

Exh. AEB-1T  
Docket UE-23\_\_\_\_  
Witness: Ann E. Bulkley

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP dba  
PACIFIC POWER & LIGHT COMPANY

Respondent.

Docket UE-23\_\_\_\_

**PACIFICORP**

**DIRECT TESTIMONY OF ANN E. BULKLEY**

**March 2023**

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## **ATTACHED EXHIBITS**

- Exhibit No. AEB-2—Resume of Ann E. Bulkley
- Exhibit No. AEB-3—Testimony Listing of Ann E. Bulkley
- Exhibit No. AEB-4—Summary of Results
- Exhibit No. AEB-5—Proxy Group Selection
- Exhibit No. AEB-6—Constant Growth DCF Model
- Exhibit No. AEB-7—Capital Asset Pricing Model
- Exhibit No. AEB-8—Long-term Beta Analysis
- Exhibit No. AEB-9—Market Return Calculation
- Exhibit No. AEB-10—Risk Premium Approach
- Exhibit No. AEB-11—Expected Earnings Analysis
- Exhibit No. AEB-12—Capital Expenditures Analysis
- Exhibit No. AEB-13—Regulatory Risk Analysis
- Exhibit No. AEB-14—Capital Structure Analysis

1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q. Please state your name and business address.**

3 A. My name is Ann E. Bulkley. I am a Principal at The Brattle Group (Brattle). My  
4 business address is One Beacon Street, Suite 2600, Boston, Massachusetts 02108.

5 **Q. On whose behalf are you submitting this direct testimony?**

6 A. I am submitting this direct testimony before the Washington Utilities and  
7 Transportation Commission (Commission) on behalf of the PacifiCorp d/b/a Pacific  
8 Power & Light Company (PacifiCorp or Company).

9 **Q. Please describe your education and experience.**

10 A. I hold a Bachelor's degree in Economics and Finance from Simmons College and a  
11 Master's degree in Economics from Boston University, with over 25 years of  
12 experience consulting to the energy industry. I have advised numerous energy and  
13 utility clients on a wide range of financial and economic issues with primary  
14 concentrations in valuation and utility rate matters. Many of these assignments have  
15 included the determination of the cost of capital for valuation and ratemaking  
16 purposes. My resume and a summary of testimony that I have filed in other  
17 proceedings is attached as Exhibit Nos. AEB-2 and AEB-3 to this testimony.

18 **II. PURPOSE AND OVERVIEW OF DIRECT TESTIMONY**

19 **Q. Please describe the purpose of your direct testimony.**

20 A. The purpose of my direct testimony is to present evidence and provide a  
21 recommendation regarding the appropriate Return on Equity (ROE) for PacifiCorp's  
22 electric utility operations in Washington and to provide an assessment of its proposed  
23 capital structure to be used for ratemaking purposes. My analyses and

1 recommendations are supported by the data presented in Exhibit Nos. AEB-4 through  
2 AEB-14, which were prepared by me or under my direction.

3 **Q. Please provide a brief overview of the analyses that led to your ROE**  
4 **recommendation.**

5 A. As discussed more in Section VII in developing my ROE recommendation, I applied  
6 several Cost of Equity (COE) estimation methodologies including the Constant  
7 Growth Discounted Cash Flow (DCF) model, the Capital Asset Pricing Model  
8 (CAPM), the Empirical Capital Asset Pricing Model (ECAPM), the Risk Premium  
9 approach and the Expected Earnings Analysis. My recommendation also takes into  
10 consideration: (1) the Company's capital expenditure requirements; (2) the regulatory  
11 environment in which the Company operates; and (3) PacifiCorp's planned  
12 investments in renewable generation assets compared to its current generation  
13 portfolio. Finally, I consider the Company's proposed capital structure as compared  
14 to the capital structures of the proxy companies.<sup>1</sup> While I did not make any specific  
15 adjustments to my COE estimates for any of these factors, I did take them into  
16 consideration in aggregate where the Company's ROE falls within the range of  
17 analytical results.

18 **Q. How is the remainder of your direct testimony organized?**

19 A. Section III provides a summary of my analyses and conclusions. Section IV reviews  
20 the regulatory guidelines pertinent to the development of the cost of capital.

21 Section V discusses current and projected capital market conditions and the effect of

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<sup>1</sup> The selection and purpose of developing a group of comparable companies will be discussed in detail in Section VI of my direct testimony.

1 those conditions on PacifiCorp's cost of equity. Section VI explains my selection of  
2 proxy group of electric utilities. Section VII describes my analyses and the analytical  
3 basis for the recommendation of the appropriate ROE for PacifiCorp. Section VIII  
4 provides a discussion of specific regulatory, business, and financial risks that have a  
5 direct bearing on the ROE to be authorized for the Company in this case. Section IX  
6 discusses the capital structure of the Company as compared with the proxy group.  
7 Section X presents my conclusions and recommendations for the market cost of  
8 equity.

### 9 III. SUMMARY OF ANALYSIS AND CONCLUSIONS

10 **Q. What is your recommended ROE for PacifiCorp?**

11 A. Based on the analytical results presented in Figure 1 below, and considering the level  
12 of regulatory, business, and financial risk faced by PacifiCorp's electric operations in  
13 Washington relative to the proxy group, the recommended range is from 9.90 percent  
14 to 11.00 percent. This recommendation reflects the range of results for the proxy  
15 group companies, the relative risk of PacifiCorp's electric operations in Washington  
16 as compared to the proxy group, and current capital market conditions. Within that  
17 range, the Company is requesting a return of 10.30 percent, which is reasonable.

18 **Q. Please summarize the key factors considered in your analyses and upon which**  
19 **you base your recommended ROE.**

20 A. The key factors that I considered in my cost of equity analyses and recommended  
21 ROE for the Company in this proceeding are:

- 22 • The United States (U.S.) Supreme Court's *Hope* and *Bluefield* decisions  
23 established the standards for determining a fair and reasonable authorized  
24 ROE for public utilities, including consistency of the allowed return with the

1 returns of other businesses having similar risk, adequacy of the return to  
2 provide access to capital and support credit quality, and the requirement that  
3 the result lead to just and reasonable rates.<sup>2</sup>

- 4 • The effect of current and projected capital market conditions on investors'  
5 return requirements.
  
- 6 • The results of several analytical approaches that provide estimates of the  
7 Company's cost of equity. Because the Company's authorized ROE should be  
8 a forward-looking estimate over the period during which the rates will be in  
9 effect, these analyses rely on forward-looking inputs and assumptions (e.g.,  
10 projected analyst growth rates in the DCF model, forecasted risk-free rate and  
11 market risk premium in the CAPM analysis).
  
- 12 • Although the companies in my proxy group are generally comparable to  
13 PacifiCorp, each company is unique, and no two companies have the exact  
14 same business and financial risk profiles. Accordingly, I considered the  
15 Company's regulatory, business, and financial risks relative to the proxy  
16 group of comparable companies in determining where the Company's ROE  
17 should fall within the reasonable range of analytical results to appropriately  
18 account for any residual differences in risk.

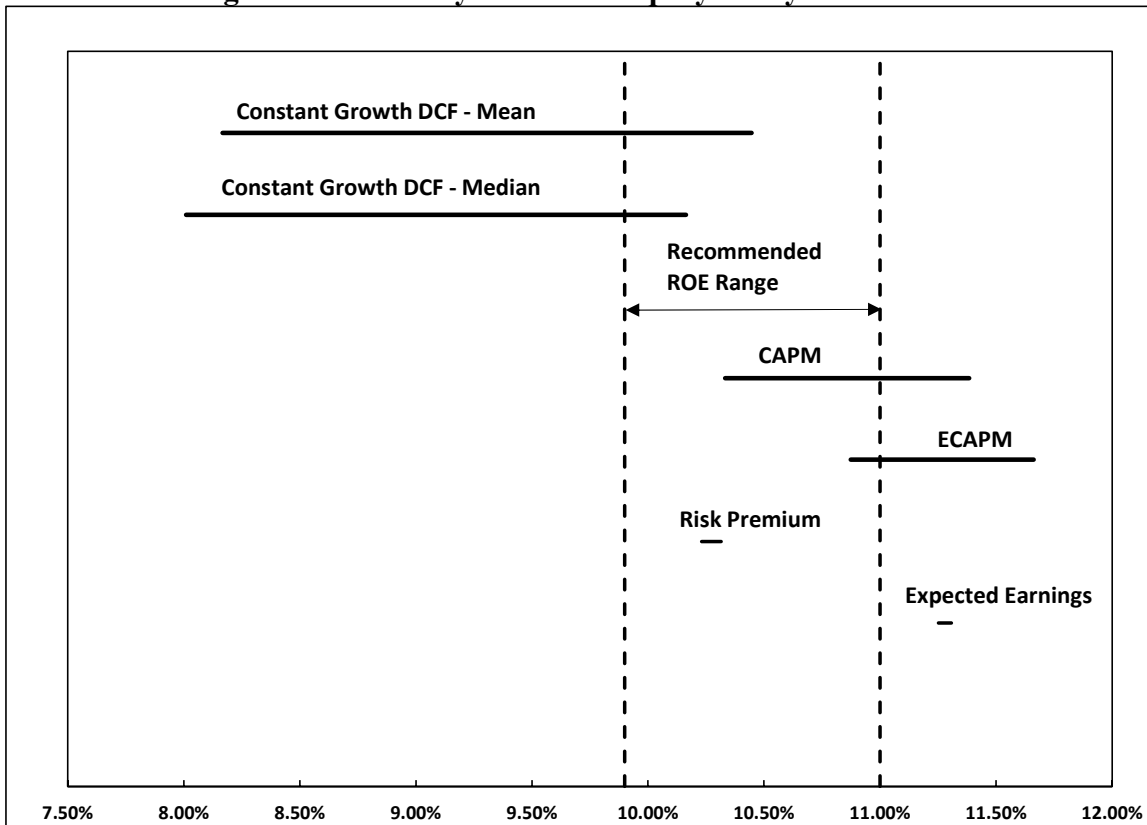
19 **Q. What are the results of the models that you have used to estimate the cost of**  
20 **equity for PacifiCorp?**

21 A. Figure 1 summarizes the range of results produced by the Constant Growth DCF,  
22 CAPM, ECAPM, Risk Premium, and Expected Earnings analyses based on data  
23 through the end of January 2023.

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<sup>2</sup> Federal Power Commission v. Hope Natural Gas Co., 320 U.S. 591 (1944) (Hope); Bluefield Waterworks & Improvement Co. v. Public Service Commission of West Virginia, 262 U.S. 679 (1923) (Bluefield).

**Figure 1: Summary of Cost of Equity Analytical Results**



1 As shown in Figure 1, (and in Exhibit No. AEB-4), the range of results produced by  
2 the COE estimation models is wide. While it is common to consider multiple models  
3 to estimate the cost of equity, it is particularly important when the range of results  
4 varies considerably across methodologies. As a result, my ROE recommendation  
5 considers the range of results of the Constant Growth DCF model, as well as the  
6 results of the CAPM, ECAPM, Bond Yield Plus Risk Premium and Expected Earning  
7 analyses. My ROE recommendation also considers PacifiCorp's company-specific  
8 risk factors and current and prospective capital market conditions.



1 **Q. Are prospective capital market conditions expected to affect the results of the**  
2 **cost of equity for the Company during the period in which the rates established**  
3 **in this proceeding will be in effect?**

4 A. Yes. Capital market conditions are expected to affect the results of the cost of equity  
5 estimation models. Specifically:

- 6 • While inflation has declined off of its 40-year high in June 2022, inflation is  
7 expected to persist over the near-term, which increases the operating risk of  
8 the utility during the period in which rates will be in effect.
- 9 • Long-term interest rates have increased substantially in the past year and are  
10 expected to remain relatively high at least over the next year in response to  
11 inflation.
- 12 • Since utility dividend yields are now less attractive than the risk-free rates of  
13 government bonds, and interest rates are expected to remain near current  
14 levels over the next year, and since utility stock prices are inversely related to  
15 changes in interest rates, it is likely that utility share prices will decline.
- 16 • Rating agencies have responded to the risks of the utility sector, with Moody's  
17 Investors Service (Moody's) most recently indicating its outlook for the  
18 industry in 2023 is "negative," citing increasing interest rates, inflation and  
19 high natural gas prices, all of which create pressure for customer affordability  
20 and prompt rate recovery.
- 21 • Similarly, equity analysts have noted the increased risk for the utility sector as  
22 a result of rising interest rates and expect the sector to underperform over the  
23 near-term.
- 24 • Consequently, the results of the DCF model, which relies on current utility  
25 share prices, is likely to understate the cost of equity during the period that the  
26 Company's rates will be in effect.

27 It is appropriate to consider all of these factors when estimating a reasonable range  
28 of the investor-required cost of equity and the recommended ROE for the Company.

1 **Q. Is PacifiCorp’s requested capital structure reasonable and appropriate?**

2 A. Yes. The Company’s proposed equity ratio of 51.27 percent is within the range of  
3 equity ratios for the proxy group. Further, the Company’s proposed equity ratio is  
4 reasonable considering that credit rating agencies have identified the outlook for the  
5 utility sector as “negative” due to the negative effect on the cash flows and credit  
6 metrics associated with increasing interest rates, inflation and commodity costs, and  
7 the pressure that those factors place on customer affordability and utilities’ prompt  
8 rate recovery.

9 **IV. REGULATORY GUIDELINES**

10 **Q. Please describe the guiding principles used in establishing the cost of capital for**  
11 **a regulated utility.**

12 A. The U.S. Supreme Court’s precedent-setting *Hope* and *Bluefield* cases established the  
13 standards for determining the fairness or reasonableness of a utility’s allowed ROE.  
14 Among the standards established by the Court in those cases are: (1) consistency with  
15 other businesses having similar or comparable risks; (2) adequacy of the return to  
16 support credit quality and access to capital; and (3) that the result, as opposed to the  
17 methodology employed, is the controlling factor in arriving at just and reasonable  
18 rates.<sup>3</sup>

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<sup>3</sup> *Hope*, 320 U.S. 591 (1944); *Bluefield*, 262 U.S. 679 (1923).

1 **Q. Has the Commission provided similar guidance in establishing the appropriate**  
2 **return on common equity?**

3 A. Yes, it has. In docket UG-200568, Cascade Natural Gas Corporation's 2020 rate  
4 filing, the Commission stated that:

5 The Commission follows the long-standing precedents set by the Hope  
6 and Bluefield decisions. In *Hope* and *Bluefield*, the United States  
7 Supreme Court recognized that rates for regulated monopoly utilities  
8 must incorporate a fair rate of return on equity that is comparable to  
9 returns investors would expect to receive on other investments of  
10 similar risk, sufficient to assure confidence in the utility's financial  
11 integrity, and adequate to attract capital at reasonable costs.

12 The Commission's long-standing practice is first to identify  
13 within the range of possible returns shown by expert analyses a range  
14 of reasonable returns on equity considering all cost of capital  
15 testimony in the record. Then, the Commission weighs the analysts'  
16 more detailed results and considers other evidence relevant to the  
17 selection of a specific point value within the range. The Commission's  
18 final determination of an acceptable ROE recognizes fully the guiding  
19 principles of regulatory ratemaking that require us to reach an end  
20 result that yields fair, just, reasonable, and sufficient rates.<sup>4</sup>

21 This guidance is in accordance with the *Hope* and *Bluefield* decisions and the  
22 principles that I employed to estimate the ROE for PacifiCorp, including the principle  
23 that an allowed rate of return must be sufficient to enable regulated companies like  
24 PacifiCorp to attract capital on reasonable terms.

25 **Q. Why is it important for a utility to be allowed the opportunity to earn an ROE**  
26 **that is adequate to attract capital at reasonable terms?**

27 A. A return that is adequate to attract capital at reasonable terms enables the utility to  
28 continue to provide safe, reliable electric service while maintaining its financial  
29 integrity. That return should be commensurate with returns required by investors

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<sup>4</sup> *WUTC v. Cascade Natural Gas Corporation*, Docket No. UG-200568, Order 5, ¶ 120-121 (May 18, 2021).

1 elsewhere in the market for investments of comparable risk. If it is not, debt and  
2 equity investors will seek alternative investment opportunities for which the expected  
3 return reflects the perceived risks, thereby inhibiting the Company's ability to attract  
4 capital at reasonable cost.

5 **Q. Is a utility's ability to attract capital also affected by the ROEs that are**  
6 **authorized for other utilities?**

7 A. Yes. Utilities compete directly for capital with other investments of similar risk,  
8 which include other natural gas and electric utilities. Therefore, the ROE awarded to a  
9 utility sends an important signal to investors regarding the level of regulatory support  
10 for financial integrity, dividends, growth, and fair compensation for business and  
11 financial risk. The cost of capital represents an opportunity cost to investors. If higher  
12 returns are available for other investments of comparable risk, investors have an  
13 incentive to direct their capital to those investments. Thus, an authorized ROE  
14 significantly below authorized ROEs for other electric utilities can inhibit  
15 PacifiCorp's ability to attract capital for investment.

16 **Q. Is the regulatory framework, including the authorized ROE and equity ratio,**  
17 **important to the financial community?**

18 A. Yes. The regulatory framework is one of the most important factors in debt and  
19 equity investors' assessments of risk. Specifically regarding debt investors, credit  
20 rating agencies consider the authorized ROE and equity ratio for regulated utilities to  
21 be very important for two reasons: (1) they help determine the cash flows and credit  
22 metrics of the regulated utility; and (2) they provide an indication of the degree of  
23 regulatory support for credit quality in the jurisdiction. To the extent that the

1 authorized returns in a jurisdiction are lower than the returns that have been  
2 authorized more broadly, credit rating agencies will consider this in the overall risk  
3 assessment of the regulatory jurisdiction in which the company operates. Not only do  
4 credit ratings affect the overall cost of borrowing, they also act as a signal to equity  
5 investors about the risk of investing in the equity of a company.

6 **Q. What are your conclusions regarding regulatory guidelines?**

7 A. The ratemaking process is premised on the principle that, in order for investors and  
8 companies to commit the capital needed to provide safe and reliable utility services, a  
9 utility must have a reasonable opportunity to recover the return of, and the market-  
10 required return on, its invested capital. Accordingly, the Commission's order in this  
11 proceeding should establish rates that provide the Company with a reasonable  
12 opportunity to earn a ROE that is: (1) adequate to attract capital at reasonable terms;  
13 (2) sufficient to ensure its financial integrity; and (3) commensurate with returns on  
14 investments in enterprises with similar risk. It is important for the ROE authorized in  
15 this proceeding to take into consideration current and projected capital market  
16 conditions, as well as investors' expectations and requirements for both risks and  
17 returns. Because utility operations are capital-intensive, regulatory decisions should  
18 enable the utility to attract capital at reasonable terms under a variety of economic  
19 and financial market conditions. Providing the opportunity to earn a market-based  
20 cost of capital supports the financial integrity of the Company, which is in the interest  
21 of both customers and shareholders.

1 **V. CAPITAL MARKET CONDITIONS**

2 **Q. Why is it important to analyze capital market conditions?**

3 A. The COE estimation models rely on market data that are either specific to the proxy  
4 group, in the case of the DCF model, or to the expectations of market risk, in the case  
5 of the CAPM. The results of the COE estimation models can be affected by  
6 prevailing market conditions at the time the analysis is performed. While the ROE  
7 that is established in a rate proceeding is intended to be forward-looking, the analyst  
8 uses current and projected market data, specifically stock prices, dividends, growth  
9 rates and interest rates, in the COE estimation models to estimate the required return  
10 for the subject company.

11 As a result, it is important to consider the effect of these conditions on the  
12 COE estimation models when determining the appropriate range and recommended  
13 ROE for a future period. If investors do not expect current market conditions to be  
14 sustained in the future, it is possible that the COE estimation models will not provide  
15 an accurate estimate of investors' required return during that rate period. Therefore, it  
16 is very important to consider projected market data to estimate the return for that  
17 forward-looking period.

18 **Q. What factors are affecting the cost of equity for regulated utilities in the current  
19 and prospective capital markets?**

20 A. The cost of equity for regulated utility companies is being affected by several factors  
21 in the current and prospective capital markets, including: (1) changes in monetary  
22 policy; (2) high inflation; and (3) increased interest rates that are expected to remain

1 relatively high over the next few years. These factors affect the assumptions used in  
2 the cost of equity estimation models.

3 **Q. What effect do current and prospective market conditions have on the cost of**  
4 **equity for PacifiCorp?**

5 A. As is discussed in more detail in the remainder of this section, the combination of  
6 persistently high inflation, and the Federal Reserve's changes in monetary policy,  
7 contribute to an expectation of increased market risk and an increase in the cost of the  
8 investor-required return. It is essential that these factors be considered in setting a  
9 forward-looking ROE. Inflation has recently been at some of the highest levels seen  
10 in approximately 40 years. Interest rates, which have increased from the pandemic  
11 lows seen in 2020 are expected to continue to increase in direct response to the  
12 Federal Reserve's monetary policy. Since there is a strong historical inverse  
13 correlation between interest rates and the share prices of utility stocks (share prices of  
14 utility stocks typically fall when interest rates rise), it is reasonable to expect that  
15 investors' required return for utility companies will also continue to increase.  
16 Therefore, COE estimates based solely on current market conditions will understate  
17 the COE required by investors during the future period that the Company's rates  
18 determined in this proceeding will be in effect.

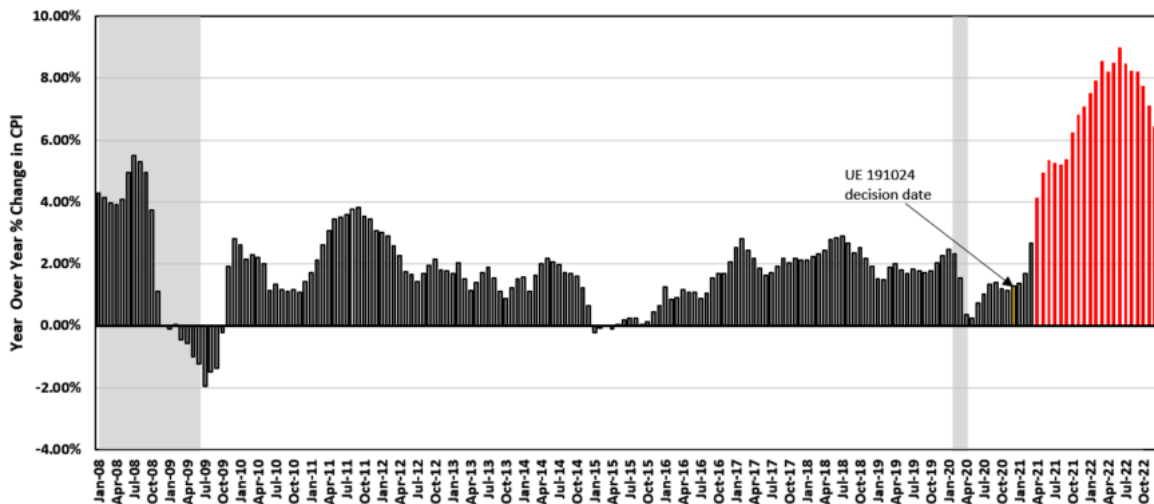
19 **A. Inflationary Expectations in Current and Projected Capital Market Conditions**

20 **Q. Has inflation increased significantly over the past year?**

21 A. Yes. As shown in Figure 2, the year-over-year (YOY) change in the Consumer Price  
22 Index (CPI) published by the Bureau of Labor Statistics has increased steadily since  
23 the beginning of 2021, rising from 1.37 percent in January 2021 to reaching a YOY

1 change high of 9.0 percent in June 2022, which was the largest 12-month increase  
 2 since 1981 and significantly greater than any level seen since January 2008. As  
 3 shown in Figure 2, since that time, while inflation has declined in response to the  
 4 Federal Reserve’s monetary policy, inflation continues to remain elevated.

**Figure 2: YOY Percent Change in the Consumer Price Index,  
 January 2008 – December 2022<sup>5</sup>**



5 **Q. What are the expectations for inflation over the near-term?**

6 A. The Federal Reserve has indicated that it expects inflation will remain elevated above  
 7 its target level over at least the next year and that it will continue to increase short-  
 8 term interest rates to reduce inflation. For example, Federal Reserve Chair Powell at  
 9 the Federal Open Market Committee (FOMC) meeting in February 2023 anticipated  
 10 further increases in the federal funds rate, and observed that while inflation is off of  
 11 its recent highs, it remains significantly above the Federal Reserve’s long-term target:

We continue to anticipate that ongoing increases will be appropriate in  
 order to attain a stance of monetary policy that is sufficiently  
 restrictive to return inflation to 2 percent over time.  
 Inflation remains well above our longer-run goal of 2 percent. Over the  
 12 months ending in December, total PCE prices rose 5.0 percent;

<sup>5</sup> Bureau of Labor Statistics, shaded area indicates a recession.



1 excluding the volatile food and energy categories, core PCE prices  
2 rose 4.4 percent. The inflation data received over the past three months  
3 show a welcome reduction in the monthly pace of increases. And  
4 while recent developments are encouraging, we will need substantially  
5 more evidence to be confident that inflation is on a sustained  
6 downward path.

.....

7 With today's action, we have raised interest rates by 4-1/2 percentage  
8 points over the past year. We continue to anticipate that ongoing  
9 increases in the target range for the federal funds rate will be  
10 appropriate in order to attain a stance of monetary policy that is  
11 sufficiently restrictive to return inflation to 2 percent over time.

.....

12 At the December meeting, we all wrote down our best estimates of  
13 what we thought the ultimate level would be [of the federal funds  
14 rate], and that's obviously back in December. And the median for that  
15 was between five and five and a quarter percent. At the March  
16 meeting, we're going to update those assessments. We did not update  
17 them today. We did, however, continue to say that we believe ongoing  
18 rate hikes will be appropriate to attain a sufficiently restrictive stance  
19 of policy to bring inflation back down to 2 percent. We think we've  
20 covered a lot of ground, and financial conditions have certainly  
21 tightened. I would say we still think there's work to do there. We  
22 haven't made a decision on exactly where that will be. I think, you  
23 know, we're going to be looking carefully at the incoming data  
24 between now and the March meeting and then the May meeting. I  
25 don't feel a lot of certainty about where that will be. It could certainly  
26 be higher than we're writing down right now. If we come to the view  
27 that we need to write down to -- you know, to move rates up beyond  
28 what we said in December we would certainly do that. At the same  
29 time, if the data come in, in the other direction then we'll -- you know,  
30 we'll make data-dependent decisions at coming meetings, of course.<sup>6</sup>

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<sup>6</sup> Transcript. Chair Powell Press Conference, Feb. 1, 2023; clarification added.

1 **B. The Use of Monetary Policy to Address Inflation**

2 **Q. What policy actions has the Federal Reserve enacted to respond to increased**  
3 **inflation?**

4 A. The dramatic increase in inflation has prompted the Federal Reserve to pursue an  
5 aggressive normalization of monetary policy, removing the accommodative policy  
6 programs used to mitigate the economic effects of COVID-19. As of the FOMC  
7 meeting on February 1, 2023, the Federal Reserve has taken the following actions:

- 8 • Completed its taper of Treasury bond and mortgage-backed securities  
9 purchases;<sup>7</sup>
- 10 • Increased the target federal funds rate beginning in March 2022 through a  
11 series of increases from a target range of 0.00 to 0.25 percent to a target range  
12 of 4.50 percent to 4.75 percent;<sup>8</sup>
- 13 • Anticipates ongoing increases in the target range will be appropriate to achieve  
14 its goals of maximum employment at the inflation rate of 2.00 percent over the  
15 long-run;<sup>9</sup>
- 16 • Began reducing its holdings of Treasury and mortgage-backed securities on  
17 June 1, 2022.<sup>10</sup> The Federal Reserve is reducing the size of its balance sheet by  
18 only reinvesting principal payments on owned securities after the total amount  
19 of payments received exceeds a defined cap. For Treasury securities, the cap is  
20 currently set at \$60 billion per month. The cap for mortgage-backed securities  
21 is currently set at \$35 billion per month.<sup>11</sup>

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<sup>7</sup> Federal Reserve Bank of New York, <https://www.newyorkfed.org/markets/domestic-market-operations/monetary-policy-implementation/treasury-securities/treasury-securities-operational-details#monthly-details>.

<sup>8</sup> Press Releases, Federal Reserve (Mar. 16, 2022); Transcript, Chair Powell Press Conference, Feb. 1, 2023.

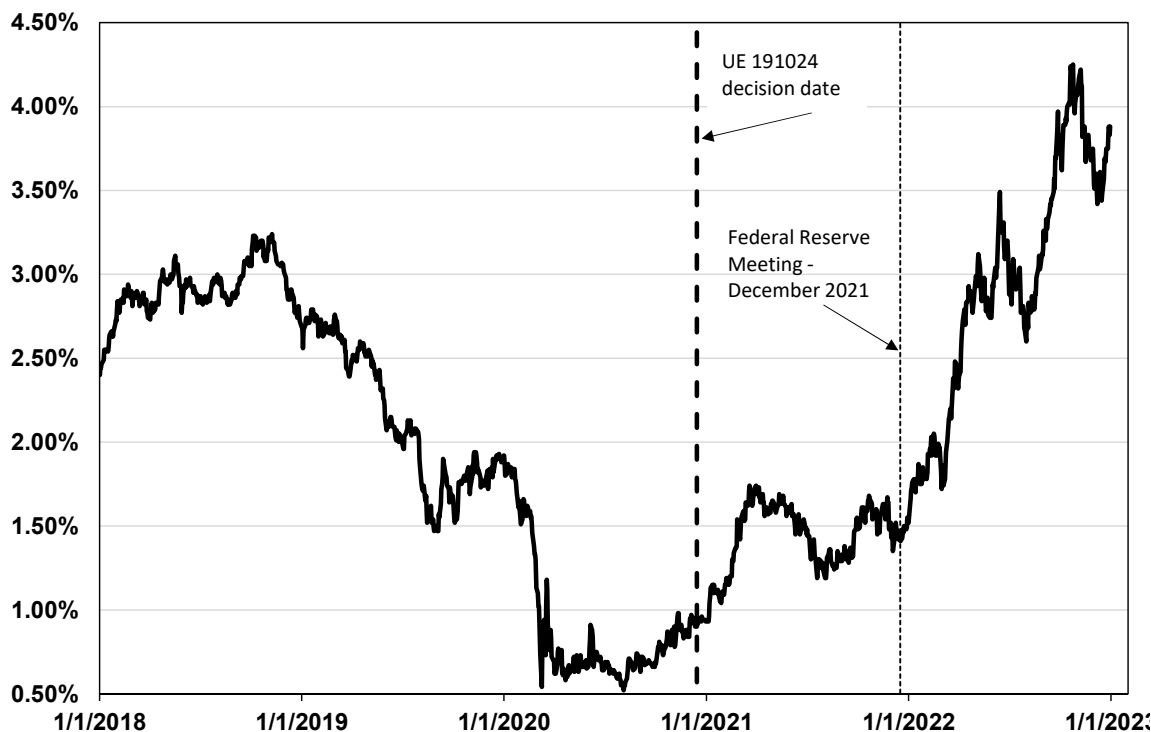
<sup>9</sup> Transcript, Chair Powell Press Conference, Feb. 1, 2023.

<sup>10</sup> Press Release, Federal Reserve (May 4, 2022).

<sup>11</sup> Press Release, Federal Reserve, Plans for Reducing the Size of the Federal Reserve's Balance Sheet (May 4, 2022).



**Figure 3: 10-Year Treasury Bond Yield, January 2021– January 2023<sup>12</sup>**



- 1 **Q. What have equity analysts said about long-term government bond yields?**
- 2 A. Leading equity analysts have noted that they expect the yields on long-term
- 3 government bonds to remain elevated through at least the end of 2023. According to
- 4 the most recent *Blue Chip Financial Forecasts* report, the consensus estimate of the
- 5 average yield on the 10-year Treasury bond is approximately 3.60 percent through the
- 6 first quarter of 2024.<sup>13</sup>

<sup>12</sup> S&P Capital IQ Pro.

<sup>13</sup> *Blue Chip Financial Forecasts*, Vol. 42, No. 2, Feb. 1, 2023.

1 **Q. Do recent changes in the Gross Domestic Product (GDP) affect the current**  
2 **outlook for inflation and interest rates?**

3 A. No. While FOMC participants have recently reduced their projections for economic  
4 activity for real GDP growth to 0.5 percent in 2023,<sup>14</sup> which is well below the median  
5 estimate for the longer-run normal GDP growth rate, the Federal Reserve has  
6 highlighted that the labor market continues to be extremely tight, and in fact, the  
7 unemployment rate reached 3.4 percent in January 2023, the lowest it has been in  
8 over 50 years.<sup>15</sup> Therefore, with a tight labor market and persistently high inflation,  
9 the Federal Reserve has indicated its need to continue a restrictive monetary policy to  
10 moderate demand to better align it with supply.<sup>16</sup>

11 **Q. How have interest rates and inflation changed since the Company's last rate**  
12 **case?**

13 A. As shown in Figure 2 and Figure 3, current market conditions are significantly  
14 different than at the time of the Company's last rate proceeding. As summarized in  
15 Figure 4, when the Commission authorized an ROE of 9.50 percent in the Company's  
16 2020 rate proceeding, interest rates (as measured by the 30-year Treasury bond yield)  
17 were 1.64 percent and inflation was 1.28 percent. However, since the Company's last  
18 rate proceeding, long-term interest rates have more than doubled, and, as discussed,  
19 inflation is also substantially higher.

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<sup>14</sup> FOMC, Summary of Economic Projections, Dec. 14, 2022.

<sup>15</sup> Lucia Mutikani, U.S. reports blowout job growth; unemployment lowest since 1969. Reuters (Feb. 3, 2023).

<sup>16</sup> Transcript, Chair Powell, Press Conference, Feb. 1, 2023.

**Figure 4: Change in Market Conditions Since PacifiCorp's Last Rate Case<sup>17</sup>**

<b>Docket</b>	<b>Decision Date</b>	<b>Federal Funds Rate</b>	<b>30-Day Average Of 30-Year Treasury Bond Yield</b>	<b>Inflation Rate</b>	<b>Authorized ROE</b>
UE 191024	12/14/2020	0.09%	1.64%	1.28%	9.50%
Current	1/31/2023	4.33%	3.70%	6.42%	

1 **D. Expected Performance of Utility Stocks and the Investor-Required Return on**  
2 **Utility Investments**

3 **Q. Are utility share prices correlated to changes in the yields on long-term**  
4 **government bonds?**

5 A. Yes. Interest rates and utility share prices are inversely correlated, which means that  
6 increases in interest rates result in declines in the share prices of utilities and vice  
7 versa. For example, Goldman Sachs and Deutsche Bank examined the sensitivity of  
8 share prices of different industries to changes in interest rates over the past five years.  
9 Both Goldman Sachs and Deutsche Bank found that utilities had one of the strongest  
10 negative relationships with bond yields (*i.e.*, increases in bond yields resulted in the  
11 decline of utility share prices).<sup>18</sup>

12 **Q. How do equity analysts expect the utilities sector to perform in an increasing**  
13 **interest rate environment?**

14 A. Equity analysts project that utilities will underperform the broader market given high  
15 inflation and the recent increases in interest rates. Fidelity classifies the utility sector

<sup>17</sup> St. Louis Federal Reserve Bank; Bureau of Labor Statistics.

<sup>18</sup> Justina Lee, *Wall Street Is Rethinking the Treasury Threat to Big Tech Stocks*. Bloomberg.com (Mar. 11, 2021).

1 as underweight,<sup>19</sup> and *Morningstar* recently noted that many of the market conditions  
2 that supported the premium valuation of utilities over the last decade mainly low  
3 inflation, interest rates and energy prices are currently reversing:

4 Utilities' relative outperformance in 2022 while the market frets about  
5 the economy suggests that utilities remain a defensive haven. Utilities  
6 also outperformed ahead of the 2001 and the 2007-09 recessions.  
7 However, we think utilities' weak total returns in 2022 should concern  
8 investors. For the first time in a decade, the tailwinds supporting  
9 utilities' earnings growth and premium valuations (low inflation, low  
10 interest rates, and low energy price) are reversing Utilities' growth  
11 prospects are our biggest concern going into 2023. Utilities no longer  
12 offer a yield premium as bond yields climbed to their highest level in  
13 15 years. Without that yield premium, the only advantage utilities offer  
14 investors is earnings growth. This is why high inflation and rising  
15 interest rates loom large for utilities in 2023. Inflation, including  
16 higher energy prices, will raise customer bills and could force utilities  
17 to re-evaluate their growth plans. Higher interest costs will sap cash  
18 flow and make infrastructure investments more expensive.<sup>20</sup>

19 Additionally, the *Wall Street Journal* noted that the S&P Utilities Index was  
20 down 14 percent over between September and October 2022, attributing the decline to  
21 the recent increase in long-term treasury yields:

22 A big draw of utility stocks has become less attractive as interest rates  
23 have climbed. Utility stocks are known for their sizable dividends,  
24 offering investors a regular stream of income. Companies in the S&P  
25 500 utilities sector offer a dividend yield of 3.3 percent, among the  
26 highest payout percentages in the index, according to FactSet.

27 But the outsize dividends of utility stocks are no match for climbing  
28 bond yields. The yield on the benchmark 10-year Treasury note  
29 finished above 4 percent on Monday for a second consecutive session.  
30 Friday marked the 10-year yield's first close above the 4 percent level  
31 since 2008 and 11 straight weeks of gains. Treasuries are viewed as  
32 essentially risk-free if held to maturity.

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<sup>19</sup> Fidelity, First Quarter 2023 Investment Research Update. (Feb. 8, 2023).

<sup>20</sup> Miller, Travis. "Can Utilities Maintain Growth Against Macroeconomic Headwinds?" *Morningstar*, January 3, 2023.

1 “The 10-year is repricing everything. I’ve got something that’s even  
2 safer and yields even more,” said Kevin Barry, chief investment officer  
3 at Summit Financial, comparing Treasuries and utility stocks.<sup>21</sup>

4 Similarly, Barron’s noted that the decline in share prices can be attributed to the  
5 relatively high valuations and low dividend yields of utilities as compared to other asset  
6 classes such as Treasuries.<sup>22</sup> According to Barron’s, even after the recent decline in  
7 share prices, the Utilities Select ETF was yielding 2.85 percent, which is a yield that  
8 will not “lure in buyers when the ultrasafe 10-year Treasury note yields close to 4%.”<sup>23</sup>  
9 Therefore, Barron’s currently recommends not buying utility stocks.

10 **Q. Why do equity analysts expect the electric utility sector to underperform over**  
11 **the near-term?**

12 A. While interest rates have increased substantially over the past year, the valuations of  
13 utilities have remained elevated and have not fully reflected the effect of the recent  
14 increase in interest rates. To illustrate this point, I examined the difference between  
15 the dividend yields of utility stocks and the yields on long-term government bonds  
16 from January 2010 through January 2023 (yield spread). I selected the dividend yield  
17 on the S&P Utilities Index as the measure of the dividend yields for the utility sector  
18 and the yield on the 10-year Treasury bond as the estimate of the yield on long-term  
19 government bonds. As shown in Figure 5, the recent significant increase in long-term  
20 government bonds yields has resulted in the yield on long-term government bonds  
21 exceeding the dividend yields of utilities. The yield spread as of January 31, 2023

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<sup>21</sup> Hannah Miao, *Utility Stock stumble as treasury yields climb*. The Wall Street Journal (Oct. 18, 2022).

<sup>22</sup> Jacob Sonenshine, *Utilities Stocks Have Fallen off a Cliff. They Just Got Downgraded, Too*. Barron’s (Oct. 17, 2022).

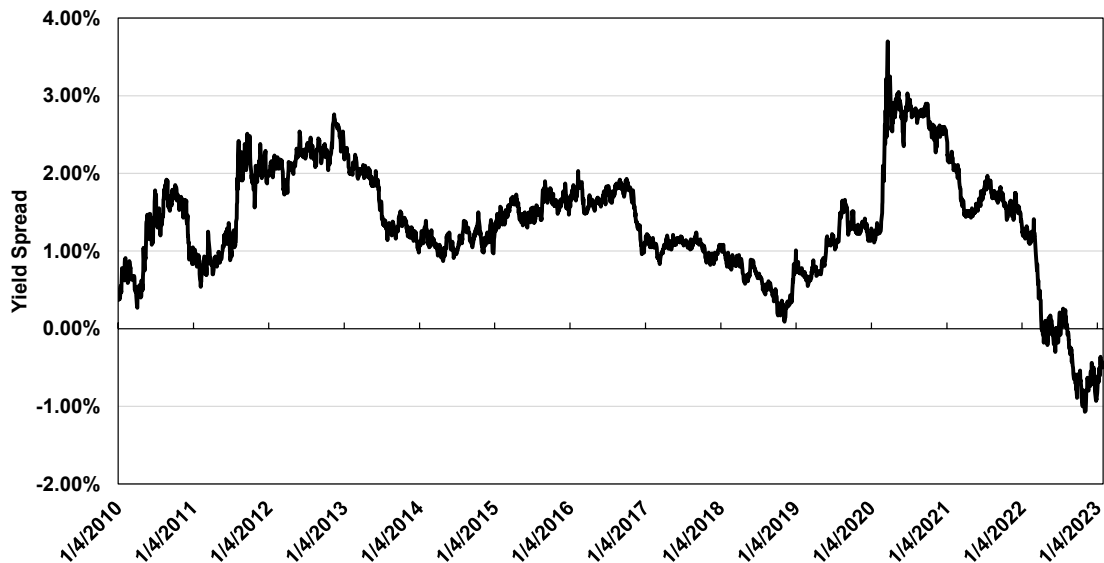
<sup>23</sup> *Id.*



1 is -0.49 percent. However, the long-term average yield spread from 2010 to 2023 is  
2 1.36 percent. Therefore, the current yield spread is well below the long-term average.

3 For further context as to how unlikely it is to have a yield spread of -0.49  
4 percent, I have calculated the z-score for the current yield spread, which measures the  
5 number of standard deviations from the mean. The current yield spread of -0.49  
6 percent has a z-score of -2.51, indicating that a yield spread of -0.49 percent is over  
7 two standard deviations from the mean of 1.36 percent. In other words, 95 percent of  
8 the daily yield spread observations from 2010 to 2023 fall between -0.11 percent and  
9 2.83 percent and the current yield spread of -0.49 percent is outside of that range.  
10 Thus, the current yield spread could be considered an outlier, which is why equity  
11 analysts do not expect this current level to hold. Since long-term bond yields are  
12 expected to remain elevated at current levels over the near-term, equity analysts  
13 expect utilities to underperform, and thus the dividend yields for utilities will  
14 increase. This is because investors that purchased utility stocks as an alternative to the  
15 lower yields on long-term government bonds would otherwise be inclined to rotate  
16 back into government bonds, particularly as the yields on long-term government  
17 bonds remain elevated, thus resulting in a decrease in the share prices of utilities.

**Figure 5: Spread between the S&P Utilities Index Dividend Yield and the 10-year Treasury Bond Yield, January 2010 – January 2023<sup>24</sup>**



1 **Q. What is the significance of the inverse relationship between interest rates and**  
2 **utility share prices in the current market?**

3 A. If interest rates remain relatively high as expected, then the share prices of utilities,  
4 which have been strong in 2022 relative to the market, would be expected to decline.  
5 If the prices of utility stocks decline, then the DCF model, which relies on historical  
6 averages of share prices to calculate the dividend yield, is likely to understate the  
7 dividend yield and thus the cost of equity.

8 **Q. Have regulatory commissions acknowledged that the DCF model might**  
9 **understate the COE given current capital market conditions?**

10 A. Yes. For example, in its May 2022 decision in establishing the cost of equity for  
11 Aqua Pennsylvania, Inc., the Pennsylvania Public Utility Commission (PPUC)  
12 specifically concluded that the current capital market conditions of high inflation and

<sup>24</sup> S&P Capital IQ Pro and Bloomberg Professional.

1 increasing interest rates has resulted in the DCF model understating the utility cost of  
2 equity, and that weight should be placed on risk premium models, such as the CAPM,  
3 in the determination of the ROE:

4 To help control rising inflation, the Federal Open Market Committee  
5 has signaled that it is ending its policies designed to maintain low  
6 interest rates. Aqua Exc. at 9. Because the DCF model does not  
7 directly account for interest rates, consequently, it is slow to respond  
8 to interest rate changes. However, I&E's CAPM model uses forecasted  
9 yields on ten-year Treasury bonds, and accordingly, its methodology  
10 captures forward looking changes in interest rates.

11 Therefore, our methodology for determining Aqua's ROE shall utilize  
12 both I&E's DCF and CAPM methodologies. As noted above, the  
13 Commission recognizes the importance of informed judgment and  
14 information provided by other ROE models. In the 2012 PPL Order,  
15 the Commission considered PPL's CAPM and RP methods, tempered  
16 by informed judgment, instead of DCF-only results. We conclude that  
17 methodologies other than the DCF can be used as a check upon the  
18 reasonableness of the DCF derived ROE calculation. Historically, we  
19 have relied primarily upon the DCF methodology in arriving at ROE  
20 determinations and have utilized the results of the CAPM as a check  
21 upon the reasonableness of the DCF derived equity return. As such,  
22 where evidence based on other methods suggests that the DCF-only  
23 results may understate the utility's ROE, we will consider those other  
24 methods, to some degree, in determining the appropriate range of  
25 reasonableness for our equity return determination. In light of the  
26 above, we shall determine an appropriate ROE for Aqua using  
27 informed judgement based on I&E's DCF and CAPM  
28 methodologies.<sup>25</sup>

.....

29 We have previously determined, above, that we shall utilize I&E's  
30 DCF and CAPM methodologies. I&E's DCF and CAPM produce a  
31 range of reasonableness for the ROE in this proceeding from 8.90%  
32 [DCF] to 9.89% [CAPM]. Based upon our informed judgment, which  
33 includes consideration of a variety of factors, including increasing  
34 inflation leading to increases in interest rates and capital costs since  
35 the rate filing, we determine that a base ROE of 9.75% is reasonable  
36 and appropriate for Aqua.<sup>26</sup>

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<sup>25</sup> *Penn. Pub. Util. Comm'n et.al. v. Aqua Penn. Wastewater Inc.*, Pennsylvania Public Utility Commission, Docket Nos. R-2021-3027385 and R-2021-3027386, Opinion and Order, at 154–155 (May 12, 2022).

<sup>26</sup> *Id.*, at 177–178.

1 **E. Conclusion**

2 **Q. What are your conclusions regarding the effect of current market conditions on**  
3 **the cost of equity for PacifiCorp?**

4 A. Through 2023, investors expect long-term interest rates to remain relatively high in  
5 response to continued elevated levels of inflation and the Federal Reserve's  
6 normalization of monetary policy. Because the share prices of utilities are inversely  
7 correlated to interest rates, and government bond yields are already substantially  
8 greater than utility stock dividend yields, the share prices of utilities will likely  
9 decline, which is the reason a number of equity analysts have classified the sector as  
10 either underperform or underweight. The expected underperformance of utilities  
11 means that DCF models using recent historical data likely underestimate investors'  
12 required return over the period that rates will be in effect. Therefore, this expected  
13 change in market conditions supports consideration of the higher end of the range of  
14 cost of equity results produced by the DCF models. Moreover, prospective market  
15 conditions warrant consideration of forward-looking cost of equity estimation models  
16 such as the CAPM and ECAPM, which better reflect expected market conditions.

17 **VI. PROXY GROUP SELECTION**

18 **Q. Why have you used a proxy group of publicly traded companies to estimate the**  
19 **cost of equity for PacifiCorp?**

20 A. One of the purposes of this proceeding is to estimate the cost of equity for an electric  
21 utility company that is not itself publicly traded. Because the cost of equity is a  
22 market-based concept and given that PacifiCorp's electric operations in Washington  
23 do not make up the entirety of a publicly traded entity, it is necessary to establish a

1 group of companies that is both publicly traded and comparable to PacifiCorp in  
2 certain fundamental business and financial respects to serve as its “proxy” in the ROE  
3 estimation process.

4 Even if PacifiCorp was a publicly traded entity, it is possible that transitory  
5 events could bias its market value over a given period. A significant benefit of using a  
6 proxy group is that it moderates the effects of unusual events that may be associated  
7 with any one company. The proxy companies used in my analyses all possess a set of  
8 operating and risk characteristics that are substantially comparable to PacifiCorp, and  
9 thus provide a reasonable basis to derive an estimate of the appropriate ROE for  
10 PacifiCorp.

11 **Q. Please provide a brief profile of PacifiCorp.**

12 A. PacifiCorp is an indirect, wholly owned subsidiary of Berkshire Hathaway Energy  
13 Company (BHE). PacifiCorp provides electric utility service to approximately 2.0  
14 million residential, commercial and industrial customers in California, Idaho, Oregon,  
15 Utah, Washington and Wyoming.<sup>27</sup> In Washington, PacifiCorp provides electric  
16 service to approximately 140,000 residential, commercial, and industrial customers.<sup>28</sup>  
17 As of December 31, 2021, PacifiCorp’s net utility electric plant in Washington was  
18 approximately \$1.48 billion.<sup>29</sup> In addition, PacifiCorp had 2021 electric operating  
19 revenue in Washington of approximately \$375 million, made up of 41.30 percent  
20 residential, 34.70 percent commercial, 18.48 percent industrial, and 5.51 percent

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<sup>27</sup> Berkshire Hathaway Energy Co, 2021 Form 10-K at 3.

<sup>28</sup> Direct Testimony of Matthew D. McVee.

<sup>29</sup> PacifiCorp d/b/a Pacific Power and Light Company, 2021 Annual Report to the Washington Utilities and Transportation Commission, at 10 and 219.

1 public lighting, sales for resale and other.<sup>30</sup> PacifiCorp's electric operations in  
2 Washington represented 8 percent of PacifiCorp's electric sales in 2021.<sup>31</sup>  
3 Approximately 78.3 percent of PacifiCorp's 2021 net generation needs in Washington  
4 were satisfied by its owned and joint owned facilities while the remaining 21.7  
5 percent was purchased power.<sup>32</sup> PacifiCorp currently has an investment grade long-  
6 term rating of A (Outlook: Stable) from S&P and A3 (Outlook: Stable) from  
7 Moody's.<sup>33</sup>

8 **Q. How did you select the companies included in your proxy group?**

9 A. I began with the group of companies that Value Line classifies as Electric Utilities  
10 and applied the following screening criteria to select companies that:

- 11 • pay consistent quarterly cash dividends, because companies that do not cannot
- 12 be analyzed using the Constant Growth DCF model;
- 13 • have investment grade long-term issuer ratings from S&P and/or Moody's;
- 14 • are covered by more than one utility industry analysts;
- 15 • have positive long-term earnings growth rates from at least two equity analysts;
- 16 • own regulated generation assets;
- 17 • derive at least 40.00 percent of generation from own generation;
- 18 • derive at least 60.00 percent of their total operating income from regulated
- 19 operating income;
- 20 • derive at least 60.00 percent of total regulated operating income from regulated
- 21 electric operating income; and
- 22 • were not parties to a transformative transaction during the analytical periods
- 23 relied on.

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<sup>30</sup> PacifiCorp d/b/a Pacific Power and Light Company, 2021 Annual Report to the Washington Utilities and Transportation Commission, at 2.

<sup>31</sup> Berkshire Hathaway Energy Company, 2021 Form 10-K, at 3.

<sup>32</sup> PacifiCorp d/b/a Pacific Power and Light Company, 2021 Annual Report to the Washington Utilities and Transportation Commission, at 12a.

<sup>33</sup> S&P Capital IQ Pro and Moody's Investor Services, Feb. 10, 2023.

1 **Q. Did you exclude any other companies from the proxy group?**

2 A. Yes. I also excluded Hawaiian Electric Industries, Inc. (HE) from my proxy group.

3 HE's operations are concentrated on the islands of Hawaii; therefore, the company

4 faces geographic concentration risk. As HE noted in the company's 2021 Form10-K:

5 The Company is subject to the risks associated with the  
6 geographic concentration of its businesses and current lack of  
7 interconnections that could result in service interruptions at the  
8 Utilities or higher default rates on loans held by ASB [American  
9 Savings Bank].<sup>34</sup>

10 The increased risk of service interruptions resulting from HE's geographic  
11 location which could result in revenue loss and increased costs is a risk unique to HE  
12 and would not apply to utilities located on the U.S. mainland. Furthermore, HE's  
13 unregulated operations which represent approximately 33 percent of the company's  
14 operation income in 2021 are concentrated in the banking sector through the  
15 ownership of American Savings Bank (ASB).<sup>35</sup> ASB also only operates on Hawaii;  
16 thus, all of the company's consumer and commercial loans are to customers on  
17 Hawaii. If Hawaii were to face an adverse economic or political event, ASB could  
18 face severe financial effects given the company's geographic concentration in  
19 Hawaii.<sup>36</sup> As a result, I have excluded HE from my proxy group considering HE's  
20 unique geographical risks.

21 **Q. What is the composition of your proxy group?**

22 A. The screening criteria just discussed resulted in a proxy group consisting of the 17  
23 companies shown in Figure 6.

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<sup>34</sup> Hawaii Electric Industries, Inc., 2021 Form 10-K, at 23.

<sup>35</sup> *Id.*, at 86.

<sup>36</sup> *Id.*, at 20.

**Figure 6: Proxy Group**

<b>Company</b>	<b>Ticker</b>
ALLETE, Inc.	ALE
Alliant Energy Corporation	LNT
Ameren Corporation	AEE
American Electric Power Company, Inc.	AEP
Avista Corporation	AVA
CMS Energy Corporation	CMS
Duke Energy Corporation	DUK
Entergy Corporation	ETR
Evergy, Inc.	EVRG
IDACORP, Inc.	IDA
NextEra Energy, Inc.	NEE
NorthWestern Corporation	NWE
OGE Energy Corporation	OGE
Otter Tail Corporation	OTTR
Portland General Electric Company	POR
Southern Company	SO
Xcel Energy Inc.	XEL

1 **Q. Do your screening criteria result in a proxy group that is risk-comparable to**  
2 **PacifiCorp?**

3 A. Yes. The overall purpose of developing a set of screening criteria is to select a proxy  
4 group of companies that align with the financial and operational characteristics of  
5 PacifiCorp and that investors would view as comparable to the Company. I developed  
6 the screens and thresholds for each screen based on judgment with the intention of  
7 balancing the need to maintain a proxy group that is of sufficient size against  
8 establishing a proxy group of companies that are comparable in business and financial  
9 risk to the Company. This resulted in the group of seventeen companies shown in  
10 Figure 6 that have business and financial risks comparable to PacifiCorp.



1 **VII. COST OF EQUITY ESTIMATION**

2 **Q. Please briefly discuss the ROE in the context of the regulated rate of return.**

3 A. The ROE is the cost of common equity capital in the utility's capital structure for  
4 ratemaking purposes. The overall rate of return for a regulated utility is the weighted  
5 average cost of capital, in which the cost rates of the individual sources of capital are  
6 weighted by their respective book values. While the costs of debt and preferred stock  
7 can be directly observed, the cost of equity is market-based and, therefore, must be  
8 estimated based on observable market data.

9 **Q. How is the required cost of equity determined?**

10 A. The required cost of equity is estimated by using analytical techniques that rely on  
11 market-based data to quantify investor expectations regarding equity returns, adjusted  
12 for certain incremental costs and risks. Informed judgment is then applied to  
13 determine where the company's cost of equity falls within the range of results  
14 produced by multiple analytical techniques. The key consideration in determining the  
15 cost of equity is to ensure that the methodologies employed reasonably reflect  
16 investors' views of the financial markets in general, as well as the subject company  
17 (in the context of the proxy group), in particular.

18 **Q. What methods did you use to establish your recommended ROE in this**  
19 **proceeding?**

20 A. I considered the results of the Constant Growth DCF model, the CAPM, the ECAPM,  
21 the Bond Yield Plus Risk Premium methodology, and an Expected Earnings analysis.  
22 As discussed in more detail below, a reasonable ROE estimate appropriately

1 considers alternative methodologies and the reasonableness of their individual and  
2 collective results.

3 **A. Importance of Multiple Analytical Approaches**

4 **Q. Why is it important to use more than one analytical approach to estimate the**  
5 **cost of equity?**

6 A. Because the cost of equity is not directly observable, it must be estimated based on  
7 both quantitative and qualitative information. When faced with the task of estimating  
8 the cost of equity, analysts and investors are inclined to gather and evaluate as much  
9 relevant data as reasonably can be analyzed. Several models have been developed to  
10 estimate the cost of equity, and I use multiple approaches to estimate the cost of  
11 equity. As a practical matter, however, all the models available for estimating the cost  
12 of equity are subject to limiting assumptions or other methodological  
13 constraints. Consequently, many well-regarded finance texts recommend using  
14 multiple approaches when estimating the cost of equity. For example, Copeland,  
15 Koller, and Murrin<sup>37</sup> suggest using the CAPM and Arbitrage Pricing Theory model,  
16 while Brigham and Gapenski<sup>38</sup> recommend the CAPM, DCF, and Bond Yield Plus  
17 Risk Premium approaches.

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<sup>37</sup>Tom Copeland, Tim Koller and Jack Murrin, Valuation: Measuring and Managing the Value of Companies, 3rd Ed. (New York: McKinsey & Company, Inc., 2000), at 214.

<sup>38</sup>Eugene Brigham, Louis Gapenski, Financial Management: Theory and Practice, 7th Ed. (Orlando: Dryden Press, 1994), at 341.

1 **Q. Do current market conditions support your reliance on more than one analytical**  
2 **approach?**

3 A. Yes. As I discussed above, interest rates have increased substantially over the past  
4 year and are expected to remain elevated over at least the next year from the lows  
5 seen during the COVID-19 pandemic. The benefit of using multiple models is that  
6 each model relies on different assumptions, certain of which may better reflect  
7 current and projected market conditions at different times. As discussed previously,  
8 the CAPM and Bond Yield Plus Risk Premium method address effect of expected  
9 changes in interest rates, whereas the effect of rising interest rates may not be  
10 captured as well in the DCF model at this time. Therefore, it is important to use  
11 multiple analytical approaches to ensure that the cost of equity results reflect market  
12 conditions that are expected during the period that the Company's rates will be in  
13 effect.

14 **Q. Has the Commission previously recognized the importance of considering the**  
15 **results of multiple cost of equity estimation models?**

16 A. Yes. It is my understanding that the Commission has repeatedly emphasized that it  
17 “places value on each of the methodologies used to calculate the cost of equity and  
18 does not find it appropriate to select a single method as being the most accurate or  
19 instructive.”<sup>39</sup> The Commission has explained that “[f]inancial circumstances are  
20 constantly shifting and changing, and we welcome a robust and diverse record of  
21 evidence based on a variety of analytics and cost of capital methodologies.”<sup>40</sup> In

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<sup>39</sup> *WUTC v. PacifiCorp*, Docket No. UE-130043, Order 05, n. 89 (Dec. 4, 2013).

<sup>40</sup> *WUTC v. PacifiCorp*, Docket No. UE-100749, Order 06, ¶ 91 (March 25, 2011).

1 Cascade’s 2020 rate case, the Commission considered multiple models including the  
2 DCF, CAPM, Risk Premium and Comparable Earnings analyses.<sup>41</sup> However, the  
3 Commission relied on the results of the DCF, Risk Premium and Comparable  
4 Earnings analyses to develop the range of reasonable returns excluding the results of  
5 the CAPM due to the wide range of results presented.<sup>42</sup>

6 **B. Constant Growth DCF Model**

7 **Q. Please describe the DCF approach.**

8 A. The DCF approach is based on the theory that a stock’s current price represents the  
9 present value of all expected future cash flows. In its most general form, the DCF  
10 model is expressed as follows:

11 
$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \dots + \frac{D_\infty}{(1+k)^\infty} \quad [1]$$

12 Where  $P_0$  represents the current stock price,  $D_1 \dots D_\infty$  are all expected future  
13 dividends, and  $k$  is the discount rate, or required ROE. Equation [1] is a standard  
14 present value calculation that can be simplified and rearranged into the following  
15 form:

16 
$$k = \frac{D_0(1+g)}{P_0} + g \quad [2]$$

17 Equation [2] is often referred to as the Constant Growth DCF model in which the  
18 first term is the expected dividend yield and the second term is the expected long-  
19 term growth rate.

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<sup>41</sup> *WUTC v. Cascade Natural Gas Corporation*, Docket No. UG-200568, Order 5, ¶¶ 122-125 (May 18, 2021).

<sup>42</sup> *Id.*, at ¶¶ 126-130 (May 18, 2021).

1 **Q. What assumptions are required for the Constant Growth DCF model?**

2 A. The Constant Growth DCF model requires the following four assumptions: (1) a  
3 constant growth rate for earnings and dividends; (2) a stable dividend payout ratio;  
4 (3) a constant price-to-earnings ratio; and (4) a discount rate greater than the expected  
5 growth rate. To the extent that any of these assumptions are not objectively valid,  
6 considered judgment and/or specific adjustments should be applied to the results.

7 **Q. What market data do you use to calculate the dividend yield in your Constant  
8 Growth DCF model?**

9 A. The dividend yield in my Constant Growth DCF model is based on the proxy group  
10 companies' current annualized dividend and average closing stock prices over the  
11 30-, 90-, and 180-trading days ended January 31, 2023.

12 **Q. Why do you use 30-, 90-, and 180-day averaging periods?**

13 A. I use an average of recent trading days to calculate the term  $P_0$  in the DCF model to  
14 reflect current market data while also ensuring that the result of the model is not  
15 skewed by anomalous events that may affect stock prices on any given trading day.

16 **Q. Did you make any adjustments to the dividend yield to account for periodic  
17 growth in dividends?**

18 A. Yes, I did. Because utility companies tend to increase their quarterly dividends at  
19 different times throughout the year, it is reasonable to assume that dividend increases  
20 will be evenly distributed over calendar quarters. Given that assumption, it is  
21 reasonable to apply one-half of the expected annual dividend growth rate for purposes  
22 of calculating the expected dividend yield component of the DCF model. This  
23 adjustment ensures that the expected first-year dividend yield is, on average,

1 representative of the coming twelve-month period, and does not overstate the  
2 aggregated dividends to be paid during that time.

3 **Q. Why is it important to select appropriate measures of long-term growth in  
4 applying the DCF model?**

5 A. In its Constant Growth form, the DCF model (*i.e.*, Equation [2]) assumes a single  
6 growth estimate in perpetuity. To reduce the long-term growth rate to a single  
7 measure, one must assume that the payout ratio remains constant and that earnings  
8 per share, dividends per share and book value per share all grow at the same constant  
9 rate. Over the long run, however, dividend growth can only be sustained by earnings  
10 growth. Therefore, it is important to consider a variety of sources in arriving at a  
11 singular long-term earnings growth rate for the Constant Growth DCF model.

12 **Q. Which sources of long-term earnings growth rates did you use?**

13 A. My Constant Growth DCF model incorporates three sources of long-term earnings  
14 growth rates: (1) Zacks Investment Research; (2) Thompson First Call (provided by  
15 Yahoo! Finance); and (3) *Value Line* Investment Survey.

16 **Q. How did you calculate the range of results for the Constant Growth DCF  
17 Models?**

18 A. I calculated a low end result for my DCF model using the minimum growth rate of  
19 the three sources (*i.e.*, the lowest of the Zacks, Yahoo! Finance, and Value Line  
20 projected earnings growth rates) for each of the proxy group companies. I used a  
21 similar approach to calculate a high-end result, using the maximum growth rate of the  
22 three sources for each proxy group company. The mean results were calculated using  
23 the average growth rate from all three sources for each proxy group company.

1 **Q. What are the results of your DCF analyses?**

2 A. Figure 7 summarizes the results of my DCF analyses. As shown in Figure 7, the mean  
3 and median DCF results using the mean growth rates range from 9.40 percent to 9.54  
4 percent, and the mean results using the maximum growth rates range from 10.39  
5 percent to 10.53 percent.

**Figure 7: Discounted Cash Flow Results**

<i>Constant Growth DCF</i>			
	Mean using Low Growth Rate	Mean using Average Growth Rate	Mean using High Growth Rate
30-Day Average	8.11%	9.40%	10.39%
90-Day Average	8.25%	9.54%	10.53%
180-Day Average	8.14%	9.44%	10.42%
Average	8.17%	9.46%	10.45%

6 **Q. What are your conclusions about the results of the DCF models?**

7 A. As discussed previously, one primary assumption of the DCF models is a constant  
8 price-to-earnings ratio. That assumption is heavily influenced by the market price of  
9 utility stocks. Since utility stocks are expected to underperform the broader market  
10 over the near-term as interest rates remain elevated and yields on long-term  
11 government bonds exceed utility dividend yields, it is important to consider the  
12 results of the DCF models with caution. Therefore, while I have given weight to the  
13 results of the Constant Growth DCF model, my recommendation also gives weight to  
14 the results of other cost of equity estimation models.

1 **C. CAPM Analysis**

2 **Q. Please briefly describe the CAPM.**

3 A. The CAPM is a risk premium approach that estimates the cost of equity for a given  
4 security as a function of a risk-free return plus a risk premium to compensate  
5 investors for the non-diversifiable or “systematic” risk of that security. Systematic  
6 risk is the risk inherent in the entire market or market segment, which cannot be  
7 diversified away using a portfolio of assets. Unsystematic risk is the risk of a specific  
8 company that can, theoretically, be mitigated through portfolio diversification.

9 The CAPM is defined by four components:

10 
$$K_e = r_f + \beta(r_m - r_f) \quad [3]$$

11 Where:

12  $K_e$  = the required market ROE;

13  $\beta$  = beta coefficient of an individual security;

14  $r_f$  = the risk-free rate of return; and

15  $r_m$  = the required return on the market.

16 In this specification, the term  $(r_m - r_f)$  represents the market risk premium.

17 According to the theory underlying the CAPM, because unsystematic risk can be  
18 diversified away, investors should only be concerned with systematic or non-  
19 diversifiable risk. Non-diversifiable risk is measured by beta, which is defined as:

20 
$$\beta = \frac{\text{Covariance}(r_e, r_m)}{\text{Variance}(r_m)} \quad [4]$$

21 The variance of the market return (*i.e.*, Variance  $(r_m)$ ) is a measure of the  
22 uncertainty of the general market, and the Covariance between the return on a specific  
security and the general market (*i.e.*, Covariance  $(r_e, r_m)$ ) reflects the extent to which



1 the return on that security will respond to a given change in the general market return.  
2 Thus, beta represents the risk of the security relative to the general market.

3 **Q. What risk-free rate do you use in your CAPM analysis?**

4 A. I rely on three sources for my estimate of the risk-free rate: (1) the current 30-day  
5 average yield on 30-year U.S. Treasury bonds, which is 3.71 percent;<sup>43</sup> (2) the  
6 average projected 30-year U.S. Treasury bond yield for the second quarter of 2023  
7 through the second quarter of 2024, which is 3.82 percent;<sup>44</sup> and (3) the average  
8 projected 30-year U.S. Treasury bond yield for 2024 through 2028, which is 3.90  
9 percent.<sup>45</sup>

10 **Q. What beta coefficients do you use in your CAPM analysis?**

11 A. As shown on Exhibit No. AEB-7, I use the beta coefficients for the proxy group  
12 companies as reported by Bloomberg and *Value Line*. The beta coefficients reported  
13 by Bloomberg are calculated using ten years of weekly returns relative to the S&P  
14 500 Index. *Value Line*'s calculation of the beta coefficients is based on five years of  
15 weekly returns relative to the New York Stock Exchange Composite Index (NYSE).  
16 Additionally, as shown on Exhibit No. AEB-7 and Exhibit No. AEB-8, I also  
17 considered an additional CAPM analysis that relies on the long-term average utility  
18 beta coefficient for the companies in my proxy group, which is calculated as an  
19 average of the *Value Line* beta coefficients for the companies in my proxy group from  
20 2013 through 2022.

---

<sup>43</sup> Bloomberg Professional as of Jan. 31, 2023.

<sup>44</sup> *Blue Chip Financial Forecasts*, Vol. 42, No. 2, Feb. 1, 2023, at 2.

<sup>45</sup> *Blue Chip Financial Forecasts*, Vol. 41, No. 12, Dec. 1, 2022, at 14.

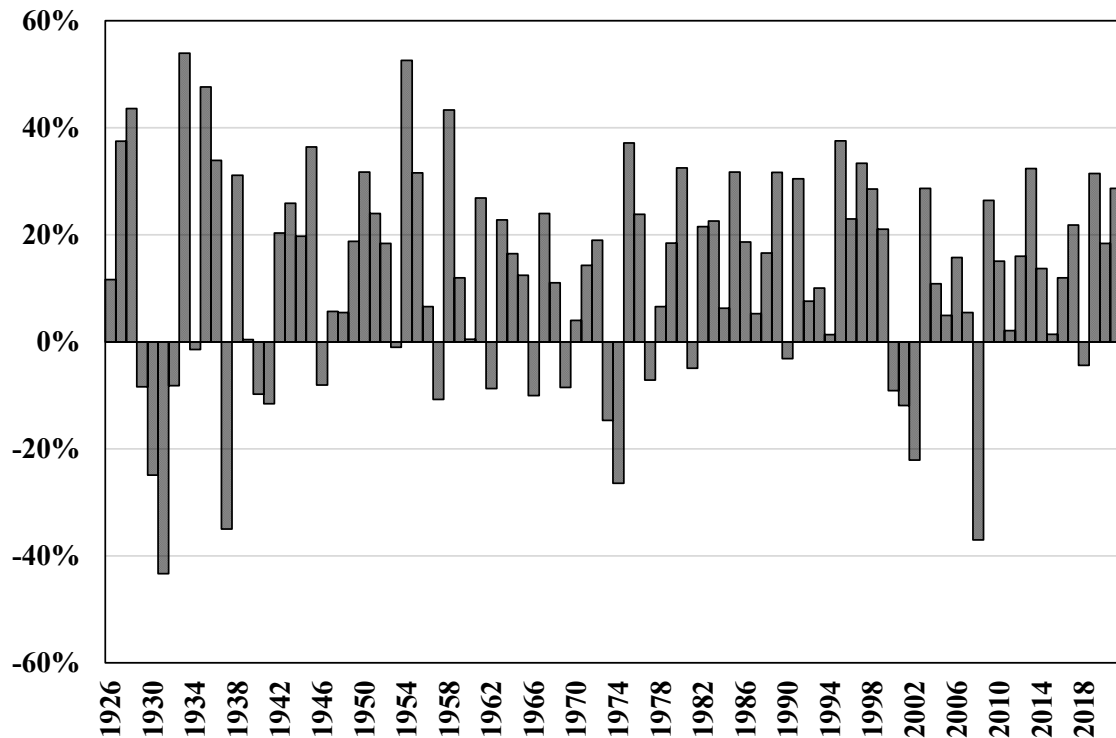
1 **Q. How do you estimate the market risk premium in the CAPM?**

2 A. I estimate the market risk premium as the difference between the implied expected  
3 equity market return and the risk-free rate. As shown in Exhibit No. AEB-9, the  
4 expected market return is calculated using the constant growth DCF model discussed  
5 earlier in my testimony for the companies in the S&P 500 Index. Based on an  
6 estimated market capitalization-weighted dividend yield of 1.75 percent and a  
7 weighted long-term growth rate of 10.65 percent, the estimated required market  
8 return for the S&P 500 Index as of January 31, 2023 is 12.50 percent. Based on the  
9 three risk-free rates considered, the market risk premium ranges from 8.60 percent to  
10 8.79 percent.

11 **Q. How does the current expected market return compare to observed historical  
12 market returns?**

13 A. As shown in Figure 8, given the range of annual equity returns that have been  
14 observed over the past century, a current expected market return of 12.50 percent is  
15 not unreasonable. As shown, in 50 out of the past 96 years (or roughly 52 percent of  
16 observations), the realized equity market return was at least 12.50 percent or greater.

**Figure 8: Realized U.S. equity market returns (1926-2021)<sup>46</sup>**



1 Q. Did you consider another form of the CAPM in your analysis?

2 A. Yes. I have also considered the results of an ECAPM analysis in estimating the cost  
 3 of equity for PacifiCorp.<sup>47</sup> The ECAPM calculates the product of the adjusted beta  
 4 coefficient and the market risk premium and applies a weight of 75.00 percent to that  
 5 result. The model then applies a 25.00 percent weight to the market risk premium  
 6 without any effect from the beta coefficient. The results of the two calculations are  
 7 summed, along with the risk-free rate, to produce the ECAPM result, as noted in  
 8 Equation [5] below:

$$k_e = r_f + 0.75\beta(r_m - r_f) + 0.25(r_m - r_f) \quad [5]$$

10 Where:

11  $k_e$  = the required market ROE

12  $\beta$  = Adjusted Beta coefficient of an individual security

<sup>46</sup> Depicts total annual returns on large company stocks, as reported in the 2022 *Kroll S&P 500 Yearbook*.

<sup>47</sup> See, e.g., Roger A. Morin, *New Regulatory Finance*, Public Utilities Reports, Inc., 2006, at 189.

1  $r_f$  = the risk-free rate of return  
2  $r_m$  = the required return on the market as a whole

3 In essence, the ECAPM addresses the tendency of the “traditional” CAPM to  
4 underestimate the cost of equity for companies with low beta coefficients such as  
5 regulated utilities. In that regard, the ECAPM is not redundant to the use of adjusted  
6 betas in the traditional CAPM; rather, it recognizes the results of academic research  
7 indicating that the risk-return relationship is different (in essence, flatter) than  
8 estimated by the CAPM, and that the CAPM underestimates the “alpha,” or the  
9 constant return term.<sup>48</sup>

10 As with the CAPM, my application of the ECAPM uses the forward-looking  
11 market risk premium estimates, the three yields on 30-year Treasury securities noted  
12 earlier as the risk-free rate, and the current Bloomberg and *Value Line* and long-term  
13 *Value Line* beta coefficients.

14 **Q. What are the results of your CAPM analyses?**

15 A. As shown in Figure 9 (see also Exhibit No. AEB-7), my CAPM analysis produces a  
16 range of returns from 10.33 percent to 11.38 percent and the ECAPM analysis  
17 produces a range of results from 10.87 percent to 11.66 percent.

---

<sup>48</sup> *Id.*, at 191.

**Figure 9: CAPM Results**

<b>CAPM</b>			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Value Line Beta	11.36%	11.37%	11.38%
Bloomberg Beta	10.77%	10.79%	10.81%
Long-term Avg. Beta	10.33%	10.36%	10.38%
<b>ECAPM</b>			
Value Line Beta	11.64%	11.65%	11.66%
Bloomberg Beta	11.20%	11.22%	11.23%
Long-term Avg. Beta	10.87%	10.89%	10.91%

1 **D. Bond Yield Plus Risk Premium Analysis**

2 **Q. Please describe the Bond Yield Plus Risk Premium approach.**

3 A. In general terms, this approach is based on the fundamental principle that equity  
4 investors bear the residual risk associated with equity ownership and therefore require  
5 a premium over the return they would have earned as a bondholder. In other words,  
6 because returns to equity holders have greater risk than returns to bondholders, equity  
7 investors must be compensated to bear that risk. Thus, risk premium approaches  
8 estimate the cost of equity as the sum of the equity risk premium and the yield on a  
9 particular class of bonds. In my analysis, I use actual authorized returns for vertically  
10 integrated electric utilities as the historical measure of the cost of equity to determine  
11 the risk premium.

12 **Q. Are there other considerations that should be addressed in conducting this**  
13 **analysis?**

14 A. Yes. It is important to recognize both academic literature and market evidence  
15 indicating that the equity risk premium (as used in this approach) is inversely related  
16 to the level of interest rates (*i.e.*, as interest rates increase, the equity risk premium

1 decreases, and vice versa). Consequently, it is important to develop an analysis that:  
2 (1) reflects the inverse relationship between interest rates and the equity risk  
3 premium; and (2) relies on recent and expected market conditions. Such an analysis  
4 can be developed based on a regression of the risk premium as a function of U.S.  
5 Treasury bond yields. Thus, if authorized ROEs for electric utilities serve as the  
6 measure of required equity returns and the yield on the long-term U.S. Treasury bond  
7 serves as the relevant measure of interest rates, the risk premium simply would be the  
8 difference between those two points.<sup>49</sup>

9 **Q. Is the Bond Yield Plus Risk Premium analysis relevant to investors?**

10 A. Yes. Investors are aware of authorized ROEs in other jurisdictions, and they consider  
11 those authorizations as a benchmark for a reasonable level of equity returns for  
12 utilities of comparable risk operating in other jurisdictions. Because my Bond Yield  
13 Plus Risk Premium analysis is based on authorized ROEs for utility companies  
14 relative to corresponding Treasury yields, it provides relevant information to assess  
15 the return expectations of investors in the current interest rate environment.

---

<sup>49</sup> See e.g., S. Keith Berry, *Interest Rate Risk and Utility Risk Premia during 1982-93*, Managerial and Decision Economics, Vol. 19, No. 2 (March, 1998), in which the author used a methodology similar to the regression approach described below, including using allowed ROEs as the relevant data source, and came to similar conclusions regarding the inverse relationship between risk premia and interest rates. See also Robert S. Harris, *Using Analysts' Growth Forecasts to Estimate Shareholders Required Rates of Return*, Financial Management, Spring 1986, at 66.

1 **Q. What did the regression analysis used in your Bond Yield Plus Risk Premium**  
2 **analysis reveal?**

3 A. As shown in Figure 10, from 1992 through January 31, 2023, there was a strong  
4 negative relationship between risk premia and interest rates. To estimate that  
5 relationship, I conducted a regression analysis using the following equation:

$$RP = a + b(T) [6]$$

7 Where:

8  $RP$  = Risk Premium (difference between allowed ROEs and the yield on 30-  
9 year U.S. Treasury bonds)

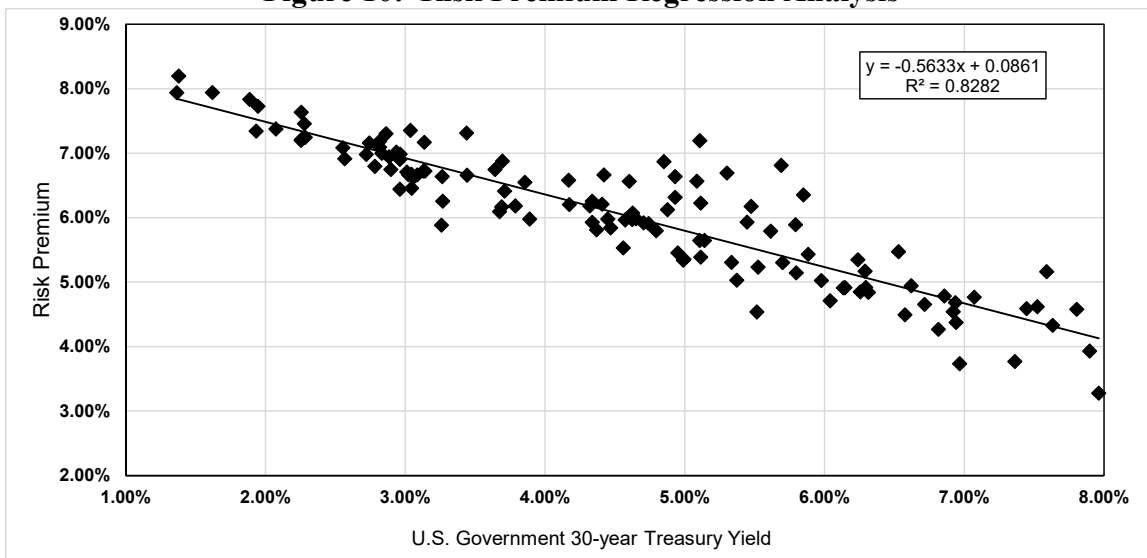
10  $a$  = intercept term

11  $b$  = slope term

12  $T$  = 30-year U.S. Treasury bond yield

13 Data regarding authorized ROEs were derived from vertically integrated electric  
14 rate cases from 1992 through January 2023 as reported by Regulatory Research  
15 Associates (RRA).<sup>50</sup> This equation's coefficients were statistically significant at the  
16 99.00 percent level.

**Figure 10: Risk Premium Regression Analysis**



<sup>50</sup> This analysis began with a total of 1,441 cases and was screened to eliminate limited issue rider cases, transmission-only cases, distribution-only cases and cases that were silent with respect to the authorized ROE. After applying those screening criteria, the analysis was based on data for 704 cases.

1 **Q. What are the COE estimates that result from this equation?**

2 A. As shown in Exhibit No. AEB-10, based on the current 30-day average of the 30-year  
3 U.S. Treasury bond yield, the risk premium would be 6.52 percent, resulting in an  
4 estimated cost of equity of 10.23 percent. Based on the consensus estimate of the  
5 near-term (*i.e.*, Q2 2023 – Q2 2024) projected 30-year U.S. Treasury bond yield (*i.e.*,  
6 3.82 percent), the risk premium would be 6.46 percent, resulting in an estimated cost  
7 of equity of 10.28 percent. Based on a consensus estimate of the longer-term (*i.e.*,  
8 2024 – 2028) projection of the 30-year U.S. Treasury bond yield (*i.e.*, 3.90 percent),  
9 the risk premium would be 6.42 percent, resulting in an estimated cost of equity of  
10 10.32 percent.

11 **Q. How did the results of the Bond Yield Plus Risk Premium analysis inform your**  
12 **recommended ROE for PacifiCorp?**

13 A. I have considered the results of the Bond Yield Risk Premium analysis in setting my  
14 recommended ROE range for the Company. As noted, investors consider the  
15 authorized ROE of a company when assessing the risk of that company as compared  
16 to utilities of comparable risk operating in other jurisdictions.

17 **E. Expected Earnings Analysis**

18 **Q. Have you considered any additional analysis to estimate the cost of equity for**  
19 **PacifiCorp?**

20 A. Yes. I have considered an Expected Earnings analysis based on the projected ROEs  
21 for each of the proxy group companies.



1 **Q. What is an Expected Earnings Analysis?**

2 A. The Expected Earnings methodology is a comparable earnings analysis that calculates  
3 the earnings that an investor expects to receive on the book value of a stock. The  
4 expected earnings analysis is a forward-looking estimate of investors' expected  
5 returns. The use of an Expected Earnings approach based on the proxy companies  
6 provides a range of the expected returns on a group of risk comparable companies to  
7 the subject company. This range is useful in helping to determine the opportunity cost  
8 of investing in the subject company, which is relevant in determining a company's  
9 ROE.

10 **Q. Has the Commission recently considered the results of an Expected Earnings**  
11 **Analysis?**

12 A. Yes. In Cascade's 2020 rate case, the Commission considered the results of the  
13 Comparable Earnings analysis in establishing the authorized ROE.<sup>51</sup> The Commission  
14 noted that it does not place material weight on the results of the CE model; however,  
15 the Commission indicated that it has considered the results of the CE model when the  
16 other COE models (*i.e.*, DCF, CAPM and Risk Premium) produce a wide range of  
17 results.<sup>52</sup> Specifically, the Commission stated the following:

18 Applying the Expected Earnings CE Method, Bulkley arrives at a  
19 mean of 9.94 percent and a median of 9.74 percent. Bulkley  
20 updates these figures on rebuttal to a mean of 9.59 percent and a  
21 median of 9.46 percent. Parcell's CE analysis produces a range  
22 of results between 8.5 percent and 9.5 percent. The CE method  
23 results therefore vary by 144 basis points. We generally do not  
24 place material weight on the CE method, which is considered  
25 unreliable in other jurisdictions. However, we have considered

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<sup>51</sup> The Expected Earnings analysis is a form of the Comparable Earnings analysis that relies exclusively on forward-looking projections.

<sup>52</sup> *WUTC v. Cascade Natural Gas Corporation*, Docket No. UG-200568, Order 5, ¶ 129 (May 18, 2021).

1 the results of the CE method when other cost of equity methods  
2 produce widely varying results. The CE method results in this  
3 case tend to support the range of reasonableness described by  
4 both the DCF and RP methods.<sup>53</sup>

5 **Q. How did you develop the Expected Earnings Approach?**

6 A. I relied primarily on the projected ROE capital for the proxy companies as reported  
7 by Value Line for the period from 2025-2027. However, I adjusted those projected  
8 ROEs to account for the fact that the ROEs reported by Value Line are calculated on  
9 the basis of common shares outstanding at the end of the period, as opposed to  
10 average shares outstanding over the period. As shown in Exhibit No. AEB-11, the  
11 Expected Earnings analysis results in a mean of 11.25 percent and a median of 11.31  
12 percent.

13 **VIII. REGULATORY AND BUSINESS RISKS**

14 **Q. Do the DCF, CAPM, ECAPM, and Expected Earnings results for the proxy**  
15 **group, taken alone, provide an appropriate estimate of the cost of equity for**  
16 **PacifiCorp?**

17 A. No. These results provide only a range of the appropriate estimate of the Company's  
18 cost of equity. There are several additional factors that must be taken into  
19 consideration when determining where the Company's cost of equity falls within the  
20 range of results. These factors, which are discussed below, should be considered with  
21 respect to their overall effect on the Company's risk profile.

---

<sup>53</sup> *Id.*

1 **A. Capital Expenditures**

2 **Q. Please summarize the Company's capital expenditure requirements.**

3 A. PacifiCorp's current projections for 2023 through 2027 include approximately \$20.8  
4 billion in capital investments for the period.<sup>54</sup> Based on PacifiCorp's net utility plant  
5 of approximately \$21.06 billion as of June 30, 2022, the \$20.8 billion anticipated  
6 capital expenditures are approximately 98.86 percent of PacifiCorp's net utility plant  
7 as of December 31, 2022.<sup>55</sup> It is my understanding that these investments are required  
8 to meet system needs and are compliant with the requirements of the Clean Energy  
9 Transformation Act (CETA) .

10 **Q. How is the PacifiCorp's risk profile affected by its capital expenditure  
11 requirements?**

12 A. As with any utility facing increased capital expenditure requirements, PacifiCorp's  
13 risk profile may be adversely affected in two significant and related ways: (1) the  
14 heightened level of investment increases the risk of under recovery or delayed  
15 recovery of the invested capital; and (2) an inadequate return would put downward  
16 pressure on key credit metrics.

17 **Q. Do credit rating agencies recognize the risks associated with elevated levels of  
18 capital expenditures?**

19 A. Yes, they do. From a credit perspective, the additional pressure on cash flows  
20 associated with high levels of capital expenditures exerts corresponding pressure on

---

<sup>54</sup> Data provided by PacifiCorp for Capital Expenditures 2023-2027.

<sup>55</sup> Data provided by PacifiCorp.

1 credit metrics and, therefore, credit ratings. To that point, S&P explains the  
2 importance of regulatory support for large capital projects:

3 When applicable, a jurisdiction's willingness to support large capital  
4 projects with cash during construction is an important aspect of our  
5 analysis. This is especially true when the project represents a major  
6 addition to rate base and entails long lead times and technological risks  
7 that make it susceptible to construction delays. Broad support for all  
8 capital spending is the most credit-sustaining. Support for only specific  
9 types of capital spending, such as specific environmental projects or  
10 system integrity plans, is less so, but still favorable for creditors.  
11 Allowance of a cash return on construction work-in-progress or similar  
12 ratemaking methods historically were extraordinary measures for use in  
13 unusual circumstances, but when construction costs are rising, cash flow  
14 support could be crucial to maintain credit quality through the spending  
15 program. Even more favorable are those jurisdictions that present an  
16 opportunity for a higher return on capital projects as an incentive to  
17 investors.<sup>56</sup>

18 Therefore, to the extent that PacifiCorp's rates do not permit the opportunity  
19 to recover its full cost of doing business, PacifiCorp will face increased recovery risk  
20 and thus increased pressure on its credit metrics.

21 **Q. How do PacifiCorp's capital expenditure requirements compare to those of the**  
22 **proxy group companies?**

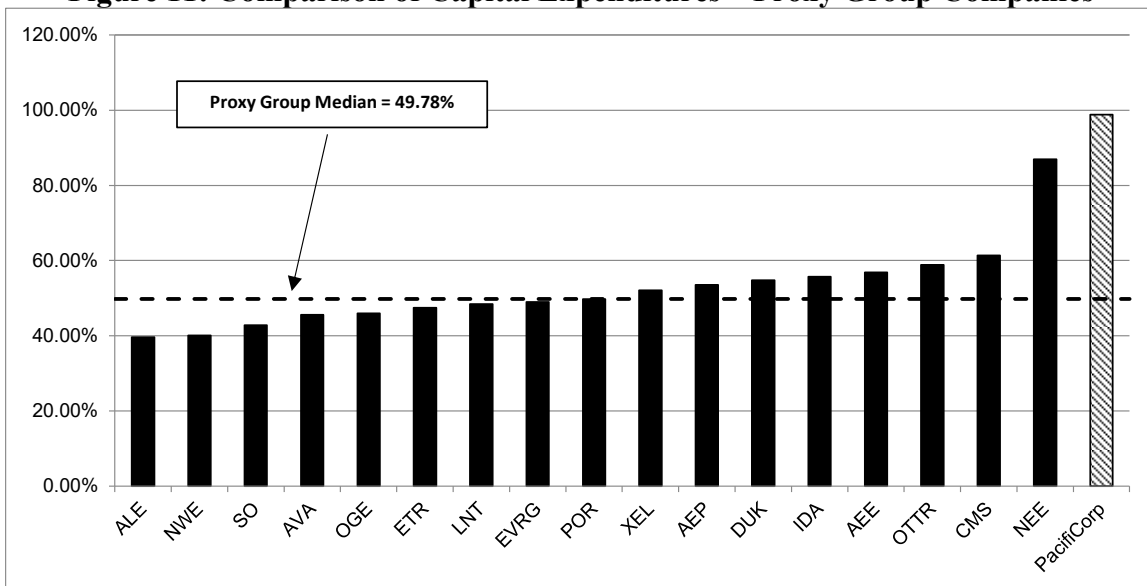
23 A. As shown in Exhibit No. AEB-12, I calculated the ratio of expected capital  
24 expenditures to net utility plant for PacifiCorp and each of the companies in the proxy  
25 group by dividing each company's projected capital expenditures for the period from  
26 2023-2027 by its total net utility plant as of December 31, 2022. As shown in Exhibit  
27 AEB-12 (*see* also Figure 11 below), PacifiCorp's ratio of capital expenditures as a  
28 percentage of net utility plant of 98.86 percent is approximately 1.99 times the

---

<sup>56</sup> S&P Global Ratings, *Assessing U.S. Investor-Owned Utility Regulatory Environments*, at 7 (Aug. 10, 2016).

1 median for the proxy group companies of 49.78 percent. As discussed previously, the  
 2 amount of capital investment that is projected is elevated above a normal capital  
 3 investment plan for PacifiCorp due to the need to meet the requirements of the CETA  
 4 legislation. The risks associated with the implementation of CETA are discussed in  
 5 more detail in Section VIII.C of my testimony. However, the incremental risk  
 6 associated with the Company’s capital investment plan indicates greater risk relative  
 7 to the companies in the proxy group.

**Figure 11: Comparison of Capital Expenditures—Proxy Group Companies**



8 **Q. Does PacifiCorp have a capital tracking mechanism to recover the costs**  
 9 **associated with its capital expenditures plan between rate cases?**

10 A. No. PacifiCorp has not requested nor received approval to recover capital investment  
 11 costs between rate cases utilizing a capital tracking mechanism. While there are  
 12 several legislative requirements to allow for the deferral of costs that are prudently  
 13 incurred, such as the costs of power plants that meet greenhouse gas emission  
 14 reduction standards, CETA costs and decommissioning and remediation of costs

1 associated with coal-fired generation resources, there are no recovery mechanisms  
2 that provide for the recovery of these costs between rate proceedings. PacifiCorp still  
3 depends on rate case filings for all capital cost recovery. Increased capital expenditure  
4 programs like PacifiCorp's often receive cost recovery through infrastructure and  
5 capital trackers in other jurisdictions. As shown in Exhibit No AEB-13,  
6 approximately 75 percent of the proxy group utilities recover costs through capital  
7 tracking mechanisms. Since PacifiCorp does not currently have a capital tracking  
8 mechanism, PacifiCorp's risk relative to the proxy group is significantly increased.

9 **Q. What are your conclusions regarding the effect of the PacifiCorp's capital**  
10 **spending requirements on its risk profile and cost of capital?**

11 A. PacifiCorp's capital expenditure requirements as a percentage of net utility plant are  
12 increasing and will continue over the next few years. Additionally, unlike a number  
13 of the operating subsidiaries of the proxy group, PacifiCorp does not have a  
14 comprehensive capital tracking mechanism to recover projected capital expenditures.  
15 Therefore, PacifiCorp's plans for increased capital expenditures and limited ability to  
16 recover the capital investment on an as-incurred basis results in a risk profile that is  
17 greater than that of the proxy group and supports an ROE toward the higher end of  
18 the reasonable range of ROEs.

19 **B. Regulatory Risk**

20 **Q. How does the regulatory environment affect investors' risk assessments?**

21 A. The ratemaking process is premised on the principle that, for investors and companies  
22 to commit the capital needed to provide safe and reliable utility services, the subject  
23 utility must have the opportunity to recover invested capital and the market-required

1 return on such capital. Regulatory commissions recognize that because utility  
2 operations are capital intensive, regulatory decisions should enable the utility to  
3 attract capital at reasonable terms, which balances the long-term interests of investors  
4 and customers. In that respect, the regulatory framework in which a utility operates is  
5 one of the most important factors considered in both debt and equity investors' risk  
6 assessments.

7 Because investors have many investment alternatives, even within a given  
8 market sector, the Company's authorized returns must be adequate on a relative basis  
9 to ensure their ability to attract capital under a variety of economic and financial  
10 market conditions. From the perspective of debt investors, the authorized return  
11 should enable the Company to generate the cash flow needed to meet their near-term  
12 financial obligations, make the capital investments needed to maintain and expand  
13 their systems, and maintain sufficient levels of liquidity to fund unexpected events.  
14 This financial liquidity must be derived not only from internally generated funds, but  
15 also from efficient access to capital markets.

16 From the perspective of equity investors, the authorized return must be  
17 adequate to provide a risk-comparable return on the equity portion of the Company's  
18 capital investments. Because equity investors are the residual claimants on the  
19 Company's cash flows (that is, debt interest must be paid prior to any equity  
20 dividends), equity investors are particularly concerned with the regulatory framework  
21 in which a utility operates and its effect on future earnings and cash flows.

1 **Q. How do credit rating agencies consider regulatory risk in establishing a**  
2 **company's credit rating?**

3 A. Both S&P and Moody's consider the overall regulatory framework in establishing  
4 credit ratings. Moody's establishes credit ratings based on four key factors: (1)  
5 regulatory framework; (2) the ability to recover costs and earn returns; (3)  
6 diversification; and (4) financial strength, liquidity, and key financial metrics. Of  
7 these criteria, regulatory framework and the ability to recover costs and earn returns  
8 are each given a broad rating factor of 25.00 percent. Therefore, Moody's assigns  
9 regulatory risk a 50.00 percent weighting in the overall assessment of business and  
10 financial risk for regulated utilities.<sup>57</sup>

11 S&P also identifies the regulatory framework as an important factor in credit  
12 ratings for regulated utilities, stating: "One significant aspect of regulatory risk that  
13 influences credit quality is the regulatory environment in the jurisdictions in which a  
14 utility operates."<sup>58</sup> S&P identifies four specific factors that it uses to assess the credit  
15 implications of the regulatory jurisdictions of investor-owned regulated utilities: (1)  
16 regulatory stability; (2) tariff-setting procedures and design; (3) financial stability;  
17 and (4) regulatory independence and insulation.<sup>59</sup>

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<sup>57</sup> Moody's Investors Service, Rating Methodology: Regulated Electric and Gas Utilities, June 23, 2017, at 4.

<sup>58</sup> Standard & Poor's Global Ratings, Ratings Direct, U.S. and Canadian Regulatory Jurisdictions Support Utilities' Credit Quality—But Some More So Than Others, at 2 (June 25, 2018).

<sup>59</sup> *Id.*, at 1.



1 **Q. How does the regulatory environment in which a utility operates affect its access**  
2 **to and cost of capital?**

3 A. The regulatory environment can significantly affect both the access to, and cost of  
4 capital in several ways. First, the proportion and cost of debt capital available to  
5 utility companies are influenced by the rating agencies' assessment of the regulatory  
6 environment. As noted by Moody's, "[f]or rate regulated utilities, which typically  
7 operate as a monopoly, the regulatory environment and how the utility adapts to that  
8 environment are the most important credit considerations."<sup>60</sup> Moody's has further  
9 highlighted the relevance of a stable and predictable regulatory environment to a  
10 utility's credit quality, noting: "[b]roadly speaking, the Regulatory Framework is the  
11 foundation for how all the decisions that affect utilities are made (including the  
12 setting of rates), as well as the predictability and consistency of decision-making  
13 provided by that foundation."<sup>61</sup>

14 **Q. Have you conducted any analysis of the regulatory framework in Washington**  
15 **relative to the jurisdictions in which the companies in your proxy group**  
16 **operate?**

17 A. Yes. I have evaluated the regulatory framework in Washington considering two  
18 factors which are important to ensuring PacifiCorp maintains access to capital at  
19 reasonable terms. As I will discuss in more detail below, the two factors are: 1) cost  
20 recovery mechanisms which allow a utility to recover costs in a timely manner  
21 between rate cases and provide the utility the opportunity to earn its authorized

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<sup>60</sup> Moody's Investors Service, Rating Methodology: Regulated Electric and Gas Utilities, at 6 (June 23, 2017).

<sup>61</sup> *Id.*

1 return; and 2) comparable return standard because an awarded ROE that is  
2 significantly below the ROEs awarded to other utilities with comparable risks can  
3 affect the ability of a utility to attract capital at reasonable terms. The results of these  
4 analyses demonstrate that PacifiCorp has greater regulatory risk relative to the proxy  
5 group.

6 ***1. Cost Recovery Mechanisms***

7 **Q. Have you conducted any analysis to compare the cost recovery mechanisms of**  
8 **Washington to the cost recovery mechanisms approved in the jurisdictions in**  
9 **which the companies in your proxy group operate?**

10 A. Yes. I selected four mechanisms that are important to provide a regulated utility an  
11 opportunity to earn its authorized ROE. These are: 1) fuel cost recovery; 2) test year  
12 convention (i.e., forecast vs. historical); 3) use of revenue decoupling mechanisms or  
13 other clauses that mitigate volumetric risk; and 4) prevalence of capital cost recovery  
14 between rate cases. The results of this regulatory risk assessment are shown in Exhibit  
15 No AEB-13 and are summarized below.

16 1. Fuel Cost Recovery: PacifiCorp has a Power Cost Adjustment Mechanisms  
17 (PCAM) to recover power costs. However, while traditional fuel cost recovery  
18 mechanisms allow all variances between projected fuel costs and actual fuel costs  
19 to be recovered from or refunded to customers, the PCAM for PacifiCorp has a  
20 deadband of \$4 million for power cost variances and asymmetrical tiered sharing  
21 bands that further reduce actual recovery of net power costs. Power cost variances  
22 between \$4 and \$10 million are shared asymmetrically with customers. Positive  
23 variances are allocated 50 percent to customers and 50 percent to PacifiCorp

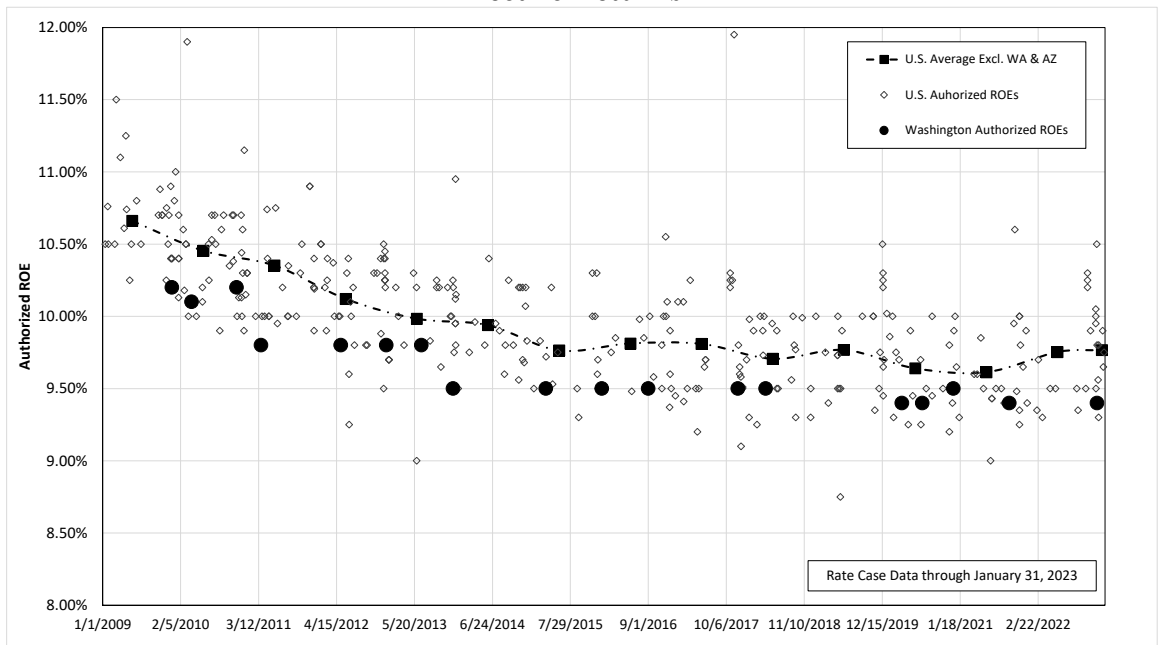
1 while negative variances are allocated 75 percent to customers and 25 percent to  
2 PacifiCorp. Moreover, positive and negative variances in excess of \$10 million  
3 are allocated 90 percent to customers and 10 percent to PacifiCorp. As a result,  
4 the PCAM does not fully mitigate the power cost risk for PacifiCorp.

5 In this proceeding, PacifiCorp is proposing to recover the full costs of fuel  
6 and purchased power. As shown in Exhibit No. AEB-13, the full recovery of fuel  
7 and power costs is consistent with the recovery mechanisms that are relied upon  
8 by the majority of the proxy group operating companies. According to S&P  
9 Capital IQ Pro, there are only eight states (*i.e.*, Arizona, Idaho, Missouri,  
10 Montana, Oregon, Vermont, Washington and Wyoming) that have fuel cost  
11 recovery mechanisms with sharing bands. The remaining 42 states either have  
12 restructured and the electric utilities do not own generation or have fuel cost  
13 recovery mechanisms with a true-up between actual and forecasted fuel costs.  
14 Finally, 88.24 percent of the operating companies held by my proxy group are  
15 allowed to pass through fuel costs and purchased power costs directly to  
16 customers, without deadbands and sharing bands. To the extent that PacifiCorp's  
17 request to fully recover all power costs were not to be approved, this would result  
18 in higher overall business and financial risk as compared with the proxy group.  
19 Fuel and purchased power costs typically account for 50 - 60 percent of the total  
20 operating costs for a regulated utility. Therefore, a mechanism that does not  
21 provide for full recovery of these costs increases the financial risk for the  
22 Company.



1 returns authorized in Washington for electric companies. As shown in Figure 12, the  
2 authorized returns for electric utilities in Washington have been at the low end of the  
3 range produced by the authorized ROEs from other state jurisdictions for 2009  
4 through January 2023.

**Figure 12: Comparison of Washington and U.S. Authorized Vertically Integrated Electric Returns**



5 **Q. Should the Commission be concerned about authorizing equity returns that are**  
6 **at the low end of the range established by other state regulatory jurisdictions?**

7 A. Yes. Placing PacifiCorp at the low end of authorized ROEs across the country can  
8 negatively affect the Company's access to capital and the overall cost of capital over  
9 the longer term. As I discuss below, the recent negative rate case determination,  
10 including a below average authorized ROE, for Arizona Public Service Company  
11 (APS) resulted in a 24 percent decline in the share price for Pinnacle West Capital  
12 Corporation (PNW), increasing the overall COE for that company.

1                   Second, as noted in Sections V and VII, interest rates have increased  
2 significantly in 2022 due to inflation and the Federal Reserve’s normalization of  
3 monetary policy which is expected to continue into 2023. While historical authorized  
4 ROEs provide investors with a range of recent returns, it is important to recognize  
5 that the recent decisions do not take into consideration the effect of the recent change  
6 in market conditions on the investor required return. Therefore, it is important that the  
7 Commission consider the results of forward looking methodologies such as the  
8 CAPM, ECAPM, and Bond Yield Plus Risk Premium which rely directly on current  
9 and projected interest rates in the estimation of the COE.

10 **Q. Do credit rating agencies consider the authorized ROE in the overall risk**  
11 **assessment of a utility?**

12 A. Yes, they do. To the extent that the returns in a jurisdiction are lower than the returns  
13 that have been authorized more broadly, credit rating agencies will consider this in  
14 the overall risk assessment of the regulatory jurisdiction in which the company  
15 operates. It is important to consider credit ratings because they affect the overall cost  
16 of borrowing, and they act as a signal to equity investors about the risk of investing in  
17 the equity of a company. Therefore, lower credit ratings can affect both the cost of  
18 debt and equity. Examples of recent credit rating agency responses include ALLETE,  
19 Inc., and PNW. Moody’s downgraded ALLETE, Inc. from A3 to Baa1 primarily  
20 based on the less than favorable outcome in Minnesota Power’s last fully litigated  
21 rate case in Minnesota which included what Moody’s noted was a below average

1 authorized ROE of 9.25 percent.<sup>62</sup> In addition, FitchRatings recently downgraded and  
2 maintained a negative outlook for APS and its parent, PNW, following the hearings  
3 conducted by the Arizona Corporation Commission (ACC) in October 2021 regarding  
4 APS' current rate case proceeding.<sup>63</sup> While the ACC had not issued a final order in  
5 APS' rate case at the time, FitchRatings noted that the developments at the hearing in  
6 October indicate a likely credit negative outcome that will negatively affect the  
7 financial metrics of both APS and PNW. It is also important to note that both  
8 Standard & Poor's and Moody's downgraded PNW's and APS' credit rating and put  
9 the companies on credit watch negative following the Commission's November vote  
10 that officially authorized the 8.70 percent ROE.<sup>64</sup>

11 **Q. Are you aware of any utilities whose market data has been affected by adverse**  
12 **rate case developments?**

13 A. Yes, I am. The market has responded negatively to recent returns authorized by the  
14 ACC. As noted above, the most recent ROE determination in Arizona was for APS.  
15 The Recommended Opinion and Order (ROO) issued in the APS rate proceeding on  
16 August 2, 2021, recommended an ROE of 9.16 percent. In October 2021, that  
17 recommendation was amended to reduce the company's ROE to 8.70 percent. The  
18 final ROE that was established for APS was 8.70 percent.<sup>65</sup> The market reacted

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<sup>62</sup> Moody's Investors Service, Credit Opinion: ALLETE, Inc. Update following downgrade, at 3 (Apr. 3, 2019).

<sup>63</sup> FitchRatings, Fitch Downgrades Pinnacle West Capital & Arizona Public Service to 'BBB+'; Outlooks Remain Negative, (Oct. 12, 2021).

<sup>64</sup> See S&P Capital IQ and Moody's Investors Service, "Rating Actions: Moody's downgrades Pinnacle West to Baa1 and Arizona Public Service to A3; outlook negative," (Nov. 17, 2021).

<sup>65</sup> In the Matter of the Application of Arizona Public Service Company for a Hearing to Determine the Fair Value of the Utility Property of the Company for Ratemaking Purposes, to Fix a Just and Reasonable Rate of Return Thereon, to Approve Rate Schedules Designed to Develop Such Return, Arizona Corporation Commission Docket No. E-01345A-19-0236, Commissioner Olson Proposed Amendment No. 1 to the Recommended Opinion and Order (Oct. 4, 2021).

1 strongly to the proposed order and subsequent amendment and final decision.  
2 Guggenheim Securities LLC, an equity analyst that follows PNW, the parent  
3 company of APS, informed its clients that

4 [T]he “Arizona Corporation Commission is now confirmed to be  
5 the single most value destructive regulatory environment in the  
6 country as far as investor-owned utilities are concerned”.<sup>66</sup>  
7 S&P Global Market Intelligence (Regulatory Research Associates) noted that  
8 this decision was “among the lowest ROEs RRA had encountered in its coverage of  
9 vertically integrated electric utilities in the past 30 years.”<sup>67</sup>

10 As shown in Figure 13 below, PNW’s stock price declined approximately 24  
11 percent from August 2, 2021 to November 4, 2021 following the issuance of the  
12 ROO, which recommended an ROE of 9.16 percent, and then the subsequent  
13 amendment to that opinion recommending the 8.70 percent ROE ultimately adopted  
14 by the ACC. Moreover, the Value Line five-year projected EPS growth rates for this  
15 company have fallen from 5.0 percent in July 2021, prior to the deliberations in the  
16 rate proceeding to “Nil” in October 2021 and most recently 0.5 percent in January 20,  
17 2023. For PNW, the APS decision has had a significant effect on the share price and  
18 growth rate assumptions used in the DCF model.

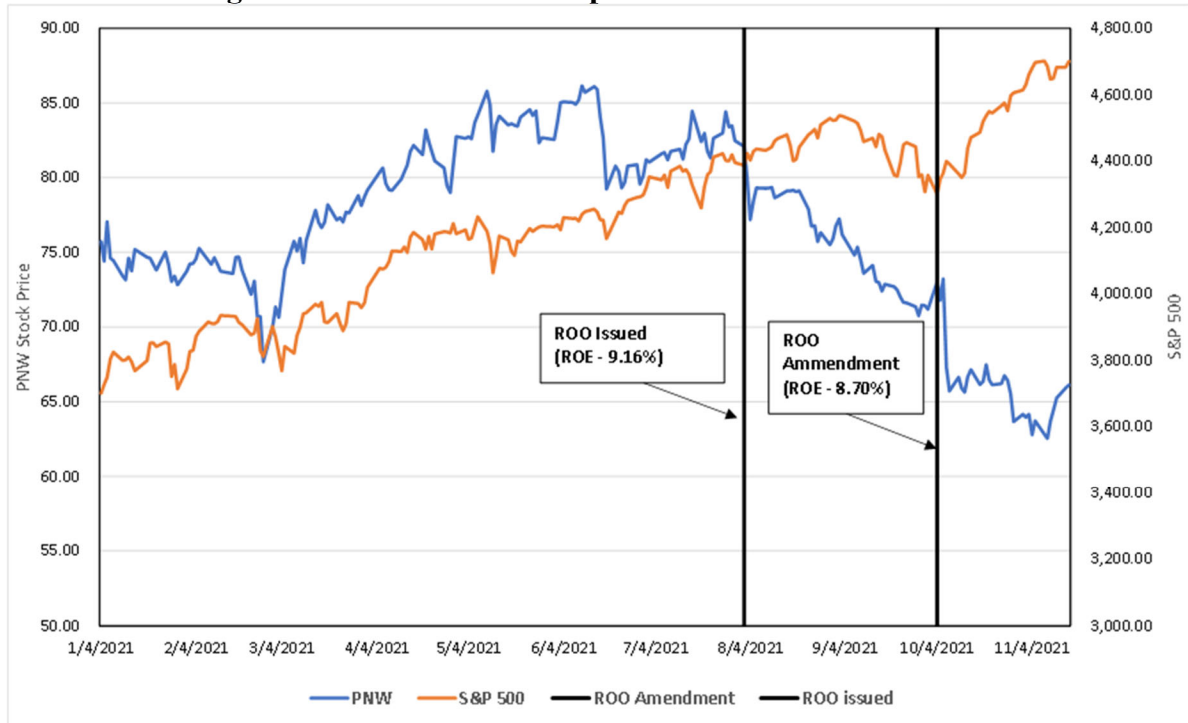
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<sup>66</sup> S&P Global Market Intelligence, Pinnacle West shares tumble after regulators slash returns in rate case, (Oct. 7, 2021).

<sup>67</sup> S&P Global Market Intelligence, RRA Regulatory Focus, Commission accords Arizona Public Service Company a well below average ROE, (Oct. 8, 2021).



**Figure 13: Pinnacle West Capital Stock Price VS. S&P 500**



1 **Q. How should the Commission use the information regarding authorized ROEs in**  
2 **other jurisdictions in determining the ROE for PacifiCorp?**

3 A. As discussed above, the companies in the proxy group operate in multiple  
4 jurisdictions across the U.S. Since PacifiCorp must compete directly for capital with  
5 investments of similar risk, it is appropriate to review the authorized ROEs in other  
6 jurisdictions. The comparison is important because investors are considering the  
7 authorized returns across the U.S. and are likely to invest equity in those utilities with  
8 the highest returns.

9 **Q. Has RRA provided recent commentary regarding its regulatory ranking for**  
10 **PacifiCorp?**

11 A. Yes. In December 2022, RRA updated its evaluation of the regulatory environment in  
12 Washington and noted the following:

1 The regulatory environment in Washington is, on balance, somewhat  
2 more restrictive than average from an investor viewpoint. The state's  
3 electric utilities remain vertically integrated and are regulated under a  
4 traditional regulatory paradigm. Rate case activity has been fairly  
5 robust, and authorized equity returns, some of which were approved  
6 following settlements, have been below prevailing industry averages  
7 when established. In addition, while there have been limited  
8 exceptions, the commission has primarily relied upon average rate  
9 base valuations and historical test years, each of which can exacerbate  
10 regulatory lag and render it difficult for the utility to earn the  
11 authorized return. On a more constructive note, the WUTC has  
12 approved the implementation of revenue decoupling mechanisms for  
13 most of the state's electric and gas utilities, and for one utility, has  
14 adopted a rate plan that provides for annual increases in allowed  
15 revenue per customer for the duration of the rate-plan period. Power-  
16 cost adjustment mechanisms, in effect for all of the state's electric  
17 utilities, contain dead-bands and sharing mechanisms that, while  
18 allowing the company an opportunity to retain a benefit, also limit the  
19 costs that may be recovered from ratepayers. In addition, for one  
20 utility operating in the state, recent rulings have disallowed purchased  
21 power costs from qualifying facilities located outside the state. In May  
22 2017, RRA performed a comprehensive audit of its regulatory  
23 rankings. The ranking accorded Washington did not change as a result  
24 of this process. RRA continues to accord Washington an Average/3  
25 ranking.

26 **Q. What are your conclusions regarding the perceived risks related to the**  
27 **Washington regulatory environment?**

28 A. As discussed throughout this section of my testimony, both Moody's and S&P have  
29 identified the supportiveness of the regulatory environment as an important  
30 consideration in developing their overall credit ratings for regulated utilities. RRA  
31 notes that Washington is more restrictive than other commissions on certain factors,  
32 by for instance, not permitting full cost recovery through fuel cost recovery  
33 mechanisms or capital cost recovery trackers, and using modified historical test years.  
34 Additionally, authorized ROEs in Washington have been below the average  
35 authorized ROEs for vertically integrated electric utilities across the U.S. For these

1 reasons, I conclude that without the modifications sought by PacifiCorp to its  
2 mechanisms, the Company's business risks are somewhat higher than the proxy group  
3 which should be reflected in the authorized ROE.

4 **C. Generation Ownership / Washington Clean Energy Transformation Act**

5 **Q. How does the business risk of vertically integrated electric utilities compare to**  
6 **the business risk of other regulated utilities?**

7 A. According to Moody's, generation ownership causes vertically integrated electric  
8 utilities to have higher business risk than either electric transmission and distribution  
9 companies, or natural gas distribution or transportation companies.<sup>68</sup> As a result of  
10 this higher business risk, integrated electric utilities typically require a higher ROE or  
11 percentage of equity in the capital structure than other electric or gas utilities.

12 **Q. Are there other risk factors specific to vertically integrated electric utilities that**  
13 **the credit rating agencies consider when determining the credit rating of a**  
14 **company that owns generation?**

15 A. Yes. As discussed above, Moody's establishes credit ratings based on four key  
16 factors: (1) regulatory framework; (2) the ability to recover costs and earn returns;  
17 (3) diversification; and (4) financial strength, liquidity and key financial metrics. The  
18 third factor diversification, which Moody's assigns a 10.00 percent weighting in the  
19 overall assessments of a company's business risk, considers the fuel source diversity  
20 of a utility with generation. Moody's notes:

21 For utilities with electric generation, fuel source diversity can mitigate  
22 the impact (to the utility and to its rate-payers) of changes in  
23 commodity prices, hydrology and water flow, and environmental or

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<sup>68</sup> Moody's Investors Service, *Rating Methodology: Regulated Electric and Gas Utilities*, at 21-22 (June 23, 2017).

1 other regulations affecting plant operations and economics. We have  
2 observed that utilities' regulatory environments are most likely to  
3 become unfavorable during periods of rapid rate increases (which are  
4 more important than absolute rate levels) and that fuel diversity leads  
5 to more stable rates over time.

6 For that reason, fuel diversity can be important even if fuel and  
7 purchased power expenses are an automatic pass-through to the  
8 utility's ratepayers. Changes in environmental, safety and other  
9 regulations have caused vulnerabilities for certain technologies and  
10 fuel sources during the past five years. These vulnerabilities have  
11 varied widely in different countries and have changed over time.<sup>69</sup>

12 **Q. Is PacifiCorp's generation portfolio currently in a state of transition?**

13 A. Yes. As further discussed in the testimony of Company witness Matthew D. McVee,  
14 the Company is taking near-term actions to remove certain coal units from  
15 Washington rates, invest in new renewable generation, and invest in associated  
16 transmission.

17 **Q. What is your understanding of the effect of CETA on PacifiCorp's operations?**

18 A. In May 2019 Washington State passed CETA, which requires all electric utilities to  
19 eliminate coal-fired generation from their allocation of electricity by December 31,  
20 2025, to be carbon-neutral by January 1, 2030, through a combination of non-emitting  
21 electric and renewable generation, and/or alternative compliance options, and by 2045  
22 requires that 100 percent of electric generation come from non-emitting and  
23 renewable resources. The investor-owned electric utilities in the state are required to  
24 develop implementation plans every four years, action plans, and interim targets to  
25 meet the standards between 2030 and 2045. In addition, the law requires that the  
26 investor-owned utilities meet the interim targets without exceeding a cap on weather

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<sup>69</sup> *Id.* at 16.

1 adjusted sales revenues to customers of two percent more than the previous year  
2 without demonstrating to the Commission that they have maximized investment in  
3 renewable resources and non-emitting resources prior to using alternative compliance  
4 measures.<sup>70</sup> Failure to meet these requirements and investor-owned utilities must pay  
5 an administrative penalty in the amount of one hundred dollars, times generation  
6 specific multipliers, for every megawatt-hour of electricity generation that does not  
7 come from non-emitting electric generation or a renewable resource.<sup>71</sup>

8 **Q. Has the Company developed plans to meet these targets?**

9 A. Yes. The Company has demonstrated its commitment to meeting these public policy  
10 goals. Specifically, PacifiCorp filed the Company's first Clean Energy  
11 Implementation Plan (CEIP) in January 2022, which outlined the Company's action  
12 plan over the four-year period of 2022 to 2025 to meet CETA's clean energy goals.  
13 The basis for the Company's CEIP was the 2021 Integrated Resource Plan which  
14 outlined its long-term resource plan that includes substantial investment in  
15 renewables generation from 2022 through 2040. For example, as discussed in  
16 PacifiCorp's update to its 2021 IRP, the Company has planned to add 5,297 MW of  
17 new solar generation, 4,160 MW of new wind generation, 5,546 MW of new storage  
18 resources and 500 MW of advanced nuclear generation.<sup>72</sup> Moreover, the Company  
19 plans to integrate the new renewable generation resources through significant  
20 investments that strengthen and modernize its transmission network. Finally,  
21 PacifiCorp plans to retire 14 of its 22 remaining coal units by 2030 and 19 of the 22

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<sup>70</sup> Senate Bill 5119, May 7, 2019, at 20.

<sup>71</sup> Senate Bill 5119, May 7, 2019, at 23.

<sup>72</sup> PacifiCorp 2021 Integrated Resource Plan Update, March 31, 2022, at 3.

1 remaining units by 2040 while also retiring 1,554 MW of natural gas generation by  
2 2040.<sup>73</sup> It is important to note that consistent with CETA, while PacifiCorp will still  
3 have coal generation assets operating after 2025, PacifiCorp will remove all coal  
4 generation assets from Washington's allocation of electricity.<sup>74</sup> Therefore, the  
5 Company has outlined significant plans to meet the clean energy goals of CETA.

6 **Q. Have the credit rating agencies commented on PacifiCorp's capital spending**  
7 **plans?**

8 A. Yes. S&P has noted that PacifiCorp's elevated capital spending plan, which includes  
9 plans to invest \$2.5 billion in 3,900 MW of new and repowered wind and solar  
10 generation, will contribute to negative cash flow for the Company over the near-  
11 term.<sup>75</sup> Thus, S&P expects the capital spending plan will be partially funded with  
12 debt. This highlights the importance of a constructive regulatory outcome in this  
13 proceeding to sustain credit quality as the Company implements its CEIP.

14 **Q. How does PacifiCorp's generation investment plan affect its business risk?**

15 A. PacifiCorp's plan includes significant investment in building transmission and adding  
16 new renewable generation. This significant investment in transmission and renewable  
17 energy will as S&P notes require continued access to capital markets, which  
18 highlights the importance of granting PacifiCorp an allowed ROE and equity ratio  
19 that is sufficient to attract capital at reasonable terms.

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<sup>73</sup> PacifiCorp 2021 Integrated Resource Plan Update, March 31, 2022, at 12-13.

<sup>74</sup> PacifiCorp 2021 Integrated Resource Plan, September 1, 2021, at 290.

<sup>75</sup> S&P Global Ratings, "PacifiCorp", at 1-2 (April 21, 2022).

1 **Q. What are your conclusions regarding the perceived risks related PacifiCorp's**  
2 **CEIP to meet the clean energy goals of CETA?**

3 A. PacifiCorp recently outlined plans for reshaping its generation portfolio to meet the  
4 clean energy goals of CETA. While PacifiCorp intends to improve fuel diversity and  
5 reduce risk over the long-run, the plans will require continued access to capital  
6 markets to finance the new investments. PacifiCorp's proposed transmission and  
7 generation investment plans, and the requirements of CETA increase the overall risk  
8 profile as compared with the proxy group.

9 **IX. CAPITAL STRUCTURE**

10 **Q. Is the capital structure of the PacifiCorp an important consideration in the**  
11 **determination of the appropriate ROE?**

12 A. Yes, it is. Assuming other factors equal, a higher debt ratio increases the risk to  
13 investors. For debt holders, higher debt ratios result in a greater portion of the  
14 available cash flow being required to meet debt service, thereby increasing the risk  
15 associated with the payments on debt. The result of increased risk is a higher interest  
16 rate. The incremental risk of a higher debt ratio is more significant for common  
17 equity shareholders. Common shareholders are the residual claimants on the cash  
18 flow of PacifiCorp. Therefore, the greater the debt service requirement, the less cash  
19 flow available for common equity holders.

20 **Q. What is PacifiCorp's proposed capital structure?**

21 A. As discussed in the direct testimony of Company witness Nikki L. Kobliha,  
22 PacifiCorp is proposing a capital structure that is composed of 51.27 percent common  
23 equity, 0.01 percent preferred stock and 48.72 percent long-term debt.

1 **Q. Did you conduct any analysis to determine if this requested equity ratio was**  
2 **reasonable?**

3 A. Yes, I did. I reviewed PacifiCorp's proposed capital structure and the capital  
4 structures of the utility operating subsidiaries of the proxy companies. Because the  
5 ROE is set based on the return that is derived from the risk-comparable proxy group,  
6 it is reasonable to look to the proxy group average capital structure to benchmark the  
7 equity ratio for PacifiCorp.

8 **Q. Please discuss your analysis of the capital structures of the proxy group**  
9 **companies.**

10 A. I calculated the mean proportions of common equity, long-term debt, and preferred  
11 equity over the most recent eight quarters<sup>76</sup> for each of the companies in the proxy  
12 group at the operating subsidiary level. My analysis of the capital structures of the  
13 proxy group companies is provided in Exhibit No. AEB-14. As shown in Exhibit No.  
14 AEB-14, the equity ratios for the proxy group at the operating utility company level  
15 ranged from 45.95 percent to 61.06 percent with a mean of 52.88 percent and a  
16 median of 53.18 percent. PacifiCorp's proposed equity ratio of 51.27 percent is lower  
17 than the average equity ratios for the utility operating subsidiaries of the proxy group  
18 companies and is therefore reasonable.

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<sup>76</sup> The source data for this analysis is the operating company data provided in FERC Form 1 reports. Due to the timing of those filings, my average capital structure analysis uses the quarterly capital structures reported for the proxy group companies for the period from the fourth quarter of 2020 through the third quarter of 2022.



1 **Q. Are there other factors to be considered in setting PacifiCorp’s capital**  
2 **structure?**

3 A. Yes, there are other factors that should be considered in setting the Company’s capital  
4 structure, namely the challenges that the credit rating agencies have highlighted as  
5 placing pressure on the outlook for utilities in 2023.

6 For example, Moody’s recently revised its 2023 outlook for the regulated gas and  
7 electric utilities sector to “negative” based on ongoing challenges of inflation,  
8 increasing interest rates and higher natural gas prices. Moody’s noted that these  
9 challenges increase the pressure on customer affordability, and thus face heightened  
10 public scrutiny and the ability of utilities to promptly recover their costs. Moody’s  
11 concluded that regulated utilities’ financial metrics are already under pressure with  
12 little cushion, and that sustained capital spending is likely as utilities continue  
13 progress towards emissions reductions and net-zero goals. Moody’s noted that the  
14 outlook could return to stable if regulatory support remains intact, natural gas prices  
15 are at a level where utilities are able to recover their fuel and purchased power costs  
16 without delay beyond 12 months, overall inflation moderates, interest rates stabilize  
17 and/or utilities’ aggregate funds from operations-to-debt ratio remains between 14  
18 percent and 15 percent.<sup>77</sup>

19 Fitch Ratings (Fitch) also highlights similar factors identified by Moody’s as  
20 challenging utilities’ outlook for 2023, stating that the sector faces mounting cost  
21 pressures due to “elevated commodity prices, inflationary headwinds and rising

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<sup>77</sup> Moody’s Investors Service, Outlook. 2023 outlook negative due to higher natural gas prices, inflation and rising interest rates. (Nov. 10, 2022); Moody’s Investors Service. Outlook, Sector In-Depth. Inflation, high natural gas prices complicate prospects for supportive rate increases. (Nov. 11, 2022).

1 interest costs,” and that some offset in managing these headwinds include “higher  
2 authorized ROEs and the use of tools such as securitization of under-recovered fuel  
3 balances.”<sup>78</sup>

4 Likewise, S&P also continues to maintain a negative outlook for the utility industry,  
5 noting that downgrades have outpaced upgrades for the third consecutive year in 2022  
6 with a median investor-owned utility credit rating of “BBB+”.<sup>79</sup> Further, S&P expects  
7 the industry to have negative discretionary cash flow as a result of significant capital  
8 spending and consistent dividends.<sup>80</sup> Therefore, the utility industry will need ongoing  
9 access to capital markets to fund the capital expenditures. However, S&P notes that  
10 inflation, rising interests rates and decreasing equity prices may “hamper” consistent  
11 access to capital markets and result in additional pressure on cash flows.<sup>81</sup> Moreover,  
12 S&P indicates that if inflation risks persist over the near-term and customer bills  
13 increase, regulatory credit support could decrease resulting in weaker financial  
14 metrics for the industry:

15 Over the past decade the industry’s financial measures have weakened  
16 from a combination of rising capital spending, regulatory lag, and  
17 lower authorized return on equity (ROE). The industry’s return on  
18 capital was about 6% a decade ago and today is closer to 4%. More  
19 recently, we have seen instances where not only is the authorized ROE  
20 lowered but also the equity ratio is lowered. These results have  
21 weakened the industry’s financial measures, pressuring credit quality.  
22 Under our base case of moderating inflationary risks during 2023, we  
23 expect the industry's credit measures to generally remain flat.  
24 However, if inflationary risks persist, it may further pressure the

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<sup>78</sup> Fitch Ratings. North American Utilities, Power & Gas Outlook 2023. at 1-2 (Dec. 7, 2022).

<sup>79</sup> S&P Global Ratings. Industry Top Trends, North American Regulated Utilities: The industries outlook remains negative. (Jan. 23, 2023).

<sup>80</sup> *Id.*

<sup>81</sup> *Id.*

1 customer bill, potentially decreasing the level of regulatory credit  
2 support, weakening the industry's financial performance.<sup>82</sup>

3 The credit ratings agencies' continued concerns over the negative effects of inflation  
4 and increased capital expenditures underscore the importance of maintaining adequate  
5 cash flow metrics for the industry as a whole, and PacifiCorp in particular in the context  
6 of this proceeding.

7 **Q. Is there a relationship between the equity ratio and the authorized ROE?**

8 A. Yes. The equity ratio is the primary indicator of financial risk for a regulated utility  
9 such as PacifiCorp. To the extent the equity ratio is reduced, it is necessary to  
10 increase the authorized ROE to compensate investors for the greater financial risk  
11 associated with a lower equity ratio.

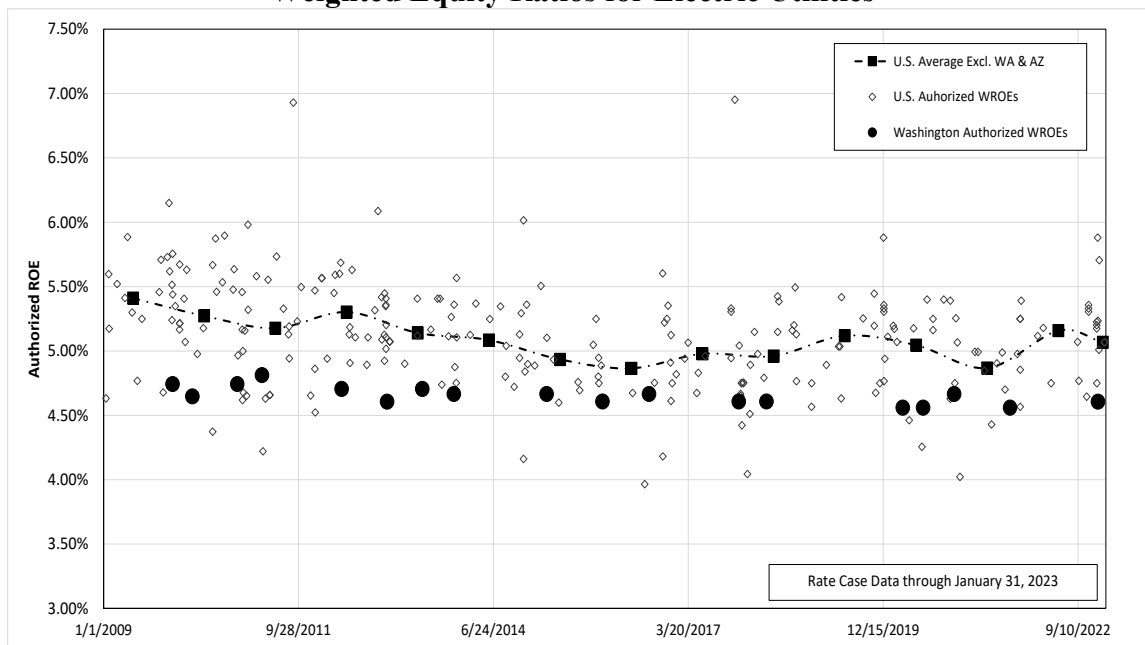
12 **Q. Have you conducted an analysis to examine how the Commission's recent  
13 authorized equity ratios and authorized ROEs compare to those authorized in  
14 other jurisdictions?**

15 A. Yes. As shown in Figure 14 below, I compared the authorized WROEs (*i.e.*,  
16 authorized ROE times the authorized equity ratio) for integrated electric utilities in  
17 Washington to the authorized WROEs in other jurisdictions since January 2009.  
18 As shown in Figure 14, the authorized WROEs for integrated electric utilities in  
19 Washington have been at the bottom of the range of WROEs authorized by state  
20 jurisdictions.

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<sup>82</sup> *Id.*

**Figure 14: Comparison of Washington and U.S. Authorized Weighted Equity Ratios for Electric Utilities<sup>83</sup>**



1 **Q. Is it appropriate to consider the WROE that has been authorized in other**  
 2 **jurisdictions when considering the appropriate equity ratio for Washington?**

3 **A.** Yes. One of the most important principles in determining the ROE for a company is  
 4 to ensure the company has the opportunity to earn a reasonable return on capital that  
 5 is consistent with the returns available on investments of comparable risk. While it is  
 6 referenced most often in the discussion of the appropriate ROE, it is equally as  
 7 important to consider the equity ratio. It is the combination of the equity ratio and the  
 8 authorized ROE that define the return to investors. Therefore, the Commission must  
 9 consider the equity ratio as well as the authorized ROE in establishing a risk-  
 10 comparable return.

<sup>83</sup> Rate cases in Arkansas, Florida, Indiana, and Michigan have been excluded from Figure 15 since the authorized capital structure approved in the cases includes deferred taxes and other credits at zero or low cost. The additional items have the effect of reducing both the equity and debt ratios used to establish the rate of return which, in turn, produces results that are not comparable to allowed equity ratios in other states.

1 **Q. What is your conclusion regarding an appropriate capital structure for**  
2 **PacifiCorp?**

3 A. Considering the actual capital structures of the proxy group operating companies, I  
4 believe that PacifiCorp's proposed common equity ratio of 51.27 percent is  
5 reasonable. The proposed equity ratio is well within the range established by the  
6 capital structures of the utility operating subsidiaries of the proxy companies. In  
7 addition, it is reasonable to rely on a higher equity ratio than PacifiCorp may have  
8 relied on in prior cases as a result of: (a) the cash flow concerns raised by credit rating  
9 agencies as a result of increased inflation, interest rates and capital expenditures; and  
10 (b) PacifiCorp's above average business risk profile as compared to the proxy group.  
11 The proposed equity ratio in combination with my recommended ROE are reasonable  
12 and would be adequate to support capital attraction on reasonable terms.

13 **X. CONCLUSIONS AND RECOMMENDATION**

14 **Q. What is your conclusion regarding a fair ROE for PacifiCorp?**

15 A. Figure 16 below provides a summary of my analytical results for the proxy group.  
16 Based on these results, the qualitative analyses presented in my direct testimony, the  
17 business and financial risks of PacifiCorp compared to the proxy group, and current  
18 and prospective capital market conditions, it is my view that an ROE of 10.30 is  
19 reasonable and would fairly balance the interests of customers and shareholders. This  
20 ROE would enable PacifiCorp to maintain its financial integrity and therefore its  
21 ability to attract capital at reasonable rates under a variety of economic and financial  
22 market conditions, while continuing to provide safe, reliable and affordable electric  
23 utility service to customers in Washington.

**Figure 15: Summary of Analytical Results**

<b><i>Constant Growth DCF</i></b>			
	Mean Low	Mean	Mean High
30-Day Average	8.11%	9.40%	10.39%
90-Day Average	8.25%	9.54%	10.53%
180-Day Average	8.14%	9.44%	10.42%
Constant Growth Average	8.17%	9.46%	10.45%
<b><i>CAPM</i></b>			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Value Line Beta	11.36%	11.37%	11.38%
Bloomberg Beta	10.77%	10.79%	10.81%
Long-term Avg. Beta	10.33%	10.36%	10.38%
<b><i>ECAPM</i></b>			
Value Line Beta	11.64%	11.65%	11.66%
Bloomberg Beta	11.20%	11.22%	11.23%
Long-term Avg. Beta	10.87%	10.89%	10.91%
<b><i>Risk Premium</i></b>			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Risk Premium Results	10.23%	10.28%	10.32%
<b><i>Expected Earnings</i></b>			
	Mean	Median	
Expected Earnings Results	11.25%	11.31%	

- 1 **Q. What is your conclusion with respect to PacifiCorp’s proposed capital structure?**
- 2 A. My conclusion is that PacifiCorp’s proposal to establish a capital structure consisting
- 3 of 51.27 percent common equity, 48.72 percent long-term debt, and 0.01 percent
- 4 preferred equity is reasonable when compared to the capital structures of the
- 5 companies in the proxy group and taking in consideration the effect of inflation and
- 6 increased capital expenditures on the cash flows, and therefore should be adopted.

1 **Q. Does this conclude your direct testimony?**

2 A. Yes.

Exh. AEB-2  
Docket UE-23\_\_\_\_  
Witness: Ann E. Bulkley

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP dba  
PACIFIC POWER & LIGHT COMPANY

Respondent.

Docket UE-23\_\_\_\_

**PACIFICORP**

**EXHIBIT OF ANN E. BULKLEY**

**Resume of Ann E. Bulkley**

**March 2023**



# Ann E. Bulkley

## PRINCIPAL

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Boston

508.981.0866

[Ann.Bulkley@brattle.com](mailto:Ann.Bulkley@brattle.com)

With more than 25 years of experience in the energy industry, Ms. Bulkley specializes in regulatory economics for the electric and natural gas sectors, including rate of return, cost of equity, and capital structure issues.

Ms. Bulkley has extensive state and federal regulatory experience, and she has provided expert testimony on the cost of capital in nearly 100 regulatory proceedings before 32 state regulatory commissions and the Federal Energy Regulatory Commission (FERC).

In addition to her regulatory experience, Ms. Bulkley has provided valuation and appraisal services for a variety of purposes, including the sale or acquisition of utility assets, regulated ratemaking, ad valorem tax disputes, and other litigation purposes. In addition, she has experience in the areas of contract and business unit valuation, strategic alliances, market restructuring, and regulatory and litigation support.

Ms. Bulkley is a Certified General Appraiser licensed in the Commonwealth of Massachusetts and the State of New Hampshire.

Prior to joining Brattle, Ms. Bulkley was a Senior Vice President at an economic consultancy and held senior positions at several other consulting firms.

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### AREAS OF EXPERTISE

- Regulatory Economics, Finance & Rates
- Regulatory Investigations & Enforcement
- Tax Controversy & Transfer Pricing
- Electricity Litigation & Regulatory Disputes
- M&A Litigation

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## EDUCATION

- **Boston University**  
MA in Economics
- **Simmons College**  
BA in Economics and Finance

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## PROFESSIONAL EXPERIENCE

- **The Brattle Group (2022–Present)**  
Principal
- **Concentric Energy Advisors, Inc. (2002–2021)**  
Senior Vice President  
Vice President  
Assistant Vice President  
Project Manager
- **Navigant Consulting, Inc. (1997–2002)**  
Project Manager
- **Reed Consulting Group (1995-1997)**  
Consultant- Project Manager
- **Cahners Publishing Company (1995)**  
Economist

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## SELECTED CONSULTING EXPERIENCE & EXPERT TESTIMONY

### REGULATORY ANALYSIS AND RATEMAKING

Have provided a range of advisory services relating to regulatory policy analysis and many aspects of utility ratemaking, with specific services including:

- Cost of capital and return on equity testimony, cost of service and rate design analysis and testimony, development of ratemaking strategies
- Development of merchant function exit strategies



- Analysis and program development to address residual energy supply and/or provider of last resort obligations
- Stranded costs assessment and recovery  
Performance-based ratemaking analysis and design
- Many aspects of traditional utility ratemaking (e.g., rate design, rate base valuation)

#### **COST OF CAPITAL**

Have provided expert testimony on the cost of capital and capital structure in nearly 100 regulatory proceedings before state and federal regulatory commissions in the United States.

#### **RATEMAKING**

Have assisted several clients with analysis to support investor-owned and municipal utility clients in the preparation of rate cases. Sample engagements include:

- Assisted several investor-owned and municipal clients on cost allocation and rate design issues including the development of expert testimony supporting recommended rate alternatives.
- Worked with Canadian regulatory staff to establish filing requirements for a rate review of a newly regulated electric utility. Along with analyzing and evaluating rate application, attended hearings and conducted investigation of rate application for regulatory staff. And prepared, supported, and defended recommendations for revenue requirements and rates for the company. Additionally, developed rates for gas utility for transportation program and ancillary services.

#### **VALUATION**

Have provided valuation services to utility clients, unregulated generators, and private equity clients for a variety of purposes, including ratemaking, fair value, ad valorem tax, litigation and damages, and acquisition. Appraisal practices are consistent with the national standards established by the Uniform Standards of Professional Appraisal Practice.

Representative projects/clients have included:

- Prepared appraisals of electric utility transmission and distribution assets for ad valorem tax purposes.
- Prepared appraisals of several hydroelectric generating facilities for ad valorem tax purposes.
- Conducted appraisals of fossil fuel generating facilities for ad valorem tax purposes.
- Conducted appraisals of generating assets for the purposes of unwinding sale-leaseback agreements.
- For a confidential utility client, prepared valuation of fossil and nuclear generation assets for financing purposes for regulated utility client.



- Prepared a valuation of a portfolio of generation assets for a large energy utility to be used for strategic planning purposes. Valuation approach included an income approach, a real options analysis, and a risk analysis.
- Assisted clients in the restructuring of NUG contracts through the valuation of the underlying assets. Performed analysis to determine the option value of a plant in a competitively priced electricity market following the settlement of the NUG contract.
- Prepared market valuations of several purchase power contracts for large electric utilities in the sale of purchase power contracts. Assignment included an assessment of the regional power market, analysis of the underlying purchase power contracts, and a traditional discounted cash flow valuation approach, as well as a risk analysis. Analyzed bids from potential acquirers using income and risk analysis approaches. Prepared an assessment of the credit issues and value at risk for the selling utility.
- Prepared appraisal of a portfolio of generating facilities for a large electric utility to be used for financing purposes.
- Prepared fair value rate base analyses for Northern Indiana Public Service Company for several electric rate proceedings. Valuation approaches used in this project included income, cost, and comparable sales approaches.
- Prepared an appraisal of a fleet of fossil generating assets for a large electric utility to establish the value of assets transferred from utility property.
- Conducted due diligence on an electric transmission and distribution system as part of a buy-side due diligence team.
- Provided analytical support for and prepared appraisal reports of generation assets to be used in ad valorem tax disputes.
- Provided analytical support and prepared testimony regarding the valuation of electric distribution system assets in five communities in a condemnation proceeding.
- Prepared feasibility reports analyzing the expected net benefits resulting from municipal ownership of investor-owned utility operations.
- Prepared independent analyses of proposal for the proposed government condemnation of the investor-owned utilities in Maine and the formation of a public power district.
- Valued purchase power agreements in the transfer of assets to a deregulated electric market.

### **STRATEGIC AND FINANCIAL ADVISORY SERVICES**

Have assisted several clients across North America with analytically-based strategic planning, due diligence, and financial advisory services.

Representative projects include:





- Preparation of feasibility studies for bond issuances for municipal and district steam clients.
- Assisted in the development of a generation strategy for an electric utility. Analyzed various NERC regions to identify potential market entry points. Evaluated potential competitors and alliance partners. Assisted in the development of gas and electric price forecasts. Developed a framework for the implementation of a risk management program.
- Assisted clients in identifying potential joint venture opportunities and alliance partners. Contacted interviewed and evaluated potential alliance candidates based on company-established criteria for several LDCs and marketing companies. Worked with several LDCs and unregulated marketing companies to establish alliances to enter into the retail energy market. Prepared testimony in support of several merger cases and participated in the regulatory process to obtain approval for these mergers.
- Assisted clients in several buy-side due diligence efforts, providing regulatory insight and developing valuation recommendations for acquisitions of both electric and gas properties.

Exh. AEB-3  
Docket UE-23\_\_\_\_  
Witness: Ann E. Bulkley

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP dba  
PACIFIC POWER & LIGHT COMPANY

Respondent.

Docket UE-23\_\_\_\_

**PACIFICORP**

**EXHIBIT OF ANN E. BULKLEY**

**Testimony Listing of Ann E. Bulkley**

**March 2023**

## Ann E. Bulkley

### TESTIMONY LISTING

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
<b>Arizona Corporation Commission</b>				
UNS Electric	11/22	UNS Electric	Docket No. E-04204A-15-0251	Return on Equity
Tucson Electric Power Company	6/22	Tucson Electric Power Company	Docket No. G-01933A-22-0107	Return on Equity
Southwest Gas Corporation	12/21	Southwest Gas Corporation	Docket No. G-01551A-21-0368	Return on Equity
Arizona Public Service Company	10/19	Arizona Public Service Company	Docket No. E-01345A-19-0236	Return on Equity
Tucson Electric Power Company	04/19	Tucson Electric Power Company	Docket No. E-01933A-19-0028	Return on Equity
Tucson Electric Power Company	11/15	Tucson Electric Power Company	Docket No. E-01933A-15-0322	Return on Equity
UNS Electric	05/15	UNS Electric	Docket No. E-04204A-15-0142	Return on Equity
UNS Electric	12/12	UNS Electric	Docket No. E-04204A-12-0504	Return on Equity
<b>Arkansas Public Service Commission</b>				
Oklahoma Gas and Electric Co	10/21	Oklahoma Gas and Electric Co	Docket No. D-18-046-FR	Return on Equity
Arkansas Oklahoma Gas Corporation	10/13	Arkansas Oklahoma Gas Corporation	Docket No. 13-078-U	Return on Equity
<b>California Public Utilities Commission</b>				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
PacifiCorp, d/b/a Pacific Power	5/22	PacifiCorp, d/b/a Pacific Power	Docket No. A-22-05-006	Return on Equity
San Jose Water Company	05/21	San Jose Water Company	A2105004	Return on Equity
<b>Colorado Public Utilities Commission</b>				
Public Service Company of Colorado	11/22	Public Service Company of Colorado	Docket No. 22AL-0530E	Return on Equity
Public Service Company of Colorado	01/22	Public Service Company of Colorado	Docket No. 22AL-0046G	Return on Equity
Public Service Company of Colorado	07/21	Public Service Company of Colorado	21AL-0317E	Return on Equity
Public Service Company of Colorado	02/20	Public Service Company of Colorado	20AL-0049G	Return on Equity
Public Service Company of Colorado	05/19	Public Service Company of Colorado	19AL-0268E	Return on Equity
Public Service Company of Colorado	01/19	Public Service Company of Colorado	19AL-0063ST	Return on Equity
Atmos Energy Corporation	05/15	Atmos Energy Corporation	Docket No. 15AL-0299G	Return on Equity
Atmos Energy Corporation	04/14	Atmos Energy Corporation	Docket No. 14AL-0300G	Return on Equity
Atmos Energy Corporation	05/13	Atmos Energy Corporation	Docket No. 13AL-0496G	Return on Equity
<b>Connecticut Public Utilities Regulatory Authority</b>				
United Illuminating	09/22	United Illuminating	Docket No. 22-08-08	Return on Equity
United Illuminating	05/21	United Illuminating	Docket No. 17-12-03RE11	Return on Equity
Connecticut Water Company	01/21	Connecticut Water Company	Docket No. 20-12-30	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Connecticut Natural Gas Corporation	06/18	Connecticut Natural Gas Corporation	Docket No. 18-05-16	Return on Equity
Yankee Gas Services Co. d/b/a Eversource Energy	06/18	Yankee Gas Services Co. d/b/a Eversource Energy	Docket No. 18-05-10	Return on Equity
The Southern Connecticut Gas Company	06/17	The Southern Connecticut Gas Company	Docket No. 17-05-42	Return on Equity
The United Illuminating Company	07/16	The United Illuminating Company	Docket No. 16-06-04	Return on Equity
<b>Federal Energy Regulatory Commission</b>				
Sea Robin Pipeline	12/22	Sea Robin Pipeline	Docket No. RP22-___	Return on Equity
Northern Natural Gas Company	07/22	Northern Natural Gas Company	Docket No. RP22-___	Return on Equity
Transwestern Pipeline Company, LLC	07/22	Transwestern Pipeline Company, LLC	Docket No. RP22-___	Return on Equity
Florida Gas Transmission	02/21	Florida Gas Transmission	Docket No. RP21-441	Return on Equity
TransCanyon	01/21	TransCanyon	Docket No. ER21-1065	Return on Equity
Duke Energy	12/20	Duke Energy	Docket No. EL21-9-000	Return on Equity
Wisconsin Electric Power Company	08/20	Wisconsin Electric Power Company	Docket No. EL20-57-000	Return on Equity
Panhandle Eastern Pipe Line Company, LP	10/19	Panhandle Eastern Pipe Line Company, LP	Docket Nos. RP19-78-000 RP19-78-001	Return on Equity
Panhandle Eastern Pipe Line Company, LP	08/19	Panhandle Eastern Pipe Line Company, LP	Docket Nos. RP19-1523	Return on Equity
Sea Robin Pipeline Company LLC	11/18	Sea Robin Pipeline Company LLC	Docket# RP19-352-000	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Tallgrass Interstate Gas Transmission	10/15	Tallgrass Interstate Gas Transmission	RP16-137	Return on Equity
<b>Idaho Public Utilities Commission</b>				
Intermountain Gas Co	12/22	Intermountain Gas Co	C-INT-G-22-07	Return on Equity
PacifiCorp d/b/a Rocky Mountain Power	05/21	PacifiCorp d/b/a Rocky Mountain Power	Case No. PAC-E-21-07	Return on Equity
<b>Illinois Commerce Commission</b>				
Peoples Gas Light & Coke Company	01/23	Peoples Gas Light & Coke Company	D-23-0069	Return on Equity
North Shore Gas Company	01/23	North Shore Gas Company	D-23-0068	Return on Equity
Illinois American Water	02/22	Illinois American Water	Docket No. 22-0210	Return on Equity
North Shore Gas Company	02/21	North Shore Gas Company	No. 20-0810	Return on Equity
<b>Indiana Utility Regulatory Commission</b>				
Indiana Michigan Power Co.	07/21	Indiana Michigan Power Co.	IURC Cause No. 45576	Return on Equity
Indiana Gas Company Inc.	12/20	Indiana Gas Company Inc.	IURC Cause No. 45468	Return on Equity
Southern Indiana Gas and Electric Company	10/20	Southern Indiana Gas and Electric Company	IURC Cause No. 45447	Return on Equity
Indiana and Michigan American Water Company	09/18	Indiana and Michigan American Water Company	IURC Cause No. 45142	Return on Equity
Indianapolis Power and Light Company	12/17	Indianapolis Power and Light Company	Cause No. 45029	Fair Value

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Northern Indiana Public Service Company	09/17	Northern Indiana Public Service Company	Cause No. 44988	Fair Value
Indianapolis Power and Light Company	12/16	Indianapolis Power and Light Company	Cause No.44893	Fair Value
Northern Indiana Public Service Company	10/15	Northern Indiana Public Service Company	Cause No. 44688	Fair Value
Indianapolis Power and Light Company	09/15	Indianapolis Power and Light Company	Cause No. 44576 Cause No. 44602	Fair Value
Kokomo Gas and Fuel Company	09/10	Kokomo Gas and Fuel Company	Cause No. 43942	Fair Value
Northern Indiana Fuel and Light Company, Inc.	09/10	Northern Indiana Fuel and Light Company, Inc.	Cause No. 43943	Fair Value
<b>Iowa Department of Commerce Utilities Board</b>				
MidAmerican Energy Company	01/22	MidAmerican Energy Company	Docket No. RPU-2022-0001	Return on Equity
Iowa-American Water Company	08/20	Iowa-American Water Company	Docket No. RPU-2020-0001	Return on Equity
<b>Kansas Corporation Commission</b>				
Atmos Energy Corporation	08/15	Atmos Energy Corporation	Docket No. 16-ATMG-079-RTS	Return on Equity
<b>Kentucky Public Service Commission</b>				
Kentucky American Water Company	11/18	Kentucky American Water Company	Docket No. 2018-00358	Return on Equity
<b>Maine Public Utilities Commission</b>				
Central Maine Power	08/22	Central Maine Power	Docket No. 2022-00152	Return on Equity
Central Maine Power	10/18	Central Maine Power	Docket No. 2018-194	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
<b>Maryland Public Service Commission</b>				
Maryland American Water Company	06/18	Maryland American Water Company	Case No. 9487	Return on Equity
<b>Massachusetts Appellate Tax Board</b>				
Hopkinton LNG Corporation	03/20	Hopkinton LNG Corporation	Docket No.	Valuation of LNG Facility
FirstLight Hydro Generating Company	06/17	FirstLight Hydro Generating Company	Docket No. F-325471 Docket No. F-325472 Docket No. F-325473 Docket No. F-325474	Valuation of Electric Generation Assets
<b>Massachusetts Department of Public Utilities</b>				
National Grid USA	11/20	Boston Gas Company	DPU 20-120	Return on Equity
Berkshire Gas Company	05/18	Berkshire Gas Company	DPU 18-40	Return on Equity
Unitil Corporation	01/04	Fitchburg Gas and Electric	DTE 03-52	Integrated Resource Plan; Gas Demand Forecast
<b>Michigan Public Service Commission</b>				
Michigan Gas Utilities Corporation	03/21	Michigan Gas Utilities Corporation	Case No. U-20718	Return on Equity
Wisconsin Electric Power Company	12/11	Wisconsin Electric Power Company	Case No. U-16830	Return on Equity
<b>Michigan Tax Tribunal</b>				
New Covert Generating Co., LLC.	03/18	The Township of New Covert Michigan	MTT Docket No. 000248TT and 16-001888-TT	Valuation of Electric Generation Assets

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Covert Township	07/14	New Covert Generating Co., LLC.	Docket No. 399578	Valuation of Electric Generation Assets
<b>Minnesota Public Utilities Commission</b>				
Minnesota Energy Resources Corporation	11/22	Minnesota Energy Resources Corporation	Docket No. G011/GR-22-504	Return on Equity
CenterPoint Energy Resources	11/21	CenterPoint Energy Resources	D-G-008/GR-21-435	Return on Equity
Allete, Inc. d/b/a Minnesota Power	11/21	Allete, Inc. d/b/a Minnesota Power	D-E-015/GR-21-630	Return on Equity
Otter Tail Power Company	11/20	Otter Tail Power Company	E017/GR-20-719	Return on Equity
Allete, Inc. d/b/a Minnesota Power	11/19	Allete, Inc. d/b/a Minnesota Power	E015/GR-19-442	Return on Equity
CenterPoint Energy Resources Corporation d/b/a CenterPoint Energy Minnesota Gas	10/19	CenterPoint Energy Resources Corporation d/b/a CenterPoint Energy Minnesota Gas	G-008/GR-19-524	Return on Equity
Great Plains Natural Gas Co.	09/19	Great Plains Natural Gas Co.	Docket No. G004/GR-19-511	Return on Equity
Minnesota Energy Resources Corporation	10/17	Minnesota Energy Resources Corporation	Docket No. G011/GR-17-563	Return on Equity
<b>Missouri Public Service Commission</b>				
Ameren Missouri	08/22	Ameren Missouri	File No. ER-2022-0337	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Missouri American Water Company	07/22	Missouri American Water Company	Case No. WR-2022-0303 Case No. SR-2022-0304	Return on Equity
Evergy Missouri West	1/22	Evergy Missouri West	File No. ER-2022-0130	Return on Equity
Evergy Missouri Metro	1/22	Evergy Missouri Metro	File No. ER-2022-0129	Return on Equity
Ameren Missouri	03/21	Ameren Missouri	Docket No. ER-2021-0240 Docket No. GR-2021-0241	Return on Equity
Missouri American Water Company	06/20	Missouri American Water Company	Case No. WR-2020-0344 Case No. SR-2020-0345	Return on Equity
Missouri American Water Company	06/17	Missouri American Water Company	Case No. WR-17-0285 Case No. SR-17-0286	Return on Equity
<b>Montana Public Service Commission</b>				
Montana-Dakota Utilities Co.	06/20	Montana-Dakota Utilities Co.	D2022.11.099	Return on Equity
Montana-Dakota Utilities Co.	06/20	Montana-Dakota Utilities Co.	D2020.06.076	Return on Equity
Montana-Dakota Utilities Co.	09/18	Montana-Dakota Utilities Co.	D2018.9.60	Return on Equity
<b>New Hampshire - Board of Tax and Land Appeals</b>				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Public Service Company of New Hampshire d/b/a Eversource Energy	11/19 12/19	Public Service Company of New Hampshire d/b/a Eversource Energy	Master Docket No. 28873-14-15-16-17PT	Valuation of Utility Property and Generating Assets
<b>New Hampshire Public Utilities Commission</b>				
Public Service Company of New Hampshire	05/19	Public Service Company of New Hampshire	DE-19-057	Return on Equity
<b>New Hampshire-Merrimack County Superior Court</b>				
Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	04/18	Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	220-2012-CV-1100	Valuation of Utility Property
<b>New Hampshire-Rockingham Superior Court</b>				
Eversource Energy	05/18	Public Service Commission of New Hampshire	218-2016-CV-00899 218-2017-CV-00917	Valuation of Utility Property
<b>New Jersey Board of Public Utilities</b>				
New Jersey American Water Company, Inc.	01/22	New Jersey American Water Company, Inc.	WR22010019	Return on Equity
Public Service Electric and Gas Company	10/20	Public Service Electric and Gas Company	EO18101115	Return on Equity
New Jersey American Water Company, Inc.	12/19	New Jersey American Water Company, Inc.	WR19121516	Return on Equity
Public Service Electric and Gas Company	04/19	Public Service Electric and Gas Company	EO18060629 GO18060630	Return on Equity
Public Service Electric and Gas Company	02/18	Public Service Electric and Gas Company	GR17070776	Return on Equity
Public Service Electric and Gas Company	01/18	Public Service Electric and Gas Company	ER18010029 GR18010030	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
<b>New Mexico Public Regulation Commission</b>				
Southwestern Public Service Company	07/19	Southwestern Public Service Company	19-00170-UT	Return on Equity
Southwestern Public Service Company	10/17	Southwestern Public Service Company	Case No. 17-00255-UT	Return on Equity
Southwestern Public Service Company	12/16	Southwestern Public Service Company	Case No. 16-00269-UT	Return on Equity
Southwestern Public Service Company	10/15	Southwestern Public Service Company	Case No. 15-00296-UT	Return on Equity
Southwestern Public Service Company	06/15	Southwestern Public Service Company	Case No. 15-00139-UT	Return on Equity
<b>New York State Department of Public Service</b>				
New York State Electric and Gas Company  Rochester Gas and Electric	05/22	New York State Electric and Gas Company  Rochester Gas and Electric	22-E-0317 22-G-0318 22-E-0319 22-G-0320	Return on Equity
Corning Natural Gas Corporation	07/21	Corning Natural Gas Corporation	Case No. 21-G-0394	Return on Equity
Central Hudson Gas and Electric Corporation	08/20	Central Hudson Gas and Electric Corporation	Electric 20-E-0428 Gas 20-G-0429	Return on Equity
Niagara Mohawk Power Corporation	07/20	National Grid USA	Case No. 20-E-0380 20-G-0381	Return on Equity
Corning Natural Gas Corporation	02/20	Corning Natural Gas Corporation	Case No. 20-G-0101	Return on Equity
New York State Electric and Gas Company  Rochester Gas and Electric	05/19	New York State Electric and Gas Company  Rochester Gas and Electric	19-E-0378 19-G-0379 19-E-0380 19-G-0381	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Brooklyn Union Gas Company d/b/a National Grid NY KeySpan Gas East Corporation d/b/a National Grid	04/19	Brooklyn Union Gas Company d/b/a National Grid NY KeySpan Gas East Corporation d/b/a National Grid	19-G-0309 19-G-0310	Return on Equity
Central Hudson Gas and Electric Corporation	07/17	Central Hudson Gas and Electric Corporation	Electric 17-E-0459 Gas 17-G-0460	Return on Equity
Niagara Mohawk Power Corporation	04/17	National Grid USA	Case No. 17-E-0238 17-G-0239	Return on Equity
Corning Natural Gas Corporation	06/16	Corning Natural Gas Corporation	Case No. 16-G-0369	Return on Equity
National Fuel Gas Company	04/16	National Fuel Gas Company	Case No. 16-G-0257	Return on Equity
KeySpan Energy Delivery	01/16	KeySpan Energy Delivery	Case No. 15-G-0058 Case No. 15-G-0059	Return on Equity
New York State Electric and Gas Company Rochester Gas and Electric	05/15	New York State Electric and Gas Company Rochester Gas and Electric	Case No. 15-E-0283 Case No. 15-G-0284 Case No. 15-E-0285 Case No. 15-G-0286	Return on Equity
<b>North Dakota Public Service Commission</b>				
Montana-Dakota Utilities Co.	05/22	Montana-Dakota Utilities Co.	C-PU-22-194	Return on Equity
Montana-Dakota Utilities Co.	08/20	Montana-Dakota Utilities Co.	C-PU-20-379	Return on Equity
Northern States Power Company	12/12	Northern States Power Company	C-PU-12-813	Return on Equity
Northern States Power Company	12/10	Northern States Power Company	C-PU-10-657	Return on Equity
<b>Oklahoma Corporation Commission</b>				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Oklahoma Gas & Electric	12/21	Oklahoma Gas & Electric	Cause No. PUD 202100164	Return on Equity
Arkansas Oklahoma Gas Corporation	01/13	Arkansas Oklahoma Gas Corporation	Cause No. PUD 201200236	Return on Equity
<b>Oregon Public Service Commission</b>				
PacifiCorp d/b/a Pacific Power & Light	03/22	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-399	Return on Equity
PacifiCorp d/b/a Pacific Power & Light	02/20	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-374	Return on Equity
<b>Pennsylvania Public Utility Commission</b>				
American Water Works Company Inc.	04/22	Pennsylvania-American Water Company	Docket No. R-2020-3031672 (water) Docket No. R-2020-3031673 (wastewater)	Return on Equity
American Water Works Company Inc.	04/20	Pennsylvania-American Water Company	Docket No. R-2020-3019369 (water) Docket No. R-2020-3019371 (wastewater)	Return on Equity
American Water Works Company Inc.	04/17	Pennsylvania-American Water Company	Docket No. R-2017-2595853	Return on Equity
<b>South Dakota Public Utilities Commission</b>				
MidAmerican Energy Company	05/22	MidAmerican Energy Company	D-NG22-005	Return on Equity
Northern States Power Company	06/14	Northern States Power Company	Docket No. EL14-058	Return on Equity
<b>Texas Public Utility Commission</b>				
Entergy Texas, Inc.	07/22	Entergy Texas, Inc.	D-53719	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Southwestern Public Service Commission	08/19	Southwestern Public Service Commission	Docket No. D-49831	Return on Equity
Southwestern Public Service Company	01/14	Southwestern Public Service Company	Docket No. 42004	Return on Equity
<b>Utah Public Service Commission</b>				
PacifiCorp d/b/a Rocky Mountain Power	05/20	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20-035-04	Return on Equity
<b>Virginia State Corporation Commission</b>				
Virginia American Water Company, Inc.	11/21	Virginia American Water Company, Inc.	Docket No. PUR-2021-00255	Return on Equity
Virginia American Water Company, Inc.	11/18	Virginia American Water Company, Inc.	Docket No. PUR-2018-00175	Return on Equity
<b>Washington Utilities Transportation Commission</b>				
Cascade Natural Gas Corporation	06/20	Cascade Natural Gas Corporation	Docket No. UG-200568	Return on Equity
PacifiCorp d/b/a Pacific Power & Light	12/19	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-191024	Return on Equity
Cascade Natural Gas Corporation	04/19	Cascade Natural Gas Corporation	Docket No. UG-190210	Return on Equity
<b>West Virginia Public Service Commission</b>				
West Virginia American Water Company	04/21	West Virginia American Water Company	Case No. 21-02369-W-42T	Return on Equity
West Virginia American Water Company	04/18	West Virginia American Water Company	Case No. 18-0573-W-42T Case No. 18-0576-S-42T	Return on Equity
<b>Wisconsin Public Service Commission</b>				
Wisconsin Electric Power Company and Wisconsin Gas LLC	04/22	Wisconsin Electric Power Company and Wisconsin Gas LLC	Docket No. 05-UR-110	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Wisconsin Public Service Corp.	04/22	Wisconsin Public Service Corp.	6690-UR-127	Return on Equity
Alliant Energy		Alliant Energy		Return on Equity
Wisconsin Electric Power Company and Wisconsin Gas LLC	03/19	Wisconsin Electric Power Company and Wisconsin Gas LLC	Docket No. 05-UR-109	Return on Equity
Wisconsin Public Service Corp.	03/19	Wisconsin Public Service Corp.	6690-UR-126	Return on Equity
<b>Wyoming Public Service Commission</b>				
PacifiCorp d/b/a Rocky Mountain Power	03/20	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20000-578-ER-20	Return on Equity
Montana-Dakota Utilities Co.	05/19	Montana-Dakota Utilities Co.	30013-351-GR-19	Return on Equity

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CERTIFICATIONS/ACCREDITATIONS

Certified General Appraiser, licensed in the Commonwealth of Massachusetts and the State of New Hampshire

Exh. AEB-4  
Docket UE-23\_\_\_\_  
Witness: Ann E. Bulkley

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP dba  
PACIFIC POWER & LIGHT COMPANY

Respondent.

Docket UE-23\_\_\_\_

**PACIFICORP**

**EXHIBIT OF ANN E. BULKLEY**

**Summary of Results**

**March 2023**

SUMMARY OF COE ANALYSES RESULTS

<b>Constant Growth DCF</b>			
	Mean Low	Mean	Mean High
30-Day Average	8.11%	9.40%	10.39%
90-Day Average	8.25%	9.54%	10.53%
180-Day Average	8.14%	9.44%	10.42%
Constant Growth Average	8.17%	9.46%	10.45%
	Median Low	Median	Median High
30-Day Average	7.98%	9.40%	10.13%
90-Day Average	8.11%	9.50%	10.24%
180-Day Average	7.94%	9.38%	10.13%
Constant Growth Average	8.01%	9.43%	10.16%
<b>CAPM</b>			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Value Line Beta	11.36%	11.37%	11.38%
Bloomberg Beta	10.77%	10.79%	10.81%
Long-term Avg. Beta	10.33%	10.36%	10.38%
<b>ECAPM</b>			
Value Line Beta	11.64%	11.65%	11.66%
Bloomberg Beta	11.20%	11.22%	11.23%
Long-term Avg. Beta	10.87%	10.89%	10.91%
<b>Risk Premium</b>			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Risk Premium Results	10.23%	10.28%	10.32%
<b>Expected Earnings</b>			
	Mean	Median	
Expected Earnings Results	11.25%	11.31%	

Exh. AEB-5  
Docket UE-23\_\_\_\_  
Witness: Ann E. Bulkley

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP dba  
PACIFIC POWER & LIGHT COMPANY

Respondent.

Docket UE-23\_\_\_\_

**PACIFICORP**

**EXHIBIT OF ANN E. BULKLEY**

**Proxy Group Selection**

**March 2023**

PROXY GROUP SCREENING DATA AND RESULTS - PRELIMINARY PROXY GROUP

Company	[1] Dividends	[2] S&P Credit Rating Between BBB- and AAA	[3] Covered by More Than 1 Analyst	[4] Positive Growth Rates from at least two sources (Value Line, Yahoo! Call, and Zacks)	[5] Generation Assets Included in Rate Base	[6] % Company-Owned Generation > 40%	[7] % Regulated Operating Income > 60%	[8] % Regulated Electric Operating Income > 60%	[9] Announced Merger
ALLETE, Inc.	Yes	BBB	Yes	Yes	Yes	41.54%	95.57%	97.40%	No
Alliant Energy Corporation	Yes	A-	Yes	Yes	Yes	70.97%	96.60%	91.18%	No
Ameren Corporation	Yes	BBB+	Yes	Yes	Yes	76.04%	100.00%	85.03%	No
American Electric Power Company, Inc.	Yes	A-	Yes	Yes	Yes	52.91%	95.43%	100.00%	No
Arista Corporation	Yes	BBB	Yes	Yes	Yes	59.38%	100.00%	76.10%	No
AVA	Yes	BBB+	Yes	Yes	Yes	41.36%	98.76%	88.14%	No
CMS Energy Corporation	Yes	BBB+	Yes	Yes	Yes	82.34%	99.36%	90.89%	No
Duke Energy Corporation	Yes	BBB+	Yes	Yes	Yes	68.34%	100.00%	99.41%	No
Energy Corporation	Yes	A-	Yes	Yes	Yes	62.52%	100.00%	100.00%	No
Evergy, Inc.	Yes	BBB	Yes	Yes	Yes	68.95%	99.84%	100.00%	No
IDACORP, Inc.	Yes	A-	Yes	Yes	Yes	96.85%	85.07%	100.00%	No
NexEra Energy, Inc.	Yes	BBB	Yes	Yes	Yes	56.48%	99.75%	84.22%	No
NorthWestern Corporation	Yes	BBB	Yes	Yes	Yes	55.06%	100.00%	100.00%	No
OGE Energy Corporation	Yes	BBB+	Yes	Yes	Yes	55.70%	72.69%	100.00%	No
Otter Tail Corporation	Yes	BBB	Yes	Yes	Yes	60.82%	100.00%	100.00%	No
Portland General Electric Company	Yes	BBB+	Yes	Yes	Yes	77.81%	84.58%	80.48%	No
Southern Company	Yes	BBB+	Yes	Yes	Yes	57.64%	100.00%	86.47%	No
Xcel Energy Inc.	Yes	A-	Yes	Yes	Yes				No

Notes:

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional
- [3] Source: Yahoo! Finance and Zacks
- [4] Source: Yahoo! Finance, Value Line Investment Survey, and Zacks
- [5] Source: S&P Capital IQ Pro
- [6] Source: S&P Capital IQ Pro
- [7] Source: Form 10-K's for 2021, 2020, and 2019
- [8] Source: Form 10-K's for 2021, 2020, and 2019
- [9] Source: S&P Capital IQ Pro Financial News Releases
- [10] OTTR: 2021 Operating Income Data was excluded from the three year average since, as noted by Otter Tail, 2021 operating income was impacted by the plastics segment that is not expected to continue over the long-term term.



Exh. AEB-6  
Docket UE-23\_\_\_\_  
Witness: Ann E. Bulkley

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP dba  
PACIFIC POWER & LIGHT COMPANY

Respondent.

Docket UE-23\_\_\_\_

**PACIFICORP**

**EXHIBIT OF ANN E. BULKLEY**

**Constant Growth DCF Model**

**March 2023**

30-DAY CONSTANT GROWTH DCF -- PACIFICORP PROXY GROUP

Company	Ticker	[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Value Line EPS Growth	[6] Yahoo! Finance EPS Growth	[7] Zacks EPS Growth	[8] Average Growth Rate	[9] Low ROE	[10] Mean ROE	[11] High ROE
ALLETE, Inc.	ALE	\$2.60	\$64.09	4.06%	4.22%	6.00%	8.70%	9.60%	8.10%	10.18%	12.32%	13.85%
Alliant Energy Corporation	LNT	\$1.81	\$54.38	3.33%	3.42%	6.00%	5.55%	5.80%	5.78%	8.97%	9.21%	9.43%
Ameren Corporation	AEE	\$2.36	\$98.15	2.68%	2.77%	6.50%	6.64%	6.90%	6.68%	9.26%	9.45%	9.67%
American Electric Power Company, Inc.	AEP	\$3.32	\$94.56	3.51%	3.62%	6.50%	6.15%	6.10%	6.25%	9.72%	9.87%	10.13%
Avista Corporation	AVA	\$1.76	\$42.48	4.14%	4.24%	3.50%	5.20%	5.20%	4.63%	7.72%	8.87%	9.45%
CMS Energy Corporation	CMS	\$1.84	\$63.12	2.92%	3.03%	6.50%	8.17%	8.00%	7.56%	9.51%	10.56%	11.20%
Duke Energy Corporation	DUK	\$4.02	\$102.85	3.91%	4.01%	5.00%	5.65%	5.50%	5.38%	9.01%	9.40%	9.67%
Entergy Corporation	ETR	\$4.28	\$109.55	3.91%	4.01%	4.00%	6.19%	6.00%	5.40%	7.98%	9.41%	10.22%
Evergy, Inc.	EVER	\$2.45	\$62.50	3.92%	4.02%	7.50%	2.43%	5.30%	5.08%	6.40%	9.10%	11.57%
IDACORP, Inc.	IDA	\$3.16	\$106.55	2.97%	3.02%	4.50%	3.40%	3.40%	3.77%	6.42%	6.79%	7.53%
NextEra Energy, Inc.	NEE	\$1.70	\$82.60	2.06%	2.16%	10.50%	10.21%	9.00%	9.90%	11.15%	12.07%	12.67%
Northwestern Corporation	NWE	\$2.52	\$57.74	4.36%	4.43%	3.50%	4.50%	1.70%	3.23%	6.10%	7.67%	8.96%
OGE Energy Corporation	OGE	\$1.66	\$39.21	4.22%	4.32%	6.50%	1.90%	5.00%	4.47%	6.17%	8.79%	10.86%
Otter Tail Corporation	OTTR	\$1.65	\$60.44	2.73%	2.82%	4.50%	9.00%	n/a	6.75%	7.29%	9.57%	11.85%
Portland General Electric Company	POR	\$1.81	\$48.17	3.76%	3.83%	5.00%	1.39%	5.30%	3.90%	5.17%	7.73%	9.16%
Southern Company	SO	\$2.72	\$69.75	3.90%	4.01%	6.50%	6.48%	4.00%	5.66%	7.98%	9.67%	10.53%
Xcel Energy Inc.	XEL	\$1.95	\$69.89	2.79%	2.88%	6.00%	7.01%	6.50%	6.50%	8.87%	9.38%	9.90%
Mean				3.48%	3.58%	5.79%	5.80%	5.83%	5.83%	8.11%	9.40%	10.39%
Median				3.76%	3.83%	6.00%	6.15%	5.65%	5.66%	7.98%	9.40%	10.13%

Notes:

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional, equals 30-day average as of January 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 -- PACIFICORP PROXY GROUP

Company	Ticker	[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Value Line EPS Growth	[6] Yahoo! Finance EPS Growth	[7] Zacks EPS Growth	[8] Average Growth Rate	[9] Low ROE	[10] Mean ROE	[11] High ROE
ALLETE, Inc.	ALE	\$2.60	\$59.65	4.36%	4.54%	6.00%	8.70%	9.60%	8.10%	10.49%	12.64%	14.17%
Alliant Energy Corporation	LNT	\$1.81	\$53.40	3.39%	3.49%	6.00%	5.55%	5.80%	5.78%	9.03%	9.27%	9.49%
Ameren Corporation	AEE	\$2.36	\$84.71	2.79%	2.88%	6.50%	6.64%	6.90%	6.68%	9.38%	9.56%	9.78%
American Electric Power Company, Inc.	AEP	\$3.32	\$91.64	3.62%	3.74%	6.50%	6.15%	6.10%	6.25%	9.83%	9.99%	10.24%
Avista Corporation	AVA	\$1.76	\$40.23	4.37%	4.48%	3.50%	5.20%	5.20%	4.63%	7.95%	9.11%	9.69%
CMS Energy Corporation	CMS	\$1.84	\$60.13	3.06%	3.18%	6.50%	8.17%	8.00%	7.56%	9.66%	10.73%	11.36%
Duke Energy Corporation	DUK	\$4.02	\$97.43	4.13%	4.24%	5.00%	5.65%	6.00%	5.38%	9.23%	9.62%	9.89%
Entergy Corporation	ETR	\$4.28	\$108.60	3.94%	4.05%	4.00%	6.19%	6.00%	5.40%	8.02%	9.44%	10.25%
Evergy, Inc.	EVER	\$2.45	\$60.52	4.05%	4.15%	7.50%	2.43%	5.30%	5.08%	6.53%	9.23%	11.70%
IDACORP, Inc.	IDA	\$3.16	\$103.99	3.04%	3.10%	4.50%	3.40%	3.40%	3.77%	6.49%	6.86%	7.61%
NextEra Energy, Inc.	NEE	\$1.70	\$80.86	2.10%	2.21%	10.50%	10.21%	9.00%	9.90%	11.20%	12.11%	12.71%
NorthWestern Corporation	NWE	\$2.52	\$54.56	4.62%	4.69%	3.50%	4.50%	1.70%	3.23%	6.36%	7.93%	9.22%
OGE Energy Corporation	OGE	\$1.66	\$37.88	4.37%	4.47%	6.50%	1.90%	5.00%	4.47%	6.31%	8.94%	11.01%
Otter Tail Corporation	OTTR	\$1.65	\$60.40	2.73%	2.82%	4.50%	9.00%	n/a	6.75%	7.29%	9.57%	11.85%
Portland General Electric Company	POR	\$1.81	\$46.44	3.90%	3.97%	5.00%	1.39%	5.30%	3.90%	5.31%	7.87%	9.30%
Southern Company	SO	\$2.72	\$67.48	4.03%	4.14%	6.50%	6.48%	4.00%	5.66%	8.11%	9.80%	10.66%
Xcel Energy Inc.	XEL	\$1.95	\$67.09	2.91%	3.00%	6.00%	7.01%	6.50%	6.50%	8.99%	9.50%	10.02%
Mean				3.61%	3.71%	5.79%	5.80%	5.83%	5.83%	8.25%	9.54%	10.53%
Median				3.90%	3.97%	6.00%	6.15%	5.65%	5.66%	8.11%	9.50%	10.24%

Notes:

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional, equals 90-day average as of January 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 -- PACIFICORP 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	\$2.60	\$59.39	4.38%	4.56%	6.00%	8.70%	9.60%	8.10%	10.51%	12.66%	14.19%
Alliant Energy Corporation	LNT	\$1.81	\$56.17	3.22%	3.32%	6.00%	5.55%	5.80%	5.78%	8.86%	9.10%	9.32%
Ameren Corporation	AEE	\$2.36	\$7.43	2.70%	2.79%	6.50%	6.64%	6.90%	6.68%	9.29%	9.47%	9.69%
American Electric Power Company, Inc.	AEP	\$3.32	\$94.51	3.51%	3.62%	6.50%	6.15%	6.10%	6.25%	9.72%	9.87%	10.13%
Avista Corporation	AVA	\$1.76	\$40.84	4.31%	4.41%	3.50%	5.20%	5.20%	4.63%	7.88%	9.04%	9.62%
CMS Energy Corporation	CMS	\$1.84	\$63.56	2.89%	3.00%	6.50%	8.17%	8.00%	7.56%	9.49%	10.56%	11.18%
Duke Energy Corporation	DUK	\$4.02	\$101.88	3.95%	4.05%	5.00%	5.65%	5.50%	5.38%	9.04%	9.44%	9.71%
Entergy Corporation	ETR	\$4.28	\$111.02	3.86%	3.96%	4.00%	6.19%	6.00%	5.40%	7.93%	9.36%	10.16%
Energy, Inc.	EVRG	\$2.45	\$63.35	3.87%	3.97%	7.50%	2.43%	5.30%	5.08%	6.34%	9.04%	11.51%
IDACORP, Inc.	IDA	\$3.16	\$105.36	3.00%	3.06%	4.50%	3.40%	3.40%	3.77%	6.45%	6.82%	7.57%
NexEra Energy, Inc.	NEE	\$1.70	\$80.77	2.10%	2.21%	10.50%	10.21%	9.00%	9.90%	11.20%	12.11%	12.72%
NorthWestern Corporation	NWE	\$2.52	\$55.02	4.58%	4.65%	3.50%	4.50%	1.70%	3.23%	6.32%	7.89%	9.18%
OGE Energy Corporation	OGE	\$1.66	\$38.41	4.31%	4.41%	6.50%	1.90%	5.00%	4.47%	6.25%	8.88%	10.95%
Other Tail Corporation	OTTR	\$1.65	\$64.86	2.54%	2.63%	4.50%	9.00%	n/a	6.75%	7.10%	9.98%	11.66%
Portland General Electric Company	POR	\$1.81	\$47.85	3.78%	3.86%	5.00%	1.39%	5.30%	3.90%	5.20%	7.75%	9.18%
Southern Company	SO	\$2.72	\$70.50	3.86%	3.97%	6.50%	6.48%	4.00%	5.66%	7.94%	9.63%	10.48%
Xcel Energy Inc.	XEL	\$1.95	\$69.39	2.81%	2.90%	6.00%	7.01%	6.50%	6.50%	8.89%	9.40%	9.92%
Mean				3.51%	3.61%	5.79%	5.80%	5.83%	5.83%	8.14%	9.44%	10.42%
Median				3.78%	3.86%	6.00%	6.15%	5.65%	5.66%	7.94%	9.38%	10.13%

Notes:

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional, equals 180-day average as of January 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])

Exh. AEB-7  
Docket UE-23\_\_\_\_  
Witness: Ann E. Bulkley

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP dba  
PACIFIC POWER & LIGHT COMPANY

Respondent.

Docket UE-23\_\_\_\_

**PACIFICORP**

**EXHIBIT OF ANN E. BULKLEY**

**Capital Asset Pricing Model**

**March 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 ( $\beta$ )	Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.71%	0.90	12.50%	8.79%	11.62%	11.84%
Alliant Energy Corporation	LNT	3.71%	0.85	12.50%	8.79%	11.18%	11.51%
Ameren Corporation	AEE	3.71%	0.85	12.50%	8.79%	11.18%	11.51%
American Electric Power Company, Inc.	AEP	3.71%	0.75	12.50%	8.79%	10.30%	10.85%
Avista Corporation	AVA	3.71%	0.90	12.50%	8.79%	11.62%	11.84%
CMS Energy Corporation	CMS	3.71%	0.80	12.50%	8.79%	10.74%	11.18%
Duke Energy Corporation	DUK	3.71%	0.85	12.50%	8.79%	11.18%	11.51%
Entergy Corporation	ETR	3.71%	0.95	12.50%	8.79%	12.06%	12.17%
Energy, Inc.	EVRG	3.71%	0.90	12.50%	8.79%	11.62%	11.84%
IDACORP, Inc.	IDA	3.71%	0.80	12.50%	8.79%	10.74%	11.18%
NextEra Energy, Inc.	NEE	3.71%	0.90	12.50%	8.79%	11.62%	11.84%
NorthWestern Corporation	NWE	3.71%	0.90	12.50%	8.79%	11.62%	11.84%
OGE Energy Corporation	OGE	3.71%	1.00	12.50%	8.79%	12.50%	12.50%
Otter Tail Corporation	OTTR	3.71%	0.85	12.50%	8.79%	11.18%	11.51%
Portland General Electric Company	POR	3.71%	0.85	12.50%	8.79%	11.18%	11.51%
Southern Company	SO	3.71%	0.95	12.50%	8.79%	12.06%	12.17%
Xcel Energy Inc.	XEL	3.71%	0.80	12.50%	8.79%	10.74%	11.18%
Mean						11.36%	11.64%
Median						11.18%	11.51%

Notes:

- [1] Source: Bloomberg Professional, as of January 31, 2023
- [2] Source: Value Line
- [3] Source: Market Return
- [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]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q2 2023 - Q2 2024)	Beta ( $\beta$ )	Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.82%	0.90	12.50%	8.68%	11.63%	11.85%
Alliant Energy Corporation	LNT	3.82%	0.85	12.50%	8.68%	11.19%	11.52%
Ameren Corporation	AEE	3.82%	0.85	12.50%	8.68%	11.19%	11.52%
American Electric Power Company, Inc.	AEP	3.82%	0.75	12.50%	8.68%	10.33%	10.87%
Avista Corporation	AVA	3.82%	0.90	12.50%	8.68%	11.63%	11.85%
CMS Energy Corporation	CMS	3.82%	0.80	12.50%	8.68%	10.76%	11.19%
Duke Energy Corporation	DUK	3.82%	0.85	12.50%	8.68%	11.19%	11.52%
Entergy Corporation	ETR	3.82%	0.95	12.50%	8.68%	12.06%	12.17%
Energy, Inc.	EVRG	3.82%	0.90	12.50%	8.68%	11.63%	11.85%
IDACORP, Inc.	IDA	3.82%	0.80	12.50%	8.68%	10.76%	11.19%
NextEra Energy, Inc.	NEE	3.82%	0.90	12.50%	8.68%	11.63%	11.85%
NorthWestern Corporation	NWE	3.82%	0.90	12.50%	8.68%	11.63%	11.85%
OGE Energy Corporation	OGE	3.82%	1.00	12.50%	8.68%	12.50%	12.50%
Otter Tail Corporation	OTTR	3.82%	0.85	12.50%	8.68%	11.19%	11.52%
Portland General Electric Company	POR	3.82%	0.85	12.50%	8.68%	11.19%	11.52%
Southern Company	SO	3.82%	0.95	12.50%	8.68%	12.06%	12.17%
Xcel Energy Inc.	XEL	3.82%	0.80	12.50%	8.68%	10.76%	11.19%
Mean						11.37%	11.65%
Median						11.19%	11.52%

Notes:

- [1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 2, February 1, 2023, at 2
- [2] Source: Value Line
- [3] Source: Market Return
- [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

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

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

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]
		Projected 30-year U.S. Treasury bond yield (2024 - 2028)	Beta ( $\beta$ )	Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.90%	0.90	12.50%	8.60%	11.64%	11.85%
Alliant Energy Corporation	LNT	3.90%	0.85	12.50%	8.60%	11.21%	11.53%
Ameren Corporation	AEE	3.90%	0.85	12.50%	8.60%	11.21%	11.53%
American Electric Power Company, Inc.	AEP	3.90%	0.75	12.50%	8.60%	10.35%	10.88%
Avista Corporation	AVA	3.90%	0.90	12.50%	8.60%	11.64%	11.85%
CMS Energy Corporation	CMS	3.90%	0.80	12.50%	8.60%	10.78%	11.21%
Duke Energy Corporation	DUK	3.90%	0.85	12.50%	8.60%	11.21%	11.53%
Entergy Corporation	ETR	3.90%	0.95	12.50%	8.60%	12.07%	12.17%
Evergy, Inc.	EVRG	3.90%	0.90	12.50%	8.60%	11.64%	11.85%
IDACORP, Inc.	IDA	3.90%	0.80	12.50%	8.60%	10.78%	11.21%
NextEra Energy, Inc.	NEE	3.90%	0.90	12.50%	8.60%	11.64%	11.85%
NorthWestern Corporation	NWE	3.90%	0.90	12.50%	8.60%	11.64%	11.85%
OGE Energy Corporation	OGE	3.90%	1.00	12.50%	8.60%	12.50%	12.50%
Otter Tail Corporation	OTTR	3.90%	0.85	12.50%	8.60%	11.21%	11.53%
Portland General Electric Company	POR	3.90%	0.85	12.50%	8.60%	11.21%	11.53%
Southern Company	SO	3.90%	0.95	12.50%	8.60%	12.07%	12.17%
Xcel Energy Inc.	XEL	3.90%	0.80	12.50%	8.60%	10.78%	11.21%
Mean						11.38%	11.66%
Median						11.21%	11.53%

Notes:

- [1] Source: Blue Chip Financial Forecasts, Vol. 41, No. 12, December 2, 2022, at 14
- [2] Source: Value Line
- [3] Source: Market Return
- [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

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

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

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]
		Current 30-day average of 30-year U.S. Treasury bond yield	Beta ( $\beta$ )	Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.71%	0.83	12.50%	8.79%	11.01%	11.38%
Alliant Energy Corporation	LNT	3.71%	0.80	12.50%	8.79%	10.71%	11.16%
Ameren Corporation	AEE	3.71%	0.76	12.50%	8.79%	10.37%	10.90%
American Electric Power Company, Inc.	AEP	3.71%	0.77	12.50%	8.79%	10.48%	10.98%
Avista Corporation	AVA	3.71%	0.76	12.50%	8.79%	10.36%	10.89%
CMS Energy Corporation	CMS	3.71%	0.76	12.50%	8.79%	10.36%	10.89%
Duke Energy Corporation	DUK	3.71%	0.73	12.50%	8.79%	10.08%	10.69%
Entergy Corporation	ETR	3.71%	0.86	12.50%	8.79%	11.25%	11.56%
Evergy, Inc.	EVRG	3.71%	0.79	12.50%	8.79%	10.63%	11.10%
IDACORP, Inc.	IDA	3.71%	0.81	12.50%	8.79%	10.80%	11.22%
NextEra Energy, Inc.	NEE	3.71%	0.82	12.50%	8.79%	10.94%	11.33%
NorthWestern Corporation	NWE	3.71%	0.86	12.50%	8.79%	11.30%	11.60%
OGE Energy Corporation	OGE	3.71%	0.93	12.50%	8.79%	11.87%	12.03%
Otter Tail Corporation	OTTR	3.71%	0.88	12.50%	8.79%	11.46%	11.72%
Portland General Electric Company	POR	3.71%	0.79	12.50%	8.79%	10.62%	11.09%
Southern Company	SO	3.71%	0.78	12.50%	8.79%	10.55%	11.04%
Xcel Energy Inc.	XEL	3.71%	0.75	12.50%	8.79%	10.28%	10.84%
Mean						10.77%	11.20%
Median						10.63%	11.10%

Notes:

- [1] Source: Bloomberg Professional, as of January 31, 2023
- [2] Source: Bloomberg Professional, based on 10-year weekly returns
- [3] Source: Market Return
- [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

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

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

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]
		Near-term projected 30-year U.S. Treasury bond yield (Q2 2023 - Q2 2024)	Beta ( $\beta$ )	Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.82%	0.83	12.50%	8.68%	11.03%	11.40%
Alliant Energy Corporation	LNT	3.82%	0.80	12.50%	8.68%	10.73%	11.17%
Ameren Corporation	AEE	3.82%	0.76	12.50%	8.68%	10.40%	10.92%
American Electric Power Company, Inc.	AEP	3.82%	0.77	12.50%	8.68%	10.50%	11.00%
Avista Corporation	AVA	3.82%	0.76	12.50%	8.68%	10.38%	10.91%
CMS Energy Corporation	CMS	3.82%	0.76	12.50%	8.68%	10.38%	10.91%
Duke Energy Corporation	DUK	3.82%	0.73	12.50%	8.68%	10.11%	10.71%
Entergy Corporation	ETR	3.82%	0.86	12.50%	8.68%	11.26%	11.57%
Evergy, Inc.	EVRG	3.82%	0.79	12.50%	8.68%	10.65%	11.11%
IDACORP, Inc.	IDA	3.82%	0.81	12.50%	8.68%	10.82%	11.24%
NextEra Energy, Inc.	NEE	3.82%	0.82	12.50%	8.68%	10.96%	11.34%
NorthWestern Corporation	NWE	3.82%	0.86	12.50%	8.68%	11.31%	11.61%
OGE Energy Corporation	OGE	3.82%	0.93	12.50%	8.68%	11.88%	12.03%
Otter Tail Corporation	OTTR	3.82%	0.88	12.50%	8.68%	11.48%	11.73%
Portland General Electric Company	POR	3.82%	0.79	12.50%	8.68%	10.64%	11.11%
Southern Company	SO	3.82%	0.78	12.50%	8.68%	10.58%	11.06%
Xcel Energy Inc.	XEL	3.82%	0.75	12.50%	8.68%	10.31%	10.86%
Mean						10.79%	11.22%
Median						10.65%	11.11%

Notes:

- [1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 2, February 1, 2023, at 2
- [2] Source: Bloomberg Professional, based on 10-year weekly returns
- [3] Source: Market Return
- [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

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

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

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]
		Projected 30-year U.S. Treasury bond yield (2024 - 2028)	Beta ( $\beta$ )	Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.90%	0.83	12.50%	8.60%	11.05%	11.41%
Alliant Energy Corporation	LNT	3.90%	0.80	12.50%	8.60%	10.75%	11.19%
Ameren Corporation	AEE	3.90%	0.76	12.50%	8.60%	10.42%	10.94%
American Electric Power Company, Inc.	AEP	3.90%	0.77	12.50%	8.60%	10.52%	11.01%
Avista Corporation	AVA	3.90%	0.76	12.50%	8.60%	10.40%	10.93%
CMS Energy Corporation	CMS	3.90%	0.76	12.50%	8.60%	10.40%	10.93%
Duke Energy Corporation	DUK	3.90%	0.73	12.50%	8.60%	10.13%	10.73%
Entergy Corporation	ETR	3.90%	0.86	12.50%	8.60%	11.27%	11.58%
Evergy, Inc.	EVRG	3.90%	0.79	12.50%	8.60%	10.67%	11.13%
IDACORP, Inc.	IDA	3.90%	0.81	12.50%	8.60%	10.84%	11.25%
NextEra Energy, Inc.	NEE	3.90%	0.82	12.50%	8.60%	10.97%	11.35%
NorthWestern Corporation	NWE	3.90%	0.86	12.50%	8.60%	11.32%	11.62%
OGE Energy Corporation	OGE	3.90%	0.93	12.50%	8.60%	11.89%	12.04%
Otter Tail Corporation	OTTR	3.90%	0.88	12.50%	8.60%	11.48%	11.74%
Portland General Electric Company	POR	3.90%	0.79	12.50%	8.60%	10.66%	11.12%
Southern Company	SO	3.90%	0.78	12.50%	8.60%	10.60%	11.07%
Xcel Energy Inc.	XEL	3.90%	0.75	12.50%	8.60%	10.33%	10.87%
Mean						10.81%	11.23%
Median						10.67%	11.13%

Notes:

- [1] Source: Blue Chip Financial Forecasts, Vol. 41, No. 12, December 2, 2022, at 14
- [2] Source: Bloomberg Professional, based on 10-year weekly returns
- [3] Source: Market Return
- [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

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

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

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]
		Current 30-day average of 30-year U.S. Treasury bond yield	Beta ( $\beta$ )	Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.71%	0.79	12.50%	8.79%	10.61%	11.08%
Alliant Energy Corporation	LNT	3.71%	0.75	12.50%	8.79%	10.30%	10.85%
Ameren Corporation	AEE	3.71%	0.73	12.50%	8.79%	10.08%	10.68%
American Electric Power Company, Inc.	AEP	3.71%	0.68	12.50%	8.79%	9.64%	10.35%
Avista Corporation	AVA	3.71%	0.79	12.50%	8.79%	10.61%	11.08%
CMS Energy Corporation	CMS	3.71%	0.69	12.50%	8.79%	9.77%	10.45%
Duke Energy Corporation	DUK	3.71%	0.67	12.50%	8.79%	9.55%	10.29%
Entergy Corporation	ETR	3.71%	0.75	12.50%	8.79%	10.26%	10.82%
Eversource Energy, Inc.	EVRG	3.71%	0.95	12.50%	8.79%	12.06%	12.17%
IDACORP, Inc.	IDA	3.71%	0.73	12.50%	8.79%	10.12%	10.72%
NextEra Energy, Inc.	NEE	3.71%	0.73	12.50%	8.79%	10.12%	10.72%
NorthWestern Corporation	NWE	3.71%	0.75	12.50%	8.79%	10.26%	10.82%
OGE Energy Corporation	OGE	3.71%	0.93	12.50%	8.79%	11.88%	12.03%
Otter Tail Corporation	OTTR	3.71%	0.85	12.50%	8.79%	11.18%	11.51%
Portland General Electric Company	POR	3.71%	0.75	12.50%	8.79%	10.30%	10.85%
Southern Company	SO	3.71%	0.66	12.50%	8.79%	9.46%	10.22%
Xcel Energy Inc.	XEL	3.71%	0.66	12.50%	8.79%	9.46%	10.22%
Mean						10.33%	10.87%
Median						10.26%	10.82%

Notes:

- [1] Source: Bloomberg Professional, as of January 31, 2023
- [2] Source: LT Beta
- [3] Source: Market Return
- [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

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

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

Company	Ticker	[1]	[2]	[3]	[4]	[5]	[6]
		Near-term projected 30-year U.S. Treasury bond yield (Q2 2023 - Q2 2024)	Beta ( $\beta$ )	Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.82%	0.79	12.50%	8.68%	10.63%	11.10%
Alliant Energy Corporation	LNT	3.82%	0.75	12.50%	8.68%	10.33%	10.87%
Ameren Corporation	AEE	3.82%	0.73	12.50%	8.68%	10.11%	10.71%
American Electric Power Company, Inc.	AEP	3.82%	0.68	12.50%	8.68%	9.68%	10.38%
Avista Corporation	AVA	3.82%	0.79	12.50%	8.68%	10.63%	11.10%
CMS Energy Corporation	CMS	3.82%	0.69	12.50%	8.68%	9.81%	10.48%
Duke Energy Corporation	DUK	3.82%	0.67	12.50%	8.68%	9.59%	10.32%
Entergy Corporation	ETR	3.82%	0.75	12.50%	8.68%	10.28%	10.84%
Eversource Energy, Inc.	EVRG	3.82%	0.95	12.50%	8.68%	12.06%	12.17%
IDACORP, Inc.	IDA	3.82%	0.73	12.50%	8.68%	10.15%	10.74%
NextEra Energy, Inc.	NEE	3.82%	0.73	12.50%	8.68%	10.15%	10.74%
NorthWestern Corporation	NWE	3.82%	0.75	12.50%	8.68%	10.28%	10.84%
OGE Energy Corporation	OGE	3.82%	0.93	12.50%	8.68%	11.89%	12.04%
Otter Tail Corporation	OTTR	3.82%	0.85	12.50%	8.68%	11.19%	11.52%
Portland General Electric Company	POR	3.82%	0.75	12.50%	8.68%	10.33%	10.87%
Southern Company	SO	3.82%	0.66	12.50%	8.68%	9.50%	10.25%
Xcel Energy Inc.	XEL	3.82%	0.66	12.50%	8.68%	9.50%	10.25%
Mean						10.36%	10.89%
Median						10.28%	10.84%

Notes:

- [1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 2, February 1, 2023, at 2
- [2] Source: LT Beta
- [3] Source: Market Return
- [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]
		Projected 30-year U.S. Treasury bond yield (2024 - 2028)	Beta ( $\beta$ )	Market Return ( $R_m$ )	Market Risk Premium ( $R_m - R_f$ )	ROE (K)	ECAPM ROE (K)
Company	Ticker						
ALLETE, Inc.	ALE	3.90%	0.79	12.50%	8.60%	10.65%	11.11%
Alliant Energy Corporation	LNT	3.90%	0.75	12.50%	8.60%	10.35%	10.88%
Ameren Corporation	AEE	3.90%	0.73	12.50%	8.60%	10.13%	10.72%
American Electric Power Company, Inc.	AEP	3.90%	0.68	12.50%	8.60%	9.70%	10.40%
Avista Corporation	AVA	3.90%	0.79	12.50%	8.60%	10.65%	11.11%
CMS Energy Corporation	CMS	3.90%	0.69	12.50%	8.60%	9.83%	10.50%
Duke Energy Corporation	DUK	3.90%	0.67	12.50%	8.60%	9.62%	10.34%
Entergy Corporation	ETR	3.90%	0.75	12.50%	8.60%	10.30%	10.85%
Energy, Inc.	EVRG	3.90%	0.95	12.50%	8.60%	12.07%	12.17%
IDACORP, Inc.	IDA	3.90%	0.73	12.50%	8.60%	10.18%	10.76%
NextEra Energy, Inc.	NEE	3.90%	0.73	12.50%	8.60%	10.18%	10.76%
NorthWestern Corporation	NWE	3.90%	0.75	12.50%	8.60%	10.30%	10.85%
OGE Energy Corporation	OGE	3.90%	0.93	12.50%	8.60%	11.89%	12.04%
Otter Tail Corporation	OTTR	3.90%	0.85	12.50%	8.60%	11.21%	11.53%
Portland General Electric Company	POR	3.90%	0.75	12.50%	8.60%	10.35%	10.88%
Southern Company	SO	3.90%	0.66	12.50%	8.60%	9.53%	10.27%
Xcel Energy Inc.	XEL	3.90%	0.66	12.50%	8.60%	9.53%	10.27%
Mean						10.38%	10.91%
Median						10.30%	10.85%

Notes:

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

[2] Source: LT Beta

[3] Source: Market Return

[4] Equals [3] - [1]

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

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

Exh. AEB-8  
Docket UE-23\_\_\_\_  
Witness: Ann E. Bulkley

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP dba  
PACIFIC POWER & LIGHT COMPANY

Respondent.

Docket UE-23\_\_\_\_

**PACIFICORP**

**EXHIBIT OF ANN E. BULKLEY**

**Long-Term Beta Analysis**

**March 2023**

HISTORICAL BETA - 2013 - 2022

Company	Ticker	[1] 12/31/2013	[2] 12/31/2014	[3] 12/31/2015	[4] 12/31/2016	[5] 12/31/2017	[6] 12/31/2018	[7] 12/31/2019	[8] 12/31/2020	[9] 12/31/2021	[10] 12/31/2022	[11] 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
Energy, Inc.	EVRG						NMF	NMF	1.00	0.90	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	0.90	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
OG Energy Corporation	OG E	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])

Exh. AEB-9  
Docket UE-23\_\_\_\_  
Witness: Ann E. Bulkley

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP dba  
PACIFIC POWER & LIGHT COMPANY

Respondent.

Docket UE-23\_\_\_\_

**PACIFICORP**

**EXHIBIT OF ANN E. BULKLEY**

**Market Return Calculation**

**March 2023**

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

[1] Estimated Weighted Average Dividend Yield	1.75%
[2] Estimated Weighted Average Long-Term Growth Rate	10.65%
[3] S&P 500 Estimated Required Market Return	12.50%

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.
LyondellBasell Industries NV	LYB	325.62	96.69	31,484.58	0.11%	4.92%	0.01%	3.50%	0.00%
Signature Bank/New York NY	SBNY	62.93	128.95	8,114.69	0.03%	2.17%	0.00%	14.50%	0.00%
American Express Co	AXP	743.00	174.93	129,972.99	0.46%	1.19%	0.01%	10.00%	0.05%
Verizon Communications Inc	VZ	4,200.00	41.57	174,594.00	0.62%	6.28%	0.04%	2.50%	0.02%
Broadcom Inc	AVGO	417.89	585.01	244,467.49		3.15%		30.00%	
Boeing Co/The	BA	598.24	213.00	127,425.12					
Caterpillar Inc	CAT	520.41	252.29	131,293.99	0.46%	1.90%	0.01%	11.00%	0.05%
JPMorgan Chase & Co	JPM	2,933.21	139.96	410,531.37	1.45%	2.86%	0.04%	5.00%	0.07%
Chevron Corp	CVX	1,901.00	174.02	330,812.02		3.47%		44.00%	
Coca-Cola Co/The	KO	4,324.51	61.32	265,179.14	0.94%	2.87%	0.03%	8.00%	0.07%
AbbVie Inc	ABBV	1,768.48	147.75	261,293.07	0.92%	4.01%	0.04%	4.50%	0.04%
Walt Disney Co/The	DIS	1,823.59	108.49	197,841.50				86.00%	
FleetCor Technologies Inc	FLT	73.75	208.81	15,400.16	0.05%			10.50%	0.01%
Extra Space Storage Inc	EXR	133.92	157.83	21,136.91	0.07%	3.80%	0.00%	4.00%	0.00%
Exxon Mobil Corp	XOM	4,118.29	116.01	477,763.17		3.14%			
Phillips 66	PSX	472.63	100.27	47,390.81		3.87%		85.00%	
General Electric Co	GE	1,092.67	80.48	87,937.92		0.40%		21.00%	
HP Inc	HPQ	982.15	29.14	28,619.73	0.10%	3.60%	0.00%	10.50%	0.01%
Home Depot Inc/The	HD	1,019.19	324.17	330,389.53	1.17%	2.34%	0.03%	9.00%	0.11%
Monolithic Power Systems Inc	MPWR	46.94	426.56	20,023.58		0.70%		23.50%	
International Business Machines Corp	IBM	904.13	134.73	121,812.90	0.43%	4.90%	0.02%	3.00%	0.01%
Johnson & Johnson	JNJ	2,614.48	163.42	427,258.98	1.51%	2.77%	0.04%	8.00%	0.12%
McDonald's Corp	MCD	732.42	267.40	195,850.18	0.69%	2.27%	0.02%	10.50%	0.07%
Merck & Co Inc	MRK	2,535.40	107.41	272,326.88	0.96%	2.72%	0.03%	8.00%	0.08%
3M Co	MMM	552.74	115.08	63,609.66	0.22%	5.18%	0.01%	7.50%	0.02%
American Water Works Co Inc	AWK	181.83	156.49	28,454.26	0.10%	1.67%	0.00%	3.00%	0.00%
Bank of America Corp	BAC	7,996.78	35.48	283,725.68	1.00%	2.48%	0.02%	8.50%	0.09%
Pfizer Inc	PFE	5,613.32	44.16	247,883.99	0.88%	3.71%	0.03%	6.50%	0.06%
Procter & Gamble Co/The	PG	2,359.14	142.38	335,894.92	1.19%	2.57%	0.03%	6.50%	0.08%
AT&T Inc	T	7,128.00	20.37	145,197.36	0.51%	5.45%	0.03%	1.00%	0.01%
Travelers Cos Inc/The	TRV	232.10	191.12	44,358.95	0.16%	1.95%	0.00%	6.50%	0.01%
Raytheon Technologies Corp	RTX	1,470.06	99.85	146,785.59	0.52%	2.20%	0.01%	7.00%	0.04%
Analog Devices Inc	ADI	509.30	171.47	87,328.99	0.31%	1.77%	0.01%	14.00%	0.04%
Walmart Inc	WMT	2,696.80	143.87	387,988.62	1.37%	1.56%	0.02%	7.50%	0.10%
Cisco Systems Inc	CSCO	4,108.10	48.67	199,941.37	0.71%	3.12%	0.02%	9.00%	0.06%
Intel Corp	INTC	4,137.00	28.26	116,911.62		5.17%			
General Motors Co	GM	1,394.64	39.32	54,837.13	0.19%	0.92%	0.00%	10.00%	0.02%
Microsoft Corp	MSFT	7,443.80	247.81	1,844,649.07	6.52%	1.10%	0.07%	15.00%	0.98%
Dollar General Corp	DG	223.58	233.60	52,227.12	0.18%	0.94%	0.00%	10.00%	0.02%
Cigna Corp	CI	305.74	316.67	96,818.37	0.34%	1.41%	0.00%	10.00%	0.03%
Kinder Morgan Inc	KMI	2,247.74	18.30	41,133.68	0.15%	6.07%	0.01%	19.00%	0.03%
Citigroup Inc	C	1,937.00	52.22	101,150.14	0.36%	3.91%	0.01%	3.50%	0.01%
American International Group Inc	AIG	742.98	63.22	46,971.20	0.17%	2.02%	0.00%	6.50%	0.01%
Altria Group Inc	MO	1,792.17	45.04	80,719.47	0.29%	8.35%	0.02%	6.00%	0.02%
HCA Healthcare Inc	HCA	282.72	255.07	72,112.63	0.25%	0.94%	0.00%	12.50%	0.03%
International Paper Co	IP	355.67	41.82	14,874.12	0.05%	4.42%	0.00%	13.50%	0.01%
Hewlett Packard Enterprise Co	HPE	1,281.82	16.13	20,675.71	0.07%	2.98%	0.00%	7.50%	0.01%
Abbott Laboratories	ABT	1,743.57	110.55	192,752.11	0.68%	1.85%	0.01%	7.00%	0.05%
Aflac Inc	AFL	621.79	73.50	45,701.49	0.16%	2.29%	0.00%	9.00%	0.01%
Air Products and Chemicals Inc	APD	221.99	320.51	71,149.37	0.25%	2.18%	0.01%	11.50%	0.03%
Royal Caribbean Cruises Ltd	RCL	255.18	64.94	16,571.52					
Hess Corp	HES	308.31	150.16	46,295.53		1.00%			
Archer-Daniels-Midland Co	ADM	549.33	82.85	45,512.32	0.16%	2.17%	0.00%	13.00%	0.02%
Automatic Data Processing Inc	ADP	414.40	225.81	93,575.66	0.33%	2.21%	0.01%	10.00%	0.03%
Verisk Analytics Inc	VRSK	156.39	181.79	28,429.77	0.10%	0.68%	0.00%	13.00%	0.01%
AutoZone Inc	AZO	18.77	2,438.85	45,767.46	0.16%			14.50%	0.02%
Avery Dennison Corp	AVY	80.97	189.44	15,338.77	0.05%	1.58%	0.00%	12.00%	0.01%
Enphase Energy Inc	ENPH	135.92	221.38	30,090.86				26.50%	
MSCI Inc	MSCI	79.96	531.56	42,502.47	0.15%	1.04%	0.00%	14.50%	0.02%
Ball Corp	BALL	313.92	58.24	18,282.70		1.37%		21.50%	
Ceridian HCM Holding Inc	CDAY	153.60	72.28	11,101.85					
Carrier Global Corp	CARR	836.26	45.53	38,075.01		1.63%			
Bank of New York Mellon Corp/The	BK	808.45	50.57	40,883.06	0.14%	2.93%	0.00%	6.00%	0.01%
Otis Worldwide Corp	OTIS	416.59	82.23	34,255.87		1.41%			
Baxter International Inc	BAX	504.12	45.69	23,033.29	0.08%	2.54%	0.00%	8.00%	0.01%
Becton Dickinson and Co	BDX	284.27	252.22	71,698.07	0.25%	1.44%	0.00%	4.50%	0.01%
Berkshire Hathaway Inc	BRK/B	1,301.98	311.52	405,593.12	1.43%			6.00%	0.09%
Best Buy Co Inc	BBY	221.26	88.72	19,630.54	0.07%	3.97%	0.00%	4.00%	0.00%
Boston Scientific Corp	BSX	1,432.31	46.25	66,244.38	0.23%			17.00%	0.04%
Bristol-Myers Squibb Co	BMY	2,126.16	72.65	154,465.52		3.14%			
Brown-Forman Corp	BF/B	309.95	66.58	20,636.60	0.07%	1.23%	0.00%	14.50%	0.01%
Coterra Energy Inc	CTRA	788.47	25.03	19,735.33		10.87%			
Campbell Soup Co	CPB	299.47	51.93	15,551.37	0.05%	2.85%	0.00%	5.00%	0.00%
Hilton Worldwide Holdings Inc	HLT	270.46	145.09	39,240.46		0.41%			
Carnival Corp	CCL	1,112.71	10.82	12,039.49					
Qorvo Inc	QRVO	101.39	108.66	11,016.93	0.04%			14.50%	0.01%
Lumen Technologies Inc	LUMN	1,034.58	5.25	5,431.56	0.02%			1.50%	0.00%
UDR Inc	UDR	325.54	42.59	13,864.83	0.05%	3.57%	0.00%	10.50%	0.01%
Clorox Co/The	CLX	123.39	144.69	17,852.58	0.06%	3.26%	0.00%	7.50%	0.00%
Paycom Software Inc	PAYC	60.02	323.94	19,442.88				21.00%	

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		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.
CMS Energy Corp	CMS	290.25	63.19	18,341.02	0.06%	2.91%	0.00%	6.50%	0.00%
Newell Brands Inc	NWL	413.60	15.96	6,601.06		5.76%			
Colgate-Palmolive Co	CL	835.21	74.53	62,248.50	0.22%		0.01%	6.50%	0.01%
EPAM Systems Inc	EPAM	57.51	332.65	19,131.70				20.50%	
Comerica Inc	CMA	131.00	73.31	9,603.61	0.03%	3.71%	0.00%	9.00%	0.00%
Conagra Brands Inc	CAG	476.62	37.19	17,725.61	0.06%	3.55%	0.00%	3.50%	0.00%
Consolidated Edison Inc	ED	354.86	95.31	33,821.99	0.12%	3.40%	0.00%	4.00%	0.00%
Corning Inc	GLW	845.81	34.61	29,273.52	0.10%	3.12%	0.00%	17.50%	0.02%
Cummins Inc	CMI	141.02	249.54	35,190.63	0.12%	2.52%	0.00%	8.50%	0.01%
Caesars Entertainment Inc	CZR	214.57	52.06	11,170.31					
Danaher Corp	DHR	728.30	264.38	192,547.95	0.68%	0.38%	0.00%	16.00%	0.11%
Target Corp	TGT	460.31	172.14	79,237.76	0.28%	2.51%	0.01%	12.00%	0.03%
Deere & Co	DE	297.16	422.84	125,649.87	0.44%	1.14%	0.01%	16.50%	0.07%
Dominion Energy Inc	D	833.28	63.64	53,029.62	0.19%	4.20%	0.01%	5.50%	0.01%
Dover Corp	DOV	140.35	151.83	21,309.95	0.08%	1.33%	0.00%	9.00%	0.01%
Alliant Energy Corp	LNT	251.02	54.03	13,562.72	0.05%	3.35%	0.00%	6.00%	0.00%
Steel Dynamics Inc	STLD	175.57	120.64	21,180.89	0.07%	1.13%	0.00%	2.00%	0.00%
Duke Energy Corp	DUK	770.00	102.45	78,886.50	0.28%	3.92%	0.01%	5.00%	0.01%
Regency Centers Corp	REG	171.12	66.63	11,401.93	0.04%	3.90%	0.00%	12.50%	0.01%
Eaton Corp PLC	ETN	397.70	162.21	64,510.92	0.23%	2.00%	0.00%	12.00%	0.03%
Ecolab Inc	ECL	284.83	154.83	44,099.92	0.16%	1.37%	0.00%	10.50%	0.02%
PerkinElmer Inc	PKI	126.32	137.53	17,372.24	0.06%	0.20%	0.00%	4.00%	0.00%
Emerson Electric Co	EMR	582.30	90.22	52,535.38	0.19%	2.31%	0.00%	9.50%	0.02%
EOG Resources Inc	EOG	587.39	132.25	77,682.20		2.50%		26.00%	
Aon PLC	AON	206.85	318.68	65,919.91	0.23%	0.70%	0.00%	7.50%	0.02%
Entergy Corp	ETR	203.48	108.28	22,033.25	0.08%	3.95%	0.00%	4.00%	0.00%
Equifax Inc	EFX	122.44	222.20	27,206.83	0.10%	0.70%	0.00%	7.00%	0.01%
EQT Corp	EQT	367.05	32.67	11,991.39		1.84%			
IQVIA Holdings Inc	IQV	185.74	229.41	42,610.61	0.15%			14.50%	0.02%
Gartner Inc	IT	79.02	338.14	26,721.18	0.09%			18.00%	0.02%
FedEx Corp	FDX	252.40	193.86	48,929.68	0.17%	2.37%	0.00%	13.00%	0.02%
FMC Corp	FMC	125.97	133.13	16,769.85	0.06%	1.74%	0.00%	11.00%	0.01%
Brown & Brown Inc	BRO	283.20	58.56	16,584.19	0.06%	0.79%	0.00%	8.00%	0.00%
Ford Motor Co	F	3,949.64	13.51	53,359.66		4.44%		33.50%	
NextEra Energy Inc	NEE	1,987.16	74.63	148,302.05	0.52%	2.28%	0.01%	10.50%	0.06%
Franklin Resources Inc	BEN	500.36	31.20	15,611.17	0.06%	3.85%	0.00%	3.50%	0.00%
Garmin Ltd	GRMN	191.66	98.88	18,951.74	0.07%	2.95%	0.00%	6.00%	0.00%
Freepoint-McMoRan Inc	FCX	1,429.33	44.62	63,776.57		1.34%		27.50%	
Dexcom Inc	DXCM	386.26	107.09	41,364.37					
General Dynamics Corp	GD	274.55	233.06	63,986.39	0.23%	2.16%	0.00%	9.00%	0.02%
General Mills Inc	GIS	589.61	78.36	46,201.92	0.16%	2.76%	0.00%	4.00%	0.01%
Genuine Parts Co	GPC	141.16	167.82	23,689.64	0.08%	2.13%	0.00%	9.00%	0.01%
Atmos Energy Corp	ATO	141.02	117.54	16,575.02	0.06%	2.52%	0.00%	7.50%	0.00%
WW Grainger Inc	GWV	50.53	589.48	29,785.83	0.11%	1.17%	0.00%	11.00%	0.01%
Halliburton Co	HAL	908.05	41.22	37,429.70		1.55%		32.50%	
L3Harris Technologies Inc	LHX	190.40	214.82	40,902.37	0.14%	2.09%	0.00%	18.00%	0.03%
Healthpeak Properties Inc	PEAK	537.54	27.48	14,771.60	0.05%	4.37%	0.00%	17.00%	0.01%
Catalent Inc	CTLT	179.96	53.55	9,637.07				21.00%	
Fortive Corp	FTV	353.81	68.03	24,069.56	0.09%	0.41%	0.00%	12.00%	0.01%
Hershey Co/The	HSY	146.97	224.60	33,009.24	0.12%	1.85%	0.00%	9.00%	0.01%
Synchrony Financial	SYF	438.20	36.73	16,095.09	0.06%	2.50%	0.00%	9.50%	0.01%
Hormel Foods Corp	HRL	546.42	45.31	24,758.47	0.09%	2.43%	0.00%	7.50%	0.01%
Arthur J Gallagher & Co	AJG	211.90	195.72	41,473.07	0.15%	1.12%	0.00%	18.50%	0.03%
Mondelez International Inc	MDLZ	1,365.62	65.44	89,366.11	0.32%	2.35%	0.01%	7.50%	0.02%
CenterPoint Energy Inc	CNP	629.43	30.12	18,958.49	0.07%	2.52%	0.00%	6.50%	0.00%
Humana Inc	HUM	126.60	511.70	64,781.22	0.23%	0.62%	0.00%	11.00%	0.03%
Willis Towers Watson PLC	WTW	108.24	254.19	27,513.02	0.10%	1.29%	0.00%	8.50%	0.01%
Illinois Tool Works Inc	ITW	307.19	236.04	72,508.18	0.26%	2.22%	0.01%	11.00%	0.03%
CDW Corp/DE	CDW	135.39	196.03	26,540.70	0.09%	1.20%	0.00%	8.50%	0.01%
Trane Technologies PLC	TT	230.31	179.12	41,252.59		1.50%			
Interpublic Group of Cos Inc/The	IPG	388.53	36.46	14,165.62	0.05%	3.18%	0.00%	10.00%	0.01%
International Flavors & Fragrances Inc	IFF	254.96	112.46	28,673.03	0.10%	2.88%	0.00%	7.50%	0.01%
Generac Holdings Inc	GNRC	63.36	120.60	7,640.73				23.50%	
NXP Semiconductors NV	NXPI	259.14	184.31	47,761.17	0.17%	2.20%	0.00%	12.00%	0.02%
Kellogg Co	K	341.28	68.58	23,405.05	0.08%	3.44%	0.00%	3.50%	0.00%
Broadridge Financial Solutions Inc	BR	117.66	150.36	17,690.61	0.06%	1.93%	0.00%	9.50%	0.01%
Kimberly-Clark Corp	KMB	337.49	130.01	43,877.33	0.16%	3.63%	0.01%	5.50%	0.01%
Kimco Realty Corp	KIM	618.46	22.46	13,890.63	0.05%	4.10%	0.00%	8.50%	0.00%
Oracle Corp	ORCL	2,696.25	88.46	238,510.54	0.84%	1.45%	0.01%	10.00%	0.08%
Kroger Co/The	KR	715.82	44.63	31,947.14	0.11%	2.33%	0.00%	6.50%	0.01%
Lennar Corp	LEN	253.54	102.40	25,962.39	0.09%	1.46%	0.00%	8.50%	0.01%
Eli Lilly & Co	LLY	950.18	344.15	327,003.76	1.16%	1.31%	0.02%	11.50%	0.13%
Bath & Body Works Inc	BBWI	228.42	46.01	10,509.37		1.74%		26.50%	
Charter Communications Inc	CHTR	155.67	384.31	59,826.31				23.00%	
Lincoln National Corp	LNC	169.22	35.43	5,995.29	0.02%	5.08%	0.00%	11.50%	0.00%
Loews Corp	L	237.43	61.48	14,597.01	0.05%	0.41%	0.00%	18.50%	0.01%
Lowe's Cos Inc	LOW	604.70	208.25	125,929.40	0.45%	2.02%	0.01%	12.50%	0.06%
IDEX Corp	IEX	75.42	239.68	18,076.91	0.06%	1.00%	0.00%	11.00%	0.01%
Marsh & McLennan Cos Inc	MMC	496.01	174.91	86,757.11	0.31%	1.35%	0.00%	11.00%	0.03%
Masco Corp	MAS	225.53	53.20	11,998.14	0.04%	2.11%	0.00%	8.00%	0.00%
S&P Global Inc	SPGI	325.80	374.94	122,155.45	0.43%	0.96%	0.00%	9.50%	0.04%
Medtronic PLC	MDT	1,330.18	83.69	111,322.76	0.39%	3.25%	0.01%	7.50%	0.03%
Viatrix Inc	VTRS	1,212.69	12.16	14,746.25		3.95%			
CVS Health Corp	CVS	1,313.97	88.22	115,918.17	0.41%	2.74%	0.01%	6.00%	0.02%
DuPont de Nemours Inc	DD	496.79	73.95	36,737.55	0.13%	1.78%	0.00%	9.50%	0.01%
Micron Technology Inc	MU	1,091.18	60.30	65,797.97	0.23%	0.76%	0.00%	13.00%	0.03%
Motorola Solutions Inc	MSI	167.20	257.01	42,972.84	0.15%	1.37%	0.00%	10.50%	0.02%
Cboe Global Markets Inc	CBOE	106.08	122.88	13,035.36	0.05%	1.63%	0.00%	10.00%	0.00%
Laboratory Corp of America Holdings	LH	88.60	252.12	22,337.83	0.08%	1.14%	0.00%	1.50%	0.00%
Newmont Corp	NEM	793.74	52.93	42,012.61	0.15%	4.16%	0.01%	9.50%	0.01%
NIKE Inc	NKE	1,245.67	127.33	158,610.65		1.07%		24.00%	

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.
NiSource Inc	NI	406.13	27.75	11,270.22	0.04%	3.60%	0.00%	9.50%	0.00%
Norfolk Southern Corp	NSC	228.08	245.81	56,063.36	0.20%	2.20%	0.00%	10.00%	0.02%
Principal Financial Group Inc	PFG	244.68	92.55	22,645.41	0.08%	2.77%	0.00%	6.50%	0.01%
Eversource Energy	ES	348.31	82.33	28,676.12	0.10%	3.10%	0.00%	6.50%	0.01%
Northrop Grumman Corp	NOC	153.05	448.04	68,573.87	0.24%	1.54%	0.00%	6.50%	0.02%
Wells Fargo & Co	WFC	3,833.80	46.87	179,690.21	0.64%	2.56%	0.02%	12.00%	0.08%
Nucor Corp	NUE	256.54	169.02	43,361.07	0.15%	1.21%	0.00%	2.50%	0.00%
Occidental Petroleum Corp	OXY	908.91	64.79	58,888.54		0.80%			
Omnicom Group Inc	OMC	203.92	85.99	17,534.74	0.06%	3.26%	0.00%	6.50%	0.00%
ONEOK Inc	OKE	446.95	68.48	30,607.41	0.11%	5.58%	0.01%	11.50%	0.01%
Raymond James Financial Inc	RJF	215.00	112.77	24,245.55	0.09%	1.49%	0.00%	15.00%	0.01%
PG&E Corp	PCG	1,987.70	15.90	31,604.43	0.11%			7.50%	0.01%
Parker-Hannifin Corp	PH	128.41	326.00	41,860.36	0.15%	1.63%	0.00%	15.50%	0.02%
Rollins Inc	ROL	492.47	36.40	17,925.98	0.06%	1.43%	0.00%	10.50%	0.01%
PPL Corp	PPL	736.32	29.60	21,795.01	0.08%	3.04%	0.00%	3.00%	0.00%
ConocoPhillips	COP	1,246.07	121.87	151,858.67	0.54%	0.57%	0.00%	20.00%	0.11%
PulteGroup Inc	PHM	227.82	56.89	12,960.68	0.05%	1.12%	0.00%	7.00%	0.00%
Pinnacle West Capital Corp	PNW	113.14	74.55	8,434.59	0.03%	4.64%	0.00%	0.50%	0.00%
PNC Financial Services Group Inc/The	PNC	401.00	165.43	66,337.43	0.23%	3.63%	0.01%	12.00%	0.03%
PPG Industries Inc	PPG	235.03	130.34	30,633.42	0.11%	1.90%	0.00%	4.00%	0.00%
Progressive Corp/The	PGR	584.90	136.35	79,751.12	0.28%	0.29%	0.00%	6.50%	0.02%
Public Service Enterprise Group Inc	PEG	498.95	61.93	30,899.97	0.11%	3.49%	0.00%	4.50%	0.00%
Robert Half International Inc	RHI	108.50	83.96	9,109.58	0.03%	2.05%	0.00%	10.50%	0.00%
Edison International	EIX	381.88	68.90	26,311.19	0.09%	4.28%	0.00%	16.00%	0.01%
Schlumberger Ltd	SLB	1,420.19	56.98	80,922.31		1.76%		28.50%	
Charles Schwab Corp/The	SCHW	1,815.85	77.42	140,582.80	0.50%	1.29%	0.01%	9.00%	0.04%
Sherwin-Williams Co/The	SHW	259.14	236.59	61,310.64	0.22%	1.01%	0.00%	11.50%	0.02%
West Pharmaceutical Services Inc	WST	74.03	265.60	19,663.16	0.07%	0.29%	0.00%	17.00%	0.01%
J M Smucker Co/The	SJM	106.64	152.80	16,294.44	0.06%	2.67%	0.00%	4.00%	0.00%
Snap-on Inc	SNA	53.16	248.73	13,221.24	0.05%	2.61%	0.00%	4.50%	0.00%
AMETEK Inc	AME	229.65	144.92	33,281.46	0.12%	0.61%	0.00%	10.00%	0.01%
Southern Co/The	SO	1,088.67	67.68	73,681.39	0.26%	4.02%	0.01%	6.50%	0.02%
Truist Financial Corp	TFC	1,326.83	49.39	65,532.08	0.23%	4.21%	0.01%	5.50%	0.01%
Southwest Airlines Co	LUV	593.75	35.77	21,238.51		2.01%			
W R Berkley Corp	WRB	264.55	70.14	18,555.26	0.07%	0.57%	0.00%	15.50%	0.01%
Stanley Black & Decker Inc	SWK	147.94	89.31	13,212.70	0.05%	3.58%	0.00%	6.00%	0.00%
Public Storage	PSA	175.64	304.34	53,453.67	0.19%	2.63%	0.00%	8.00%	0.02%
Arista Networks Inc	ANET	305.57	126.02	38,508.31	0.14%			10.00%	0.01%
Sysco Corp	SY	506.77	77.46	39,254.25		2.53%		21.50%	
Corteva Inc	CTVA	718.60	64.45	46,313.77	0.16%	0.93%	0.00%	16.50%	0.03%
Texas Instruments Inc	TXN	906.00	177.21	160,552.26	0.57%	2.80%	0.02%	7.50%	0.04%
Textron Inc	TXT	208.77	72.85	15,208.97	0.05%	0.11%	0.00%	10.50%	0.01%
Thermo Fisher Scientific Inc	TMO	392.20	570.33	223,681.14	0.79%	0.21%	0.00%	11.00%	0.09%
TJX Cos Inc/The	TJX	1,155.50	81.86	94,589.56	0.33%	1.44%	0.00%	17.00%	0.06%
Globe Life Inc	GL	97.27	120.85	11,755.08	0.04%	0.69%	0.00%	8.50%	0.00%
Johnson Controls International plc	JCI	687.21	69.57	47,809.48	0.17%	2.01%	0.00%	12.50%	0.02%
Ulta Beauty Inc	ULTA	50.88	513.96	26,150.80	0.09%			16.50%	0.02%
Union Pacific Corp	UNP	614.80	204.19	125,536.22	0.44%	2.55%	0.01%	9.50%	0.04%
Keysight Technologies Inc	KEYS	178.34	179.35	31,986.00	0.11%			13.00%	0.01%
UnitedHealth Group Inc	UNH	934.35	499.19	466,417.68	1.65%	1.32%	0.02%	12.00%	0.20%
Marathon Oil Corp	MRO	635.07	27.47	17,445.32		1.46%			
Bio-Rad Laboratories Inc	BIO	24.75	467.46	11,569.17	0.04%			11.50%	0.00%
Ventas Inc	VTR	399.72	51.81	20,709.39	0.07%	3.47%	0.00%	10.50%	0.01%
VF Corp	VFC	388.57	30.94	12,022.23	0.04%	6.59%	0.00%	9.00%	0.00%
Vulcan Materials Co	VMC	132.91	183.33	24,365.84	0.09%	0.87%	0.00%	8.50%	0.01%
Weyerhaeuser Co	WY	732.79	34.43	25,230.10	0.09%	2.09%	0.00%	7.00%	0.01%
Whirlpool Corp	WHR	54.00	155.59	8,401.86	0.03%	4.50%	0.00%	6.00%	0.00%
Williams Cos Inc/The	WMB	1,218.34	32.24	39,279.28	0.14%	5.55%	0.01%	12.00%	0.02%
Constellation Energy Corp	CEG	326.66	85.36	27,884.04		0.66%			
WEC Energy Group Inc	WEC	315.44	93.99	29,647.74	0.10%	3.32%	0.00%	6.00%	0.01%
Adobe Inc	ADBE	457.80	370.34	169,541.65	0.60%			13.00%	0.08%
AES Corp/The	AES	667.95	27.41	18,308.51	0.06%	2.42%	0.00%	14.00%	0.01%
Amgen Inc	AMGN	533.58	252.40	134,675.34	0.48%	3.38%	0.02%	5.50%	0.03%
Apple Inc	AAPL	15,836.21	144.29	2,285,007.17	8.08%	0.64%	0.05%	13.50%	1.09%
Autodesk Inc	ADSK	215.77	215.16	46,424.43	0.16%			14.00%	0.02%
Cintas Corp	CTAS	101.62	443.74	45,092.86	0.16%	1.04%	0.00%	14.00%	0.02%
Comcast Corp	CMCSA	4,313.96	39.35	169,754.48	0.60%	2.95%	0.02%	9.00%	0.05%
Moison Coors Beverage Co	TAP	200.15	52.58	10,523.62		2.89%		49.50%	
KLA Corp	KLAC	138.48	392.48	54,350.63	0.19%	1.32%	0.00%	20.00%	0.04%
Marriott International Inc/MD	MAR	316.54	174.18	55,134.94	0.19%	0.92%	0.00%	17.50%	0.03%
McCormick & Co Inc/MD	MKC	250.72	75.12	18,834.16	0.07%	2.08%	0.00%	4.50%	0.00%
PACCAR Inc	PCAR	348.00	109.31	38,039.88	0.13%	0.91%	0.00%	5.00%	0.01%
Costco Wholesale Corp	COST	443.73	511.14	226,807.64	0.80%	0.70%	0.01%	10.50%	0.08%
First Republic Bank/CA	FRC	182.93	140.88	25,770.47	0.09%	0.77%	0.00%	11.50%	0.01%
Stryker Corp	SYK	378.43	253.81	96,049.32	0.34%	1.18%	0.00%	8.50%	0.03%
Tyson Foods Inc	TSN	287.82	65.75	18,923.90	0.07%	2.92%	0.00%	6.00%	0.00%
Lamb Weston Holdings Inc	LW	143.87	99.89	14,371.27	0.05%	1.12%	0.00%	11.50%	0.01%
Applied Materials Inc	AMAT	843.08	111.49	93,994.77	0.33%	0.93%	0.00%	13.50%	0.04%
American Airlines Group Inc	AAL	649.90	16.14	10,489.40					
Cardinal Health Inc	CAH	262.13	77.25	20,249.85	0.07%	2.57%	0.00%	5.00%	0.00%
Cincinnati Financial Corp	CINF	157.18	113.15	17,785.37	0.06%	2.65%	0.00%	9.00%	0.01%
Paramount Global	PARA	608.47	23.16	14,092.17	0.05%	4.15%	0.00%	4.50%	0.00%
DR Horton Inc	DHI	343.39	98.69	33,889.46	0.12%	1.01%	0.00%	0.50%	0.00%
Electronic Arts Inc	EA	276.08	128.68	35,525.97	0.13%	0.59%	0.00%	13.00%	0.02%
Expeditors International of Washington Inc	EXPD	159.14	108.15	17,210.56	0.06%	1.24%	0.00%	10.00%	0.01%
Fastenal Co	FAST	570.81	50.20	28,654.76	0.10%	2.79%	0.00%	8.50%	0.01%
M&T Bank Corp	MTB	172.61	156.00	26,927.63	0.10%	3.08%	0.00%	9.00%	0.01%
Xcel Energy Inc	XEL	547.25	68.77	37,634.24	0.13%	2.84%	0.00%	6.00%	0.01%
Fiserv Inc	FISV	635.03	106.68	67,744.79	0.24%			11.00%	0.03%
Fifth Third Bancorp	FITB	683.39	36.29	24,800.08	0.09%	3.64%	0.00%	9.50%	0.01%
Gilead Sciences Inc	GILD	1,254.24	83.94	105,281.24	0.37%	3.48%	0.01%	12.00%	0.04%



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Name	Ticker	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
		Shares Outstg	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.
Hasbro Inc	HAS	138.11	59.17	8,172.21	0.03%	4.73%	0.00%	7.50%	0.00%
Huntington Bancshares Inc/OH	HBAN	1,442.73	15.17	21,886.27	0.08%	4.09%	0.00%	12.50%	0.01%
Welltower Inc	WELL	472.52	75.04	35,457.98	0.13%	3.25%	0.00%	2.50%	0.00%
Biogen Inc	BIIB	144.00	290.90	41,889.89				-10.50%	
Northern Trust Corp	NTRS	208.89	96.97	20,256.45	0.07%	3.09%	0.00%	8.00%	0.01%
Packaging Corp of America	PKG	92.53	142.70	13,204.60	0.05%	3.50%	0.00%	11.00%	0.01%
Paychex Inc	PAYX	360.47	115.86	41,763.71	0.15%	2.73%	0.00%	10.50%	0.02%
QUALCOMM Inc	QCOM	1,117.19	133.21	148,821.15	0.53%	2.25%	0.01%	18.00%	0.09%
Roper Technologies Inc	ROP	106.05	426.75	45,257.69	0.16%	0.64%	0.00%	3.50%	0.01%
Ross Stores Inc	ROST	344.37	118.19	40,701.21	0.14%	1.05%	0.00%	14.00%	0.02%
IDEXX Laboratories Inc	IDXX	82.82	480.50	39,793.57	0.14%			12.00%	0.02%
Starbucks Corp	SBUX	1,148.56	109.14	125,353.73	0.44%	1.94%	0.01%	16.00%	0.07%
KeyCorp	KEY	933.33	19.19	17,910.51	0.06%	4.27%	0.00%	7.50%	0.00%
Fox Corp	FOXA	302.48	33.94	10,266.00	0.04%	1.47%	0.00%	12.00%	0.00%
Fox Corp	FOX	240.22	31.70	7,614.94		1.58%			
State Street Corp	STT	349.02	91.33	31,876.36	0.11%	2.76%	0.00%	8.50%	0.01%
Nonwegian Cruise Line Holdings Ltd	NCLH	421.40	15.21	6,409.43					
US Bancorp	USB	1,531.00	49.80	76,243.80	0.27%	3.86%	0.01%	6.00%	0.02%
A O Smith Corp	AOS	126.87	67.70	8,589.10	0.03%	1.77%	0.00%	11.50%	0.00%
Gen Digital Inc	GEN	651.36	23.01	14,987.79	0.05%	2.17%	0.00%	10.50%	0.01%
T Rowe Price Group Inc	TROW	224.30	116.47	26,124.22	0.09%	4.12%	0.00%	4.50%	0.00%
Waste Management Inc	WM	410.48	154.73	63,513.11	0.22%	1.68%	0.00%	6.50%	0.01%
Constellation Brands Inc	STZ	184.50	231.52	42,714.98	0.15%	1.38%	0.00%	6.00%	0.01%
DENTSPLY SIRONA Inc	XRAY	214.91	36.83	7,915.21	0.03%	1.36%	0.00%	12.00%	0.00%
Zions Bancorp NA	ZION	148.66	53.16	7,902.98	0.03%	3.09%	0.00%	6.50%	0.00%
Alaska Air Group Inc	ALK	127.53	51.34	6,547.54					
Invesco Ltd	IVZ	454.80	18.51	8,418.35	0.03%	4.05%	0.00%	10.00%	0.00%
Linde PLC	LIN	492.46	330.94	162,973.72	0.58%	1.41%	0.01%	12.00%	0.07%
Intuit Inc	INTU	280.93	422.67	118,738.57	0.42%	0.74%	0.00%	16.50%	0.07%
Morgan Stanley	MS	1,690.11	97.33	164,498.31	0.58%	3.19%	0.02%	8.50%	0.05%
Microchip Technology Inc	MCHP	550.01	77.62	42,691.70	0.15%	1.69%	0.00%	10.00%	0.02%
Chubb Ltd	CB	415.05	227.49	94,419.72	0.33%	1.46%	0.00%	14.50%	0.05%
Hologic Inc	HOLX	246.55	81.37	20,061.85				25.00%	
Citizens Financial Group Inc	CFG	492.49	43.32	21,334.71	0.08%	3.88%	0.00%	8.00%	0.01%
O'Reilly Automotive Inc	ORLY	62.58	792.35	49,582.09	0.18%			13.00%	0.02%
Allstate Corp/The	ALL	265.21	128.47	34,071.53	0.12%	2.65%	0.00%	2.50%	0.00%
Equity Residential	EQR	377.92	63.65	24,054.54		3.93%		-6.00%	
BorgWarner Inc	BWA	234.15	47.28	11,070.80	0.04%	1.44%	0.00%	9.50%	0.00%
Keurig Dr Pepper Inc	KDP	1,416.25	35.28	49,965.34	0.18%	2.27%	0.00%	11.50%	0.02%
Organon & Co	OGN	254.36	30.13	7,663.99		3.72%			
Host Hotels & Resorts Inc	HST	715.03	18.85	13,478.28		2.55%		59.50%	
Incyte Corp	INCY	222.48	85.14	18,941.52				25.50%	
Simon Property Group Inc	SPG	326.95	128.46	41,999.48	0.15%	5.60%	0.01%	3.00%	0.00%
Eastman Chemical Co	EMN	119.99	87.17	10,579.52	0.04%	3.58%	0.00%	7.00%	0.00%
AvalonBay Communities Inc	AVB	139.90	178.44	24,823.32	0.09%	3.58%	0.00%	9.00%	0.01%
Prudential Financial Inc	PRU	368.00	104.94	38,617.92	0.14%	4.57%	0.01%	5.00%	0.01%
United Parcel Service Inc	UPS	729.82	185.23	135,184.74	0.48%	3.50%	0.02%	11.50%	0.05%
Walgreens Boots Alliance Inc	WBA	862.50	36.86	31,791.90	0.11%	5.21%	0.01%	3.00%	0.00%
STERIS PLC	STE	99.82	206.51	20,614.45	0.07%	0.91%	0.00%	10.00%	0.01%
McKesson Corp	MCK	141.79	378.68	53,694.17	0.19%	0.57%	0.00%	10.00%	0.02%
Lockheed Martin Corp	LMT	255.30	463.26	118,268.89	0.42%	2.59%	0.01%	8.00%	0.03%
AmerisourceBergen Corp	ABC	202.24	168.96	34,169.79	0.12%	1.15%	0.00%	8.50%	0.01%
Capital One Financial Corp	COF	381.30	119.00	45,374.70		2.02%			
Waters Corp	WAT	59.41	328.58	19,520.28	0.07%			6.00%	0.00%
Nordson Corp	NDSN	57.18	243.30	13,911.65	0.05%	1.07%	0.00%	12.00%	0.01%
Dollar Tree Inc	DLTR	221.18	150.18	33,217.41	0.12%			12.00%	0.01%
Darden Restaurants Inc	DRI	121.71	147.97	18,008.69		3.27%		21.50%	
Evergy Inc	EVER	229.48	62.65	14,376.80	0.05%	3.91%	0.00%	7.50%	0.00%
Match Group Inc	MTCH	279.31	54.12	15,116.04				21.00%	
Dominos Pizza Inc	DPZ	35.40	353.00	12,495.85	0.04%	1.25%	0.00%	14.00%	0.01%
NVR Inc	NVR	3.20	5,270.00	16,842.92	0.06%			5.50%	0.00%
NetApp Inc	NTAP	215.57	66.23	14,277.40	0.05%	3.02%	0.00%	8.50%	0.00%
DXC Technology Co	DXC	230.07	28.73	6,609.77	0.02%			12.00%	0.00%
Old Dominion Freight Line Inc	ODFL	110.48	333.24	36,817.02	0.13%	0.36%	0.00%	11.50%	0.01%
DaVita Inc	DVA	90.10	82.39	7,423.34	0.03%			8.50%	0.00%
Hartford Financial Services Group Inc/The	HIG	318.10	77.61	24,687.66	0.09%	2.19%	0.00%	6.50%	0.01%
Iron Mountain Inc	IRM	290.71	54.58	15,867.17	0.06%	4.53%	0.00%	11.00%	0.01%
Estee Lauder Cos Inc/The	EL	231.27	277.08	64,080.29	0.23%	0.95%	0.00%	14.00%	0.03%
Cadence Design Systems Inc	CDNS	274.32	182.83	50,153.19	0.18%			12.00%	0.02%
Tyler Technologies Inc	TYL	41.64	322.77	13,440.14	0.05%			12.00%	0.01%
Universal Health Services Inc	UHS	64.16	148.21	9,508.71	0.03%	0.54%	0.00%	7.00%	0.00%
Skyworks Solutions Inc	SWKS	160.16	109.67	17,564.86	0.06%	2.26%	0.00%	9.00%	0.01%
Quest Diagnostics Inc	DGX	113.89	148.48	16,909.94	0.06%	1.78%	0.00%	3.50%	0.00%
Activision Blizzard Inc	ATVI	782.63	76.57	59,925.60	0.21%	0.61%	0.00%	11.50%	0.02%
Rockwell Automation Inc	ROK	114.78	282.03	32,371.97	0.11%	1.67%	0.00%	9.50%	0.01%
Kraft Heinz Co/The	KHC	1,224.93	40.53	49,646.41	0.18%	3.95%	0.01%	6.50%	0.01%
American Tower Corp	AMT	465.61	223.39	104,011.72	0.37%	2.79%	0.01%	9.00%	0.03%
Regeneron Pharmaceuticals Inc	REGN	107.08	758.47	81,220.00	0.29%			3.00%	0.01%
Amazon.com Inc	AMZN	10,201.65	103.13	1,052,096.58				26.50%	
Jack Henry & Associates Inc	JKHY	72.95	180.09	13,137.39	0.05%	1.09%	0.00%	8.50%	0.00%
Ralph Lauren Corp	RL	41.09	123.85	5,089.12	0.02%	2.42%	0.00%	12.00%	0.00%
Boston Properties Inc	BXP	156.76	74.54	11,684.52		5.26%		-1.00%	
Amphenol Corp	APH	595.10	79.77	47,470.73	0.17%	1.05%	0.00%	13.00%	0.02%
Howmet Aerospace Inc	HWM	413.71	40.69	16,833.94	0.06%	0.39%	0.00%	12.00%	0.01%
Pioneer Natural Resources Co	PXD	237.60	230.35	54,730.93		9.92%		21.00%	
Valero Energy Corp	VLO	385.52	140.03	53,984.79	0.19%	2.91%	0.01%	11.00%	0.02%
Synopsys Inc	SNPS	152.42	353.75	53,917.51	0.19%			12.50%	0.02%
Etsy Inc	ETSY	125.69	137.58	17,292.16				24.50%	
CH Robinson Worldwide Inc	CHRW	117.71	100.17	11,790.91	0.04%	2.44%	0.00%	8.50%	0.00%
Accenture PLC	ACN	658.39	279.05	183,723.45	0.65%	1.61%	0.01%	12.50%	0.08%
TransDigm Group Inc	TDG	54.54	717.75	39,142.50	0.14%			19.50%	0.03%

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.
Yum! Brands Inc	YUM	281.69	130.51	36,763.10	0.13%	1.75%	0.00%	10.50%	0.01%
Prologis Inc	PLD	923.08	129.28	119,335.65	0.42%	2.44%	0.01%	6.00%	0.03%
FirstEnergy Corp	FE	571.75	40.95	23,413.29	0.08%	3.81%	0.00%	3.00%	0.00%
VeriSign Inc	VRSN	106.02	218.05	23,116.79	0.08%			11.00%	0.01%
Quanta Services Inc	PWR	142.90	152.19	21,748.10	0.08%	0.21%	0.00%	16.50%	0.01%
Henry Schein Inc	HSIC	135.55	86.15	11,677.46	0.04%			7.00%	0.00%
Ameren Corp	AEE	258.37	86.87	22,444.69	0.08%	2.72%	0.00%	6.50%	0.01%
ANSYS Inc	ANSS	87.11	266.36	23,203.15	0.08%			8.50%	0.01%
FactSet Research Systems Inc	FDS	38.25	422.94	16,178.30	0.06%	0.84%	0.00%	10.50%	0.01%
NVIDIA Corp	NVDA	2,460.00	195.37	480,610.20		0.08%		23.00%	
Sealed Air Corp	SEE	144.66	54.76	7,921.47	0.03%	1.46%	0.00%	10.00%	0.00%
Cognizant Technology Solutions Corp	CTSH	513.92	66.75	34,304.23	0.12%	1.62%	0.00%	8.00%	0.01%
SVB Financial Group	SIVB	59.17	302.44	17,895.98	0.06%			8.50%	0.01%
Intuitive Surgical Inc	ISRG	353.39	245.69	86,823.16	0.31%			12.50%	0.04%
Take-Two Interactive Software Inc	TTWO	167.82	113.23	19,002.15	0.07%			3.00%	0.00%
Republic Services Inc	RSG	316.00	124.82	39,443.24	0.14%	1.59%	0.00%	12.50%	0.02%
eBay Inc	EBAY	542.66	49.50	28,861.62	0.09%	1.78%	0.00%	12.50%	0.01%
Goldman Sachs Group Inc/The	GS	334.92	365.81	122,515.62	0.43%	2.73%	0.01%	5.00%	0.02%
SBA Communications Corp	SBAC	107.97	297.53	32,123.12		0.95%		35.50%	
Sempra Energy	SRE	314.33	160.33	50,397.01	0.18%	2.86%	0.01%	7.50%	0.01%
Moody's Corp	MCO	183.20	322.75	59,127.80	0.21%	0.95%	0.00%	4.00%	0.01%
ON Semiconductor Corp	ON	432.42	73.45	31,761.54				22.50%	
Booking Holdings Inc	BKNG	38.79	2,434.10	94,416.30				22.00%	
F5 Inc	FFIV	60.12	147.66	8,877.02	0.03%			10.00%	0.00%
Akamai Technologies Inc	AKAM	157.24	88.95	13,986.68	0.05%			5.50%	0.00%
Charles River Laboratories International Inc	CRL	50.88	243.25	12,376.32	0.04%			12.00%	0.01%
MarketAxess Holdings Inc	MKTX	37.64	363.85	13,694.22	0.05%	0.79%	0.00%	10.00%	0.00%
Devon Energy Corp	DVN	653.70	63.24	41,339.99		8.54%		33.50%	
Bio-Techne Corp	TECH	156.97	79.66	12,504.23	0.04%	0.40%	0.00%	14.50%	0.01%
Alphabet Inc	GOOGL	5,973.00	98.84	590,371.32					
Teleflex Inc	TFX	46.91	243.42	11,417.86	0.04%	0.56%	0.00%	10.00%	0.00%
Netflix Inc	NFLX	445.35	353.86	157,590.49	0.56%			14.50%	0.08%
Allegion plc	ALLE	87.85	117.55	10,326.18	0.04%	1.40%	0.00%	11.00%	0.00%
Agilent Technologies Inc	A	296.07	152.08	45,026.63	0.16%	0.59%	0.00%	12.00%	0.02%
Warner Bros Discovery Inc	WBD	2,428.40	14.82	35,988.83					
Elevance Health Inc	ELV	238.83	499.99	119,411.61	0.42%	1.18%	0.00%	12.50%	0.05%
Trimble Inc	TRMB	246.63	58.06	14,319.05	0.05%			10.00%	0.01%
CME Group Inc	CME	359.73	176.66	63,549.02	0.22%	2.26%	0.01%	8.50%	0.02%
Juniper Networks Inc	JNPR	324.56	32.30	10,483.16	0.04%	2.72%	0.00%	10.50%	0.00%
BlackRock Inc	BLK	150.20	759.21	114,030.31	0.40%	2.63%	0.01%	8.50%	0.03%
DTE Energy Co	DTE	193.74	116.37	22,545.76	0.08%	3.27%	0.00%	4.50%	0.00%
Nasdaq Inc	NDQA	491.28	60.19	29,570.14	0.10%	1.33%	0.00%	8.50%	0.01%
Celanese Corp	CE	108.43	123.20	13,358.33	0.05%	2.27%	0.00%	7.50%	0.00%
Philip Morris International Inc	PM	1,550.20	104.24	161,593.06	0.57%	4.87%	0.03%	5.00%	0.03%
Salesforce Inc	CRM	1,000.00	167.97	167,970.00	0.59%			19.50%	0.12%
Ingersoll Rand Inc	IR	404.93	56.00	22,675.86		0.14%			
Huntington Ingalls Industries Inc	HII	39.90	220.54	8,800.43	0.03%	2.25%	0.00%	10.00%	0.00%
MetLife Inc	MET	784.61	73.02	57,291.93	0.20%	2.74%	0.01%	5.00%	0.01%
Tapestry Inc	TPR	240.96	45.57	10,980.59	0.04%	2.63%	0.00%	13.50%	0.01%
CSX Corp	CSX	2,102.41	30.92	65,006.49	0.23%	1.29%	0.00%	10.50%	0.02%
Edwards Lifesciences Corp	EW	618.26	76.70	47,420.54	0.17%			11.00%	0.02%
Ameriprise Financial Inc	AMP	106.42	350.12	37,258.72	0.13%	1.43%	0.00%	13.50%	0.02%
Zebra Technologies Corp	ZBRA	51.63	316.18	16,324.37	0.06%			11.50%	0.01%
Zimmer Biomet Holdings Inc	ZBH	209.85	127.34	26,722.55	0.09%	0.75%	0.00%	5.50%	0.01%
CBRE Group Inc	CBRE	315.95	85.51	27,016.80	0.10%			8.50%	0.01%
Camden Property Trust	CPT	106.53	123.21	13,125.31	0.05%	3.05%	0.00%	3.50%	0.00%
Mastercard Inc	MA	948.00	370.60	351,328.80	1.24%	0.62%	0.01%	18.50%	0.23%
CarMax Inc	KMX	158.02	70.45	11,132.72				-3.00%	
Intercontinental Exchange Inc	ICE	558.55	107.55	60,072.27	0.21%	1.41%	0.00%	7.00%	0.01%
Fidelity National Information Services Inc	FIS	593.38	75.04	44,527.16		2.51%		52.00%	
Chipotle Mexican Grill Inc	CMG	27.72	1,646.38	45,639.30				23.00%	
Wynn Resorts Ltd	WYNN	113.31	103.64	11,743.86				27.00%	
Live Nation Entertainment Inc	LYV	230.88	80.49	18,583.53					
Assurant Inc	AIZ	52.83	132.59	7,004.86	0.02%	2.11%	0.00%	15.50%	0.00%
NRG Energy Inc	NRG	213.39	34.22	7,302.17		4.41%		-10.50%	
Regions Financial Corp	RF	934.45	23.54	21,996.86	0.08%	3.40%	0.00%	11.50%	0.01%
Monster Beverage Corp	MNST	521.74	104.08	54,303.12	0.19%			10.50%	0.02%
Mosaic Co/The	MOS	340.48	49.54	16,867.43		1.61%		38.00%	
Baker Hughes Co	BKR	1,001.47	31.74	31,786.59		2.39%			
Expedia Group Inc	EXPE	150.57	114.30	17,209.81					
CF Industries Holdings Inc	CF	196.19	84.70	16,617.21		1.89%		32.00%	
Leidos Holdings Inc	LDOS	136.69	98.84	13,510.44	0.05%	1.46%	0.00%	8.50%	0.00%
APA Corp	APA	321.51	44.33	14,252.63		2.26%			
Alphabet Inc	GOOG	6,086.00	99.87	607,808.82	2.15%			18.50%	0.40%
First Solar Inc	FSLR	106.61	177.60	18,933.23				20.50%	
TE Connectivity Ltd	TEL	316.46	127.15	40,237.51	0.14%	1.76%	0.00%	10.50%	0.01%
Cooper Cos Inc/The	COO	49.43	348.93	17,245.87	0.06%	0.02%	0.00%	14.00%	0.01%
Discover Financial Services	DFS	267.00	116.73	31,166.91	0.11%	2.06%	0.00%	8.50%	0.01%
Visa Inc	V	1,624.95	230.21	374,080.66	1.32%	0.78%	0.01%	13.50%	0.18%
Mid-America Apartment Communities Inc	MAA	115.48	166.72	19,252.33		3.36%		-14.50%	
Xylem Inc/NY	XYL	180.26	104.01	18,748.43	0.07%	1.15%	0.00%	9.00%	0.01%
Marathon Petroleum Corp	MPC	468.66	128.52	60,232.31		2.33%			
Tractor Supply Co	TSCO	110.46	227.99	25,184.46	0.09%	1.61%	0.00%	13.00%	0.01%
Advanced Micro Devices Inc	AMD	1,612.36	75.15	121,168.55				25.50%	
ResMed Inc	RMD	146.91	228.37	33,549.61	0.12%	0.77%	0.00%	8.50%	0.01%
Mettler-Toledo International Inc	MTD	22.29	1,532.92	34,174.92	0.12%			13.50%	0.02%
VICI Properties Inc	VICI	1,033.99	34.18	35,341.88	0.12%	4.56%	0.01%	8.50%	0.01%
Copart Inc	CPRT	476.30	66.61	31,726.34	0.11%			7.00%	0.01%
Jacobs Solutions Inc	J	126.61	123.55	15,642.79	0.06%	0.84%	0.00%	12.00%	0.01%
Albemarle Corp	ALB	117.15	281.45	32,972.71		0.56%		21.50%	
Fortinet Inc	FTNT	781.24	52.34	40,889.89				21.50%	

STANDARD AND POOR'S 500 INDEX

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Shares Outstg	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.
Moderna Inc	MRNA	384.18	176.06	67,638.73				-2.50%	
Essex Property Trust Inc	ESS	64.75	226.07	14,638.94		3.89%		-4.00%	
CoStar Group Inc	CSGP	406.69	77.90	31,681.15	0.11%			13.00%	0.01%
Realty Income Corp	O	627.15	67.83	42,539.86	0.15%	4.40%	0.01%	6.00%	0.01%
Westrock Co	WRK	254.52	39.24	9,987.29	0.04%	2.80%	0.00%	15.00%	0.01%
Westinghouse Air Brake Technologies Corp	WAB	181.87	103.81	18,879.72	0.07%	0.58%	0.00%	9.50%	0.01%
Pool Corp	POOL	39.05	385.61	15,058.46	0.05%	1.04%	0.00%	14.00%	0.01%
Western Digital Corp	WDC	317.65	43.95	13,960.72	0.05%			6.50%	0.00%
PepsiCo Inc	PEP	1,377.71	171.02	235,615.79	0.83%	2.69%	0.02%	6.50%	0.05%
Diamondback Energy Inc	FANG	181.86	146.12	26,573.24		6.19%			
ServiceNow Inc	NOW	203.00	455.13	92,391.39				45.50%	
Church & Dwight Co Inc	CHD	243.87	80.86	19,719.17	0.07%	1.30%	0.00%	6.00%	0.00%
Federal Realty Investment Trust	FRT	81.21	111.53	9,057.24	0.03%	3.87%	0.00%	2.50%	0.00%
MGM Resorts International	MGM	384.02	41.41	15,902.27		0.02%		25.00%	
American Electric Power Co Inc	AEP	513.86	99.96	48,282.66	0.17%	3.53%	0.01%	6.50%	0.01%
SolarEdge Technologies Inc	SEDG	55.90	319.13	17,837.77				22.00%	
Invitation Homes Inc	INVH	611.41	32.50	19,870.83		2.71%			
PTC Inc	PTC	118.15	134.88	15,936.61				29.00%	
JB Hunt Transport Services Inc	JBHT	103.54	189.05	19,573.67	0.07%	0.89%	0.00%	11.50%	0.01%
Lam Research Corp	LRGX	134.94	500.10	67,481.49	0.24%	1.38%	0.00%	14.00%	0.03%
Mohawk Industries Inc	MHK	63.53	120.06	7,627.89	0.03%			10.00%	0.00%
Pentair PLC	PNR	164.50	55.38	9,109.90	0.03%	1.59%	0.00%	12.00%	0.00%
GE HealthCare Technologies Inc	GEHC	453.93	69.52	31,556.94					
Vertex Pharmaceuticals Inc	VRTX	256.69	323.10	82,936.86	0.29%			12.50%	0.04%
Ancor PLC	AMCR	1,489.02	12.06	17,957.58	0.06%	4.06%	0.00%	14.50%	0.01%
Meta Platforms Inc	META	2,255.32	148.97	335,975.17	1.19%			11.00%	0.13%
T-Mobile US Inc	TMUS	1,244.15	149.31	185,764.63	0.66%			16.50%	0.11%
United Rentals Inc	URI	69.36	440.95	30,584.29	0.11%	1.34%	0.00%	18.00%	0.02%
Honeywell International Inc	HON	672.32	208.48	140,165.69	0.50%	1.98%	0.01%	12.00%	0.06%
Alexandria Real Estate Equities Inc	ARE	173.09	160.74	27,822.00	0.10%	3.01%	0.00%	10.00%	0.01%
Delta Air Lines Inc	DAL	641.19	39.10	25,070.45					
Seagate Technology Holdings PLC	STX	206.48	67.78	13,995.49	0.05%	4.13%	0.00%	11.50%	0.01%
United Airlines Holdings Inc	UAL	326.73	48.96	15,996.65					
News Corp	NWS	193.28	20.44	3,950.56		0.98%			
Centene Corp	CNC	566.26	76.24	43,171.66	0.15%			10.00%	0.02%
Martin Marietta Materials Inc	MLM	62.09	359.64	22,330.41	0.08%	0.73%	0.00%	4.50%	0.00%
Teradyne Inc	TER	155.76	101.70	15,840.39	0.06%	0.43%	0.00%	11.50%	0.01%
PayPal Holdings Inc	PYPL	1,140.03	81.49	92,900.88	0.33%			12.00%	0.04%
Tesla Inc	TSLA	3,164.10	173.22	548,085.92				51.50%	
Arch Capital Group Ltd	ACGL	369.87	64.35	23,801.33	0.08%			19.50%	0.02%
DISH Network Corp	DISH	292.27	14.39	4,205.78				-1.50%	
Dow Inc	DOW	703.76	59.35	41,768.10	0.15%	4.72%	0.01%	15.00%	0.02%
Everest Re Group Ltd	RE	39.17	349.69	13,695.61	0.05%	1.89%	0.00%	9.50%	0.00%
Teledyne Technologies Inc	TDY	46.87	424.26	19,885.49	0.07%			11.50%	0.01%
News Corp	NWSA	382.35	20.26	7,746.43		0.99%			
Exelon Corp	EXC	991.76	42.19	41,842.23		3.20%			
Global Payments Inc	GPN	270.40	112.72	30,479.60	0.11%	0.89%	0.00%	17.00%	0.02%
Crown Castle Inc	CCI	433.00	148.11	64,131.63	0.23%	4.23%	0.01%	12.00%	0.03%
Aptiv PLC	APTIV	270.95	113.09	30,641.74				26.00%	
Advance Auto Parts Inc	AAP	59.25	152.28	9,023.20	0.03%	3.94%	0.00%	12.00%	0.00%
Align Technology Inc	ALGN	78.11	269.73	21,069.15	0.07%			17.00%	0.01%
Illumina Inc	ILMN	157.30	214.20	33,693.66	0.12%			6.50%	0.01%
Targa Resources Corp	TRGP	226.38	75.02	16,982.65		1.87%			
LKQ Corp	LKQ	267.18	58.96	15,752.64	0.06%	1.87%	0.00%	13.00%	0.01%
Zoetis Inc	ZTS	466.07	165.49	77,130.26	0.27%	0.91%	0.00%	11.00%	0.03%
Equinix Inc	EQIX	92.54	738.13	68,305.07	0.24%	1.68%	0.00%	15.00%	0.04%
Digital Realty Trust Inc	DLR	287.52	114.62	32,955.77		4.26%		-3.50%	
Las Vegas Sands Corp	LVS	764.17	59.00	45,085.79					
Molina Healthcare Inc	MOH	58.40	311.83	18,210.87	0.06%			11.00%	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 January 31, 2023
- [5] Source: Bloomberg Professional as of January 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 January 31, 2023
- [9] Equals [7] x [8]
- [10] Source: Value Line, as of January 31, 2023
- [11] Equals [7] x [10]

Exh. AEB-10  
Docket UE-23\_\_\_\_  
Witness: Ann E. Bulkley

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP dba  
PACIFIC POWER & LIGHT COMPANY

Respondent.

Docket UE-23\_\_\_\_

**PACIFICORP**

**EXHIBIT OF ANN E. BULKLEY**

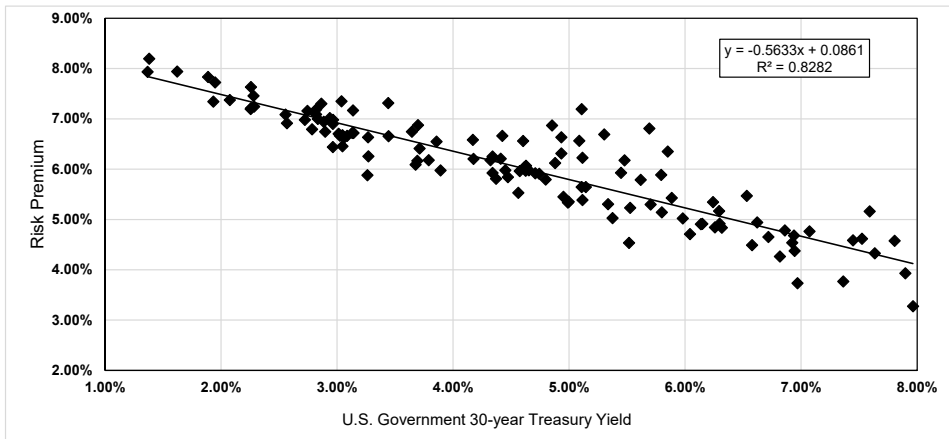
**Risk Premium Approach**

**March 2023**

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%
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	9.77%	3.68%	6.09%
AVERAGE	10.61%	4.56%	6.05%
MEDIAN	10.58%	4.61%	6.18%



SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.9100384
R Square	0.8281699
Adjusted R Square	0.8267729
Standard Error	0.0042594
Observations	125

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.01076	0.01076	592.82350	0.00000
Residual	123	0.00223	0.00002		
Total	124	0.01299			

	<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	0.0861	0.00	76.96	0.0000	0.0839	0.0883	0.0839	0.0883
U.S. Govt. 30-year Treasury	(0.5633)	0.02	(24.35)	0.0000	(0.6091)	(0.5175)	(0.6091)	(0.5175)

	U.S. Govt. 30-year Treasury	Risk Premium	ROE
Current 30-day average of 30-year U.S. Treasury bond yield [4]	3.71%	6.52%	10.23%
Blue Chip Near-Term Projected Forecast (Q2 2023 - Q2 2024) [5]	3.82%	6.46%	10.28%
Blue Chip Long-Term Projected Forecast (2024-2028) [6]	3.90%	6.42%	10.32%
AVERAGE			10.28%

Notes:

- [1] Source: Regulatory Research Associates, rate cases through January 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 January 31, 2023
- [5] Source: Blue Chip Financial Forecasts, Vol. 42, No. 2, February 1, 2022, at 2
- [6] Source: Blue Chip Financial Forecasts, Vol. 41, No. 12, December 2, 2022, at 14
- [7] See notes [4], [5] & [6]
- [8] Equals 0.086126 + (-0.563277 x Column [7])
- [9] Equals Column [7] + Column [8]



Exh. AEB-11  
Docket UE-23\_\_\_\_  
Witness: Ann E. Bulkley

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP dba  
PACIFIC POWER & LIGHT COMPANY

Respondent.

Docket UE-23\_\_\_\_

**PACIFICORP**

**EXHIBIT OF ANN E. BULKLEY**

**Expected Earnings Analysis**

**March 2023**

EXPECTED EARNINGS ANALYSIS

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
	Value Line ROE 2025-2027	Value Line Total Capital 2021	Value Line Common Equity Ratio 2021	Total Equity 2021	Value Line Total Capital 2025-2027	Value Line Common Equity Ratio 2025-2027	Total Equity 2025-2027	Compound Annual Growth Rate	Adjustment Factor	Adjusted Return on Common Equity
ALLETE, Inc.	9.00%	4,176	57.80%	2,414	5,550	59.50%	3,302	6.47%	1.031	9.28%
Alliant Energy Corporation	11.50%	12,725	47.10%	5,993	17,100	45.00%	7,695	5.12%	1.025	11.79%
Ameren Corporation	10.00%	22,391	43.30%	9,695	29,500	48.50%	14,308	8.09%	1.039	10.39%
American Electric Power Company, Inc.	11.00%	53,734	41.70%	22,407	75,900	42.50%	32,258	7.56%	1.036	11.40%
AEP	8.00%	4,105	52.50%	2,155	5,675	51.50%	2,923	6.28%	1.030	8.24%
Avista Corporation	14.00%	18,760	34.20%	6,416	20,400	39.00%	7,956	4.40%	1.022	14.30%
CMS Energy Corporation	9.00%	109,744	43.10%	47,300	144,100	37.50%	54,038	2.70%	1.013	9.12%
Duke Energy Corporation	11.50%	36,733	31.70%	11,644	47,300	33.50%	15,846	6.36%	1.031	11.85%
Energy Corporation	10.00%	18,542	49.90%	9,252	23,400	46.50%	10,881	3.30%	1.016	10.16%
Energy, Inc.	9.50%	4,669	57.20%	2,671	6,775	50.00%	3,388	4.87%	1.024	9.73%
IDACORP, Inc.	15.00%	88,162	42.20%	37,204	126,100	44.00%	55,484	8.32%	1.040	15.60%
NexEra Energy, Inc.	8.00%	4,893	47.80%	2,339	6,050	51.00%	3,086	5.70%	1.028	8.22%
NorthWestern Corporation	13.00%	8,553	47.40%	4,054	10,400	50.00%	5,200	5.11%	1.025	13.32%
OGE Energy Corporation	11.50%	1,725	57.40%	990	2,525	57.50%	1,452	7.96%	1.038	11.94%
Oter Tail Corporation	9.50%	6,265	43.20%	2,706	8,250	45.00%	3,713	6.53%	1.032	9.80%
Portland General Electric Company	14.50%	78,285	35.60%	27,869	99,500	37.00%	34,585	4.42%	1.022	14.81%
Southern Company	11.00%	37,391	41.80%	15,629	49,200	42.00%	20,664	5.74%	1.028	11.31%
Xcel Energy Inc.										
Mean										11.25%
Median										11.31%

Notes:

- [1] Source: Value Line
- [2] Source: Value Line
- [3] Source: Value Line
- [4] Equals [2] x [3]
- [5] Source: Value Line
- [6] Source: Value Line
- [7] Equals [5] x [6]
- [8] Equals  $([7] / [4])^{(1/5)} - 1$
- [9] Equals  $2 \times (1 + [8]) / (2 + [8])$
- [10] Equals [1] x [9]

Exh. AEB-12  
Docket UE-23\_\_\_\_  
Witness: Ann E. Bulkley

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP dba  
PACIFIC POWER & LIGHT COMPANY

Respondent.

Docket UE-23\_\_\_\_

**PACIFICORP**

**EXHIBIT OF ANN E. BULKLEY**

**Capital Expenditures Analysis**

**March 2023**

2023-2027 CAPITAL EXPENDITURES AS A PERCENT OF 2022 NET PLANT  
(\$ Millions)

		[1]	[2]	[3]	[4]	[5]	[6]	[7]
		2022	2023	2024	2025	2026	2027	2023-27 Cap. Ex. / 2022 Net Plant
ALLETE, Inc.	ALE							
Capital Spending per Share			\$5.95	\$6.60	\$7.25	\$7.25	\$7.25	
Common Shares Outstanding			58.00	59.50	61.00	61.00	61.00	
Capital Expenditures			\$345.1	\$392.7	\$442.3	\$442.3	\$442.3	39.59%
Net Plant		\$5,215.0						
Alliant Energy Corporation	LNT							
Capital Spending per Share			\$5.90	\$6.08	\$6.25	\$6.25	\$6.25	
Common Shares Outstanding			251.50	252.25	253.00	253.00	253.00	
Capital Expenditures			\$1,483.9	\$1,532.4	\$1,581.3	\$1,581.3	\$1,581.3	48.42%
Net Plant		\$16,025.0						
Ameren Corporation	AEE							
Capital Spending per Share			\$12.55	\$12.78	\$13.00	\$13.00	\$13.00	
Common Shares Outstanding			267.00	273.50	280.00	280.00	280.00	
Capital Expenditures			\$3,350.9	\$3,494.0	\$3,640.0	\$3,640.0	\$3,640.0	56.89%
Net Plant		\$31,225.0						
American Electric Power Company, Inc.	AEP							
Capital Spending per Share			\$14.15	\$14.08	\$14.00	\$14.00	\$14.00	
Common Shares Outstanding			523.00	534.00	545.00	545.00	545.00	
Capital Expenditures			\$7,400.5	\$7,516.1	\$7,630.0	\$7,630.0	\$7,630.0	53.51%
Net Plant		\$70,650.0						
Avista Corporation	AVA							
Capital Spending per Share			\$6.40	\$6.20	\$6.00	\$6.00	\$6.00	
Common Shares Outstanding			77.00	80.00	83.00	83.00	83.00	
Capital Expenditures			\$492.8	\$496.0	\$498.0	\$498.0	\$498.0	45.56%
Net Plant		\$5,450.0						
CMS Energy Corporation	CMS							
Capital Spending per Share			\$10.00	\$9.88	\$9.75	\$9.75	\$9.75	
Common Shares Outstanding			290.00	295.00	300.00	300.00	300.00	
Capital Expenditures			\$2,900.0	\$2,913.1	\$2,925.0	\$2,925.0	\$2,925.0	61.36%
Net Plant		\$23,775.0						
Duke Energy Corporation	DUK							
Capital Spending per Share			\$16.75	\$16.75	\$16.75	\$16.75	\$16.75	
Common Shares Outstanding			770.00	770.00	770.00	770.00	770.00	
Capital Expenditures			\$12,897.5	\$12,897.5	\$12,897.5	\$12,897.5	\$12,897.5	54.78%
Net Plant		\$117,725.0						
Entergy Corporation	ETR							
Capital Spending per Share			\$19.00	\$19.38	\$19.75	\$19.75	\$19.75	
Common Shares Outstanding			209.00	211.50	214.00	214.00	214.00	
Capital Expenditures			\$3,971.0	\$4,097.8	\$4,226.5	\$4,226.5	\$4,226.5	47.42%
Net Plant		\$43,750.0						
Evergy, Inc.	EVRG							
Capital Spending per Share			\$9.20	\$9.35	\$9.50	\$9.50	\$9.50	
Common Shares Outstanding			230.00	230.00	230.00	230.00	230.00	
Capital Expenditures			\$2,116.0	\$2,150.5	\$2,185.0	\$2,185.0	\$2,185.0	48.97%
Net Plant		\$22,100.0						
IDACORP, Inc.	IDA							
Capital Spending per Share			\$14.20	\$12.15	\$10.10	\$10.10	\$10.10	
Common Shares Outstanding			51.00	51.50	52.00	52.00	52.00	
Capital Expenditures			\$724.2	\$625.7	\$525.2	\$525.2	\$525.2	55.72%
Net Plant		\$5,250.0						

2023-2027 CAPITAL EXPENDITURES AS A PERCENT OF 2022 NET PLANT  
(\$ Millions)

		[1]	[2]	[3]	[4]	[5]	[6]	[7]
		2022	2023	2024	2025	2026	2027	2023-27 Cap. Ex. / 2022 Net Plant
NextEra Energy, Inc.	NEE							
Capital Spending per Share			\$8.40	\$9.20	\$10.00	\$10.00	\$10.00	
Common Shares Outstanding		2025.00	2025.00	2025.00	2025.00	2025.00	2025.00	
Capital Expenditures		\$17,010.0	\$18,630.0	\$20,250.0	\$20,250.0	\$20,250.0	\$20,250.0	86.90%
Net Plant		\$110,925.0						
NorthWestern Corporation	NWE							
Capital Spending per Share			\$9.10	\$7.80	\$6.50	\$6.50	\$6.50	
Common Shares Outstanding		62.00	62.00	62.00	62.00	62.00	62.00	
Capital Expenditures		\$564.2	\$483.6	\$403.0	\$403.0	\$403.0	\$403.0	40.09%
Net Plant		\$5,630.0						
OGE Energy Corporation	OGE							
Capital Spending per Share			\$4.75	\$4.75	\$4.75	\$4.75	\$4.75	
Common Shares Outstanding		200.20	200.20	200.20	200.20	200.20	200.20	
Capital Expenditures		\$951.0	\$951.0	\$951.0	\$951.0	\$951.0	\$951.0	45.96%
Net Plant		\$10,345.0						
Otter Tail Corporation	OTTR							
Capital Spending per Share			\$5.90	\$6.08	\$6.25	\$6.25	\$6.25	
Common Shares Outstanding		41.90	42.20	42.50	42.50	42.50	42.50	
Capital Expenditures		\$247.2	\$256.4	\$265.6	\$265.6	\$265.6	\$265.6	58.84%
Net Plant		\$2,210.0						
Portland General Electric Company	POR							
Capital Spending per Share			\$8.25	\$8.38	\$8.50	\$8.50	\$8.50	
Common Shares Outstanding		94.50	97.25	100.00	100.00	100.00	100.00	
Capital Expenditures		\$779.6	\$814.5	\$850.0	\$850.0	\$850.0	\$850.0	49.78%
Net Plant		\$8,325.0						
Southern Company	SO							
Capital Spending per Share			\$7.85	\$7.68	\$7.50	\$7.50	\$7.50	
Common Shares Outstanding		1070.00	1070.00	1070.00	1070.00	1070.00	1070.00	
Capital Expenditures		\$8,399.5	\$8,212.3	\$8,025.0	\$8,025.0	\$8,025.0	\$8,025.0	42.76%
Net Plant		\$95,150.0						
Xcel Energy Inc.	XEL							
Capital Spending per Share			\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	
Common Shares Outstanding		550.00	555.50	561.00	561.00	561.00	561.00	
Capital Expenditures		\$4,950.0	\$4,999.5	\$5,049.0	\$5,049.0	\$5,049.0	\$5,049.0	52.04%
Net Plant		\$48,225.0						
PacifiCorp	PacifiCorp							
Capital Expenditures [8]			\$3,884.60	\$3,179.40	\$4,490.50	\$4,582.00	\$4,687.00	98.86%
Net Plant [9]		\$21,064.6						
PacifiCorp CapEx Total (2023 - 2027)								\$20,823.5
PacifiCorp CapEx Annual Average								\$4,164.7
Proxy Group Median								49.78%
PacifiCorp as % Proxy Group Median								1.99

Notes:

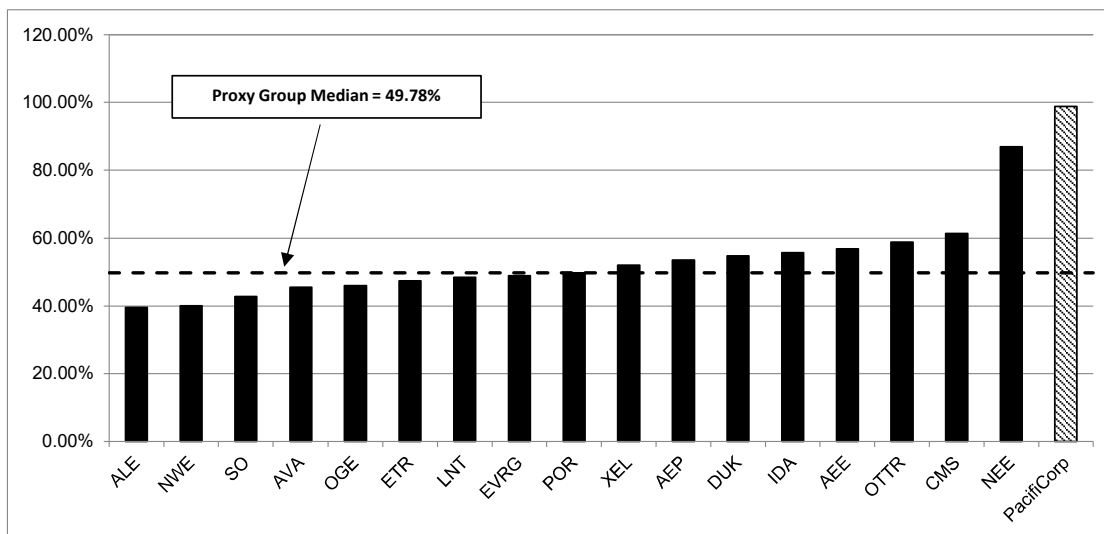
[1] - [6] Source: Value Line, dated November 11, 2022, December 9, 2022, January 20, 2023.

[7] Equals (Column [2] + [3] + [4] + [5] + [6]) / Column [1]

[8] Source: Company Provided Data

[9] Source: Company Provided Data

2023-2027 CAPITAL EXPENDITURES AS A PERCENT OF 2022 NET PLANT



Projected CAPEX / 2022 Net Plant

Rank	Company	2023-2027
1	ALLETE, Inc.	ALE 39.59%
2	NorthWestern Corporation	NWE 40.09%
3	Southern Company	SO 42.76%
4	Avista Corporation	AVA 45.56%
5	OGE Energy Corporation	OGE 45.96%
6	Entergy Corporation	ETR 47.42%
7	Alliant Energy Corporation	LNT 48.42%
8	Evergy, Inc.	EVRG 48.97%
9	Portland General Electric Company	POR 49.78%
10	Xcel Energy Inc.	XEL 52.04%
11	American Electric Power Company, Inc.	AEP 53.51%
12	Duke Energy Corporation	DUK 54.78%
13	IDACORP, Inc.	IDA 55.72%
14	Ameren Corporation	AEE 56.89%
15	Otter Tail Corporation	OTTR 58.84%
16	CMS Energy Corporation	CMS 61.36%
17	NextEra Energy, Inc.	NEE 86.90%
18	PacifiCorp	PacifiCorp 98.86%
Proxy Group Median		49.78%
PacifiCorp/Proxy Group		1.99

Notes:

Source: Exhibit No. AEB-12, pages 1-2 col. [7]

Exh. AEB-13  
Docket UE-23\_\_\_\_  
Witness: Ann E. Bulkley

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP dba  
PACIFIC POWER & LIGHT COMPANY

Respondent.

Docket UE-23\_\_\_\_

**PACIFICORP**

**EXHIBIT OF ANN E. BULKLEY**

**Regulatory Risk Analysis**

**March 2023**

COMPARISON OF FACILITY AND FUND GROUP COMPANIES

Proxy Group Company	Operating Subsidiary	Jurisdiction	Service	Electric (eligible commodity) purchase	Test Year	Revenue Decoupling	Non-Volumetric Rate Design		Traditional Generation	Renewable/Non-Traditional Generation	Capital Cost Recovery	Environmental Compliance	Capital Cost Recovery
							Formula-based rate	Shared Risk Design					
ALEXIS (ALEXIS Energy)	Wisconsin Power & Light Co.	Wisconsin	Electric	Yes	2022	No	No	No	No	No	No	No	No
	Wisconsin Power & Light Co.	Wisconsin	Electric	Yes	2022	No	No	No	No	No	No	No	No
Ameren Corporation	Ameren Illinois Co.	Illinois	Gas	Yes	2022	Partial	No	No	No	No	No	No	No
	Union Electric Co.	Missouri	Gas	Yes	2022	Partial	No	No	No	No	No	No	No
American Electric Power Company, Inc.	Indiana Michigan Power Co.	Indiana	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
	Kentucky Power Co.	Kentucky	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
Asteris Corporation	Indiana Michigan Power Co.	Indiana	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
	Public Service Co. of Oklahoma	Oklahoma	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
CANS Energy	AP&T Texas	Texas	Electric	N/A	2022	Partial	No	No	No	No	No	No	No
	Southern Electric Power Co.	Texas	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
Duke Energy Corporation	Appalachian Power Co./Winning Power Co.	West Virginia	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
	Arista Corp.	Arizona	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
E.ON Energy	Arista Corp.	Oregon	Gas	Yes	2022	Partial	No	No	No	No	No	No	No
	Consumers Energy	Michigan	Electric	Yes	2022	Full	No	No	No	No	No	No	No
Energy Corporation	Duke Energy Florida LLC	Florida	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
	Duke Energy Kentucky Inc.	Kentucky	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
Energy Inc.	Duke Energy Kentucky Inc.	Kentucky	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
	Prophet Natural Gas Co. Inc.	North Carolina	Gas	Yes	2022	Full	No	No	No	No	No	No	No
EPCOR Inc.	Duke Energy Kentucky Inc.	Kentucky	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
	Duke Energy Ohio Inc.	Ohio	Gas	Yes	2022	Partial	No	No	No	No	No	No	No
MetLife Energy, Inc.	Prophet Natural Gas Co. Inc.	North Carolina	Gas	Yes	2022	Full	No	No	No	No	No	No	No
	Prophet Natural Gas Co. Inc.	North Carolina	Gas	Yes	2022	Full	No	No	No	No	No	No	No
Northern Natural Corporation	Energy New Orleans LLC	Louisiana	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
	Energy Louisiana LLC	Louisiana	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
One Tail Corporation	Energy Mississippi LLC	Mississippi	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
	Energy Texas Inc.	Texas	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
Portland General Electric Company	Energy Metro Inc.	Kansas	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
	Energy Midwest Inc.	Kansas	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
Southern Company	Energy Midwest Inc.	Kansas	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
	Energy Midwest Inc.	Kansas	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
Xcel Energy Inc.	Energy Midwest Inc.	Kansas	Electric	Yes	2022	Partial	No	No	No	No	No	No	No
	Energy Midwest Inc.	Kansas	Electric	Yes	2022	Partial	No	No	No	No	No	No	No

Notes: (1) Source: S&P Global Market Intelligence, Regulatory Focus: Adjustment Churns, dated July 18, 2022. Operating subsidiaries not covered in this report were excluded from this analysis. (2) Source: Regulatory Research Associates, effective as of September 30, 2022. (3) Source: S&P Global Market Intelligence, Regulatory Focus: Adjustment Churns, dated July 18, 2022. (4) Source: S&P Global Market Intelligence, Regulatory Focus: Adjustment Churns, dated July 18, 2022. (5) Source: S&P Global Market Intelligence, Regulatory Focus: Adjustment Churns, dated July 18, 2022. (6) Source: S&P Global Market Intelligence, Regulatory Focus: Adjustment Churns, dated July 18, 2022. (7) Source: S&P Global Market Intelligence, Regulatory Focus: Adjustment Churns, dated July 18, 2022. (8) Source: S&P Global Market Intelligence, Regulatory Focus: Adjustment Churns, dated July 18, 2022. (9) Source: S&P Global Market Intelligence, Regulatory Focus: Adjustment Churns, dated July 18, 2022. (10) Source: S&P Global Market Intelligence, Regulatory Focus: Adjustment Churns, dated July 18, 2022. (11) Source: S&P Global Market Intelligence, Regulatory Focus: Adjustment Churns, dated July 18, 2022. (12) Data provided by PacifiCorp.



Exh. AEB-14  
Docket UE-23\_\_\_\_  
Witness: Ann E. Bulkley

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,

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PACIFICORP dba  
PACIFIC POWER & LIGHT COMPANY

Respondent.

Docket UE-23\_\_\_\_

**PACIFICORP**

**EXHIBIT OF ANN E. BULKLEY**

**Capital Structure Analysis**

**March 2023**

CAPITAL STRUCTURE ANALYSIS

Proxy Group Company	Ticker	Most Recent 8 Quarters (2020Q4 - 2022Q3)			
		Common Equity Ratio	Long-Term Debt Ratio	Preferred Equity Ratio	Total Capitalization
ALLETE, Inc.	ALE	57.27%	42.73%	0.00%	100.00%
Alliant Energy Corporation	LNT	52.00%	47.20%	0.81%	100.00%
Ameren Corporation	AEE	53.12%	46.25%	0.63%	100.00%
American Electric Power Company, Inc.	AEP	48.17%	51.83%	0.00%	100.00%
Avista Corporation	AVA	50.33%	49.67%	0.00%	100.00%
CMS Energy	CMS	52.26%	47.53%	0.21%	100.00%
Duke Energy Corporation	DUK	53.18%	46.82%	0.00%	100.00%
Entergy Corporation	ETR	46.19%	53.71%	0.10%	100.00%
Evergy, Inc.	EVRG	60.63%	39.37%	0.00%	100.00%
IDACORP, Inc.	IDA	54.07%	45.65%	0.28%	100.00%
NextEra Energy, Inc.	NEE	61.06%	38.94%	0.00%	100.00%
NorthWestern Corporation	NWE	47.81%	52.19%	0.00%	100.00%
OGE Energy Corporation	OGE	54.01%	45.99%	0.00%	100.00%
Otter Tail Corporation	OTTR	54.26%	45.74%	0.00%	100.00%
Portland General Electric Company	POR	45.95%	54.05%	0.00%	100.00%
The Southern Company	SO	54.49%	45.00%	0.52%	100.00%
Xcel Energy Inc.	XEL	54.21%	45.79%	0.00%	100.00%
	Average	52.88%	46.97%	0.15%	
	Median	53.18%	46.25%	0.00%	
	Maximum	61.06%	54.05%	0.81%	
	Minimum	45.95%	38.94%	0.00%	

Notes:

[1] Ratios are weighted by actual common capital, preferred capital, long-term debt and short-term debt of the operating subsidiaries.

[2] Electric and Natural Gas operating subsidiaries with data listed as N/A from S&P Capital IQ have been excluded from the analysis.