

Docket No. 20000-633-ER-23
Witness: Ann E. Bulkley

BEFORE THE WYOMING PUBLIC SERVICE
COMMISSION

ROCKY MOUNTAIN POWER

Rebuttal Testimony of Ann E. Bulkley

September 2023

TABLE OF CONTENTS

I. PURPOSE OF TESTIMONY 4

II. SUMMARY OF ANALYSES AND CONCLUSIONS 6

III. UPDATED COST OF EQUITY ANALYSES..... 9

IV. CAPITAL MARKET CONDITIONS AND THE COMPARABLE RETURN
STANDARD..... 11

V. DCF MODEL..... 22

VI. CAPM ANALYSIS 32

VII. ECAPM ANALYSIS 42

VIII. RISK PREMIUM ANALYSIS 47

IX. ADJUSTED RESULTS OF MR. WALTERS’ COST OF EQUITY ANALYSES ... 54

X. CAPITAL STRUCTURE 56

XI. BUSINESS RISKS 58

XII. Wildfire Risk..... 59

ATTACHED EXHIBITS

Exhibit 4.13 – Summary of Results (Rebuttal)

Exhibit 4.14 – Constant Growth Discounted Cash Flow Model (Rebuttal)

Exhibit 4.15 – Capital Asset Pricing Model (Rebuttal)

Exhibit 4.16 – Long-Term Average Beta (Rebuttal)

Exhibit 4.17 – Market Return (Rebuttal)

Exhibit 4.18 – Bond Yield Plus Risk Premium (Rebuttal)

Exhibit 4.19 – Calculation of Long-Term GDP Growth Rate (Rebuttal)

Exhibit 4.20 – Historical Equity Market Returns and Historical Equity Risk
Premia (Rebuttal)

Exhibit 4.21 – Garrett Adjusted MRP (Rebuttal)

Exhibit 4.22 – Garrett Adjusted Capital Asset Pricing Model (Rebuttal)

Exhibit 4.23 – Capital Structure – Market Value (Rebuttal)

Exhibit 4.24 – Garrett Adjusted Hamada (Rebuttal)

Exhibit 4.25 – Walter Risk Premium Analysis (Rebuttal)

1 **Q. Are you the same Ann E. Bulkley who previously submitted direct testimony in**
2 **this proceeding on behalf of PacifiCorp, d/b/a Rocky Mountain Power (“RMP” or**
3 **the “Company”)?**

4 A. Yes. I am submitting this rebuttal testimony before the Wyoming Public Service
5 Commission (“Commission”) on behalf of RMP.

6 **I. PURPOSE OF TESTIMONY**

7 **Q. What is the purpose of your rebuttal testimony?**

8 A. The purpose of my rebuttal testimony is to respond to the direct testimonies of
9 Mr. Christopher C. Walters on behalf of the Wyoming Office of Consumer Advocate
10 (“OCA” or “WOCA”),¹ Mr. David J. Garrett on behalf of the Wyoming Industrial
11 Energy Consumers (“WIEC”),² and Ms. Lisa V. Perry on behalf of Walmart, Inc.
12 (“Walmart”)³ regarding the just and reasonable return on equity (“ROE”) and the
13 appropriate capital structure for RMP. Given that Ms. Perry does not provide an ROE
14 recommendation, my response to her testimony is limited.

15 **Q. Are you sponsoring any exhibits as part of your rebuttal testimony?**

16 A. Yes. I am sponsoring RMP Exhibit 4.13 through RMP Exhibit 4.25, which have been
17 prepared by me or under my direct supervision.

18 **Q. Have you updated the cost of equity analyses that you presented in your direct**
19 **testimony to reflect current market conditions?**

20 A. Yes. As discussed in more detail herein, I have updated my cost of equity analyses
21 based on market data through July 31, 2023. As discussed in the Company’s rebuttal

¹ Direct Testimony of Christopher C. Walters (WOCA Exhibit No. 602).

² Direct Testimony of David J. Garrett (WIEC Exhibit No. 201).

³ Direct Testimony of Lisa V. Perry (Walmart Exhibit No. 400).

1 testimony, it has decided to lower its requested ROE to 10.00 percent in this
2 proceeding. The results of my updated cost of equity analyses support the Company's
3 updated proposal, and my conclusion continues to be based on not only the results of
4 multiple cost of equity models, but also other factors, including capital market
5 conditions, the capital attraction and comparable return standards, and
6 Company-specific risks.

7 **Q. How is the remainder of your rebuttal testimony organized?**

8 A. The remainder of my rebuttal testimony is organized as follows:

- 9 • Section II provides a summary and overview of my rebuttal testimony and the
10 important factors to be considered in establishing the authorized ROE for the
11 Company;
- 12 • Section III provides the update to my cost of equity analyses based on market data
13 as of July 31, 2023;
- 14 • Section IV discusses the changes in capital market conditions since my direct
15 testimony and their effect on the cost of equity and authorized ROEs for comparable
16 vertically-integrated electric utilities nationwide relative to the witnesses' ROE
17 recommendations in this proceeding;
- 18 • Section V provides my response to the issues raised by the parties regarding the
19 Discounted Cash Flow ("DCF") model;
- 20 • Section VI provides my response to the issues raised by the parties regarding the
21 Capital Asset Pricing Model ("CAPM") analysis;
- 22 • Section VII provides my response to the issues raised by the parties regarding the
23 Empirical Capital Asset Pricing Model ("ECAPM") analysis;
- 24 • Section VIII provides my response to the issues raised by the parties regarding the
25 Bond Yield Risk Premium ("BYRP" or "Risk Premium") analysis;
- 26 • Section IX presents the adjusted results of Mr. Walters's cost of equity analyses
27 based on the issues identified herein; and
- 28 • Section X provides my response to the issues raised by the parties regarding the
29 Company's proposed capital structure.
- 30 • Section XI provides my response to Ms. Perry's opinion that Company's requested
31 ROE is excessive in light of the Company's proposed future test year and its
32 proposal to eliminate the sharing band associated with its net power costs ("NPC").
- 33 • Section XII provides my response to Mr. Walters regarding the regulatory support

1 needed regarding the risk related to wildfires.

2 **II. SUMMARY OF ANALYSES AND CONCLUSIONS**

3 **Q. What analyses do Mr. Walters, Mr. Garrett, and Ms. Perry conduct, and what**
4 **ROEs are each recommending for the Company in this proceeding?**

5 A. Mr. Walters uses three analytical approaches to estimate the cost of equity: (1) three
6 forms of a DCF model (a constant growth DCF that relies on analyst's projected growth
7 rates; a constant growth DCF using what Mr. Walters terms "sustainable" growth rates,
8 and a multi-stage DCF); (2) a Risk Premium analysis, and (3) a CAPM analysis. Based
9 on the results of his cost of equity analyses, Mr. Walters indicates the range for the cost
10 of equity is between 9.15 percent and 9.95 percent, and he recommends an ROE for the
11 Company of 9.55 percent.⁴

12 Mr. Garrett conducts two forms each of a DCF model and CAPM. Similar to
13 Mr. Walters, Mr. Garrett conducts a constant growth DCF model using analyst growth
14 rates and another using sustainable growth rates. In addition, Mr. Garrett conducts a
15 CAPM assuming the proxy group debt ratio for the Company, and another CAPM
16 assuming the Company's proposed debt ratio in which he makes a Hamada adjustment.
17 However, Mr. Garrett states that he does not believe that the results of either of his
18 DCF models is representative of the market-based cost of equity, and thus rejects his
19 DCF results and instead suggests that the cost of equity range is 8.20 percent to
20 8.60 percent based solely on the results of his CAPM analyses. Mr. Garrett
21 recommends that the Company be authorized an ROE of 8.60 percent if the
22 Commission approves an imputed equity ratio that is consistent with the proxy group

⁴ Direct Testimony of Christopher C. Walters at 57, Table CCW-12 (WOCA Exhibit No. 602).

1 average of 46 percent, but an ROE of 8.20 percent if the Commission approves the
2 Company's proposed equity ratio of 51.27 percent.⁵

3 Figure 1 summarizes their respective cost of equity results and ROE
4 recommendations.

5 **Figure 1: Summary of ROE Recommendations**

	Walters (OCA)	Garrett (WIEC)
DCF		
Constant Growth (Analysts' Gwth Rates)	10.11% - 10.34%	9.10%
Constant Growth (Sustainable Gwth Rates)	8.69% - 9.08%	7.80%
Multi-Stage	8.58% - 8.66%	n/a
Recommendation	9.15%	
CAPM		
	8.16% - 10.57%	8.20% - 8.60%
Recommendation	9.40%	n/a
Risk Premium		
	9.88% - 10.35%	
Recommendation	9.95%	n/a
Overall Recommendation	9.55%	8.20% / 8.60%

6 As noted, Ms. Perry does not estimate the cost of equity for RMP using any of
7 the traditional estimation methodologies. Rather, Ms. Perry evaluates average
8 authorized ROEs in Wyoming and nationally from 2020 to thus far through 2023, and
9 without consideration of market conditions over this period, suggests that the
10 Company's proposed ROE is counter to broader electricity trends.⁶

⁵ Direct Testimony of David J. Garrett at 7-8 (WIEC Exhibit No. 201).

⁶ Direct Testimony of Lisa V. Perry at 12 (Walmart Exhibit No. 400).

1 **Q. What factors should be considered in evaluating the results of the cost of equity**
2 **analyses and establishing the authorized ROE?**

3 A. The primary factors that should be considered are: (1) the importance of investors'
4 actual return requirements and the critical role of judgment in selecting the appropriate
5 ROE; (2) the importance of providing a return that is comparable to returns on
6 alternative investments with commensurate risk; (3) the need for a return that supports
7 a utility's ability to attract needed capital at reasonable terms; and (4) the effect of
8 current and expected capital market conditions.

9 **Q. What are your key conclusions and recommendations regarding the appropriate**
10 **ROE and capital structure for RMP?**

11 A. My key conclusions regarding the Company's proposed ROE and capital structure are
12 as follows:

13 Authorized ROE

- 14 • The cost of equity for vertically-integrated electric utilities has increased over the
15 past 18 months, driven largely by relatively high inflation and the increases in
16 interest rates that the Federal Reserve has implemented to combat that inflation.
- 17 • The increase in the cost of equity over this period has been reflected in an increase
18 in the average authorized ROE for electric utilities by over 30 basis points since
19 2021.
- 20 • While inflation has moderated from its recent historical highs, it remains elevated
21 as compared with the Federal Reserve's target level, and interest rates are expected
22 to remain elevated during the 2024 test year and beyond.
- 23 • While there are numerous issues with the cost of equity analyses conducted by Mr.
24 Walters and Mr. Garrett, both of their respective ROE recommendations in this
25 proceeding are directionally inconsistent relative to the clear market evidence of an
26 increase in the cost of equity for vertically-integrated electric utilities.
 - 27 ○ Mr. Walters's ROE recommendation is just 5 basis points higher than the
28 Company's currently authorized ROE, despite the fact that market conditions
29 have substantially changed since the Company's last rate proceeding.
 - 30 ○ Mr. Garrett's ROE recommendation, regardless of whether Mr. Garrett's
31 proposed equity ratio or the Company's proposed equity ratio are assumed, is

1 not only well below the Company's currently authorized ROE, but also well
2 below any authorized ROE for a vertically-integrated electric utility in the past
3 40 years.

- 4 ○ As discussed in my direct testimony, RMP proposed ROE is reasonable in light
5 of its above average risk relative to the proxy group companies and the ability
6 to compensate investors for that risk.

7 Capital Structure

- 8 • It is not appropriate to compare the Company's proposed equity ratio to the average
9 equity ratio of the proxy group at the holding company level such as Mr. Walters
10 and Mr. Garrett have done.
- 11 • However, if the capital structures at the holding company level are considered, then
12 the market value of debt and equity must be used to estimate the percentage of debt
13 and equity in the capital structure – not the book value as used by both Mr. Walters
14 and Mr. Garrett for comparing the Company's proposed capital structure relative
15 to the proxy group.
- 16 ○ The Company's proposed equity ratio of 51.27 percent is below the average
17 market value common equity ratio for the proxy group, and is therefore
18 reasonable.
- 19 ○ Given that the Company's proposed equity ratio is below those of the proxy
20 group, there is no basis for Mr. Garrett's recommendation that the ROE should
21 be 40 basis points lower if the Commission approves the Company's proposed
22 equity ratio.

23 To the extent that I do not address a particular issue raised by these witnesses in my
24 rebuttal testimony should not be viewed as acceptance of their position.

25 **III. UPDATED COST OF EQUITY ANALYSES**

26 **Q. What are the results of your updated cost of equity analyses?**

27 A. I have updated the results of the cost of equity analyses based on market data through
28 July 31, 2023, using the same analyses as in my direct testimony. Figure 2 summarizes
29 the results of my updated analyses. The DCF analyses have increased since the filing
30 of my direct testimony, the results of the CAPM models have decreased, and the results
31 of the Risk Premium analysis have remained effectively the same. Considering the
32 updated cost of equity model results, the current and projected market conditions, and

1 the relative risks of the Company as discussed in my direct testimony, the Company's
 2 updated proposed ROE of 10.00 percent is reasonable for setting rates in this
 3 proceeding.

4 **Figure 2: Updated Model Results**

<i>Constant Growth DCF</i>			
	Minimum Gwth Rate	Average Gwth Rate	Maximum Gwth Rate
Mean Results:			
30-Day Avg. Stock Price	8.75%	9.85%	10.76%
90-Day Avg. Stock Price	8.68%	9.78%	10.69%
180-Day Avg. Stock Price	8.69%	9.79%	10.70%
Average	8.71%	9.80%	10.72%
Median Results:			
30-Day Avg. Stock Price	9.11%	9.76%	11.02%
90-Day Avg. Stock Price	9.01%	9.66%	10.90%
180-Day Avg. Stock Price	9.01%	9.71%	10.81%
Average	9.04%	9.71%	10.91%
<i>CAPM / ECAPM / Bond Yield Risk Premium</i>			
	Current 30-Day Avg 30-Year Treasury Yield	Near-Term Projected 30-Year Treasury Yield	Longer-Term Projected 30-Year Treasury Yield
CAPM:			
Current <i>Value Line</i> Beta	10.84%	10.83%	10.82%
Current Bloomberg Beta	10.20%	10.19%	10.17%
Long-term Avg. <i>Value Line</i>	9.87%	9.86%	9.84%
ECAPM:			
Current <i>Value Line</i> Beta	11.08%	11.08%	11.07%
Current Bloomberg Beta	10.60%	10.60%	10.58%
Long-term Avg. <i>Value Line</i> Beta	10.35%	10.35%	10.33%
Bond Yield Risk Premium:	10.32%	10.31%	10.27%

1 Reserve's long-term target and noted that further policy firming is possible including
2 additional increases in the federal funds rate:

3 So, I'll just say again, the broader picture of what we want to see is we
4 want to see easing of supply constraints and normalization of pandemic
5 related distortions to demand and supply, we want to see economic
6 growth running at moderate or modest levels to help ease inflationary
7 pressures, we want to see continued restoration of supply and demand
8 balance, particularly in the labor market, and all of that should lead to
9 declining inflationary pressures. What we see is we see those pieces of
10 the puzzle coming together and we're seeing evidence of those things
11 now, but I would say that what our eyes are telling us is that policy has
12 not been restrictive enough for long enough to have its full desired
13 effects. So we intend, again, to keep policy restrictive until we're
14 confident that inflation is coming down sustainably to our 2 percent
15 target, and we're prepared to further tighten if that is appropriate. And
16 we think the process, you know, still probably has a long way to go.⁸

17 As a result, the Federal Reserve is currently forecasting an additional 25 basis
18 point increase in the federal funds rate in 2023.

19 **Q. What does Mr. Walters conclude regarding the effects of the Federal Reserve's**
20 **actions on long-term interest rates?**

21 A. Mr. Walters acknowledges that, while there is potential for upward movement on the
22 cost of capital, such movement is uncertain. He concludes that increases in the federal
23 funds rate do not necessarily translate into increases in long-term government bond
24 yields.⁹

25 **Q. Is Mr. Walters's assessment of the effect of the Federal Reserve's actions on**
26 **long-term interest rates consistent with the data presented in his testimony?**

27 A. No. Figure CCW-3 in Mr. Walters's testimony, which presents the yield on the 30-year
28 Treasury bonds contradicts his assessment. As shown therein, the 30-year Treasury

⁸ Transcript, Chair Powell's Press Conference, p 11 (July 26, 2023).

⁹ Direct Testimony of Christopher C. Walters at 19 (WOCA Exhibit No. 602).

1 bond yield increased substantially starting in late 2021, peaked in October 2022, and
2 while it has moderated slightly since that time, the yield is moderately higher than at
3 the beginning of this year. The substantial increase in the long-term government bond
4 yields over this period is largely attributable to inflation and the Federal Reserve's
5 monetary policy normalization that included increasing the federal funds rate.

6 **Q. Given that interest rates are expected to remain elevated, what are equity**
7 **analysts' current expectations of the performance of the utilities sector over the**
8 **near term?**

9 A. Equity analysts continue to project that utilities will underperform the broader market
10 given the substantial increases in interest rates. Fidelity continues to classify the utility
11 sector as underweight,¹⁰ and Keybank Capital Markets analyst Sophie Karp recently
12 noted she had a negative view of the sector in 2023 and expects a decline in the relative
13 valuation of the utilities sector as compared to the S&P 500:

14 The utility sector's relative outperformance came on the back of the pre-
15 recessionary environment in the U.S. in 2022, analyst Karp said. She
16 noted that the sector now traded at 2.8 times premium to the S&P 500
17 Index, which is relatively wide by historical standards.

18 *She said the utility sector is relatively overvalued and will see a mean*
19 *reversion in 2023*, adding that the last time such a premium over the
20 S&P 500 Index happened was in 2004.

21 *"We are therefore negative on the sector overall going into 2023 and*
22 *our OW picks grow fewer,"* Karp said.

23 *There has been a surprising deterioration of the regulatory environment*
24 *across multiple jurisdictions*, including the historically stronger ones,
25 she noted. Some regulatory developments, according to the analyst, are
26 driven by the regulator's desire to moderate the impact on customer
27 bills. "Given that power and commodity prices remain elevated, we

¹⁰ Fidelity, Second Quarter 2023 Investment Research Update. (Apr. 21, 2023).

1 expect to continue seeing regulators getting 'creative' with assumptions
2 and rate mechanisms to achieve that goal,” she added.

3 Karp said she would focus on rate affordability, as inflationary pressures
4 will likely be a factor for the foreseeable future.

5 “As we turn to 2023, we believe that the sector will find it difficult to
6 defend this relative valuation position, particularly as macro headwinds
7 persist and begin to take a toll on utility earnings,” she added.¹¹

8 Further, Bank of America (“BofA”) recently noted that while the utility sector has
9 underperformed the broader market, the yields on utility stocks are still not attractive
10 as compared with the yields on Treasury bonds:

11 Despite utilities -13% YTD decline, the clear worst S&P subsector, we
12 do not view the pullback as an overly attractive buying opportunity. At
13 risk of overly simplifying, the utilities sector has simply been tracking
14 US Treasury rates. With most utilities yielding below 4%, the merits of
15 ownership for a wide group of investors is simply not there vs Treasuries
16 at 4.3%+... and 5.3% short-term. Fires just add to the complex setup
17 and wider aversion of the group from investors.¹²

18 **Q. Mr. Walters claims that utility valuations remain “robust.”¹³ Does the BofA**
19 **article that you site disprove his views?**

20 A. Yes. Utility stocks underperformed the broader market in the second half of 2022 and
21 as noted by BofA, in the article discussed above, are the worst performing subsector of
22 the S&P in 2023, with a decline of approximately 13 percent. Over this same period,
23 Treasury bond yields have increased and risen to levels greater than the dividend yields
24 of utility stocks. State Street Global Advisors has an exchange-traded fund for each of
25 the 11 sectors of the S&P 500, and of these sectors, the utilities sector is the

¹¹ Market Insider, After A 'Good Run' For Utilities In 2022, Analyst Says 'Trade Is Over – For Now,' But Retains Bullish Bias On These Stocks”, Jan. 17, 2023. (emphasis added).

¹² BofA Global Research, US Electric Utilities & IPPs, *As the leaves fall, preparing for Autumn utility outlook. Micro still has potholes*, at 1, Sept. 6, 2023.

¹³ Direct Testimony of Christopher C. Walters at 11 (WOCA Exhibit No. 602).

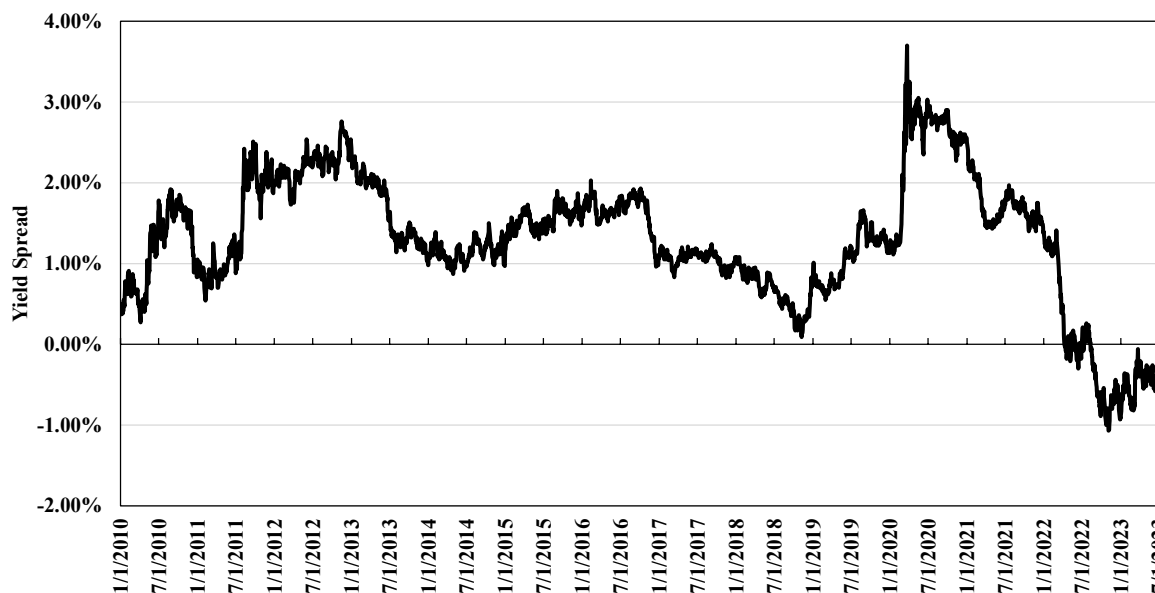
1 worst-performing year-to-date by a wide margin (*e.g.*, 16.36 percent return for the S&P
2 500 Index compared to a negative 8.62 percent return for the Utilities sector), as well
3 as over the past 3 months and the past month.¹⁴

4 **Q. Does the spread between the dividend yields of utility stocks versus the yield on**
5 **long-term government bonds continue to be indicative of an underperformance of**
6 **utility stocks relative to the overall market going forward?**

7 A. Yes. The yield on government bonds continues to exceed the dividend yield on utility
8 stocks. Specifically, the yield spread as of July 31, 2023, was negative 0.76 percent,
9 meaning that the yield on the 10-year Treasury bond exceeds the dividend yield for the
10 S&P Utilities Index. Thus, the current yield spread has widened since the filing of my
11 direct testimony and remains even further below the long-term average. Given that
12 yields on government bonds are more attractive than utility stocks and interest rates are
13 expected to remain relatively high for at least the next year, this indicates continued
14 underperformance of the utility sector over the near term. As noted by BofA, the fact
15 that utility stock yields are lower than the yields on United States (“U.S.”) Treasuries
16 makes utility stocks unattractive investments as compared with Treasuries for a wide
17 group of investors.

¹⁴ <https://www.sectorspdrs.com/sectortracker>; selecting “YTD,” “3 Month,” and “1 Month” performance. Data as of August 10, 2023.

1 **Figure 3: Spread between the S&P Utilities Index Dividend Yield and the**
 2 **10-year Treasury Bond Yield, January 2010 to July 2023¹⁵**



3 **Q. Have credit rating agencies recognized that the increases in interest rates that**
 4 **have been experienced in the past 18 months may lead to increases in authorized**
 5 **ROEs?**

6 **A. Yes. Moody’s Investors Service (“Moody’s”) noted that authorized ROEs throughout**
 7 **2023 could increase as a result of the increase in interest rates, but noted that regulatory**
 8 **lag could result in a delay in the timing of those increases.¹⁶**

9 **Q. Have average authorized ROEs nationally for vertically-integrated electric**
 10 **utilities been increasing consistent with the increase in interest rates over the past**
 11 **18 months?**

12 **A. Yes. Both Mr. Walters and Ms. Perry acknowledge the increase in the authorized ROEs**
 13 **for vertically-integrated electric utilities since 2021. Mr. Walters presents previously**

¹⁵ S&P Capital IQ Pro and Bloomberg Professional.

¹⁶ Moody’s Investors Service, Regulated Electric and Gas Utilities – US, 2023 outlook negative due to higher natural gas prices, inflation and rising interest rates at 4 (Nov. 10, 2022).

1 authorized ROE data for electric utilities in Table CCW-1 of his testimony, which
2 shows an increase in the average authorized ROEs from 2021 of 9.39 percent (*i.e.*, prior
3 to the increase in interest rates) to 2022 of 9.52 percent and a further increase thus far
4 in 2023 to 9.70 percent.¹⁷ This increase of approximately 30 basis points in the average
5 authorized ROEs over the past few years is consistent with the increasing trend in
6 interest rates that has occurred over this period. Ms. Perry's testimony indicates a
7 similar trend regarding the authorized ROEs for vertically-integrated electric utilities.¹⁸

8 **Q. Have authorized ROEs approved by the Commission also increased over this time**
9 **period?**

10 A. Yes. While there are only two relevant rate proceedings during that time period, Ms.
11 Perry's testimony indicates that the Commission authorized an ROE in 2021 of
12 9.50 percent, and authorized an ROE of 9.75 percent in early 2023.¹⁹

13 **Q. Does Ms. Perry's presentation of recently-authorized ROEs appropriately**
14 **address the market conditions and other risk factors?**

15 A. No. Ms. Perry's analysis of recently-authorized ROEs simply relies on the average
16 authorized returns without consideration of market conditions. While I agree with Ms.
17 Perry that recently authorized ROEs are a useful benchmark that investors use to
18 develop their return requirements, current and expected economic and capital market
19 conditions need to be considered to understand investors' required return on a forward-
20 looking basis. Furthermore, it is important to consider the results of multiple cost of
21 equity estimation methodologies to understand the range of investor-required returns

¹⁷ Direct Testimony of Christopher C. Walters at 8 (WOCA Exhibit No. 602).

¹⁸ Direct Testimony of Lisa V. Perry at 13 (Walmart Exhibit No. 400).

¹⁹ *Id.*, at 11-12.

1 based on current and projected market conditions. Ms. Perry has not performed any
2 analysis of overall market conditions or how those conditions might affect the cost of
3 equity in this proceeding. While Ms. Perry provides historically authorized returns for
4 the Commission to consider, she did not conduct any analysis of market conditions at
5 the time that these returns were authorized, nor did she compare those conditions to
6 current market conditions. Furthermore, Ms. Perry has not offered any analysis of the
7 investor-required return on equity using a DCF, CAPM or other market-based model.
8 As shown by the change in the results of my cost of equity estimates from my direct
9 testimony to my rebuttal testimony, the cost of equity has increased.

10 **Q. Have the ROE recommendations offered by regulatory commission staff witnesses**
11 **nationwide also been trending upwards consistent with the increase in interest**
12 **rates?**

13 A. Yes. Based on each of the electric, natural gas, and water rate proceedings reported by
14 Regulatory Research Associates since 2021, I reviewed the ROE recommendations in
15 the testimonies of the regulatory commission staff witnesses in each proceeding. As
16 shown in Figure 4, the average of the ROE recommendations of the staff witnesses in
17 these utility rate proceedings has increased, which is consistent with the trend in interest
18 rates that has occurred over this period.

Figure 4: Average ROE Recommendations of Regulatory Commission Staff Witnesses in Utility Rate Proceedings, by Utility Type, 2021 through July 2023²⁰

	<u>2021</u>	<u>2022</u>	<u>2023</u>
Gas	9.22%	9.35%	9.55%
Electric	9.10%	9.24%	9.37%
Water	9.12%	9.21%	9.34%
All	9.15%	9.28%	9.44%

3 **Q. Are the ROE recommendations offered by Mr. Walters and Mr. Garrett**
 4 **directionally consistent with the change in market conditions since the Company’s**
 5 **last rate proceeding?**

6 A. No. The change in market conditions that have increased the cost of equity cannot
 7 reasonably be interpreted to support Mr. Garrett’s recommendation to authorize an
 8 ROE that is substantially *lower* than the Company’s currently authorized ROE of
 9 9.50 percent. While not to the same degree, Mr. Walters’ recommended ROE also fails
 10 to adequately reflect the change in market conditions since the Company’s last rate
 11 proceeding. Despite the substantial change in market conditions that have increased
 12 the cost of equity, Mr. Walters’s ROE recommendation in this proceeding (*i.e.*,
 13 9.55 percent) is effectively consistent with the Company’s currently authorized ROE.

14 **Q. Are Mr. Walters’ or Mr. Garrett’s recommended ROEs in this proceeding**
 15 **directionally consistent with the changes in previously authorized ROEs for**
 16 **vertically-integrated electric utilities?**

17 A. No. The trend in authorized ROEs relative to the changes in market conditions over
 18 the past 18 months demonstrates that both Mr. Walters’ and Mr. Garrett’s ROE

²⁰ S&P Capital IQ Pro; state commission websites.

1 recommendations are inconsistent with market expectations. As noted, Mr. Walters’
2 own testimony demonstrates that the average authorized ROEs from 2021 to 2023
3 increased by approximately 30 basis points (*i.e.*, 9.39 percent to 9.70 percent), thus
4 indicating an increase in the cost of equity, not the substantial decrease that Mr. Garrett
5 proposes, nor the ROE that is effectively equivalent to the Company’s currently
6 authorized ROE that Mr. Walters proposes.

7 **Q. Are the results of Mr. Walters’ cost of equity analyses and his overall ROE**
8 **recommendation for the Company in this proceeding consistent with the results**
9 **of his cost of equity analyses and overall recommendation in other recent**
10 **proceedings?**

11 A. No. In May 2023, Mr. Walters testified in Illinois in a consolidated rate proceeding for
12 North Shore Gas Company (“North Shore”) and the Peoples Gas Light and Coke
13 Company (“Peoples Gas”).²¹ In that proceeding, Mr. Walters conducted the same cost
14 of equity analyses as he has conducted in this proceeding. However, as shown in
15 Figure 5 and Figure 6, the results of both Mr. Walters’ DCF and CAPM analyses are
16 higher in this proceeding, yet his recommended ROE has either not changed (*i.e.*,
17 CAPM) or has actually *decreased* (*i.e.*, DCF) despite the increase in the cost of equity
18 results from his analyses.

²¹ *North Shore Gas Company, Proposed general increase in rates and revisions to service classification, riders and terms and conditions of service; The Peoples Gas Light and Coke Company, Proposed general increase in rates and revisions to service classification, riders and terms and conditions of service*, Illinois Commerce Commission Docket Nos. 23-0068 and 23-0069 (cons.), Citizens Utility Board (“CUB”) and People for Community Recovery (“PCR”) Exhibit 1.0 (May 9, 2023).

1 **Figure 5: Comparison of Mr. Walters's DCF Results and Overall**
 2 **Recommendations²²**

	Rocky Mountain Power		North Shore/ Peoples Gas Light	
	Average	Median	Average	Median
Constant Gwth DCF (Analysts' Gwth Rates)	10.34%	10.11%	9.47%	9.37%
Constant Gwth DCF (Sustainable Gwth Rates)	9.08%	8.69%	9.84%	9.96%
Multi-Stage DCF:	8.66%	8.58%	8.05%	7.99%
Average of 3 Scenarios:	9.36%	9.13%	9.12%	9.11%
Mr. Walters Recommendation:	9.15%		9.20%	

3 **Figure 6: Comparison of Mr. Walters's CAPM Results and Overall**
 4 **Recommendations²³**

	Rocky Mountain Power			North Shore/Peoples Gas Light		
	Current Value Line	Historical Value Line	Current MI	Current Value Line	Historical Value Line	Current MI
	Beta	Beta	Beta	Beta	Beta	Beta
D&P Normalized Method:	8.77%	8.16%	8.40%	9.02%	8.34%	8.16%
Risk Premium Method:	10.48%	9.63%	9.97%	10.57%	9.66%	9.42%
FERC DCF Method:	10.44%	9.59%	9.93%	10.05%	9.21%	8.99%
Average of 9 Scenarios:		9.49%			9.27%	
Median of 9 Scenarios:		9.63%			9.21%	
Mr. Walters Recommendation:		9.40%			9.40%	

5 The fact that Mr. Walters' own cost of equity estimates indicate an increase in
 6 the cost of equity, yet he has decided to either not change or actually decrease his
 7 recommended ROE result from these analyses highlights the arbitrary nature of his
 8 recommendations.

²² Direct Testimony of Christopher C. Walters at 43 (WOCA Exhibit No. 602); Illinois Commerce Commission CUB/PCR Exhibit 1.0 at 47, 63.

²³ Direct Testimony of Christopher C. Walters at 56 (WOCA Exhibit No. 602); Illinois Commerce Commission CUB/PCR Exhibit 1.0 at 62.

1 **V. DCF MODEL**

2 **Q. Do you agree with Mr. Garrett's DCF analyses?**

3 A. No. However, while I disagree with the methodology Mr. Garrett uses to estimate his
4 DCF analyses, given that he places no weight on his DCF model results, I will not
5 address Mr. Garrett's DCF analyses.

6 **Q. As a threshold matter, is it reasonable that Mr. Walters places weight on each of**
7 **his DCF results?**

8 A. No. While Mr. Walters does not explain how he determines his recommended DCF
9 result of 9.15 percent, it is apparent that he must be placing some weight on the results
10 of both his multi-stage DCF and constant growth DCF using sustainable growth rates
11 given that the result of his constant growth DCF using analyst growth rates is higher
12 than his recommended DCF result of 9.15 percent. However, Mr. Walters' decision to
13 place any weight on the results of his multi-stage DCF model is not appropriate
14 considering that the results (*i.e.*, 8.58 percent – median; 8.66 percent – average) are so
15 far below the average authorized ROE for any vertically-integrated electric utility in
16 the past 40 years. Likewise, it is also not appropriate to place any weight on the results
17 of his constant growth DCF using sustainable growth rates given that the median and
18 average results of that analysis are approximately 60 to 100 basis points, respectively,
19 below the average authorized ROE for electric utilities thus far in 2023 as shown
20 Table CCW-1 of Mr. Walters' testimony, and below any average authorized ROE
21 shown in his data set, which reflects authorizations from 2016 through 2023.²⁴

²⁴ Direct Testimony of Christopher C. Walters at 8 (WOCA Exhibit No. 602).

1 **Q. Beyond the reasonableness of the results of two of three of Mr. Walters' DCF**
2 **analyses, are there other aspects of his DCF analyses with which you disagree?**

3 A. Yes. Although the reasonableness of the results is an important factor, there are
4 additional aspects of his DCF analyses with which I disagree.

5 **Q. Do you agree with Mr. Walters' reliance on sustainable growth rates in his**
6 **constant growth DCF analysis?**

7 A. No. The premise of Mr. Walters' reliance on sustainable growth rates for one of his
8 constant growth DCF scenarios is that the sustainable growth rate is "determined by
9 the proportion of the utility's earnings that is retained and reinvested in utility plant and
10 equipment," and thus the "internal growth approach is linked to the percentage of
11 earnings retained within the company, as opposed to being paid out as dividends."²⁵ In
12 other words, his approach assumes that future earnings growth is directly a function of
13 the amount of earnings retained and not paid as dividends to shareholders (*i.e.*, the
14 retention ratio).

15 However, amount of earnings retained and not paid as dividends varies as a
16 result of management decisions as opposed to earnings that are largely market-driven.
17 For example, management may decide to (i) conserve cash for capital investments; (ii)
18 manage the dividend payout for the purpose of minimizing future dividend reductions;
19 (iii) manage its capital structure; or (iv) signal future earnings prospects. These
20 decisions can and do influence the amount of earnings retained versus paid out as
21 dividends, and such decisions have been seen recently in the market. For example, as

²⁵ Direct Testimony of Christopher C. Walters at 36 (WOCA Exhibit No. 602).

1 a result of the economic effects of COVID-19, more than forty S&P 500 companies
2 temporarily suspended their dividends.²⁶

3 **Q. Is there academic research that supports your conclusion that future earnings
4 growth is not inversely related to the dividend payout ratio?**

5 A. Yes. Both Zhou and Ruland (2006) and Gwilym, *et. al.* (2006) discussed the theory
6 that high dividend payouts (*i.e.*, low retention ratios) are associated with low future
7 earnings growth.²⁷ Each of these studies also cited Arnott and Asness (2003) that
8 found, over the course of 130 years of data, future earnings growth is associated with
9 high, rather than low payout ratios.²⁸ Specifically, Arnott and Asness (2003)
10 concluded:

11 Unlike optimistic new-paradigm advocates, we found that low payout
12 ratios (high retention rates) historically precede low earnings growth.
13 This relationship is statistically strong and robust. We found that the
14 empirical facts conform to a world in which managers possess private
15 information that causes them to pay out a large share of earnings when
16 they are optimistic that dividend cuts will not be necessary and to pay
17 out a small share when they are pessimistic, perhaps so that they can be
18 confident of maintaining the dividend payouts. Alternatively, the facts
19 also fit a world in which low payout ratios lead to, or come with,
20 inefficient empire building and the funding of less than-ideal projects
21 and investments, leading to poor subsequent growth, whereas high
22 payout ratios lead to more carefully chosen projects. The empire-
23 building story also fits the initial macroeconomic evidence quite well.
24 At this point, these explanations are conjectures; more work on
25 discriminating among competing stories is appropriate.²⁹

²⁶ Karen Langley, U.S. Companies Slashed Dividends at Fastest Pace in More Than a Decade. Wall Street Journal (July 8, 2020).

²⁷ Ping Zhou and William Ruland, *Dividend Payout and Future Earnings Growth*. Financial Analysts Journal, Vol. 62, No. 3, 2006; Owain Gwilym, James Seaton, Karina Suddason, and Stephen Thomas. *International Evidence on the Payout Ratio, Earnings, Dividends and Returns*. Financial Analysts Journal, Vol. 62, No. 1, 2006.

²⁸ Robert Arnott and Clifford Asness, *Surprise: Higher Dividends = Higher Earnings Growth*. Financial Analysts Journal, Vol. 59, No. 1, January/February 2003. Since the payout ratio is the inverse of the retention ratio, the authors found that future earnings growth is negatively related to the retention ratio.

²⁹ *Id.*

1 All three studies found that there is a positive, not a negative or inverse,
2 relationship between earnings growth rates and payout ratios as suggested by
3 Mr. Walters. As such, Mr. Walters' reliance on the sustainable growth rates in the
4 constant growth DCF model is not appropriate.

5 **Q. Do you have other concerns regarding Mr. Walters' sustainable growth constant**
6 **growth DCF analysis?**

7 A. Yes. The use of the sustainable or retention growth rates involves estimating investor
8 expectations for four separate variables over the near-term: (1) the retention ratio,
9 reflected as the "b" variable; (2) the expected return on book equity, reflected as the
10 "r" variable; (3) the growth in the number of share of common equity, reflected as the
11 "s" variable; and (4) the portion of the market-to-book ratio that exceeds unity,
12 reflected as the "v" variable. This means that the growth estimate includes the
13 forecasting error of the four separate variables.

14 **Q. Please explain the inconsistency between the long-term sustainable growth rates**
15 **relied upon in Mr. Walters' constant growth DCF analysis consistent and**
16 **long-term growth rates he relies on in his multi-stage DCF?**

17 A. Mr. Walters relies on two growth rates that he suggests represent the long-term growth
18 of the proxy group that are significantly different and affect the results of his DCF
19 analyses. The average long-term "sustainable" growth rate that Mr. Walters relies on
20 in a constant growth DCF model is 5.24 percent.³⁰ Mr. Walters states that the
21 sustainable growth rate is limited by the projected long-term GDP growth rate as that

³⁰ Direct Testimony of Christopher C. Walters at 1 (WOCA Exhibit No. 602.8).

1 reflects the projected long-term growth in the economy as a whole,³¹ however this
2 growth rate is inconsistent with the long-term growth rate that he assumes in his
3 multi-stage DCF model (*i.e.*, 4.30 percent).³²

4 **Q. Do you agree with the long-term growth rate that Mr. Walters uses in his**
5 **multi-stage DCF analysis?**

6 A. No. I do not. The long-term growth rate in Mr. Walters' multi-stage DCF is based on
7 the projected nominal GDP growth rate by *Blue Chip Economic Indicators*, as
8 supported by other sources of projected nominal GDP growth.³³ However, the
9 *Blue Chip Economic Indicators* does not publish a GDP growth rate that can be used
10 in perpetuity, as is the intention of the multi-stage DCF model. Rather, the growth rate
11 relied upon by Mr. Walters is the projected growth rate for a five year period from
12 2030-2034. Mr. Walters' testimony discusses how to estimate long-term growth rates
13 through a reference to the *Ibbotson SBBI 2013 Valuation Yearbook*:

14 Another approach to estimating long-term growth rates is to focus on
15 estimating the overall economic growth rate. Again, this is the approach
16 used in the *Ibbotson Cost of Capital Yearbook*. To obtain the economic
17 growth rate, a forecast is made of the growth rate's component parts.
18 Expected growth can be broken into two main parts: expected inflation
19 and expected real growth. By analyzing these components separately,
20 it is easier to see the factors that drive growth.³⁴

21 However, Mr. Walters cites only a portion of the *Ibbotson* methodology on
22 estimating long-term growth rates. Reviewing the entirety of the quote, it is clear that
23 *Ibbotson* recommends that the long-term growth rate reflect the sum of long-term
24 historical average real GDP growth rate and the expected inflation rate:

³¹ Direct Testimony of Christopher C. Walters at 35 (WOCA Exhibit No. 602).

³² *Id.*, WOCA Exhibit No. 602.9, p. 1, col. 9.

³³ *Id.*

³⁴ *Id.*, at 33-34.

1 Once the long-term expected inflation rate is estimated, the real growth
2 rate must be determined. The growth rate in real Gross Domestic
3 Product (GDP) for the period 1929 to 2012 was approximately 3.22
4 percent. Growth in real GDP (with only a few exceptions) has been
5 reasonably stable over time; therefore, its historical performance is a
6 good estimate of expected long-term (future) performance.

7 By combining the inflation estimate with the real growth rate estimate,
8 a long-term estimate of nominal growth is formed.³⁵

9 Mr. Walters' calculation of long-term GDP growth is inconsistent with the
10 methodology that he cites to support his growth rates. As shown in RMP Exhibit 4.19,
11 had Mr. Walters followed the approach cited *Ibbotson* in his testimony, the long-term
12 growth rate would have been 5.49 percent, not 4.30 percent. As a result, Mr. Walters
13 understates the long-term growth rate that would be consistent with *Ibbotson's*
14 methodology.

15 **Q. What are Mr. Walters' and Mr. Garrett's positions regarding your constant**
16 **growth DCF analysis?**

17 A. Mr. Walters claims that the analyst growth rates used in my DCF analysis are not
18 reasonable since they are higher than his claimed GDP growth rate, and that I should
19 have either given more weight to the minimum growth rates in my constant growth
20 DCF or considered the results of a multi-stage DCF.³⁶ Similarly, Mr. Garrett claims
21 that the growth rates in my DCF model are inconsistent with the long-term GDP growth
22 rate, but also suggests that my growth rates are also inconsistent with the Company's
23 own projections of load and customer growth, and thus overstate the long-term growth
24 of the Company and produces cost of equity results that are "upwardly biased."³⁷

³⁵ Morningstar, Inc. *Ibbotson SBB* 2013 Valuation Yearbook, at 52.

³⁶ Direct Testimony of Christopher C. Walters at 61 (WOCA Exhibit No. 602).

³⁷ Direct Testimony of David J. Garrett at 40-41 (WIEC Exhibit No. 201).

1 **Q. Is there any basis to Mr. Walters' and Mr. Garrett's allegations regarding your**
2 **use of analysts' projected earnings per share ("EPS") growth rates in your**
3 **constant growth DCF analysis?**

4 A. No, there are multiple reasons why there is no basis to Mr. Walters' and Mr. Garrett's
5 claim that the analyst growth rates used in my DCF analysis are unreasonable:

- 6 • Both Mr. Walters and I rely on consensus forecasts of EPS growth rates in our
7 respective constant growth DCF analyses. In fact, we both rely on two of the
8 same three sources for those projected EPS growth rates (*i.e.*, Zacks Investment
9 Research and Yahoo! Finance). While Mr. Walters suggests that projected EPS
10 growth rates are substantially higher than his estimated long-term growth rate,
11 he nonetheless relies on the results of the DCF model using analysts' projected
12 EPS analyst growth rates for purposes of both determining the range of the fair
13 return for RMP based on the DCF analysis, as well as his point estimate for the
14 cost of equity resulting from the DCF analysis. Thus, to the extent Mr. Walters
15 has concerns with the analyst growth rates used in my DCF model, those same
16 concerns would apply to his DCF model on which he has relied.
- 17 • Mr. Walters' assertion that the analysts' growth rates for the proxy group are
18 too high is unfounded considering that, as shown on WOCA Exhibit No. 602.5,
19 the average EPS growth rate of 6.46 percent on which Mr. Walters relies in his
20 constant growth DCF model is *higher than* the average EPS growth rate of 5.83
21 percent in my constant growth DCF analysis. While Mr. Walters suggests that
22 the projected EPS growth rates are too high, as shown on RMP Exhibit 4.19, if
23 Mr. Walters had developed a long-term growth rate consistent with the
24 approach recommended by *Ibbotson* that he cites in his testimony, the resulting
25 growth rate would be 5.49 percent, which is slightly lower than, but consistent
26 with, the average growth rate for the proxy group in my constant growth DCF.
- 27 • While Mr. Walters suggests that the long-term sustainable growth rate of 4.30
28 percent in his multi-stage model supports his contention that my projected
29 analysts' projected EPS growth rates are unreasonable, as noted, he has an
30 internal inconsistency in the long-term growth rate that he assumes for his
31 multi-stage DCF analysis and his constant growth DCF analysis using
32 sustainable growth rates.
- 33 • While Mr. Walters suggests that the analyst growth rates in our respective DCF
34 analyses are excessive, and that the long-term growth rates that he assumes for
35 his multi-stage DCF analysis and his constant growth DCF analysis using
36 sustainable growth rates are more appropriate, the results of those DCF analyses
37 belie Mr. Walters's claim. As previously discussed, the results of both Mr.
38 Walters' multi-stage model and his constant growth DCF analysis using
39 sustainable growth rates are at the very low end or well below any authorized
40 ROE for a vertically-integrated electric company in the past three years.

- 1 • Considering the empirical studies comparing the total factor productivity
2 (“TFP”) growth of the utility industry relative to the economy, it is not
3 unreasonable to assume that earnings growth for utilities could exceed GDP
4 growth over the long term. In a study filed as part of the Rate Regulation
5 Initiative of the Alberta Utilities Commission, the authors calculated TFP
6 growth³⁸ for 72 U.S. electric and combination electric and natural gas utilities
7 and for the U.S. economy for the period of 1972 through 2009. For the U.S.
8 utility group, TFP growth averaged 0.96 percent over the period of 1972 to
9 2009,³⁹ while TFP growth for the U.S. economy was 0.91 percent,⁴⁰ indicating
10 that electric and combination electric and natural gas utilities were
11 approximately 5 percent more productive than the U.S. economy over the study
12 period. Therefore, the authors demonstrated that utility growth exceeded
13 growth for the U.S. economy for approximately 40 years.

14 Given all of these facts, there is no basis to Mr. Walters’ and Mr. Garrett’s
15 criticisms of my reliance on projected EPS growth rates in the constant growth DCF
16 model.

17 **Q. Is it reasonable that you did not conduct a multi-stage DCF such as suggested by**
18 **Mr. Walters?**

19 A. Yes. I did not conduct a multi-stage DCF analysis because I do not believe that this
20 form of the DCF model provides a reliable data set for the Commission to rely on in
21 setting the authorized ROE. The constant growth DCF model is more appropriate for
22 estimating the cost of equity for utilities than the multi-stage DCF model because the
23 utility industry is considered a mature industry and thus, financial projections such as
24 earnings growth rate projections are also likely to be relatively stable over the long
25 term. In fact, EPS growth rate forecasts for regulated utilities have remained in the
26 range of 5.00 percent to 6.00 percent for many years. The relative stability of the

³⁸ 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).

³⁹ Alberta Utilities Commission, Jeff Makhholm and Agustin Ros, *Update, Reply and PBR Plan Review for AUC Proceeding 566 – Rate Regulation Initiative*. at 5 (Feb. 22, 2012).

⁴⁰ *Id.*, at 19.

1 financial forecasts for utilities supports the use of a constant growth DCF model to
2 estimate the cost of equity. In addition, while the multi-stage DCF attempts to address
3 the potential for changes in growth over time, this model introduces additional
4 assumptions and potential analyst bias. Specifically, the multi-stage DCF analysis
5 requires judgment regarding the durations of the multiple stages of the analysis, and
6 the growth rates for each of those stages, all of which have a significant effect on the
7 results of the multi-stage DCF model relatively stable over the long term.

8 **Q. Is Mr. Garrett’s position that analysts’ projected earnings growth rates are**
9 **unreasonable supported by his contention that utility growth rates are**
10 **constrained by customer growth and load growth?**

11 A. No. While Mr. Garrett claims that utility growth rates are constrained by customer
12 growth and load growth within their service territory, he dismisses the fact that utilities
13 must invest substantial amounts of capital every year in order to operate and maintain
14 the current system and also accommodate future growth. According to Mr. Garrett,
15 utilities have been able to grow their earnings and rate base simply by retiring old assets
16 and replacing them with new assets, but that this is not “real” growth and distorts
17 growth projections for utilities.⁴¹ However, Mr. Garrett fails to consider that RMP and
18 other utilities make these long-term investment decisions not because they are trying
19 to provide a higher earnings growth rate for investors, but because they are regulated
20 utilities that have an obligation to provide safe and reliable service to customers within
21 their prescribed service territory. These capital investments, which require the approval
22 of each utility’s regulatory commission, require RMP to have access to capital on

⁴¹ Direct Testimony of David J. Garret at 37-38 (WIEC Exhibit No. 201).

1 reasonable terms and conditions. Analysts' earnings growth rate forecasts consider
2 factors such as the capital expenditure requirements of the company, load growth and
3 population growth, and the ability of the company to recover costs on a timely basis
4 and earn a fair return on the investment.

5 **Q. Do you agree with Mr. Walters' conclusion that the combination of his multi-stage**
6 **DCF results and your constant growth DCF results supports that his**
7 **recommended DCF result, as well as his overall ROE recommendation?**⁴²

8 A. No. As I have discussed, the assumptions used in Mr. Walters's multi-stage DCF
9 analysis are inappropriate and therefore lead to unreasonable results. I do not believe
10 that reliance on this range of results reflects the investor required return on equity. As
11 discussed previously, when reviewed in the context of authorized ROEs for other
12 vertically integrated electric utilities, it is clear that no other state regulatory
13 commission across the country believes that the cost of equity is in the range
14 established by Mr. Walters's multi-stage DCF model either, since the range produced
15 by his model is well below any authorized ROE for a vertically-integrated electric
16 utility in the decades of available historical data. Therefore, Mr. Walters's multi-stage
17 DCF results do not support his cost of equity range nor his overall ROE
18 recommendation.

⁴² Direct Testimony of Christopher C. Walters at 61 (WOCA Exhibit No. 602).

VI. CAPM ANALYSIS

1
2 **Q. Please summarize the CAPM analyses conducted by Mr. Walters and**
3 **Mr. Garrett.**

4 A. Mr. Walters produces nine different cost of equity estimates from his CAPM analysis,
5 relying on different estimates of the risk-free rate, beta, and market risk premium.
6 Specifically, for the risk-free rate, Mr. Walters relies on a projected 30-year Treasury
7 yield in six scenarios, and a *Kroll* “normalized” risk-free rate in the remaining three
8 scenarios. For beta, Mr. Walters relies on three estimates: (1) current betas published
9 by *Value Line*; (2) historical average betas published by *Value Line*; and (3) current
10 beta estimates from S&P Market Intelligence’s Beta Generator (“Market Intelligence”).
11 For the market risk premium, Mr. Walters also relies on three estimates: (1) the
12 long-term historical arithmetic average real return on the S&P 500 plus an expected
13 inflation rate; (2) a constant growth DCF-derived return on the S&P 500, averaging the
14 method prescribed by the Federal Energy Regulatory Commission (“FERC”) in Order
15 No. 569-A with an alternative where all the companies in the S&P 500 are used rather
16 than just the dividend-paying companies, less the risk-free rate; and (3) a “normalized”
17 market risk premium published by *Kroll*. Mr. Walters recommends a cost of equity
18 resulting from his nine CAPM analyses of 9.40 percent.⁴³

19 Mr. Garrett presents a CAPM analysis based on: (1) a risk-free rate of
20 3.90 percent, which is the 30-day average yield on 30-year Treasury bonds; (2) the
21 current betas for each of the proxy group companies as published by *Value Line*; and
22 (3) a market risk premium of 5.40 percent based on an average of a IESE Business

⁴³ Direct Testimony of Christopher C. Walters at 48-56 (WOCA Exhibit No. 602) and WOCA Exhibit No. 602.16.

1 School survey of experts reflecting an average equity risk premium of 5.70 percent, a
2 *Kroll* equity risk premium estimate of 5.50 percent, an average of several equity risk
3 premium estimates produced by Dr. Damodaran of 4.90 percent, and Mr. Garrett's own
4 calculation of an implied market return on the S&P 500 of 5.40 percent.⁴⁴ As shown
5 in WIEC Exhibit No. 201.14, these inputs produce a CAPM result of 6.80 percent.

6 In addition, Mr. Garrett also calculates another version of the CAPM using the
7 same inputs as just discussed, except that he adjusts the average proxy group beta using
8 the Hamada formula to account for what he contends is a lower level of leverage in the
9 Company's proposed capital structure, and thus a lower level of risk, as compared to
10 the proxy group. In applying the Hamada formula, the average beta of the proxy group
11 of 0.88 is unlevered and then re-levered to account for the differences in leverage in
12 the Company's proposed capital structure as compared to the proxy group. Based on
13 Mr. Garrett's application of the Hamada adjustment, his CAPM result is 8.20 percent.

14 **Q. Is the *Kroll* "normalized" market risk premium relied on by Mr. Walters for three**
15 **of his CAPM analyses reasonable?**

16 A. No. As demonstrated in RMP Exhibit 4.20, the *Kroll* "normalized" market risk
17 premium is inconsistent with the well-established inverse relationship between interest
18 rates and the market risk premium. This relationship is such that as interest rates
19 increase, the market risk premium decreases and the reverse is also true, if interest rates
20 decline, the market risk premium increases.

21 As shown on WOCA Exhibit No. 602.16, in the CAPM scenarios in which Mr.
22 Walters relies on the *Kroll* "normalized" market risk premium of 5.50 percent, and a

⁴⁴ Direct Testimony of David J. Garret at 50-51 (WIEC Exhibit No. 201).

1 “normalized” risk-free rate of 4.00 percent. However, as shown on RMP Exhibit 4.20,
2 the long-term historical arithmetic average *income-only* return on long-term
3 government bonds as published by *Kroll* is 4.85 percent and the corresponding
4 long-term historical arithmetic average market risk premium over that same time period
5 is 7.17 percent. The “normalized” risk-free rate relied on by Mr. Walters of 4.00
6 percent is substantially *lower than* the long-term historical arithmetic average interest
7 rate of 4.85 percent. Therefore, as just discussed, a lower interest rate would correspond
8 to a higher market risk premium. Therefore, the market risk premium that corresponds
9 to the below historical average “normalized” risk-free rate that Mr. Walters relies on
10 should be *greater* than, not less than the historical average risk premium of
11 7.17 percent. However, Mr. Walters relies on a market risk premium of 5.50 percent,
12 which is substantially lower than 7.17 percent, meaning his market risk premium in
13 these CAPM scenarios does not reflect the inverse relationship between interest rates
14 and the market risk premium and is understated.

15 **Q. How does the use of a market risk premium that is understated affect**
16 **Mr. Walters’ CAPM results?**

17 A. Relying on a market risk premium that is internally inconsistent with his risk-free rate
18 renders the results of three of his nine CAPM models, which rely on the “normalized”
19 market risk premium, unreliable.

20 **Q. What are your conclusions regarding the remaining six CAPM scenarios**
21 **developed by Mr. Walters?**

22 A. I do not agree with Mr. Walters’ approach to estimating a forward-looking market
23 return by relying on the long-term historical arithmetic average real return on the S&P

1 500 plus an expected inflation rate, however if these results of these models were to be
2 relied upon, the average of the results of his six remaining CAPM analysis is
3 10.01 percent.

4 **Q. Does Mr. Garrett’s estimate of the market risk premium reflect the inverse**
5 **relationship between interest rates and the market risk premium?**

6 A. No. Mr. Garrett relies on a market risk premium of 5.40 percent. As discussed in
7 response to Mr. Walters, since the current 30-year Treasury bond yields are below their
8 long-term average, the inverse relationship between interest rates and the market risk
9 premium implies that the market risk premium should be well above the long-term
10 historical average market risk premium of 7.17 percent. Therefore, Mr. Garrett’s
11 assumed market risk premium is also understated.

12 **Q. Do you agree with Mr. Garrett’s use of the IESE Business school survey as an**
13 **estimate of the market risk premium?**

14 A. No, I do not. Mr. Garrett relies on an average equity risk premium from the IESE
15 Business School survey; however, the author of that survey specifically states that the
16 average of the distribution of the required equity risk premium from the survey cannot
17 be interpreted as the required equity premium of the market nor of a representative
18 investor.⁴⁵ Therefore, Mr. Garrett’s use of this survey data is in direct conflict with the
19 author’s conclusions about the analysis.

⁴⁵ Pablo Fernandez, Diego Garcia de la Garza, and Javier Fernandez Acin. *Survey: Market Risk Premium and Risk-Free Rate used for 80 countries in 2023*. at 10, IESE Business School. (Apr. 3, 2023).

1 **Q. Is Mr. Garrett's two-stage DCF model estimate of the implied market return**
2 **reasonable?**

3 A. No, it is not. The assumptions used in Mr. Garrett's calculation of the market return are
4 inconsistent with the assumptions used in his constant growth DCF model. Mr. Garrett
5 relies on *historical* EPS growth rates in his calculation of the market return in the
6 CAPM and *projected* EPS growth in his constant growth DCF model. Further, Mr.
7 Garrett condemns his own assumptions by acknowledging that "past growth is not
8 always a good indicator of future growth."⁴⁶ Moreover, Mr. Garrett has provided no
9 evidence that the current 30-day average yield on the 30-year Treasury bond is an
10 appropriate estimate of long-term growth in the two-stage DCF model, particularly
11 given the significant changes in interest rates that have occurred over the past
12 18 months.

13 **Q. How would Mr. Garrett's estimate of the market return on the S&P 500 change**
14 **if he had relied on projected EPS growth rates and a long-term GDP growth rate**
15 **in his two-stage DCF for purposes of calculating the market risk premium?**

16 A. While I do not agree with the use of the two-stage DCF model to estimate the market
17 return for the S&P 500, as shown in RMP Exhibit 4.21, had Mr. Garrett relied on
18 projected EPS growth of the S&P 500 as the estimate of first stage growth consistent
19 with his approach in the constant growth DCF, and the estimate of long-term GDP
20 growth of 5.49 percent as the estimate of second stage growth as discussed previously
21 in my response to Mr. Walters,⁴⁷ his market return estimate would increase from

⁴⁶ Direct Testimony of David J. Garret at 31 (WIEC Exhibit No. 201).

⁴⁷ See, RMP Exhibit 4.19.

1 9.34 percent to 12.21 percent. As shown in RMP Exhibit 4.22, this would increase
 2 Mr. Garrett’s CAPM result from 8.63 percent to 11.18 percent, or well above the
 3 Company’s proposed ROE in this proceeding.

4 **Q. How does Mr. Garrett apply the Hamada formula in his CAPM analysis?**

5 A. The Hamada equation allows an analyst to first “unlever” beta to remove the effect of
 6 the debt ratio of a company and then “relever” beta at different debt ratios to examine
 7 the effect of changes in the debt ratio on the cost of equity produced by the CAPM.

8 The Hamada equation is as follows:⁴⁸

$$\beta_l = \beta_u \left[1 + (1 - T) \frac{D}{E} \right]$$

9
 10 Where:

- 11 β_l = Levered beta of a company
- 12 β_u = Unlevered beta of a company
- 13 T = Corporate income tax rate
- 14 D = Market value of debt
- 15 E = Market value of equity

16 In his analysis, Mr. Garrett is unlevering the proxy group beta to remove the
 17 effect of the debt ratios of the proxy group on the average beta and then relevering beta
 18 to reflect the Company’s proposed capital structure to determine its effect on the cost
 19 of equity.

⁴⁸ See, Villadsen, Vibert, Harris and Kolbe, *Risk and Return for Regulated Utilities*, 2017, at 146-154; Brealey, Myers, and Allen, *Principles of Corporate Finance*, 13th Ed., 2020, at 452-462; and Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, 3rd ed., John Wiley & Sons, Inc., 2012.

1 **Q. Do you agree with Mr. Garrett's additional CAPM scenario in which he applies**
2 **the Hamada formula?**

3 A. No. In applying the Hamada formula, Mr. Garrett incorrectly relies on the book value
4 of debt and equity for each of the proxy group companies at the holding company level
5 as published by *Value Line*, instead of the market value of debt and equity as required
6 in applying the Hamada equation. As a result, this has a substantial effect on the
7 debt-to-equity ratio used to unlever and relever beta given the market value of debt and
8 equity in this instance deviates significantly from the book value.

9 **Q. Have you estimated the equity ratio and debt ratio for the proxy group based on**
10 **the market value of debt and equity to illustrate the problem with Mr. Garrett's**
11 **analysis?**

12 A. Yes. In applying the Hamada equation, Mr. Garrett relies on a proxy group average
13 debt ratio of 54 percent and equity ratio of 46 percent based on the book value of debt
14 and equity for each of the companies in the proxy group. Mr. Garrett contends that,
15 since the Company's proposed debt ratio of 48.73 percent is lower than the proxy group
16 average debt ratio of 54 percent, the Company has less risk and that applying the
17 Hamada equation results in a downward adjustment to his CAPM result from
18 8.60 percent to 8.20 percent to reflect the decreased financial risk of the Company's
19 proposed capital structure. However, as shown in RMP Exhibit 4.23, had Mr. Garrett
20 correctly relied on the market value of debt and equity of each company in the proxy
21 group for his analysis, he would have estimated a proxy group average debt ratio of
22 37.28 percent, not 54 percent. Since the market value debt ratio for the proxy group is
23 lower than the Company's proposed debt ratio, the Hamada formula, when specified

1 and applied correctly, implies that Mr. Garrett's CAPM result of 8.60 percent should
2 *increase* – not decrease – to reflect the increased financial risk associated with the
3 Company's proposed debt ratio relative to the proxy group. As shown in RMP Exhibit
4 4.24, Mr. Garrett's CAPM estimate is understated by approximately 90 basis points.
5 Given that the capital structures of the proxy group companies at the holding company
6 level should not be used to evaluate the reasonableness of the Company's proposed
7 capital structure, and Mr. Garrett's Hamada adjustment is incorrect nonetheless, the
8 Commission should disregard the results of Mr. Garrett's CAPM scenario in which he
9 applies the Hamada equation.

10 **Q. What are Mr. Walters' and Mr. Garrett's positions regarding your estimation of**
11 **the market risk premium in the CAPM analysis?**

12 A. Mr. Walters and Mr. Garrett contend that my market return is inflated.⁴⁹ Mr. Walters
13 suggests that I should have instead considered multiple methodologies to estimate the
14 expected market return and market risk premium.⁵⁰

15 **Q. Is the forward-looking market return that you have utilized in the CAPM**
16 **reasonable?**

17 A. Yes. It is reasonable to assume that the projected growth of the S&P 500 Index could
18 be sustainable in the long run. The calculation of the market risk premium is based on
19 the return on the broader stock market, as measured by S&P 500 Index, less the return
20 on a risk-free instrument (which in my case, is the yield on the 30-year Treasury bond).
21 The S&P 500 Index is composed of the largest top performing companies. Over time,

⁴⁹ Direct Testimony of Christopher C. Walters at 52, 62-63 (WOCA Exhibit No. 602); Direct Testimony of David J. Garrett at 53-54 (WIEC Exhibit No. 201).

⁵⁰ Direct Testimony of Christopher C. Walters at 52, 62-63 (WOCA Exhibit No. 602).

1 the specific companies that are included in the S&P 500 Index will vary; however,
2 because the index is composed of the largest top performing companies, it is reasonable
3 to assume the index will always contain individual companies with projected earnings
4 growth rates that will be considered high. Therefore, investor expectations of growth
5 and return overall for the index as a whole may not change over time because of the
6 selection process involved in the index including the largest top performing companies.

7 **Q. Have other regulatory commissions supported the use of a forward-looking**
8 **market return in the CAPM analysis such as you have relied on in estimating the**
9 **cost of equity?**

10 A. Yes. As Mr. Walters recognizes in his own CAPM analysis, the FERC continues to
11 support the use of the constant growth DCF model to calculate the market return for
12 the CAPM:

13 We also continue to find that the CAPM should use a one-step DCF for
14 its risk premium. This is because the rationale for using a two-step DCF
15 methodology for a specific group of utilities does not apply when
16 conducting a DCF study of the dividend-paying companies in the S&P
17 500, as the Commission found in Opinion Nos. 531-B and 569. A
18 long-term component is unnecessary because of the regular updates to
19 the S&P 500, which allows it to continue to grow at a short-term growth
20 rate and because S&P 500 companies include stocks that are both new
21 and mature, the latter of which have a moderating effect on the
22 short-term growth rates.⁵¹

23 In addition, the Pennsylvania Public Utilities Commission (“Pennsylvania
24 PUC”) and the Maine Public Utilities Commission (“Maine PUC”) have also relied on
25 the constant growth DCF model to estimate the market return. As shown in Figure 7,
26 the Bureau of Investigation and Enforcement (“I&E”) of the Pennsylvania PUC and

⁵¹ *Ass’n. of Businesses Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, 171 FERC ¶ 61,154 at ¶ 85 (2020).

1 the Staff of the Maine PUC have also supported the forward-looking market risk
 2 premium. In each case, the market return was estimated using the constant growth DCF
 3 model and analysts' earnings growth rate projections, which resulted in a range of
 4 market return estimates from 11.33 percent to 13.94 percent. Furthermore, as also
 5 shown in Figure 7, the Pennsylvania PUC and the Maine PUC relied on the estimated
 6 CAPM results by the I&E of the Pennsylvania PUC and the Staff of the Maine PUC,
 7 respectively, to determine the authorized ROE in each of the proceedings and did not
 8 dispute the use of the constant growth DCF model to calculate the market return.

9 **Figure 7: Regulatory Commissions – Market Return Estimated Using the Constant**
 10 **Growth DCF Model**

Intervening Party	Company	Docket No.	Market Return	Date of Order	Did the Commission rely on the Party's CAPM?
I&E	Aqua Pennsylvania, Inc.	Docket No. R-2021-3027385	CGDCF of the Value Line Universe and S&P 500 (12.14%) ⁵²	5/12/22	Yes, the PPUC placed primary weight on I&E's CAPM ⁵³
Staff of the MPUC	Northern Utilities, Inc.	Docket No. 2019-00092	CGDCF of the dividend-paying companies in the S&P 500 (11.33%-13.49%) ⁵⁴	4/1/20	Yes ⁵⁵

11 **Q. Have the courts addressed Mr. Walters' and Mr. Garrett's assertion that your**
 12 **forward-looking market return is inflated?**

13 **A.** Yes. In its review of FERC Opinion No. 569-B, the U.S. State Court of Appeals for
 14 the District of Columbia ("Court") addressed the concern regarding the use of projected

⁵² Pennsylvania Public Utility Commission, Aqua Pennsylvania, Inc., Opinion and Order at 147, Public Meeting held May 12, 2022.

⁵³ *Id.* at 178.

⁵⁴ Northern Utilities, Inc. d/b/a Until Request for Approval of Rate Change, Docket No. 2019-00092, Bench Analysis at 21 (Oct. 29, 2019).

⁵⁵ *Id.*, at 58.

1 EPS growth rates in a constant growth DCF model to estimate the market return. In the
2 Court's decision, it acknowledged that the FERC has relied on the use of projected EPS
3 growth rates in the calculation of the market return on the S&P 500 because the S&P
4 500 is regularly updated to include companies with high market capitalization and it
5 includes companies at all stages of growth, including lower and higher growth
6 potential. The Court determined that FERC's rationale for using projected EPS growth
7 rates was sufficient and did not accept the challenge to this assumption.⁵⁶

8 VII. ECAPM ANALYSIS

9 **Q. What are Mr. Walters' and Mr. Garrett's positions regarding your ECAPM**
10 **analysis?**

11 A. Mr. Walters and Mr. Garrett contend that the use of an adjusted beta along with the
12 adjustments in the ECAPM are effectively duplicative and thus produces overstated
13 results.⁵⁷ In addition, Mr. Garrett also contends that the *Value Line* adjustment to betas
14 overstates betas for firms with a beta less than 1.0, and as he indicated regarding my
15 CAPM, he states that my ECAPM also suffers from an overstated market return, and
16 thus market risk premium.⁵⁸

17 **Q. Do you agree with Mr. Walters and Mr. Garrett that it is not appropriate to use**
18 **adjusted betas in the ECAPM?**

19 A. No, I do not. The purpose of adjusting beta in the CAPM is to account for the tendency
20 of beta to trend back over time to the market beta of 1.00. The betas published by *Value*

⁵⁶ United States Court of Appeals, District of Columbia Circuit, Opinion, Docket No. 16-1325 at 19 (Aug. 9, 2022).

⁵⁷ Direct Testimony of Christopher C. Walters at 66 (WOCA Exhibit No. 602); Direct Testimony of David J. Garrett at 57-58 (WIEC Exhibit No. 201).

⁵⁸ Direct Testimony of David J. Garrett at 57-58 (WIEC Exhibit No. 201).

1 *Line* include this adjustment, which was first proposed by Marshall E. Blume in 1975.⁵⁹
2 The use of adjusted betas in the CAPM is important because if beta trends towards
3 1.00, as Blume noted, then the adjusted beta will be more reflective of the beta that can
4 be expected over the near-term. This is equally important in the specification of the
5 CAPM in this case since we are estimating the cost of equity for the Company over the
6 near-term.

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

16 **Q. Can you demonstrate that using adjusted betas in the CAPM and relying on the**
17 **ECAPM are two distinct adjustments to the CAPM?**

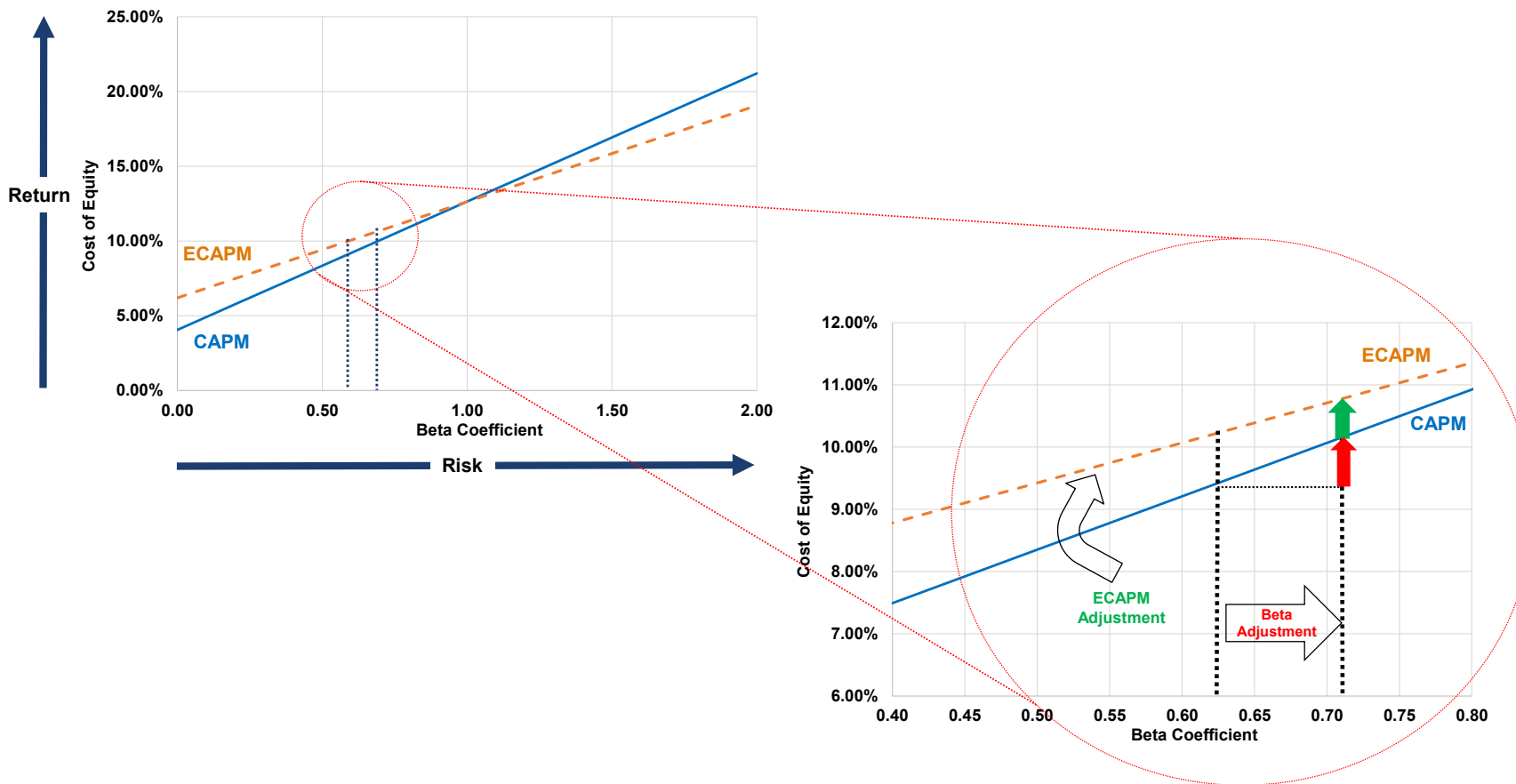
18 A. Yes. Figure 8 demonstrates the point that adjusting betas and adjusting the slope of the
19 risk/return relationship through the ECAPM are two distinct adjustments and are not
20 duplicative as alleged by Mr. Walters and Mr. Garrett. As shown in Figure 8, when
21 beta is adjusted to recognize that betas revert to the market mean of 1.0 over time and

⁵⁹ Marshall E. Blume, *Betas And Their Regression Tendencies*. The Journal of Finance, Vol. 30, No. 3, pp. 785--795 (1975).

1 used in the CAPM, the resulting adjustment is shown by the red arrow in the lower
2 right-hand corner. Separately, when the ECAPM is employed to recognize that the
3 risk/return relationship is flatter than predicted by the CAPM, the resulting adjustment
4 is shown by the green arrow in the lower right-hand corner. To the extent that a
5 company with a beta greater than 1.0 were being evaluated, the same process of two
6 separate adjustments would apply, albeit in the opposite direction from what is shown
7 in Figure 8, and would result in a decrease in the cost of equity otherwise predicted by
8 the CAPM.

1

Figure 8: Risk/Return Relationship between CAPM and ECAPM



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

3 A. Yes. For example, Chrétien and Coggins (2011) studied the CAPM and its ability to
 4 estimate the risk premium for the utility industry in particular subgroups of utilities for
 5 a data set that included market data through the end of 2006.⁶⁰ Chrétien and Coggins
 6 considered the CAPM, the Fama-French three-factor model and a model similar to the
 7 ECAPM. The study shows that the ECAPM significantly outperformed the traditional
 8 CAPM at predicting the observed risk premium for the various utility subgroups.

9 Additionally, Mr. Walters' and Mr. Garrett's concern with the ECAPM analysis
 10 is addressed directly by Dr. Roger Morin in his 2021 text Modern Regulatory Finance
 11 as follows:

12 Because of this adjustment, some critics of the ECAPM argue that the
 13 use of Value Line adjusted betas in the traditional CAPM amounts to
 14 using an ECAPM. This is incorrect. The use of adjusted betas in a
 15 CAPM analysis is not equivalent to the ECAPM. Betas are adjusted
 16 because of the regression tendency of betas to converge towards 1.0
 17 over time. We have seen that numerous empirical studies have
 18 determined that the SML [Security Market Line] described by the
 19 CAPM formula at *any given moment* in time is not as steeply sloped as
 20 the predicted SML. The slope of the SML should not be confused with
 21 Beta. On the point, Eugene F. Brigham, finance professor and the
 22 author of many financial textbooks states:

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

⁶⁰ Stéphane Chrétien, and Frank Coggins, *Cost Of Equity For Energy Utilities: Beyond The CAPM*. Energy Studies Review, Vol. 18, No. 2 (2011).

1 **Q. Please summarize Mr. Walters' Risk Premium analyses?**

2 A. Mr. Walters conducts two Risk Premium analyses: one based on utility equity risk
3 premia relative to yields on 30-year Treasury bonds (referred to herein as his "Treasury
4 Bond Approach"), and one based on utility equity risk premia relative to yields on
5 Moody's A-rated utility bonds (referred to herein as his "Utility Bond Approach"). To
6 calculate the equity risk premium used in each of these analyses, Mr. Walters first
7 calculates the five-year rolling average of the implied equity risk premium. In his
8 Treasury Bond Approach, the implied equity risk premium is calculated as the
9 difference between average annual authorized returns and the average annual yield on
10 the 30-year Treasury bond in each year from 1986 through 2023. In his Utility Bond
11 Approach, the implied equity risk premium is the difference between the authorized
12 ROEs and the yields on A-rated utility bonds in each year over the same time frame.
13 The implied risk premia used in both of his analyses are then estimated by taking an
14 average of the 50th and 75th percentile of the historical five-year rolling average risk
15 premia over Treasury bonds and A- rated utility bonds, respectively. The resulting risk
16 premia of Mr. Walters's analyses are 6.03 percent (Treasury Bond Approach) and
17 4.67 percent (Utility Bond Approach).⁶⁴

18 As shown in Table CCW-9 of his testimony, Mr. Walters uses these two risk
19 premium estimates to develop five estimates of the cost of equity:

- 20 • A cost of equity of 9.88 percent based on the sum of his Treasury bond risk
21 premium (6.08 percent) and the near-term projected 30-year Treasury bond yield
22 from *Blue Chip Financial Forecasts* as of July 2023 (3.80 percent).
- 23 • A cost of equity of 10.01 percent based on the sum of the A-rated utility bond risk
24 premium (4.67 percent) and the 13-week average A-rated utility bond yield as of

⁶⁴ Direct Testimony of Christopher C. Walters at 47 (WOCA Exhibit No. 602).

- 1 July 7, 2023 (5.34 percent).
- 2 • A cost of equity of 10.35 percent based on the sum of the A-rated utility bond risk
3 premium (4.67 percent) and the 13-week average Baa-rated utility bond yield as of
4 July 7, 2023 (5.68 percent).
- 5 • A cost of equity of 9.96 percent based on the sum of the A-rated utility bond risk
6 premium (4.67 percent) and the 26-week average A-rated utility bond yield as of
7 July 7, 2023 (5.29 percent).
- 8 • A cost of equity of 10.27 percent based on the sum of the A-rated utility bond risk
9 premium (4.67 percent) and the 26-week average Baa-rated utility bond yield as of
10 July 7, 2023 (5.60 percent).

11 Mr. Walters concludes that a reasonable ROE from his five Risk Premium analyses is
12 9.95 percent.⁶⁵

13 **Q. How does your Bond Yield Plus Risk Premium (“BYRP”) approach differ from**
14 **Mr. Walters’ Risk Premium analysis?**

15 A. While Mr. Walters and I agree that it is reasonable to conduct and consider the results
16 of a Risk Premium analysis, Mr. Walters and I disagree as to how to reflect the changing
17 relationship between interest rates and the equity premium. Specifically, I develop a
18 regression analysis that reflects the dynamic relationship between authorized returns
19 and Treasury bond yields over a significantly longer period of time, and I input a current
20 or projected bond yield into that equation. The benefit of conducting a regression
21 analysis is that the resulting predictive equation can be used to estimate a
22 forward-looking equity risk premium that corresponds to *any* interest rate that an
23 analyst wishes to specify. By specifying the interest rate projected for the time period
24 that the Companies’ rates from this proceeding will be in effect, one can estimate an

⁶⁵ *Id.*, at 48.

1 equity risk premium (and thus a cost of equity) for the forward-looking time period that
2 corresponds with the rates that are set in this proceeding.

3 In contrast, Mr. Walters calculates a rolling five-year average risk premium,
4 arbitrarily relies on an average of the third quartile of those rolling five-year average
5 risk premiums, and then merely adds that static historical average risk premium to a
6 current and/or projected bond yield. In other words, Mr. Walters's methodology
7 attempts to estimate a forward-looking equity risk premium based on an average of
8 historical five-year rolling averages of the risk premia. However, because Mr. Walter's
9 method sums a *current* or *projected* interest rate (*i.e.*, either a Treasury bond yield or a
10 utility bond yield) that is different than the *historical average* interest rate over the
11 historical time period he uses to estimate the risk premium, he invalidates his results
12 by failing to account for the dynamic and inverse relationship between risk premia and
13 interest rates.

14 **Q. Can you illustrate why it is incorrect to apply a historical implied equity risk
15 premium to a projected interest rate, as Mr. Walters has done?**

16 A. Yes. For example, in his Treasury Bond Approach, Mr. Walters adds a near-term
17 projected Treasury bond yield of 3.80 percent to his historically-derived Treasury bond
18 risk premium of 6.08 percent, which results in his estimated cost of equity of 9.88
19 percent. However, as shown in RMP Exhibit 4.25, page 1, the average of the 30-year
20 rolling average 30-year Treasury bond yields in the third quartile over the 1986–2023
21 period was 4.32 percent, or 52 basis points *higher* than the near-term projected Treasury
22 bond yield relied on by Mr. Walters. While it does not accurately account for the
23 dynamic and inverse relationship between risk premia and interest rates such as a

1 regression equation, even if Mr. Walters had aligned his historical average equity risk
2 premium with the historical average Treasury or utility bond yield over the same
3 period, the resulting cost of equity is substantially higher than he has estimated.

4 For example, as shown on RMP Exhibit 4.25, page 1, if his estimated equity
5 risk premium from 1986 to 2023 of 6.08 percent is matched with the third quartile
6 average historical 30-year Treasury bond yield of 4.32 percent over this same period,
7 the result produces a cost of equity of 10.40 percent, or approximately 50 basis points
8 higher than the cost of equity result that he derives from his Treasury Bond Approach.
9 Likewise, as shown on RMP Exhibit 4.25, page 2, if his estimated utility bond equity
10 risk premium from 1986 to 2023 of 4.67 percent is matched with the third quartile
11 average historical A-rated utility bond yield of 5.70 percent over this same period, the
12 result produces a cost of equity of 10.37 percent, or approximately 35 to 40 basis points
13 higher than the cost of equity result that he derives from his Utility Bond Approach
14 (depending on whether a 13-week or 26-week averaging period is used for the bond
15 yield).

16 Again, while not correcting for the failure of Mr. Walters's analysis to
17 appropriately consider the inverse relationship between equity risk premia and interest
18 rates, these results highlight the downward bias of his Risk Premium analysis, and
19 demonstrates that his recommended cost of equity from this analysis is understated.

1 **Q. What is Mr. Walters' position regarding your BYRP analysis?**

2 A. Mr. Walters states that my BYRP analysis relies on a “simplistic” regression analysis
3 to estimate the cost of equity for the Companies, and it fails to account for other factors
4 beyond interest rates that affect the equity risk premium.⁶⁶

5 **Q. Do you agree with Mr. Walters' assertion?**

6 A. No. Mr. Walters fails to recognize that a large body of research supports the inverse
7 relationship between equity risk premia and interest rates. For example, Berry (1998)
8 came to similar conclusions regarding the inverse relationship between interest rates
9 and the risk premia.⁶⁷ Also, as summarized in *New Regulatory Finance*:

10 Published studies by Brigham, Shome, and Vinson (1985), Harris
11 (1986), Harris and Marston (1992, 1993), Carleton, Chambers, and
12 Lakonishok (1983), Morin (2005), and McShane (2005), and others
13 demonstrate that, beginning in 1980, risk premiums varied inversely
14 with the level of interest rates—rising when rates fell and declining
15 when interest rates rose. The reason for this relationship is that when
16 interest rates rise, bondholders suffer a capital loss. This is referred to
17 as interest rate risk.... Conversely in low interest rate environments,
18 when bondholders' interest rate fears subside and shareholders' fears of
19 loss of earning power dominate, the risk differential will widen and
20 hence the risk premium will increase.⁶⁸

21 Furthermore, as shown on RMP Exhibit 4.18, the regression in my BYRP
22 analysis has an R-squared of approximately 0.83, which means that 83 percent of the
23 variation in historical implied utility equity risk premia can be explained by changes in
24 interest rates. Thus, counter to Mr. Walters' contention, my results indicate that there
25 indeed exists a strong negative correlation between utility equity risk premia and
26 interest rates.

⁶⁶ Direct Testimony of Christopher C. Walters at 70 (WOCA Exhibit No. 602).

⁶⁷ S. Keith Berry, *Interest Rate Risk and Utility Risk Premia during 1982-83*. Managerial Decision Economics, Vol. 19, No. 2, March, 1998.

⁶⁸ Dr. Roger A. Morin, *New Regulatory Finance*. Public Utilities Reports, Inc., at 128 (2006).

1 **Q. Is it important to consider the relationship between authorized ROEs and**
2 **Treasury bond yields such as you have done in your BYRP analysis?**

3 A. Yes. It is unquestionable that both credit rating agencies and investors consider the
4 authorized ROE data in their determination of the valuation of utility stocks. Therefore,
5 the relationship between recently authorized ROEs and the prevailing interest rates at
6 the time that the ROE was authorized is reasonable to consider when setting the ROE
7 in the context of a rate proceeding. To the extent that the returns in a jurisdiction are
8 lower than the returns that have been authorized more broadly, credit rating agencies
9 will consider this in the overall risk assessment of the regulatory jurisdiction in which
10 the company operates. As I discussed in my direct testimony, both credit rating
11 agencies and investors have responded negatively to authorized ROEs deemed to be
12 low.⁶⁹ It is important to consider credit ratings because they affect the overall cost of
13 borrowing, and they act as a signal to equity investors about the risk of investing in the
14 equity of a company. Therefore, lower credit ratings can affect both the cost of debt
15 and equity.

16 **Q. Why does Mr. Garrett not conduct a Risk Premium analysis to estimate the cost**
17 **of equity for RMP?**

18 A. Mr. Garrett states that he disagrees with the premise of the BYRP analysis on the basis
19 that “awarded ROEs have consistently exceeded utility market-based cost of equity for
20 decades.”⁷⁰ As such, Mr. Garrett concludes that such models “perpetuate the
21 discrepancy between awarded ROEs and actual utilities’ costs of equity.”⁷¹ Finally, he

⁶⁹ Direct Testimony of Ann E. Bulkley at 55-56 (RMP Exhibit 4.0).

⁷⁰ Direct Testimony of David J. Garrett at 55 (WIEC Exhibit No. 201).

⁷¹ *Id.*, at 56.

1 states that the risk premium analysis is “unnecessary when we already have a real risk
2 premium model to use: the CAPM.”⁷²

3 **Q. Do you agree with Mr. Garrett’s position?**

4 A. No. I fundamentally disagree with Mr. Garrett’s claim that regulators across the U.S.
5 have consistently incorrectly authorized ROEs substantially higher than the cost of
6 equity for decades. Regulatory commissions are mandated to approve rates that
7 balance the interests of customers and shareholders and that are just and reasonable.
8 Rather, given their legal mandates for just and reasonable rates, it has to be concluded
9 that the ROEs authorized by regulatory commissions were deemed by those agencies
10 to reflect the investor-required return and produced just and reasonable rates.
11 Mr. Garrett has provided no evidence that regulatory commissions have been
12 consistently approving unjust and unreasonable rates for decades as he suggests.

13 **IX. ADJUSTED RESULTS OF MR. WALTERS’ COST OF EQUITY ANALYSES**

14 **Q. How do the results of Mr. Walters’ cost of equity analyses change based on the
15 issues that you have identified and discussed herein?**

16 A. As noted initially, Mr. Walters’ recommendation is understated without making any
17 adjustments to his analyses based on the fact that the results of his cost of equity
18 analyses in this proceeding are higher relative to those same analyses in his recent
19 testimony in the North Shore/Peoples Gas proceeding in Illinois, yet Mr. Walters
20 nonetheless suggests the results in this proceeding indicate a lower cost of equity.
21 Setting this inconsistency aside, as shown in Figure 9, the average of Mr. Walters’ cost
22 of equity analyses would be 10.15 (median) or 10.24 percent (average) if the issues that

⁷² *Id.*

1 I have discussed are adjusted. Specifically, for the reasons discussed previously, I
2 have:

- 3 • excluded the results of Mr. Walters’s constant growth DCF using sustainable
4 growth rates and his multi-stage DCF analysis;
- 5 • excluded the 3 CAPM scenarios that relied on the *Kroll* “normalized” market risk
6 premium; and,
- 7 • aligned his estimated historical equity risk premia with the historical 30-year
8 Treasury bond yield and A-rated utility bond yield over the same period.

9 Based on these changes to Mr. Walters’ cost of equity analyses, the average and
10 median results would range from 10.15 percent to 10.24 percent, or consistent with the
11 Company’s requested ROE in this proceeding, and consistent with the results of my
12 cost of equity analyses.

1 **Figure 9: Mr. Walters As-Filed versus As-Adjusted Cost of Equity Results**

	<u>Mr. Walters As-Filed</u>		<u>Mr. Walters As-Adjusted</u>	
	<u>Average</u>	<u>Median</u>	<u>Average</u>	<u>Median</u>
<u>DCF</u>				
Constant Growth (analyst growth rates)	10.34%	10.11%	10.34%	10.11%
Constant Growth (sustainable growth rates)	9.08%	8.69%	n/a	n/a
Multi-Stage	8.66%	8.58%	n/a	n/a
DCF Cost of Equity	9.20%		10.34%	10.11%
<u>CAPM</u>				
<i>Kroll</i> Normalized Method:	8.44%	8.40%	n/a	n/a
Risk Premium Method:	10.03%	9.97%	10.03%	9.97%
FERC DCF Method:	9.99%	9.93%	9.99%	9.93%
CAPM Cost of Equity	9.40%		10.01%	9.95%
<u>Risk Premium</u>				
Treasury Bond Yield Approach				
Hist. Equity Risk Prem. / Proj. 30yr Treas. Bond Yld.	9.63%		n/a	
Align Hist. Equity Risk Prem. / Hist. Treas. Bond Yld.	n/a		10.40%	
Utility Bond Yield Approach				
A-rated bond / 13 Week Avg. Treas. Bond Yield	10.01%		n/a	
Baa-rated bond / 13 Week Avg. Treas. Bond Yield	10.35%		n/a	
A-rated bond / 26 Week Avg. Treas. Bond Yield	9.96%		n/a	
Baa-rated bond / 26 Week Avg. Treas. Bond Yield	10.27%		n/a	
Align Hist. Equity Risk Prem. / Hist. Util. Bond Yld.	n/a		10.37%	
Risk Premium Cost of Equity	9.95%		10.39%	10.39%
Overall Cost of Equity	9.55%		10.24%	10.15%

2 **X. CAPITAL STRUCTURE**

3 **Q. What is Mr. Walters' opinion regarding the Company's proposed capital**
4 **structure?**

5 A. Mr. Walters contends that the Company's proposed equity ratio of 51.27 percent
6 significantly exceeds the equity ratio of the proxy group of 42.30 percent (including
7 short-term debt) and 45.50 percent (excluding short-term debt),⁷³ and that regulatory
8 commissions recognize the need to align the authorized ROE with the authorized

⁷³ Direct Testimony of Christopher C. Walters at 29 (WOCA Exhibit No. 602).

1 capital structure. Mr. Walters does not propose a change to the Company's proposed
2 capital structure, and acknowledges that the Company's proposed capital structure "is
3 generally consistent with what has been authorized to other regulated electric utilities
4 throughout the country over the last several years."⁷⁴

5 **Q. Do you agree with Mr. Walters' capital structure comparison to the proxy group?**

6 A. No. Mr. Walters considers the common equity ratio for the proxy group companies at
7 the holding company level, not the utility operating subsidiaries, which includes
8 corporate-level debt that is not part of the regulated or financial capital structure of the
9 operating utilities. Simply because the parent companies in the proxy group are used
10 to estimate the Company's cost of equity does not mean that the *holding company*
11 capital structures are the relevant comparators for establishing the Company's
12 authorized capital structure. There is no question that the utility operating subsidiaries
13 of those holding companies are *more* comparable to RMP in terms of risk. Holding
14 companies have multiple regulated utility subsidiaries, including in multiple
15 jurisdictions, as well as unregulated operations or other business activities, which
16 differs from the Company's purely regulated utility operations in a single jurisdiction.
17 Therefore, the appropriate comparison for the Company's proposed capital structure is
18 a comparison to the capital structures of the utility operating subsidiaries of the proxy
19 group companies, which, as shown in my direct testimony, RMP's proposed equity
20 ratio of 51.27 percent is well within the range of equity ratios for the utility operating

⁷⁴ *Id.*, at 30.

1 subsidiaries of the proxy group companies, and is in fact below the average, indicating
2 that the Company has relatively greater financial risk as compared to the proxy group.⁷⁵

3 XI. BUSINESS RISKS

4 **Q. Do any of the witnesses discuss the Company's business risks?**

5 A. While Ms. Perry has not conducted any independent cost of equity analyses, she claims
6 that the Company's requested ROE is excessive in light of the Company's proposed
7 future test year and its proposal to eliminate the sharing band associated with its net
8 power costs ("NPC"). While making this claim, she does not recommend any changes
9 to the Company's proposals, nor as noted, offer an independent ROE recommendation.

10 **Q. If the Commission were to approve the Company's use of a future test year and**
11 **eliminate the sharing band on the NPC, would this reduce the Company's risk**
12 **such as suggested by Ms. Perry?**

13 A. No. Ms. Perry provides no analysis of the risk of the Company relative to other
14 comparable utilities on either of these issues or any other issues. In contrast, in RMP
15 Exhibit 4.10 of my direct testimony, I reviewed the utility operating subsidiaries of the
16 proxy group companies and determined that nearly half utilized a forecasted test year.
17 Therefore, the use of a forward test year in this proceeding does not by itself mitigate
18 the risk of the Company relative to the proxy group if approved by the Commission.
19 Likewise, as also shown on RMP Exhibit 4.10, all of the electric utilities have power
20 cost recovery mechanisms, and only approximately 13 percent of those utilities
21 currently have a sharing band. Thus, the elimination of the NPC sharing band again

⁷⁵ Direct Testimony of Ann E. Bulkley at 82-83 (RMP Exhibit 4.0).

1 does not mitigate the risk of the Company relative to the proxy group if approved by
2 the Commission.

3 Therefore, although Ms. Perry has made no specific recommendation in her
4 testimony regarding the Company's proposed test year or elimination of the
5 NPC-sharing band, my testimony demonstrates that the proxy group is of comparable
6 risk to the Company with regard to these two issues and that Ms. Perry's suggestion of
7 the Company's risk being reduced if the Commission were to approve a future test year
8 and/or eliminate the NPC sharing band should be rejected.

9 XII. WILDFIRE RISK

10 **Q. How do you respond to Mr. Walters' view that the Wyoming customers of**
11 **PacifiCorp should be held harmless from any potential increase in the cost of**
12 **capital as a result of the risk related to the specific wildfire event in Oregon?**⁷⁶

13 A. Mr. Walters fails to consider the fact that the credit rating of PacifiCorp includes the
14 aggregate risks resulting from each regulatory jurisdiction where the Company
15 operates. Accessing the capital markets with a more diversified risk profile has
16 provided benefits to all of PacifiCorp's customers, including the Wyoming customers.
17 Failure to provide support at this time because this specific incident is not jurisdictional
18 has the potential to undermine the financial health of PacifiCorp and harms customers
19 in all jurisdictions.

⁷⁶ Direct Testimony of Christopher C. Walters at 28 (WOCA Exhibit No. 602).

1 **Q. Why is it important that each of the commissions that regulate PacifiCorp provide**
2 **the necessary support to ensure the financial health of the Company?**

3 A. The business of generating and delivering electricity to customers encounters many
4 risk factors that must be addressed by regulatory commissions in aggregate through
5 constructive rate design, capital structures and the cost of capital in order to maintain
6 the financial health of the electric utilities. Maintaining the financial strength of the
7 utilities helps to ensure that they have continued access to capital in all market
8 conditions, which provides the lowest overall cost to customers in the long-term.

9 **Q. How does the support from the Commission in response to the risk of wildfires**
10 **align with the stand-alone ratemaking principle that is relied upon in utility**
11 **ratemaking?**

12 A. PacifiCorp finances and manages its operations as a system across multiple
13 jurisdictions, which has provided benefits to each jurisdiction. PacifiCorp accesses the
14 capital markets for the broader company and allocates that capital to the operating
15 companies in each jurisdiction. The ability to access capital on a larger scale based on
16 the diversified entity has provided benefits to all customers across the system.
17 Therefore, it is necessary for the regulatory commissions to continue to support the
18 financial health of the Company to maintain access to capital on reasonable terms.

19 **Q. Have equity analysts recognized the risk related to wildfires?**

20 A. Yes. Recently BofA issued a report discussing the risk related to wildfires, particularly
21 noting how the risks from Hawaii, PacifiCorp and Xcel Colorado reverberate across
22 the electric utility sector. BofA noted that investors are increasingly de-risking and that
23 the risk of wildfires is “outflanking any other factor exposure of a given utility equity.”

1 Further, BofA noted that more regulatory involvement is necessary to address the
2 concerns of wildfires, looking to the Wildfire Mitigation Plans required of the
3 California utilities under California Assembly Bill 1054 as a model to help de-risk the
4 activities of the investor-owned utilities.⁷⁷

5 **Q. Does RMP have a stand-alone credit rating for the Wyoming operations?**

6 A. No. RMP is not rated, but rather relies on PacifiCorp for access to the capital markets
7 based on the PacifiCorp credit rating.

8 **Q. How have the credit rating agencies responded to PacifiCorp's risk related to
9 wildfires?**

10 A. Standard & Poor's downgraded the issuer rating on PacifiCorp two notches to BBB+
11 from A, the short-term rating to A-2 from A-1, lowered the ratings on the Company's
12 first mortgage bonds to A from A+, senior unsecured debt to BBB+ from A and
13 preferred stock to BBB- from BBB+. In addition, S&P revised the outlook on
14 PacifiCorp to negative from stable, which means that the rating agency could lower the
15 ratings further in the next 24 months. Based on the credit rating agency's review of the
16 verdict in the wildfire cases, S&P believes that the Company's operating risk has
17 significantly increased. As such, S&P assessed PacifiCorp's stand-alone credit profile
18 at bb+.⁷⁸

19 Moody's noted that without the negative effects of the wildfire litigation, they
20 expected the Company's cash flow from operations ("CFO") pre-working capital to
21 debt coverage ratio to be at the low end of the 18 to 21 percent range that is required of

⁷⁷ BofA Securities, BofA Global Research, US Electric Utilities & IPPs. *As the leaves fall, preparing for Autumn utility outlook. Mocco still has potholes* at 2 (Sept. 6, 2023).

⁷⁸ S&P Global Ratings, Research Update: PacifiCorp Downgraded to 'BBB+', Outlook Revised to Negative; Berkshire Hathaway Energy Co. Outlook also Negative, June 20, 2023.

1 the A3 rating. There were several factors noted that could weaken the rating including
2 volatility in fuel and purchase power costs, the timing of capital spending and the
3 outcome of rate cases and payments on wildfire claims. These factors could increase
4 the pressure on metrics making them less supportive of the current A3 rating.⁷⁹

5 **Q. How does the regulation in each jurisdiction affect the credit rating of PacifiCorp?**

6 A. As discussed, my direct testimony,⁸⁰ Moody's assigns a 50.00 percent weighting in its
7 overall assessment of business and financial risk to the regulatory environment. S&P
8 identifies the regulatory framework as an important factor in credit ratings for regulated
9 utilities. Moody's has also noted that the regulatory environment and how the utility
10 adapts to that environment are the most important credit considerations.⁸¹ Therefore,
11 the supportiveness of regulation affects a regulated utility's credit ratings and cost of
12 equity.

13 **Q. Do the rating agencies view all regulatory jurisdictions as being equally**
14 **supportive?**

15 A. No, they do not. There are two primary rankings of the regulatory jurisdictions that I
16 am aware of that are updated regularly: (1) the Regulatory Research Associates
17 ("RRA") ranking of regulatory jurisdictions; and (2) S&P's ranking of the credit
18 supportiveness of regulatory jurisdictions.

19 **Q. Please explain the RRA rankings of the regulatory jurisdictions.**

20 A. RRA develops their ranking based on their assessment of how investors perceive the
21 regulatory risk associated with ownership of utility securities in that jurisdiction,

⁷⁹ Moody's Investors Service, Rating Action: *Moody's revises PacifiCorp's outlook to negative, affirms ratings* (June 23, 2023).

⁸⁰ Direct Testimony of Ann E. Bulkley at 49 (RMP Exhibit 4.0).

⁸¹ Moody's Investors Service, Rating Methodology: Regulated Electric and Gas Utilities at 6 (June 23, 2017).

1 specifically reflecting their assessment of the probable level and quality of earnings to
2 be realized by the state's utilities as a result of regulatory, legislative, and court actions.
3 RRA assigns a ranking for each regulatory jurisdiction between "Above Average/1" to
4 "Below Average/3," with nine total rankings between these categories.

5 **Q. How does S&P assign rankings to the credit supportiveness of regulatory**
6 **commissions?**

7 A. For credit supportiveness, S&P classifies each regulatory jurisdiction into five
8 categories that range from "Credit Supportive", which is the lowest ranking to "Most
9 Credit Supportive", which is the highest ranking. Figure 1 below summarizes the
10 rankings used by S&P and RRA.

1 **Figure 10: S&P and RRA Rankings of Regulatory Jurisdictions**

Ranking	S&P	RRA
<p data-bbox="289 331 357 363">Low</p> <p data-bbox="324 394 349 640">↓</p> <p data-bbox="289 877 357 909">High</p>	<p data-bbox="435 331 800 363">Credit supportive (adequate)</p> <p data-bbox="435 373 959 405">More credit supportive (strong/adequate)</p> <p data-bbox="435 415 954 447">Very credit supportive (strong/adequate)</p> <p data-bbox="435 457 979 489">Highly credit supportive (strong/adequate)</p> <p data-bbox="435 499 833 531">Most credit supportive (strong)</p>	<p data-bbox="1094 331 1320 363">Below Average/3</p> <p data-bbox="1094 373 1320 405">Below Average/2</p> <p data-bbox="1094 415 1320 447">Below Average/1</p> <p data-bbox="1094 457 1227 489">Average/3</p> <p data-bbox="1094 499 1227 531">Average/2</p> <p data-bbox="1094 541 1227 573">Average/1</p> <p data-bbox="1094 583 1320 615">Above Average/3</p> <p data-bbox="1094 625 1320 657">Above Average/2</p> <p data-bbox="1094 667 1320 699">Above Average/1</p>

2 **Q. How have S&P and RRA ranked the jurisdictions where PacifiCorp provides**
 3 **service?**

4 **A.** As shown in Figure 11, the rankings vary somewhat across the jurisdictions that
 5 regulate PacifiCorp's operations.

6 **Figure 11: S&P and RRA Rankings of PacifiCorp regulatory jurisdictions**

Jurisdiction	S&P Ranking	RRA Ranking
California	More credit supportive	Average-1
Idaho	Very credit supportive	Average-2
Oregon	More credit supportive	Average-2
Utah	Highly credit supportive	Average-3
Washington	Very credit supportive	Average-3
Wyoming	Very credit supportive	Average-2

7 The operating risk profile of the Company is diversified based on the risks of each
 8 jurisdiction. This diversification affects the cost of capital for all PacifiCorp customers.

1 Therefore, regulatory actions in each jurisdiction have the ability to affect the credit
2 rating and cost of capital across the system.

3 **Q. How does the financial market respond to the risk associated with wildfires?**

4 A. In 2019, Moody's issued a report evaluating the financial risk and potential regulatory
5 support for the larger California electric utilities that faced wildfire risks at that time.
6 Moody's indicated that there is significant uncertainty in the financial and investment
7 community regarding the affected utility's ability to recover the related costs in a timely
8 manner. Moody's also noted that timely recovery is critical to maintain a company's
9 near-term liquidity profile as well as its long-term credit quality. Absent constructive
10 regulation, the affected utility can have difficulty accessing the capital markets that can
11 lead to insolvency.⁸²

12 **Q What is your conclusion regarding the need for regulatory support for PacifiCorp
13 in as it faces the risk associated with wildfires?**

14 A. It is clear that equity investors perceive the risk associated with wildfires to be
15 significant, which could affect access to capital for Western utilities that face this risk
16 factor, including PacifiCorp. Strong regulatory support will be critical to maintaining
17 the financial strength of the Company, which has long-term benefits for all customers
18 by providing access to capital on reasonable terms.

19 **Q. Does this conclude your rebuttal testimony?**

20 A. Yes.

⁸² Moody's Investors Service, Electric Utilities – US, Potential remedies to reduce California Fire risk face competing interests at p. 2 (Apr. 3, 2019).

BEFORE THE PUBLIC SERVICE COMMISSION OF WYOMING

IN THE MATTER OF THE)
APPLICATION OF ROCKY)
MOUNTAIN POWER FOR)
AUTHORITY TO INCREASE ITS)
RETAIL ELECTRIC SERVICE RATES)
BY APPROXIMATELY \$140.2)
MILLION PER YEAR OR 21.6)
PERCENT AND TO REVISE THE)
ENERGY COST ADJUSTMENT)
MECHANISM)

DOCKET NO. 20000-633-ER-23
(RECORD NO. 17252)

AFFIDAVIT, OATH AND VERIFICATION

Ann E, Bulkey (Affiant) being of lawful age and being first duly sworn, hereby deposes and says that:

Affiant is a Principal at The Brattle Group and has filed testimony on behalf of PacifiCorp d/b/a Rocky Mountain Power, which is a party in this matter.

Affiant prepared and caused to be filed the foregoing testimony. Affiant has, by all necessary action, been duly authorized to file this testimony and make this Oath and Verification.

Affiant hereby verifies that, based on Affiant's knowledge, all statements and information contained within the testimony and all of its associated attachments are true and complete and constitute the recommendations of the Affiant in their official capacity as Principal with The Brattle Group.

Further Affiant Sayeth Not.

Dated this 21st day of September, 2023


Ann Bulkey
Principal

COMMONWEALTH OF MASSACHUSETTS)
) SS:
COUNTY OF SUFFOLK)

The foregoing was acknowledged before me by Ann E. Bulkey on this 21st day of September, 2023. Witness my hand and official seal.


Notary Public

My Commission Expires:



Gerard M. Rooney
NOTARY PUBLIC
Commonwealth of
Massachusetts
My Commission Expires
6/30/2028



Rocky Mountain Power
Exhibit 4.13
Docket No. 20000-633-ER-23
Witness: Ann E. Bulkley

BEFORE THE WYOMING PUBLIC SERVICE
COMMISSION

ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Ann E. Bulkley
Summary of Results (Rebuttal)

September 2023

SUMMARY OF ROE ANALYSES RESULTS AS OF July 31, 2023

<i>Constant Growth DCF</i>			
	Minimum Gwth Rate	Average Gwth Rate	Maximum Gwth Rate
Mean Results:			
30-Day Avg. Stock Price	8.75%	9.85%	10.76%
90-Day Avg. Stock Price	8.68%	9.78%	10.69%
180-Day Avg. Stock Price	8.69%	9.79%	10.70%
Average	8.71%	9.80%	10.72%
Median Results:			
30-Day Avg. Stock Price	9.11%	9.76%	11.02%
90-Day Avg. Stock Price	9.01%	9.66%	10.90%
180-Day Avg. Stock Price	9.01%	9.71%	10.81%
Average	9.04%	9.71%	10.91%
<i>CAPM / ECAPM / Bond Yield Risk Premium</i>			
	Current 30-Day Avg 30-Year Treasury Yield	Near-Term Projected 30-Year Treasury Yield	Longer-Term Projected 30-Year Treasury Yield
CAPM:			
Current <i>Value Line</i> Beta	10.84%	10.83%	10.82%
Current Bloomberg Beta	10.20%	10.19%	10.17%
Long-term Avg. <i>Value Line</i>	9.87%	9.86%	9.84%
ECAPM:			
Current <i>Value Line</i> Beta	11.08%	11.08%	11.07%
Current Bloomberg Beta	10.60%	10.60%	10.58%
Long-term Avg. <i>Value Line</i> Beta	10.35%	10.35%	10.33%
Bond Yield Risk Premium:	10.32%	10.31%	10.27%

Rocky Mountain Power
Exhibit 4.14
Docket No. 20000-633-ER-23
Witness: Ann E. Bulkley

BEFORE THE WYOMING PUBLIC SERVICE
COMMISSION

ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Ann E. Bulkley
Constant Growth Discounted Cash Flow Model (Rebuttal)

September 2023

30-DAY CONSTANT GROWTH DCF – RMP PROXY GROUP

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line EPS Growth	Yahoo! Finance EPS Growth	Zacks EPS Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	\$2.71	\$58.12	4.66%	4.84%	6.00%	8.10%	8.10%	7.40%	10.80%	12.24%	12.95%
Alliant Energy Corporation	LNT	\$1.81	\$53.11	3.41%	3.52%	6.50%	7.00%	6.50%	6.67%	10.02%	10.19%	10.53%
Ameren Corporation	AEE	\$2.52	\$84.17	2.99%	3.09%	6.50%	5.90%	6.40%	6.27%	8.98%	9.35%	9.59%
American Electric Power Company, Inc.	AEP	\$3.32	\$85.37	3.89%	4.00%	6.00%	5.20%	5.60%	5.60%	9.19%	9.60%	10.01%
Avista Corporation	AVA	\$1.84	\$38.97	4.72%	4.87%	6.50%	6.30%	6.30%	6.37%	11.17%	11.24%	11.37%
CMS Energy Corporation	CMS	\$1.95	\$59.91	3.25%	3.37%	6.50%	7.80%	7.80%	7.37%	9.86%	10.74%	11.18%
Duke Energy Corporation	DUK	\$4.02	\$91.84	4.38%	4.50%	5.00%	5.74%	6.10%	5.61%	9.49%	10.11%	10.61%
Entergy Corporation	ETR	\$4.28	\$99.98	4.28%	4.37%	0.50%	6.60%	5.70%	4.27%	4.79%	8.64%	11.02%
Energy, Inc.	EVRG	\$2.45	\$59.41	4.12%	4.23%	7.50%	2.67%	5.20%	5.12%	6.85%	9.35%	11.78%
IDACORP, Inc.	IDA	\$3.16	\$102.78	3.07%	3.14%	5.00%	3.70%	3.70%	4.13%	6.83%	7.27%	8.15%
NextEra Energy, Inc.	NEE	\$1.87	\$73.81	2.53%	2.65%	9.50%	8.80%	8.40%	8.90%	11.04%	11.55%	12.15%
NorthWestern Corporation	NWE	\$2.56	\$57.12	4.48%	4.58%	3.50%	4.50%	5.20%	4.40%	8.06%	8.98%	9.80%
OGE Energy Corporation	OGE	\$1.66	\$35.97	4.60%	4.72%	6.50%	negative	3.70%	5.10%	8.39%	9.82%	11.25%
Otter Tail Corporation	OTTR	\$1.75	\$79.61	2.20%	2.27%	4.50%	9.00%	n/a	6.75%	6.75%	9.02%	11.30%
Portland General Electric Company	POR	\$1.90	\$47.35	4.01%	4.13%	5.00%	5.90%	6.00%	5.63%	9.11%	9.76%	10.13%
Southern Company	SO	\$2.80	\$71.21	3.93%	4.05%	6.50%	7.30%	4.00%	5.93%	8.01%	9.98%	11.38%
Xcel Energy Inc.	XEL	\$2.08	\$63.31	3.29%	3.39%	6.00%	6.15%	6.30%	6.15%	9.38%	9.54%	9.69%
Mean				3.75%	3.87%	5.74%	6.29%	5.94%	5.98%	8.75%	9.85%	10.76%
Median				3.93%	4.05%	6.00%	6.23%	6.05%	5.93%	9.11%	9.76%	11.02%

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, equals 30-day average as of July 31, 2023

[3] Equals [1] / [2]

[4] Equals [3] x (1 + 0.50 x [8])

[5] Source: Value Line

[6] Source: Yahoo! Finance

[7] Source: Zacks

[8] Equals Average ([5], [6], [7])

[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7]))

[10] Equals [4] + [8]

[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7]))

90-DAY CONSTANT GROWTH DCF – RMP PROXY GROUP

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line EPS Growth	Yahoo! Finance EPS Growth	Zacks EPS Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	\$2.71	\$60.73	4.46%	4.63%	6.00%	8.10%	8.10%	7.40%	10.60%	12.03%	12.74%
Alliant Energy Corporation	LNT	\$1.81	\$52.96	3.42%	3.53%	6.50%	7.00%	6.50%	6.67%	10.03%	10.20%	10.54%
Ameren Corporation	AEE	\$2.52	\$85.01	2.96%	3.06%	6.50%	5.90%	6.40%	6.27%	8.95%	9.32%	9.56%
American Electric Power Company, Inc.	AEP	\$3.32	\$87.56	3.79%	3.90%	6.00%	5.20%	5.60%	5.60%	9.09%	9.50%	9.91%
Avista Corporation	AVA	\$1.84	\$41.27	4.46%	4.60%	6.50%	6.30%	6.30%	6.37%	10.90%	10.97%	11.10%
CMS Energy Corporation	CMS	\$1.95	\$59.78	3.26%	3.38%	6.50%	7.80%	7.80%	7.37%	9.87%	10.75%	11.19%
Duke Energy Corporation	DUK	\$4.02	\$93.61	4.29%	4.41%	5.00%	5.74%	6.10%	5.61%	9.40%	10.03%	10.53%
Entergy Corporation	ETR	\$4.28	\$102.70	4.17%	4.26%	0.50%	6.60%	5.70%	4.27%	4.68%	8.52%	10.90%
Energy, Inc.	EVRG	\$2.45	\$59.91	4.09%	4.19%	7.50%	2.67%	5.20%	5.12%	6.81%	9.32%	11.74%
IDACORP, Inc.	IDA	\$3.16	\$105.42	3.00%	3.06%	5.00%	3.70%	3.70%	4.13%	6.75%	7.19%	8.07%
NextEra Energy, Inc.	NEE	\$1.87	\$74.95	2.49%	2.61%	9.50%	8.80%	8.40%	8.90%	11.00%	11.51%	12.11%
NorthWestern Corporation	NWE	\$2.56	\$57.50	4.45%	4.55%	3.50%	4.50%	5.20%	4.40%	8.03%	8.95%	9.77%
OGE Energy Corporation	OGE	\$1.66	\$36.24	4.57%	4.69%	6.50%	negative	3.70%	5.10%	8.36%	9.79%	11.22%
Otter Tail Corporation	OTTR	\$1.75	\$75.95	2.30%	2.38%	4.50%	9.00%	n/a	6.75%	6.86%	9.13%	11.41%
Portland General Electric Company	POR	\$1.90	\$48.51	3.92%	4.03%	5.00%	5.90%	6.00%	5.63%	9.01%	9.66%	10.03%
Southern Company	SO	\$2.80	\$71.08	3.94%	4.06%	6.50%	7.30%	4.00%	5.93%	8.02%	9.99%	11.38%
Xcel Energy Inc.	XEL	\$2.08	\$65.62	3.17%	3.27%	6.00%	6.15%	6.30%	6.15%	9.26%	9.42%	9.57%
Mean				3.69%	3.80%	5.74%	6.29%	5.94%	5.98%	8.68%	9.78%	10.69%
Median				3.92%	4.03%	6.00%	6.23%	6.05%	5.93%	9.01%	9.66%	10.90%

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, equals 90-day average as of July 31, 2023

[3] Equals [1] / [2]

[4] Equals [3] x (1 + 0.50 x [8])

[5] Source: Value Line

[6] Source: Yahoo! Finance

[7] Source: Zacks

[8] Equals Average ([5], [6], [7])

[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7]))

[10] Equals [4] + [8]

[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7]))

180-DAY CONSTANT GROWTH DCF – RMP PROXY GROUP

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line EPS Growth	Yahoo! Finance EPS Growth	Zacks EPS Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	\$2.71	\$61.40	4.41%	4.58%	6.00%	8.10%	8.10%	7.40%	10.55%	11.98%	12.69%
Alliant Energy Corporation	LNT	\$1.81	\$52.94	3.42%	3.53%	6.50%	7.00%	6.50%	6.67%	10.03%	10.20%	10.54%
Ameren Corporation	AEE	\$2.52	\$85.04	2.96%	3.06%	6.50%	5.90%	6.40%	6.27%	8.95%	9.32%	9.56%
American Electric Power Company, Inc.	AEP	\$3.32	\$89.50	3.71%	3.81%	6.00%	5.20%	5.60%	5.60%	9.01%	9.41%	9.82%
Avista Corporation	AVA	\$1.84	\$40.91	4.50%	4.64%	6.50%	6.30%	6.30%	6.37%	10.94%	11.01%	11.14%
CMS Energy Corporation	CMS	\$1.95	\$59.98	3.25%	3.37%	6.50%	7.80%	7.80%	7.37%	9.86%	10.74%	11.18%
Duke Energy Corporation	DUK	\$4.02	\$95.66	4.20%	4.32%	5.00%	5.74%	6.10%	5.61%	9.31%	9.93%	10.43%
Entergy Corporation	ETR	\$4.28	\$105.06	4.07%	4.16%	0.50%	6.60%	5.70%	4.27%	4.58%	8.43%	10.81%
Evergy, Inc.	EVRG	\$2.45	\$59.79	4.10%	4.20%	7.50%	2.67%	5.20%	5.12%	6.82%	9.33%	11.75%
IDACORP, Inc.	IDA	\$3.16	\$104.49	3.02%	3.09%	5.00%	3.70%	3.70%	4.13%	6.78%	7.22%	8.10%
NextEra Energy, Inc.	NEE	\$1.87	\$76.95	2.43%	2.54%	9.50%	8.80%	8.40%	8.90%	10.93%	11.44%	12.05%
NorthWestern Corporation	NWE	\$2.56	\$56.61	4.52%	4.62%	3.50%	4.50%	5.20%	4.40%	8.10%	9.02%	9.84%
OGE Energy Corporation	OGE	\$1.66	\$36.85	4.49%	4.61%	6.50%	negative	3.70%	5.10%	8.28%	9.71%	11.14%
Otter Tail Corporation	OTTR	\$1.75	\$68.93	2.54%	2.62%	4.50%	9.00%	n/a	6.75%	7.10%	9.37%	11.65%
Portland General Electric Company	POR	\$1.90	\$47.66	3.99%	4.10%	5.00%	5.90%	6.00%	5.63%	9.09%	9.73%	10.11%
Southern Company	SO	\$2.80	\$68.72	4.07%	4.20%	6.50%	7.30%	4.00%	5.93%	8.16%	10.13%	11.52%
Xcel Energy Inc.	XEL	\$2.08	\$66.41	3.13%	3.23%	6.00%	6.15%	6.30%	6.15%	9.23%	9.38%	9.53%
Mean				3.70%	3.80%	5.74%	6.29%	5.94%	5.98%	8.69%	9.79%	10.70%
Median				3.99%	4.10%	6.00%	6.23%	6.05%	5.93%	9.01%	9.71%	10.81%

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, equals 180-day average as of July 31, 2023

[3] Equals [1] / [2]

[4] Equals [3] x (1 + 0.50 x [8])

[5] Source: Value Line

[6] Source: Yahoo! Finance

[7] Source: Zacks

[8] Equals Average ([5], [6], [7])

[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7]))

[10] Equals [4] + [8]

[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7]))

Rocky Mountain Power
Exhibit 4.15
Docket No. 20000-633-ER-23
Witness: Ann E. Bulkley

BEFORE THE WYOMING PUBLIC SERVICE
COMMISSION

ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Ann E. Bulkley
Capital Asset Pricing Model (Rebuttal)

September 2023

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

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

	[1]	[2]	[3]	[4]	[5]	[6]	
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta (β)	Market Return (R_m)	Market Risk Premium ($R_m - R_f$)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.92%	0.90	11.81%	7.89%	11.02%	11.22%
Alliant Energy Corporation	LNT	3.92%	0.85	11.81%	7.89%	10.63%	10.92%
Ameren Corporation	AEE	3.92%	0.85	11.81%	7.89%	10.63%	10.92%
American Electric Power Company, Inc.	AEP	3.92%	0.75	11.81%	7.89%	9.84%	10.33%
Avista Corporation	AVA	3.92%	0.90	11.81%	7.89%	11.02%	11.22%
CMS Energy Corporation	CMS	3.92%	0.80	11.81%	7.89%	10.23%	10.63%
Duke Energy Corporation	DUK	3.92%	0.85	11.81%	7.89%	10.63%	10.92%
Entergy Corporation	ETR	3.92%	0.90	11.81%	7.89%	11.02%	11.22%
Evergy, Inc.	EVRG	3.92%	0.90	11.81%	7.89%	11.02%	11.22%
IDACORP, Inc.	IDA	3.92%	0.80	11.81%	7.89%	10.23%	10.63%
NextEra Energy, Inc.	NEE	3.92%	0.95	11.81%	7.89%	11.42%	11.51%
NorthWestern Corporation	NWE	3.92%	0.95	11.81%	7.89%	11.42%	11.51%
OGE Energy Corporation	OGE	3.92%	1.00	11.81%	7.89%	11.81%	11.81%
Otter Tail Corporation	OTTR	3.92%	0.85	11.81%	7.89%	10.63%	10.92%
Portland General Electric Company	POR	3.92%	0.90	11.81%	7.89%	11.02%	11.22%
Southern Company	SO	3.92%	0.90	11.81%	7.89%	11.02%	11.22%
Xcel Energy Inc.	XEL	3.92%	0.85	11.81%	7.89%	10.63%	10.92%
Mean						10.84%	11.08%
Median						11.02%	11.22%

Notes:

[1] Source: Bloomberg Professional, as of July 31, 2023

[2] Source: Value Line

[3] RMP Exhibit 4.7

[4] Equals [3] - [1]

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

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

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

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

		[1]	[2]	[3]	[4]	[5]	[6]
		Near-term projected 30- year U.S. Treasury bond yield (Q4 2023 - Q4 2024)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
Company	Ticker						
ALLETE, Inc.	ALE	3.90%	0.90	11.81%	7.91%	11.02%	11.22%
Alliant Energy Corporation	LNT	3.90%	0.85	11.81%	7.91%	10.62%	10.92%
Ameren Corporation	AEE	3.90%	0.85	11.81%	7.91%	10.62%	10.92%
American Electric Power Company, Inc.	AEP	3.90%	0.75	11.81%	7.91%	9.83%	10.33%
Avista Corporation	AVA	3.90%	0.90	11.81%	7.91%	11.02%	11.22%
CMS Energy Corporation	CMS	3.90%	0.80	11.81%	7.91%	10.23%	10.62%
Duke Energy Corporation	DUK	3.90%	0.85	11.81%	7.91%	10.62%	10.92%
Entergy Corporation	ETR	3.90%	0.90	11.81%	7.91%	11.02%	11.22%
Evergy, Inc.	EVRG	3.90%	0.90	11.81%	7.91%	11.02%	11.22%
IDACORP, Inc.	IDA	3.90%	0.80	11.81%	7.91%	10.23%	10.62%
NextEra Energy, Inc.	NEE	3.90%	0.95	11.81%	7.91%	11.42%	11.51%
NorthWestern Corporation	NWE	3.90%	0.95	11.81%	7.91%	11.42%	11.51%
OGE Energy Corporation	OGE	3.90%	1.00	11.81%	7.91%	11.81%	11.81%
Otter Tail Corporation	OTTR	3.90%	0.85	11.81%	7.91%	10.62%	10.92%
Portland General Electric Company	POR	3.90%	0.90	11.81%	7.91%	11.02%	11.22%
Southern Company	SO	3.90%	0.90	11.81%	7.91%	11.02%	11.22%
Xcel Energy Inc.	XEL	3.90%	0.85	11.81%	7.91%	10.62%	10.92%
Mean						10.83%	11.08%
Median						11.02%	11.22%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 8, August 1, 2023, at 2

[2] Source: Value Line

[3] RMP Exhibit 4.7

[4] Equals [3] - [1]

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

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

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

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2024 - 2028)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.80%	0.90	11.81%	8.01%	11.01%	11.21%
Alliant Energy Corporation	LNT	3.80%	0.85	11.81%	8.01%	10.61%	10.91%
Ameren Corporation	AEE	3.80%	0.85	11.81%	8.01%	10.61%	10.91%
American Electric Power Company, Inc.	AEP	3.80%	0.75	11.81%	8.01%	9.81%	10.31%
Avista Corporation	AVA	3.80%	0.90	11.81%	8.01%	11.01%	11.21%
CMS Energy Corporation	CMS	3.80%	0.80	11.81%	8.01%	10.21%	10.61%
Duke Energy Corporation	DUK	3.80%	0.85	11.81%	8.01%	10.61%	10.91%
Entergy Corporation	ETR	3.80%	0.90	11.81%	8.01%	11.01%	11.21%
Evergy, Inc.	EVRG	3.80%	0.90	11.81%	8.01%	11.01%	11.21%
IDACORP, Inc.	IDA	3.80%	0.80	11.81%	8.01%	10.21%	10.61%
NextEra Energy, Inc.	NEE	3.80%	0.95	11.81%	8.01%	11.41%	11.51%
NorthWestern Corporation	NWE	3.80%	0.95	11.81%	8.01%	11.41%	11.51%
OGE Energy Corporation	OGE	3.80%	1.00	11.81%	8.01%	11.81%	11.81%
Otter Tail Corporation	OTTR	3.80%	0.85	11.81%	8.01%	10.61%	10.91%
Portland General Electric Company	POR	3.80%	0.90	11.81%	8.01%	11.01%	11.21%
Southern Company	SO	3.80%	0.90	11.81%	8.01%	11.01%	11.21%
Xcel Energy Inc.	XEL	3.80%	0.85	11.81%	8.01%	10.61%	10.91%
Mean						10.82%	11.07%
Median						11.01%	11.21%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 6, June 1, 2023, at 14

[2] Source: Value Line

[3] RMP Exhibit 4.7

[4] Equals [3] - [1]

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

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

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

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.92%	0.82	11.81%	7.89%	10.42%	10.77%
Alliant Energy Corporation	LNT	3.92%	0.79	11.81%	7.89%	10.15%	10.57%
Ameren Corporation	AEE	3.92%	0.75	11.81%	7.89%	9.84%	10.34%
American Electric Power Company, Inc.	AEP	3.92%	0.76	11.81%	7.89%	9.89%	10.37%
Avista Corporation	AVA	3.92%	0.75	11.81%	7.89%	9.82%	10.32%
CMS Energy Corporation	CMS	3.92%	0.75	11.81%	7.89%	9.83%	10.32%
Duke Energy Corporation	DUK	3.92%	0.72	11.81%	7.89%	9.60%	10.15%
Entergy Corporation	ETR	3.92%	0.85	11.81%	7.89%	10.66%	10.95%
Evergy, Inc.	EVRG	3.92%	0.78	11.81%	7.89%	10.07%	10.51%
IDACORP, Inc.	IDA	3.92%	0.79	11.81%	7.89%	10.18%	10.58%
NextEra Energy, Inc.	NEE	3.92%	0.81	11.81%	7.89%	10.34%	10.71%
NorthWestern Corporation	NWE	3.92%	0.86	11.81%	7.89%	10.68%	10.96%
OGE Energy Corporation	OGE	3.92%	0.92	11.81%	7.89%	11.20%	11.35%
Otter Tail Corporation	OTTR	3.92%	0.88	11.81%	7.89%	10.84%	11.08%
Portland General Electric Company	POR	3.92%	0.78	11.81%	7.89%	10.08%	10.51%
Southern Company	SO	3.92%	0.77	11.81%	7.89%	10.02%	10.47%
Xcel Energy Inc.	XEL	3.92%	0.74	11.81%	7.89%	9.76%	10.27%
Mean						10.20%	10.60%
Median						10.08%	10.51%

Notes:

[1] Source: Bloomberg Professional, as of July 31, 2023

[2] Source: Bloomberg Professional, based on 10-year weekly returns

[3] RMP Exhibit 4.7

[4] Equals [3] - [1]

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

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

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

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

		[1]	[2]	[3]	[4]	[5]	[6]
		Near-term projected 30- year U.S. Treasury bond yield (Q4 2023 - Q4 2024)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
Company	Ticker						
ALLETE, Inc.	ALE	3.90%	0.82	11.81%	7.91%	10.42%	10.77%
Alliant Energy Corporation	LNT	3.90%	0.79	11.81%	7.91%	10.15%	10.57%
Ameren Corporation	AEE	3.90%	0.75	11.81%	7.91%	9.84%	10.33%
American Electric Power Company, Inc.	AEP	3.90%	0.76	11.81%	7.91%	9.89%	10.37%
Avista Corporation	AVA	3.90%	0.75	11.81%	7.91%	9.81%	10.31%
CMS Energy Corporation	CMS	3.90%	0.75	11.81%	7.91%	9.82%	10.32%
Duke Energy Corporation	DUK	3.90%	0.72	11.81%	7.91%	9.59%	10.15%
Entergy Corporation	ETR	3.90%	0.85	11.81%	7.91%	10.66%	10.95%
Evergy, Inc.	EVRG	3.90%	0.78	11.81%	7.91%	10.07%	10.50%
IDACORP, Inc.	IDA	3.90%	0.79	11.81%	7.91%	10.17%	10.58%
NextEra Energy, Inc.	NEE	3.90%	0.81	11.81%	7.91%	10.34%	10.71%
NorthWestern Corporation	NWE	3.90%	0.86	11.81%	7.91%	10.68%	10.96%
OGE Energy Corporation	OGE	3.90%	0.92	11.81%	7.91%	11.20%	11.35%
Otter Tail Corporation	OTTR	3.90%	0.88	11.81%	7.91%	10.83%	11.08%
Portland General Electric Company	POR	3.90%	0.78	11.81%	7.91%	10.07%	10.51%
Southern Company	SO	3.90%	0.77	11.81%	7.91%	10.02%	10.46%
Xcel Energy Inc.	XEL	3.90%	0.74	11.81%	7.91%	9.75%	10.27%
Mean						10.19%	10.60%
Median						10.07%	10.51%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 8, August 1, 2023, at 2

[2] Source: Bloomberg Professional, based on 10-year weekly returns

[3] RMP Exhibit 4.7

[4] Equals [3] - [1]

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

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

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

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2024 - 2028)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.80%	0.82	11.81%	8.01%	10.40%	10.75%
Alliant Energy Corporation	LNT	3.80%	0.79	11.81%	8.01%	10.13%	10.55%
Ameren Corporation	AEE	3.80%	0.75	11.81%	8.01%	9.81%	10.31%
American Electric Power Company, Inc.	AEP	3.80%	0.76	11.81%	8.01%	9.86%	10.35%
Avista Corporation	AVA	3.80%	0.75	11.81%	8.01%	9.79%	10.29%
CMS Energy Corporation	CMS	3.80%	0.75	11.81%	8.01%	9.80%	10.30%
Duke Energy Corporation	DUK	3.80%	0.72	11.81%	8.01%	9.56%	10.13%
Entergy Corporation	ETR	3.80%	0.85	11.81%	8.01%	10.65%	10.94%
Evergy, Inc.	EVRG	3.80%	0.78	11.81%	8.01%	10.04%	10.49%
IDACORP, Inc.	IDA	3.80%	0.79	11.81%	8.01%	10.15%	10.57%
NextEra Energy, Inc.	NEE	3.80%	0.81	11.81%	8.01%	10.32%	10.69%
NorthWestern Corporation	NWE	3.80%	0.86	11.81%	8.01%	10.66%	10.95%
OGE Energy Corporation	OGE	3.80%	0.92	11.81%	8.01%	11.19%	11.34%
Otter Tail Corporation	OTTR	3.80%	0.88	11.81%	8.01%	10.82%	11.07%
Portland General Electric Company	POR	3.80%	0.78	11.81%	8.01%	10.05%	10.49%
Southern Company	SO	3.80%	0.77	11.81%	8.01%	9.99%	10.45%
Xcel Energy Inc.	XEL	3.80%	0.74	11.81%	8.01%	9.73%	10.25%
Mean						10.17%	10.58%
Median						10.05%	10.49%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 6, June 1, 2023, at 14

[2] Source: Bloomberg Professional, based on 10-year weekly returns

[3] RMP Exhibit 4.7

[4] Equals [3] - [1]

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

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

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & VALUE LINE LT AVERAGE BETA

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.92%	0.79	11.81%	7.89%	10.11%	10.54%
Alliant Energy Corporation	LNT	3.92%	0.75	11.81%	7.89%	9.84%	10.33%
Ameren Corporation	AEE	3.92%	0.73	11.81%	7.89%	9.64%	10.18%
American Electric Power Company, Inc.	AEP	3.92%	0.68	11.81%	7.89%	9.25%	9.89%
Avista Corporation	AVA	3.92%	0.79	11.81%	7.89%	10.11%	10.54%
CMS Energy Corporation	CMS	3.92%	0.69	11.81%	7.89%	9.36%	9.98%
Duke Energy Corporation	DUK	3.92%	0.67	11.81%	7.89%	9.17%	9.83%
Entergy Corporation	ETR	3.92%	0.75	11.81%	7.89%	9.80%	10.30%
Evergy, Inc.	EVRG	3.92%	0.95	11.81%	7.89%	11.42%	11.51%
IDACORP, Inc.	IDA	3.92%	0.73	11.81%	7.89%	9.68%	10.21%
NextEra Energy, Inc.	NEE	3.92%	0.73	11.81%	7.89%	9.68%	10.21%
NorthWestern Corporation	NWE	3.92%	0.75	11.81%	7.89%	9.80%	10.30%
OGE Energy Corporation	OGE	3.92%	0.93	11.81%	7.89%	11.26%	11.40%
Otter Tail Corporation	OTTR	3.92%	0.85	11.81%	7.89%	10.63%	10.92%
Portland General Electric Company	POR	3.92%	0.75	11.81%	7.89%	9.84%	10.33%
Southern Company	SO	3.92%	0.66	11.81%	7.89%	9.09%	9.77%
Xcel Energy Inc.	XEL	3.92%	0.66	11.81%	7.89%	9.09%	9.77%
Mean						9.87%	10.35%
Median						9.80%	10.30%

Notes:

[1] Source: Bloomberg Professional, as of July 31, 2023

[2] RMP Exhibit 4.6

[3] RMP Exhibit 4.7

[4] Equals [3] - [1]

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

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

CAPITAL ASSET PRICING MODEL -- NEAR-TERM PROJECTED RISK-FREE RATE & VALUE LINE LT AVERAGE BETA

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

		[1]	[2]	[3]	[4]	[5]	[6]
		Near-term projected 30-year U.S. Treasury bond yield		Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
Company	Ticker	(Q4 2023 - Q4 2024)	Beta (β)	(Rm)	(Rm - Rf)	ROE (K)	ROE (K)
ALLETE, Inc.	ALE	3.90%	0.79	11.81%	7.91%	10.11%	10.53%
Alliant Energy Corporation	LNT	3.90%	0.75	11.81%	7.91%	9.83%	10.33%
Ameren Corporation	AEE	3.90%	0.73	11.81%	7.91%	9.64%	10.18%
American Electric Power Company, Inc.	AEP	3.90%	0.68	11.81%	7.91%	9.24%	9.88%
Avista Corporation	AVA	3.90%	0.79	11.81%	7.91%	10.11%	10.53%
CMS Energy Corporation	CMS	3.90%	0.69	11.81%	7.91%	9.36%	9.97%
Duke Energy Corporation	DUK	3.90%	0.67	11.81%	7.91%	9.16%	9.82%
Entergy Corporation	ETR	3.90%	0.75	11.81%	7.91%	9.79%	10.30%
Evergy, Inc.	EVRG	3.90%	0.95	11.81%	7.91%	11.42%	11.51%
IDACORP, Inc.	IDA	3.90%	0.73	11.81%	7.91%	9.67%	10.21%
NextEra Energy, Inc.	NEE	3.90%	0.73	11.81%	7.91%	9.67%	10.21%
NorthWestern Corporation	NWE	3.90%	0.75	11.81%	7.91%	9.79%	10.30%
OGE Energy Corporation	OGE	3.90%	0.93	11.81%	7.91%	11.26%	11.40%
Otter Tail Corporation	OTTR	3.90%	0.85	11.81%	7.91%	10.62%	10.92%
Portland General Electric Company	POR	3.90%	0.75	11.81%	7.91%	9.83%	10.33%
Southern Company	SO	3.90%	0.66	11.81%	7.91%	9.08%	9.76%
Xcel Energy Inc.	XEL	3.90%	0.66	11.81%	7.91%	9.08%	9.76%
Mean						9.86%	10.35%
Median						9.79%	10.30%

Notes:

- [1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 8, August 1, 2023, at 2
[2] RMP Exhibit 4.6
[3] RMP Exhibit 4.7
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

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

$$K = R_f + \beta (R_m - R_f)$$

$$K = R_f + 0.25 \times (R_m - R_f) + 0.75 \times \beta \times (R_m - R_f)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2024 - 2028)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.80%	0.79	11.81%	8.01%	10.09%	10.52%
Alliant Energy Corporation	LNT	3.80%	0.75	11.81%	8.01%	9.81%	10.31%
Ameren Corporation	AEE	3.80%	0.73	11.81%	8.01%	9.61%	10.16%
American Electric Power Company, Inc.	AEP	3.80%	0.68	11.81%	8.01%	9.21%	9.86%
Avista Corporation	AVA	3.80%	0.79	11.81%	8.01%	10.09%	10.52%
CMS Energy Corporation	CMS	3.80%	0.69	11.81%	8.01%	9.33%	9.95%
Duke Energy Corporation	DUK	3.80%	0.67	11.81%	8.01%	9.13%	9.80%
Entergy Corporation	ETR	3.80%	0.75	11.81%	8.01%	9.77%	10.28%
Evergy, Inc.	EVRG	3.80%	0.95	11.81%	8.01%	11.41%	11.51%
IDACORP, Inc.	IDA	3.80%	0.73	11.81%	8.01%	9.65%	10.19%
NextEra Energy, Inc.	NEE	3.80%	0.73	11.81%	8.01%	9.65%	10.19%
NorthWestern Corporation	NWE	3.80%	0.75	11.81%	8.01%	9.77%	10.28%
OGE Energy Corporation	OGE	3.80%	0.93	11.81%	8.01%	11.25%	11.39%
Otter Tail Corporation	OTTR	3.80%	0.85	11.81%	8.01%	10.61%	10.91%
Portland General Electric Company	POR	3.80%	0.75	11.81%	8.01%	9.81%	10.31%
Southern Company	SO	3.80%	0.66	11.81%	8.01%	9.05%	9.74%
Xcel Energy Inc.	XEL	3.80%	0.66	11.81%	8.01%	9.05%	9.74%
Mean						9.84%	10.33%
Median						9.77%	10.28%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 6, June 1, 2023, at 14

[2] RMP Exhibit 4.6

[3] RMP Exhibit 4.7

[4] Equals [3] - [1]

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

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

Rocky Mountain Power
Exhibit 4.16
Docket No. 20000-633-ER-23
Witness: Ann E. Bulkley

BEFORE THE WYOMING PUBLIC SERVICE
COMMISSION

ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Ann E. Bulkley
Long-Term Average Beta (Rebuttal)

September 2023

HISTORICAL BETA - 2013 - 2022

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		12/31/2013	12/31/2014	12/31/2015	12/31/2016	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022	Average
ALLETE, Inc.	ALE	0.75	0.80	0.80	0.75	0.80	0.65	0.65	0.85	0.90	0.90	0.79
Alliant Energy Corporation	LNT	0.75	0.80	0.80	0.70	0.70	0.60	0.60	0.85	0.85	0.85	0.75
Ameren Corporation	AEE	0.80	0.75	0.75	0.65	0.70	0.55	0.55	0.85	0.80	0.85	0.73
American Electric Power Company, Inc.	AEP	0.70	0.70	0.70	0.65	0.65	0.55	0.55	0.75	0.75	0.75	0.68
Avista Corporation	AVA	0.75	0.80	0.80	0.70	0.75	0.65	0.60	0.95	0.95	0.90	0.79
CMS Energy Corporation	CMS	0.70	0.70	0.75	0.65	0.65	0.55	0.50	0.80	0.80	0.80	0.69
Duke Energy Corporation	DUK	0.65	0.60	0.65	0.60	0.60	0.50	0.50	0.85	0.85	0.85	0.67
Energy Corporation	ETR	0.70	0.70	0.70	0.65	0.65	0.60	0.60	0.95	0.95	0.95	0.75
Evergy, Inc.	EVRG						NMF	NMF	1.00	0.95	0.90	0.95
IDACORP, Inc.	IDA	0.75	0.80	0.80	0.75	0.70	0.55	0.55	0.80	0.80	0.80	0.73
NextEra Energy, Inc.	NEE	0.70	0.70	0.75	0.65	0.65	0.55	0.55	0.90	0.90	0.95	0.73
NorthWestern Corporation	NWE	0.70	0.70	0.70	0.70	0.70	0.55	0.60	0.95	0.95	0.90	0.75
OGE Energy Corporation	OGE	0.85	0.90	0.95	0.90	0.95	0.85	0.75	1.10	1.05	1.00	0.93
Otter Tail Corporation	OTTR	0.95	0.90	0.85	0.85	0.90	0.75	0.70	0.85	0.90	0.85	0.85
Portland General Electric Company	POR	0.75	0.80	0.80	0.70	0.70	0.60	0.55	0.85	0.90	0.85	0.75
Southern Company	SO	0.55	0.55	0.60	0.55	0.55	0.50	0.50	0.90	0.95	0.90	0.66
Xcel Energy Inc.	XEL	0.65	0.65	0.65	0.60	0.60	0.50	0.50	0.80	0.80	0.80	0.66
Mean		0.73	0.74	0.75	0.69	0.70	0.59	0.58	0.88	0.89	0.87	0.75

Notes:

- [1] Value Line, dated December 26, 2013.
- [2] Value Line, dated December 31, 2014.
- [3] Value Line, dated December 30, 2015.
- [4] Value Line, dated December 29, 2016.
- [5] Value Line, dated December 28, 2017.
- [6] Value Line, dated December 27, 2018.
- [7] Value Line, dated December 26, 2019.
- [8] Value Line, dated December 30, 2020.
- [9] Value Line, dated December 29, 2021.
- [10] Value Line, dated December 30, 2022.
- [11] Average ([1] - [10])

Rocky Mountain Power
Exhibit 4.17
Docket No. 20000-633-ER-23
Witness: Ann E. Bulkley

BEFORE THE WYOMING PUBLIC SERVICE
COMMISSION

ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Ann E. Bulkley
Market Return (Rebuttal)

September 2023

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

[1] Estimated Weighted Average Dividend Yield	1.58%
[2] Estimated Weighted Average Long-Term Growth Rate	10.15%
[3] S&P 500 Estimated Required Market Return	11.81%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Estimated Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Value Line Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
LyondellBasell Industries NV	LYB	325.27	98.86	32,156.59	0.10%	5.06%	0.00%	2.00%	0.00%
American Express Co	AXP	736.46	168.88	124,373.20	0.38%	1.42%	0.01%	8.50%	0.03%
Verizon Communications Inc	VZ	4,204.04	34.08	143,273.68	0.44%	7.66%	0.03%	2.00%	0.01%
Broadcom Inc	AVGO	412.69	898.65	370,859.38		2.05%		30.00%	
Boeing Co/The	BA	603.20	238.85	144,075.28					
Caterpillar Inc	CAT	515.36	265.17	136,656.95	0.42%	1.96%	0.01%	10.50%	0.04%
JPMorgan Chase & Co	JPM	2,922.29	157.96	461,604.77	1.40%	2.53%	0.04%	8.50%	0.12%
Chevron Corp	CVX	1,853.00	163.66	303,261.98		3.69%		21.50%	
Coca-Cola Co/The	KO	4,324.35	61.93	267,806.69	0.82%	2.97%	0.02%	7.50%	0.06%
AbbVie Inc	ABBV	1,764.29	149.58	263,902.50	0.80%	3.96%	0.03%	2.00%	0.02%
Walt Disney Co/The	DIS	1,827.31	88.89	162,429.14				65.00%	
FleetCor Technologies Inc	FLT	73.83	248.91	18,378.02	0.06%			13.50%	0.01%
Extra Space Storage Inc	EXR	211.21	139.57	29,478.30	0.09%	2.89%	0.00%	6.50%	0.01%
Exxon Mobil Corp	XOM	4,003.00	107.24	429,281.72	1.31%	3.39%	0.04%	7.00%	0.09%
Phillips 66	PSX	460.91	111.55	51,414.85	0.16%	3.77%	0.01%	15.50%	0.02%
General Electric Co	GE	1,088.38	114.24	124,336.30		0.28%		26.00%	
HP Inc	HPQ	985.96	32.83	32,368.94	0.10%	3.20%	0.00%	12.50%	0.01%
Home Depot Inc/The	HD	1,005.38	333.84	335,634.72	1.02%	2.50%	0.03%	6.50%	0.07%
Monolithic Power Systems Inc	MPWR	47.42	559.49	26,532.69	0.08%	0.71%	0.00%	15.00%	0.01%
International Business Machines Corp	IBM	911.01	144.18	131,348.85	0.40%	4.61%	0.02%	3.00%	0.01%
Johnson & Johnson	JNJ	2,598.97	167.53	435,405.44		2.84%		22.50%	
McDonald's Corp	MCD	730.09	293.20	214,063.56	0.65%	2.07%	0.01%	10.00%	0.07%
Merck & Co Inc	MRK	2,537.44	106.65	270,617.55	0.82%	2.74%	0.02%	8.50%	0.07%
3M Co	MMM	551.99	111.50	61,547.11	0.19%	5.38%	0.01%	4.50%	0.01%
American Water Works Co Inc	AWK	194.67	147.43	28,700.05	0.09%	1.92%	0.00%	3.00%	0.00%
Bank of America Corp	BAC	7,946.37	32.00	254,283.90		3.00%		0.00%	
Pfizer Inc	PFE	5,645.31	36.06	203,569.77	0.62%	4.55%	0.03%	2.00%	0.01%
Procter & Gamble Co/The	PG	2,362.10	156.30	369,196.23	1.12%	2.41%	0.03%	5.50%	0.06%
AT&T Inc	T	7,149.00	14.52	103,803.48	0.32%	7.64%	0.02%	1.50%	0.00%
Travelers Cos Inc/The	TRV	228.94	172.61	39,517.68	0.12%	2.32%	0.00%	7.50%	0.01%
RTX Corp	RTX	1,455.52	87.93	127,983.43	0.39%	2.68%	0.01%	14.00%	0.05%
Analog Devices Inc	ADI	501.42	199.53	100,047.93	0.30%	1.72%	0.01%	11.50%	0.04%
Walmart Inc	WMT	2,692.84	159.86	430,476.60	1.31%	1.43%	0.02%	6.50%	0.09%
Cisco Systems Inc	CSCO	4,075.06	52.04	212,066.02	0.65%	3.00%	0.02%	8.50%	0.05%
Intel Corp	INTC	4,188.00	35.77	149,804.76		1.40%			
General Motors Co	GM	1,375.91	38.37	52,793.47	0.16%	0.94%	0.00%	8.50%	0.01%
Microsoft Corp	MSFT	7,429.76	335.92	2,495,806.32	7.60%	0.81%	0.06%	12.50%	0.95%
Dollar General Corp	DG	219.34	168.86	37,037.92	0.11%	1.40%	0.00%	5.50%	0.01%
Cigna Group/The	CI	295.87	295.10	87,311.83	0.27%	1.67%	0.00%	10.00%	0.03%
Kinder Morgan Inc	KMI	2,228.17	17.71	39,460.80	0.12%	6.38%	0.01%	18.50%	0.02%
Citigroup Inc	C	1,936.70	47.66	92,303.12	0.28%	4.45%	0.01%	3.50%	0.01%
American International Group Inc	AIG	723.75	60.28	43,627.83	0.13%	2.39%	0.00%	4.00%	0.01%
Altria Group Inc	MO	1,785.04	45.42	81,076.52	0.25%	8.28%	0.02%	6.00%	0.01%
HCA Healthcare Inc	HCA	275.19	272.81	75,074.58	0.23%	0.88%	0.00%	12.50%	0.03%
International Paper Co	IP	346.00	36.06	12,476.72	0.04%	5.13%	0.00%	4.50%	0.00%
Hewlett Packard Enterprise Co	HPE	1,291.52	17.38	22,446.58	0.07%	2.76%	0.00%	7.50%	0.01%
Abbott Laboratories	ABT	1,738.95	111.33	193,596.97	0.59%	1.83%	0.01%	6.50%	0.04%
Aflac Inc	AFL	604.23	72.34	43,709.78	0.13%	2.32%	0.00%	8.00%	0.01%
Air Products and Chemicals Inc	APD	222.12	305.33	67,820.82	0.21%	2.29%	0.00%	10.50%	0.02%
Royal Caribbean Cruises Ltd	RCL	256.17	109.11	27,951.04					
Hess Corp	HES	307.05	151.73	46,589.00		1.15%		23.50%	
Archer-Daniels-Midland Co	ADM	536.10	84.96	45,547.23	0.14%	2.12%	0.00%	7.50%	0.01%
Automatic Data Processing Inc	ADP	412.10	247.26	101,895.85	0.31%	2.02%	0.01%	11.00%	0.03%
Verisk Analytics Inc	VRSK	144.79	228.94	33,148.45	0.10%	0.59%	0.00%	7.00%	0.01%
AutoZone Inc	AZO	18.16	2,481.72	45,058.11	0.14%			13.00%	0.02%
Avery Dennison Corp	AVY	80.73	184.01	14,854.76	0.05%	1.76%	0.00%	9.50%	0.00%
Enphase Energy Inc	ENPH	136.36	151.83	20,702.78				27.50%	
MSCI Inc	MSCI	79.09	548.08	43,347.10	0.13%	1.01%	0.00%	14.00%	0.02%
Ball Corp	BALL	314.55	58.69	18,460.82	0.06%	1.36%	0.00%	13.00%	0.01%
Axon Enterprise Inc	AXON	73.89	185.93	13,737.44				21.50%	
Ceridian HCM Holding Inc	CDAY	155.03	70.81	10,977.75					
Carrier Global Corp	CARR	837.63	59.55	49,880.75	0.15%	1.24%	0.00%	13.00%	0.02%
Bank of New York Mellon Corp/The	BK	778.78	45.36	35,325.55	0.11%	3.70%	0.00%	7.00%	0.01%
Otis Worldwide Corp	OTIS	411.75	90.96	37,452.33	0.11%	1.50%	0.00%	11.00%	0.01%
Baxter International Inc	BAX	506.41	45.23	22,904.70	0.07%	2.56%	0.00%	6.00%	0.00%
Becton Dickinson & Co	BDX	284.02	278.62	79,132.26	0.24%	1.31%	0.00%	5.00%	0.01%
Berkshire Hathaway Inc	BRK/B	1,295.97	351.96	456,129.95	1.39%			6.00%	0.08%
Best Buy Co Inc	BBY	218.21	83.05	18,122.42	0.06%	4.43%	0.00%	3.00%	0.00%
Boston Scientific Corp	BSX	1,437.70	51.85	74,544.64	0.23%			13.00%	0.03%
Bristol-Myers Squibb Co	BMJ	2,089.10	62.19	129,921.32		3.67%			
Brown-Forman Corp	BF/B	310.11	70.60	21,893.77	0.07%	1.16%	0.00%	12.50%	0.01%
Coterra Energy Inc	CTRA	757.45	27.54	20,860.26		2.90%			
Campbell Soup Co	CPB	298.09	45.82	13,658.58	0.04%	3.23%	0.00%	5.00%	0.00%
Hilton Worldwide Holdings Inc	HLT	261.51	155.49	40,662.81		0.39%			
Carnival Corp	CCL	1,116.01	18.84	21,025.70					
Qorvo Inc	QRVO	98.74	110.02	10,862.93	0.03%			14.50%	0.00%
UDR Inc	UDR	329.48	40.88	13,469.14	0.04%	4.11%	0.00%	15.50%	0.01%
Clorox Co/The	CLX	123.62	151.48	18,726.56	0.06%	3.17%	0.00%	7.00%	0.00%

STANDARD AND POOR'S 500 INDEX

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Value Line Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Paycom Software Inc	PAYC	60.29	368.76	22,233.65	0.07%	0.41%	0.00%	19.50%	0.01%
CMS Energy Corp	CMS	291.73	60.58	17,671.68	0.05%	3.22%	0.00%	6.50%	0.00%
Newell Brands Inc	NWL	414.20	11.16	4,622.47		2.51%			
Colgate-Palmolive Co	CL	826.69	76.26	63,043.53	0.19%	2.52%	0.00%	8.50%	0.02%
EPAM Systems Inc	EPAM	57.91	236.81	13,712.72				20.50%	
Comerica Inc	CMA	131.78	53.96	7,110.69	0.02%	5.26%	0.00%	4.00%	0.00%
Conagra Brands Inc	CAG	477.06	32.81	15,652.34	0.05%	4.27%	0.00%	4.50%	0.00%
Consolidated Edison Inc	ED	346.54	94.86	32,872.78	0.10%	3.42%	0.00%	5.50%	0.01%
Corning Inc	GLW	852.98	33.94	28,950.21	0.09%	3.30%	0.00%	17.50%	0.02%
Cummins Inc	CMI	141.56	260.80	36,919.37	0.11%	2.58%	0.00%	8.50%	0.01%
Caesars Entertainment Inc	CZR	215.20	59.02	12,701.34					
Danaher Corp	DHR	738.35	255.06	188,324.06	0.57%	0.42%	0.00%	11.00%	0.06%
Target Corp	TGT	461.56	136.47	62,989.09	0.19%	3.22%	0.01%	12.00%	0.02%
Deere & Co	DE	293.19	429.60	125,955.28	0.38%	1.16%	0.00%	13.00%	0.05%
Dominion Energy Inc	D	835.94	53.55	44,764.64	0.14%	4.99%	0.01%	4.50%	0.01%
Dover Corp	DOV	139.87	145.97	20,417.41	0.06%	1.38%	0.00%	6.50%	0.00%
Alliant Energy Corp	LNT	251.39	53.74	13,509.59	0.04%	3.37%	0.00%	6.50%	0.00%
Steel Dynamics Inc	STLD	169.03	106.58	18,015.64	0.05%	1.60%	0.00%	2.00%	0.00%
Duke Energy Corp	DUK	771.00	93.62	72,181.02	0.22%	4.38%	0.01%	5.00%	0.01%
Regency Centers Corp	REG	171.00	65.53	11,205.50	0.03%	3.97%	0.00%	10.50%	0.00%
Eaton Corp PLC	ETN	398.60	205.32	81,840.55	0.25%	1.68%	0.00%	12.00%	0.03%
Ecolab Inc	ECL	284.72	183.14	52,143.80	0.16%	1.16%	0.00%	10.50%	0.02%
Revvity Inc	RVTY	125.44	122.95	15,422.97				-1.50%	
Emerson Electric Co	EMR	571.50	91.35	52,206.53	0.16%	2.28%	0.00%	6.50%	0.01%
EOG Resources Inc	EOG	584.86	132.53	77,511.36	0.24%	2.49%	0.01%	16.50%	0.04%
Aon PLC	AON	202.87	318.50	64,613.14	0.20%	0.77%	0.00%	9.50%	0.02%
Entergy Corp	ETR	211.45	102.70	21,715.61	0.07%	4.17%	0.00%	0.50%	0.00%
Equifax Inc	EFX	122.72	204.08	25,044.70	0.08%	0.76%	0.00%	12.00%	0.01%
EQT Corp	EQT	361.66	42.18	15,254.73		1.42%			
IQVIA Holdings Inc	IQV	185.55	223.76	41,518.44	0.13%			14.50%	0.02%
Gartner Inc	IT	79.04	353.59	27,948.46	0.09%			15.50%	0.01%
FedEx Corp	FDX	251.19	269.95	67,807.93	0.21%	1.87%	0.00%	7.00%	0.01%
FMC Corp	FMC	125.04	96.23	12,032.50	0.04%	2.41%	0.00%	10.50%	0.00%
Brown & Brown Inc	BRO	283.61	70.45	19,980.54	0.06%	0.65%	0.00%	6.50%	0.00%
Ford Motor Co	F	3,931.37	13.21	51,933.45		4.54%		44.50%	
NextEra Energy Inc	NEE	2,023.71	73.30	148,338.24	0.45%	2.55%	0.01%	9.50%	0.04%
Franklin Resources Inc	BEN	498.98	29.24	14,590.12	0.04%	4.10%	0.00%	2.00%	0.00%
Garmin Ltd	GRMN	191.29	105.89	20,255.70	0.06%	2.76%	0.00%	5.00%	0.00%
Freport-McMoRan Inc	FCX	1,433.29	44.65	63,996.22	0.19%	1.34%	0.00%	19.00%	0.04%
Dexcom Inc	DXCM	387.87	124.56	48,313.34					
General Dynamics Corp	GD	273.04	223.58	61,046.95	0.19%	2.36%	0.00%	9.50%	0.02%
General Mills Inc	GIS	585.18	74.74	43,736.58	0.13%	3.16%	0.00%	4.50%	0.01%
Genuine Parts Co	GPC	140.44	155.72	21,869.01	0.07%	2.44%	0.00%	9.00%	0.01%
Atmos Energy Corp	ATO	144.49	121.71	17,585.51	0.05%	2.43%	0.00%	7.00%	0.00%
WW Grainger Inc	GWW	50.00	738.49	36,925.24	0.11%	1.01%	0.00%	11.00%	0.01%
Halliburton Co	HAL	898.55	39.08	35,115.18		1.64%		30.00%	
L3Harris Technologies Inc	LHX	189.13	189.49	35,838.81	0.11%	2.41%	0.00%	19.50%	0.02%
Healthpeak Properties Inc	PEAK	547.05	21.83	11,942.19	0.04%	5.50%	0.00%	14.50%	0.01%
Insulet Corp	PODD	69.70	276.75	19,288.37					
Catalent Inc	CTLT	180.27	48.52	8,746.80				21.00%	
Fortive Corp	FTV	352.02	78.35	27,581.08	0.08%	0.36%	0.00%	15.00%	0.01%
Hershey Co/The	HSY	149.85	231.31	34,662.73	0.11%	2.06%	0.00%	9.50%	0.01%
Synchrony Financial	SYF	418.18	34.54	14,444.04		2.90%		47.00%	
Hormel Foods Corp	HRL	546.27	40.88	22,331.44	0.07%	2.69%	0.00%	7.50%	0.01%
Arthur J Gallagher & Co	AJG	215.50	214.80	46,289.40		1.02%		22.00%	
Mondelez International Inc	MDLZ	1,360.42	74.13	100,847.79	0.31%	2.29%	0.01%	10.00%	0.03%
CenterPoint Energy Inc	CNP	629.43	30.09	18,939.61	0.06%	2.53%	0.00%	6.50%	0.00%
Humana Inc	HUM	124.95	456.83	57,078.62	0.17%	0.77%	0.00%	12.50%	0.02%
Willis Towers Watson PLC	WTW	104.82	211.33	22,152.24	0.07%	1.59%	0.00%	9.50%	0.01%
Illinois Tool Works Inc	ITW	303.90	263.32	80,023.74	0.24%	1.99%	0.00%	11.00%	0.03%
CDW Corp/DE	CDW	134.79	187.07	25,214.60	0.08%	1.26%	0.00%	7.00%	0.01%
Trane Technologies PLC	TT	228.05	199.44	45,482.69	0.14%	1.50%	0.00%	13.00%	0.02%
Interpublic Group of Cos Inc/The	IPG	384.94	34.23	13,176.33	0.04%	3.62%	0.00%	8.50%	0.00%
International Flavors & Fragrances Inc	IFF	255.09	84.61	21,583.25	0.07%	3.83%	0.00%	8.00%	0.01%
Genereac Holdings Inc	GNRC	62.19	153.70	9,559.06	0.03%			19.00%	0.01%
NXP Semiconductors NV	NXPI	257.80	222.98	57,484.69	0.17%	1.82%	0.00%	8.50%	0.01%
Kellogg Co	K	342.76	66.89	22,927.08	0.07%	3.59%	0.00%	3.00%	0.00%
Broadridge Financial Solutions Inc	BR	117.98	167.92	19,811.37	0.06%	1.73%	0.00%	8.50%	0.01%
Kimberly-Clark Corp	KMB	338.19	129.10	43,659.68	0.13%	3.66%	0.00%	7.00%	0.01%
Kimco Realty Corp	KIM	619.89	20.26	12,559.01	0.04%	4.54%	0.00%	11.00%	0.00%
Oracle Corp	ORCL	2,714.26	117.23	318,192.58	0.97%	1.36%	0.01%	10.00%	0.10%
Kroger Co/The	KR	717.75	48.64	34,911.17	0.11%	2.38%	0.00%	6.00%	0.01%
Lennar Corp	LEN	252.53	126.83	32,027.87	0.10%	1.18%	0.00%	2.50%	0.00%
Eli Lilly & Co	LLY	949.27	454.55	431,492.04	1.31%	0.99%	0.01%	15.50%	0.20%
Bath & Body Works Inc	BBWI	228.91	37.06	8,483.48		2.16%		26.50%	
Charter Communications Inc	CHTR	149.67	405.19	60,645.19	0.18%			15.50%	0.03%
Lincoln National Corp	LNC	169.56	28.04	4,754.43		6.42%		28.00%	
Loews Corp	L	225.51	62.65	14,128.14		0.40%		25.50%	
Lowe's Cos Inc	LOW	585.98	234.27	137,277.77	0.42%	1.88%	0.01%	8.00%	0.03%
IDEX Corp	IEH	75.60	225.81	17,071.69	0.05%	1.13%	0.00%	8.00%	0.00%
Marsh & McLennan Cos Inc	MMC	493.95	188.42	93,070.81	0.28%	1.51%	0.00%	9.00%	0.03%
Masco Corp	MAS	224.93	60.68	13,648.51	0.04%	1.88%	0.00%	6.00%	0.00%
S&P Global Inc	SPGI	318.20	394.51	125,533.08	0.38%	0.91%	0.00%	7.50%	0.03%
Medtronic PLC	MDT	1,330.41	87.76	116,756.34	0.36%	3.14%	0.01%	7.50%	0.03%
Viatris Inc	VTRS	1,199.03	10.53	12,625.79		4.56%			
CVS Health Corp	CVS	1,282.03	74.69	95,754.45	0.29%	3.24%	0.01%	8.50%	0.02%
DuPont de Nemours Inc	DD	459.02	77.63	35,633.49	0.11%	1.85%	0.00%	10.00%	0.01%
Micron Technology Inc	MU	1,095.30	71.39	78,193.61	0.24%	0.64%	0.00%	9.50%	0.02%
Motorola Solutions Inc	MSI	167.72	286.63	48,072.72	0.15%	1.23%	0.00%	11.00%	0.02%
Choe Global Markets Inc	CBOE	105.57	139.68	14,746.58	0.04%	1.43%	0.00%	12.50%	0.01%
Laboratory Corp of America Holdings	LH	88.60	213.93	18,954.20	0.06%	1.35%	0.00%	2.00%	0.00%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Estimated Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Value Line Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Newmont Corp	NEM	794.73	42.92	34,109.90	0.10%	3.73%	0.00%	8.00%	0.01%
NIKE Inc	NKE	1,225.07	110.39	135,235.92	0.41%	1.23%	0.01%	18.00%	0.07%
NiSource Inc	NI	413.06	27.84	11,499.67	0.03%	3.59%	0.00%	9.50%	0.00%
Norfolk Southern Corp	NSC	227.02	232.22	52,717.47	0.16%	2.33%	0.00%	9.50%	0.02%
Principal Financial Group Inc	PFJ	242.78	79.87	19,390.44	0.06%	3.26%	0.00%	5.50%	0.00%
Eversource Energy	ES	348.84	72.33	25,231.74	0.08%	3.73%	0.00%	6.50%	0.00%
Northrop Grumman Corp	NOC	151.30	445.00	67,328.50	0.20%	1.68%	0.00%	9.50%	0.02%
Wells Fargo & Co	WFC	3,667.70	45.80	167,987.26	0.51%	3.06%	0.02%	12.00%	0.06%
Nucor Corp	NUE	251.22	172.09	43,232.97	0.13%	1.19%	0.00%	1.00%	0.00%
Occidental Petroleum Corp	OXY	891.75	63.13	56,295.86	0.17%	1.14%	0.00%	17.00%	0.03%
Omnicom Group Inc	OMC	197.57	84.62	16,718.46	0.05%	3.31%	0.00%	7.00%	0.00%
ONEOK Inc	OKE	447.44	67.04	29,996.58	0.09%	5.70%	0.01%	11.50%	0.01%
Raymond James Financial Inc	RJF	208.50	110.07	22,949.60	0.07%	1.53%	0.00%	15.00%	0.01%
PG&E Corp	PCG	2,568.99	17.61	45,239.83	0.14%			7.50%	0.01%
Parker-Hannifin Corp	PH	128.30	410.01	52,602.64	0.16%	1.44%	0.00%	14.50%	0.02%
Rollins Inc	ROL	492.82	40.83	20,121.88	0.06%	1.27%	0.00%	10.50%	0.01%
PPL Corp	PPL	737.07	27.53	20,291.48	0.06%	3.49%	0.00%	8.00%	0.00%
ConocoPhillips	COP	1,211.88	117.72	142,662.40	0.43%	0.51%	0.00%	9.00%	0.04%
PulteGroup Inc	PHM	219.45	84.39	18,518.96	0.06%	0.76%	0.00%	2.50%	0.00%
Pinnacle West Capital Corp	PNW	113.26	82.82	9,379.86	0.03%	4.18%	0.00%	2.50%	0.00%
PNC Financial Services Group Inc/The	PNC	398.00	136.89	54,482.22	0.17%	4.53%	0.01%	7.50%	0.01%
PPG Industries Inc	PPG	235.51	143.90	33,890.32	0.10%	1.81%	0.00%	3.00%	0.00%
Progressive Corp/The	PGR	585.30	125.98	73,736.09	0.22%	0.32%	0.00%	9.00%	0.02%
Public Service Enterprise Group Inc	PEG	498.97	63.12	31,494.67	0.10%	3.61%	0.00%	4.00%	0.00%
Robert Half Inc	RHI	107.76	74.15	7,990.63	0.02%	2.59%	0.00%	9.50%	0.00%
Edison International	EIX	383.29	71.96	27,581.48	0.08%	4.10%	0.00%	4.50%	0.00%
Schlumberger NV	SLB	1,421.19	58.34	82,911.99	0.17%			26.00%	
Charles Schwab Corp/The	SCHW	1,769.14	66.10	116,940.29	0.36%	1.51%	0.01%	9.00%	0.03%
Sherwin-Williams Co/The	SHW	257.15	276.50	71,101.70	0.22%	0.88%	0.00%	7.00%	0.02%
West Pharmaceutical Services Inc	WST	73.86	368.04	27,183.80	0.08%	0.21%	0.00%	17.00%	0.01%
J M Smucker Co/The	SJM	102.05	150.65	15,373.38	0.05%	2.81%	0.00%	6.00%	0.00%
Snap-on Inc	SNA	52.92	272.44	14,416.71	0.04%	2.38%	0.00%	6.00%	0.00%
AMETEK Inc	AME	230.48	158.60	36,553.34	0.11%	0.63%	0.00%	10.00%	0.01%
Southern Co/The	SO	1,091.52	72.34	78,960.20	0.24%	3.87%	0.01%	6.50%	0.02%
Truist Financial Corp	TFC	1,331.98	33.22	44,248.24	0.13%	6.26%	0.01%	6.00%	0.01%
Southwest Airlines Co	LUV	595.63	34.16	20,346.86		2.11%			
W R Berkley Corp	WRB	257.52	61.69	15,886.22	0.05%	0.71%	0.00%	17.50%	0.01%
Stanley Black & Decker Inc	SWK	153.14	99.27	15,202.51	0.05%	3.26%	0.00%	1.00%	0.00%
Public Storage	PSA	175.81	281.75	49,535.03	0.15%	4.26%	0.01%	7.50%	0.01%
Arista Networks Inc	ANET	308.28	155.09	47,811.61	0.15%			13.00%	0.02%
Sysco Corp	SY	506.68	76.31	38,664.90	0.12%	2.62%	0.00%	18.50%	0.02%
Corteva Inc	CTVA	710.68	56.43	40,103.56	0.12%	1.13%	0.00%	15.50%	0.02%
Texas Instruments Inc	TXN	907.97	180.00	163,433.88	0.50%	2.76%	0.01%	3.50%	0.02%
Textron Inc	TXT	198.07	77.77	15,403.98	0.05%	0.10%	0.00%	16.00%	0.01%
Thermo Fisher Scientific Inc	TMO	385.72	548.66	211,629.68	0.64%	0.26%	0.00%	9.50%	0.06%
TJX Cos Inc/The	TJX	1,149.24	86.53	99,443.56	0.30%	1.54%	0.00%	17.00%	0.05%
Globe Life Inc	GL	95.56	112.17	10,718.40	0.03%	0.80%	0.00%	8.50%	0.00%
Johnson Controls International plc	JCI	686.10	69.55	47,718.19	0.15%	2.13%	0.00%	11.50%	0.02%
Ulta Beauty Inc	ULTA	49.80	444.80	22,151.93	0.07%			13.50%	0.01%
Union Pacific Corp	UNP	609.46	232.02	141,405.98	0.43%	2.24%	0.01%	6.50%	0.03%
Keysight Technologies Inc	KEYS	178.37	161.08	28,731.52	0.09%			13.00%	0.01%
UnitedHealth Group Inc	UNH	931.03	506.37	471,446.67	1.43%	1.49%	0.02%	12.00%	0.17%
Marathon Oil Corp	MRO	617.60	26.27	16,224.46		1.52%		22.50%	
Bio-Rad Laboratories Inc	BIO	24.54	405.36	9,945.91	0.03%			11.50%	0.00%
Ventas Inc	VTR	400.05	48.52	19,410.52		3.71%		23.50%	
VF Corp	VFC	388.68	19.81	7,699.69	0.02%	6.06%	0.00%	9.00%	0.00%
Vulcan Materials Co	VMC	133.06	220.50	29,339.51	0.09%	0.78%	0.00%	9.00%	0.01%
Weyerhaeuser Co	WY	730.75	34.06	24,889.28	0.08%	2.23%	0.00%	5.00%	0.00%
Whirlpool Corp	WHR	54.82	144.26	7,908.04		4.85%		-1.50%	
Williams Cos Inc/The	WMB	1,218.19	34.45	41,966.54	0.13%	5.20%	0.01%	10.50%	0.01%
Constellation Energy Corp	CEG	326.66	96.65	31,572.08		1.17%			
WEC Energy Group Inc	WEC	315.44	89.86	28,344.99	0.09%	3.47%	0.00%	6.00%	0.01%
Adobe Inc	ADBE	455.80	546.17	248,944.29	0.76%			11.00%	0.08%
AES Corp/The	AES	669.34	21.63	14,477.74	0.04%	3.07%	0.00%	14.00%	0.01%
Amgen Inc	AMGN	534.33	234.15	125,112.67	0.38%	3.64%	0.01%	6.00%	0.02%
Apple Inc	AAPL	15,728.70	196.45	3,089,903.51	9.40%	0.49%	0.05%	10.50%	0.99%
Autodesk Inc	ADSK	213.73	211.99	45,307.77	0.14%			10.00%	0.01%
Cintas Corp	CTAS	101.74	502.04	51,078.55	0.16%	1.08%	0.00%	14.00%	0.02%
Comcast Corp	CMCSA	4,115.69	45.26	186,276.08	0.57%	2.56%	0.01%	8.50%	0.05%
Molson Coors Beverage Co	TAP	200.38	69.77	13,980.79		2.35%		35.00%	
KLA Corp	KLAC	137.20	513.95	70,513.43	0.21%	1.01%	0.00%	13.50%	0.03%
Mariott International Inc/MD	MAR	303.35	201.81	61,219.87	0.19%	1.03%	0.00%	17.50%	0.03%
Fiserv Inc	FI	609.62	126.21	76,939.51	0.23%			9.50%	0.02%
McCormick & Co Inc/MD	MKC	251.10	89.48	22,468.43	0.07%	1.74%	0.00%	4.50%	0.00%
PACCAR Inc	PCAR	522.80	86.13	45,028.76	0.14%	1.25%	0.00%	5.00%	0.01%
Costco Wholesale Corp	COST	443.15	560.67	248,459.79	0.76%	0.73%	0.01%	10.50%	0.08%
Stryker Corp	SYK	379.61	283.41	107,584.70	0.33%	1.06%	0.00%	7.00%	0.02%
Tyson Foods Inc	TSN	285.60	55.72	15,913.63	0.05%	3.45%	0.00%	6.00%	0.00%
Lamb Weston Holdings Inc	LW	145.67	103.35	15,054.20	0.05%	1.08%	0.00%	15.50%	0.01%
Applied Materials Inc	AMAT	839.75	151.59	127,297.25	0.39%	0.84%	0.00%	5.00%	0.02%
American Airlines Group Inc	AAL	653.36	16.75	10,943.81					
Cardinal Health Inc	CAH	254.60	91.47	23,288.26	0.07%	2.19%	0.00%	6.50%	0.00%
Cincinnati Financial Corp	CINF	156.86	107.58	16,874.57	0.05%	2.79%	0.00%	10.50%	0.01%
Paramount Global	PARA	610.85	16.03	9,791.97	0.03%	1.25%	0.00%	1.50%	0.00%
DR Horton Inc	DHI	338.30	127.02	42,970.48	0.13%	0.79%	0.00%	1.00%	0.00%
Electronic Arts Inc	EA	272.12	136.35	37,103.15	0.11%	0.56%	0.00%	16.00%	0.02%
Fair Isaac Corp	FICO	24.99	837.97	20,943.38	0.06%			16.00%	0.01%
Expeditors International of Washington Inc	EXPD	152.79	127.30	19,450.42	0.06%	1.08%	0.00%	10.00%	0.01%
Fastenal Co	FAST	571.33	58.61	33,485.83	0.10%	2.39%	0.00%	6.50%	0.01%
M&T Bank Corp	MTB	165.89	139.86	23,201.93	0.07%	3.72%	0.00%	6.50%	0.00%
Xcel Energy Inc	XEL	551.53	62.73	34,597.67	0.11%	3.32%	0.00%	6.00%	0.01%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Shares Outstg	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Estimated Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Value Line Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Fifth Third Bancorp	FITB	680.85	29.10	19,812.74	0.06%	4.54%	0.00%	9.50%	0.01%
Gilead Sciences Inc	GILD	1,248.82	76.14	95,084.85	0.29%	3.94%	0.01%	12.00%	0.03%
Hasbro Inc	HAS	138.61	64.56	8,948.60	0.03%	4.34%	0.00%	8.50%	0.00%
Huntington Banshares Inc/OH	HBAN	1,447.88	12.24	17,722.08	0.05%	5.07%	0.00%	12.00%	0.01%
Welltower Inc	WELL	497.03	82.15	40,831.10	0.12%	2.97%	0.00%	12.00%	0.01%
Biogen Inc	BIIB	144.82	270.19	39,129.73				-10.50%	
Northern Trust Corp	NTRS	207.00	80.12	16,585.16	0.05%	3.74%	0.00%	5.50%	0.00%
Packaging Corp of America	PKG	89.93	153.35	13,791.07	0.04%	3.26%	0.00%	9.00%	0.00%
Paychex Inc	PAYX	360.55	125.47	45,237.71	0.14%	2.84%	0.00%	9.50%	0.01%
QUALCOMM Inc	QCOM	1,114.00	132.17	147,237.38	0.45%	2.42%	0.01%	5.50%	0.02%
Ross Stores Inc	ROST	340.66	114.64	39,052.80	0.12%	1.17%	0.00%	14.00%	0.02%
IDEXX Laboratories Inc	IDXX	83.01	554.73	46,045.36	0.14%			10.50%	0.01%
Starbucks Corp	SBUX	1,146.40	101.57	116,439.85	0.35%	2.09%	0.01%	16.00%	0.06%
KeyCorp	KEY	935.73	12.31	11,518.87	0.04%	6.66%	0.00%	7.50%	0.00%
Fox Corp	FOXA	269.06	33.45	8,999.96	0.03%	1.49%	0.00%	8.50%	0.00%
Fox Corp	FOX	235.58	31.41	7,399.60		1.59%			
State Street Corp	STT	318.64	72.44	23,082.28	0.07%	3.81%	0.00%	9.00%	0.01%
Norwegian Cruise Line Holdings Ltd	NCLH	424.17	22.07	9,361.32					
US Bancorp	USB	1,532.92	39.68	60,826.31	0.19%	4.84%	0.01%	6.00%	0.01%
A O Smith Corp	AOS	124.59	72.63	9,048.97	0.03%	1.65%	0.00%	9.50%	0.00%
Gen Digital Inc	GEN	639.42	19.45	12,436.64	0.04%	2.57%	0.00%	10.50%	0.00%
T Rowe Price Group Inc	TROW	224.30	123.26	27,646.60	0.08%	3.96%	0.00%	2.00%	0.00%
Waste Management Inc	WM	405.06	163.79	66,344.61	0.20%	1.71%	0.00%	6.50%	0.01%
Constellation Brands Inc	STZ	183.30	272.80	50,004.51	0.15%	1.30%	0.00%	5.50%	0.01%
DENTSPLY SIRONA Inc	XRAY	212.48	41.52	8,822.09	0.03%	1.35%	0.00%	12.00%	0.00%
Zions Bancorp NA	ZION	148.14	38.25	5,666.51	0.02%	4.29%	0.00%	6.50%	0.00%
Alaska Air Group Inc	ALK	127.35	48.63	6,192.93					
Invesco Ltd	IVZ	448.60	16.80	7,536.48	0.02%	4.76%	0.00%	6.50%	0.00%
Intuit Inc	INTU	280.06	511.70	143,306.70	0.44%	0.61%	0.00%	14.50%	0.06%
Morgan Stanley	MS	1,670.11	91.56	152,915.64	0.47%	3.71%	0.02%	7.50%	0.03%
Microchip Technology Inc	MCHP	545.38	93.94	51,233.37	0.16%	1.63%	0.00%	10.00%	0.02%
Chubb Ltd	CB	410.74	204.41	83,958.34	0.26%	1.68%	0.00%	15.00%	0.04%
Hologic Inc	HOLX	246.12	79.42	19,546.69				25.00%	
Citizens Financial Group Inc	CFG	474.68	31.84	15,113.91	0.05%	5.28%	0.00%	7.50%	0.00%
O'Reilly Automotive Inc	ORLY	60.40	925.79	55,919.57	0.17%			12.00%	0.02%
Allstate Corp/The	ALL	262.85	112.68	29,618.16	0.09%	3.16%	0.00%	3.50%	0.00%
Equity Residential	EQR	379.03	65.94	24,993.44		4.02%		-5.00%	
BorgWarner Inc	BWA	234.37	46.50	10,898.34	0.03%	0.95%	0.00%	9.50%	0.00%
Keurig Dr Pepper Inc	KDP	1,397.26	34.01	47,520.78	0.14%	2.35%	0.00%	12.50%	0.02%
Organon & Co	OGN	255.06	21.98	5,606.26		5.10%			
Host Hotels & Resorts Inc	HST	711.24	18.40	13,086.83		3.26%		51.00%	
Incyte Corp	INCY	223.09	63.72	14,215.17				32.00%	
Simon Property Group Inc	SPG	326.99	124.60	40,742.70	0.12%	5.94%	0.01%	3.50%	0.00%
Eastman Chemical Co	EMN	118.56	85.58	10,146.02	0.03%	3.69%	0.00%	6.00%	0.00%
AvalonBay Communities Inc	AVB	142.00	188.65	26,788.11	0.08%	3.50%	0.00%	6.00%	0.00%
Prudential Financial Inc	PRU	365.00	96.49	35,218.85	0.11%	5.18%	0.01%	3.00%	0.00%
United Parcel Service Inc	UPS	724.78	187.13	135,628.08	0.41%	3.46%	0.01%	7.50%	0.03%
Walgreens Boots Alliance Inc	WBA	863.26	29.97	25,871.93	0.08%	6.41%	0.01%	1.00%	0.00%
STERIS PLC	STE	98.65	225.55	22,250.73	0.07%	0.92%	0.00%	10.00%	0.01%
McKesson Corp	MCK	135.51	402.40	54,530.43	0.17%	0.62%	0.00%	9.00%	0.01%
Lockheed Martin Corp	LMT	251.83	446.37	112,409.80	0.34%	2.69%	0.01%	7.00%	0.02%
AmerisourceBergen Corp	ABC	201.98	186.90	37,750.62	0.11%	1.04%	0.00%	8.50%	0.01%
Capital One Financial Corp	COF	381.44	117.02	44,636.23	0.14%	2.05%	0.00%	4.00%	0.01%
Waters Corp	WAT	59.03	276.21	16,305.78	0.05%			10.00%	0.00%
Nordson Corp	NDSN	56.99	251.61	14,339.51	0.04%	1.03%	0.00%	9.00%	0.00%
Dollar Tree Inc	DLTR	220.39	154.33	34,012.02	0.10%			9.00%	0.01%
Darden Restaurants Inc	DRI	121.07	168.92	20,451.31	0.06%	3.10%	0.00%	17.50%	0.01%
Evergy Inc	EVER	229.58	59.97	13,768.09	0.04%	4.09%	0.00%	7.50%	0.00%
Match Group Inc	MTCH	278.46	46.51	12,951.22	0.04%			16.50%	0.01%
Domino's Pizza Inc	DPZ	35.09	396.74	13,923.19	0.04%	1.22%	0.00%	13.50%	0.01%
NVR Inc	NVR	3.26	6,306.44	20,565.30	0.06%			1.50%	0.00%
NetApp Inc	NTAP	210.82	78.01	16,445.68	0.05%	2.56%	0.00%	8.50%	0.00%
DXC Technology Co	DXC	210.07	27.65	5,808.55	0.02%			9.00%	0.00%
Old Dominion Freight Line Inc	ODFL	109.65	419.49	45,997.92	0.14%	0.38%	0.00%	8.50%	0.01%
DaVita Inc	DVA	90.70	101.99	9,250.49	0.03%			7.00%	0.00%
Hartford Financial Services Group Inc/The	HIG	305.82	71.88	21,982.13	0.07%	2.37%	0.00%	8.00%	0.01%
Iron Mountain Inc	IRM	291.62	61.40	17,905.65	0.05%	4.03%	0.00%	10.50%	0.01%
Estee Lauder Cos Inc/The	EL	231.87	180.00	41,736.78	0.13%	1.47%	0.00%	12.00%	0.02%
Cadence Design Systems Inc	CDNS	271.79	234.01	63,601.58	0.19%			12.00%	0.02%
Tyler Technologies Inc	TYL	42.08	396.63	16,689.40	0.05%			10.50%	0.01%
Universal Health Services Inc	UHS	62.93	138.96	8,744.61	0.03%	0.58%	0.00%	5.50%	0.00%
Skyworks Solutions Inc	SWKS	159.16	114.37	18,202.56	0.06%	2.17%	0.00%	4.00%	0.00%
Quest Diagnostics Inc	DGX	112.24	135.21	15,175.29	0.05%	2.10%	0.00%	5.00%	0.00%
Activision Blizzard Inc	ATVI	786.80	91.77	72,204.45	0.22%	1.08%	0.00%	13.50%	0.03%
Rockwell Automation Inc	ROK	114.88	336.29	38,631.31	0.12%	1.40%	0.00%	9.50%	0.01%
Kraft Heinz Co/The	KHC	1,227.24	36.18	44,401.43	0.14%	4.42%	0.01%	6.00%	0.01%
American Tower Corp	AMT	466.16	190.31	88,714.15	0.27%	3.30%	0.01%	6.00%	0.02%
Regeneron Pharmaceuticals Inc	REGN	107.89	741.91	80,046.15	0.24%			3.50%	0.01%
Amazon.com Inc	AMZN	10,260.35	133.68	1,371,604.12	4.17%			19.50%	0.81%
Jack Henry & Associates Inc	JKHY	72.88	167.57	12,211.66	0.04%	1.24%	0.00%	7.00%	0.00%
Ralph Lauren Corp	RL	40.39	31.33	5,303.89	0.02%	2.28%	0.00%	12.50%	0.00%
Boston Properties Inc	BXP	156.84	66.63	10,449.92		5.88%		-1.00%	
Amphenol Corp	APH	596.45	88.31	52,672.85	0.16%	0.95%	0.00%	12.50%	0.02%
Howmet Aerospace Inc	HWM	413.29	51.10	21,118.14	0.06%	0.31%	0.00%	12.00%	0.01%
Pioneer Natural Resources Co	PXD	233.74	225.67	52,747.20	0.16%	5.92%	0.01%	8.50%	0.01%
Valero Energy Corp	VLO	353.13	127.89	45,161.79	0.14%	3.19%	0.00%	1.50%	0.00%
Synopsys Inc	SNPS	152.16	451.80	68,745.89	0.21%			15.00%	0.03%
Etsy Inc	ETSY	123.35	101.65	12,538.73	0.04%			10.00%	0.00%
CH Robinson Worldwide Inc	CHRW	116.44	100.18	11,664.86	0.04%	2.44%	0.00%	8.00%	0.00%
Accenture PLC	ACN	630.80	316.35	199,552.00	0.61%	1.42%	0.01%	12.50%	0.08%
TransDigm Group Inc	TDG	54.93	899.72	49,419.82				24.50%	

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Estimated Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Value Line Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Yum! Brands Inc	YUM	280.09	137.67	38,559.58	0.12%	1.76%	0.00%	11.50%	0.01%
Prologis Inc	PLD	923.45	124.75	115,200.39	0.35%	2.79%	0.01%	2.50%	0.01%
FirstEnergy Corp	FE	572.84	39.39	22,564.05	0.07%	3.96%	0.00%	4.00%	0.00%
VeriSign Inc	VRSN	103.13	210.95	21,756.12	0.07%			13.00%	0.01%
Quanta Services Inc	PWR	145.18	201.62	29,270.39	0.09%	0.16%	0.00%	15.00%	0.01%
Henry Schein Inc	HSIC	131.00	78.79	10,321.73	0.03%			9.00%	0.00%
Ameren Corp	AEE	262.48	85.67	22,486.23	0.07%	2.94%	0.00%	6.50%	0.00%
ANSYS Inc	ANSS	86.66	342.10	29,646.73	0.09%			8.50%	0.01%
FactSet Research Systems Inc	FDS	38.15	435.04	16,595.04	0.05%	0.90%	0.00%	10.50%	0.01%
NVIDIA Corp	NVDA	2,470.00	467.29	1,154,206.30		0.03%		33.50%	
Sealed Air Corp	SEE	144.39	45.62	6,586.89	0.02%	1.75%	0.00%	9.00%	0.00%
Cognizant Technology Solutions Corp	CTSH	507.48	66.03	33,508.71	0.10%	1.76%	0.00%	8.00%	0.01%
Intuitive Surgical Inc	ISRG	351.36	324.40	113,979.56	0.35%			12.50%	0.04%
Take-Two Interactive Software Inc	TTWO	169.83	152.94	25,973.95					
Republic Services Inc	RSRG	316.28	151.11	47,793.37	0.15%	1.42%	0.00%	12.50%	0.02%
eBay Inc	EBAY	532.16	44.51	23,686.31	0.07%	2.25%	0.00%	9.50%	0.01%
Goldman Sachs Group Inc/The	GS	332.45	355.87	118,308.27	0.36%	3.09%	0.01%	5.00%	0.02%
SBA Communications Corp	SBAC	108.34	218.95	23,720.82		1.55%		23.50%	
Sempra	SRE	314.65	149.02	46,889.14	0.14%	3.19%	0.00%	7.00%	0.01%
Moody's Corp	MCO	183.50	352.75	64,729.63	0.20%	0.87%	0.00%	16.00%	0.03%
ON Semiconductor Corp	ON	431.53	107.75	46,497.25	0.14%			18.50%	0.03%
Booking Holdings Inc	BKNG	36.93	2,970.80	109,723.53				22.00%	
F5 Inc	FFIV	59.30	158.24	9,383.00	0.03%			10.00%	0.00%
Akamai Technologies Inc	AKAM	156.30	94.50	14,770.73	0.04%			5.00%	0.00%
Charles River Laboratories International Inc	CRL	51.18	209.54	10,724.89	0.03%			10.00%	0.00%
MarketAxess Holdings Inc	MKTX	37.68	268.50	10,116.27	0.03%	1.07%	0.00%	10.50%	0.00%
Devon Energy Corp	DVN	641.70	54.00	34,651.80	0.11%	5.33%	0.01%	14.50%	0.02%
Bio-Techne Corp	TECH	157.44	83.40	13,130.25	0.04%	0.38%	0.00%	13.00%	0.01%
Alphabet Inc	GOOGL	5,933.00	132.72	787,427.76					
Teleflex Inc	TFX	46.97	251.17	11,797.96	0.04%	0.54%	0.00%	10.00%	0.00%
Bunge Ltd	BG	150.62	108.67	16,367.66	0.05%	2.44%	0.00%	1.50%	0.00%
Allegion plc	ALLE	87.78	116.86	10,257.97	0.03%	1.54%	0.00%	10.50%	0.00%
Netflix Inc	NFLX	443.15	438.97	194,528.24	0.59%			13.00%	0.08%
Warner Bros Discovery Inc	WBD	2,436.11	13.07	31,839.92					
Agilent Technologies Inc	A	295.38	121.77	35,967.94	0.11%	0.74%	0.00%	13.50%	0.01%
Trumble Inc	TRMB	247.75	53.80	13,328.79	0.04%			5.50%	0.00%
Elevance Health Inc	ELV	235.65	471.63	111,138.67	0.34%	1.26%	0.00%	12.50%	0.04%
CME Group Inc	CME	359.72	198.96	71,568.90	0.22%	2.21%	0.00%	7.50%	0.02%
Juniper Networks Inc	JNPR	321.36	27.80	8,933.81	0.03%	3.17%	0.00%	11.00%	0.00%
BlackRock Inc	BLK	149.76	738.85	110,652.39	0.34%	2.71%	0.01%	7.50%	0.03%
DTE Energy Co	DTE	206.11	114.30	23,558.26	0.07%	3.33%	0.00%	4.50%	0.00%
Celanese Corp	CE	108.79	125.39	13,640.93	0.04%	2.23%	0.00%	6.50%	0.00%
Nasdaq Inc	NDAQ	490.77	50.49	24,778.83	0.08%	1.74%	0.00%	6.00%	0.00%
Philip Morris International Inc	PM	1,552.35	99.72	154,799.84	0.47%	5.09%	0.02%	5.00%	0.02%
Ingersoll Rand Inc	IR	404.52	65.27	26,403.02	0.08%	0.12%	0.00%	12.00%	0.01%
Salesforce Inc	CRM	974.00	225.01	219,159.74	0.67%			18.00%	0.12%
Huntington Ingalls Industries Inc	HII	39.89	229.67	9,161.77	0.03%	2.16%	0.00%	10.00%	0.00%
Roper Technologies Inc	ROP	106.59	493.05	52,555.19	0.16%	0.55%	0.00%	8.00%	0.01%
MetLife Inc	MET	765.82	62.97	48,223.75	0.15%	3.30%	0.00%	7.50%	0.01%
Tapestry Inc	TPR	231.80	43.15	10,002.08	0.03%	2.78%	0.00%	12.00%	0.00%
CSX Corp	CSX	2,006.33	33.32	66,850.92	0.20%	1.32%	0.00%	8.50%	0.02%
Edwards Lifesciences Corp	EW	607.92	82.07	49,891.67	0.15%			10.50%	0.02%
Ameriprise Financial Inc	AMP	104.18	348.45	36,301.17	0.11%	1.55%	0.00%	11.00%	0.01%
Zebra Technologies Corp	ZBRA	51.43	307.96	15,838.38	0.05%			10.00%	0.00%
Zimmer Biomet Holdings Inc	ZBH	208.57	138.15	28,813.81	0.09%	0.69%	0.00%	6.00%	0.01%
Camden Property Trust	CPT	106.76	109.09	11,646.67		3.67%		-4.00%	
CBRE Group Inc	CBRE	309.84	83.31	25,812.60	0.08%			8.50%	0.01%
Mastercard Inc	MA	934.85	394.28	368,591.87	1.12%	0.58%	0.01%	16.00%	0.18%
CarMax Inc	KMX	158.21	82.61	13,069.73				-3.50%	
Intercontinental Exchange Inc	ICE	559.87	114.80	64,272.73	0.20%	1.46%	0.00%	6.00%	0.01%
Fidelity National Information Services Inc	FIS	592.44	60.38	35,771.35		3.44%		23.50%	
Chipotle Mexican Grill Inc	CMG	27.59	1,962.28	54,135.38	0.16%			19.00%	0.03%
Wynn Resorts Ltd	WYNN	113.80	108.98	12,401.71		0.92%		27.00%	
Live Nation Entertainment Inc	LYV	230.15	87.75	20,195.75					
Assurant Inc	AIZ	53.15	134.51	7,149.48	0.02%	2.08%	0.00%	10.50%	0.00%
NRG Energy Inc	NRG	230.23	37.99	8,746.51		3.97%		-2.50%	
Monster Beverage Corp	MNST	1,046.71	57.49	60,175.47	0.18%			11.00%	0.02%
Regions Financial Corp	RF	938.31	20.37	19,113.40	0.06%	4.71%	0.00%	11.50%	0.01%
Baker Hughes Co	BKR	1,009.65	35.79	36,135.52		2.24%			
Mosaic Co/The	MOS	332.11	40.76	13,536.76	0.04%	1.96%	0.00%	3.50%	0.00%
Expedia Group Inc	EXPE	142.60	122.53	17,472.90					
CF Industries Holdings Inc	CF	194.92	82.08	15,999.03	0.05%	1.95%	0.00%	9.00%	0.00%
APA Corp	APA	308.60	40.49	12,495.17		2.47%		21.00%	
Leidos Holdings Inc	LDOS	137.17	93.53	12,829.23	0.04%	1.54%	0.00%	8.00%	0.00%
Alphabet Inc	GOOG	5,801.00	133.11	772,171.11	2.35%			10.50%	0.25%
First Solar Inc	FSLR	106.83	207.40	22,156.75				24.50%	
Cooper Cos Inc/The	COO	49.51	391.26	19,370.50	0.06%	0.02%	0.00%	12.00%	0.01%
TE Connectivity Ltd	TEL	313.94	143.49	45,047.11	0.14%	1.64%	0.00%	10.50%	0.01%
Discover Financial Services	DFS	249.95	105.55	26,382.01	0.08%	2.65%	0.00%	4.00%	0.00%
Linde PLC	LIN	487.95	390.67	190,625.86	0.58%	1.31%	0.01%	8.50%	0.05%
Visa Inc	V	1,606.79	237.73	381,981.71	1.16%	0.76%	0.01%	13.50%	0.16%
Mid-America Apartment Communities Inc	MAA	116.68	149.66	17,461.88		3.74%		-12.50%	
Xylem Inc/NY	XYL	239.35	112.75	26,987.16	0.08%	1.17%	0.00%	6.00%	0.00%
Marathon Petroleum Corp	MPC	424.28	133.02	56,438.12	0.17%	2.26%	0.00%	13.50%	0.02%
Advanced Micro Devices Inc	AMD	1,610.36	114.40	184,225.41				25.50%	
Tractor Supply Co	TSCO	109.57	223.99	24,542.14	0.07%	1.84%	0.00%	13.50%	0.01%
ResMed Inc	RMD	147.07	222.35	32,700.79	0.10%	0.79%	0.00%	9.50%	0.01%
Mettler-Toledo International Inc	MTD	21.87	1,257.47	27,494.58	0.08%			11.50%	0.01%
VICI Properties Inc	VICI	1,013.43	31.48	31,902.71	0.10%	4.96%	0.00%	8.00%	0.01%
Copart Inc	CPRT	477.44	88.39	42,200.92	0.13%			7.00%	0.01%
Jacobs Solutions Inc	J	126.85	125.41	15,908.26	0.05%	0.83%	0.00%	11.00%	0.01%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Shares Outstg	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Estimated Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Value Line Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Fortinet Inc	FTNT	785.20	77.72	61,025.43				24.00%	
Albemarle Corp	ALB	117.34	212.28	24,908.09		0.75%		-4.50%	
Moderna Inc	MRNA	381.21	117.66	44,853.05				-2.50%	
Essex Property Trust Inc	ESS	64.18	243.55	15,631.77		3.79%		-3.00%	
CoStar Group Inc	CSGP	408.34	83.97	34,288.06	0.10%			13.00%	0.01%
Realty Income Corp	O	673.22	60.97	41,046.35	0.12%	5.03%	0.01%	5.50%	0.01%
Westrock Co	WRK	256.13	33.29	8,526.57	0.03%	3.30%	0.00%	8.00%	0.00%
Westinghouse Air Brake Technologies Corp	WAB	179.13	118.44	21,216.16	0.06%	0.57%	0.00%	8.50%	0.01%
Pool Corp	POOL	39.05	384.74	15,024.87	0.05%	1.14%	0.00%	14.00%	0.01%
Western Digital Corp	WDC	319.94	42.56	13,616.52	0.04%			3.00%	0.00%
PepsiCo Inc	PEP	1,376.58	187.46	258,053.87	0.79%	2.70%	0.02%	5.50%	0.04%
Diamondback Energy Inc	FANG	181.09	147.32	26,678.62		2.28%			
Palo Alto Networks Inc	PANW	305.86	249.96	76,451.52					
ServiceNow Inc	NOW	204.00	583.00	118,932.00				61.00%	
Church & Dwight Co Inc	CHD	246.05	95.67	23,539.32	0.07%	1.14%	0.00%	6.00%	0.00%
Federal Realty Investment Trust	FRT	81.52	101.52	8,275.40	0.03%	4.26%	0.00%	2.50%	0.00%
MGM Resorts International	MGM	363.80	50.77	18,470.08				25.00%	
American Electric Power Co Inc	AEP	515.18	84.74	43,656.01	0.13%	3.92%	0.01%	6.00%	0.01%
SolarEdge Technologies Inc	SEDG	56.35	241.46	13,605.06				27.00%	
Invitation Homes Inc	INVH	611.96	35.50	21,724.44		2.93%			
PTC Inc	PTC	118.35	145.81	17,257.05	0.05%			15.00%	0.01%
JB Hunt Transport Services Inc	JBHT	103.35	203.52	21,032.97	0.06%	0.83%	0.00%	10.00%	0.01%
Lam Research Corp	LRCX	133.30	718.49	95,772.56	0.29%	0.96%	0.00%	9.50%	0.03%
Mohawk Industries Inc	MHK	63.68	106.34	6,771.94	0.02%			4.00%	0.00%
Pentair PLC	PNR	165.11	69.50	11,475.35	0.03%	1.27%	0.00%	12.00%	0.00%
GE Healthcare Technologies Inc	GEHC	454.84	78.00	35,477.36		0.15%			
Vertex Pharmaceuticals Inc	VRTX	257.55	352.34	90,745.87	0.28%			12.00%	0.03%
Amcor PLC	AMCR	1,471.44	10.26	15,097.02	0.05%	4.78%	0.00%	13.00%	0.01%
Meta Platforms Inc	META	2,222.58	318.60	708,114.94	2.16%			9.00%	0.19%
T-Mobile US Inc	TMUS	1,176.46	137.77	162,080.48	0.49%			16.00%	0.08%
United Rentals Inc	URI	68.28	464.68	31,729.74	0.10%	1.27%	0.00%	17.00%	0.02%
Alexandria Real Estate Equities Inc	ARE	173.03	125.68	21,746.16	0.07%	3.95%	0.00%	11.00%	0.01%
Honeywell International Inc	HON	663.96	194.13	128,894.75	0.39%	2.12%	0.01%	11.00%	0.04%
Delta Air Lines Inc	DAL	643.42	46.26	29,764.52		0.86%			
United Airlines Holdings Inc	UAL	326.73	54.31	17,744.65					
Seagate Technology Holdings PLC	STX	207.08	63.50	13,149.71	0.04%	4.41%	0.00%	7.00%	0.00%
News Corp	NWS	192.52	20.11	3,871.48		0.99%			
Centene Corp	CNC	541.48	68.09	36,869.31	0.11%			10.00%	0.01%
Martin Marietta Materials Inc	MLM	61.80	446.46	27,593.01	0.08%	0.59%	0.00%	6.00%	0.01%
Teradyne Inc	TER	155.04	112.94	17,510.10	0.05%	0.39%	0.00%	13.50%	0.01%
PayPal Holdings Inc	PYPL	1,115.71	75.82	84,593.44	0.26%			12.00%	0.03%
Tesla Inc	TSLA	3,173.99	267.43	848,821.22				26.00%	
Arch Capital Group Ltd	ACGL	372.90	77.69	28,970.60				20.50%	
Dow Inc	DOW	703.08	56.47	39,702.65	0.12%	4.96%	0.01%	8.50%	0.01%
Everest Group Ltd	EG	43.40	360.51	15,646.13	0.05%	1.83%	0.00%	10.00%	0.00%
Teledyne Technologies Inc	TDY	47.08	384.53	18,101.75	0.06%			9.50%	0.01%
News Corp	NWSA	380.95	19.82	7,550.39		1.01%			
Exelon Corp	EXC	994.30	41.86	41,621.36		3.44%			
Global Payments Inc	GPN	261.95	110.25	28,880.32	0.09%	0.91%	0.00%	13.50%	0.01%
Crown Castle Inc	CCI	434.00	108.29	46,997.86	0.14%	5.78%	0.01%	13.50%	0.02%
Aptiv PLC	APTIV	270.51	109.49	29,617.70				30.00%	
Advance Auto Parts Inc	AAP	59.44	74.39	4,422.04		1.34%		-0.50%	
Align Technology Inc	ALGN	76.52	377.89	28,915.01	0.09%			17.00%	0.01%
Illumina Inc	ILMN	158.10	192.15	30,378.92	0.09%			6.50%	0.01%
Targa Resources Corp	TRGP	226.02	81.99	18,531.30		2.44%			
LKQ Corp	LKQ	267.56	54.79	14,659.39	0.04%	2.01%	0.00%	13.00%	0.01%
Zoetis Inc	ZTS	462.11	188.09	86,918.65	0.26%	0.80%	0.00%	9.00%	0.02%
Digital Realty Trust Inc	DLR	299.24	124.62	37,291.29		3.92%		-1.00%	
Equinix Inc	EQIX	93.52	809.92	75,746.15	0.23%	1.68%	0.00%	15.00%	0.03%
Las Vegas Sands Corp	LVS	764.45	59.81	45,721.58		0.33%			
Molina Healthcare Inc	MOH	58.30	304.49	17,751.77	0.05%			11.50%	0.01%

Notes:

- [1] Equals sum of Col. [9]
- [2] Equals sum of Col. [11]
- [3] Equals $([1] \times (1 + (0.5 \times [2]))) + [2]$
- [4] Source: Bloomberg Professional as of July 31, 2023
- [5] Source: Bloomberg Professional as of July 31, 2023
- [6] Equals [4] x [5]
- [7] Equals weight in S&P 500 based on market capitalization [6] if Growth Rate >0% and ≤20%
- [8] Source: Bloomberg Professional, as of July 31, 2023
- [9] Equals [7] x [8]
- [10] Source: Value Line, as of July 31, 2023
- [11] Equals [7] x [10]

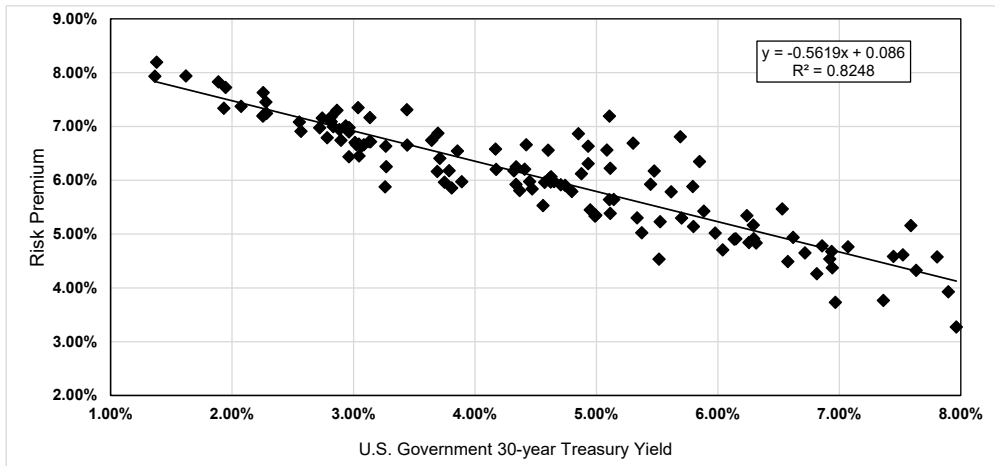
Rocky Mountain Power
Exhibit 4.18
Docket No. 20000-633-ER-23
Witness: Ann E. Bulkley

BEFORE THE WYOMING PUBLIC SERVICE
COMMISSION

ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Ann E. Bulkley
Bond Yield Plus Risk Premium (Rebuttal)

September 2023



SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.90817
R Square	0.82478
Adjusted R Square	0.82337
Standard Error	0.00428
Observations	126

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.010715	0.010715	583.682526	0.000000
Residual	124	0.002276	0.000018		
Total	125	0.012991			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0.0860	0.001123	76.56	0.00000	0.08378	0.08823	0.08378	0.08823
U.S. Govt. 30-year Treasury	(0.5619)	0.023256	(24.16)	0.00000	(0.60790)	(0.51583)	(0.60790)	(0.51583)

	U.S. Govt. 30-year Treasury	Risk Premium	ROE
Current 30-day average of 30-year U.S. Treasury bond yield [4]	3.92%	6.40%	10.32%
Blue Chip Near-Term Projected Forecast (Q4 2023 - Q4 2024) [5]	3.90%	6.41%	10.31%
Blue Chip Long-Term Projected Forecast (2025-2029) [6]	3.80%	6.47%	10.27%
AVERAGE			10.30%

Notes:

- [1] Source: Regulatory Research Associates, rate cases through July 31, 2023
- [2] Source: S&P Capital IQ Pro, quarterly bond yields are the average of each trading day in the quarter
- [3] Equals Column [1] – Column [2]
- [4] Source: S&P Capital IQ Pro, 30-day average as of July 31, 2023
- [5] Blue Chip Financial Forecasts, Vol. 42, No. 8, August 1, 2023, at 2
- [6] Source: Blue Chip Financial Forecasts, Vol. 42, No. 6, June 1, 2023, at 14.
- [7] See notes [4], [5] & [6]
- [8] Equals 0.086007 + (-0.561864 x Column [7])
- [9] Equals Column [7] + Column [8]

BOND YIELD PLUS RISK PREMIUM

Quarter	[1]	[2]	[3]
	Average Authorized VI Electric ROE	U.S. Govt. 30-year Treasury	Risk Premium
1992.1	12.38%	7.81%	4.58%
1992.2	11.83%	7.90%	3.93%
1992.3	12.03%	7.45%	4.59%
1992.4	12.14%	7.52%	4.62%
1993.1	11.84%	7.07%	4.76%
1993.2	11.64%	6.86%	4.78%
1993.3	11.15%	6.32%	4.84%
1993.4	11.04%	6.14%	4.91%
1994.1	11.07%	6.58%	4.49%
1994.2	11.13%	7.36%	3.77%
1994.3	12.75%	7.59%	5.16%
1994.4	11.24%	7.96%	3.28%
1995.1	11.96%	7.63%	4.33%
1995.2	11.32%	6.94%	4.37%
1995.3	11.37%	6.72%	4.65%
1995.4	11.58%	6.24%	5.35%
1996.1	11.46%	6.29%	5.17%
1996.2	11.46%	6.92%	4.54%
1996.3	10.70%	6.97%	3.73%
1996.4	11.56%	6.62%	4.94%
1997.1	11.08%	6.82%	4.26%
1997.2	11.62%	6.94%	4.68%
1997.3	12.00%	6.53%	5.47%
1997.4	11.06%	6.15%	4.91%
1998.1	11.31%	5.88%	5.43%
1998.2	12.20%	5.85%	6.35%
1998.3	11.65%	5.48%	6.17%
1998.4	12.30%	5.11%	7.19%
1999.1	10.40%	5.37%	5.03%
1999.2	10.94%	5.80%	5.14%
1999.3	10.75%	6.04%	4.71%
1999.4	11.10%	6.26%	4.84%
2000.1	11.21%	6.30%	4.92%
2000.2	11.00%	5.98%	5.02%
2000.3	11.68%	5.79%	5.89%
2000.4	12.50%	5.69%	6.81%
2001.1	11.38%	5.45%	5.93%
2001.2	11.00%	5.70%	5.30%
2001.3	10.76%	5.53%	5.23%
2001.4	11.99%	5.30%	6.69%
2002.1	10.05%	5.52%	4.53%
2002.2	11.41%	5.62%	5.79%
2002.3	11.65%	5.09%	6.56%
2002.4	11.57%	4.93%	6.63%
2003.1	11.72%	4.85%	6.87%
2003.2	11.16%	4.60%	6.56%
2003.3	10.50%	5.11%	5.39%
2003.4	11.34%	5.11%	6.23%
2004.1	11.00%	4.88%	6.12%
2004.2	10.64%	5.34%	5.30%
2004.3	10.75%	5.11%	5.64%
2004.4	11.24%	4.93%	6.31%
2005.1	10.63%	4.71%	5.92%
2005.2	10.31%	4.47%	5.84%
2005.3	11.08%	4.42%	6.66%
2005.4	10.63%	4.65%	5.98%
2006.1	10.70%	4.63%	6.07%
2006.2	10.79%	5.14%	5.64%
2006.3	10.35%	5.00%	5.35%
2006.4	10.65%	4.74%	5.91%
2007.1	10.59%	4.80%	5.79%
2007.2	10.33%	4.99%	5.34%
2007.3	10.40%	4.95%	5.45%
2007.4	10.65%	4.61%	6.04%
2008.1	10.62%	4.41%	6.21%
2008.2	10.54%	4.57%	5.96%
2008.3	10.43%	4.45%	5.98%

BOND YIELD PLUS RISK PREMIUM

	[1]	[2]	[3]
	Average		
Quarter	Authorized VI Electric ROE	U.S. Govt. 30- year Treasury	Risk Premium
2008.4	10.39%	3.64%	6.74%
2009.1	10.75%	3.44%	7.31%
2009.2	10.75%	4.17%	6.58%
2009.3	10.50%	4.32%	6.18%
2009.4	10.59%	4.34%	6.25%
2010.1	10.59%	4.62%	5.97%
2010.2	10.18%	4.37%	5.81%
2010.3	10.40%	3.86%	6.55%
2010.4	10.38%	4.17%	6.20%
2011.1	10.09%	4.56%	5.53%
2011.2	10.26%	4.34%	5.92%
2011.3	10.57%	3.70%	6.88%
2011.4	10.39%	3.04%	7.35%
2012.1	10.30%	3.14%	7.17%
2012.2	9.95%	2.94%	7.01%
2012.3	9.90%	2.74%	7.16%
2012.4	10.16%	2.86%	7.30%
2013.1	9.85%	3.13%	6.72%
2013.2	9.86%	3.14%	6.72%
2013.3	10.12%	3.71%	6.41%
2013.4	9.97%	3.79%	6.18%
2014.1	9.86%	3.69%	6.16%
2014.2	10.10%	3.44%	6.66%
2014.3	9.90%	3.27%	6.63%
2014.4	9.94%	2.96%	6.98%
2015.1	9.64%	2.55%	7.08%
2015.2	9.83%	2.88%	6.94%
2015.3	9.40%	2.96%	6.44%
2015.4	9.86%	2.96%	6.90%
2016.1	9.70%	2.72%	6.98%
2016.2	9.48%	2.57%	6.91%
2016.3	9.74%	2.28%	7.46%
2016.4	9.83%	2.83%	7.00%
2017.1	9.72%	3.05%	6.67%
2017.2	9.64%	2.90%	6.75%
2017.3	10.00%	2.82%	7.18%
2017.4	9.91%	2.82%	7.09%
2018.1	9.69%	3.02%	6.66%
2018.2	9.75%	3.09%	6.66%
2018.3	9.69%	3.06%	6.63%
2018.4	9.52%	3.27%	6.25%
2019.1	9.72%	3.01%	6.70%
2019.2	9.58%	2.78%	6.79%
2019.3	9.53%	2.29%	7.25%
2019.4	9.89%	2.26%	7.63%
2020.1	9.72%	1.89%	7.83%
2020.2	9.58%	1.38%	8.19%
2020.3	9.30%	1.37%	7.93%
2020.4	9.56%	1.62%	7.94%
2021.1	9.45%	2.07%	7.38%
2021.2	9.47%	2.26%	7.21%
2021.3	9.27%	1.93%	7.34%
2021.4	9.67%	1.95%	7.73%
2022.1	9.45%	2.25%	7.20%
2022.2	9.50%	3.05%	6.45%
2022.3	9.14%	3.26%	5.88%
2022.4	9.87%	3.89%	5.98%
2023.1	9.72%	3.75%	5.97%
2023.2	9.67%	3.81%	5.86%
AVERAGE	10.59%	4.54%	6.05%
MEDIAN	10.55%	4.59%	6.17%

Rocky Mountain Power
Exhibit 4.19
Docket No. 20000-633-ER-23
Witness: Ann E. Bulkley

BEFORE THE WYOMING PUBLIC SERVICE
COMMISSION

ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Ann E. Bulkley
Calculation of Long-Term GDP Growth Rate (Rebuttal)

September 2023

CALCULATION OF LONG-TERM GDP GROWTH RATE		
Real GDP (\$ Billions) [1]		
	1929	\$ 1,110.2
	2022	\$ 20,014.1
Compound Annual Growth Rate		3.16%
Consumer Price Index (YoY % Change) [2]		
	2029-2033	2.20%
Average		2.20%
Consumer Price Index (All-Urban) [3]		
	2033	3.78
	2050	5.54
Compound Annual Growth Rate		2.27%
GDP Chain-type Price Index (2012=1.000) [3]		
	2033	1.65
	2050	2.43
Compound Annual Growth Rate		2.31%
Average Inflation Forecast		2.26%
Long-Term GDP Growth Rate		5.49%

Notes:

[1] Bureau of Economic Analysis, April 27, 2023

[2] Blue Chip Financial Forecasts, Vol. 41, No. 12, December 2, 2022, at 14

[3] Energy Information Administration, Annual Energy Outlook 2023,
 Table 20, March 16, 2023

Rocky Mountain Power
Exhibit 4.20
Docket No. 20000-633-ER-23
Witness: Ann E. Bulkley

BEFORE THE WYOMING PUBLIC SERVICE
COMMISSION

ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Ann E. Bulkley
Historical Equity Market Returns and Historical Equity Risk Premia (Rebuttal)

September 2023

**Historical Equity Market Returns and
 Historical Equity Risk Premia**

	Large Co Stock Total Return Table A-1	Income Only Returns LT Govt Table A-7	Observed Equity Premium
1926	11.62%	3.73%	7.89%
1927	37.49%	3.41%	34.08%
1928	43.61%	3.22%	40.39%
1929	-8.42%	3.47%	-11.89%
1930	-24.90%	3.32%	-28.22%
1931	-43.34%	3.33%	-46.67%
1932	-8.19%	3.69%	-11.88%
1933	53.99%	3.12%	50.87%
1934	-1.44%	3.18%	-4.62%
1935	47.67%	2.81%	44.86%
1936	33.92%	2.77%	31.15%
1937	-35.03%	2.66%	-37.69%
1938	31.12%	2.64%	28.48%
1939	0.41%	2.40%	-1.99%
1940	-9.78%	2.23%	-12.01%
1941	-11.59%	1.94%	-13.53%
1942	20.34%	2.46%	17.88%
1943	25.90%	2.44%	23.46%
1944	19.75%	2.46%	17.29%
1945	36.44%	2.34%	34.10%
1946	-8.07%	2.04%	-10.11%
1947	5.71%	2.13%	3.58%
1948	5.50%	2.40%	3.10%
1949	18.79%	2.25%	16.54%
1950	31.71%	2.12%	29.59%
1951	24.02%	2.38%	21.64%
1952	18.37%	2.66%	15.71%
1953	-0.99%	2.84%	-3.83%
1954	52.62%	2.79%	49.83%
1955	31.56%	2.75%	28.81%
1956	6.56%	2.99%	3.57%
1957	-10.78%	3.44%	-14.22%
1958	43.36%	3.27%	40.09%
1959	11.96%	4.01%	7.95%
1960	0.47%	4.26%	-3.79%
1961	26.89%	3.83%	23.06%
1962	-8.73%	4.00%	-12.73%
1963	22.80%	3.89%	18.91%
1964	16.48%	4.15%	12.33%
1965	12.45%	4.20%	8.25%
1966	-10.06%	4.49%	-14.55%
1967	23.98%	4.59%	19.39%
1968	11.06%	5.50%	5.56%
1969	-8.50%	5.95%	-14.45%
1970	4.01%	6.74%	-2.73%
1971	14.31%	6.32%	7.99%
1972	18.98%	5.87%	13.11%
1973	-14.66%	6.51%	-21.17%
1974	-26.47%	7.27%	-33.74%
1975	37.20%	7.99%	29.21%
1976	23.84%	7.89%	15.95%
1977	-7.18%	7.14%	-14.32%
1978	6.56%	7.90%	-1.34%
1979	18.44%	8.86%	9.58%
1980	32.50%	9.97%	22.53%
1981	-4.92%	11.55%	-16.47%
1982	21.55%	13.50%	8.05%
1983	22.56%	10.38%	12.18%
1984	6.27%	11.74%	-5.47%
1985	31.73%	11.25%	20.48%

**Historical Equity Market Returns and
 Historical Equity Risk Premia**

	Large Co Stock Total Return Table A-1	Income Only Returns LT Govt Table A-7	Observed Equity Premium
1986	18.67%	8.98%	9.69%
1987	5.25%	7.92%	-2.67%
1988	16.61%	8.97%	7.64%
1989	31.69%	8.81%	22.88%
1990	-3.11%	8.19%	-11.30%
1991	30.47%	8.22%	22.25%
1992	7.62%	7.26%	0.36%
1993	10.08%	7.17%	2.91%
1994	1.32%	6.59%	-5.27%
1995	37.58%	7.60%	29.98%
1996	22.96%	6.18%	16.78%
1997	33.36%	6.64%	26.72%
1998	28.58%	5.83%	22.75%
1999	21.04%	5.57%	15.47%
2000	-9.10%	6.50%	-15.60%
2001	-11.89%	5.53%	-17.42%
2002	-22.10%	5.59%	-27.69%
2003	28.68%	4.80%	23.88%
2004	10.88%	5.02%	5.86%
2005	4.91%	4.69%	0.22%
2006	15.79%	4.68%	11.11%
2007	5.49%	4.86%	0.63%
2008	-37.00%	4.45%	-41.45%
2009	26.46%	3.47%	22.99%
2010	15.06%	4.25%	10.81%
2011	2.11%	3.82%	-1.71%
2012	16.00%	2.46%	13.54%
2013	32.39%	2.88%	29.51%
2014	13.69%	3.41%	10.28%
2015	1.38%	2.47%	-1.09%
2016	11.96%	2.30%	9.66%
2017	21.83%	2.67%	19.16%
2018	-4.38%	2.82%	-7.20%
2019	31.49%	2.55%	28.94%
2020	18.40%	1.53%	16.87%
2021	28.70%	1.73%	26.97%
2022	-18.11%	2.61%	-20.72%
Arithmetic average	12.02%	4.85%	7.17%

Rocky Mountain Power
Exhibit 4.21
Docket No. 20000-633-ER-23
Witness: Ann E. Bulkley

BEFORE THE WYOMING PUBLIC SERVICE
COMMISSION

ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Ann E. Bulkley

Garrett Adjusted MRP (Rebuttal)

September 2023

GARRETT TWO-STAGE DCF -- S&P 500 -- AS FILED

GARRETT TWO-STAGE DCF -- S&P 500 -- AS FILED

	[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]
Index	Current Index Value	Cash Yield	Historical EPS Growth Rate	Risk-Free Rate - Second Stage Growth	Implied Equity Risk Premium	Mean Market Return	Check	Year 1 Div.	(1+k) ¹	PV of Year 1 Div.	Year 2 Div.	(1+k) ²	PV of Year 2 Div.	Year 3 Div.	(1+k) ³	PV of Year 3 Div.	Year 4 Div.	(1+k) ⁴	PV of Year 4 Div.	Year 5 Div.	(1+k) ⁵	PV of Year 5 Div.	Year 6 Div.	Year 5 Stock Price	PV of Year 5 Stock Price	Current Stock Price
S&P 500	\$ 4,406	4.65%	6.64%	3.90%	5.44%	9.34%	0.00	\$218.48	1.09	199.82	\$232.99	1.20	194.89	\$248.46	1.31	190.08	\$264.96	1.43	185.39	\$282.55	1.56	180.81	\$293.58	\$5,399.18	\$3,455.02	\$4,406.00

Notes:

- [1] WIEC Exhibit No. 201.12
- [2] WIEC Exhibit No. 201.12
- [3] WIEC Exhibit No. 201.12
- [4] WIEC Exhibit No. 201.12
- [5] Equals [6] - [4]
- [6] ROE that sets [1] equal to [25] using Excel's goal seek function
- [7] = [2] * [1] * (1 + [3])
- [8] = (1 + [6]) ^ 1
- [9] = [7] / [8]
- [10] = [7] * (1 + [3])
- [11] = (1 + [6]) ^ 2
- [12] = [10] / [11]
- [13] = [10] * (1 + [3])
- [14] = (1 + [6]) ^ 3
- [15] = [13] / [14]
- [16] = [13] * (1 + [3])
- [17] = (1 + [6]) ^ 4
- [18] = [16] / [17]
- [19] = [16] * (1 + [3])
- [20] = (1 + [6]) ^ 5
- [21] = [19] / [20]
- [22] = [19] * (1 + [3])
- [23] = [22] / ([6] - [4])
- [24] = [23] / [20]
- [25] = [9] + [12] + [15] + [18] + [21] + [24]

GARRETT TWO-STAGE DCF -- S&P 500 -- PROJECTED EPS GROWTH

GARRETT TWO-STAGE DCF -- S&P 500 -- PROJECTED EPS GROWTH

	[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]
Index	Current Index Value	Cash Yield	S&P Projected EPS Growth Rate	Risk-Free Rate - Second Stage Growth	Implied Equity Risk Premium	Mean Market Return	Check	Year 1 Div.	(1+k) ¹	PV of Year 1 Div.	Year 2 Div.	(1+k) ²	PV of Year 2 Div.	Year 3 Div.	(1+k) ³	PV of Year 3 Div.	Year 4 Div.	(1+k) ⁴	PV of Year 4 Div.	Year 5 Div.	(1+k) ⁵	PV of Year 5 Div.	Year 6 Div.	Year 5 Stock Price	PV of Year 5 Stock Price	Current Stock Price
S&P 500	\$ 4,406	4.65%	13.16%	3.90%	7.07%	10.97%	0.00	\$231.85	1.11	208.92	\$262.37	1.23	213.05	\$296.91	1.37	217.25	\$335.99	1.52	221.54	\$380.22	1.68	225.91	\$395.06	\$5,586.52	\$3,319.32	\$4,406.00

- Notes:
- [1] WIEC Exhibit No. 201.12
 - [2] WIEC Exhibit No. 201.12
 - [3] S&P Earnings and Estimates Report, August 9, 2023.
 - [4] WIEC Exhibit No. 201.12
 - [5] Equals [6] - [4]
 - [6] ROE that sets [1] equal to [25] using Excel's goal seek function
 - [7] = ([2] x [1]) x (1 + [3])
 - [8] = (1 + [6]) ^ 1
 - [9] = [7] / [8]
 - [10] = [7] * (1 + [3])
 - [11] = (1 + [6]) ^ 2
 - [12] = [10] / [11]
 - [13] = [10] * (1 + [3])
 - [14] = (1 + [6]) ^ 3
 - [15] = [13] / [14]
 - [16] = [13] * (1 + [3])
 - [17] = (1 + [6]) ^ 4
 - [18] = [16] / [17]
 - [19] = [16] * (1 + [3])
 - [20] = (1 + [6]) ^ 5
 - [21] = [19] / [20]
 - [22] = [19] * (1 + [4])
 - [23] = [22] / ([6] - [4])
 - [24] = [23] / [20]
 - [25] = [9] + [12] + [15] + [18] + [21] + [24]

GARRETT TWO-STAGE DCF -- S&P 500 -- PROJECTED EPS GROWTH & GDP GROWTH

GARRETT TWO-STAGE DCF -- S&P 500 -- PROJECTED EPS GROWTH & GDP GROWTH

	[1]	[2]	[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]
Index	Current Index Value	Cash Yield	S&P Projected EPS Growth Rate	GDP Growth - Second Stage Growth	Implied Equity Risk Premium	Mean Market Return	Check	Year 1 Div.	(1+k) ¹	PV of Year 1 Div.	Year 2 Div.	(1+k) ²	PV of Year 2 Div.	Year 3 Div.	(1+k) ³	PV of Year 3 Div.	Year 4 Div.	(1+k) ⁴	PV of Year 4 Div.	Year 5 Div.	(1+k) ⁵	PV of Year 5 Div.	Year 6 Div.	Year 5 Stock Price	PV of Year 5 Stock Price	Current Stock Price
S&P 500	\$ 3,979	4.65%	13.16%	5.49%	6.72%	12.21%	0.00	\$209.29	1.12	186.53	\$236.85	1.26	188.12	\$268.02	1.41	189.72	\$303.31	1.59	191.34	\$343.23	1.78	192.97	\$362.07	\$5,389.24	\$3,029.90	\$3,978.57

Notes:

- [1] WIEC Exhibit No. 201.12
- [2] WIEC Exhibit No. 201.12
- [3] S&P Earnings and Estimates Report, August 9, 2023.
- [4] Bureau of Economic Analysis, July 27, 2023; Blue Chip Financial Forecasts, Vol. 42, No. 6, June 1, 2023, at 14; Energy Information Administration, Annual Energy Outlook 2023 at Table 20, March 16, 2023
- [5] Equals [6] - [4]
- [6] ROE that sets [1] equal to [25] using Excel's goal seek function
- [7] = ([2] x [1]) x (1 + [3])
- [8] = (1 + [6]) ^ 1
- [9] = [7] / [8]
- [10] = [7] * (1 + [3])
- [11] = (1 + [6]) ^ 2
- [12] = [10] / [11]
- [13] = [10] * (1 + [3])
- [14] = (1 + [6]) ^ 3
- [15] = [13] / [14]
- [16] = [13] * (1 + [3])
- [17] = (1 + [6]) ^ 4
- [18] = [16] / [17]
- [19] = [16] * (1 + [3])
- [20] = (1 + [6]) ^ 5
- [21] = [19] / [20]
- [22] = [19] * (1 + [4])
- [23] = [22] / ([6] - [4])
- [24] = [23] / [20]
- [25] = [9] + [12] + [15] + [18] + [21] + [24]

Rocky Mountain Power
Exhibit 4.22
Docket No. 20000-633-ER-23
Witness: Ann E. Bulkley

BEFORE THE WYOMING PUBLIC SERVICE
COMMISSION

ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Ann E. Bulkley
Garrett Adjusted Capital Asset Pricing Model (Rebuttal)

September 2023

GARRETT CAPM -- AS FILED

Company	Ticker	[1]	[2]	[3]	[4]	[5]
		Current 30-day average of 30-year U.S. Treasury bond yield	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm - Rf)	CAPM ROE (K)
ALLETE, Inc.	ALE	3.90%	0.90	9.30%	5.40%	8.76%
Alliant Energy Corporation	LNT	3.90%	0.85	9.30%	5.40%	8.49%
Ameren Corporation	AEE	3.90%	0.85	9.30%	5.40%	8.49%
American Electric Power Company, Inc.	AEP	3.90%	0.75	9.30%	5.40%	7.95%
Avista Corporation	AVA	3.90%	0.90	9.30%	5.40%	8.76%
CMS Energy Corporation	CMS	3.90%	0.80	9.30%	5.40%	8.22%
Duke Energy Corporation	DUK	3.90%	0.85	9.30%	5.40%	8.49%
Entergy Corporation	ETR	3.90%	0.90	9.30%	5.40%	8.76%
Evergy, Inc.	EVRG	3.90%	0.90	9.30%	5.40%	8.76%
IDACORP, Inc.	IDA	3.90%	0.80	9.30%	5.40%	8.22%
NextEra Energy, Inc.	NEE	3.90%	0.95	9.30%	5.40%	9.03%
NorthWestern Corporation	NWE	3.90%	0.95	9.30%	5.40%	9.03%
OGE Energy Corporation	OGE	3.90%	1.00	9.30%	5.40%	9.30%
Otter Tail Corporation	OTTR	3.90%	0.85	9.30%	5.40%	8.49%
Portland General Electric Company	POR	3.90%	0.90	9.30%	5.40%	8.76%
Southern Company	SO	3.90%	0.90	9.30%	5.40%	8.76%
Wisconsin Energy Corporation	WEC	3.90%	0.85	9.30%	5.40%	8.49%
Mean			0.88			8.63%

Notes:

- [1] Source: WIEC Exhibit No. 201.12
[2] Source: WIEC Exhibit No. 201.11
[3] Source: WIEC Exhibit No. 201.14
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]

GARRETT CAPM -- S&P 500 - PROJECTED EPS GROWTH

Company	Ticker	[1]	[2]	[3]	[4]	[5]
		Current 30-day average of 30-year U.S. Treasury bond yield	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm - Rf)	CAPM ROE (K)
ALLETE, Inc.	ALE	3.90%	0.90	10.97%	7.07%	10.27%
Alliant Energy Corporation	LNT	3.90%	0.85	10.97%	7.07%	9.91%
Ameren Corporation	AEE	3.90%	0.85	10.97%	7.07%	9.91%
American Electric Power Company, Inc.	AEP	3.90%	0.75	10.97%	7.07%	9.20%
Avista Corporation	AVA	3.90%	0.90	10.97%	7.07%	10.27%
CMS Energy Corporation	CMS	3.90%	0.80	10.97%	7.07%	9.56%
Duke Energy Corporation	DUK	3.90%	0.85	10.97%	7.07%	9.91%
Entergy Corporation	ETR	3.90%	0.90	10.97%	7.07%	10.27%
Evergy, Inc.	EVRG	3.90%	0.90	10.97%	7.07%	10.27%
IDACORP, Inc.	IDA	3.90%	0.80	10.97%	7.07%	9.56%
NextEra Energy, Inc.	NEE	3.90%	0.95	10.97%	7.07%	10.62%
NorthWestern Corporation	NWE	3.90%	0.95	10.97%	7.07%	10.62%
OGE Energy Corporation	OGE	3.90%	1.00	10.97%	7.07%	10.97%
Otter Tail Corporation	OTTR	3.90%	0.85	10.97%	7.07%	9.91%
Portland General Electric Company	POR	3.90%	0.90	10.97%	7.07%	10.27%
Southern Company	SO	3.90%	0.90	10.97%	7.07%	10.27%
Wisconsin Energy Corporation	WEC	3.90%	0.85	10.97%	7.07%	9.91%
Mean			0.88			10.10%

Notes:

- [1] Source: WIEC Exhibit No. 201.12
[2] Source: WIEC Exhibit No. 201.11
[3] Source: RMP Exh. X.X WIEC Adj. MRP
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]

GARRETT CAPM -- S&P 500 - PROJECTED EPS GROWTH & GDP GROWTH

		[1]	[2]	[3]	[4]	[5]
		Current 30-day average of 30-year U.S. Treasury bond		Market Return (Rm)	Market Risk Premium (Rm - Rf)	CAPM ROE (K)
Company	Ticker	yield	Beta (β)			
ALLETE, Inc.	ALE	3.90%	0.90	12.21%	8.31%	11.38%
Alliant Energy Corporation	LNT	3.90%	0.85	12.21%	8.31%	10.96%
Ameren Corporation	AEE	3.90%	0.85	12.21%	8.31%	10.96%
American Electric Power Company, Inc.	AEP	3.90%	0.75	12.21%	8.31%	10.13%
Avista Corporation	AVA	3.90%	0.90	12.21%	8.31%	11.38%
CMS Energy Corporation	CMS	3.90%	0.80	12.21%	8.31%	10.55%
Duke Energy Corporation	DUK	3.90%	0.85	12.21%	8.31%	10.96%
Entergy Corporation	ETR	3.90%	0.90	12.21%	8.31%	11.38%
Evergy, Inc.	EVRG	3.90%	0.90	12.21%	8.31%	11.38%
IDACORP, Inc.	IDA	3.90%	0.80	12.21%	8.31%	10.55%
NextEra Energy, Inc.	NEE	3.90%	0.95	12.21%	8.31%	11.79%
NorthWestern Corporation	NWE	3.90%	0.95	12.21%	8.31%	11.79%
OGE Energy Corporation	OGE	3.90%	1.00	12.21%	8.31%	12.21%
Otter Tail Corporation	OTTR	3.90%	0.85	12.21%	8.31%	10.96%
Portland General Electric Company	POR	3.90%	0.90	12.21%	8.31%	11.38%
Southern Company	SO	3.90%	0.90	12.21%	8.31%	11.38%
Wisconsin Energy Corporation	WEC	3.90%	0.85	12.21%	8.31%	10.96%
Mean			0.88			11.18%

Notes:

[1] Source: WIEC Exhibit No. 201.12

[2] Source: WIEC Exhibit No. 201.11

[3] Source: RMP Exh. X.X WIEC Adj. MRP

[4] Equals [3] - [1]

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

Rocky Mountain Power
Exhibit 4.23
Docket No. 20000-633-ER-23
Witness: Ann E. Bulkley

BEFORE THE WYOMING PUBLIC SERVICE
COMMISSION

ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Ann E. Bulkley
Capital Structure – Market Value (Rebuttal)

September 2023

CAPITAL STRUCTURE - MARKET VALUE

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	
Company	Current Assets	Current Liabilities	Current Long-Term Debt and Leases	Net Working Capital	Short-term Debt	Adj. Short-Debt	Long-term Debt	Debt - Book Value	Unadjusted Market Value of Debt	Carrying Amount	Adjustment to Book Value of Long-term Debt	Debt - Market Value	Market Value of Preferred Equity (\$000)	Preferred Equity - Book Value	Preferred Equity - Market Value	Market Value of Common Equity (\$000)	Common Equity - Book Value	Common Equity - Market Value	Market Value of Firm	Market Value Ratio	
ALLETE, Inc.	ALE	\$718,000	\$716,200	\$275,800	\$277,600	\$0	\$0	\$1,657,500	\$1,933,300	\$1,782,100	\$1,929,100	-\$147,000	\$1,786,300	\$0	\$0	\$2,691,900	\$3,687,513	\$5,473,813	32.63%	0.00%	67.37%
Alliant Energy Corporation	LNT	\$1,250,000	\$2,363,000	\$416,000	(\$697,000)	\$642,000	\$642,000	\$7,812,000	\$8,870,000	\$7,338,000	\$8,076,000	-\$737,000	\$8,133,000	\$0	\$0	\$6,276,000	\$13,658,915	\$21,961,915	36.98%	0.00%	63.02%
Ameren Corporation	AEE	\$2,668,000	\$3,366,000	\$340,000	(\$359,000)	\$1,070,000	\$358,000	\$13,885,000	\$14,383,000	\$12,453,000	\$14,025,000	-\$1,572,000	\$12,811,000	\$0	\$0	\$10,598,000	\$22,887,791	\$38,798,791	35.79%	0.00%	64.21%
American Electric Power Company, Inc.	AEP	\$9,418,700	\$14,567,400	\$2,167,000	(\$2,981,700)	\$4,112,200	\$2,981,700	\$4,346,500	\$39,495,200	\$31,767,100	\$35,622,600	-\$3,855,500	\$35,639,700	\$0	\$0	\$23,893,400	\$48,791,356	\$84,431,056	42.21%	0.00%	57.79%
Avista Corporation	AVA	\$721,802	\$964,534	\$21,136	(\$221,596)	\$463,000	\$221,596	\$2,463,543	\$2,706,275	\$1,932,897	\$2,410,777	-\$477,880	\$2,228,395	\$0	\$0	\$2,334,668	\$3,271,217	\$5,499,612	40.52%	0.00%	59.48%
CMS Energy Corporation	CMS	\$3,433,000	\$2,985,000	\$1,103,000	\$1,551,000	\$20,000	\$0	\$13,217,000	\$14,320,000	\$12,391,000	\$14,221,000	-\$1,830,000	\$12,490,000	\$224,000	\$224,000	\$6,791,000	\$8,381,634	\$31,095,634	40.17%	0.72%	59.11%
Duke Energy Corporation	DUK	\$13,222,000	\$18,873,000	\$4,333,000	\$3,952,000	\$1,318,000	\$7,937,000	\$73,588,000	\$63,454,000	\$63,454,000	\$71,215,000	-\$7,761,000	\$65,827,000	\$1,962,000	\$1,962,000	\$47,360,000	\$9,308,765	\$147,097,765	44.75%	1.33%	53.92%
Entergy Corporation	ETR	\$4,095,026	\$6,369,447	\$2,379,427	\$105,006	\$827,621	\$0	\$23,813,273	\$26,192,700	\$22,573,837	\$25,932,549	-\$3,358,712	\$22,833,888	\$0	\$0	\$12,996,985	\$22,891,912	\$45,725,900	49.94%	0.00%	50.06%
Eversys, Inc.	EVRG	\$1,842,000	\$3,493,800	\$460,900	(\$1,190,900)	\$1,691,300	\$1,190,900	\$10,006,500	\$11,658,300	\$9,160,000	\$10,344,800	-\$1,184,800	\$10,473,500	\$0	\$0	\$4,983,700	\$14,444,725	\$24,918,225	42.03%	0.00%	57.97%
IDACORP, Inc.	IDA	\$693,653	\$548,565	\$0	\$145,088	\$0	\$0	\$2,194,145	\$2,194,145	\$1,953,470	\$2,194,145	-\$240,675	\$1,953,470	\$0	\$0	\$2,807,239	\$4,543,100	\$7,406,570	26.37%	0.00%	73.63%
NextEra Energy, Inc.	NEE	\$13,490,000	\$26,695,000	\$6,633,000	(\$6,572,000)	\$3,077,000	\$3,077,000	\$5,631,000	\$57,892,000	\$61,889,000	\$3,997,000	\$61,344,000	\$0	\$0	\$9,229,000	\$66,126,881	\$227,470,881	26.97%	0.00%	73.03%	
NorthWestern Corporation	NWE	\$538,824	\$620,845	\$147,623	\$65,602	\$0	\$0	\$2,483,156	\$2,630,779	\$2,316,700	\$2,618,882	-\$302,182	\$2,328,597	\$0	\$0	\$2,665,183	\$3,428,591	\$5,757,188	40.45%	0.00%	59.55%
OGE Energy Corporation	OGE	\$1,340,800	\$1,802,200	\$1,005,600	\$544,200	\$0	\$0	\$3,577,800	\$4,583,400	\$4,161,000	\$4,548,600	-\$387,600	\$4,195,800	\$0	\$0	\$4,413,400	\$7,918,016	\$12,113,816	34.64%	0.00%	65.36%
Other Tail Corporation	OTTR	\$452,752	\$237,636	\$5,071	\$220,187	\$8,204	\$0	\$37,897	\$842,768	\$691,615	\$823,821	-\$142,206	\$700,562	\$0	\$0	\$1,217,317	\$2,444,153	\$3,144,715	22.28%	0.00%	77.72%
Portland General Electric Company	POR	\$1,210,000	\$1,496,000	\$280,000	(\$96,000)	\$0	\$0	\$3,698,000	\$3,978,000	\$3,245,000	\$3,659,000	-\$414,000	\$3,564,000	\$0	\$0	\$2,779,000	\$4,374,372	\$7,938,372	44.90%	0.00%	55.10%
Southern Company	SO	\$10,416,000	\$15,724,000	\$4,544,000	(\$764,000)	\$2,609,000	\$764,000	\$2,284,000	\$57,592,000	\$48,600,000	\$54,600,000	-\$6,000,000	\$51,592,000	\$0	\$0	\$30,408,000	\$77,670,717	\$129,262,717	39.91%	0.00%	60.09%
Wisconsin Energy Corporation	WEC	\$3,187,700	\$4,611,000	\$885,200	(\$538,100)	\$1,647,100	\$538,100	\$14,791,600	\$16,214,900	\$13,921,300	\$15,464,200	-\$1,542,900	\$14,672,000	\$0	\$0	\$11,376,900	\$29,575,142	\$44,247,142	33.16%	0.00%	66.84%
MEAN																			\$7,288%	0.12%	62.60%

Notes:
 [1] S&P Capital IQ Pro.
 [2] S&P Capital IQ Pro.
 [3] S&P Capital IQ Pro.
 [4] Equals [1] - ([2] - [3])
 [5] S&P Capital IQ Pro.
 [6] Equals:
 [A] 0 if [4] > 0
 [B] ABS of [4] if [4] < 0 and ABS of [4] < [5]
 [C] [5] if [4] < 0 and ABS of [4] > [5]
 [7] S&P Capital IQ Pro.
 [8] Equals [3] + [6] + [7]
 [9] Company 10-Ks
 [10] Company 10-Ks
 [11] Equals [9] - [10]
 [12] Equals [8] + [11]
 [13] S&P Capital IQ Pro.
 [14] Equals [13]
 [15] S&P Capital IQ Pro.
 [16] S&P Capital IQ Pro.
 [17] Equals [12] + [14] + [16]
 [18] Equals [12] / [17]
 [19] Equals [14] / [17]
 [20] Equals [16] / [17]

Rocky Mountain Power
Exhibit 4.24
Docket No. 20000-633-ER-23
Witness: Ann E. Bulkley

BEFORE THE WYOMING PUBLIC SERVICE
COMMISSION

ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Ann E. Bulkley

Garrett Adjusted Hamada (Rebuttal)

September 2023

Unlevering Beta

Proxy Group		
Market Value Debt Ratio	37.28%	[1]
Market Value Preferred Equity Ratio	0.12%	[2]
Market Value Common Equity Ratio	62.60%	[3]
Debt / Common Equity Ratio	0.60	[4]
Preferred / Common Ratio	0.00	[5]
Tax Rate	25%	[6]
Equity Risk Premium	5.4%	[7]
Risk-free Rate	3.9%	[8]
Proxy Group Beta	0.88	[9]
Unlevered Beta	0.61	[10]

Relevered Betas and Cost of Equity Estimates

Debt Ratio [11]	D/E Ratio [12]	P/E Ratio [13]	Levered Beta [14]	Cost of Equity [15]
0.00%	0.0	0.0	0.61	7.2%
20.00%	0.3	0.0	0.72	7.8%
30.00%	0.4	0.0	0.80	8.2%
37.28%	0.6	0.0	0.88	8.6%
40.00%	0.7	0.0	0.91	8.8%
48.73%	1.0	0.0	1.04	9.5%
50.00%	1.0	0.0	1.07	9.7%
60.00%	1.5	0.0	1.29	10.9%

Notes:

- [1] RMP Exhibit 4.23
 [2] RMP Exhibit 4.23
 [3] RMP Exhibit 4.23
 [4] = [1] / [3]
 [5] = [2] / [3]
 [6] WIEC Exhibit No. 201.19
 [7] WIEC Exhibit No. 201.13
 [8] WIEC Exhibit No. 201.10
 [9] WIEC Exhibit No. 201.11
 [10] Equals [9] / (1 + (1 - [6]) * [4] + [5])
 [11] Various illustrative debt ratios
 - green highlight = market value of proxy group;
 - blue highlight = Company's proposed capital structure
 [12] Equals [11] / (1 - [11] - [2])
 [13] Equals [2] / (1 - [11] - [2])
 [14] Equals [10] * (1 + (1 - [6]) * [4] + [5])
 [15] Equals [8] + [14] * [7]

Rocky Mountain Power
Exhibit 4.25
Docket No. 20000-633-ER-23
Witness: Ann E. Bulkley

BEFORE THE WYOMING PUBLIC SERVICE
COMMISSION

ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Ann E. Bulkley

Walter Risk Premium Analysis (Rebuttal)

September 2023
Mr. Walters's Risk Premium Analysis
As-Adjusted Treasury Bond Approach

<u>Line</u>	<u>Year</u> (a)	<u>Authorized Electric Returns</u> (b)	<u>30 yr. Treasury Bond Yield</u> (c)	<u>Annual Risk Premium</u> (d)	<u>Rolling 5-Yr Avg Risk Premium</u> (e)	<u>Risk Premium Obsvrs. within 3rd Quartile</u> (f)	<u>30-Year Treasury 5-yr Rolling Average</u> (g)	<u>30-Year Treasury Obsvrs. within 3rd Quartile</u> (h)
1	1986	13.93%	7.80%	6.13%				
2	1987	12.99%	8.58%	4.41%				
3	1988	12.79%	8.96%	3.83%				
4	1989	12.97%	8.45%	4.52%				
5	1990	12.70%	8.61%	4.09%	4.60%		8.48%	
6	1991	12.55%	8.14%	4.41%	4.25%		8.55%	
7	1992	12.09%	7.67%	4.42%	4.26%		8.36%	
8	1993	11.41%	6.60%	4.81%	4.45%		7.89%	
9	1994	11.34%	7.37%	3.97%	4.34%		7.68%	
10	1995	11.55%	6.88%	4.67%	4.46%		7.33%	
11	1996	11.39%	6.70%	4.69%	4.51%		7.04%	
12	1997	11.40%	6.61%	4.79%	4.59%		6.83%	
13	1998	11.66%	5.58%	6.08%	4.84%		6.63%	
14	1999	10.77%	5.87%	4.90%	5.03%		6.33%	
15	2000	11.43%	5.94%	5.49%	5.19%		6.14%	
16	2001	11.09%	5.49%	5.60%	5.37%		5.90%	
17	2002	11.16%	5.43%	5.73%	5.56%		5.66%	
18	2003	10.97%	4.96%	6.01%	5.55%		5.54%	
19	2004	10.75%	5.05%	5.70%	5.71%		5.37%	
20	2005	10.54%	4.65%	5.89%	5.79%	5.79%	5.11%	5.11%
21	2006	10.34%	4.87%	5.47%	5.76%	5.76%	4.99%	4.99%
22	2007	10.31%	4.83%	5.48%	5.71%		4.87%	
23	2008	10.37%	4.28%	6.09%	5.73%		4.74%	
24	2009	10.52%	4.07%	6.45%	5.88%	5.88%	4.54%	4.54%
25	2010	10.29%	4.25%	6.04%	5.90%	5.90%	4.46%	4.46%
26	2011	10.19%	3.91%	6.28%	6.07%	6.07%	4.27%	4.27%
27	2012	10.01%	2.92%	7.09%	6.39%	6.39%	3.89%	3.89%
28	2013	9.81%	3.45%	6.36%	6.44%	6.44%	3.72%	3.72%
29	2014	9.75%	3.34%	6.41%	6.44%	6.44%	3.57%	3.57%
30	2015	9.60%	2.84%	6.76%	6.58%		3.29%	
31	2016	9.60%	2.60%	7.00%	6.72%		3.03%	
32	2017	9.68%	2.90%	6.79%	6.66%		3.02%	
33	2018	9.55%	3.11%	6.44%	6.68%		2.96%	
34	2019	9.64%	2.58%	7.06%	6.81%		2.81%	
35	2020	9.39%	1.56%	7.83%	7.02%		2.55%	
36	2021	9.39%	2.05%	7.34%	7.09%		2.44%	
37	2022	9.52%	3.12%	6.41%	7.01%		2.48%	
38	2023	9.71%	3.74%	5.97%	6.92%		2.61%	
39	Average	10.87%	5.15%	5.72%	5.71%	6.08%		4.32%
40	Second Quartile				5.74%			
41	Third Quartile				6.55%			
42	Mr. Walters's Average of Third Quartile 5-yr. Rolling Average Equity Risk Premia							6.08%
43	Avg. of 30-Year Treasury Bond Yield Observations in Third Quartile							4.32%
44	Mr. Walters's Adjusted Treasury Bond Approach Result							10.40%

**Mr. Walters's Risk Premium Analysis
 As-Adjusted Utility Bond Approach**

<u>Line</u>	<u>Year</u> (a)	<u>Authorized Electric Returns</u> (b)	<u>Average "A" Rated Utility Bond Yield</u> (c)	<u>Annual Risk Premium</u> (d)	<u>Rolling 5-Yr Avg Risk Premium</u> (e)	<u>Risk Premium Observ. within 3rd Quartile</u> (f)	<u>30-Year Treasury 5-yr Rolling Average</u> (g)	<u>30-Year Treasury Observ. within 3rd Quartile</u> (h)
1	1986	13.93%	9.58%	4.35%				
2	1987	12.99%	10.10%	2.89%				
3	1988	12.79%	10.49%	2.30%				
4	1989	12.97%	9.77%	3.20%				
5	1990	12.70%	9.86%	2.84%	3.12%		9.96%	
6	1991	12.55%	9.36%	3.19%	2.88%		9.92%	
7	1992	12.09%	8.69%	3.40%	2.99%		9.63%	
8	1993	11.41%	7.59%	3.82%	3.29%		9.05%	
9	1994	11.34%	8.31%	3.03%	3.26%		8.76%	
10	1995	11.55%	7.89%	3.66%	3.42%		8.37%	
11	1996	11.39%	7.75%	3.64%	3.51%		8.05%	
12	1997	11.40%	7.60%	3.80%	3.59%		7.83%	
13	1998	11.66%	7.04%	4.62%	3.75%		7.72%	
14	1999	10.77%	7.62%	3.15%	3.77%		7.58%	
15	2000	11.43%	8.24%	3.19%	3.68%		7.65%	
16	2001	11.09%	7.76%	3.33%	3.62%		7.65%	
17	2002	11.16%	7.37%	3.79%	3.61%		7.61%	
18	2003	10.97%	6.58%	4.39%	3.57%		7.52%	
19	2004	10.75%	6.16%	4.59%	3.86%		7.22%	
20	2005	10.54%	5.65%	4.89%	4.20%		6.71%	
21	2006	10.34%	6.07%	4.27%	4.39%	4.39%	6.37%	6.37%
22	2007	10.31%	6.07%	4.24%	4.48%	4.48%	6.11%	6.11%
23	2008	10.37%	6.53%	3.84%	4.37%	4.37%	6.10%	6.10%
24	2009	10.52%	6.04%	4.48%	4.34%	4.34%	6.07%	6.07%
25	2010	10.29%	5.47%	4.82%	4.33%		6.04%	
26	2011	10.19%	5.04%	5.15%	4.51%	4.51%	5.83%	5.83%
27	2012	10.01%	4.13%	5.88%	4.83%	4.83%	5.44%	5.44%
28	2013	9.81%	4.48%	5.33%	5.13%	5.13%	5.03%	5.03%
29	2014	9.75%	4.28%	5.47%	5.33%	5.33%	4.68%	4.68%
30	2015	9.60%	4.12%	5.48%	5.46%		4.41%	
31	2016	9.60%	3.93%	5.67%	5.57%		4.19%	
32	2017	9.68%	4.00%	5.68%	5.53%		4.16%	
33	2018	9.55%	4.25%	5.30%	5.52%		4.11%	
34	2019	9.64%	3.77%	5.87%	5.60%		4.01%	
35	2020	9.39%	3.05%	6.34%	5.77%		3.80%	
36	2021	9.39%	3.10%	6.29%	5.90%		3.63%	
37	2022	9.52%	4.72%	4.80%	5.72%		3.78%	
38	2023	9.71%	5.29%	4.42%	5.54%		3.99%	
39	Average	10.90%	6.55%	4.35%	4.37%	4.67%		5.70%
40	Second Quartile				4.34%			
41	Third Quartile				5.43%			
42	Mr. Walters's Average of Third Quartile 5-yr. Rolling Average Equity Risk Premia							4.67%
43	Avg. of 30-Year Treasury Bond Yield Observations in Third Quartile							5.70%
44	Mr. Walters's Adjusted Utility Bond Approach Result							10.37%