactSet Research Systems Inc NVIDIA Corp	FDS NVDA	38.04 24,530.00	422.84 119.37	16,085 2,928,146	0.04%	0.98% 0.03%	0.00%	9.67% 44.35%	0.00%
Cognizant Technology Solutions Corp	CTSH	495.66	77.77	38,547	0.11%	1.54%	0.00%	6.20%	0.01%
Intuitive Surgical Inc	ISRG	355.35	492.63	175,058	0.48%			17.51%	0.08%
Take-Two Interactive Software Inc Republic Services Inc	TTWO RSG	175.28 314.07	161.71 208.21	28,345 65,392	0.18%	1.11%	0.00%	60.49% 10.33%	0.02%
eBay Inc	EBAY	489.00	59.10	28,900	0.08%	1.83%	0.00%	10.12%	0.01%
Goldman Sachs Group Inc/The	GS	315.80	510.25 226.66	161,137	0.44%	2.35%	0.01%	14.20%	0.06%
SBA Communications Corp Sempra	SBAC SRE	107.47 633.15	226.66 82.18	24,360 52,032	0.07% 0.14%	1.73% 3.02%	0.00% 0.00%	15.96% 5.27%	0.01% 0.01%
Moody's Corp	MCO	182.10	487.74	88,817	0.24%	0.70%	0.00%	14.41%	0.04%
ON Semiconductor Corp		428.36	77.87	33,356	0.09%	0.000/	0.000/	1.28%	0.00%
Booking Holdings Inc F5 Inc	BKNG FFIV	33.52 58.28	3,909.23 203.15	131,053 11,840	0.36% 0.03%	0.90%	0.00%	14.59% 7.83%	0.05% 0.00%
Akamai Technologies Inc	AKAM	151.53	101.84	15,431	0.04%			6.12%	0.00%
Charles River Laboratories International Inc	CRL	51.63	197.75	10,210 9,151	0.03%	4 000/	0.000/	5.20%	0.00%
Markat Avaga Haldinga Ina	NALZTV	.,,,,,,		U 161				A 71 107	
MarketAxess Holdings Inc Devon Energy Corp	MKTX DVN	37.75 626.20	242.39 44.78	28,041	0.03% 0.08%	1.22% 3.93%	0.00% 0.00%	4.02% 6.60%	0.00% 0.01%

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 5 of 18

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

Estimated Weighted Average Dividend Yield [1]	1.54%
Estimated Weighted Average Long-Term Growth Rate [2]	10.45%
S&P 500 Estimated Required Market Return [3]	12.07%

		[4]	[5]	[6]	[7]	[8]	[9] Capitalization	[10]	[11] Capitalization
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Weighted Long-Term Growth Est.
Alphabet Inc	GOOGL	5,859.00	163.38	957,243	2.62%	0.49%	0.01%	15.01%	0.39%
Teleflex Inc		47.12 87.13	245.17	11,552	0.03%	0.55%	0.00%	7.95% 7.72%	0.00%
Allegion plc Netflix Inc	ALLE NFLX	429.17	138.84 701.35	12,097 300,995	0.03%	1.38%	0.00%	7.73% 35.72%	0.00%
Warner Bros Discovery Inc	WBD	2,451.91	7.84	19,223				28.63%	
Agilent Technologies Inc	A	287.33	142.92	41,065	0.11%	0.66%	0.00%	5.74%	0.01%
Trimble Inc Elevance Health Inc	TRMB ELV	244.21 231.89	56.69 556.89	13,844 129,135	0.35%	1.17%	0.00%	11.79%	0.04%
CME Group Inc	CME	360.09	215.74	77,687	0.21%	2.13%	0.00%	3.82%	0.01%
Juniper Networks Inc	JNPR	329.16	38.88	12,798	0.04%	2.26%	0.00%	6.00%	0.00%
BlackRock Inc DTE Energy Co	BLK DTE	148.13 206.93	901.81 125.02	133,583 25,870	0.37% 0.07%	2.26% 3.26%	0.01% 0.00%	9.76% 10.27%	0.04% 0.01%
Celanese Corp	CE	109.26	130.60	14,270	0.04%	2.14%	0.00%	0.56%	0.00%
Nasdaq Inc	NDAQ	575.94	72.08	41,514	0.11%	1.33%	0.00%	10.30%	0.01%
Philip Morris International Inc Ingersoll Rand Inc	PM IR	1,554.80 403.48	123.29 91.45	191,692 36,899	0.53%	4.22% 0.09%	0.02%	9.36%	0.05%
Salesforce Inc	CRM	956.00	252.90	241,772	0.66%	0.63%	0.00%	17.52%	0.12%
Roper Technologies Inc	ROP	107.20	554.41	59,432		0.54%			
Huntington Ingalls Industries Inc		39.22	282.77	11,089	0.03%	1.84%	0.00%	7.62%	0.00%
MetLife Inc Tapestry Inc	MET TPR	700.33 230.22	77.48 40.97	54,261 9,432	0.15% 0.03%	2.81% 3.42%	0.00% 0.00%	14.38% 5.52%	0.02% 0.00%
CSX Corp	CSX	1,938.74	34.27	66,441	0.18%	1.40%	0.00%	9.21%	0.02%
Edwards Lifesciences Corp	EW	602.40	69.96	42,144	0.12%			8.56%	0.01%
Ameriprise Financial Inc	AMP ZBRA	98.19 51.59	449.44	44,130	0.12%	1.32%	0.00%	16.59%	0.02%
Zebra Technologies Corp Zimmer Biomet Holdings Inc	ZBRA	51.58 203.65	345.38 115.46	17,815 23,514	0.06%	0.83%	0.00%	6.96%	0.00%
Camden Property Trust	CPT	106.64	125.20	13,351	0.04%	3.29%	0.00%	1.87%	0.00%
CBRE Group Inc	CBRE	306.43	115.14	35,282				. –	.
Mastercard Inc CarMax Inc	MA KMX	916.71 156.08	483.34 84.55	443,083 13,196	1.21% 0.04%	0.55%	0.01%	15.18% 17.91%	0.18% 0.01%
Intercontinental Exchange Inc	ICE	574.14	64.55 161.55	92,753	0.04 <i>%</i> 0.25%	1.11%	0.00%	9.95%	0.01%
Fidelity National Information Services Inc	FIS	545.57	82.45	44,982	00.0	1.75%		22.20%	
Smurfit WestRock PLC	SW	519.36	47.42	24,628	0.07%	2.55%	0.00%	1.00%	0.00%
Chipotle Mexican Grill Inc	CMG WYNN	1,369.48 110.99	56.08 76.88	76,800		1.30%		22.64%	
Wynn Resorts Ltd Live Nation Entertainment Inc		232.11	76.88 97.67	8,533 22,671		1.30%			
Assurant Inc	AIZ	51.79	195.63	10,132	0.03%	1.47%	0.00%	7.14%	0.00%
NRG Energy Inc	NRG	206.38	85.01	17,544	0.05%	1.92%	0.00%	4.00%	0.00%
Monster Beverage Corp Regions Financial Corp	MNST RF	979.54 915.13	47.13 23.17	46,166 21,203	0.13% 0.06%	4.32%	0.00%	10.18% 4.68%	0.01% 0.00%
Baker Hughes Co	BKR	993.42	23.17 35.17	34,939	0.00%	4.32 <i>%</i> 2.39%	0.00%	4.08% 69.21%	0.00%
Mosaic Co/The	MOS	318.64	28.57	9,103		2.94%		-21.74%	
Expedia Group Inc	EXPE	124.66	139.09	17,338	0.05%	a 4484		19.59%	0.01%
CF Industries Holdings Inc APA Corp	CF APA	180.41 369.91	83.09 28.49	14,990 10,539		2.41% 3.51%		-9.54% -5.79%	
Leidos Holdings Inc	LDOS	134.71	158.51	21,354	0.06%	0.96%	0.00%	11.76%	0.01%
Alphabet Inc	GOOG	5,585.00	165.11	922,139	2.53%	0.48%	0.01%	15.01%	0.38%
First Solar Inc	FSLR	107.05	227.37	24,339	0 4 0 0 4	4.000/	0.000/	41.25%	0.010/
TE Connectivity Ltd Discover Financial Services	TEL DFS	303.92 251.07	153.60 138.71	46,682 34,826	0.13% 0.10%	1.69% 2.02%	0.00% 0.00%	5.41% 11.65%	0.01% 0.01%
Visa Inc	V	1,670.45	276.37	461,661	1.27%	0.75%	0.01%	12.33%	0.16%
Mid-America Apartment Communities Inc	MAA	116.88	162.37	18,977	0.05%	3.62%	0.00%	0.65%	0.00%
Xylem Inc/NY	XYL	242.89	137.53	33,405		1.05%		12.000/	
Marathon Petroleum Corp Tractor Supply Co	MPC TSCO	334.68 107.87	177.12 267.55	59,279 28,860	0.08%	1.86% 1.64%	0.00%	-13.00% 5.68%	0.00%
Advanced Micro Devices Inc	AMD	1,618.48	148.56	240,442	0.0070		0.0070	25.66%	0.0070
ResMed Inc	RMD	146.93	245.02	36,001	0.10%	0.87%	0.00%	9.57%	0.01%
Mettler-Toledo International Inc VICI Properties Inc	MTD VICI	21.36 1,043.14	1,439.08 33.48	30,734 34,924	0.08% 0.10%	4.96%	0.00%	9.15% 1.83%	0.01% 0.00%
Copart Inc	CPRT	962.30	52.96	50,963	0.1076	4.90 /0	0.0078	1.05/0	0.0070
Jacobs Solutions Inc	J	124.25	150.88	18,747	0.05%	0.77%	0.00%	10.87%	0.01%
Albemarle Corp	ALB	117.53	90.25	10,607		1.80%		35.42%	
Fortinet Inc Moderna Inc	FTNT MRNA	764.91 384.40	76.71 77.40	58,676 29,752	0.16% 0.08%			8.66% 17.95%	0.01% 0.01%
Essex Property Trust Inc	ESS	64.22	301.79	19,380	0.05%	3.25%	0.00%	4.50%	0.00%
CoStar Group Inc	CSGP	409.82	77.30	31,679	0.09%			13.84%	0.01%
Realty Income Corp		870.87	61.85	53,861	0.15%	5.10%	0.01%	3.85%	0.01%
Westinghouse Air Brake Technologies Corp Pool Corp	WAB POOL	175.18 38.26	169.57 351.62	29,706 13,452	0.08%	0.47% 1.37%	0.00%	16.12% -0.04%	0.01%
Western Digital Corp	WDC	343.45	65.59	22,527				-10.00%	
PepsiCo Inc	PEP	1,373.57	172.88	237,463	0.65%	3.14%	0.02%	7.40%	0.05%
Diamondback Energy Inc	FANG PANW	178.39	195.11	34,806	0.10%	4.80%	0.00%	8.34%	0.01%
Palo Alto Networks Inc ServiceNow Inc	NOW	323.80 206.00	362.72 855.00	117,449 176,130	0.32%			11.52%	0.04%
Church & Dwight Co Inc	CHD	244.82	101.88	24,942	0.07%	1.11%	0.00%	7.35%	0.01%
Federal Realty Investment Trust	FRT	83.67	115.00	9,622	0.03%	3.83%	0.00%	4.97%	0.00%
MGM Resorts International	MGM	303.77	37.59	11,419	0.450/	2 540/	0.010/	20.80%	0.010/
American Electric Power Co Inc Invitation Homes Inc	AEP INVH	532.12 612.59	100.28 36.84	53,361 22,568	0.15% 0.06%	3.51% 3.04%	0.01% 0.00%	6.25% 5.19%	0.01% 0.00%
PTC Inc	PTC	120.14	179.09	21,515	0.06%			14.76%	0.01%
JB Hunt Transport Services Inc	JBHT	101.99	173.20	17,664	0.05%	0.99%	0.00%	9.73%	0.00%
Lam Research Corp Mohawk Industries Inc	LRCX MHK	129.88 63.12	821.01 155.14	106,629 9,792	0.29% 0.03%	1.12%	0.00%	16.29% 4.45%	0.05% 0.00%
GE HealthCare Technologies Inc	GEHC	63.12 456.66	155.14 84.82	9,792 38,734	0.03% 0.11%	0.14%	0.00%	4.45% 10.92%	0.00% 0.01%
Pentair PLC	PNR	165.50	88.69	14,678	0.04%	1.04%	0.00%	12.50%	0.01%
Vertex Pharmaceuticals Inc	VRTX	258.10	495.89	127,990	0.35%			11.00%	0.04%
Amcor PLC	AMCR	1,445.34	11.44	16,535	0.05%	4.37%	0.00%	3.71%	0.00%
Meta Platforms Inc T-Mobile US Inc	META TMUS	2,184.73 1,166.78	521.31 198.72	1,138,921 231,863	3.12% 0.64%	0.38% 1.31%	0.01% 0.01%	19.80% 5.00%	0.62% 0.03%
United Rentals Inc	URI	66.14	741.26	49,024	0.04 <i>%</i> 0.13%	0.88%	0.01%	5.00% 7.45%	0.03%
Alexandria Real Estate Equities Inc	ARE	174.93	119.57	20,916	0.06%	4.35%	0.00%	3.03%	0.00%
	HON	649.67	207.91	135,073	0.37%	2.08%	0.01%	8.65%	0.03%
Honeywell International Inc		A / - · ·	10	0- /				a - - - - - - - - - -	0.0.1.1
Honeywell International Inc Delta Air Lines Inc United Airlines Holdings Inc	DAL	645.42 328.80	42.49 44.04	27,424 14,480	0.08% 0.04%	1.41%	0.00%	6.74% 5.31%	0.01% 0.00%

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 6 of 18

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

Estimated Weighted Average Dividend Yield [1]	1.54%		
Estimated Weighted Average Long-Term Growth Rate [2]	10.45%		
S&P 500 Estimated Required Market Return [3]	12.07%		

STANDARD AND POOR'S 500 INDEX

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
							Capitalization		Capitalization
						Estimated	Weighted	Bloomberg	Weighted
		Shares		Market	Weight in	Dividend	Dividend	Long-Term	Long-Term
Name	Ticker	Outst'g	Price	Capitalization	Index	Yield	Yield	Growth Est.	Growth Est.
News Corp	NWS	190.68	29.43	5,612		0.68%			
Centene Corp	CNC	526.03	78.83	41,467	0.11%			4.40%	0.01%
Martin Marietta Materials Inc	MLM	61.12	533.37	32,598	0.09%	0.59%	0.00%	7.47%	0.01%
Teradyne Inc	TER	163.18	136.73	22,311	0.06%	0.35%	0.00%	16.14%	0.01%
PayPal Holdings Inc	PYPL	1,022.33	72.43	74,048	0.20%			12.03%	0.02%
Tesla Inc	TSLA	3,194.64	214.11	684,004				-11.00%	
KKR & Co Inc	KKR	887.44	123.77	109,838		0.57%			
Arch Capital Group Ltd	ACGL	376.06	113.09	42,528	0.12%			6.13%	0.01%
Dow Inc	DOW	703.27	53.58	37,681		5.23%		-1.67%	
Everest Group Ltd	EG	43.27	392.24	16,974	0.05%	2.04%	0.00%	2.48%	0.00%
Teledyne Technologies Inc	TDY	46.78	432.80	20,248					
GE Vernova Inc	GEV	274.80	201.00	55,235				70.40%	
News Corp	NWSA	378.33	28.33	10,718		0.71%			
Exelon Corp	EXC	999.74	38.09	38,080	0.10%	3.99%	0.00%	5.31%	0.01%
Global Payments Inc	GPN	254.44	111.01	28,245	0.08%	0.90%	0.00%	9.30%	0.01%
Crown Castle Inc	CCI	434.57	112.02	48,680	0.13%	5.59%	0.01%	1.13%	0.00%
Aptiv PLC	APTV	265.76	71.53	19,010	0.05%			16.91%	0.01%
Align Technology Inc	ALGN	74.70	237.22	17,720	0.05%			9.53%	0.00%
Kenvue Inc	KVUE	1,915.17	21.95	42,038	0.12%	3.74%	0.00%	13.58%	0.02%
Targa Resources Corp	TRGP	219.08	146.90	32,183	0.09%	2.04%	0.00%	16.74%	0.01%
Bunge Global SA	BG	141.65	101.38	14,361		2.68%		-8.59%	
LKQ Corp	LKQ	263.26	41.59	10,949		2.89%			
Deckers Outdoor Corp	DECK	25.41	959.29	24,377	0.07%			10.80%	0.01%
Zoetis Inc	ZTS	453.05	183.49	83,130	0.23%	0.94%	0.00%	10.36%	0.02%
Equinix Inc	EQIX	94.95	834.36	79,218	0.22%	2.04%	0.00%	14.03%	0.03%
Digital Realty Trust Inc	DLR	327.41	151.61	49,639	0.14%	3.22%	0.00%	3.21%	0.00%
Molina Healthcare Inc	MOH	58.60	349.79	20,498	0.06%			11.98%	0.01%
Las Vegas Sands Corp	LVS	736.43	38.99	28,713		2.05%			

Notes:[1] Equals sum of Col. [9][2] Equals sum of Col. [11][3] Equals ([1] x (1 + (0.5 x [2]))) + [2][4] Bloomberg Professional 30-day average as of August 31, 2024[5] Bloomberg Professional 30-day average as of August 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 30-day average as of August 31, 2024[9] Equals [7] x [8][10] Bloomberg Professional 30-day average as of August 31, 2024[11] Equals [7] x [10]

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 7 of 18

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]	1.54%	
		Won Proposed Weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	9.55%	80% weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	3.90%	20% weighting
Total [4]	8.42%	
S&P 500 Estimated Required Market Return [5]	10.02%	=

	_	[6]	[7]	[8]	[9]	[10] Estimated	[11] Capitalization Weighted	[12] Bloomberg	[13] Capitalizatio Weighted
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index		Dividend Yield	Long-Term Growth Est.	Long-Tern Growth Es
_yondellBasell Industries NV	LYB	325.09	98.70	32,086		5.43%		-8.07%	
American Express Co	AXP	710.91	258.65	183,877	0.50%	1.08%	0.01%	-8.07% 15.74%	0.08%
Verizon Communications Inc	VZ	4,209.52	41.78	175,874	0.48%	6.37%	0.03%	0.86%	0.00%
Broadcom Inc Boeing Co/The	AVGO BA	4,654.88 616.17	162.82 173.74	757,908 107,053	2.08%	1.29%	0.03%	15.88% 38.60%	0.33%
Solventum Corp	SOLV	172.71	64.11	11,073				-2.00%	
Caterpillar Inc	CAT	484.90	356.10	172,672	0.47%	1.58%	0.01%	8.38%	0.04%
JPMorgan Chase & Co	JPM	2,845.17	224.80	639,593	1.75%	2.05%	0.04%	4.05%	0.07%
Chevron Corp Coca-Cola Co/The	CVX KO	1,828.92 4,309.87	147.95 72.47	270,588 312,336	0.74% 0.86%	4.41% 2.68%	0.03% 0.02%	7.00% 6.36%	0.05% 0.05%
AbbVie Inc	ABBV	1,766.34	196.31	346,751	0.95%	3.16%	0.03%	8.80%	0.08%
Nalt Disney Co/The	DIS	1,813.59	90.38	163,912	0.45%	1.00%	0.00%	18.89%	0.08%
Corpay Inc	CPAY	69.43	315.55	21,910	0.06%	0.000/		14.87%	0.00%
Extra Space Storage Inc Exxon Mobil Corp	EXR XOM	211.93 4,442.83	177.00 117.94	37,511 523,987	1.44%	3.66% 3.22%	0.05%	-0.20% 5.00%	0.07%
Phillips 66	PSX	418.57	140.31	58,729	1.4470	3.28%	0.0070	-9.00%	0.01 /0
General Electric Co	GE	1,084.31	174.62	189,342		0.64%		29.30%	
	HPQ	963.72	36.18	34,867	0.10%	3.05%	0.00%	1.42%	0.00%
Home Depot Inc/The Monolithic Power Systems Inc	HD MPWR	993.29 48.75	368.50 934.68	366,028 45,568	1.00%	2.44% 0.53%	0.02%	3.87%	0.04%
nternational Business Machines Corp	IBM	921.15	202.13	43,308 186,192	0.51%	3.30%	0.02%	3.90%	0.02%
Johnson & Johnson	JNJ	2,407.24	165.86	399,265	1.09%	2.99%	0.03%	3.73%	0.04%
ululemon Athletica Inc	LULU	117.66	259.47	30,529	0.08%			7.00%	0.00%
AcDonald's Corp	MCD	717.34 2.534.81	286.99 118.45	205,870	0.56%	2.33% 2.60%	0.01%	5.15% 14.00%	0.03%
/lerck & Co Inc M Co	MRK MMM	2,534.81 549.35	118.45 134.69	300,248 73,992	0.82%	2.60% 2.08%	0.02%	14.00% -5.37%	0.12%
American Water Works Co Inc	AWK	194.86	143.12	27,889	0.08%	2.14%	0.00%	8.00%	0.01%
Bank of America Corp	BAC	7,759.58	40.75	316,203		2.55%			
Pfizer Inc	PFE	5,666.70	29.01	164,391	0.45%	5.79%	0.03%	6.39%	0.03%
Procter & Gamble Co/The \T&T Inc	PG T	2,349.71 7,170.24	171.54 19.90	403,069 142,688	1.10% 0.39%	2.35% 5.58%	0.03% 0.02%	7.37% 1.84%	0.08% 0.01%
Travelers Cos Inc/The	TRV	227.93	228.07	51,984	0.39%	5.56% 1.84%	0.02%	18.21%	0.01%
RTX Corp	RTX	1,330.24	123.34	164,072	0.45%	2.04%	0.01%	10.23%	0.05%
nalog Devices Inc	ADI	496.49	233.92	116,140		1.57%		-5.82%	
Valmart Inc	WMT	8,038.25	77.23	620,794	1.70%	1.07%	0.02%	9.24%	0.16%
Cisco Systems Inc ntel Corp	CSCO INTC	4,028.82 4,276.00	50.54 22.04	203,616 94,243	0.56% 0.26%	3.17%	0.02%	3.40% 4.26%	0.02% 0.00%
General Motors Co	GM	1,123.92	49.78	55,949	0.20%	0.96%	0.00%	11.02%	0.02%
/licrosoft Corp	MSFT	7,433.04	417.14	3,100,617	8.50%	0.72%	0.06%	16.10%	1.37%
Dollar General Corp	DG	219.92	82.97	18,246		2.84%		-3.74%	
Cigna Group/The	CI	279.55	361.81	101,144	0.28%	1.55%	0.00%	11.65%	0.03%
Kinder Morgan Inc Ditigroup Inc	KMI C	2,219.46 1,907.80	21.57 62.64	47,874 119,504	0.13%	5.33% 3.58%	0.01%	6.52% 27.26%	0.01%
American International Group Inc	AIG	643.95	77.05	49,616	0.14%	2.08%	0.00%	12.42%	0.02%
Altria Group Inc	MO	1,706.22	53.77	91,744	0.25%	7.59%	0.02%	4.14%	0.01%
ICA Healthcare Inc	HCA	258.07	395.59	102,091	0.28%	0.67%	0.00%	10.81%	0.03%
nternational Paper Co Hewlett Packard Enterprise Co	IP HPE	347.37 1,299.67	48.42 19.37	16,820 25,175	0.07%	3.82% 2.68%	0.00%	-2.00% 3.73%	0.00%
Abbott Laboratories	ABT	1,739.90	113.27	197,078	0.54%	1.94%	0.01%	8.12%	0.04%
Aflac Inc	AFL	560.03	110.36	61,804	0.17%	1.81%	0.00%	7.55%	0.01%
Air Products and Chemicals Inc	APD	222.32	278.85	61,993	0.17%	2.54%	0.00%	9.52%	0.02%
Super Micro Computer Inc Royal Caribbean Cruises Ltd	SMCI RCL	58.56 257.42	437.70 164.62	25,630 42,376		0.97%		69.00% 30.00%	
Hess Corp	HES	308.12	138.06	42,538	0.12%	1.27%	0.00%	16.00%	0.02%
Archer-Daniels-Midland Co	ADM	478.14	60.99	29,162		3.28%		-3.62%	
Automatic Data Processing Inc	ADP	407.80	275.91	112,515		2.03%	/		
/erisk Analytics Inc AutoZone Inc	VRSK AZO	142.42 17.08	272.82 3,181.48	38,856 54,349	0.11% 0.15%	0.57%	0.00%	12.54% 14.66%	0.01% 0.00%
inde PLC	LIN	477.50	478.25	228,366	0.63%	1.16%	0.01%	11.76%	0.00%
Very Dennison Corp	AVY	80.52	221.85	17,863	0.05%	1.59%	0.00%	12.84%	0.01%
Inphase Energy Inc	ENPH	135.42	121.04	16,391	0.04%			7.45%	0.00%
	MSCI	78.65 303.57	580.59 63.61	45,663 19 310	0.13% 0.05%	1.10% 1.26%	0.00%	11.93% 13 35%	0.01%
Ball Corp Axon Enterprise Inc	BALL AXON	303.57 75.57	63.61 364.97	19,310 27,582	0.05%	1.26%	0.00%	13.35% 20.81%	0.01%
Dayforce Inc	DAY	158.10	57.17	9,039				/ / /	
Carrier Global Corp	CARR	902.75	72.78	65,702	0.18%	1.04%	0.00%	6.74%	0.01%
Bank of New York Mellon Corp/The	BK	737.96	68.22	50,343	0.14%	2.76%	0.00%	10.55%	0.01%
Dtis Worldwide Corp Baxter International Inc	OTIS BAX	400.56 510.18	94.69 37.94	37,929 19,356	0.10% 0.05%	1.65% 3.06%	0.00% 0.00%	10.00% 6.50%	0.01% 0.00%
Becton Dickinson & Co	BDX	289.04	242.41	70,067	0.19%	1.57%	0.00%	8.34%	0.02%
Berkshire Hathaway Inc	BRK/B	1,325.19	475.92	630,686					
Best Buy Co Inc	BBY	215.71	100.40	21,658	0.06%	3.75%	0.00%	4.17%	0.00%
Boston Scientific Corp Bristol-Myers Squibb Co	BSX BMY	1,472.63 2,027.40	81.79 49.95	120,446 101,268	0.33%	4.80%		12.58% 33.60%	0.00%
Brown-Forman Corp	BMT BF/B	303.54	49.93 45.37	13,772		4.80 <i>%</i> 1.92%		-2.38%	
Coterra Energy Inc	CTRA	739.27	24.33	17,987	0.05%	3.45%	0.00%	10.06%	0.00%
lilton Worldwide Holdings Inc	HLT	246.43	219.64	54,125	0.15%	0.27%	0.00%	14.97%	0.02%
Carnival Corp Qorvo Inc	CCL QRVO	1,122.46 94.86	16.50 115.89	18,521 10 993	0 030/			17.09%	0.00%
aorvo Inc Builders FirstSource Inc	BLDR	94.86 116.45	115.89 174.00	10,993 20,263	0.03% 0.06%			17.09%	0.00%
JDR Inc	UDR	329.82	44.51	14,680	0.04%	3.82%	0.00%	1.85%	0.00%
Clorox Co/The	CLX	123.86	158.31	19,609	0.05%	3.08%	0.00%	8.65%	0.00%
Paycom Software Inc	PAYC	57.43	162.78	9,349	0.03%	0.92%	0.00%	9.41%	0.00%
CMS Energy Corp Colgate-Palmolive Co	CMS CL	298.64 817.09	67.86 106.50	20,265 87,020	0.06% 0.24%	3.04% 1.88%	0.00% 0.00%	7.28% 8.73%	0.00% 0.02%
EPAM Systems Inc	EPAM	56.94	200.76	87,020 11,430	0.24%	1.00 /0	0.0070	5.29%	0.02%
Conagra Brands Inc	CAG	479.05	31.20	14,946	0.04%	4.49%	0.00%	1.81%	0.00%
Nirbnb Inc	ABNB	440.00	117.31	51,617	0.14%			19.84%	0.00%
Consolidated Edison Inc	ED	346.15	101.56	35,155	0.10%	3.27%	0.00%	5.58%	0.01%
Corning Inc GoDaddy Inc	GLW GDDY	855.70 140.97	41.85 167.41	35,811 23,600	0.10%	2.68%	0.00%	13.41%	0.01%
Cummins Inc	CMI	137.05	312.85	42,875	0.12%	2.33%	0.00%	8.28%	0.01%
		· ·		,					

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 8 of 18

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

Estimated Weighted Average Dividend Yield [1]	1.54%	
		Won Proposed Weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	9.55% 80	% weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	3.90% 20	% weighting
Total [4]	8.42%	
S&P 500 Estimated Required Market Return [5]	10.02%	

	_	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
						Estimated	Capitalization Weighted	Bloomberg	Capitalization Weighted
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index		Dividend Yield	Long-Term Growth Est.	Long-Term Growth Est.
Danaher Corp Target Corp	DHR TGT	722.21 460.68	269.31 153.62	194,499 70,769	0.53% 0.19%	0.40% 2.92%	0.00% 0.01%	1.89% 14.38%	0.01% 0.03%
Deere & Co	DE	273.60	385.74	105,538		1.52%		-9.99%	
Dominion Energy Inc Dover Corp	D DOV	838.94 137.46	55.90 186.03	46,897 25,571	0.07%	4.78% 1.11%	0.00%	21.59% 7.72%	0.01%
Alliant Energy Corp	LNT	256.50	58.27	25,571 14,946	0.07%	3.30%	0.00%	7.72%	0.01%
Steel Dynamics Inc	STLD	154.30	119.51	18,441		1.54%		-4.38%	
Duke Energy Corp	DUK	771.00	113.95	87,855	0.24%	3.67%	0.01%	6.61%	0.02%
Regency Centers Corp	REG	181.50	72.69	13,193	0.04%	3.69%	0.00%	3.79%	0.00%
Eaton Corp PLC Ecolab Inc	ETN ECL	398.10 284.54	306.93 253.18	122,189 72,039	0.33% 0.20%	1.23% 0.90%	0.00% 0.00%	14.60% 15.76%	0.05% 0.03%
Revvity Inc	RVTY	123.34	122.54	15,114	0.04%	0.23%	0.00%	9.44%	0.00%
Emerson Electric Co	EMR	572.70	105.39	60,357	0.17%	1.99%	0.00%	15.10%	0.02%
EOG Resources Inc	EOG	568.60	128.82	73,247	0.20%	2.83%	0.01%	3.28%	0.01%
Aon PLC	AON ETR	217.24 213.83	343.72 120.69	74,670 25,807	0.20% 0.07%	0.79% 3.75%	0.00% 0.00%	11.10% 7.17%	0.02% 0.01%
Entergy Corp Equifax Inc	EFX	123.74	306.74	37,955	0.07 /0	0.51%	0.0070	21.48%	0.0176
EQT Corp	EQT	594.02	33.51	19,906		1.88%			
IQVIA Holdings Inc	IQV	182.30	251.55	45,858	0.13%			10.83%	0.00%
Gartner Inc	IT	77.06	491.96	37,910	0.10%	4.050/	0.000/	7.67%	0.00%
FedEx Corp	FDX	244.96	298.77	73,188	0.20%	1.85%	0.00%	13.35%	0.03%
FMC Corp Brown & Brown Inc	FMC BRO	124.82 285.26	64.58 105.13	8,061 29,989	0.02% 0.08%	3.59% 0.49%	0.00% 0.00%	15.67% 10.85%	0.00% 0.01%
Ford Motor Co	F	3,904.40	11.19	43,690	0.12%	5.36%	0.01%	1.34%	0.00%
NextEra Energy Inc	NEE	2,055.00	80.51	165,448	0.45%	2.56%	0.01%	8.17%	0.04%
Franklin Resources Inc	BEN	523.00	20.24	10,585		6.13%			
Garmin Ltd	GRMN	192.21	183.29	35,231	0.10%	1.64%	0.00%	9.55%	0.01%
Freeport-McMoRan Inc Dexcom Inc	FCX DXCM	1,436.86 400.73	44.28 69.34	63,624 27,786	0.17%	1.36%	0.00%	17.59% 21.07%	0.03%
General Dynamics Corp	GD	274.78	299.36	82,258	0.23%	1.90%	0.00%	15.55%	0.04%
General Mills Inc	GIS	556.62	72.29	40,238	0.11%	3.32%	0.00%	2.38%	0.00%
Genuine Parts Co	GPC	139.32	143.26	19,959		2.79%			
Atmos Energy Corp	ATO	155.23	130.74	20,295	0.06%	2.46%	0.00%	7.00%	0.00%
WW Grainger Inc	GWW	48.83	984.92	48,090	/	0.83%	/		
Halliburton Co	HAL	882.83	31.09	27,447	0.08%	2.19%	0.00%	8.17% 8.77%	0.01%
L3Harris Technologies Inc Healthpeak Properties Inc	LHX DOC	189.71 699.29	236.67 22.28	44,897 15,580	0.12% 0.04%	1.96% 5.39%	0.00% 0.00%	8.77% 5.33%	0.01% 0.00%
Insulet Corp	PODD	70.12	202.77	14,217	0.04%	0.0070	0.0070	17.61%	0.00%
Catalent Inc	CTLT	180.98	60.96	11,033					
Fortive Corp	FTV	350.34	74.40	26,065	0.07%	0.43%	0.00%	10.49%	0.01%
Hershey Co/The	HSY	147.67	193.06	28,510	0.08%	2.84%	0.00%	2.21%	0.00%
Synchrony Financial Hormel Foods Corp	SYF HRL	395.23 548.31	50.26 32.55	19,864 17,847	0.05%	1.99% 3.47%	0.00%	64.00% 6.59%	0.00%
Arthur J Gallagher & Co	AJG	219.10	292.57	64,102	0.03%	0.82%	0.00%	12.87%	0.00%
Mondelez International Inc	MDLZ	1,335.80	71.81	95,924	0.26%	2.62%	0.01%	6.93%	0.02%
CenterPoint Energy Inc	CNP	651.72	27.30	17,792	0.05%	2.93%	0.00%	8.00%	0.00%
Humana Inc	HUM	120.40	354.47	42,679		1.00%		-1.30%	
Willis Towers Watson PLC	WTW	101.56	292.11	29,666	0.08%	1.21%	0.00%	11.69%	0.01%
Illinois Tool Works Inc CDW Corp/DE	ITW CDW	296.90 133.58	253.18 225.64	75,169 30,140	0.21% 0.08%	2.37% 1.10%	0.00% 0.00%	6.90% 7.02%	0.01% 0.01%
Trane Technologies PLC	TT	225.67	361.66	81,616	0.22%	0.93%	0.00%	15.56%	0.03%
Interpublic Group of Cos Inc/The	IPG	375.59	32.28	12,124	0.03%	4.09%	0.00%	3.20%	0.00%
International Flavors & Fragrances Inc	IFF	255.66	103.99	26,586	0.07%	1.54%	0.00%	2.12%	0.00%
Generac Holdings Inc	GNRC	60.15	156.53	9,416	0.03%	4 500/	0.000/	7.00%	0.00%
NXP Semiconductors NV Kellanova	NXPI K	254.73 343.95	256.36 80.04	65,303 27,530	0.18% 0.08%	1.58% 2.85%	0.00% 0.00%	5.89% 9.29%	0.01% 0.01%
Broadridge Financial Solutions Inc	BR	116.71	212.86	24,843	0.0070	1.65%	0.0070	9.2970	0.0170
Kimberly-Clark Corp	KMB	336.80	144.66	48,722	0.13%	3.37%	0.00%	8.36%	0.01%
Kimco Realty Corp	KIM	674.12	23.26	15,680	0.04%	4.13%	0.00%	3.63%	0.00%
Oracle Corp	ORCL	2,755.86	141.29	389,375	1.07%	1.13%	0.01%	15.06%	0.16%
Kroger Co/The	KR	721.79	53.21	38,406	0.11%	2.41%	0.00%	3.11%	0.00%
Lennar Corp Eli Lilly & Co	LEN LLY	241.70 950.43	182.06 960.02	44,004 912,428	0.12%	1.10% 0.54%	0.00%	4.30% 33.00%	0.01%
Bath & Body Works Inc	BBWI	219.11	30.76	6,740	0.02%	2.60%	0.00%	14.74%	0.00%
Charter Communications Inc	CHTR	142.74	347.54	49,608	0.14%			7.10%	0.00%
Loews Corp	L	219.52	81.94	17,987		0.31%			
Lowe's Cos Inc	LOW	567.29	248.50	140,973		1.85%		-0.19%	
Hubbell Inc IDEX Corp	HUBB IEX	53.68 75.70	399.92 206.48	21,468 15,631		1.22% 1.34%			
Marsh & McLennan Cos Inc	MMC	491.76	200.40	111,879	0.31%	1.43%	0.00%	9.10%	0.03%
Masco Corp	MAS	218.25	79.56	17,364	0.05%	1.46%	0.00%	7.76%	0.00%
S&P Global Inc	SPGI	320.20	513.24	164,339	0.45%	0.71%	0.00%	14.53%	0.07%
Medtronic PLC	MDT	1,282.49	88.58	113,603	0.31%	3.16%	0.01%	5.66%	0.02%
Viatris Inc	VTRS	1,193.52	12.08	14,418	0.200/	3.97%	0.010/	-3.41%	0.00%
CVS Health Corp DuPont de Nemours Inc	CVS DD	1,257.98 417.50	57.24 84.25	72,007 35,174	0.20% 0.10%	4.65% 1.80%	0.01% 0.00%	1.82% 2.50%	0.00% 0.00%
Micron Technology Inc	MU	1,108.84	96.24	106,715	0.1070	0.48%	0.0070	31.94%	0.0070
Motorola Solutions Inc	MSI	166.84	442.04	73,750	0.20%	0.89%	0.00%	9.36%	0.02%
Cboe Global Markets Inc	CBOE	104.63	205.40	21,492	0.06%	1.23%	0.00%	13.78%	0.01%
Newmont Corp	NEM	1,152.49	53.39	61,531		1.87%		48.45%	
NIKE Inc NiSource Inc	NKE NI	1,201.46 448.51	82.95 33.06	99,661 14,828	0.27%	1.78% 3.21%	0.00% 0.00%	4.46% 7.00%	0.01% 0.00%
NISource Inc Norfolk Southern Corp	NSC	226.10	33.06 256.16	14,828 57,917	0.04% 0.16%	3.21% 2.11%	0.00%	7.00% 9.68%	0.00%
Principal Financial Group Inc	PFG	231.58	81.42	18,856	0.05%	3.54%	0.00%	13.00%	0.02 %
Eversource Energy	ES	357.39	67.53	24,134	0.07%	4.24%	0.00%	5.46%	0.00%
Northrop Grumman Corp	NOC	146.25	521.15	76,216	0.21%	1.58%	0.00%	8.68%	0.02%
Wells Fargo & Co	WFC	3,403.77	58.47	199,018	0.55%	2.74%	0.01%	7.95%	0.04%
Nucor Corp	NUE	237.34	151.91	36,054		1.42% 1.54%		-1.48%	
Occidental Petroleum Corp Omnicom Group Inc	OXY OMC	916.20 195.65	56.98 100.43	52,205 19,649	0.05%	1.54% 2.79%	0.00%	24.00% 5.36%	0.00%
ONEOK Inc	OMC	584.07	92.36	19,649 53,945	0.00%	2.79% 4.29%	0.00%	0.00%	0.0070
Raymond James Financial Inc	RJF	205.94	119.57	24,625	0.07%	1.51%	0.00%	15.40%	0.01%
-	PCG	2,137.46	19.70	42,108	0.12%	0.20%	0.00%	9.95%	0.01%
•									
PG&E Corp Parker-Hannifin Corp Rollins Inc	PH ROL	128.60 484.31	600.20 50.18	77,183 24,303	0.21% 0.07%	1.09% 1.20%	0.00% 0.00%	13.44% 13.38%	0.03% 0.01%

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 9 of 18

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

Estimated Weighted Average Dividend Yield [1]	1.54%	
	Won Proposed Weighting	
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	9.55% 80% weighting	
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	3.90% 20% weighting	
Total [4]	8.42%	
S&P 500 Estimated Required Market Return [5]	10.02%	

	_	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
						Estimated	Capitalization Weighted	Bloomberg	Capitalization Weighted
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Dividend Yield	Dividend Yield	Long-Term Growth Est.	Long-Term Growth Est.
PPL Corp ConocoPhillips	PPL COP	737.77 1,161.25	31.91 113.79	23,542 132,139	0.06% 0.36%	3.23% 2.74%	0.00% 0.01%	7.01% 13.00%	0.00% 0.05%
PulteGroup Inc	PHM	207.52	131.65	27,321	0.07%	0.61%	0.00%	8.99%	0.01%
Pinnacle West Capital Corp	PNW	113.61	87.52	9,943	0.03%	4.02%	0.00%	8.22%	0.00%
PNC Financial Services Group Inc/The PPG Industries Inc	PNC PPG	397.50 233.30	185.09 129.73	73,573 30,266	0.20% 0.08%	3.46% 2.10%	0.01% 0.00%	18.04% 8.33%	0.04% 0.01%
Progressive Corp/The	PGR	585.67	252.20	147,705		0.16%		36.31%	
Veralto Corp	VLTO	247.11	112.43	27,782	0.440/	0.32%	0.000/	7 470/	0.040/
Public Service Enterprise Group Inc Cooper Cos Inc/The	PEG COO	498.16 199.16	80.75 105.73	40,227 21,057	0.11% 0.06%	2.97%	0.00%	7.47% 12.43%	0.01% 0.00%
Edison International	EIX	383.93	87.03	33,413	0.09%	3.58%	0.00%	6.00%	0.01%
Schlumberger NV	SLB	1,419.84	43.99	62,459	0.17%	2.50%	0.00%	12.22%	0.02%
Charles Schwab Corp/The	SCHW	1,778.45	65.10	115,777	0.32%	1.54%	0.00%	12.07%	0.04%
Sherwin-Williams Co/The West Pharmaceutical Services Inc	SHW WST	252.26 72.54	369.37 313.63	93,177 22,751	0.26% 0.06%	0.77% 0.26%	0.00% 0.00%	9.88% 2.89%	0.03% 0.00%
J M Smucker Co/The	SJM	106.41	114.68	12,203	0.03%	3.77%	0.00%	6.07%	0.00%
Snap-on Inc	SNA	52.68	283.74	14,948	0.04%	2.62%	0.00%	3.83%	0.00%
AMETEK Inc Uber Technologies Inc	AME UBER	231.54 2,100.94	171.05 73.13	39,604 153,642	0.11%	0.65%	0.00%	7.02% 60.59%	0.01%
Southern Co/The	SO	1,094.63	86.40	94,576	0.26%	3.33%	0.01%	7.23%	0.02%
Truist Financial Corp	TFC	1,339.14	44.46	59,538	0.16%	4.68%	0.01%	10.91%	0.02%
Southwest Airlines Co	LUV	599.16	28.92	17,328		2.49%			
W R Berkley Corp Stanley Black & Decker Inc	WRB SWK	380.55 153.96	59.70 101.54	22,719 15,633	0.06%	0.54% 3.23%	0.00%	13.27%	0.01%
Public Storage	PSA	175.83	343.72	60,436	0.17%	3.23% 3.49%	0.01%	1.23%	0.00%
Arista Networks Inc	ANET	314.15	353.38	111,015	0.30%			18.60%	0.00%
Sysco Corp	SYY	491.52	77.97	38,324	0.11%	2.62%	0.00%	7.00%	0.01%
Corteva Inc Texas Instruments Inc	CTVA TXN	687.80 913.05	57.13 214.34	39,294 195,702	0.11%	1.19% 2.43%	0.00%	9.85% -2.86%	0.01%
Textron Inc	TXT	913.05 187.36	214.34 91.20	195,702	0.05%	2.43% 0.09%	0.00%	-2.00% 10.05%	0.00%
Thermo Fisher Scientific Inc	ТМО	382.00	615.07	234,954	0.64%	0.25%	0.00%	8.70%	0.06%
TJX Cos Inc/The	TJX	1,127.87	117.27	132,266	0.36%	1.28%	0.00%	8.20%	0.03%
Globe Life Inc	GL	89.82	105.05	9,436	0.03%	0.91%	0.00%	6.00%	0.00%
Johnson Controls International plc Ulta Beauty Inc	JCI ULTA	668.01 47.12	72.85 352.84	48,665 16,624	0.13% 0.05%	2.03%	0.00%	8.72% 1.64%	0.01% 0.00%
Union Pacific Corp	UNP	609.20	256.09	156,010	0.43%	2.09%	0.01%	11.33%	0.05%
Keysight Technologies Inc	KEYS	173.54	154.12	26,746				-1.19%	
UnitedHealth Group Inc	UNH	923.42	590.20	545,001	1.49%	1.42%	0.02%	10.44%	0.16%
Blackstone Inc Marathon Oil Corp	BX MRO	720.08 559.38	142.36 28.65	102,510 16,026		2.30% 1.54%		24.48% -5.00%	
Bio-Rad Laboratories Inc	BIO	22.80	337.32	7,689	0.02%	1.0470		12.00%	0.00%
Ventas Inc	VTR	413.15	62.11	25,661	0.07%	2.90%	0.00%	8.22%	0.01%
Labcorp Holdings Inc	LH	83.96	229.89	19,302	0.05%	1.25%	0.00%	8.45%	0.00%
Vulcan Materials Co Weyerhaeuser Co	VMC WY	132.06 727.32	245.21 30.49	32,382 22,176		0.75% 2.62%		-13.66%	
Williams Cos Inc/The	WMB	1,218.93	45.77	55,790	0.15%	4.15%	0.01%	4.28%	0.01%
Constellation Energy Corp	CEG	315.12	196.70	61,984		0.72%		20.39%	
WEC Energy Group Inc	WEC	316.08	93.03	29,405	0.08%	3.59%	0.00%	7.82%	0.01%
Adobe Inc Vistra Corp	ADBE VST	443.40 343.56	574.41 85.43	254,693 29,350	0.70%	1.03%		16.27%	0.00%
AES Corp/The	AES	710.92	17.13	12,178		4.03%			
Expeditors International of Washington Inc	EXPD	141.13	123.41	17,417	0.05%	1.18%	0.00%	4.39%	0.00%
Amgen Inc	AMGN	537.33	333.83	179,377	0.49%	2.70%	0.01%	3.52%	0.02%
Apple Inc Autodesk Inc	AAPL ADSK	15,204.14 215.51	229.00 258.40	3,481,747 55,688	9.54% 0.15%	0.44%	0.04%	8.04% 10.23%	0.77% 0.00%
Cintas Corp	CTAS	100.77	805.12	81,131	0.22%	0.78%	0.00%	10.59%	0.02%
Comcast Corp	CMCSA	3,863.06	39.57	152,861	0.42%	3.13%	0.01%	7.32%	0.03%
Molson Coors Beverage Co	TAP	192.59	53.97	10,394	0.03%	3.26% 0.71%	0.00%	5.29%	0.00%
KLA Corp Marriott International Inc/MD	KLAC MAR	134.43 281.52	819.43 234.69	110,152 66,071	0.30% 0.18%	0.71% 1.07%	0.00% 0.00%	10.00% 4.25%	0.03% 0.01%
Fiserv Inc	FI	575.73	174.60	100,522	0.28%			11.52%	0.00%
McCormick & Co Inc/MD	MKC	252.02	80.03	20,169	0.06%	2.10%	0.00%	5.83%	0.00%
PACCAR Inc	PCAR COST	524.22	96.18	50,420	0.14%	1.25%	0.00%	0.48%	0.00%
Costco Wholesale Corp Stryker Corp	SYK	443.34 381.08	892.38 360.42	395,623 137,347	1.08% 0.38%	0.52% 0.89%	0.01% 0.00%	10.36% 8.60%	0.11% 0.03%
Tyson Foods Inc	TSN	285.82	64.31	18,381		3.05%			
Lamb Weston Holdings Inc	LW	143.67	61.92	8,896	0.02%	2.33%	0.00%	2.16%	0.00%
Applied Materials Inc American Airlines Group Inc	AMAT AAL	824.40 653.54	197.26 10.62	162,622 6,941	0.45%	0.81%	0.00%	9.28% -13.42%	0.04%
Cardinal Health Inc	CAH	243.85	112.72	27,486	0.08%	1.79%	0.00%	-13.42% 9.84%	0.01%
Cincinnati Financial Corp	CINF	156.24	137.03	21,410	0.06%	2.36%	0.00%	7.83%	0.00%
Paramount Global	PARA	626.01	10.47	6,554		1.91%		49.00%	
DR Horton Inc	DHI	326.04	188.76	61,543	0.17%	0.64%	0.00%	8.27%	0.01%
Electronic Arts Inc Fair Isaac Corp	EA FICO	264.20 24.52	151.82 1,730.27	40,111 42,424	0.11%	0.50%	0.00%	12.85% 23.00%	0.01%
Fastenal Co	FAST	572.65	68.28	39,100		2.28%			
M&T Bank Corp	MTB	167.00	170.76	28,517	0.08%	3.16%	0.00%	3.87%	0.00%
Xcel Energy Inc	XEL FITB	557.50	61.23	34,136	0.09%	3.58%	0.00%	7.10%	0.01%
Fifth Third Bancorp Gilead Sciences Inc	GILD	676.80 1,244.99	42.69 79.00	28,892 98,354	0.27%	3.28% 3.90%	0.01%	25.00% 15.38%	0.04%
Hasbro Inc	HAS	139.41	68.16	9,502	<i></i>	4.11%	0.0170	33.11%	2.2.70
Huntington Bancshares Inc/OH	HBAN	1,452.43	14.97	21,743	0.06%	4.14%	0.00%	3.32%	0.00%
Welltower Inc	WELL	609.15 145.66	120.68	73,512	0.20%	2.22%	0.00%	15.65% 6.10%	0.03%
Biogen Inc Northern Trust Corp	BIIB NTRS	145.66 201.64	204.76 91.21	29,826 18,391	0.08% 0.05%	3.29%	0.00%	6.10% 10.11%	0.00% 0.01%
Packaging Corp of America	PKG	89.81	209.54	18,819	0.05%	2.39%	0.00%	5.83%	0.00%
Paychex Inc	PAYX	359.74	131.20	47,198	0.13%	2.99%	0.00%	7.54%	0.01%
	QCOM	1,114.00	175.30	195,284	0.54%	1.94%	0.01%	10.64%	0.06%
Ross Stores Inc IDEXX Laboratories Inc	ROST IDXX	333.58 82.31	150.61 481.33	50,240 39,616	0.14% 0.11%	0.98%	0.00%	8.85% 11.25%	0.01% 0.00%
IDEXX Laboratories Inc Starbucks Corp	SBUX	82.31 1,133.20	481.33 94.57	39,616 107,167	0.11% 0.29%	2.41%	0.01%	9.67%	0.00%
KeyCorp	KEY	928.12	17.06	15,834	0.04%	4.81%	0.00%	20.00%	0.01%
Fox Corp	FOXA	224.65	41.37	9,294	0.03%	1.31%	0.00%	5.35%	0.00%
Fox Corp State Street Corp	FOX	235.58	38.43 87.10	9,053 26.010	0.02%	1.41%	0.00%	5.35% 8.82%	0.00%
State Street Corp	STT	298.62	87.10	26,010	0.07%	3.49%	0.00%	8.82%	0.01%

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 10 of 18

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

Estimated Weighted Average Dividend Yield [1]	1.54%	
		Won Proposed Weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	9.55%	80% weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	3.90%	20% weighting
Total [4]	8.42%	_
S&P 500 Estimated Required Market Return [5]	10.02%	=

	_	[6]	[7]	[8]	[9]	[10]	[11] Capitalization	[12]	[13] Capitalization
						Estimated	Weighted	Bloomberg	Weighted
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Dividend Yield	Dividend Yield	Long-Term Growth Est.	Long-Term Growth Est.
				•	Index	Tield	Tield		Glowin Esi.
Norwegian Cruise Line Holdings Ltd US Bancorp	NCLH USB	439.69 1,560.51	17.89 47.23	7,866 73,703	0.20%	4.15%	0.01%	50.58% 3.39%	0.01%
A O Smith Corp	AOS	119.96	83.72	10,043		1.53%			
Gen Digital Inc	GEN	615.53	26.46	16,287	0.04%	1.89%	0.00%	10.49%	0.00%
T Rowe Price Group Inc	TROW	222.60	106.04	23,604	0.06%	4.68%	0.00%	7.30%	0.00%
Waste Management Inc	WM	401.32	212.04	85,095	0.23%	1.41%	0.00%	13.29%	0.03%
Constellation Brands Inc	STZ	182.19	240.71	43,855	0.12%	1.68%	0.00%	11.37%	0.01%
Invesco Ltd Intuit Inc	IVZ INTU	450.03 279.55	17.09 630.26	7,691 176,187	0.02% 0.48%	4.80% 0.66%	0.00% 0.00%	9.27% 18.79%	0.00% 0.09%
Morgan Stanley	MS	1,620.89	103.61	167,940	0.46%	3.57%	0.02%	9.60%	0.03%
Microchip Technology Inc	MCHP	536.51	82.16	44,079		2.21%		-10.99%	
Crowdstrike Holdings Inc	CRWD	232.72	277.28	64,528				35.70%	
Chubb Ltd	CB	403.93	284.18	114,790	0.31%	1.28%	0.00%	2.20%	0.01%
Hologic Inc	HOLX	232.27	81.24	18,870	0.05%			8.86%	0.00%
Citizens Financial Group Inc	CFG	448.30	43.05	19,299	0.000/	3.90%	0.000/	7 400/	0.00%
Jabil Inc O'Reilly Automotive Inc	JBL ORLY	113.45 58.01	109.28 1,129.97	12,397 65,545	0.03% 0.18%	0.29%	0.00%	7.13% 10.21%	0.00% 0.00%
Allstate Corp/The	ALL	264.04	188.94	49,888	0.1070	1.95%		168.00%	0.00 /8
Equity Residential	EQR	379.14	74.88	28,390	0.08%	3.61%	0.00%	4.23%	0.00%
BorgWarner Inc	BWA	227.77	33.96	7,735	0.02%	1.30%	0.00%	4.40%	0.00%
Keurig Dr Pepper Inc	KDP	1,356.09	36.61	49,646	0.14%	2.35%	0.00%	6.90%	0.01%
Host Hotels & Resorts Inc	HST	702.44	17.70	12,433		4.52%			
Incyte Corp	INCY	192.60	65.66	12,646				33.16%	
Simon Property Group Inc	SPG	326.04	167.35	54,562	0.15%	4.90%	0.01%	1.42%	0.00%
Eastman Chemical Co	EMN	116.86	102.37	11,963	0.03%	3.16%	0.00%	6.10%	0.00%
AvalonBay Communities Inc	AVB PRU	142.22	225.73	32,103	0.09%	3.01%	0.00%	4.93%	0.00%
Prudential Financial Inc United Parcel Service Inc	UPS	357.00 732.51	121.16 128.55	43,254 94,164	0.12% 0.26%	4.29% 5.07%	0.01% 0.01%	9.72% 0.60%	0.01% 0.00%
Walgreens Boots Alliance Inc	WBA	863.28	9.25	7,985	0.2070	10.81%	0.0178	-14.70%	0.00 /8
STERIS PLC	STE	98.62	241.10	23,777		0.95%		14.7070	
McKesson Corp	MCK	129.68	561.08	72,759	0.20%	0.51%	0.00%	11.18%	0.02%
Lockheed Martin Corp	LMT	238.36	564.95	134,660	0.37%	2.23%	0.01%	2.11%	0.01%
Cencora Inc	COR	196.01	239.57	46,958	0.13%	0.85%	0.00%	10.67%	0.01%
Campbell Soup Co	CPB	298.55	49.72	14,844	0.04%	2.98%	0.00%	8.36%	0.00%
Capital One Financial Corp	COF	381.86	146.93	56,106	0.15%	1.63%	0.00%	12.32%	0.02%
Waters Corp	WAT	59.36	346.35	20,560	0.06%	4.000/		7.80%	0.00%
Nordson Corp	NDSN	57.18	256.56	14,671	0.05%	1.22%		10 200/	0.00%
Dollar Tree Inc Darden Restaurants Inc	DLTR DRI	214.94 118.46	84.49 158.15	18,161 18,735	0.05% 0.05%	3.54%	0.00%	12.39% 10.59%	0.00% 0.01%
Evergy Inc	EVRG	229.75	59.14	13,587	0.03%	4.35%	0.00%	4.00%	0.00%
Match Group Inc	MTCH	257.90	37.21	9,596	0.0170	1.0070	0.0070	36.15%	0.0070
Domino's Pizza Inc	DPZ	34.97	414.21	14,486	0.04%	1.46%	0.00%	12.56%	0.00%
NVR Inc	NVR	3.08	9,172.46	28,233	0.08%			7.60%	0.00%
NetApp Inc	NTAP	204.78	120.72	24,721	0.07%	1.72%	0.00%	5.34%	0.00%
Old Dominion Freight Line Inc	ODFL	214.30	192.80	41,316	0.11%	0.54%	0.00%	3.02%	0.00%
DaVita Inc	DVA	83.90	150.92	12,662	0.03%	4.000/	0.00%	20.00%	0.00%
Hartford Financial Services Group Inc/The Iron Mountain Inc	HIG IRM	293.01 293.34	115.63 113.26	33,881 33,223	0.09%	1.63% 2.53%	0.00%	12.37%	0.01%
Estee Lauder Cos Inc/The	EL	233.18	91.66	21,373	0.06%	2.88%	0.00%	14.58%	0.01%
Cadence Design Systems Inc	CDNS	273.82	268.93	73,638	0.20%			16.20%	0.00%
Tyler Technologies Inc	TYL	42.67	587.87	25,086					
Universal Health Services Inc	UHS	59.46	237.77	14,138	0.04%	0.34%	0.00%	15.50%	0.01%
Skyworks Solutions Inc	SWKS	159.72	109.59	17,503		2.55%		-2.57%	
Quest Diagnostics Inc	DGX	111.32	156.97	17,473	0.05%	1.91%	0.00%	6.05%	0.00%
Rockwell Automation Inc	ROK	113.47	272.03	30,866	0.08%	1.84%	0.00%	1.73%	0.00%
Kraft Heinz Co/The American Tower Corp	KHC	1,209.08	35.43	42,838	0.12%	4.52%	0.01% 0.01%	2.51% 12.31%	0.00%
Regeneron Pharmaceuticals Inc	AMT REGN	467.08 108.42	224.06 1,184.69	104,654 128,441	0.29%	2.89%	0.01%	12.31% 52.50%	0.04%
Amazon.com Inc	AMZN	10,495.57	178.50	1,873,459				28.99%	
Jack Henry & Associates Inc	JKHY	72.91	173.03	12,615	0.03%	1.27%	0.00%	9.73%	0.00%
Ralph Lauren Corp	RL	40.06	171.26	6,860	0.02%	1.93%	0.00%	11.05%	0.00%
BXP Inc	BXP	157.93	75.22	11,880	0.03%	5.21%	0.00%	0.40%	0.00%
Amphenol Corp	APH	1,204.29	67.45	81,229	0.22%	0.98%	0.00%	16.86%	0.04%
Howmet Aerospace Inc	HWM	408.15	96.66	39,451		0.33%		22.11%	
Valero Energy Corp	VLO SNPS	320.38	146.73	47,009	0.220/	2.92%		-24.00%	0.00%
Synopsys Inc Etsy Inc	ETSY	153.61 114.75	519.58 55.09	79,815 6,322	0.22% 0.02%			16.33% 4.06%	0.00% 0.00%
CH Robinson Worldwide Inc	CHRW	117.28	103.51	12,140	0.02%	2.40%	0.00%	17.48%	0.00%
Accenture PLC	ACN	626.38	341.95	214,192	0.59%	1.51%	0.01%	5.80%	0.03%
TransDigm Group Inc	TDG	56.11	1,373.21	77,052	0.21%			19.57%	0.00%
Yum! Brands Inc	YUM	281.17	134.92	37,935	0.10%	1.99%	0.00%	11.41%	0.01%
Prologis Inc	PLD	925.91	127.82	118,350	0.32%	3.00%	0.01%	5.36%	0.02%
FirstEnergy Corp	FE	575.92	43.92	25,294	0.07%	3.87%	0.00%	7.02%	0.00%
VeriSign Inc	VRSN	97.60	183.90	17,949					
Quanta Services Inc	PWR	147.33	275.13	40,535	0.000/	0.13%		0.01%	0.00%
Henry Schein Inc Ameren Corp	HSIC AEE	126.71 266.51	70.55 82.51	8,939 21,990	0.02% 0.06%	3.25%	0.00%	9.01% 6.16%	0.00% 0.00%
ANSYS Inc	ALL	87.39	321.42	28,088	0.00%	3.2370	0.0078	0.1076	0.00 /8
FactSet Research Systems Inc	FDS	38.04	422.84	16,085	0.04%	0.98%	0.00%	9.67%	0.00%
NVIDIA Corp	NVDA	24,530.00	119.37	2,928,146		0.03%		44.35%	
Cognizant Technology Solutions Corp	CTSH	495.66	77.77	38,547	0.11%	1.54%	0.00%	6.20%	0.01%
Intuitive Surgical Inc	ISRG	355.35	492.63	175,058	0.48%			17.51%	0.00%
Take-Two Interactive Software Inc	TTWO	175.28	161.71	28,345				60.49%	
Republic Services Inc	RSG	314.07	208.21	65,392	0.18%	1.11%	0.00%	10.33%	0.02%
eBay Inc	EBAY	489.00	59.10	28,900	0.08%	1.83%	0.00%	10.12%	0.01%
Goldman Sachs Group Inc/The	GS	315.80	510.25	161,137	0.44%	2.35%	0.01%	14.20%	0.06%
SBA Communications Corp	SBAC	107.47 633 15	226.66	24,360 52,032	0.07%	1.73%	0.00%	15.96% 5.27%	0.01%
Sempra Moody's Corp	SRE MCO	633.15 182.10	82.18 487.74	52,032 88,817	0.14% 0.24%	3.02% 0.70%	0.00% 0.00%	5.27% 14.41%	0.01% 0.04%
Moody's Corp ON Semiconductor Corp	ON	182.10 428.36	487.74 77.87	88,817 33,356	0.24% 0.09%	0.70%	0.00%	14.41%	0.04%
Booking Holdings Inc	BKNG	428.30 33.52	3,909.23	33,356 131,053	0.09%	0.90%	0.00%	1.28%	0.00%
				11,840	0.03%	0.0070	0.0070	7.83%	0.00%
	FFIV	58.28	203.15	11.040	0.0070			1.00/0	0.00.0
F5 Inc	FFIV AKAM	58.28 151.53	203.15	15,431	0.04%			6.12%	0.00%
F5 Inc Akamai Technologies Inc Charles River Laboratories International Inc									

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 11 of 18

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

Estimated Weighted Average Dividend Yield [1]	1.54%	
		Won Proposed Weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	9.55%	80% weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	3.90%	20% weighting
Total [4]	8.42%	-
S&P 500 Estimated Required Market Return [5]	10.02%	

	-	[6]	[7]	[8]	[9]	[10]	[11] Capitalization	[12]	[13] Capitalization
		Shares		Market	Weight in	Estimated Dividend	Weighted Dividend	Bloomberg Long-Term	Weighted Long-Term
Name	Ticker	Outst'g	Price	Capitalization	Index	Yield	Yield	Growth Est.	Growth Est.
Devon Energy Corp Bio-Techne Corp	DVN TECH	626.20 158.60	44.78 73.99	28,041 11,735	0.08% 0.03%	3.93% 0.43%	0.00% 0.00%	6.60% 6.00%	0.01% 0.00%
Alphabet Inc	GOOGL	5,859.00	163.38	957,243	0.03 <i>%</i> 2.62%	0.43%	0.00%	15.01%	0.39%
Teleflex Inc	TFX	47.12	245.17	11,552	0.03%	0.55%	0.00%	7.95%	0.00%
Allegion plc	ALLE	87.13	138.84	12,097	0.03%	1.38%	0.00%	7.73%	0.00%
Netflix Inc Warner Bros Discovery Inc	NFLX WBD	429.17 2,451.91	701.35 7.84	300,995 19,223				35.72% 28.63%	
Agilent Technologies Inc	A	2,451.91	7.84 142.92	41,065	0.11%	0.66%	0.00%	28.83% 5.74%	0.01%
Trimble Inc	TRMB	244.21	56.69	13,844	0	0.0070	010070	0.1.1.0	0.0170
Elevance Health Inc	ELV	231.89	556.89	129,135	0.35%	1.17%	0.00%	11.79%	0.04%
CME Group Inc	CME	360.09	215.74	77,687	0.21%	2.13%	0.00%	3.82%	0.01%
Juniper Networks Inc BlackRock Inc	JNPR BLK	329.16 148.13	38.88 901.81	12,798 133,583	0.04% 0.37%	2.26% 2.26%	0.00% 0.01%	6.00% 9.76%	0.00% 0.04%
DTE Energy Co	DTE	206.93	125.02	25,870	0.07%	3.26%	0.00%	10.27%	0.01%
Celanese Corp	CE	109.26	130.60	14,270	0.04%	2.14%	0.00%	0.56%	0.00%
Nasdaq Inc	NDAQ	575.94	72.08	41,514	0.11%	1.33%	0.00%	10.30%	0.01%
Philip Morris International Inc Ingersoll Rand Inc	PM IR	1,554.80 403.48	123.29 91.45	191,692 36,899	0.53%	4.22% 0.09%	0.02%	9.36%	0.05%
Salesforce Inc	CRM	403.48 956.00	252.90	241,772	0.66%	0.63%	0.00%	17.52%	0.12%
Roper Technologies Inc	ROP	107.20	554.41	59,432	0.0070	0.54%	010070	1110270	0.1270
Huntington Ingalls Industries Inc	HII	39.22	282.77	11,089	0.03%	1.84%	0.00%	7.62%	0.00%
MetLife Inc	MET	700.33	77.48	54,261	0.15%	2.81%	0.00%	14.38%	0.02%
Tapestry Inc CSX Corp	TPR CSX	230.22 1,938.74	40.97 34.27	9,432 66,441	0.03% 0.18%	3.42% 1.40%	0.00% 0.00%	5.52% 9.21%	0.00% 0.02%
Edwards Lifesciences Corp	EW	602.40	69.96	42,144	0.18%	1.40%	0.00%	9.21% 8.56%	0.02%
Ameriprise Financial Inc	AMP	98.19	449.44	44,130	0.12%	1.32%	0.00%	16.59%	0.02%
Zebra Technologies Corp	ZBRA	51.58	345.38	17,815					
Zimmer Biomet Holdings Inc	ZBH	203.65	115.46	23,514	0.06%	0.83%	0.00%	6.96%	0.00%
Camden Property Trust CBRE Group Inc	CPT CBRE	106.64 306.43	125.20 115.14	13,351 35,282	0.04%	3.29%	0.00%	1.87%	0.00%
Mastercard Inc	MA	916.71	483.34	443,083	1.21%	0.55%	0.01%	15.18%	0.18%
CarMax Inc	KMX	156.08	84.55	13,196	0.04%	0.0070	0.0170	17.91%	0.00%
Intercontinental Exchange Inc	ICE	574.14	161.55	92,753	0.25%	1.11%	0.00%	9.95%	0.03%
Fidelity National Information Services Inc	FIS	545.57	82.45	44,982	0.070/	1.75%	a aaa/	22.20%	0.000/
Smurfit WestRock PLC Chipotle Mexican Grill Inc	SW CMG	519.36 1,369.48	47.42 56.08	24,628 76,800	0.07%	2.55%	0.00%	1.00% 22.64%	0.00%
Wynn Resorts Ltd	WYNN	1,309.48	76.88	8,533		1.30%		22.04%	
Live Nation Entertainment Inc	LYV	232.11	97.67	22,671					
Assurant Inc	AIZ	51.79	195.63	10,132	0.03%	1.47%	0.00%	7.14%	0.00%
NRG Energy Inc	NRG	206.38	85.01	17,544	0.05%	1.92%	0.00%	4.00%	0.00%
Monster Beverage Corp Regions Financial Corp	MNST RF	979.54 915.13	47.13 23.17	46,166 21,203	0.13% 0.06%	4.32%	0.00%	10.18% 4.68%	0.00% 0.00%
Baker Hughes Co	BKR	993.42	35.17	34,939	0.0070	2.39%	0.0070	69.21%	0.0070
Mosaic Co/The	MOS	318.64	28.57	9,103		2.94%		-21.74%	
Expedia Group Inc	EXPE	124.66	139.09	17,338	0.05%			19.59%	0.00%
CF Industries Holdings Inc	CF	180.41	83.09	14,990		2.41%		-9.54%	
APA Corp Leidos Holdings Inc	APA LDOS	369.91 134.71	28.49 158.51	10,539 21,354	0.06%	3.51% 0.96%	0.00%	-5.79% 11.76%	0.01%
Alphabet Inc	GOOG	5,585.00	165.11	922,139	2.53%	0.48%	0.01%	15.01%	0.38%
First Solar Inc	FSLR	107.05	227.37	24,339				41.25%	
TE Connectivity Ltd	TEL	303.92	153.60	46,682	0.13%	1.69%	0.00%	5.41%	0.01%
Discover Financial Services	DFS V	251.07	138.71	34,826	0.10%	2.02% 0.75%	0.00% 0.01%	11.65% 12.33%	0.01%
Visa Inc Mid-America Apartment Communities Inc	MAA	1,670.45 116.88	276.37 162.37	461,661 18,977	1.27% 0.05%	0.75% 3.62%	0.00%	0.65%	0.16% 0.00%
Xylem Inc/NY	XYL	242.89	137.53	33,405	0.0070	1.05%	010070	0.0070	0.0070
Marathon Petroleum Corp	MPC	334.68	177.12	59,279		1.86%		-13.00%	
Tractor Supply Co	TSCO	107.87	267.55	28,860	0.08%	1.64%	0.00%	5.68%	0.00%
Advanced Micro Devices Inc ResMed Inc	AMD RMD	1,618.48	148.56	240,442	0 10%	0 97%	0.00%	25.66% 9.57%	0.01%
Mettler-Toledo International Inc	MTD	146.93 21.36	245.02 1,439.08	36,001 30,734	0.10% 0.08%	0.87%	0.00%	9.57% 9.15%	0.01% 0.00%
VICI Properties Inc	VICI	1,043.14	33.48	34,924	0.10%	4.96%	0.00%	1.83%	0.00%
Copart Inc	CPRT	962.30	52.96	50,963					
Jacobs Solutions Inc	J	124.25	150.88	18,747	0.05%	0.77%	0.00%	10.87%	0.01%
Albemarle Corp Fortinet Inc	ALB FTNT	117.53 764.91	90.25 76.71	10,607 58,676	0.16%	1.80%		35.42% 8.66%	0.00%
Moderna Inc	MRNA	384.40	77.40	29,752	0.08%			17.95%	0.00%
Essex Property Trust Inc	ESS	64.22	301.79	19,380	0.05%	3.25%	0.00%	4.50%	0.00%
CoStar Group Inc	CSGP	409.82	77.30	31,679	0.09%			13.84%	0.00%
Realty Income Corp	0	870.87	61.85	53,861	0.15%	5.10%	0.01%	3.85%	0.01%
Westinghouse Air Brake Technologies Corp Pool Corp	WAB POOL	175.18 38.26	169.57 351.62	29,706 13,452	0.08%	0.47% 1.37%	0.00%	16.12% -0.04%	0.01%
Western Digital Corp	WDC	343.45	65.59	22,527		1.07 /0		-10.00%	
PepsiCo Inc	PEP	1,373.57	172.88	237,463	0.65%	3.14%	0.02%	7.40%	0.05%
Diamondback Energy Inc	FANG	178.39	195.11	34,806	0.10%	4.80%	0.00%	8.34%	0.01%
Palo Alto Networks Inc	PANW	323.80	362.72	117,449	0.32%			11.52%	0.00%
ServiceNow Inc Church & Dwight Co Inc	NOW CHD	206.00 244.82	855.00 101.88	176,130 24,942	0.07%	1.11%	0.00%	7.35%	0.01%
Federal Realty Investment Trust	FRT	83.67	115.00	9,622	0.03%	3.83%	0.00%	4.97%	0.00%
MGM Resorts International	MGM	303.77	37.59	11,419				20.80%	
American Electric Power Co Inc	AEP	532.12	100.28	53,361	0.15%	3.51%	0.01%	6.25%	0.01%
Invitation Homes Inc	INVH	612.59	36.84	22,568	0.06%	3.04%	0.00%	5.19%	0.00%
PTC Inc IB Hunt Transport Services Inc	PTC JBHT	120.14 101.99	179.09 173.20	21,515 17 664	0.06% 0.05%	0.000/	0.00%	14.76% 9.73%	0.00% 0.00%
JB Hunt Transport Services Inc Lam Research Corp	LRCX	101.99 129.88	173.20 821.01	17,664 106,629	0.05% 0.29%	0.99% 1.12%	0.00%	9.73% 16.29%	0.00% 0.05%
Mohawk Industries Inc	MHK	63.12	155.14	9,792	0.03%		5.5070	4.45%	0.00%
GE HealthCare Technologies Inc	GEHC	456.66	84.82	38,734	0.11%	0.14%	0.00%	10.92%	0.01%
Pentair PLC	PNR	165.50	88.69	14,678	0.04%	1.04%	0.00%	12.50%	0.01%
Vertex Pharmaceuticals Inc	VRTX	258.10	495.89	127,990	0.35%	1 070/	0.000/	11.00%	0.00%
Amcor PLC Meta Platforms Inc	AMCR META	1,445.34 2,184.73	11.44 521.31	16,535 1,138,921	0.05% 3.12%	4.37% 0.38%	0.00% 0.01%	3.71% 19.80%	0.00% 0.62%
T-Mobile US Inc	TMUS	2,184.73 1,166.78	521.31 198.72	231,863	3.12% 0.64%	0.38% 1.31%	0.01%	5.00%	0.62%
United Rentals Inc	URI	66.14	741.26	49,024	0.13%	0.88%	0.00%	7.45%	0.01%
Alexandria Real Estate Equities Inc	ARE	174.93	119.57	20,916	0.06%	4.35%	0.00%	3.03%	0.00%
		649.67	207.91	135,073	0.37%	2.08%	0.01%	8.65%	0.03%
Honeywell International Inc Delta Air Lines Inc	HON DAL	645.42	42.49	27,424	0.08%	1.41%	0.00%	6.74%	0.01%

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 12 of 18

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

Estimated Weighted Average Dividend Yield [1]	1.54%	
		Won Proposed Weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	9.55%	80% weighting
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	3.90%	20% weighting
Total [4]	8.42%	_
S&P 500 Estimated Required Market Return [5]	10.02%	=

STANDARD AND POOR'S 500 INDEX

	_	[6]	[6] [7] [8] [9]		[9]	[10]	[11]	[12]	[13]
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.
United Airlines Holdings Inc	UAL	328.80	44.04	14,480	0.04%			5.31%	0.00%
Seagate Technology Holdings PLC	STX	210.20	99.55	20,925		2.81%			
News Corp	NWS	190.68	29.43	5,612		0.68%			
Centene Corp	CNC	526.03	78.83	41,467	0.11%			4.40%	0.00%
Martin Marietta Materials Inc	MLM	61.12	533.37	32,598	0.09%	0.59%	0.00%	7.47%	0.01%
Teradyne Inc	TER	163.18	136.73	22,311	0.06%	0.35%	0.00%	16.14%	0.01%
PayPal Holdings Inc	PYPL	1,022.33	72.43	74,048	0.20%			12.03%	0.00%
Tesla Inc	TSLA	3,194.64	214.11	684,004				-11.00%	
KKR & Co Inc	KKR	887.44	123.77	109,838		0.57%			
Arch Capital Group Ltd	ACGL	376.06	113.09	42,528	0.12%			6.13%	0.00%
Dow Inc	DOW	703.27	53.58	37,681		5.23%		-1.67%	
Everest Group Ltd	EG	43.27	392.24	16,974	0.05%	2.04%	0.00%	2.48%	0.00%
Teledyne Technologies Inc	TDY	46.78	432.80	20,248					
GE Vernova Inc	GEV	274.80	201.00	55,235				70.40%	
News Corp	NWSA	378.33	28.33	10,718		0.71%			
Exelon Corp	EXC	999.74	38.09	38,080	0.10%	3.99%	0.00%	5.31%	0.01%
Global Payments Inc	GPN	254.44	111.01	28,245	0.08%	0.90%	0.00%	9.30%	0.01%
Crown Castle Inc	CCI	434.57	112.02	48,680	0.13%	5.59%	0.01%	1.13%	0.00%
Aptiv PLC	APTV	265.76	71.53	19,010	0.05%			16.91%	0.00%
Align Technology Inc	ALGN	74.70	237.22	17,720	0.05%			9.53%	0.00%
Kenvue Inc	KVUE	1,915.17	21.95	42,038	0.12%	3.74%	0.00%	13.58%	0.02%
Targa Resources Corp	TRGP	219.08	146.90	32,183	0.09%	2.04%	0.00%	16.74%	0.01%
Bunge Global SA	BG	141.65	101.38	14,361		2.68%		-8.59%	
LKQ Corp	LKQ	263.26	41.59	10,949		2.89%			
Deckers Outdoor Corp	DECK	25.41	959.29	24,377	0.07%			10.80%	0.00%
Zoetis Inc	ZTS	453.05	183.49	83,130	0.23%	0.94%	0.00%	10.36%	0.02%
Equinix Inc	EQIX	94.95	834.36	79,218	0.22%	2.04%	0.00%	14.03%	0.03%
Digital Realty Trust Inc	DLR	327.41	151.61	49,639	0.14%	3.22%	0.00%	3.21%	0.00%
Molina Healthcare Inc	MOH	58.60	349.79	20,498	0.06%			11.98%	0.00%
Las Vegas Sands Corp	LVS	736.43	38.99	28,713		2.05%			

Notes:

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

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 13 of 18

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



		[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
			• •				Capitalization		Capitalization
News	Tislas	Shares	Drine	Market	Weight in	Estimated Dividend	Weighted Dividend	Bloomberg Long-Term	Weighted Long-Term
Name	Ticker	Outst'g	Price	Capitalization	Index	Yield	Yield	Growth Est.	Growth Est.
LyondellBasell Industries NV	LYB	325.09	98.70	32,086	0 5 4 9 /	5.43%	0.04%	-8.07%	0.000/
American Express Co /erizon Communications Inc	AXP VZ	710.91 4,209.52	258.65 41.78	183,877 175,874	0.54% 0.52%	1.08% 6.37%	0.01% 0.03%	15.74% 0.86%	0.09% 0.00%
Broadcom Inc	AVGO	4,654.88	162.82	757,908	2.24%	1.29%	0.03%	15.88%	0.36%
Boeing Co/The	BA	616.17	173.74	107,053				38.60%	
Solventum Corp	SOLV	172.71	64.11 256.10	11,073	0 510/	1 500/	0.019/	-2.00%	0.049/
Caterpillar Inc IPMorgan Chase & Co	CAT JPM	484.90 2,845.17	356.10 224.80	172,672 639,593	0.51% 1.89%	1.58% 2.05%	0.01% 0.04%	8.38% 4.05%	0.04% 0.08%
Chevron Corp	CVX	1,828.92	147.95	270,588	0.80%	4.41%	0.04%	7.00%	0.06%
Coca-Cola Co/The	KO	4,309.87	72.47	312,336	0.92%	2.68%	0.02%	6.36%	0.06%
AbbVie Inc	ABBV	1,766.34	196.31	346,751	1.03%	3.16%	0.03%	8.80%	0.09%
Valt Disney Co/The	DIS	1,813.59	90.38 215 55	163,912	0.48%	1.00%	0.00%	18.89%	0.09%
Corpay Inc Extra Space Storage Inc	CPAY EXR	69.43 211.93	315.55 177.00	21,910 37,511		3.66%		14.87% -0.20%	
Exxon Mobil Corp	XOM	4,442.83	117.94	523,987	1.55%	3.22%	0.05%	5.00%	0.08%
Phillips 66	PSX	418.57	140.31	58,729		3.28%		-9.00%	
General Electric Co	GE	1,084.31	174.62	189,342		0.64%		29.30%	
HP Inc	HPQ	963.72	36.18	34,867	0.10%	3.05%	0.00%	1.42%	0.00%
Home Depot Inc/The Monolithic Power Systems Inc	HD MPWR	993.29 48.75	368.50 934.68	366,028 45,568	1.08%	2.44% 0.53%	0.03%	3.87%	0.04%
nternational Business Machines Corp	IBM	921.15	202.13	186,192	0.55%	3.30%	0.02%	3.90%	0.02%
Johnson & Johnson	JNJ	2,407.24	165.86	399,265	1.18%	2.99%	0.04%	3.73%	0.04%
ululemon Athletica Inc	LULU	117.66	259.47	30,529				7.00%	
AcDonald's Corp	MCD	717.34	286.99	205,870	0.61%	2.33%	0.01%	5.15%	0.03%
/lerck & Co Inc M Co	MRK MMM	2,534.81 549.35	118.45 134.69	300,248 73,992	0.89%	2.60% 2.08%	0.02%	14.00% -5.37%	0.12%
american Water Works Co Inc	AWK	549.35 194.86	134.69 143.12	73,992 27,889	0.08%	2.08% 2.14%	0.00%	-5.37% 8.00%	0.01%
Bank of America Corp	BAC	7,759.58	40.75	316,203	2.0070	2.55%	5.0070	2.2070	0.0170
Pfizer Inc	PFE	5,666.70	29.01	164,391	0.49%	5.79%	0.03%	6.39%	0.03%
Procter & Gamble Co/The	PG	2,349.71	171.54	403,069	1.19%	2.35%	0.03%	7.37%	0.09%
NT&T Inc	T TPV	7,170.24	19.90	142,688	0.42%	5.58%	0.02%	1.84%	0.01%
ravelers Cos Inc/The RTX Corp	TRV RTX	227.93 1,330.24	228.07 123.34	51,984 164,072	0.15% 0.49%	1.84% 2.04%	0.00% 0.01%	18.21% 10.23%	0.03% 0.05%
nalog Devices Inc	ADI	496.49	233.92	116,140	0.4370	1.57%	0.0170	-5.82%	0.0070
Valmart Inc	WMT	8,038.25	77.23	620,794	1.84%	1.07%	0.02%	9.24%	0.17%
Cisco Systems Inc	CSCO	4,028.82	50.54	203,616	0.60%	3.17%	0.02%	3.40%	0.02%
ntel Corp	INTC	4,276.00	22.04	94,243				4.26%	
General Motors Co	GM	1,123.92	49.78	55,949	0.17%	0.96%	0.00%	11.02%	0.02%
licrosoft Corp Iollar General Corp	MSFT DG	7,433.04 219.92	417.14 82.97	3,100,617 18,246	9.17%	0.72% 2.84%	0.07%	16.10% -3.74%	1.48%
cigna Group/The	CI	279.55	361.81	101,144	0.30%	1.55%	0.00%	11.65%	0.03%
(inder Morgan Inc	KMI	2,219.46	21.57	47,874	0.14%	5.33%	0.01%	6.52%	0.01%
Citigroup Inc	С	1,907.80	62.64	119,504		3.58%		27.26%	
merican International Group Inc	AIG	643.95	77.05	49,616	0.15%	2.08%	0.00%	12.42%	0.02%
Itria Group Inc ICA Healthcare Inc	MO HCA	1,706.22 258.07	53.77 395.59	91,744 102,091	0.27% 0.30%	7.59% 0.67%	0.02% 0.00%	4.14% 10.81%	0.01% 0.03%
nternational Paper Co	IP	347.37	48.42	16,820	0.30%	3.82%	0.00%	-2.00%	0.03%
lewlett Packard Enterprise Co	HPE	1,299.67	19.37	25,175	0.07%	2.68%	0.00%	3.73%	0.00%
bbott Laboratories	ABT	1,739.90	113.27	197,078	0.58%	1.94%	0.01%	8.12%	0.05%
flac Inc	AFL	560.03	110.36	61,804	0.18%	1.81%	0.00%	7.55%	0.01%
ir Products and Chemicals Inc Super Micro Computer Inc	APD SMCI	222.32 58.56	278.85 437.70	61,993 25,630	0.18%	2.54%	0.00%	9.52% 69.00%	0.02%
topel Micro Computer mc toyal Caribbean Cruises Ltd	RCL	257.42	164.62	42,376		0.97%		30.00%	
less Corp	HES	308.12	138.06	42,538	0.13%	1.27%	0.00%	16.00%	0.02%
rcher-Daniels-Midland Co	ADM	478.14	60.99	29,162		3.28%		-3.62%	
utomatic Data Processing Inc	ADP	407.80	275.91	112,515		2.03%			
erisk Analytics Inc	VRSK	142.42	272.82	38,856	0.11%	0.57%	0.00%	12.54%	0.01%
utoZone Inc inde PLC	AZO LIN	17.08 477.50	3,181.48 478.25	54,349 228,366	0.68%	1.16%	0.01%	14.66% 11.76%	0.08%
very Dennison Corp	AVY	80.52	221.85	17,863	0.05%	1.59%	0.00%	12.84%	0.03%
inphase Energy Inc	ENPH	135.42	121.04	16,391				7.45%	
ISCI Inc	MSCI	78.65	580.59	45,663	0.14%	1.10%	0.00%	11.93%	0.02%
all Corp	BALL	303.57	63.61	19,310	0.06%	1.26%	0.00%	13.35%	0.01%
xon Enterprise Inc ayforce Inc	AXON DAY	75.57 158.10	364.97 57.17	27,582 9,039				20.81%	
aylorce inc arrier Global Corp	CARR	902.75	57.17 72.78	9,039 65,702	0.19%	1.04%	0.00%	6.74%	0.01%
ank of New York Mellon Corp/The	ВК	737.96	68.22	50,343	0.15%	2.76%	0.00%	10.55%	0.02%
otis Worldwide Corp	OTIS	400.56	94.69	37,929	0.11%	1.65%	0.00%	10.00%	0.01%
axter International Inc	BAX	510.18	37.94	19,356	0.06%	3.06%	0.00%	6.50%	0.00%
ecton Dickinson & Co	BDX	289.04	242.41	70,067	0.21%	1.57%	0.00%	8.34%	0.02%
erkshire Hathaway Inc est Buy Co Inc	BRK/B BBY	1,325.19 215.71	475.92 100.40	630,686 21,658	0.06%	3.75%	0.00%	4.17%	0.00%
Boston Scientific Corp	BSX	1,472.63	81.79	120,446	0.0070	0.1070	0.0070	12.58%	0.0070
ristol-Myers Squibb Co	BMY	2,027.40	49.95	101,268		4.80%		33.60%	
rown-Forman Corp	BF/B	303.54	45.37	13,772		1.92%		-2.38%	
oterra Energy Inc	CTRA	739.27	24.33	17,987	0.05%	3.45%	0.00%	10.06%	0.01%
ilton Worldwide Holdings Inc	HLT	246.43	219.64	54,125 18,521	0.16%	0.27%	0.00%	14.97%	0.02%
Carnival Corp Qorvo Inc	CCL QRVO	1,122.46 94.86	16.50 115.89	18,521 10,993				17.09%	
Builders FirstSource Inc	BLDR	94.00 116.45	174.00	20,263				1.45%	
IDR Inc	UDR	329.82	44.51	14,680	0.04%	3.82%	0.00%	1.85%	0.00%
lorox Co/The	CLX	123.86	158.31	19,609	0.06%	3.08%	0.00%	8.65%	0.01%
aycom Software Inc	PAYC	57.43	162.78	9,349	0.03%	0.92%	0.00%	9.41%	0.00%
MS Energy Corp	CMS	298.64	67.86	20,265	0.06%	3.04%	0.00%	7.28%	0.00%
olgate-Palmolive Co	CL	817.09 56.94	106.50 200.76	87,020 11,430	0.26%	1.88%	0.00%	8.73% 5.20%	0.02%
PAM Systems Inc onagra Brands Inc	EPAM CAG	56.94 479.05	200.76 31.20	11,430 14,946	0.04%	4.49%	0.00%	5.29% 1.81%	0.00%
irbnb Inc	ABNB	440.00	117.31	51,617	J.J-7 /U	т. т. у /0	0.0070	19.84%	0.0070
Consolidated Edison Inc	ED	346.15	101.56	35,155	0.10%	3.27%	0.00%	5.58%	0.01%
Corning Inc	GLW	855.70	41.85	35,811	0.11%	2.68%	0.00%	13.41%	0.01%
GoDaddy Inc	GDDY	140.97	167.41	23,600					
Cummins Inc	CMI	137.05	312.85	42,875	0.13%	2.33%	0.00%	8.28%	0.01%
File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 14 of 18

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

Estimated Weighted Average Dividend Yield [1]	1.66%	
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2] Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3]	FERC MethodNo Weighting10.31%100.00%n/a	
Total [4]	10.31%	
S&P 500 Estimated Required Market Return [5]	12.05%	

		[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
						Estimated	Capitalization Weighted	Bloomberg	Capitalizati Weighteo
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Dividend Yield	Dividend Yield	Long-Term Growth Est.	Long-Tern Growth Es
Danaher Corp	DHR	722.21	269.31	194,499	0.58%	0.40%	0.00%	1.89%	0.01%
Farget Corp	TGT	460.68	153.62	70,769	0.21%	2.92%	0.01%	14.38%	0.03%
Deere & Co	DE	273.60	385.74	105,538		1.52%		-9.99%	
Dominion Energy Inc Dover Corp	D DOV	838.94 137.46	55.90 186.03	46,897 25,571	0.08%	4.78% 1.11%	0.00%	21.59% 7.72%	0.01%
Alliant Energy Corp	LNT	256.50	58.27	14,946	0.04%	3.30%	0.00%	7.34%	0.00%
Steel Dynamics Inc	STLD	154.30	119.51	18,441		1.54%		-4.38%	
ouke Energy Corp	DUK	771.00	113.95	87,855	0.26%	3.67%	0.01%	6.61%	0.02%
Regency Centers Corp	REG	181.50	72.69	13,193	0.04%	3.69%	0.00%	3.79%	0.00%
aton Corp PLC colab Inc	ETN ECL	398.10 284.54	306.93 253.18	122,189 72,039	0.36% 0.21%	1.23% 0.90%	0.00% 0.00%	14.60% 15.76%	0.05% 0.03%
evvity Inc	RVTY	123.34	122.54	15,114	0.04%	0.23%	0.00%	9.44%	0.00%
merson Electric Co	EMR	572.70	105.39	60,357	0.18%	1.99%	0.00%	15.10%	0.03%
OG Resources Inc	EOG	568.60	128.82	73,247	0.22%	2.83%	0.01%	3.28%	0.01%
on PLC	AON	217.24	343.72	74,670	0.22%	0.79%	0.00%	11.10%	0.02%
ntergy Corp	ETR	213.83 123.74	120.69 306.74	25,807	0.08%	3.75% 0.51%	0.00%	7.17%	0.01%
quifax Inc QT Corp	EFX EQT	594.02	33.51	37,955 19,906		1.88%		21.48%	
QVIA Holdings Inc	IQV	182.30	251.55	45,858		1.0070		10.83%	
artner Inc	IT	77.06	491.96	37,910				7.67%	
edEx Corp	FDX	244.96	298.77	73,188	0.22%	1.85%	0.00%	13.35%	0.03%
MC Corp	FMC	124.82	64.58	8,061	0.02%	3.59%	0.00%	15.67%	0.00%
rown & Brown Inc	BRO	285.26	105.13	29,989	0.09%	0.49%	0.00%	10.85%	0.01%
ord Motor Co	F NEE	3,904.40	11.19 80.51	43,690	0.13%	5.36%	0.01%	1.34% 8.17%	0.00%
extEra Energy Inc ranklin Resources Inc	BEN	2,055.00 523.00	80.51 20.24	165,448 10,585	0.49%	2.56% 6.13%	0.01%	8.17%	0.04%
armin Ltd	GRMN	192.21	183.29	35,231	0.10%	1.64%	0.00%	9.55%	0.01%
reeport-McMoRan Inc	FCX	1,436.86	44.28	63,624	0.19%	1.36%	0.00%	17.59%	0.03%
excom Inc	DXCM	400.73	69.34	27,786				21.07%	
eneral Dynamics Corp	GD	274.78	299.36	82,258	0.24%	1.90%	0.00%	15.55%	0.04%
eneral Mills Inc	GIS	556.62	72.29	40,238	0.12%	3.32%	0.00%	2.38%	0.00%
enuine Parts Co tmos Energy Corp	GPC ATO	139.32 155.23	143.26 130.74	19,959 20,295	0.06%	2.79% 2.46%	0.00%	7.00%	0.00%
/W Grainger Inc	GWW	48.83	984.92	48,090	0.0078	0.83%	0.00 %	7.0078	0.0078
alliburton Co	HAL	882.83	31.09	27,447	0.08%	2.19%	0.00%	8.17%	0.01%
3Harris Technologies Inc	LHX	189.71	236.67	44,897	0.13%	1.96%	0.00%	8.77%	0.01%
ealthpeak Properties Inc	DOC	699.29	22.28	15,580	0.05%	5.39%	0.00%	5.33%	0.00%
sulet Corp	PODD	70.12	202.77	14,217				17.61%	
atalent Inc	CTLT FTV	180.98	60.96	11,033	0.000/	0 420/	0.00%	10 40%	0.01%
ortive Corp ershey Co/The	HSY	350.34 147.67	74.40 193.06	26,065 28,510	0.08% 0.08%	0.43% 2.84%	0.00% 0.00%	10.49% 2.21%	0.01% 0.00%
ynchrony Financial	SYF	395.23	50.26	19,864	0.0070	1.99%	0.0070	64.00%	0.0070
ormel Foods Corp	HRL	548.31	32.55	17,847	0.05%	3.47%	0.00%	6.59%	0.00%
rthur J Gallagher & Co	AJG	219.10	292.57	64,102	0.19%	0.82%	0.00%	12.87%	0.02%
ondelez International Inc	MDLZ	1,335.80	71.81	95,924	0.28%	2.62%	0.01%	6.93%	0.02%
enterPoint Energy Inc umana Inc	CNP HUM	651.72 120.40	27.30 354.47	17,792	0.05%	2.93%	0.00%	8.00%	0.00%
/illis Towers Watson PLC	WTW	120.40	292.11	42,679 29,666	0.09%	1.00% 1.21%	0.00%	-1.30% 11.69%	0.01%
inois Tool Works Inc	ITW	296.90	253.18	75,169	0.22%	2.37%	0.01%	6.90%	0.02%
DW Corp/DE	CDW	133.58	225.64	30,140	0.09%	1.10%	0.00%	7.02%	0.01%
ane Technologies PLC	TT	225.67	361.66	81,616	0.24%	0.93%	0.00%	15.56%	0.04%
terpublic Group of Cos Inc/The	IPG	375.59	32.28	12,124	0.04%	4.09%	0.00%	3.20%	0.00%
ternational Flavors & Fragrances Inc enerac Holdings Inc	IFF GNRC	255.66 60.15	103.99 156.53	26,586 9,416	0.08%	1.54%	0.00%	2.12% 7.00%	0.00%
XP Semiconductors NV	NXPI	254.73	256.36	65,303	0.19%	1.58%	0.00%	7.00% 5.89%	0.01%
ellanova	K	343.95	80.04	27,530	0.08%	2.85%	0.00%	9.29%	0.01%
roadridge Financial Solutions Inc	BR	116.71	212.86	24,843		1.65%			
mberly-Clark Corp	KMB	336.80	144.66	48,722	0.14%	3.37%	0.00%	8.36%	0.01%
mco Realty Corp	KIM	674.12	23.26	15,680	0.05%	4.13%	0.00%	3.63%	0.00%
racle Corp	ORCL	2,755.86	141.29 53.21	389,375	1.15% 0.11%	1.13% 2.41%	0.01%	15.06% 3.11%	0.17%
roger Co/The ennar Corp	KR LEN	721.79 241.70	53.21 182.06	38,406 44,004	0.11% 0.13%	2.41% 1.10%	0.00% 0.00%	3.11% 4.30%	0.00% 0.01%
i Lilly & Co	LLY	950.43	960.02	912,428	0.1070	0.54%	0.0070	4.30% 33.00%	0.0170
ath & Body Works Inc	BBWI	219.11	30.76	6,740	0.02%	2.60%	0.00%	14.74%	0.00%
harter Communications Inc	CHTR	142.74	347.54	49,608				7.10%	
bews Corp	L	219.52	81.94	17,987		0.31%			
we's Cos Inc		567.29	248.50	140,973		1.85%		-0.19%	
ubbell Inc IEX Corp	HUBB IEX	53.68 75.70	399.92 206.48	21,468 15,631		1.22% 1.34%			
arsh & McLennan Cos Inc	MMC	491.76	206.48	111,879	0.33%	1.34%	0.00%	9.10%	0.03%
asco Corp	MAS	218.25	79.56	17,364	0.05%	1.46%	0.00%	7.76%	0.00%
&P Global Inc	SPGI	320.20	513.24	164,339	0.49%	0.71%	0.00%	14.53%	0.07%
edtronic PLC	MDT	1,282.49	88.58	113,603	0.34%	3.16%	0.01%	5.66%	0.02%
atris Inc	VTRS	1,193.52	12.08	14,418	0.0101	3.97%	0.010	-3.41%	0.000
VS Health Corp uPont de Nemours Inc	CVS DD	1,257.98 417.50	57.24 84.25	72,007 35,174	0.21% 0.10%	4.65% 1.80%	0.01% 0.00%	1.82% 2.50%	0.00% 0.00%
icron Technology Inc	MU	417.50 1,108.84	84.25 96.24	35,174 106,715	0.10/0	0.48%	0.00 /0	2.50% 31.94%	0.00%
otorola Solutions Inc	MSI	166.84	442.04	73,750	0.22%	0.89%	0.00%	9.36%	0.02%
boe Global Markets Inc	CBOE	104.63	205.40	21,492	0.06%	1.23%	0.00%	13.78%	0.01%
ewmont Corp	NEM	1,152.49	53.39	61,531		1.87%		48.45%	
	NKE	1,201.46	82.95	99,661	0.29%	1.78%	0.01%	4.46%	0.01%
iSource Inc	NI	448.51	33.06	14,828	0.04%	3.21%	0.00%	7.00%	0.00%
orfolk Southern Corp	NSC PFG	226.10 231.58	256.16 81.42	57,917 18,856	0.17%	2.11% 3.54%	0.00%	9.68% 13.00%	0.02%
rincipal Financial Group Inc versource Energy	PFG ES	231.58 357.39	81.42 67.53	18,856 24,134	0.06% 0.07%	3.54% 4.24%	0.00% 0.00%	13.00% 5.46%	0.01% 0.00%
orthrop Grumman Corp	NOC	357.39 146.25	521.15	24,134 76,216	0.07%	4.24% 1.58%	0.00%	5.46% 8.68%	0.00%
/ells Fargo & Co	WFC	3,403.77	58.47	199,018	0.59%	2.74%	0.02%	7.95%	0.02%
ucor Corp	NUE	237.34	151.91	36,054		1.42%		-1.48%	
ccidental Petroleum Corp	OXY	916.20	56.98	52,205		1.54%		24.00%	
mnicom Group Inc	OMC	195.65	100.43	19,649	0.06%	2.79%	0.00%	5.36%	0.00%
	OKE	584.07	92.36	53,945	0.0701	4.29%	0.0001	AE 1001	A A A A
aymond James Financial Inc	RJF	205.94	119.57 19.70	24,625	0.07%	1.51% 0.20%	0.00%	15.40% 9.95%	0.01%
G&E Corp	PCG	2,137.46	19.70 600.20	42,108 77,183	0.12% 0.23%	0.20% 1.09%	0.00% 0.00%	9.95% 13.44%	0.01% 0.03%
Parker-Hannifin Corp	PH	128.60		// 184	11 / 3.00		//		

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 15 of 18

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

Estimated Weighted Average Dividend Yield [1]	1.66%
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2] Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3] Total [4]	FERC Method No Weighting 10.31% 100.00% n/a n/a 10.31%
S&P 500 Estimated Required Market Return [5]	12.05%

		[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
			[.]	[0]	[0]		Capitalization		Capitalization
		Shares		Market	Weight in	Estimated Dividend	Weighted Dividend	Bloomberg Long-Term	Weighted Long-Term
Name	Ticker	Outst'g	Price	Capitalization	Index	Yield	Yield	Growth Est.	Growth Est.
PPL Corp	PPL	737.77	31.91	23,542	0.07%	3.23%	0.00%	7.01%	0.00%
ConocoPhillips PulteGroup Inc	COP PHM	1,161.25 207.52	113.79 131.65	132,139 27,321	0.39% 0.08%	2.74% 0.61%	0.01% 0.00%	13.00% 8.99%	0.05% 0.01%
Pinnacle West Capital Corp	PNW	113.61	87.52	9,943	0.03%	4.02%	0.00%	8.22%	0.00%
PNC Financial Services Group Inc/The	PNC	397.50	185.09	73,573	0.22%	3.46%	0.01%	18.04%	0.04%
PPG Industries Inc	PPG	233.30	129.73	30,266	0.09%	2.10%	0.00%	8.33%	0.01%
Progressive Corp/The Veralto Corp	PGR VLTO	585.67 247.11	252.20 112.43	147,705 27,782		0.16% 0.32%		36.31%	
Public Service Enterprise Group Inc	PEG	498.16	80.75	40,227	0.12%	0.32 <i>%</i> 2.97%	0.00%	7.47%	0.01%
Cooper Cos Inc/The	COO	199.16	105.73	21,057				12.43%	
Edison International	EIX	383.93	87.03	33,413	0.10%	3.58%	0.00%	6.00%	0.01%
Schlumberger NV	SLB	1,419.84	43.99	62,459	0.18%	2.50%	0.00%	12.22%	0.02%
Charles Schwab Corp/The Sherwin-Williams Co/The	SCHW SHW	1,778.45 252.26	65.10 369.37	115,777 93,177	0.34% 0.28%	1.54% 0.77%	0.01% 0.00%	12.07% 9.88%	0.04% 0.03%
West Pharmaceutical Services Inc	WST	72.54	313.63	22,751	0.23%	0.26%	0.00%	9.88% 2.89%	0.00%
J M Smucker Co/The	SJM	106.41	114.68	12,203	0.04%	3.77%	0.00%	6.07%	0.00%
Snap-on Inc	SNA	52.68	283.74	14,948	0.04%	2.62%	0.00%	3.83%	0.00%
	AME	231.54	171.05	39,604	0.12%	0.65%	0.00%	7.02%	0.01%
Uber Technologies Inc Southern Co/The	UBER SO	2,100.94 1,094.63	73.13 86.40	153,642 94,576	0.28%	3.33%	0.01%	60.59% 7.23%	0.02%
Truist Financial Corp	TFC	1,339.14	44.46	59,538	0.18%	4.68%	0.01%	10.91%	0.02%
Southwest Airlines Co	LUV	599.16	28.92	17,328		2.49%			
N R Berkley Corp	WRB	380.55	59.70	22,719	0.07%	0.54%	0.00%	13.27%	0.01%
Stanley Black & Decker Inc	SWK	153.96	101.54	15,633	0.190/	3.23%	0.01%	1 020/	0.00%
Public Storage Arista Networks Inc	PSA ANET	175.83 314.15	343.72 353.38	60,436 111,015	0.18%	3.49%	0.01%	1.23% 18.60%	0.00%
Sysco Corp	SYY	491.52	77.97	38,324	0.11%	2.62%	0.00%	7.00%	0.01%
Corteva Inc	CTVA	687.80	57.13	39,294	0.12%	1.19%	0.00%	9.85%	0.01%
Texas Instruments Inc	TXN	913.05	214.34	195,702		2.43%		-2.86%	
Fextron Inc Fhermo Fisher Scientific Inc	TXT TMO	187.36	91.20 615.07	17,088	0.05% 0.70%	0.09% 0.25%	0.00%	10.05%	0.01%
FJX Cos Inc/The	TJX	382.00 1,127.87	615.07 117.27	234,954 132,266	0.39%	0.25% 1.28%	0.00% 0.01%	8.70% 8.20%	0.06% 0.03%
Globe Life Inc	GL	89.82	105.05	9,436	0.03%	0.91%	0.00%	6.00%	0.00%
Johnson Controls International plc	JCI	668.01	72.85	48,665	0.14%	2.03%	0.00%	8.72%	0.01%
Ulta Beauty Inc	ULTA	47.12	352.84	16,624				1.64%	
Union Pacific Corp	UNP KEYS	609.20	256.09 154.12	156,010	0.46%	2.09%	0.01%	11.33%	0.05%
Keysight Technologies Inc JnitedHealth Group Inc	UNH	173.54 923.42	590.20	26,746 545,001	1.61%	1.42%	0.02%	-1.19% 10.44%	0.17%
Blackstone Inc	BX	720.08	142.36	102,510		2.30%	0.0270	24.48%	0/0
Marathon Oil Corp	MRO	559.38	28.65	16,026		1.54%		-5.00%	
Bio-Rad Laboratories Inc	BIO	22.80	337.32	7,689	0.000/	0.000/		12.00%	0.0404
/entas Inc _abcorp Holdings Inc	VTR LH	413.15 83.96	62.11 229.89	25,661 19,302	0.08% 0.06%	2.90% 1.25%	0.00% 0.00%	8.22% 8.45%	0.01% 0.00%
/ulcan Materials Co	VMC	132.06	229.09	32,382	0.0076	0.75%	0.0078	0.4070	0.0078
Weyerhaeuser Co	WY	727.32	30.49	22,176		2.62%		-13.66%	
Williams Cos Inc/The	WMB	1,218.93	45.77	55,790	0.17%	4.15%	0.01%	4.28%	0.01%
Constellation Energy Corp	CEG	315.12	196.70	61,984	0.000/	0.72%		20.39%	0.0404
NEC Energy Group Inc Adobe Inc	WEC ADBE	316.08 443.40	93.03 574.41	29,405 254,693	0.09%	3.59%	0.00%	7.82% 16.27%	0.01%
√istra Corp	VST	343.56	85.43	29,350		1.03%		10.27 /0	
AES Corp/The	AES	710.92	17.13	12,178		4.03%			
Expeditors International of Washington Inc	EXPD	141.13	123.41	17,417	0.05%	1.18%	0.00%	4.39%	0.00%
Amgen Inc	AMGN	537.33	333.83	179,377	0.53%	2.70%	0.01%	3.52%	0.02%
Apple Inc Autodesk Inc	AAPL ADSK	15,204.14 215.51	229.00 258.40	3,481,747 55,688	10.30%	0.44%	0.04%	8.04% 10.23%	0.83%
Cintas Corp	CTAS	100.77	805.12	81,131	0.24%	0.78%	0.00%	10.23%	0.03%
Comcast Corp	CMCSA	3,863.06	39.57	152,861	0.45%	3.13%	0.01%	7.32%	0.03%
Molson Coors Beverage Co	TAP	192.59	53.97	10,394	0.03%	3.26%	0.00%	5.29%	0.00%
KLA Corp	KLAC	134.43	819.43	110,152	0.33%	0.71%	0.00%	10.00%	0.03%
Marriott International Inc/MD Fiserv Inc	MAR FI	281.52 575.73	234.69 174.60	66,071 100,522	0.20%	1.07%	0.00%	4.25% 11.52%	0.01%
AcCormick & Co Inc/MD	MKC	252.02	80.03	20,169	0.06%	2.10%	0.00%	5.83%	0.00%
PACCAR Inc	PCAR	524.22	96.18	50,420	0.15%	1.25%	0.00%	0.48%	0.00%
Costco Wholesale Corp	COST	443.34	892.38	395,623	1.17%	0.52%	0.01%	10.36%	0.12%
Stryker Corp	SYK	381.08	360.42	137,347	0.41%	0.89%	0.00%	8.60%	0.03%
⊺yson Foods Inc .amb Weston Holdings Inc	TSN LW	285.82 143.67	64.31 61.92	18,381 8,896	0.03%	3.05% 2.33%	0.00%	2.16%	0.00%
Applied Materials Inc	AMAT	824.40	197.26	162,622	0.48%	0.81%	0.00%	9.28%	0.04%
American Airlines Group Inc	AAL	653.54	10.62	6,941				-13.42%	
Cardinal Health Inc	CAH	243.85	112.72	27,486	0.08%	1.79%	0.00%	9.84%	0.01%
Cincinnati Financial Corp	CINF	156.24	137.03	21,410	0.06%	2.36%	0.00%	7.83%	0.00%
Paramount Global DR Horton Inc	PARA DHI	626.01 326.04	10.47 188.76	6,554 61,543	0.18%	1.91% 0.64%	0.00%	49.00% 8.27%	0.02%
Electronic Arts Inc	EA	264.20	151.82	40,111	0.12%	0.50%	0.00%	12.85%	0.02%
air Isaac Corp	FICO	24.52	1,730.27	42,424				23.00%	
Fastenal Co	FAST	572.65	68.28	39,100		2.28%			
//&T Bank Corp	MTB	167.00	170.76	28,517	0.08%	3.16%	0.00%	3.87%	0.00%
Kcel Energy Inc Fifth Third Bancorp	XEL FITB	557.50 676.80	61.23 42.69	34,136 28,892	0.10%	3.58% 3.28%	0.00%	7.10% 25.00%	0.01%
Gilead Sciences Inc	GILD	676.80 1,244.99	42.69 79.00	28,892 98,354	0.29%	3.28% 3.90%	0.01%	25.00% 15.38%	0.04%
Hasbro Inc	HAS	139.41	68.16	9,502	2.2070	4.11%	0.0170	33.11%	V.V T /U
luntington Bancshares Inc/OH	HBAN	1,452.43	14.97	21,743	0.06%	4.14%	0.00%	3.32%	0.00%
Welltower Inc	WELL	609.15	120.68	73,512	0.22%	2.22%	0.00%	15.65%	0.03%
Biogen Inc	BIIB	145.66	204.76	29,826		2 200/	0.000/	6.10% 10.11%	0.040/
Northern Trust Corp Packaging Corp of America	NTRS PKG	201.64 89.81	91.21 209.54	18,391 18,819	0.05% 0.06%	3.29% 2.39%	0.00% 0.00%	10.11% 5.83%	0.01% 0.00%
Paychex Inc	PAYX	359.74	131.20	47,198	0.00%	2.39%	0.00%	5.83% 7.54%	0.00%
QUALCOMM Inc	QCOM	1,114.00	175.30	195,284	0.58%	1.94%	0.01%	10.64%	0.06%
Ross Stores Inc	ROST	333.58	150.61	50,240	0.15%	0.98%	0.00%	8.85%	0.01%
DEXX Laboratories Inc	IDXX	82.31	481.33	39,616	· · · · ·		a a 2 a 7	11.25%	
Starbucks Corp	SBUX	1,133.20	94.57 17.06	107,167	0.32%	2.41%	0.01%	9.67% 20.00%	0.03%
KeyCorp Fox Corp	KEY FOXA	928.12 224.65	17.06 41.37	15,834 9,294	0.05% 0.03%	4.81% 1.31%	0.00% 0.00%	20.00% 5.35%	0.01% 0.00%
	I UNA								
Fox Corp	FOX	235.58	38.43	9,053	0.03%	1.41%	0.00%	5.35%	0.00%

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 16 of 18

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

Estimated Weighted Average Dividend Yield [1]	1.66%
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2] Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3] Total [4]	FERC Method No Weighting 10.31% 100.00% n/a n/a 10.31% n/a
S&P 500 Estimated Required Market Return [5]	12.05%

Intere Title Outrog Proc Calability Weight Calability Weight View	[10] [11]	[12]	[13]
Burn Burley Market Marget no Outsoff of Particle Notes Outsoff Notes	Capitalizati		Capitalization Weighted
Interregan Clube Line Inderings Lid NCLH 4.83.00 17.48 7.486 0.221 4.195 0.03 0.0 Samp on the companies GBB 0.1114 2.47.2 7.106 0.221 4.195 0.03 0.1 Samp on the companies GBB 0.1124 2.47.2 0.044 0.271 4.195 0.071 11 Room Prints GBB 0.1124 2.12.4 1.12.5 0.071 4.195 0.071 4.195 0.071 4.195 0.071 4.195 0.071 4.195 0.071 4.195 0.071 4.195 0.071 4.195 0.071 4.195 0.071 4.195 0.071 4.195 0.071 4.195 0.071 0	Dividend Dividend	nd Long-Term	Long-Term Growth Est.
Disk Barbon UBB 1.00.51 47.20 7.70.70 0.278 4.16.8 0.01 Cer Digla Inc CON 0.15.30 3.04.8 10.20 0.55.4 1.05.9 0.05 1.05.9 0.05 1.05.9 0.05 1.05.9 0.05 1.05.9 0.05 1.05.9 0.05 1.05.9 0.05 1.05.9 0.05 1.05.9 0.05 1.05.9 0.05 1.05.9 0.05 0.05 1.05.9 0.05		50.58%	
Gen DigatineGen M615.0121.6419.2870.05%1.84%0.00Wase hargementWM40.132123465.080.05%1.41%0.00Wase hargementWM40.132123465.080.02%1.41%0.00Wase hargementWM40.132123465.080.02%0.95%0.00MultichonWW1.22.950.03.041.24.960.02%0.95%0.00MultichonCMD23.272.13.141.13.050.25%0.02%0.02%0.02%Statistic MicrosonCMD23.272.14.141.13.050.02%0.25%0.02%Constraints HottingsCMD23.272.14.141.13.050.02%0.02%0.02%Constraints HottingsCMD23.272.14.141.13.050.02%0.02%0.02%Constraints HottingsCMD23.271.13.050.02%0.02%0.02%0.02%Adal IncUBL1.14.151.02.090.02%0.02%0.02%0.02%0.02%Adal IncUBL1.14.151.02.090.02%0.02%0.02%0.02%0.02%Adal IncUBL1.14.151.02.090.02%0.02%0.02%0.02%0.02%Adal IncUBL1.14.151.02.090.02%0.02%0.02%0.02%0.02%Adal IncUBL1.14.161.02.000.05%1.02.070.02%0.02%0.02%Adal	4.15% 0.01%		0.01%
Tickow Froz Tickow Ford Tickow Ford <thtickow ford<="" th=""> <thtickow ford<="" th=""></thtickow></thtickow>			
Wate Margammine WM MU1 20 P12-P1 B0.00 D.25% A.16% 0.00 Inverse. Lit IVZ 420.00 IVD 7.00 IVD 4.005 0.005% 4.005% 0.005% 4.005% 0.005% 4.005% 0.005% 4.005% 0.005% 4.005% 0.005% 4.005% 0.005% 4.005% 0.005% 4.005% 0			0.01%
Constantion in process in a first in the second i			0.01% 0.03%
invalue in Invalue in Inval			0.01%
Mogan Sensing MS L20.98 U0.71 U0.74 U.92 U.92 <thu.92< th=""> U.92 <thu.92< th=""></thu.92<></thu.92<>			0.00%
Microwitz Predivation MCPP 59.5.1 12.16 4.4.07 2.2.7.2 Chaob Ld CB 43.33 24.41 114.70 0.3.4% 1.2.8 Chaob Ld CB 43.33 24.41 114.37.07 0.3.4% 1.2.8 Chaob Ld CB 43.34 43.34 13.2.97 0.3.4% 0.0.4% 0.0.5 Chaob Ld CB 44.3.24 43.3.48 43.3.69 0.0.4% 0.0.4% 0.0.5 Chelp Alaramity Fre CB 75.41 74.68 43.668 1.4.5 0.0.5%			0.10%
Danka Markel Holding Time CRWD 22.72 27.72 14.720 0.744 1.720 0.744 Hadge In MCX 22.27 1.74 1.7470 0.744 1.7470 0.744 1.7470 0.744 1.7470 0.744 1.7470 0.744 1.7470 0.744 1.7470 0.744 1.7470 0.744 1.7470 0.744 1.7470 0.744 1.7481 1.7470 0.744 1.7481			0.05%
Chale Line C.G. 403.03 284.16 11.7700 0.34% 1.28% 0.00 Citeres Francial Grap Inc CFG 448.30 43.06 10.209	2.21%	-10.99% 35.70%	
HeadpointHOX222.2781.24115.47UULinell IncISB113.45110.28112.3070.4140.2780.0410.2780.041Linell IncISB113.45110.28112.3070.0440.02780.058 <td< td=""><td>1.28% 0.00%</td><td></td><td>0.01%</td></td<>	1.28% 0.00%		0.01%
Jaki Inc JBL 113.45 110.28 112.077 0.04% 0.04% 0.04% Allatta Corpithe ALL 281.04 188.94 40.888 - 3.04% 0.04% 3.04% 0.04% 3.04% 0.04% 3.04% 0.04% 3.04% 0.00% 3.04% 0.00% 3.04% 0.00% 3.04% 0.00% 3.04% 0.00% 3.04% 0.00% 3.04% 0.00% 3.04% 0.00% 3.04% 0.00% 3.04% 0.00% 0.01% 4.00% 0.01 Simon Property fors for BPG 36.04 167.35 64.662 0.15% 3.01% 0.00% 3.01% 0.00% Vandardia Communities inc NPK 78.02 12.16 43.26% 0.01% 0.00% 0.01% 0.00% 0.01% 0.00% 0.01% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% <td></td> <td>8.86%</td> <td></td>		8.86%	
ORaity Automatve fm ORAY 58.01 1.128 of 7 66.545 Equity Responsible EGR 379.14 7.88 28.090 0.02% 1.30% 0.000 Responsible Responsible EGR 379.14 7.78 0.02% 1.30% 0.000 Responsible Respons			
Allands Corp.Tho ALL 2404 188.94 40.88	0.29% 0.00%		0.00%
Eight Patheminia EGR 379.14 74.88 28,390 0.08 3.11% 0.00 Kend p Frepprin NVX 27.77 33.60 77.70 12.48 0.70 12.48 Kend p Frepprin NVX 22.37 0.03 0.05 0.024 0.70 12.43 0.70 12.44 0.70 12.44 0.70 12.44 0.70 12.44 12.44 0.70 12.44 12.44 12.44 12.44 12.44 12.44 12.44 12.44 12.44 12.44 12.44 12.44 12.44	1 95%	10.21% 168.00%	
BingWare Inc BWA 227.77 33.96 7.735 0.02* 1.30% 0.00 Hold Holds & Reader Inc HST 702.44 17.70 12.433 4.22* Binne Dreaming Corp HST 702.44 17.70 12.433 4.22* Sinne Dreaming Corp HST 702.44 17.73 0.44* 4.04% 0.04 Sinne Dreaming Corp MST 14.83 10.23* 0.44* 4.04% 0.04 Sinne Dreaming Corp MST 14.84 10.25* 4.410* 0.01* 4.00* 0.01 Walgemen Bords Milance Inc WTA 142.22 12.55 7.965 10.41% 0.01% <			0.00%
Hoat -Exat & Reach inc HST 70.2 4.4 17.70 12.433 4.82% Since Property Grag Inc GPG 326.04 167.35 6.46.62 0.14% 3.10% 0.00 Availed Bay Communities Inc AVB 142.22 225.73 3.21.03 0.04% 3.01% 0.00 Availed Bay Communities Inc AVB 142.22 225.73 3.21.03 0.04% 3.01% 0.00 Vienerital Financia Communities Inc UPB 772.21 128.65 0.41.44 0.23% 0.01% 0.01% Vienerital Financia Comp UPB 772.24 0.11% 0.00 0.01% 0.00 STERIS PLC STE 0.62 241.10 2.23.77 0.06% 0.00<			0.00%
Incide Corp NNY 12.260 65.66 1.2445 Simm Property from Incine SPG 33.684 167.35 54.562 0.16% 4.06% 0.01 Markanday Communitie Inc EMN 116.86 112.37 31.763 0.04% 3.16% 0.00 Prudential Francial Inc PRU 337.00 121.16 4.3,254 0.13% 4.29% 0.01 Watting Procent Service Inc WB 885.28 9.25 7.915 0.21% 0.01% Watting Procent Service Inc WB 885.28 9.25 1.416.40 0.44% 2.20% 0.01% Strikes Proc MCK 123.68 66.10 2.77,75 0.27% 0.37% 0.00% Strikes Proc Control MCK 123.68 64.677 14.444 0.44% 2.08% 0.00 Carphell Sarp Contro COF 33.86 14.677 14.344 0.34% 0.00 Watter Contro DFR 14.48 16.45 16.375 0.35.55 0.35.			0.01%
Sinon Property Group Inc SPG 328,04 167,35 64,662 0.01% 4.00% 0.01 Autonation Communities Inc AV8 142,22 225,73 32,103 0.04% 3.01% 0.00 Variantia Financia UP3 732,01 128,55 44,164 0.23% 0.01% Variantia Financia UP3 732,241 128,55 44,164 0.23% 0.01% Variance Store Store Inco UP3 732,241 128,55 44,164 0.23% 0.01% Variance Store Store Cop UM7 23,83 864,35 134,000 0.04% 2,35% 0.00 Concora Inc COR 286,143 32,460 0.17% 0.00 Concora Inc COR 286,143 32,660 0.17% 0.00 Concora Inc COR 286,143 32,660 0.17% 0.26% 0.44% 0.01 Concora Inc DTR 118,46 168,153 16,757 0.04% 3,54% 0.00 Darian Inc	4.52%		
Eatman Chaminal Co EMN 11.8.63 10.2.37 11.963 0.0.4% 3.1.9% 0.0.0 Avendraby Communitation PRU 337.00 121.16 43.2.24 0.3.9% 4.2.9% 0.0.0 Mainter Parcel Swires Inc UPS 372.51 121.85 9.4.1.4 0.2.3% 0.0.1% Mainter Drame Book Alliance Inc UPS 372.51 12.8.55 9.4.1.4 0.2.3% 0.0.0.5% TERIS PLC STE 9.6.2 2.1.10 2.3.7 0.0.01% McAsano Cop LMT 23.9.8 561.08 7.7.79 0.2.3% 0.0.05% Campbell Sup Co CPR 381.86 146.35 56.106 0.1.7% 1.8.3% 0.0.06% Waters Crip NOSN 7.18 2.05.65 14.471 1.22% 0.00 Marker Scrip NOSN 7.18 2.05.85 14.671 1.22% 0.00 Marker Crip NOT 7.18 2.05.85 14.671 1.22% 0.00 0.05% 1.63% 0.00<		33.16%	
Advind Page 225.73 32.103 0.09% 3.01% 0.00% United Paradital Financia PRU 357.00 121.65 43.454 0.13% 4.05% 0.01 United Paradi Service Inc UPS 732.51 128.55 49.4164 0.23% 5.07% 0.02% STERIS PLC MSR 98.52 7.416 43.245 7.45% 0.22% 0.05% 0.05% Melessanc Corp MCK 129.86 564.65 134.600 0.44% 2.85% 0.00 Cannoal Inc COR 29.855 49.72 14.848 0.06 0.17% 1.22% Concora Inc COR 29.855 49.72 14.848 18.161 1.22% Collari Toro Inc DTR 21.44 84.49 18.161 1.22% 1.26% 1.26% 1.26% 1.26% 1.26% 1.26% 1.26% 1.26% 1.26% 1.26% 1.26% 1.26% 1.26% 1.26% 1.26% 1.26% 1.26% 1.26% 1.26%			0.00%
Pundertal framerial inn PRU 337.00 121.16 4.3244 0.35% 0.01 Walgreens Boats Aliance inc WBA 863.28 9.26 7.885 0.01% Walgreens Boats Aliance inc WBA 863.28 9.26 7.885 0.04% 0.04% McKeason Cop MCK 129.86 541.00 27.759 0.26% 0.04% 0.02% 0.51% 0.00 Centora In COP 129.83 554.66 0.46% 0.28% 0.00 Campbell Soup Co COP 381.86 146.83 556.16 0.7% 1.83% 0.00 Campbell Soup Co COF 381.86 146.83 18.167 1.22% 0.00% Cambol Soup Co DITR 118.44 158.15 18.757 0.04% 3.64% 0.00 Cambol Soup Co DITR 118.44 158.15 18.757 0.04% 3.64% 0.00 Darlar Restarants Inc DPZ 34.97 14.21 14.66 0.04% 1.64% 0.			0.00% 0.00%
Unided Panel Service Inic UPS 72.2.51 12.8.65 94.104 0.2.8% 0.0.1% STERIS PLC STE 98.62 24.1.0 23.777 0.8.5% 0.0.0.5% STERIS PLC MCK 129.68 554.08 72.78 0.22% 0.0.5% 0.0.0 Concora inc COR 129.63 564.69 134.600 0.14% 2.8.5% 0.00 Campbell Soup Co COR 28.8.5 49.72 14.8.44 0.14% 2.8.5% 0.00 Capital Con Financial Corp COF 38.1.65 146.33 56.06 0.17% 1.2.2% Didar Tore Inc DTR 21.4.8 84.49 18.161 1.2.2%			0.01%
STERIS PLC STE 98.62 241.10 23.77 0.95% Lockheed Martin Corp LMT 238.36 564.95 134.660 0.47% 0.25% 0.01% 0.25% 0.01% 0.25% 0.01% 0.25% 0.01% 0.25% 0.01% 0.85% 0.01% 0.85% 0.01% 0.85% 0.01% 0.05% 0.00% 0.01% 0.05% 0.01% 0.05% 0.01% 0.05% 0.01% 0.05% 0.01% 0.05% 0.00% 0.01% 0.05% 0.00% 0.01% 0.02% 0.01% 0.02% 0.01% 0.05% 0.00% 0.01% 0.02% 0.00% 0.01%			0.00%
McKesson Car 129.88 C61.08 7.2.759 0.23% 0.21% 0.23% 0.01% Camcora in COR 186.01 239.57 449.580 0.04% 239.56 0.01 Cambell Surg CA CPB 288.56 449.72 44.844 0.04% 2.98% 0.00 Cambell Surg CA CPB 381.66 146.93 56.16 0.17% 1.83% 0.00 Cambell Surg CA CPF 381.66 146.94 16.161 1.22% Data Tree In C DRI 124.94 9.44 1.857 0.08% 3.54% 0.00 Campor In C DRI 124.94 9.44 1.857 0.08% 3.54% 0.00 Campor In C DRI 287.97 59.14 1.357 0.04% 1.86% 0.00 Campor In C DRIZ 3.497 414.21 14.466 0.04% 1.86% 0.00 Campor In C DRIZ 3.497 0.128 4.1316 0.128 0.134% 0.00 <td>10.81%</td> <td>-14.70%</td> <td></td>	10.81%	-14.70%	
Lockhead Marin Corp LMT 28.36 564.49 194.600 0.40% 2.25% 0.40% 0.26% 0.04% 0.86% 0.00 Campal Inc CPR 28.65 49.72 14.64.98 0.04% 0.86% 0.00 Captal One Financia Corp CPR 28.65 49.72 14.64.91 0.64% 2.86% 0.00% Marian Corp NDSN 57.18 264.65 20.56% 15.73% 0.06% 3.54% 0.00 Darder Restamums Inc DRI 118.44 84.49 18.167 12.25% 0.00% 3.54% 0.00 String Inc MIC 257.5 59.14 13.587 0.04% 3.54% 0.00 Domitoris Plizza Inc MIC 257.3 59.14 13.587 0.07% 17.2% 0.00 Darla Inc NVR 3.08 172.6 28.33 0.05% 2.55% 0.00 Darla Inc NVR 3.08 150.92 17.33 0.06% 2.56% 0.00	0.95%		
Concornation COR 196.01 298.97 44.844 0.04% 0.85% 0.000 Campball Soup Co COF 381.86 146.83 65.106 0.17% 1.63% 0.000 Capital Corp WA T 59.86 346.85 20.560 0.00% 3.54% 0.00% 0.25% 0.01% 4.35% 0.00% 3.54% 0.00% 3.54% 0.00% 4.54% 0.00% 4.54% 0.00% 4.54% 0.00% 4.55% 0.00% 4.55% 0.00% 4.55% 0.00% 4.55% 0.00% 4.55% 0.00% 4.55% 0.00% 4.55% 0.00% 4.55% 0.00% 4.55% 0.00% 4.55% 0.00% 4.55% 0.00% 4.55% 0.00% 4.55% 0.00% 4.55% 0.00 0.00 0.00% 1.65% 1.65% 1.65% 1.65% 1.65% 1.65% 1.65% 1.65% 1.65% 1.65% 1.65% 1.65% 1.65% 1.65% 1.65% 1.65% 1.65% 1.65			0.02%
Campela Scap Co CPE 298.55 49.72 14.84.4 0.04% 2.98% 0.00 Waters Corp WAT 59.36 346.35 20.500 0.17% 1.22% Datar Tree Inc DLTR 214.94 84.49 18.161 1.22% 0.06% 3.54% 0.00% Sterry Inc EVRG 229.75 59.14 13.557 0.06% 3.54% 0.00 Match Group Inc DRI 118.46 158.15 18.735 0.06% 3.54% 0.00 Match Group Inc DRI 3.08 9.72.4 2.84.73 0.04% 1.46% 0.04% 1.46% 0.00 NVR Inc NVR 3.08 9.72.44 2.82.73 0.07% 1.72% 0.00 Old Deminoir Preight Line Inc DVA 8.300 115.63 33.821 0.17% 1.63% 0.00 Solutian Inc CNS 2.33.18 91.66 2.37.33 2.68% 0.00 Outer Magnotas Solutions Inc CNK 53.43			0.01%
Copie Januarisal Corp COF 381 86 146.03 65.06 0.17% 1.83% 0.00 Nordson Corp NDSN 57.18 226.66 14.07 1.23% 0.00% Dorlar Tree inco DTR 214.94 84.49 18.161 1.23% 0.00% 3.54% 0.00% 3.54% 0.00% 3.54% 0.00% 3.54% 0.00% 3.54% 0.00% 3.54% 0.00% 3.54% 0.00% 3.54% 0.00% 3.54% 0.00% 3.54% 0.00 0.00% 3.54% 0.00% 3.54% 0.00% 3.54% 0.00% 3.54% 0.00% 3.54% 0.00% 3.54% 0.00% 3.54% 0.00% 0.00% 3.54% 0.00% <t< td=""><td></td><td></td><td>0.01% 0.00%</td></t<>			0.01% 0.00%
Waters Corp WAT 59.36 246.35 20.57 Dotar Ince inc DLTR 214.44 84.49 18.16 - Dorden Freeinaurants Inc DRT 18.44 18.46 18.15 15.75 0.04% 4.39% 0.00 Evergy Inc EVRG 229.75 50.14 13.587 0.04% 4.39% 0.00 Match Group Inc DZTA 3.497 414.21 14.468 0.04% 1.46% 0.00 NNR NNR 3.08 9.172.46 282.37 0.07% 1.72% 0.00 Old Dominor Freight Line Inc DVA 8.300 115.63 33.81 0.16% 0.43% 0.07% 1.72% 0.00 Datita Inc DVA 8.300 115.63 33.81 0.16% 2.53% 0.05% 2.53% 0.05% 2.53% 0.05% 2.56% 0.00 0.00 0.00 0.00% 3.543 0.04% 0.34% 0.00 0.00 0.00% 1.543 0.00 0.00			0.02%
Nordson Corp NDSN S7, 18 S26, 56 14, 71 1, 22% Dards me nen DDIar 244, 484, 484, 484, 484, 484, 18, 161 18, 161 18, 161	1.0070 0.0070	7.80%	0.0270
Darden Restaurants inc DRI 118.46 158.15 157.35 0.08% 3.54% 0.00 Match Group Inc MTCH 257.90 37.21 9.596 0.04% 4.35% 0.00 Match Group Inc DPZ 34.97 414.21 14.48 0.04% 4.35% 0.00 NR Inc DPZ 34.97 414.21 14.48 0.04% 1.72% 0.00 NR Inc DPZ 34.97 0.127 2.473 0.07% 1.72% 0.00 Dadvin Inc DPL 244.30 192.02 2.4721 0.07% 1.72% 0.00 Dadvin Inc DPL 244.30 192.68 33.881 0.10% 1.03% 0.00 Cold Dominon Freight Line Inc DPL 243.34 91.66 21.373 0.06% 2.65% 0.00 Cold Dominon Freight Line Inc DPL 243.37 0.16% 2.08% 0.00% 2.35% 0.00 Cold Dominon Freight Line Inc DPL 233.34 91.66	1.22%		
Evergy Inc EVRG 229.75 59.14 1.5.87 0.4% 4.35% 0.00 Domino's Pizza Inc DPZ 34.97 414.21 14.486 0.04% 1.46% 0.00 NVR Inc NVR 3.08 9.172.46 224.721 0.07% 1.72% 0.00 Old Domino Freight Line Inc ODFL 214.30 192.80 41.316 0.12% 0.43% 0.00 Davita Inc DPZ 23.01 115.63 33.281 0.10% 1.63% 0.00 Cadence Design Systems Inc CDNS 27.382 28.63 7.363 0.06% 2.88% 0.00 Cadence Design Systems Inc CDNS 27.318 91.66 27.77 1.41.38 0.04% 0.04% 0.04% 0.04% 0.04% 0.00 Sysworks Subclinos Inc CNK 113.22 166.97 17.473 0.05% 1.43% 0.00 Sysworks Subclinos Inc CNK 113.47 27.203 3.08.66 0.04% 5.26% 0.04		12.39%	
Match Group Inc MTCH 257.90 37.21 9.596 Domino's Pizza Inc DPZ 34.87 41.421 14.48 0.40% 1.46% 0.00 NR Inc NVR 3.08 9.172.46 28.233 1.72% 0.07% 1.72% 0.06 Old Dominion Freight Line Inc DVA 83.90 115.63 33.88 0.10% 1.83% 0.00 DaVita Inc IRM 283.34 113.26 33.233 2.63% 0.00 Cadence Design Systems Inc CDNS 273.82 288.93 73.638 0.00% 2.88% 0.00 Cadence Design Systems Inc UHS 59.46 27.77 14.138 0.04% 0.34% 0.00 Skyworks Solutions Inc DKK 113.47 120.059 17.503 2.65% 0.00 Catel Laqueditic Revices Inc WKS 10.46.57 17.83 0.48% 0.00 3.487 0.40% 3.488 0.13% 4.52% 0.00 Skyworks Solutions Inc DKK 113.4			0.01%
Domino's Pizza inc DPZ 34 97 414.21 414.426 0.04% 1.46% 0.00 NVR Inc NVR 3.08 9,172.46 28.233 0.01 0.02% 0.54% 0.00 Old Dominion Freight Line Inc ODFL 214.30 192.80 41.316 0.12% 0.54% 0.00 Divila Inc DVA 83.30 150.63 33.881 0.00% 2.85% 0.00 Divin Mountain Inc IRM 293.31 91.66 21.373 0.06% 2.85% 0.00 Cadenee Design Systems Inc CDNS 27.382 268.33 77.353 1.4138 0.04% 0.34% 0.00 Systems Inc DKK 159.46 237.77 14.138 0.05% 1.91% 0.00 Systems Inc DKK 113.47 272.03 30.866 0.09% 1.84% 0.00 Rockwell Automation Inc RCM 1.13.47 272.03 30.866 0.03% 4.52% 0.00 Anter Heinz CorThe ANT	4.35% 0.00%		0.00%
NNR Inc NVR 3.08 9,172.46 22,33 NetApp Inc NTAP 204.78 120.72 24,721 0.07% 1,54% 0.00 Od Dominion Freight Line Inc ODFL 214.30 152.80 41,36 0.12% 0.54% 0.00 DaVita Inc DVA 83.90 156.92 24,721 0.07% 0.54% 0.00 Lartford Financial Services Group Inc/The HIG 293.34 115.63 33.81 0.00% 2.85% 0.00 Eate Lauder Cos Inc/The EL 23.18 91.66 21.37 0.06% 0.34% 0.00 Cadence Design Systems Inc CDNS 273.82 268.93 73.638 0.04% 0.34% 0.00 Skyworks Solutions Inc UHS 59.46 27.77 14.138 0.04% 0.34% 0.00 Casel Diagonstics Inc DCX 113.47 272.03 30.866 0.09% 1.84% 0.00 Casel Diagonstics Inc DCX 113.47 272.03 30.845	1.46% 0.00%	36.15% 5 12.56%	0.01%
NetApp Inc NTAP 204,78 120,72 24,721 0.07% 1.72% 0.00 Old Dominon Freight Line Inc ODVA 83.90 150.92 12.80 0.12% 0.02% 0.00% Battford Financial Services Group Inc/The HIG 293.01 115.63 33.881 0.10% 1.63% 0.00% Cadence Design Systems Inc CDNS 273.82 268.93 77.368 25.55% 0.04% 0.04% 0.04% 0.04% 0.04% 0.00% Systems Inc DVA 8.59.45 237.77 14,138 0.04% 0.34% 0.00 Systems Inc DVK 113.47 272.03 30.866 0.04% 1.84% 0.00 Systems Solutions Inc DCX 111.32 156.97 17.473 0.05% 1.91% 0.00 Recker Lingnostics Inc DCX 111.32 156.97 17.473 0.05% 1.91% 0.00 Recker Lingnostics Inc DKX 111.32 17.73 31.475.40 0.00 3.47.90	1.4070 0.0070	7.60%	0.0170
Davia Inc DVA 83.90 150.92 12.662 Hardrod Financial Services Group Inc/The HIG 293.01 115.63 33.881 0.10% 1.63% 0.00 Iorn Mountain Inc IRM 293.34 113.26 33.223 2.53% Estee Lauder Cos Inc/The EL 233.18 91.66 21.373 0.06% 2.88% 0.00 Cadence Design Systems Inc CDNS 273.82 268.93 73.633 2.55% 0.00% 3.44% 0.00 3.45% 0.00% 3.44% 0.00 3.55% 0.05% 1.91% 0.00 3.45% 0.00 3.45% 0.00 3.45% 0.00 3.45% 0.00 3.45% 0.00 3.45% 0.00 3.45% 0.00 3.45% 0.00 3.45% 0.00 3.45% 0.00 3.45% 0.00 3.45% 0.01 4.55% 0.01 4.55% 0.01 4.55% 0.01 4.55% 0.01 4.55% 0.01 4.55% 0.01 4.55% 0.01	1.72% 0.00%		0.00%
Hartford Financial Services Group Inc/The HIG 293.34 113.26 33.881 0.10% 1.63% 0.00 from Mountain Inc IRM 293.34 113.26 33.223 2.53% 2.53% Estee Lauder Cos Inc/The EL 233.18 91.66 21.373 0.06% 2.53% Cadence Design Systems Inc CDNS 273.82 268.93 73.633	0.54% 0.00%	3.02%	0.00%
Iron Mountain Inc IRM 293,34 113,26 33,223 2,53% Estee Lauder Cos Inc/The EL 233,18 91,66 21,373 0.0% 2,89% 0.00 Cadenco Design Systems Inc CDNS 273,82 268,93 73,638 - - Universal Health Services Inc TYL 42,67 587,87 25,066 - 2,55% - - 0.04% 0.04% 0.04% 0.04% 0.04% 0.04% 0.04% 0.05% 1.91% 0.00 0.05% 1.91% 0.00 0.05% 1.91% 0.00 0.05% 1.91% 0.00 0.05% 1.94% 0.00 0.05% 1.94% 0.00 0.06% 1.94% 0.00 0.06% 1.94% 0.00 0.00 0.04% 1.24% 0.01 1.84% 0.01 1.84% 0.01 1.84% 0.00 0.00 0.04% 1.27% 0.00 0.00 0.04% 1.27% 0.00 0.00 0.04% 1.27% 0.00 0.04% <		20.00%	
Eate Lauder Cos Inc/The EL 233.18 91.66 21.373 0.06% 2.88% 0.00 Cadence Design Systems Inc CDNS 273.82 268.93 73.63 77.14 73.63		5 12.37%	0.01%
Cadence Design Systems Inc CDNS 27.82 268.93 73.638 Tyler Technologies Inc TYL 42.67 58.787 25.086 Universal Health Services Inc UHS 59.46 237.77 14.138 0.04% 0.34% 0.00 Skyworks Solutions Inc DGX 111.32 156.97 17.473 0.05% 1.91% 0.00 Kraft Heirz CaThe RGK 113.47 272.03 30.666 0.05% 1.91% 0.00 Kraft Heirz CaThe RGK 113.47 272.03 30.666 0.05% 1.28% 0.01 Regeneron Pharmaceuticals Inc REGN 108.42 1.184.69 128.441 2.89% 0.01 Rapch Lauren Corp RL 40.06 171.26 6.860 0.02% 1.93% 0.00 BXP Inc DAP 1.27% 0.01 3.2615 0.04% 1.27% 0.00 Applend Corp RL 40.06 171.26 6.860 0.02% 1.93% 0.00 Aproter Cor		14.58%	0.01%
Tyle 42.67 587.87 25.086 Universal Health Services Inc UHS 59.46 23.77 14.138 0.04% 0.34% 0.00 Syworks Solutions Inc SWKS 159.72 109.59 17,503 2.55% 2.55% Quest Diagnostics Inc DGX 111.32 166.97 17,473 0.06% 1.91% 0.00 Rackmall Automation Inc RCK 11.347 272.03 30.866 0.09% 1.84% 0.00 Kraft Heirz CoTThe KHC 1.209.08 35.43 42.838 0.13% 2.89% 0.01 American Tower Corp AMT 467.08 224.06 104.664 0.31% 2.89% 0.01 Regeneron Pharmaceuticals Inc REGN 108.42 1.184.69 128.441 2.89% 0.00 Marzon.com Inc RL 40.06 171.26 6.860 0.02% 1.93% 0.00 SLP Inc RL 40.06 171.26 6.860 0.02% 1.93% 0.00 SLP Inc RL 40.04 16.96 39.451 0.33% 0.00 <td>2.00 /0 0.00 /0</td> <td>16.20%</td> <td>0.0176</td>	2.00 /0 0.00 /0	16.20%	0.0176
Universal Heath Services Inc UHS 59.46 237.77 14,138 0.04% 0.34% 0.00% Skyworks Solutions Inc DGX 111.32 156.97 17,503 2.55% 2.55% Quest Diagnospitis Inc DGX 111.32 156.97 17,473 0.05% 1.91% 0.00 Rockwell Automation Inc ROK 113.47 272.03 30.866 0.09% 1.84% 0.00 Kraft Heinz CorThe KHC 1.209.08 35.43 42.838 0.31% 4.52% 0.01 Regeneron Pharmaceuticals Inc REGN 108.42 1.184.69 128.4411 24.4411 4.52% 0.01 Anazon.com Inc JAKH Y 72.91 173.03 12.615 0.04% 5.21% 0.00 Ralph Lauren Corp RL 40.06 171.26 6,860 0.02% 1.93% 0.00 Amphenol Corp APL 120.49 97.52 11.860 0.24% 0.89% 0.00 Howmet Aerospace Inc HWM 408.15		10.2070	
Quest Diagnostics Inc DGX 111.32 156.97 17,473 0.05% 1.91% 0.00 Rockwell Automation Inc ROK 113.47 272.03 30,866 0.09% 1.84% 0.00 Kart Heinz CorThe KHC 1.200.88 35.43 42,838 0.13% 4.52% 0.01 Regeneron Pharmaceuticals Inc REGN 108.42 1.184.69 128,441 4.84% 0.00 Amazon.com Inc AMXT 10.495.57 178.50 1.873,459 0.00% 1.27% 0.00 Ralph Lauren Corp RL 40.06 171.26 6.860 0.02% 1.93% 0.00 Amphend Corp APH 1.204.29 67.45 81.29 0.24% 0.98% 0.00 Houre Aerospace Inc HWM 408.15 96.66 39.451 0.33% 29% 0.00 Synopsys Inc ETSY 114.75 55.09 6.322 0.01 Accenture PLC ACN 62.63 341.95 21.410<	0.34% 0.00%	5 15.50%	0.01%
Rockwell Automation Inc ROK 113.47 272.03 30,866 0.09% 1.84% 0.00 Kraft Heinz CorThe KHC 1,209.08 35.43 42,838 0.13% 4.52% 0.01 American Tower Corp AMT 467.08 224.06 104,654 0.31% 2.89% 0.01 Regeneron Pharmaceuticals Inc REGN 108.42 1,184.69 128.441 1 Amazon.com Inc AMZN 10,495.57 178.50 1,873.459 0.00% 1.27% 0.00 Balp Lauren Corp RL 40.06 171.26 6.860 0.02% 1.93% 0.00 Downet Aerospace Inc BXP 157.93 75.22 11,880 0.04% 5.21% 0.00 Amptenol Corp APH 1,204.29 6.66 39.451 0.33% 0.00 Mownet Aerospace Inc HWM 408.15 96.66 39.451 0.33% 0.00 Valero Energy Corp VLO 320.38 146.73 47.009 2.92% 0.00		-2.57%	
Kraft Heinz Co/The KHC 1,209.08 35.43 42,838 0.13% 4.52% 0.01 American Tower Corp AMT 467.08 224.06 104,654 0.31% 2.89% 0.01 Regeneron Pharmaceuticals Inc REGN 10.842 1,184.69 128,441 73.459 778.50 1,73.459 0.04% 1.27% 0.00 Rapt Lauren Corp RL 40.06 171.26 6,860 0.02% 1.93% 0.00 Raph Lauren Corp RL 40.06 171.26 6,860 0.02% 1.93% 0.00 SNP Inc BXP 157.93 75.22 11.80 0.04% 5.21% 0.00 America Progrop VLO 320.38 146.73 47.009 2.92% 5.91% 0.33% 1.91% 0.00			0.00%
American Tower Corp AMT 467.08 224.06 104,654 0.31% 2.89% 0.01 Regeneron Pharmaceuticals Inc REGN 108.42 1,184.69 128.441 7			0.00%
Regeneron Pharmaceuticals Inc REGN 108.42 1,184.69 128,441 Amazon.com Inc AMZN 10,495.57 178.50 1.873,459 Jack Henry & Associates Inc JKHY 72.91 173.03 12,615 0.04% 1.27% 0.00 Ralph Lauren Corp RL 40.06 171.26 6.860 0.02% 1.93% 0.00 BXP Inc BXP 157.93 75.22 11,880 0.04% 5.21% 0.00 Ampehenol Corp APH 1,204.29 67.45 81.229 0.24% 0.98% 0.00 Valero Energy Corp VLO 320.38 146.73 47.009 2.92% 29% Synopsys Inc SNPS 153.61 519.58 79,815 24.0% 0.00% 2.40% 0.00 Accenture PLC ACN 626.38 341.95 214.192 0.63% 1.51% 0.01 TransDigm Group Inc TDG 56.11 1.373.21 77.052 70.05 9.00 97.60 183.90			0.00% 0.04%
Amazon.com Inc AMZN 10,495.57 178.50 1,873,459 Jack Henry & Associates Inc JKHY 72.91 173.03 12,615 0.04% 1.27% 0.00 Ralph Lauren Corp RL 40.06 171.26 6,860 0.02% 1.93% 0.00 BXP Inc BXP 157.93 75.22 11,880 0.04% 5.21% 0.00 Amphenol Corp APH 1,204.29 67.45 81,229 0.24% 0.98% 0.00 Howmet Aerospace Inc HWM 408.15 96.66 39,451 0.33% Valero Energy Corp VLO 320.38 146.73 47,009 2.92% Synopsys Inc ETSY 114.75 55.09 6,322 C C CH RObinson Worldwide Inc CHRW 117.28 103,51 12,140 0.04% 2.40% 0.00 Accenture PLC TCG 56.11 1,373.21 77,052 TransDigm Group Inc TDG 56.11 1,373.21 77,953 0.11% 1.99% 0.00 VeriSi	2.0070 0.0170	52.50%	0.0470
Ralph Lauren Corp RL 40.06 171.26 6,860 0.02% 1.93% 0.00 BXP Inc BXP 157.93 75.22 11,880 0.04% 5.21% 0.00 Amphenol Corp APH 1,204.29 67.45 81,229 0.24% 0.98% 0.00 Valero Energy Corp VLO 320.38 146.73 47,009 2.92% 0.00 Synopsys Inc SNPS 153.61 519.58 79,815 0.004 2.40% 0.00 CH Robinson Worldwide Inc CHRW 117.28 103.51 12,140 0.04% 2.40% 0.00 Accenture PLC ACN 626.38 341.95 214,192 0.63% 1.51% 0.01 TransDigm Group Inc TDG 56.11 1,373.21 77,052 7 0.01% 3.80% 0.00 FirstEnergy Corp FE 575.92 43.92 25,294 0.07% 3.87% 0.00 VeriSign Inc VRSN 97.60 183.90 17,949<		28.99%	
BXP Inc BXP 157.93 75.22 11,880 0.04% 5.21% 0.00 Amphenol Corp APH 1,204.29 67.45 81,229 0.24% 0.98% 0.00 Howmet Aerospace Inc HWM 408.15 96.66 39.451 0.33% 0.33% Valero Energy Corp VLO 320.38 146.73 47,009 2.92% 5.97% Synopsys Inc SNPS 153.61 519.58 79.815 5.09 6.322 0.00% 2.40% 0.00 Accenture PLC ACN 626.38 341.95 214,192 0.63% 1.51% 0.01 TransDigm Group Inc TDG 56.11 1,373.21 77.052 77.93 0.11% 1.99% 0.00 Prologis Inc PLD 925.91 127.82 118,350 0.35% 3.00% 0.01 FirstEnergy Corp FE 575.92 43.92 25.294 0.07% 3.87% 0.00 VeriSign Inc VRSN 97.60 183.90	1.27% 0.00%	9.73%	0.00%
Amphenol Corp APH 1,204.29 67.45 81,229 0.24% 0.98% 0.00 Howmet Aerospace Inc HWM 408.15 96.66 39,451 0.33% 0.33% Valero Energy Corp VLO 320.38 146.73 47,009 2.92% 0.24% 0.00% Synopsys Inc SNPS 153.61 519.58 79,815 0.04% 2.40% 0.00 CH Robinson Worldwide Inc CHRW 117.28 103.51 12,140 0.04% 2.40% 0.00 Accenture PLC ACN 626.38 341.95 214,192 0.63% 1.51% 0.01 TransDigm Group Inc TDG 56.11 1,373.21 77,052 700% 0.00 Prologis Inc PLD 925.91 127.82 118,350 0.35% 3.00% 0.01 FirstEnergy Corp YER 575.92 43.92 25,294 0.07% 3.87% 0.00 VeriSign Inc VRSN 97.60 183.90 17,94 70.55			0.00%
Hwmet Aerospace Inc HWM 408.15 96.66 39,451 0.33% Valero Energy Corp VLO 320.38 146.73 47,009 2.92% Synopsys Inc SNPS 153.61 519.58 79,815 5 Etsy Inc ETSY 114.75 55.09 6,322 0.04% 2.40% 0.00 Accenture PLC ACN 626.38 341.95 214,192 0.63% 1.51% 0.01 Accenture PLC ACN 626.38 341.95 214,192 0.63% 3.00% 0.00 Accenture PLC ACN 626.38 341.95 214,192 0.63% 3.00% 0.00 TransDigm Group Inc TDG 56.11 1,373.21 77,052 7 3.00% 0.01 FirstEnergy Corp FE 575.92 43.92 25,294 0.07% 3.87% 0.00 VeriSign Inc VRSN 97.60 183.90 17,949 0.01% 3.25% 0.00 Quanta Services Inc HSIC<			0.00%
Valero Energy Corp VLO 320.38 146.73 47,009 2.92% Synopsys Inc SNPS 153.61 519.58 79,815 5 Etsy Inc ETSY 114.75 55.09 6,322 0.04% 2.40% 0.00 Accenture PLC ACN 626.38 341.95 214,192 0.63% 1.51% 0.01 TransDigm Group Inc TDG 56.11 1,373.21 77,052 0.00%		5 16.86% 22.11%	0.04%
Synopsys Inc SNPS 153.61 519.58 79,815 Etsy Inc ETSY 114.75 55.09 6,322 CH Robinson Worldwide Inc CHRW 117.28 103.51 12,140 0.04% 2.40% 0.00 Accenture PLC ACN 626.38 341.95 214,192 0.63% 1.51% 0.01 TransDigm Group Inc TDG 56.11 1,373.21 77,052 77 77.052 77 0.01% 3.00% 0.00 Prologis Inc PLD 925.91 127.82 118,350 0.35% 3.00% 0.00 VeriSign Inc VRSN 97.60 183.90 17,949 7.949 7.949 7.949 7.957 7.92 7.90<		-24.00%	
CH Robinson Worldwide Inc CHRW 117.28 103.51 12,140 0.04% 2.40% 0.00 Accenture PLC ACN 626.38 341.95 214,192 0.63% 1.51% 0.01 TransDigm Group Inc TDG 56.11 1,373.21 77,052 77,052 0.00% 0.00% 0.00 Yum! Brands Inc YUM 281.17 134.92 37,935 0.11% 1.99% 0.00 Prologis Inc PLD 925.91 127.82 118,350 0.35% 3.00% 0.01 FirstEnergy Corp FE 575.92 43.92 25,294 0.07% 3.87% 0.00 VeriSign Inc VRSN 97.60 183.90 17,949 0.07% 3.87% 0.00 Quanta Services Inc PWR 147.33 275.13 40,535 0.13% 0.00 0.07% 3.25% 0.00 ANSYS Inc AEE 266.51 82.51 21,990 0.07% 3.25% 0.00 NVIDIA Corp FDS 38.04 422.84 16,085 0.05% 0.98% 0.00		16.33%	
Accenture PLC ACN 626.38 341.95 214,192 0.63% 1.51% 0.01 TransDigm Group Inc TDG 56.11 1,373.21 77,052 77,052 0.000 0.000 Yum! Brands Inc YUM 281.17 134.92 37,935 0.11% 1.99% 0.000 Prologis Inc PLD 925.91 127.82 118,350 0.35% 3.00% 0.01 FirstEnergy Corp FE 575.92 43.92 25,294 0.07% 3.87% 0.00 VeriSign Inc VRSN 97.60 183.90 17,949		4.06%	
TransDigm Group Inc TDG 56.11 1,373.21 77,052 Yum! Brands Inc YUM 281.17 134.92 37,935 0.11% 1.99% 0.00 Prologis Inc PLD 925.91 127.82 118,350 0.35% 3.00% 0.01 FirstEnergy Corp FE 575.92 43.92 25,294 0.07% 3.87% 0.00 VeriSign Inc VRSN 97.60 183.90 17,949 134.92 3.00% 0.13% 0.00 Quanta Services Inc PWR 147.33 275.13 40,535 0.13% 0.00 Ameren Corp AEE 266.51 82.51 21,990 0.07% 3.25% 0.00 ANSYS Inc ANSS 87.39 321.42 28,088 16,085 0.05% 0.98% 0.00 NVIDIA Corp NVDA 24,530.00 119.37 2,928,146 0.03% 0.00 Cognizant Technology Solutions Corp CTSH 495.66 77.77 38,547 0.11% 1.54% 0.00 Intuitive Surgical Inc ISRG 355.35 492.63 <td></td> <td></td> <td>0.01%</td>			0.01%
Yum! Brands IncYUM281.17134.9237,9350.11%1.99%0.00Prologis IncPLD925.91127.82118,3500.35%3.00%0.01FirstEnergy CorpFE575.9243.9225,2940.07%3.87%0.00VeriSign IncVRSN97.60183.9017,94974.9474.9474.9574.94Quanta Services IncPWR147.33275.1340,5350.13%74.9474.9574.9974.9474.9574.9274.9474.9574.9474.9574.9474.9574.9474.9574.9474.9574.9474.9574.9474.9574.9474.9574.9474.9574.9474.9574.9474.95 <t< td=""><td>1.51% 0.01%</td><td></td><td>0.04%</td></t<>	1.51% 0.01%		0.04%
Prologis Inc PLD 925.91 127.82 118,350 0.35% 3.00% 0.01 FirstEnergy Corp FE 575.92 43.92 25,294 0.07% 3.87% 0.00 VeriSign Inc VRSN 97.60 183.90 17,949	1 000/ 0 000/	19.57%	0.01%
FirstEnergy Corp FE 575.92 43.92 25,294 0.07% 3.87% 0.00 VeriSign Inc VRSN 97.60 183.90 17,949 140,953 0,13% 140,953 140,953 0,13% 140,953 140,953 140,953 140,953 0,007% 3,25% 0,000 ANSYS Inc ANSS 87,39 321,42 28,088 16,085 0.05% 0,98% 0,000 NVIDIA Corp NVDA 24,530,000 119,37 2,928,146 0.03% 0.003% 0.00 0.03% 0.00 0.03% 0.00 0.01% 0.00 0.00 0.00 0.00			0.02%
VeriSign Inc VRSN 97.60 183.90 17,949 Quanta Services Inc PWR 147.33 275.13 40,535 0.13% Henry Schein Inc HSIC 126.71 70.55 8,939 7 Ameren Corp AEE 266.51 82.51 21,990 0.07% 3.25% 0.00 ANSYS Inc ANSS 87.39 321.42 28,088 7			0.01%
Henry Schein Inc HSIC 126.71 70.55 8,939 Ameren Corp AEE 266.51 82.51 21,990 0.07% 3.25% 0.00 ANSYS Inc ANSS 87.39 321.42 28,088 28,085 0.00% 0.05% 0.98% 0.00% FactSet Research Systems Inc FDS 38.04 422.84 16,085 0.05% 0.98% 0.00% NVIDIA Corp NVDA 24,530.00 119.37 2,928,146 0.03% 0.00% Cognizant Technology Solutions Corp CTSH 495.66 77.77 38,547 0.11% 1.54% 0.00% Intuitive Surgical Inc ISRG 355.35 492.63 175,058 175,058 175,058			
Ameren Corp AEE 266.51 82.51 21,990 0.07% 3.25% 0.00 ANSYS Inc ANSS 87.39 321.42 28,088 28,088 50.05% 0.98% 0.00 FactSet Research Systems Inc FDS 38.04 422.84 16,085 0.05% 0.98% 0.00 NVIDIA Corp NVDA 24,530.00 119.37 2,928,146 0.03% 0.00% Cognizant Technology Solutions Corp CTSH 495.66 77.77 38,547 0.11% 1.54% 0.00 Intuitive Surgical Inc ISRG 355.35 492.63 175,058 175,058	0.13%		
ANSYS Inc ANSS 87.39 321.42 28,088 FactSet Research Systems Inc FDS 38.04 422.84 16,085 0.05% 0.98% 0.00 NVIDIA Corp NVDA 24,530.00 119.37 2,928,146 0.03% Cognizant Technology Solutions Corp CTSH 495.66 77.77 38,547 0.11% 1.54% 0.00 Intuitive Surgical Inc ISRG 355.35 492.63 175,058 175,058		9.01%	
FactSet Research Systems Inc FDS 38.04 422.84 16,085 0.05% 0.98% 0.00 NVIDIA Corp NVDA 24,530.00 119.37 2,928,146 0.03% Cognizant Technology Solutions Corp CTSH 495.66 77.77 38,547 0.11% 1.54% 0.00 Intuitive Surgical Inc ISRG 355.35 492.63 175,058 175,058	3.25% 0.00%	6.16%	0.00%
NVIDIA Corp NVDA 24,530.00 119.37 2,928,146 0.03% Cognizant Technology Solutions Corp CTSH 495.66 77.77 38,547 0.11% 1.54% 0.00 Intuitive Surgical Inc ISRG 355.35 492.63 175,058 175,058	0.00%	0.070/	0.00%
Cognizant Technology Solutions Corp CTSH 495.66 77.77 38,547 0.11% 1.54% 0.00 Intuitive Surgical Inc ISRG 355.35 492.63 175,058 175,058			0.00%
Intuitive Surgical Inc ISRG 355.35 492.63 175,058		44.35% 6.20%	0.01%
•	0.0070	17.51%	0.0170
		60.49%	
	1.11% 0.00%		0.02%
			0.01%
			0.07%
			0.01%
			0.01% 0.04%
Moody's Colp MCO 182.10 487.74 88,817 0.20% 0.70% 0.00 ON Semiconductor Corp ON 428.36 77.87 33,356	0.00 /0	1.28%	0.0770
	0.90% 0.00%		0.06%
F5 Inc FFIV 58.28 203.15 11,840		7.83%	
Akamai Technologies Inc AKAM 151.53 101.84 15,431		6.12%	
Charles River Laboratories International Inc CRL 51.63 197.75 10,210 MarketAxess Holdings Inc MKTX 37.75 242.39 9,151 0.03% 1.22% 0.00	1.22% 0.00%	5.20% 4.02%	0.00%

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 17 of 18

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

Estimated Weighted Average Dividend Yield [1]	1.66%
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2] Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3] Total [4]	FERC Method No Weighting 10.31% 100.00% n/a n/a 10.31% n/a
S&P 500 Estimated Required Market Return [5]	12.05%

		[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
						Estimated	Capitalization Weighted	Bloomberg	Capitalizati Weighteo
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Dividend Yield	Dividend Yield	Long-Term Growth Est.	Long-Terr Growth Es
Devon Energy Corp	DVN	626.20	44.78	28,041	0.08%	3.93%	0.00%	6.60%	0.01%
Bio-Techne Corp	TECH	158.60	73.99	11,735	0.03%	0.43%	0.00%	6.00%	0.00%
Alphabet Inc Feleflex Inc	GOOGL TFX	5,859.00 47.12	163.38 245.17	957,243 11,552	2.83% 0.03%	0.49% 0.55%	0.01% 0.00%	15.01% 7.95%	0.43% 0.00%
Ilegion plc	ALLE	87.12	138.84	12,097	0.03%	1.38%	0.00%	7.73%	0.00%
letflix Inc	NFLX	429.17	701.35	300,995				35.72%	
Varner Bros Discovery Inc	WBD	2,451.91	7.84	19,223				28.63%	
gilent Technologies Inc	А	287.33	142.92	41,065	0.12%	0.66%	0.00%	5.74%	0.01%
rimble Inc	TRMB	244.21	56.69	13,844					
levance Health Inc	ELV	231.89	556.89	129,135	0.38%	1.17%	0.00%	11.79%	0.05%
ME Group Inc	CME JNPR	360.09 329.16	215.74 38.88	77,687	0.23% 0.04%	2.13% 2.26%	0.00% 0.00%	3.82% 6.00%	0.01%
uniper Networks Inc lackRock Inc	BLK	329.16 148.13	30.00 901.81	12,798 133,583	0.04%	2.26%	0.00%	9.76%	0.00% 0.04%
TE Energy Co	DTE	206.93	125.02	25,870	0.08%	3.26%	0.00%	10.27%	0.04%
elanese Corp	CE	109.26	130.60	14,270	0.04%	2.14%	0.00%	0.56%	0.00%
asdaq Inc	NDAQ	575.94	72.08	41,514	0.12%	1.33%	0.00%	10.30%	0.01%
hilip Morris International Inc	PM	1,554.80	123.29	191,692	0.57%	4.22%	0.02%	9.36%	0.05%
gersoll Rand Inc	IR	403.48	91.45	36,899		0.09%			
alesforce Inc	CRM	956.00	252.90	241,772	0.72%	0.63%	0.00%	17.52%	0.13%
oper Technologies Inc	ROP	107.20	554.41	59,432		0.54%			
untington Ingalls Industries Inc	HII	39.22	282.77	11,089	0.03%	1.84%	0.00%	7.62%	0.00%
etLife Inc	MET	700.33	77.48	54,261	0.16%	2.81%	0.00%	14.38%	0.02%
apestry Inc	TPR	230.22	40.97	9,432	0.03%	3.42%	0.00%	5.52%	0.00%
SX Corp dwards Lifesciences Corp	CSX EW	1,938.74 602.40	34.27 69.96	66,441 42 144	0.20%	1.40%	0.00%	9.21% 8.56%	0.02%
dwards Lifesciences Corp meriprise Financial Inc	AMP	602.40 98.19	69.96 449.44	42,144 44,130	0.13%	1.32%	0.00%	8.56% 16.59%	0.02%
ebra Technologies Corp	ZBRA	98.19 51.58	449.44 345.38	44,130 17,815	0.1070	1.5270	0.0070	10.0970	0.02%
mmer Biomet Holdings Inc	ZBRA	203.65	345.38 115.46	23,514	0.07%	0.83%	0.00%	6.96%	0.00%
amden Property Trust	CPT	106.64	125.20	13,351	0.07%	3.29%	0.00%	1.87%	0.00%
BRE Group Inc	CBRE	306.43	125.20	35,282	5.5770	0.2070	0.0070		0.0070
astercard Inc	MA	916.71	483.34	443,083	1.31%	0.55%	0.01%	15.18%	0.20%
arMax Inc	KMX	156.08	84.55	13,196				17.91%	,
tercontinental Exchange Inc	ICE	574.14	161.55	92,753	0.27%	1.11%	0.00%	9.95%	0.03%
delity National Information Services Inc	FIS	545.57	82.45	44,982		1.75%		22.20%	
murfit WestRock PLC	SW	519.36	47.42	24,628	0.07%	2.55%	0.00%	1.00%	0.00%
hipotle Mexican Grill Inc	CMG	1,369.48	56.08	76,800				22.64%	
/ynn Resorts Ltd	WYNN	110.99	76.88	8,533		1.30%			
ve Nation Entertainment Inc	LYV	232.11	97.67	22,671					
ssurant Inc	AIZ	51.79	195.63	10,132	0.03%	1.47%	0.00%	7.14%	0.00%
RG Energy Inc	NRG	206.38	85.01	17,544	0.05%	1.92%	0.00%	4.00%	0.00%
onster Beverage Corp	MNST	979.54	47.13	46,166				10.18%	
egions Financial Corp	RF	915.13	23.17	21,203	0.06%	4.32%	0.00%	4.68%	0.00%
aker Hughes Co	BKR	993.42	35.17	34,939		2.39%		69.21%	
osaic Co/The	MOS	318.64	28.57	9,103		2.94%		-21.74%	
xpedia Group Inc F Industries Holdings Inc	EXPE CF	124.66 180.41	139.09 83.09	17,338 14,990		2.41%		19.59% -9.54%	
PA Corp	APA	369.91	28.49	10,539		3.51%		-9.34 % -5.79%	
eidos Holdings Inc	LDOS	134.71	158.51	21,354	0.06%	0.96%	0.00%	11.76%	0.01%
phabet Inc	GOOG	5,585.00	165.11	922,139	2.73%	0.48%	0.01%	15.01%	0.41%
irst Solar Inc	FSLR	107.05	227.37	24,339				41.25%	
E Connectivity Ltd	TEL	303.92	153.60	46,682	0.14%	1.69%	0.00%	5.41%	0.01%
iscover Financial Services	DFS	251.07	138.71	34,826	0.10%	2.02%	0.00%	11.65%	0.01%
sa Inc	V	1,670.45	276.37	461,661	1.37%	0.75%	0.01%	12.33%	0.17%
id-America Apartment Communities Inc	MAA	116.88	162.37	18,977	0.06%	3.62%	0.00%	0.65%	0.00%
ylem Inc/NY	XYL	242.89	137.53	33,405		1.05%			
arathon Petroleum Corp	MPC	334.68	177.12	59,279		1.86%		-13.00%	
actor Supply Co	TSCO	107.87	267.55	28,860	0.09%	1.64%	0.00%	5.68%	0.00%
dvanced Micro Devices Inc	AMD	1,618.48	148.56	240,442	0.440/	0.070/	0.00%	25.66%	0.040/
esMed Inc	RMD	146.93	245.02	36,001	0.11%	0.87%	0.00%	9.57%	0.01%
ettler-Toledo International Inc	MTD VICI	21.36 1,043.14	1,439.08 33.48	30,734 34,924	0.10%	4.96%	0.01%	9.15% 1.83%	0.00%
CI Properties Inc opart Inc	CPRT	1,043.14 962.30	33.48 52.96	34,924 50,963	0.10%	4.90%	0.01%	1.83%	0.00%
acobs Solutions Inc	J	962.30 124.25	52.96 150.88	50,963 18,747	0.06%	0.77%	0.00%	10.87%	0.01%
bemarle Corp	ALB	124.25	90.25	10,607	0.0070	1.80%	0.0070	35.42%	0.0170
portinet Inc	FTNT	764.91	76.71	58,676				8.66%	
oderna Inc	MRNA	384.40	77.40	29,752				17.95%	
ssex Property Trust Inc	ESS	64.22	301.79	19,380	0.06%	3.25%	0.00%	4.50%	0.00%
oStar Group Inc	CSGP	409.82	77.30	31,679				13.84%	
ealty Income Corp	0	870.87	61.85	53,861	0.16%	5.10%	0.01%	3.85%	0.01%
estinghouse Air Brake Technologies Corp	WAB	175.18	169.57	29,706	0.09%	0.47%	0.00%	16.12%	0.01%
ool Corp	POOL	38.26	351.62	13,452		1.37%		-0.04%	
/estern Digital Corp	WDC	343.45	65.59	22,527		.		-10.00%	-
epsiCo Inc	PEP	1,373.57	172.88	237,463	0.70%	3.14%	0.02%	7.40%	0.05%
amondback Energy Inc	FANG	178.39	195.11	34,806	0.10%	4.80%	0.00%	8.34%	0.01%
alo Alto Networks Inc	PANW	323.80	362.72	117,449 176 130				11.52%	
erviceNow Inc	NOW	206.00	855.00	176,130	0.070/	4 440/	0.000/	7 250/	0.040/
hurch & Dwight Co Inc ederal Realty Investment Trust	CHD FRT	244.82 83.67	101.88 115.00	24,942 9,622	0.07% 0.03%	1.11% 3.83%	0.00% 0.00%	7.35% 4.97%	0.01% 0.00%
GM Resorts International	MGM	83.67 303.77	37.59	9,622 11,419	0.0370	0.00%	0.00%	4.97% 20.80%	0.00%
merican Electric Power Co Inc	AEP	532.12	37.59 100.28	53,361	0.16%	3.51%	0.01%	20.80% 6.25%	0.01%
vitation Homes Inc	INVH	532.12 612.59	36.84	22,568	0.16%	3.51%	0.01%	6.25% 5.19%	0.01%
TC Inc	PTC	120.14	179.09	22,508	5.01 /0	0.0-1/0	0.0070	14.76%	0.00 /0
3 Hunt Transport Services Inc	JBHT	120.14	179.09	17,664	0.05%	0.99%	0.00%	9.73%	0.01%
am Research Corp	LRCX	129.88	821.01	106,629	0.32%	1.12%	0.00%	9.73% 16.29%	0.01%
ohawk Industries Inc	MHK	63.12	155.14	9,792	5.02 /0	1.12/0	0.0070	4.45%	0.0070
E HealthCare Technologies Inc	GEHC	456.66	84.82	38,734	0.11%	0.14%	0.00%	4.45%	0.01%
entair PLC	PNR	450.00 165.50	88.69	14,678	0.04%	1.04%	0.00%	12.50%	0.01%
ertex Pharmaceuticals Inc	VRTX	258.10	495.89	127,990	2.0170		5.5570	11.00%	5.0170
mcor PLC	AMCR	1,445.34	11.44	16,535	0.05%	4.37%	0.00%	3.71%	0.00%
eta Platforms Inc	META	2,184.73	521.31	1,138,921	3.37%	0.38%	0.01%	19.80%	0.67%
-Mobile US Inc	TMUS	1,166.78	198.72	231,863	0.69%	1.31%	0.01%	5.00%	0.03%
nited Rentals Inc	URI	66.14	741.26	49,024	0.15%	0.88%	0.00%	7.45%	0.01%
				~ ~ ~ / ~	0.000/	4.050/	0.000/	0.000/	0.000/
	ARE	174.93	119.57	20,916	0.06%	4.35%	0.00%	3.03%	0.00%
Alexandria Real Estate Equities Inc Ioneywell International Inc	ARE HON	174.93 649.67	119.57 207.91	20,916 135,073	0.06%	4.35% 2.08%	0.00% 0.01%	3.03% 8.65%	0.00% 0.03%

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 1 Page 18 of 18

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

Estimated Weighted Average Dividend Yield [1]	1.66%	
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 1 [2]	FERC Method No Weighting 10.31% 100.00%	
Estimated Wgtd. Avg Long-Term Gwth Rate - Step 2 [3] Total [4]	<u>n/a</u> n/a 10.31%	
S&P 500 Estimated Required Market Return [5]	12.05%	

STANDARD AND POOR'S 500 INDEX

		[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Capitalization Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Capitalization Weighted Long-Term Growth Est.
United Airlines Holdings Inc	UAL	328.80	44.04	14,480				5.31%	
Seagate Technology Holdings PLC	STX	210.20	99.55	20,925		2.81%			
News Corp	NWS	190.68	29.43	5,612		0.68%			
Centene Corp	CNC	526.03	78.83	41,467				4.40%	
Martin Marietta Materials Inc	MLM	61.12	533.37	32,598	0.10%	0.59%	0.00%	7.47%	0.01%
Teradyne Inc	TER	163.18	136.73	22,311	0.07%	0.35%	0.00%	16.14%	0.01%
PayPal Holdings Inc	PYPL	1,022.33	72.43	74,048				12.03%	
Tesla Inc	TSLA	3,194.64	214.11	684,004				-11.00%	
KKR & Co Inc	KKR	887.44	123.77	109,838		0.57%			
Arch Capital Group Ltd	ACGL	376.06	113.09	42,528				6.13%	
Dow Inc	DOW	703.27	53.58	37,681		5.23%		-1.67%	
Everest Group Ltd	EG	43.27	392.24	16,974	0.05%	2.04%	0.00%	2.48%	0.00%
Teledyne Technologies Inc	TDY	46.78	432.80	20,248					
GE Vernova Inc	GEV	274.80	201.00	55,235				70.40%	
News Corp	NWSA	378.33	28.33	10,718		0.71%			
Exelon Corp	EXC	999.74	38.09	38,080	0.11%	3.99%	0.00%	5.31%	0.01%
Global Payments Inc	GPN	254.44	111.01	28,245	0.08%	0.90%	0.00%	9.30%	0.01%
Crown Castle Inc	CCI	434.57	112.02	48,680	0.14%	5.59%	0.01%	1.13%	0.00%
Aptiv PLC	APTV	265.76	71.53	19,010				16.91%	
Align Technology Inc	ALGN	74.70	237.22	17,720				9.53%	
Kenvue Inc	KVUE	1,915.17	21.95	42,038	0.12%	3.74%	0.00%	13.58%	0.02%
Targa Resources Corp	TRGP	219.08	146.90	32,183	0.10%	2.04%	0.00%	16.74%	0.02%
Bunge Global SA	BG	141.65	101.38	14,361		2.68%		-8.59%	
LKQ Corp	LKQ	263.26	41.59	10,949		2.89%			
Deckers Outdoor Corp	DECK	25.41	959.29	24,377				10.80%	
Zoetis Inc	ZTS	453.05	183.49	83,130	0.25%	0.94%	0.00%	10.36%	0.03%
Equinix Inc	EQIX	94.95	834.36	79,218	0.23%	2.04%	0.00%	14.03%	0.03%
Digital Realty Trust Inc	DLR	327.41	151.61	49,639	0.15%	3.22%	0.00%	3.21%	0.00%
Molina Healthcare Inc	MOH	58.60	349.79	20,498				11.98%	
Las Vegas Sands Corp	LVS	736.43	38.99	28,713		2.05%			

Notes:

[1] Equals sum of Col. [11] [2] Equals sum of Col. [13] [3] No GDP growth rate per FERC approach [4] Equals ([2] $\times 100\%$) + ([3] $\times 0\%$) [5] Equals ([1] $\times (1 + (0.5 \times [4]))) + [4]$ [6] Bloomberg Professional as of August 31, 2024 [7] Bloomberg Professional as of August 31, 2024 [8] Equals [6] \times [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 August 31, 2024 [11] Equals [10] \times [9] [12] Bloomberg Professional, as of August 31, 2024 [13] Equals [9] \times [12]

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

		[1]	[2]	[3]	[4]	[5]	[6]
		Current 30-day average			Market	Cost of	Cost of
	C	of 30-year U.S. Treasury		Market	Risk	Equity:	Equity:
Company	Ticker	bond yield	Beta	Return	Premium	CAPM	ECAPM
Atmos Energy Corporation	ATO	4.23%	0.85	12.05%	7.82%	10.88%	11.17%
NiSource Inc.	NI	4.23%	0.95	12.05%	7.82%	11.66%	11.76%
Northwest Natural Gas Company	NWN	4.23%	0.85	12.05%	7.82%	10.88%	11.17%
ONE Gas, Inc.	OGS	4.23%	0.85	12.05%	7.82%	10.88%	11.17%
Southwest Gas Corporation	SWX	4.23%	0.90	12.05%	7.82%	11.27%	11.47%
Spire, Inc.	SR	4.23%	0.85	12.05%	7.82%	10.88%	11.17%
Mean						11.07%	11.32%
Median						10.88%	11.17%

Notes:

[1] Bloomberg Professional 30-day average as of August 31, 2024

[2] Value Line

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

[4] Equals [3]-[1]

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

CAPITAL ASSET PRICING MODEL NEAR TERM PROJECTED RISK-FREE RATE AND VALUE LINE BETA

		[1]	[2]	[3]	[4]	[5]	[6]
		Near-term projected 30-					
		year U.S. Treasury bond			Market	Cost of	Cost of
		yield (Q4 2024 - Q4		Market	Risk	Equity:	Equity:
Company	Ticker	2025)	Beta	Return	Premium	CAPM	ECAPM
Atmos Energy Corporation	ATO	4.12%	0.85	12.05%	7.93%	10.86%	11.16%
NiSource Inc.	NI	4.12%	0.95	12.05%	7.93%	11.66%	11.75%
Northwest Natural Gas Company	NWN	4.12%	0.85	12.05%	7.93%	10.86%	11.16%
ONE Gas, Inc.	OGS	4.12%	0.85	12.05%	7.93%	10.86%	11.16%
Southwest Gas Corporation	SWX	4.12%	0.90	12.05%	7.93%	11.26%	11.46%
Spire, Inc.	SR	4.12%	0.85	12.05%	7.93%	10.86%	11.16%
Mean						11.06%	11.31%
Median						10.86%	11.16%

Notes:

[1] Blue Chip Financial Forecasts, Vol. 43, No. 9, August 30, 2024, at 2

[2] Value Line

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

[4] Equals [3] - [1]

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

CAPITAL ASSET PRICING MODEL LONG-TERM PROJECTED RISK-FREE RATE AND VALUE LINE BETA

		[1]	[2]	[3]	[4]	[5]	[6]
		Projected 30-year U.S.			Market	Cost of	Cost of
		Treasury bond yield		Market	Risk	Equity:	Equity:
Company	Ticker	(2026 - 2030)	Beta	Return	Premium	CÁPM	ECAPM
Atmos Energy Corporation	ATO	4.30%	0.85	12.05%	7.75%	10.89%	11.18%
NiSource Inc.	NI	4.30%	0.95	12.05%	7.75%	11.66%	11.76%
Northwest Natural Gas Company	NWN	4.30%	0.85	12.05%	7.75%	10.89%	11.18%
ONE Gas, Inc.	OGS	4.30%	0.85	12.05%	7.75%	10.89%	11.18%
Southwest Gas Corporation	SWX	4.30%	0.90	12.05%	7.75%	11.28%	11.47%
Spire, Inc.	SR	4.30%	0.85	12.05%	7.75%	10.89%	11.18%
Mean						11.08%	11.33%
Median						10.89%	11.18%

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, CGDCF)

[4] Equals [3] - [1]

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

CAPITAL ASSET PRICING MODEL CURRENT RISK FREE RATE AND BLOOMBERG BETA

		[1]	[2]	[3]	[4]	[5]	[6]
		Current 30-day average			Market	Cost of	Cost of
		of 30-year U.S. Treasury		Market	Risk	Equity:	Equity:
Company	Ticker	bond yield	Beta	Return	Premium	CAPM	ECAPM
Atmos Energy Corporation	ATO	4.23%	0.74	12.05%	7.82%	10.02%	10.53%
NiSource Inc.	NI	4.23%	0.79	12.05%	7.82%	10.44%	10.84%
Northwest Natural Gas Company	NWN	4.23%	0.69	12.05%	7.82%	9.62%	10.23%
ONE Gas, Inc.	OGS	4.23%	0.76	12.05%	7.82%	10.20%	10.66%
Southwest Gas Corporation	SWX	4.23%	0.81	12.05%	7.82%	10.57%	10.94%
Spire, Inc.	SR	4.23%	0.76	12.05%	7.82%	10.17%	10.64%
Mean						10.17%	10.64%
Median						10.18%	10.65%

Notes:

[1] Bloomberg Professional 30-day average as of August 31, 2024

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

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

[4] Equals [3] - [1]

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

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

		[1]	[2]	[3]	[4]	[5]	[6]
		Near-term projected 30-					
		year U.S. Treasury bond			Market	Cost of	Cost of
		yield (Q4 2024 - Q4		Market	Risk	Equity:	Equity:
Company	Ticker	2025)	Beta	Return	Premium	CAPM	ECAPM
Atmos Energy Corporation	ATO	4.12%	0.74	12.05%	7.93%	9.99%	10.51%
NiSource Inc.	NI	4.12%	0.79	12.05%	7.93%	10.42%	10.83%
Northwest Natural Gas Company	NWN	4.12%	0.69	12.05%	7.93%	9.59%	10.20%
ONE Gas, Inc.	OGS	4.12%	0.76	12.05%	7.93%	10.17%	10.64%
Southwest Gas Corporation	SWX	4.12%	0.81	12.05%	7.93%	10.55%	10.93%
Spire, Inc.	SR	4.12%	0.76	12.05%	7.93%	10.14%	10.62%
Mean						10.14%	10.62%
Median						10.16%	10.63%

Notes:

[1] Blue Chip Financial Forecasts, Vol. 43, No. 9, August 30, 2024, at 2

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

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

[4] Equals [3] - [1]

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

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

		[1]	[2]	[3]	[4]	[5]	[6]
		Projected 30-year U.S.			Market	Cost of	Cost of
		Treasury bond yield		Market	Risk	Equity:	Equity:
Company	Ticker	(2026 - 2030)	Beta	Return	Premium	CAPM	ECAPM
Atmos Energy Corporation	ATO	4.30%	0.74	12.05%	7.75%	10.04%	10.54%
NiSource Inc.	NI	4.30%	0.79	12.05%	7.75%	10.46%	10.85%
Northwest Natural Gas Company	NWN	4.30%	0.69	12.05%	7.75%	9.64%	10.25%
ONE Gas, Inc.	OGS	4.30%	0.76	12.05%	7.75%	10.21%	10.67%
Southwest Gas Corporation	SWX	4.30%	0.81	12.05%	7.75%	10.59%	10.95%
Spire, Inc.	SR	4.30%	0.76	12.05%	7.75%	10.18%	10.65%
Mean						10.19%	10.65%
Median						10.20%	10.66%

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 August 31, 2024

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

[4] Equals [3] - [1]

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

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

		[1]	[2]	[3]	[4]	[5]	[6]
		Current 30-day average			Market	Cost of	Cost of
	c	of 30-year U.S. Treasury		Market	Risk	Equity:	Equity:
Company	Ticker	bond yield	Beta	Return	Premium	CAPM	ECAPM
Atmos Energy Corporation	ATO	4.23%	0.75	12.05%	7.82%	10.10%	10.59%
NiSource Inc.	NI	4.23%	0.76	12.05%	7.82%	10.14%	10.62%
Northwest Natural Gas Company	NWN	4.23%	0.71	12.05%	7.82%	9.78%	10.35%
ONE Gas, Inc.	OGS	4.23%	0.74	12.05%	7.82%	10.00%	10.51%
Southwest Gas Corporation	SWX	4.23%	0.83	12.05%	7.82%	10.70%	11.04%
Spire, Inc.	SR	4.23%	0.74	12.05%	7.82%	10.03%	10.53%
Mean						10.12%	10.61%
Median						10.06%	10.56%

Notes:

[1] Bloomberg Professional 30-day average as of August 31, 2024

[2] Schedule AEB-D2, Attachment 5

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

[4] Equals [3] - [1]

[5] Equals [1] + [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]
		Near-term projected 30-					
		year U.S. Treasury bond			Market	Cost of	Cost of
		yield (Q4 2024 - Q4		Market	Risk	Equity:	Equity:
Company	Ticker	2025)	Beta	Return	Premium	CAPM	ECAPM
Atmos Energy Corporation	ATO	4.12%	0.75	12.05%	7.93%	10.07%	10.56%
NiSource Inc.	NI	4.12%	0.76	12.05%	7.93%	10.11%	10.60%
Northwest Natural Gas Company	NWN	4.12%	0.71	12.05%	7.93%	9.74%	10.32%
ONE Gas, Inc.	OGS	4.12%	0.74	12.05%	7.93%	9.97%	10.49%
Southwest Gas Corporation	SWX	4.12%	0.83	12.05%	7.93%	10.68%	11.02%
Spire, Inc.	SR	4.12%	0.74	12.05%	7.93%	10.00%	10.51%
Mean						10.10%	10.59%
Median						10.03%	10.54%

Notes:

[1] Blue Chip Financial Forecasts, Vol. 43, No. 9, August 30, 2024, at 2

[2] Schedule AEB-D2, Attachment 5

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

[4] Equals [3] - [1]

[5] Equals [1] + [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]
		Projected 30-year U.S.			Market	Cost of	Cost of
		Treasury bond yield		Market	Risk	Equity:	Equity:
Company	Ticker	(2026 - 2030)	Beta	Return	Premium	CAPM	ECAPM
Atmos Energy Corporation	ATO	4.30%	0.75	12.05%	7.75%	10.11%	10.60%
NiSource Inc.	NI	4.30%	0.76	12.05%	7.75%	10.16%	10.63%
Northwest Natural Gas Company	NWN	4.30%	0.71	12.05%	7.75%	9.80%	10.36%
ONE Gas, Inc.	OGS	4.30%	0.74	12.05%	7.75%	10.02%	10.53%
Southwest Gas Corporation	SWX	4.30%	0.83	12.05%	7.75%	10.71%	11.05%
Spire, Inc.	SR	4.30%	0.74	12.05%	7.75%	10.04%	10.55%
Mean						10.14%	10.62%
Median						10.08%	10.57%

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, CGDCF)

[4] Equals [3] - [1]

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

File No. GR-2024-0369 Schedule AEB-SR1, Attachment 3 Page 1 of 1

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

Assumed Market Return of:

12.05% (

(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	Near-Term	Longer-Term			
	30-Day Avg	Projected	Projected			
CAPM:						
Current Value Line Beta	11.07%	11.06%	11.08%			
Current Bloomberg Beta	10.17%	10.14%	10.19%			
Long-term Avg. Value Line Beta	10.12%	10.10%	10.14%			
Average Cost of Equity		10.45%				
ECAPM:						
Current Value Line Beta	11.32%	11.31%	11.33%			
Current Bloomberg Beta	10.64%	10.62%	10.65%			
Long-term Avg. Value Line Beta	10.61%	10.59%	10.62%			
Average Cost of Equity		10.85%				

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 its Natural Gas Service.

Case No. GR-2024-0369

AFFIDAVIT OF ANN E. BULKLEY

)

)

COMMOMWEALTH 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 Rebuttal Testimony; and further, under the penalty of perjury, that the same is true and correct to the best of my knowledge and belief.

> /s/ Ann E. Bulkley Ann E. Bulkley

Sworn to me this 29th day of April, 2025.