INDIANA MICHIGAN POWER COMPANY

PRE-FILED DIRECT TESTIMONY

OF

ANN E. BULKLEY

Cause No. 45933

August 9, 2023

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DIRECT TESTIMONY OF ANN E. BULKLEY

I. INTRODUCTION AND OVERVIEW

Q1. Please state your name, affiliation and business address.

A1. My name is Ann E. Bulkley. I am a Principal at The Brattle Group ("Brattle"). My business address is One Beacon Street, Suite 2600, Boston, Massachusetts 02108.

Q2. On whose behalf are you submitting this testimony?

A2. I am submitting this pre-filed direct testimony ("direct testimony") before the Indiana Utility Regulatory Commission ("IURC" or the "Commission") on behalf of Indiana Michigan Power Company ("I&M" or the "Company").

Q3. Please describe your education and experience.

A3. I hold a Bachelor's degree in Economics and Finance from Simmons College and a Master's degree in Economics from Boston University, with over 25 years of experience consulting to the energy industry. I have advised numerous energy and utility clients on a wide range of financial and economic issues with primary concentrations in valuation and utility rate matters. Many of these assignments have included the determination of the cost of capital for valuation and ratemaking purposes. I have included my resume and a summary of testimony that I have filed in other proceedings as Attachment AEB-1.

II. PURPOSE AND OVERVIEW OF PRE-FILED DIRECT TESTIMONY

Q4. Please describe the purpose of your pre-filed direct testimony.

A4. The purpose of my pre-filed direct testimony is to provide my recommendation on the appropriate Return on Equity ("ROE") for the Company. I also assess the reasonableness of the Company's projected capital structure. My analyses and recommendations are

supported by the data presented in Attachments AEB-2 through 12, which were prepared by me or under my direction.

Q5. Please provide a brief overview of the analyses that led to your ROE recommendation.

A5. As discussed in more detail in Section VII, I applied the Constant Growth form of the Discounted Cash Flow ("DCF") model, the Capital Asset Pricing Model ("CAPM"), and the Empirical Capital Asset Pricing Model ("ECAPM"), and the Bond Yield Plus Risk Premium Analysis ("Risk Premium"). My recommendation also takes into consideration the following factors: (1) flotation costs, (2) the Company's generation portfolio and environmental regulations, (3) the Company's capital expenditure requirements; and (4) the regulatory environment in which I&M operates. Finally, I considered I&M's proposed capital structure as compared to the capital structures of the proxy group companies.[1] While I did not make specific adjustments to my ROE estimates for these factors, I did consider them in the aggregate when determining where the Company's ROE falls within the range of the analytical results.

Q6. How is the remainder of your direct testimony organized?

A6. The remainder of my direct testimony is organized as follows:

- Section III provides a summary of my analyses and conclusions.
- Section IV reviews the regulatory guidelines pertinent to the development of the cost of capital.
- Section V discusses current and projected capital market conditions and the effect of those conditions on I&M's cost of equity.
- Section VI explains my selection of the proxy group for I&M.

[1] The selection and purpose of developing a group of comparable companies will be discussed in detail in Section VI of my direct testimony.

- Section VII describes my analyses and the analytical basis for my recommendation of the appropriate ROE for I&M.
- Section VIII provides a discussion of specific regulatory, business, and financial risks that have a direct bearing on the ROE to be authorized for I&M in this case.
- Section IX provides an assessment of the reasonableness of I&M's proposed capital structure relative to the proxy group.
- Section X presents my conclusions and recommendations.

Q7. Please explain the difference between the ROE and the Cost of Equity ("COE").

A7. The COE is the cost required by the investor for making an equity investment. In the context of a regulated utility, the ROE is the return that is authorized by the Commission.

III. SUMMARY OF ANALYSIS AND CONCLUSIONS

Q8. Please summarize the key factors considered in your analyses and upon which you base your recommended ROE.

A8. The key factors that I considered in my cost of equity analyses and recommended ROE for the Company in this proceeding are:

- The United States Supreme Court's *Hope* and *Bluefield* decisions[2] established the standards for determining a fair and reasonable authorized ROE for public utilities, including consistency of the allowed return with the returns of other businesses having similar risk, adequacy of the return to provide access to capital and support credit quality, and the requirement that the result lead to just and reasonable rates.
- The effect of current and prospective capital market conditions on the cost of equity estimation models and on investors' return requirements.
- The results of several analytical approaches that provide estimates of the Company's cost of equity.
- The Company's regulatory, business, and financial risks relative to the proxy group of comparable companies and the implications of those risks.

[2] *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*").

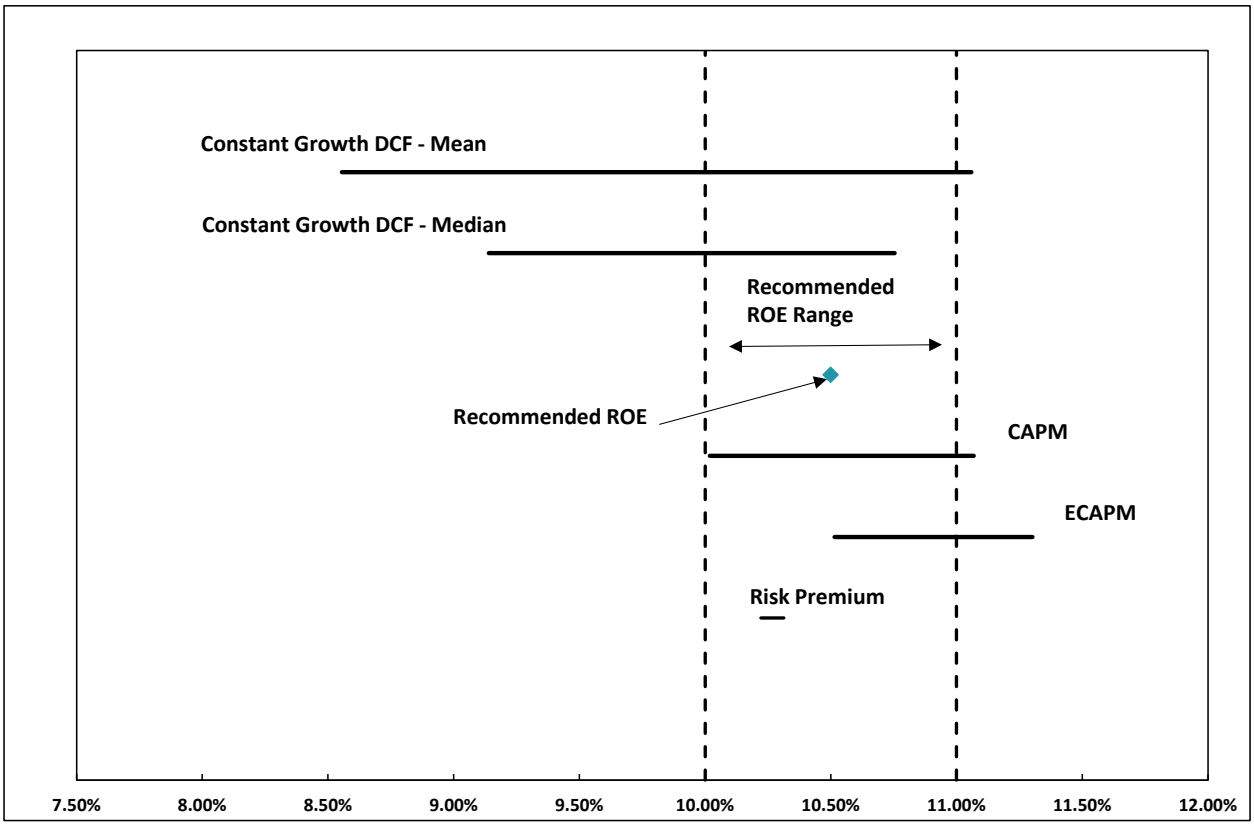
Q9. Please explain how you considered those factors.

A9. I relied on several analytical approaches to estimate I&M's cost of equity based on a proxy group of publicly traded companies. As shown in Figure 1, those ROE estimation models produce a wide range of results. My conclusion about where within that range of results I&M's ROE falls is based on the Company's business and financial risk relative to the proxy group. Although the companies in my proxy group are generally comparable to I&M, each company is unique and no two companies have the exact same business and financial risk profiles. Accordingly, I selected proxy groups with similar, but not the same risk profiles; and I adjusted the results of my analysis either upwards or downwards within the reasonable range of results to account for residual differences in risk.

Q10. Please summarize the results of the ROE estimation models that you considered to establish the range of ROEs for I&M?

A10. Figure 1 and Attachment AEB-2 summarize the range of results produced by the Constant Growth DCF, CAPM, Bond Yield Risk Premium, and ECAPM analyses.

Figure 1: Summary of Analytical Results



While it is common to consider multiple models to estimate the cost of equity, it is particularly important when the range of results is wide, in order to appropriately consider the factors that have resulted in the diverging range of results. Based on current market conditions, my recommended ROE range considers the results of the DCF model, forward looking CAPM and ECAPM analyses and a Risk Premium analysis. I also consider company-specific risk factors, which I discuss in Section VIII below and current and prospective capital market conditions that are discussed in Section V below.

Q11. Are prospective capital market conditions expected to affect the results of the cost of equity for I&M during the period in which the rates established in this proceeding will be in effect?

A11. Yes. Capital market conditions are expected to affect the results of the cost of equity estimation models. Specifically:

- Inflation is expected to persist over the near-term, which increases the retail revenue requirement due to increases in operating costs. Inflation increases the risk that the revenue requirement that is set in a proceeding will not recover the operating costs of the business, which increases the operating risk of the utility during the period in which rates will be in effect.

- Long-term interest rates have increased substantially in the past year and are expected to remain relatively high at least over the next year in response to inflation.

- Since utility dividend yields are now less attractive than the risk-free rates of government bonds, and interest rates are expected to remain near current levels over the next year, and since utility stock prices are inversely related to changes in interest rates, it is likely that utility share prices will decline.

- Rating agencies have responded to the risks of the utility sector, with Moody's Investors Service ("Moody's") most recently indicating its outlook for the industry in 2023 is "negative", citing increasing interest rates, inflation and high natural gas prices, all of which create pressures for customer affordability and prompt rate recovery.

- Similarly, equity analysts have noted the increased risk for the utility sector as a result of rising interest rates and expect the sector to underperform over the near-term.

- Consequently, the results of the DCF model, which relies on current utility share prices, may understate the cost of equity during the period that the Company's rates will be in effect. In addition, it is important to consider the projected risk-free rate in the CAPM because it may more accurately reflect the cost of equity over the period that rates have been in effect.

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

Q12. What is your recommended ROE range for I&M?

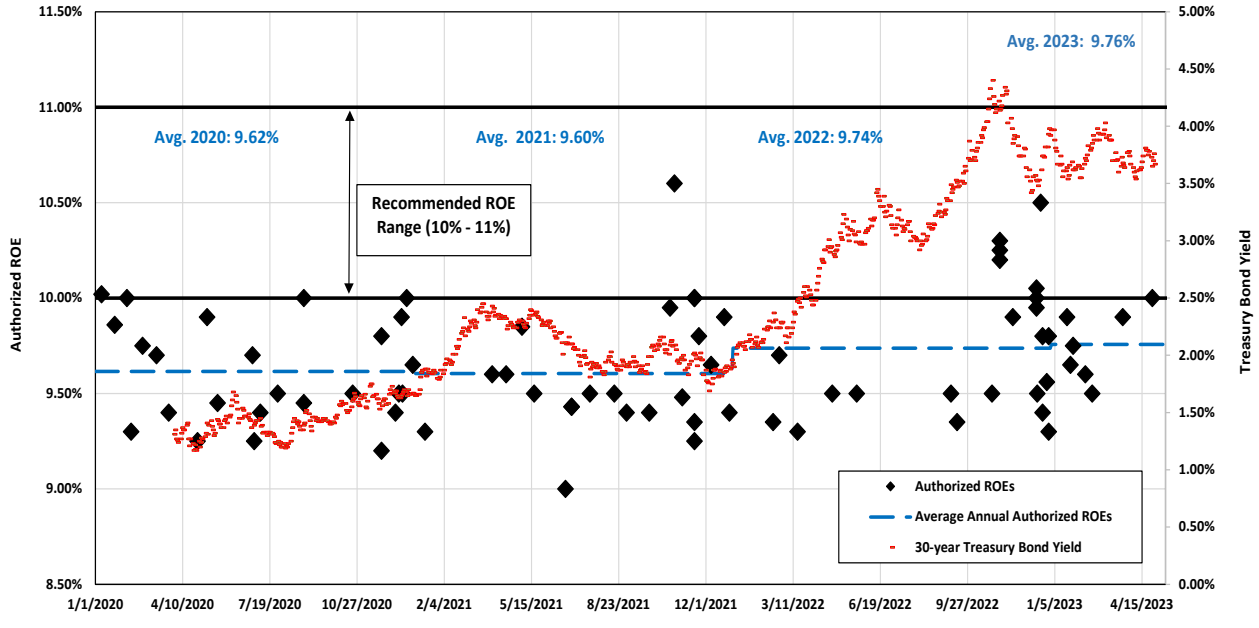
A12. Considering the analytical results presented in Figure 1, current capital market conditions, as well as the level of regulatory, business and financial risk faced by I&M's electric

operations in Indiana relative to the proxy group, I believe a range from 10.00 percent to 11.00 percent is reasonable for the Company's ROE and within that range, recommend an ROE of 10.50 percent.

Q13. How does your recommended ROE range compare with recently authorized ROEs for vertically integrated electric utilities?

A13. Figure 2 below, compares the range that I propose with recently authorized ROEs. While I review this data over the historical time period from 2020 through the first quarter of 2023, it is important to recognize that market conditions began to change in March 2022 and that interest rates have increased substantially since that time. Therefore, it is reasonable to expect that authorized ROEs in current market conditions would be higher than ROEs authorized in the lower interest rate environments of 2020, 2021, and due to the timing lag associated with rate proceedings in the first part of 2022.

Figure 2: Summary of Recently Authorized ROEs and Interest Rates



Q14. Is your recommended ROE reasonable based on recent ROE determinations made by the IURC?

A14. Yes. The IURC authorized an ROE of 9.70 percent for Duke Indiana on June 29, 2020.[3] At the time the order was issued, the yield on the 30-year Treasury bond was approximately 1.48 percent.[4] As discussed in more detail in Section IV of my testimony, the current yield on the 30-year Treasury bond is 3.69 percent, an increase of 221 basis points, which demonstrates that the cost of equity is increasing for investors. Therefore, it is reasonable to expect that the COE would have increased since the determination that was made in the Duke case.

Q15. Please summarize the analysis you conducted to determine that I&M's projected capital structure is reasonable and appropriate.

A15. Based on the analysis presented in Section IX of my testimony, I conclude that I&M's projected 51.20 percent investor-supplied capital (common equity) is reasonable.[5] Comparing the Company's proposed equity ratio to the proxy group demonstrates that the Company's projected investor supplied common equity ratio is well within the range established by the proxy group. This is particularly important to consider given that credit rating agencies have identified the outlook for the utility sector as "negative" due to the negative effect on the cash flows and credit metrics associated with increasing interest rates, inflation and commodity costs, and the pressure that those factors place on customer affordability and utilities' prompt rate recovery.

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[3] Petition of Duke Energy Indiana for Authority to Modify its Rates, Cause No. 45253, Indiana Utility Regulatory Commission Order Approved June 29, 2020, at 59.

[4] 30-year Treasury bond yield based on 30-day average ending June 29, 2020.

[5] See direct testimony of Franz D. Messner, Figure FDM-2, lines 12-15.

IV. REGULATORY GUIDELINES

Q16. Please describe the guiding principles to be used in establishing the cost of equity for a regulated utility.

A16. The U.S. Supreme Court's precedent-setting *Hope* and *Bluefield* cases established the standards for determining the fairness or reasonableness of a utility's authorized ROE. Among the standards established by the Court in those cases are: (1) consistency with other businesses having similar or comparable risks; (2) adequacy of the return to support credit quality and access to capital; and (3) the principle that the specific means of arriving at a fair return are not important, only that the end result leads to just and reasonable rates.[6]

Q17. Has the IURC provided similar guidance in establishing the appropriate return on common equity?

A17. Yes. The Commission follows the precedents of *Hope* and *Bluefield* and acknowledges that utility investors are entitled to a fair and reasonable return. For example, in the Indianapolis Power & Light decision, the Commission stated: "The rate of return for a utility must be comparable to the return on investments in other enterprises having corresponding risks, sufficient to assure confidence in the financial integrity of the utility, maintain support of the utility's credit, and attract capital."[7]

Q18. Why is it important for a utility to be allowed the opportunity to earn a return that is adequate to attract capital at reasonable terms?

A18. An authorized ROE that is adequate to attract capital at reasonable terms enables I&M to continue providing safe, reliable electric service while maintaining its financial integrity.

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[6] *Bluefield*, 262 U.S. at 692-93; *Hope*, 320 U.S. at 603.

[7] *Indianapolis Power & Light*, Cause No. 44576, Order of the Commission issued March 16, 2016, at 41.

To the extent the Company has the opportunity to earn its market-based cost of capital, a reasonable balance will be achieved between customers' and shareholders' interests.

Q19. Is a utility's ability to attract capital also affected by the ROEs authorized for other utilities?

A19. Yes. Utilities compete directly for capital with other investments of similar risk, which include other electric, natural gas, and water utilities. Therefore, the ROE authorized for a utility sends an important signal to investors regarding whether there is regulatory support for financial integrity, dividends, growth, and fair compensation for business and financial risk. The cost of capital represents an opportunity cost to investors. If higher returns are available elsewhere for other investments of comparable risk over the same time-period, investors have an incentive to direct their capital to those alternative investments. Thus, an authorized ROE significantly below authorized ROEs for other utilities can inhibit the utility's ability to attract capital for investment in Indiana.

Q20. Are authorized ROEs affected by market conditions?

A20. Yes. It is important to consider the market conditions that existed as of the period when the return was authorized and to compare that to the current market conditions. Specifically, it is important to recognize that the market conditions in 2022 and thus far in 2023 were significantly different from the conditions in 2020 and 2021 (*i.e.*, much higher inflation and interest rates in 2022/2023). Therefore, considering the change in market conditions that occurred between 2021 and 2022 and the average length of time to complete a rate case (*i.e.,* eight to twelve months), recent historical authorized ROEs over the period from 2020 through 2021 and the earlier months of 2022 are not reflective of the recent change in market conditions. Due to the changes in market conditions, authorized ROEs in the

historically low interest rate environment of 2020 and 2021 should not be viewed as reasonable expectations of equity investors in the current market environment. Therefore, authorized ROEs prior to the latter half of 2022 likely understate the investor-required return in the current market.

Q21. What are your conclusions regarding regulatory guidelines?

A21. The ratemaking process is premised on the principle that a utility must have the opportunity to recover the return of, and the market-required return on, its invested capital. Because utility operations are capital-intensive, regulatory decisions should enable the utility to attract capital at reasonable terms under a variety of economic and financial market conditions; doing so balances the long-term interests of the utility and its customers. The financial community carefully monitors the current and expected financial condition of utility companies and the regulatory framework in which they operate. In that respect, the regulatory framework is one of the most important factors in both debt and equity investors' assessments of risk. The Commission's order in this proceeding, therefore, should establish rates that provide the Company with the opportunity to earn an ROE that is: (1) adequate to attract capital at reasonable terms under a variety of economic and financial market conditions; (2) sufficient to ensure good financial management and firm integrity; and (3) commensurate with returns on investments in enterprises with similar risk. To the extent I&M is authorized the opportunity to earn its market-based cost of capital, the proper balance is achieved between customers' and shareholders' interests.

V. CAPITAL MARKET CONDITIONS

Q22. Why is it important to analyze capital market conditions?

A22. The models used to estimate the cost of equity rely on market data that are either specific to the proxy group, in the case of the DCF model, or to the expectations of market risk, in the case of the CAPM. The results of the cost of equity estimation models can be affected by prevailing market conditions at the time the analysis is performed. While the ROE established in a rate proceeding is intended to be forward-looking, the analyst uses current and projected market data, specifically stock prices, dividends, growth rates and interest rates, in the cost of equity estimation models to estimate the investor-required return for the subject company.

Analysts and regulatory commissions recognize that current market conditions affect the results of the cost of equity estimation models. Accordingly, it is important to consider the effect of these conditions on the models when determining an appropriate range for the ROE and the recommended ROE for a future period. If investors do not expect current market conditions to be sustained in the future, it is possible that the cost of equity estimation models will not provide an accurate estimate of investors' required return during that rate period. Therefore, it is very important to consider projected market data to estimate the return for that forward-looking period.

Q23. What factors affect the cost of equity for regulated utilities in the current and prospective capital markets?

A23. The cost of equity for regulated utility companies is affected by several factors in the current and prospective capital markets, including: (1) changes in monetary policy; (2) high inflation; and (3) increased interest rates that are expected to remain relatively high

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

Q24. What effect do current and prospective market conditions have on the cost of equity for I&M?

A24. As is discussed in more detail in the remainder of this section, the combination of persistently high inflation, and the Federal Reserve's changes in monetary policy contribute to an expectation of increased market risk and an increase in the cost of the investor-required return. It is essential that these factors be considered in setting the forward-looking ROE. Inflation has recently been at some of the highest levels seen in approximately 40 years, and while inflation has declined from these recent peaks, it remains relatively high. Interest rates, which have increased significantly from pandemic-related lows seen in 2020, are expected to continue to remain relatively high in direct response to the Federal Reserve's use of monetary policy to combat inflation. Since there is a strong historical inverse correlation between interest rates (i.e., yields on long-term government bonds) and the share prices of utility stocks (i.e., as utility share prices decline, utility dividend yields increase) and the yields on long-term government bonds currently exceed the dividend yields of utilities when historically long-term government bond yields have been lower than the dividend yields of utilities, it is reasonable to expect that utility investors' cost of equity is increasing. Because the cost of equity in this proceeding is being estimated for the future period that the Company's rates will be in effect, and because the cost of equity is expected to increase over the near term for utilities, cost of equity estimates based in whole or in part on historical or current market conditions, as opposed

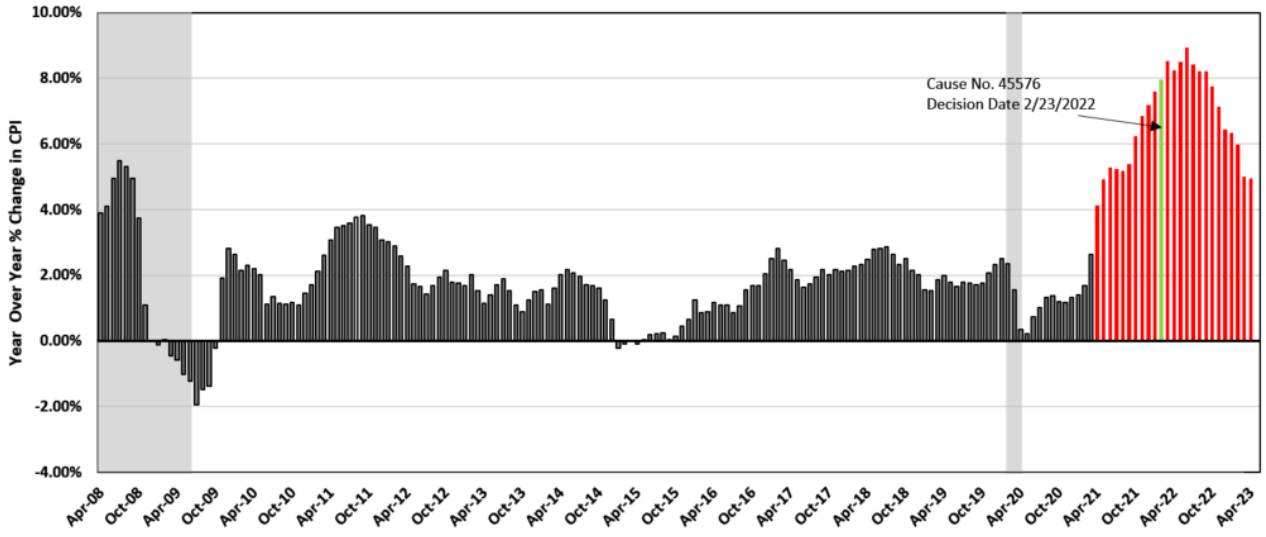
to projected market conditions, will likely understate the cost of equity during the future period that the Company's rates will be in effect.

a. Inflationary Expectations in Current and Projected Capital Market Conditions

Q25. Has inflation increased significantly over the past year?

A25. Yes. As shown in Figure 3, the year-over-year ("YOY") change in the Consumer Price Index ("CPI") published by the Bureau of Labor Statistics increased steadily beginning in early 2021, rising from 1.37 percent in January 2021 to reaching a YOY change high of 9.0 percent in June 2022. As of the filing of the Company's last case, inflation was at 7.95 percent. While inflation has subsided somewhat since that level, and was at 4.99 percent in April 2023, this change has been in response to the Federal Reserve's monetary policy, which is defined by increases in interest rates. Further, inflation continues to remain elevated above the Federal Reserve's target levels.

Figure 3: YOY Percent Change in the Consumer Price Index, April 2008 – April 2023[8]



Q26. What are the expectations for inflation over the near-term?

A26. The Federal Reserve has indicated that it expects inflation will remain elevated above its target level over at least the next year and that it will continue to increase short-term interest rates to reduce inflation. For example, Federal Reserve Chair Powell at the Federal Open Market Committee ("FOMC") meeting in June 2023 observed that while inflation is off of its recent highs, it remains significantly above the Federal Reserve's long-term target and noted that further policy firming is likely including additional increases in the federal funds rate:

> Since early last year, the FOMC has significantly tightened the stance of monetary policy. We have raised our policy interest rate by 5 percentage points and have continued to reduce our securities holdings at a brisk pace. We have covered a lot of ground, and the full effects of our tightening have yet to be felt. In light of how far we have come in tightening policy, the uncertain lags with which monetary policy affects the economy, and potential headwinds from credit tightening, today we decided to leave our policy interest rate unchanged and to continue to reduce our securities holdings. Looking ahead, nearly all Committee

[8] Bureau of Labor Statistics, shaded area indicates a recession.

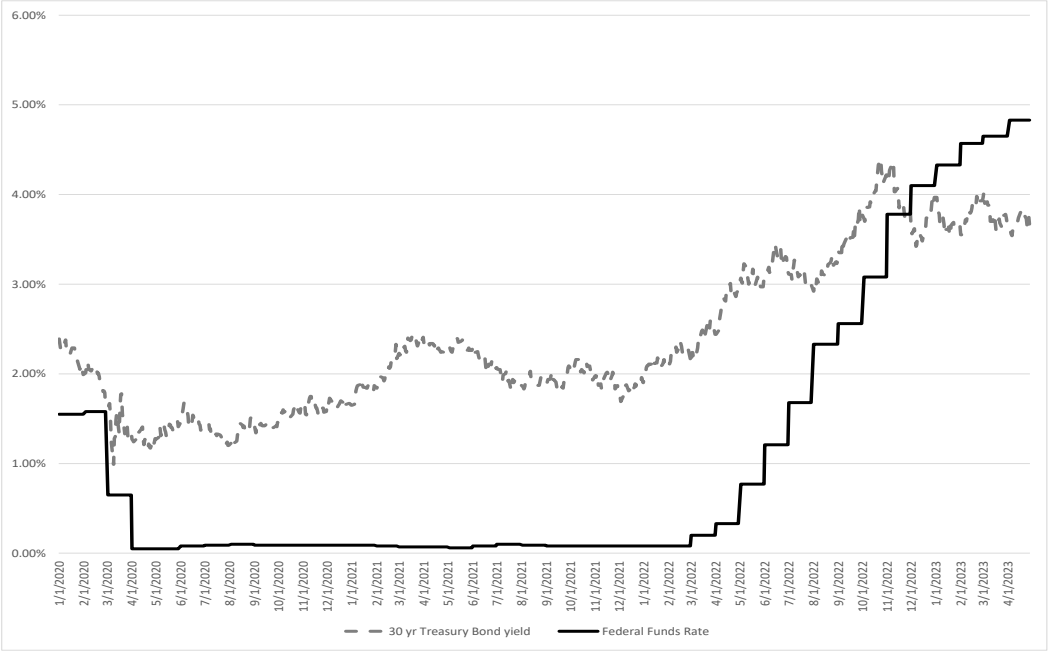
participants view it as likely that some further rate increases will be appropriate this year to bring inflation down to 2 percent over time.[9]

Chair Powell also continued to reiterate that "[r]educing inflation is likely to require a period of below-trend growth and some softening in labor market conditions."[10]

Q27. Why are changes in short-term interest rates relevant in the discussion of the cost of capital for the Company?

A27. While changes in the Federal Funds rate directly affect the cost of interbank short-term lending, this form of change in monetary policy affects other long-term rates. As shown in Figure 4 below, changes in the Federal Funds rate have generally corresponded to changes in longer-term interest rates.

Figure 4: Federal Funds Rate and 30-year Treasury Bond yield 2020-2023[11]



[9] Federal Reserve, Transcript of Chair Powell's Press Conference, June 14, 2023, p 1.

[10] Federal Reserve, Transcript of Chair Powell's Press Conference, June 14, 2023, p. 4.

[11] Federal Reserve Bank of St. Louis.

b. The Use of Monetary Policy to Address Inflation

Q28. What policy actions has the Federal Reserve enacted to respond to increased inflation?

A28. The dramatic increase in inflation has prompted the Federal Reserve to pursue an aggressive normalization of monetary policy, removing the accommodative policy programs used to mitigate the economic effects of COVID-19. From the March 2022 meeting through the May 2023 meeting, the Federal Reserve increased the target federal funds rate through a series of increases from 0.00 – 0.25 percent to 5.00 percent to 5.25 percent.[12] Further, while the Federal Reserve did not increase the federal funds rate at the June 2023 meeting, the Federal Reserve did project two additional 25 basis points increase in the federal funds rate in 2023. [13] Therefore, the Federal Reserve anticipates the continued need to maintain the Federal Funds rate at a restrictive level in order to achieve its goal of 2 percent inflation over the long-run.

c. The Effect of Inflation and Monetary Policy on Interest Rates and the Investor-Required Return

Q29. What effect will inflation and the Federal Reserve's normalization of monetary policy have on long-term interest rates?

A29. Inflation and the Federal Reserve's normalization of monetary policy are expected to result in long-term interest rates remaining relatively high over at least the next year. Specifically, inflation reduces the purchasing power of the future interest payments an

[12] Federal Reserve, Press Releases, March 16, 2022, May 4, 2022, June 15, 2022, September 22, 2022, November 2, 2022, February 1, 2023, March 22, 2023, and May 3, 2023. Federal Reserve Board - Press Releases

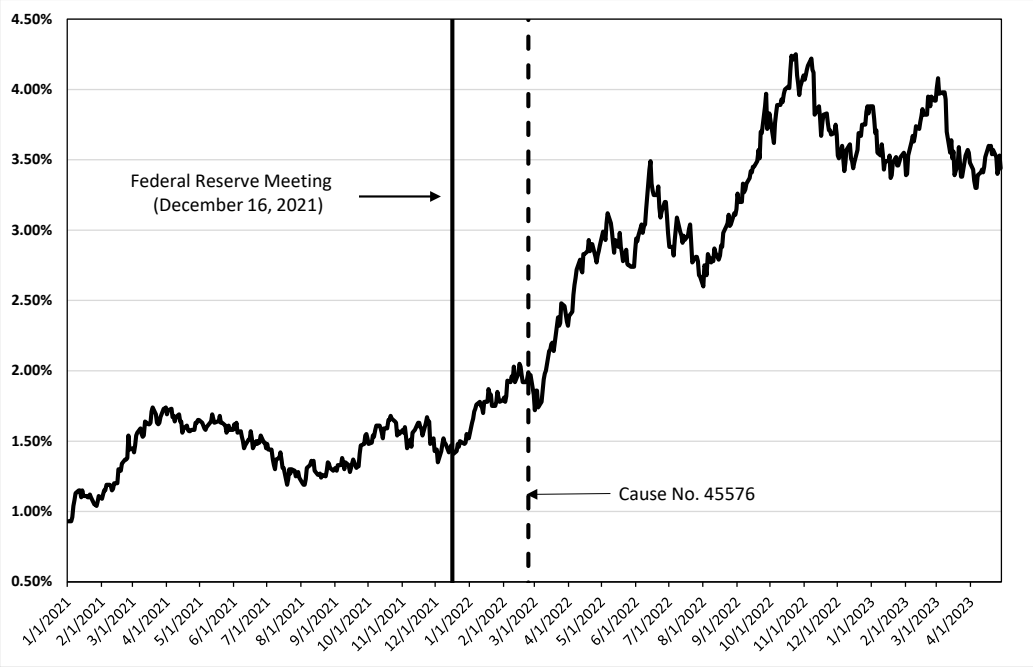
[13] Federal Reserve, Summary of Economic Projections, June 14, 2023, https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20230614.pdf.

investor expects to receive over the duration of the bond. This risk increases the longer the duration of the bond. As a result, if investors expect inflation to remain relatively high, they will require higher yields to compensate for the increased risk of inflation, which means interest rates will also remain relatively high.

Q30. Have the yields on long-term government bonds increased in response to inflation and the Federal Reserve's normalization of monetary policy?

A30. Yes. As shown in Figure 5, since the Federal Reserve's December 2021 meeting, the yield on 10-year Treasury bond has more than doubled, increasing from 1.47 percent on December 15, 2021 to 3.44 percent at the end of April 2023. Since December 2021 meeting, the Federal Reserve has raised the federal funds rate 500 basis points in response to increased levels of inflation that have persisted for longer than originally projected. Further, since the settlement was approved in the Company's last rate proceeding in February 2022, the 30-day average yield on the 10-year Treasury bond has increased from 1.87 percent to 3.72 percent, or 185 basis points.

Figure 5: 10-Year Treasury Bond Yield, January 2021 – April 2023[14]



Q31. What have equity analysts said about long-term government bond yields?

A31. Leading equity analysts have noted that they expect the yields on long-term government bonds to remain elevated through at least the end of 2024. According to the most recent *Blue Chip Financial Forecasts* report, the consensus estimate of the average yield on the 10-year Treasury bond is approximately 3.40 percent through the third quarter of 2024.[15] It is reasonable to expect that if government bond yields remain elevated the cost of equity will be increasing above the levels experienced in the 2020 and 2021 lower interest rate environment.

Q32. How have interest rates and inflation changed since the Company's last rate case?

A32. As shown in Figure 6, when the Commission authorized a settlement ROE of 9.70 percent in the Company's 2022 rate proceeding, interest rates (as measured by the 30-year Treasury

[14] S&P Capital IQ Pro.

[15] Blue Chip Financial Forecasts, Vol. 42, No. 5, May 1, 2023.

bond yield) were 2.18 percent and inflation was 7.95 percent. However, since the Company's last rate proceeding, long-term interest rates have increased approximately 150 basis points and, as discussed, inflation remains elevated.

Figure 6: **Change in Market Conditions Since I&M's Last Rate Case**[16]

Docket	Decision Date	Federal Funds Rate	30-Day Average Of 30-Year Treasury Bond Yield	Inflation Rate	Authorized ROE
Ca-45576	2/23/2022	0.08%	2.18%	7.95%	9.70%
Current	4/30/2023	4.83%	3.69%	4.96%	

d. Expected Performance of Utility Stocks and the Investor-Required Return on Utility Investments

Q33. Are utility share prices correlated to changes in the yields on long-term government bonds?

A33. Yes. Interest rates and utility share prices are inversely correlated, which means that increases in interest rates result in declines in the share prices of utilities and vice versa. For example, Goldman Sachs and Deutsche Bank examined the sensitivity of share prices of different industries to changes in interest rates over the past five years. Both Goldman Sachs and Deutsche Bank found that utilities had one of the strongest negative relationships with bond yields (*i.e.*, increases in bond yields resulted in the decline of utility share prices).[17]

[16] St. Louis Federal Reserve Bank; Bureau of Labor Statistics.

[17] Lee, Justina. "Wall Street Is Rethinking the Treasury Threat to Big Tech Stocks." Bloomberg.com, March 11, 2021.

Q34. How do equity analysts expect the utilities sector to perform in an increasing interest rate environment?

A34. Equity analysts project that utilities will underperform the broader market given the increases in interest rates. Fidelity classifies the utility sector as underweight,[18] and Keybanc Capital Markets analyst Sophie Karp recently noted she had a negative view of the sector in 2023 and expects a decline in the relative valuation of the utilities sector as compared to the S&P 500:

> The utility sector's relative outperformance came on the back of the pre-recessionary environment in the U.S. in 2022, analyst Karp said. She noted that the sector now traded at a 2.8 times premium to the S&P 500 Index, which is relatively wide by historical standards.
>
> *She said the utility sector is relatively overvalued and will see a mean reversion in 2023*, adding that the last time such a premium over the S&P 500 Index happened was in 2004.
>
> "*We are therefore negative on the sector overall going into 2023 and our OW picks grow fewer*," Karp said
>
> *There has been a surprising deterioration of the regulatory environment across multiple jurisdictions, including the historically stronger ones*, she noted. Some regulatory developments, according to the analyst, are driven by the regulator's desire to moderate the impact on customer bills. "Given that power and commodity prices remain elevated, we expect to continue seeing regulators getting 'creative' with assumptions and rate mechanisms to achieve that goal," she added.
>
> Karp said she would focus on rate affordability, as inflationary pressures will likely be a factor for the foreseeable future.
>
> "As we turn to 2023, we believe that the sector will find it difficult to defend this relative valuation position, particularly as macro headwinds persist and begin to take a toll on utility earnings," she added.[19]

Similarly, Barron's noted that the decline in share prices can be attributed to the relatively high valuations and low dividend yields of utilities as compared to other asset

[18] Fidelity. "Second Quarter 2023 Investment Research Update." April 21, 2023.

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

classes such as Treasuries.[20] According to Barron's, even after the recent decline in share prices, the Utilities Select ETF was yielding 2.85 percent, which is a yield that will not "lure in buyers when the ultrasafe 10-year Treasury note yields close to 4%."[21]

Q35. Why do equity analysts expect the electric utility sector to underperform over the near-term?

A35. While interest rates have increased substantially over the past year, the valuations of utilities have remained elevated and have not fully reflected the effect of the recent increase in interest rates. To illustrate this point, I examined the difference between the dividend yields of utility stocks and the yields on long-term government bonds from January 2010 through April 2023 ("yield spread"). I selected the dividend yield on the S&P Utilities Index as the measure of the dividend yields for the utility sector and the yield on the 10-year Treasury bond as the estimate of the yield on long-term government bonds. As shown in Figure 7, the recent significant increase in long-term government bonds yields has resulted in the yield on long-term government bonds exceeding the dividend yields of utilities. The yield spread as of April 28, 2023 is -0.36 percent. However, the long-term average yield spread from 2010 to 2023 is 1.32 percent. Therefore, the current yield spread is well below the long-term average.

For further context as to how unlikely it is to have a yield spread of -0.36 percent, I calculated the z-score for the current yield spread, which measures the number of standard deviations from the mean. The current yield spread of -0.36 percent has a z-score of -2.19, indicating that a yield spread of -0.36 percent is over 2 standard deviations from the mean

[20] Sonenshine, Jacob. "Utilities Stocks Have Fallen off a Cliff. They Just Got Downgraded, Too." Barron's, October 17, 2022.

[21] Id.

of 1.32 percent. In other words, 95 percent of the daily yield spread observations from 2010 to 2023 fall between -0.22 percent and 2.86 percent and the current yield spread of -0.36 percent is outside of that range. Thus, the current yield spread could be considered an outlier, which is why equity analysts do not expect this current level to hold. Since long-term bond yields are expected to remain elevated at current levels over the near-term, equity analysts expect utilities to underperform, and thus the dividend yields for utilities will increase. This is because investors that purchased utility stocks as an alternative to the lower yields on long-term government bonds would otherwise be inclined to rotate back into government bonds, particularly as the yields on long-term government bonds remain elevated, thus resulting in a decrease in the share prices of utilities.

Figure 7: Spread Between the S&P Utilities Index Dividend Yield and the 10-Year Treasury Bond Yield, March 2010 – April 2023[22]

Q36. What is the significance of the inverse relationship between interest rates and utility share prices in the current market?

A36. If interest rates remain relatively high as expected, then the share prices of utilities would be expected to decline. If the prices of utility stocks decline, then the DCF model, which relies on historical averages of share prices to calculate the dividend yield, is likely to understate the dividend yield and thus the cost of equity.

Q37. Have regulatory commissions acknowledged that the DCF model might understate the COE given current capital market conditions?

[22] S&P Capital IQ Pro and Bloomberg Professional.

A37. Yes. For example, in its May 2022 decision in establishing the cost of equity for Aqua Pennsylvania, Inc., the Pennsylvania Public Utility Commission ("PPUC") specifically concluded that the current capital market conditions of high inflation and increasing interest rates has resulted in the DCF model understating the utility cost of equity, and that weight should be placed on risk premium models, such as the CAPM, in the determination of the ROE:

> To help control rising inflation, the Federal Open Market Committee has signaled that it is ending its policies designed to maintain low interest rates. Aqua Exc. at 9. Because the DCF model does not directly account for interest rates, consequently, it is slow to respond to interest rate changes. However, I&E's CAPM model uses forecasted yields on ten-year Treasury bonds, and accordingly, its methodology captures forward looking changes in interest rates.
>
> Therefore, our methodology for determining Aqua's ROE shall utilize both I&E's DCF and CAPM methodologies. As noted above, the Commission recognizes the importance of informed judgment and information provided by other ROE models. In the 2012 PPL Order, the Commission considered PPL's CAPM and RP methods, tempered by informed judgment, instead of DCF-only results. We conclude that methodologies other than the DCF can be used as a check upon the reasonableness of the DCF derived ROE calculation. Historically, we have relied primarily upon the DCF methodology in arriving at ROE determinations and have utilized the results of the CAPM as a check upon the reasonableness of the DCF derived equity return. As such, where evidence based on other methods suggests that the DCF-only results may understate the utility's ROE, we will consider those other methods, to some degree, in determining the appropriate range of reasonableness for our equity return determination. In light of the above, we shall determine an appropriate ROE for Aqua using informed judgement based on I&E's DCF and CAPM methodologies.[23]
>
> …..
>
> We have previously determined, above, that we shall utilize I&E's DCF and CAPM methodologies. I&E's DCF and CAPM produce a range of reasonableness for the ROE in this proceeding from 8.90% [DCF] to 9.89% [CAPM]. Based upon our informed judgment, which includes consideration of a variety of factors, including increasing inflation leading to increases in interest rates and capital costs since the rate

[23] *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, May 12, 2022, pp. 154–155.

filing, we determine that a base ROE of 9.75% is reasonable and appropriate for Aqua.[24]

Q38. Does tax reform continue to present challenges for utilities?

A38. Yes. While the Tax Cuts and Jobs Act ("TCJA") was passed in 2018, the reforms resulted in an ongoing change in the cash flow metrics of utilities. Holding all else constant, tax reform resulted in weaker credit metrics for utilities, which has been noted by the rating agencies. This is another factor to be considered when setting the ROE for the Company. Credit rating agencies have noted that increasing ROEs and thicker equity layers can improve credit metrics.[25]

e. Conclusion

Q39. What are your conclusions regarding the effect of current market conditions on the cost of equity for I&M?

A39. Through 2024, investors expect long-term interest rates to remain relatively high in response to continued elevated levels of inflation and the Federal Reserve's normalization of monetary policy. Because the share prices of utilities are inversely correlated to interest rates, and government bond yields are already greater than utility stock dividend yields, the share prices of utilities will likely decline, which is the reason a number of equity analysts have classified the utility sector as either underperform or underweight. The expected underperformance of utilities means that DCF models using recent historical data likely underestimate investors' required return over the period that rates will be in effect. Therefore, this expected change in market conditions supports consideration of the higher

[24] *Id.,* Opinion and Order, May 12, 2022, pp. 177–178.

[25] FitchRatings, Special Report, What Investors Want to Know, "Tax Reform Impact on U.S. Utilities, Power & Gas Sector", January 24, 2018.

end of the range of cost of equity results produced by the DCF models. Moreover, prospective market conditions warrant consideration of forward-looking cost of equity estimation models such as the CAPM and ECAPM, which better reflect expected market conditions.

VI. PROXY GROUP SELECTION

Q40. Please provide a brief profile of Indiana Michigan Power.

A40. I&M is a wholly owned subsidiary of American Electric Power Company. The Company is based in Fort Wayne, Indiana, and provides regulated retail electric service to over 609,000 residential, commercial, and industrial customers in northern and eastern Indiana and southwestern Michigan.[26] As of December 31, 2022, the Company's net electric utility plant in Indiana and Michigan was approximately $7.3 billion.[27] In addition, the Company had total retail electric revenues in Indiana and Michigan in 2022 of approximately $2.0 billion, made up of 42 percent residential, 27 percent commercial, 30 percent large industrial, and 0.2 percent other retail sales.[28,29] For the Company's parent entity, American Electric Power, I&M in Indiana and Michigan accounted for 17.5 percent of its vertically integrated utilities segment retail sales revenue in 2022.[30] I&M's current credit ratings are A- (Outlook: Stable) from Standard & Poor's and A3 (Outlook: Stable) from Moody's.[31]

Q41. Why have you used a proxy group of publicly traded companies to estimate the cost of equity for the Company?

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[26] AEP 2022 Form 10-K, p.2.

[27] 2022 Federal Energy Regulatory Commission ("FERC") Form 1 Annual Report, Page 110.

[28] Includes PJM net charges.

[29] AEP 2022 Form 10-K, p. 420.

[30] AEP 2022 Form 10-K, p. 5. AEP 2022 vertically integrated utilities segment retail revenues totaled $11.4 billion.

[31] S&P Global and Moody's Investors Service, Credit Opinion, Indiana Michigan Power Company, Update following outlook change to stable, March 22, 2023.

A41. One of the purposes of this proceeding is to estimate the cost of equity for an electric utility company that is not itself publicly traded. Because the cost of equity is a market-based concept and because I&M's operations do not make up the entirety of a publicly traded entity, it is necessary to establish a group of companies that are both publicly traded and comparable to the Company in certain fundamental business and financial respects to serve as its "proxy" in the cost of equity estimation process.

Even if I&M was a publicly traded entity, it is possible that transitory events could bias its market value over a given period. A significant benefit of using a proxy group is that it moderates the effects of unusual events that may be associated with any one company. The companies included in the proxy group all possess a set of operating and risk characteristics that are substantially comparable to the Company, and thus provide a reasonable basis to derive and estimate the appropriate cost of equity for I&M.

Q42. How did you select the companies included in your proxy group?

A42. I began with the group of 36 companies that *Value Line* classifies as electric utilities and applied the following screening criteria to select companies that:

- pay consistent quarterly cash dividends because such companies cannot be analyzed using the constant growth DCF model;
- have investment grade long-term issuer ratings from both S&P and Moody's.
- are covered by more than one utility industry analyst;
- have positive long-term earnings growth forecasts from at least two equity analysts;
- own regulated generation assets;
- derive at least 40 percent of generation from owned generation
- derive at least 80 percent of the Company's regulated operating income from electric operations.
- derive at least 60 percent of the Company's operating income from regulated operations.

- were not party to a merger or transformative transaction during the analytical period considered or had a material event that would have affected the market data for the company.

Q43. Did you include AEP in your proxy group?

A43. No. Consistent with my general practice of excluding the subject company, or its parent holding company, from the proxy group, I have excluded AEP from my proxy group for Indiana Michigan Power Company.

Q44. Did you exclude any other companies from the proxy group?

A44. Yes. I excluded Hawaiian Electric Industries, Inc. ("HE") on the basis that its operations are concentrated on the islands of Hawaii, and therefore, the company faces geographic concentration risk for both its regulated and substantial unregulated operations not applicable to the other utilities considered. As HE noted in its 2022 Form10-K:

> The Company is subject to the risks associated with the geographic concentration of its businesses and current lack of interconnections that could result in service interruptions at the Utilities or higher default rates on loans held by ASB [American Savings Bank].[32]

The increased risk of service interruptions resulting from HE's geographic location that could result in revenue loss and increased costs is a risk unique to HE and would not apply to utilities located on the U.S. mainland. Furthermore, HE's unregulated operations, which represent approximately 27 percent of the company's operation income in 2022 are concentrated in the banking sector through the ownership of American Savings Bank ("ASB").[33] ASB also only operates on Hawaii; thus, all of the company's consumer and commercial loans are to customers on Hawaii. If Hawaii were to face an adverse economic or political event, ASB could face severe financial effects given the company's geographic

[32] Hawaii Electric Industries, Inc., 2022 Form 10-K, at 22.

[33] Id., at 87.

concentration in Hawaii.[34] As a result, I have excluded HE from my proxy group considering HE's unique geographical risks.

Q45. What is the composition of your proxy group?

A45. My proxy group consists of the 13 companies shown in Figure 8.

Figure 8: Proxy Group

Company	Ticker
ALLETE, Inc.	ALE
Alliant Energy Corporation	LNT
Ameren Corporation	AEE
Duke Energy Corporation	DUK
Entergy Corporation	ETR
Evergy, Inc.	EVRG
IDACORP, Inc.	IDA
NextEra Energy, Inc.	NEE
NorthWestern Corporation	NWE
OGE Energy Corporation	OGE
Pinnacle West Capital	PNW
Portland General Electric	POR
Xcel Energy Inc.	XEL

VII. COST OF EQUITY ESTIMATION

Q46. Please briefly discuss the ROE in the context of the regulated rate of return.

A46. The ROE is the cost of common equity capital in the utility's capital structure for ratemaking purposes. The overall rate of return for a regulated utility is the weighted average cost of capital, in which the cost rates of the individual sources of capital are weighted by their respective book values. While the costs of debt and preferred stock can be directly observed, the cost of equity is market-based and, therefore, must be estimated based on observable market data.

[34] Id., at 22.

Q47. How is the required cost of equity determined?

A47. The required cost of equity is estimated by using analytical techniques that rely on market-based data to quantify investor expectations regarding equity returns, adjusted for certain incremental costs and risks. Informed judgment is then applied to determine where the company's cost of equity falls within the range of results produced by multiple analytical techniques. The key consideration in determining the cost of equity is to ensure that the methodologies employed reasonably reflect investors' views of the financial markets in general, as well as the subject company (in the context of the proxy group), in particular.

Q48. What methods did you use to estimate I&M's cost of equity?

A48. I considered the results of the Constant Growth DCF model, the CAPM, the ECAPM, and the Risk Premium analyses. As discussed in more detail below, a reasonable ROE estimate considers alternative methodologies, observable market data, and the reasonableness of their individual and collective results.

a. Importance of Multiple Analytical Approaches

Q49. Is it important to use more than one analytical approach?

A49. Yes. Because the cost of equity is not directly observable, it must be estimated based on both quantitative and qualitative information. When faced with the task of estimating the cost of equity, analysts and investors are inclined to gather and evaluate as much relevant data as reasonably can be analyzed. Several models have been developed to estimate the cost of equity, and I use multiple approaches to estimate the cost of equity. As a practical matter, however, all of the models available for estimating the cost of equity are subject to limiting assumptions or other methodological constraints. Consequently, many well-regarded finance texts recommend using multiple approaches when estimating the cost of

equity. For example, Copeland, Koller, and Murrin[35] suggest using the CAPM and Arbitrage Pricing Theory model, while Brigham and Gapenski[36] recommend the CAPM, DCF, and Bond Yield Plus Risk Premium approaches.

Q50. Do current market conditions support the reliance on more than one analytical approach?

A50. Yes. Interest rates have increased substantially since March 2022 and are expected to remain elevated over at least the next year from the lows as a result of the COVID-19 pandemic. The benefit of using multiple models is that each model relies on different assumptions, certain of which may better reflect current and projected market conditions at different times. As discussed previously, the CAPM, ECAPM and Bond Yield Risk Premium methods offer some balance through the use of projected interest rates since the effect of changes in interest rates, particularly the recent increase in interest rates, may not be captured as well in the DCF model at this time. Therefore, it is important to use multiple analytical approaches to ensure that the cost of equity results reflect the market conditions that are expected during the period that the Company's rates will be in effect.

Q51. Has the Commission also recognized the benefits of using more than one model to estimate the cost of equity?

A51. Yes. In the 2020 Duke Energy Indiana decision, the Commission explained:

> The Commission recognizes that the cost of equity cannot be precisely calculated and estimating it requires the use of judgment. Due to this lack of precision, the use of multiple methods is desirable because no single method will produce the most reasonable result under all conditions and circumstances. The Commission is also mindful of the strengths and weaknesses of the various models typically used to estimate a utility's cost

[35] 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.

[36] Eugene Brigham, Louis Gapenski, Financial Management: Theory and Practice, 7th Ed. (Orlando: Dryden Press, 1994), at 341.

of common equity, and we find that with appropriate and reasonable inputs, models such as the DCF and other methods can produce reasonable estimates of a utility's cost of common equity. Consistent with the standards in *Hope* and *Bluefield*, as well as under Indiana law, DEI's authorized return on equity should be reasonable given the totality of the circumstances.[37]

b. Constant Growth DCF Model

Q52. Please describe the DCF approach.

A52. The DCF approach is based on the theory that a stock's current price represents the present value of all expected future cash flows. In its most general form, the DCF model is expressed as follows:

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

Where P_0 represents the current stock price, D1…D∞ are all expected future dividends, and k is the discount rate, or required ROE. Equation [1] is a standard present value calculation that can be simplified and rearranged into the following form:

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

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

Q53. What assumptions are required for the Constant Growth DCF model?

A53. The Constant Growth DCF model requires the following four assumptions: (1) a constant growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a constant price-to-earnings ratio; and (4) a discount rate greater than the expected growth rate. To the extent that any of these assumptions are not objectively valid, considered judgment and/or specific adjustments should be applied to the results.

[37] *Duke Energy Indiana,* Cause No. 45253, Order of the Commission issued June 29, 2020, at 57.

Q54. What market data do you use to calculate the dividend yield in your Constant Growth DCF model?

A54. The dividend yield in my Constant Growth DCF model is based on the proxy group companies' current annualized dividend and average closing stock prices over the 30-, 90-, and 180-trading days ended April 30, 2023.

Q55. Why do you use 30-, 90-, and 180-day averaging periods?

A55. I use an average of recent trading days to calculate the term P_0 in the DCF model to reflect current market data while also ensuring that the result of the model is not skewed by anomalous events that may affect stock prices on any given trading day.

Q56. Did you make any adjustments to the dividend yield to account for periodic growth in dividends?

A56. Yes, I did. Because utility companies tend to increase their quarterly dividends at different times throughout the year, it is reasonable to assume that dividend increases will be evenly distributed over calendar quarters. Given that assumption, it is reasonable to apply one-half of the expected annual dividend growth rate for purposes of calculating the expected dividend yield component of the DCF model. This adjustment ensures that the expected first-year dividend yield is, on average, representative of the coming twelve-month period, and does not overstate the aggregated dividends to be paid during that time.

Q57. Why is it important to select appropriate measures of long-term growth in applying the DCF model?

A57. In its Constant Growth form, the DCF model (*i.e.*, Equation [2]) assumes a single growth estimate in perpetuity. To reduce the long-term growth rate to a single measure, one must assume that the payout ratio remains constant and that earnings per share, dividends per

share and book value per share all grow at the same constant rate. Over the long run, however, dividend growth can only be sustained by earnings growth. Therefore, it is important to consider a variety of sources in arriving at a singular long-term earnings growth rate for the Constant Growth DCF model.

Q58. Which sources of long-term earnings growth rates did you use?

A58. My Constant Growth DCF model incorporates three sources of long-term earnings growth rates: (1) Zacks Investment Research; (2) Yahoo! Finance; and (3) *Value Line Investment Survey* ("*Value Line*").

Q59. How did you calculate the range of results for the Constant Growth DCF Models?

A59. I calculated a low end result for my DCF model using the minimum growth rate of the three sources (*i.e.*, the lowest of the Zacks, Yahoo Finance, and *Value Line* projected earnings growth rates) for each of the proxy group companies. I used a similar approach to calculate a high end result, using the maximum growth rate of the three sources for each proxy group company. The mean results were calculated using the average growth rate from all three sources for each proxy group company.

Q60. What were the results of your DCF analyses?

A60. Figure 9 summarizes the results of my DCF analyses. As shown in Figure 9, the mean and median DCF results using the average growth rates range from 9.52 percent to 9.83 percent, and the mean and median results using the high growth rates range from 10.72 percent to 11.09 percent. While I also summarize the DCF results using the low growth rates, given the expected underperformance of utility stocks going forward and thus the likelihood that the DCF model is understating the cost of equity, it is my opinion that it is not appropriate to consider these DCF results at this time.

Figure 9: Summary of Constant Growth DCF Results

Constant Growth DCF			
	Mean Low	Mean	Mean High
30-Day Average	8.52%	9.76%	11.03%
90-Day Average	8.56%	9.80%	11.06%
180-Day Average	8.59%	9.83%	11.09%
Constant Growth Average	8.56%	9.80%	11.06%
	Median Low	Median	Median High
30-Day Average	9.12%	9.52%	10.77%
90-Day Average	9.15%	9.69%	10.78%
180-Day Average	9.15%	9.83%	10.72%
Constant Growth Average	9.14%	9.68%	10.75%

Q61. What are your conclusions about the results of the DCF models?

A61. As discussed previously, one primary assumption of the DCF models is a constant price-to-earnings ratio. That assumption is heavily influenced by the market price of utility stocks. Since utility stocks are expected to underperform the broader market over the near-term as interest rates remain elevated and yields on long-term government bonds exceed utility dividend yields, it is important to consider the results of the DCF models with caution. Therefore, while I have given weight to the results of the Constant Growth DCF model, my recommendation also gives weight to the results of other cost of equity estimation models.

c. CAPM Analysis

Q62. Please briefly describe the CAPM.

A62. The CAPM is a risk premium approach that estimates the cost of equity for a given security as a function of a risk-free return plus a risk premium to compensate investors for the non-diversifiable or "systematic" risk of that security. Systematic risk is the risk inherent in the

entire market or market segment—which cannot be diversified away using a portfolio of assets. Unsystematic risk is the risk of a specific company that can, theoretically, be mitigated through portfolio diversification.

The CAPM is defined by four components, each of which must theoretically be a forward-looking estimate:

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

Where:

Ke = the required market ROE;

β = beta coefficient of an individual security;

rf = the risk-free rate of return; and

r_m = the required return on the market.

In this specification, the term (rm – rf) represents the market risk premium. According to the theory underlying the CAPM, because unsystematic risk can be diversified away, investors should only be concerned with systematic or non-diversifiable risk. Non-diversifiable risk is measured by beta, which is defined as:

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

The variance of the market return (*i.e.*, Variance (r_m)) is a measure of the 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 the return on that security will respond to a given change in the general market return. Thus, beta represents the risk of the security relative to the general market.

Q63. What risk-free rate did you use in your CAPM analysis?

A63. I relied on three sources for my estimate of the risk-free rate: (1) the current 30-day average yield on 30-year U.S. Treasury bonds, which is 3.69 percent;[38] (2) the average projected 30-year U.S. Treasury bond yield for the third quarter of 2023 through the third quarter of 2024, which is 3.76 percent;[39] and (3) the average projected 30-year U.S. Treasury bond yield for 2024 through 2028, which is 3.90 percent.[40]

Q64. What Beta coefficients did you use in your CAPM analyses?

A64. As shown in Attachment AEB-5, I used the average Beta coefficients for the proxy group companies as reported by Bloomberg and *Value Line*. The beta coefficients reported by Bloomberg are calculated using ten years of weekly returns relative to the S&P 500 Index. Value Line's calculation of the beta coefficients is based on five years of weekly returns relative to the New York Stock Exchange Composite Index ("NYSE"). Additionally, as shown on Attachment AEB-5 and Attachment AEB-6, I also considered an additional CAPM analysis that relies on the long-term average utility beta coefficient for the companies in my proxy group, which is calculated as an average of the *Value Line* beta coefficients for the companies in my proxy group from 2013 through 2022.

Q65. How did you estimate the Market Risk Premium in the CAPM?

A65. I estimated the market risk premium as the difference between the implied expected equity market return and the risk-free rate. As shown in Attachment AEB-7, the expected market return is calculated using the Constant Growth DCF model discussed earlier in my testimony for the companies in the S&P 500 Index. Based on an estimated market capitalization-weighted dividend yield of 1.73 percent and a weighted long-term earnings

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[38] Bloomberg Professional as of April 30, 2023.

[39] Blue Chip Financial Forecasts, Vol. 41, No. 5, May 1, 2023, at 2.

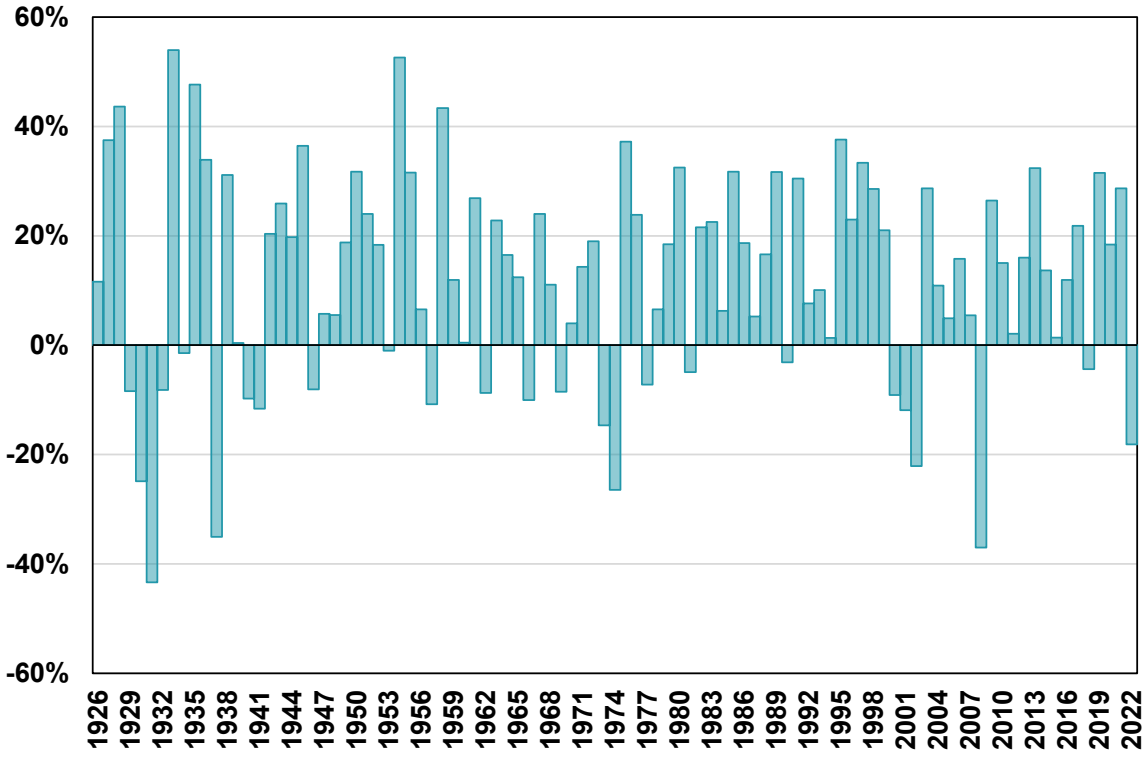
[40] Blue Chip Financial Forecasts, Vol. 41, No. 12, December 1, 2022, at 14.

growth rate of 10.19 percent, the estimated required market return for the S&P 500 Index as of April 30, 2023 is 12.00 percent. Based on the three risk-free rates considered, the implied market risk premia ranges from 8.10 percent to 8.31 percent.

Q66. How does the current expected market return compare to observed historical market returns?

A66. As shown in Figure 10, given the range of annual equity returns that have been observed over the past century, a current expected market return of 12.00 percent is not unreasonable. As shown, in 51 out of the past 97 years (or roughly 53 percent of observations), the realized equity market return was at least 12.00 percent or greater.

Figure 10: Realized U.S. Equity Market Returns (1926-2022)[41]



Q67. Did you consider another form of the CAPM in your analysis?

[41] Depicts total annual returns on large company stocks, as reported in the 2023 Kroll SBBI Yearbook.

A67. Yes. I have also considered the results of an ECAPM in estimating the cost of equity for I&M.[42] The ECAPM calculates the product of the adjusted beta coefficient and the market risk premium and applies a weight of 75.00 percent to that result. The model then applies a 25.00 percent weight to the market risk premium without any effect from the beta coefficient. The results of the two calculations are summed, along with the risk-free rate, to produce the ECAPM result, as noted in Equation [5] below:

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

Where:

k_e = the required market ROE

β = Adjusted Beta coefficient of an individual security

r_f = the risk-free rate of return

r_m = the required return on the market as a whole

In essence, the empirical form of the CAPM addresses the tendency of the "traditional" CAPM to underestimate the cost of equity for companies with low beta coefficients such as regulated utilities. In that regard, the ECAPM is not redundant to the use of adjusted betas in the traditional CAPM; rather, it recognizes the results of academic research indicating that the risk-return relationship is different (in essence, flatter) than estimated by the CAPM, and that the CAPM underestimates the "alpha," or the constant return term.[43]

As with the CAPM, my application of the ECAPM uses the forward-looking market risk premium estimates, the three yields on 30-year Treasury securities noted earlier as the

[42] See, e.g., Roger A. Morin, New Regulatory Finance, Public Utilities Reports, Inc., 2006, at 189.
[43] Id., at 191.

risk-free rate, and the current Bloomberg and *Value Line* and long-term *Value Line* beta coefficients.

Q68. What are the results of your CAPM analyses?

A68. As shown in Figure 11 (*see* also Attachment AEB-5), my traditional CAPM analyses produce a range of returns from 10.02 percent to 11.07 percent. The ECAPM analysis results range from 10.51 percent to 11.30 percent.

Figure 11: CAPM Results

CAPM			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Value Line Beta	11.04%	11.05%	11.07%
Bloomberg Beta	10.45%	10.46%	10.49%
Long-term Avg. Beta	10.02%	10.03%	10.07%
ECAPM			
Value Line Beta	11.28%	11.29%	11.30%
Bloomberg Beta	10.84%	10.85%	10.87%
Long-term Avg. Beta	10.51%	10.53%	10.55%

d. Bond Yield Plus Risk Premium Analysis

Q69. Please describe the Bond Yield Plus Risk Premium approach.

A69. In general terms, this approach is based on the fundamental principle that equity investors bear the residual risk associated with equity ownership and therefore require a premium over the return they would have earned as a bondholder. In other words, because returns to equity holders have greater risk than returns to bondholders, equity investors must be compensated to bear that risk. Thus, risk premium approaches estimate the cost of equity

as the sum of the equity risk premium and the yield on a particular class of bonds. In my analysis, I use actual authorized returns for vertically integrated electric companies as the historical measure of the cost of equity to determine the risk premium.

Q70. Are there other considerations that should be addressed in conducting this analysis?

A70. Yes. It is important to recognize both academic literature and market evidence indicating that the equity risk premium (as used in this approach) is inversely related to the level of interest rates (*i.e.*, as interest rates increase, the equity risk premium decreases, and vice versa). Consequently, it is important to develop an analysis that: (1) reflects the inverse relationship between interest rates and the equity risk premium; and (2) relies on recent and expected market conditions. Such an analysis can be developed based on a regression of the risk premium as a function of Treasury bond yields. When the authorized ROEs for electric utilities serve as the measure of required equity returns and the yield on the long-term Treasury bond is defined as the relevant measure of interest rates, the risk premium is the difference between those two points.[44]

Q71. Is the Bond Yield Plus Risk Premium analysis relevant to investors?

A71. Yes. Investors are aware of authorized ROEs in other jurisdictions, and they consider those authorizations as a benchmark for a reasonable level of equity returns for utilities of comparable risk operating in other jurisdictions. Because my Bond Yield Plus Risk Premium analysis is based on authorized ROEs for utility companies relative to

[44] See e.g., Berry, S. Keith. "Interest Rate Risk and Utility Risk Premia during 1982-93." Managerial and Decision Economics, Vol. 19, No. 2, March, 1998 (the author used a similar methodology, including using authorized ROEs as the relevant data source, and came to similar conclusions regarding the inverse relationship between risk premia and interest rates). See also Harris, Robert S. "Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return." Financial Management, Spring 1986, at 66.

corresponding Treasury yields, it provides relevant information to assess the return expectations of investors in the current interest rate environment.

Q72. What did your Bond Yield Plus Risk Premium analysis reveal?

A72. As shown in Figure 12, from 1992 through April 2023, there was a strong negative relationship between risk premia and interest rates. To estimate that relationship, I conducted a regression analysis using the following equation:

$$RP = a + b(T) \text{ [6]}$$

Where:

RP = Risk Premium (difference between allowed ROEs and the yield on 30-year Treasury bonds)

a = intercept term

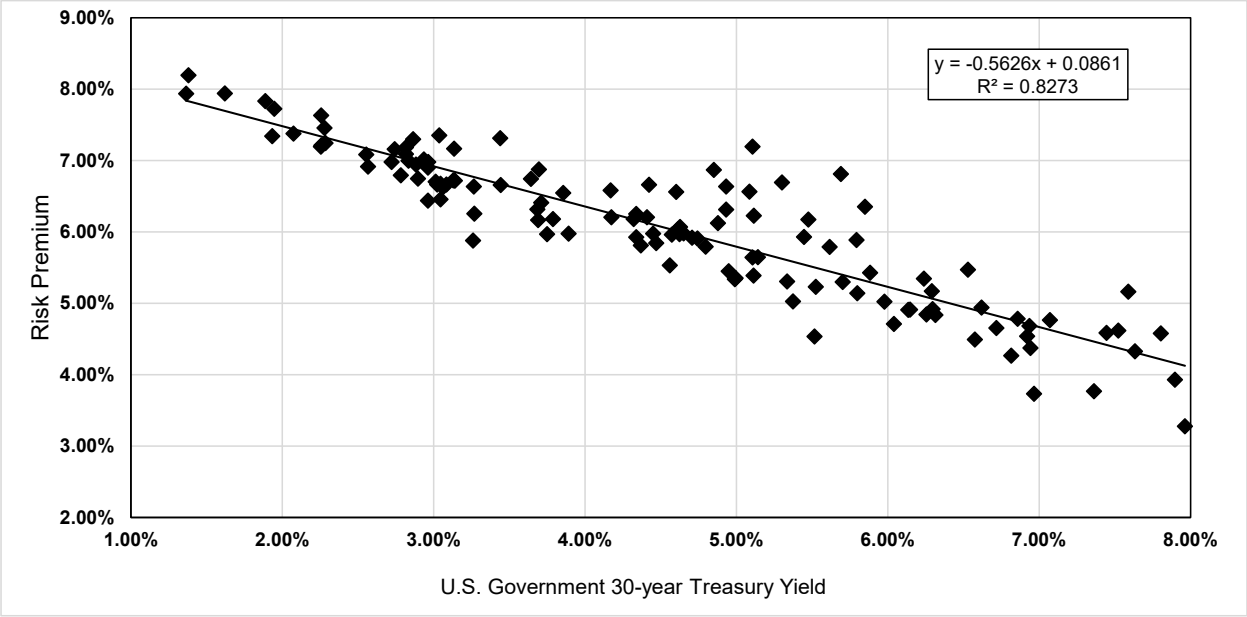
b = slope term

T = 30-year Treasury bond yield

Data regarding authorized ROEs were derived from all vertically integrated electric rate cases from 1992 through April 2023 as reported by S&P Capital IQ Pro ("S&P").[45] This equation's coefficients were statistically significant at the 99.00 percent level.

[45] This analysis began with 1,463 cases and were 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 from 708 cases.

Figure 12: Risk Premium Regression Analysis



Q73. What are the COE estimates that result from this equation?

A73. As shown in Attachment AEB-8, based on the current 30-day average of the 30-year Treasury bond yield, the risk premium would be 6.53 percent, resulting in an estimated cost of equity of 10.22 percent. Based on the consensus estimate of the near-term (*i.e.*, Q3/2023 – Q3/2024) projected 30-year Treasury bond yield (*i.e.*, 3.76 percent), the risk premium would be 6.49 percent, resulting in an estimated cost of equity of 10.25 percent. Based on a consensus estimate of the longer-term (*i.e.*, 2024 – 2028) projection of the 30-year Treasury bond yield (*i.e.*, 3.90 percent), the risk premium would be 6.41 percent, resulting in an estimated cost of equity of 10.31 percent.

Q74. How did the results of the Bond Yield Plus Risk Premium analysis inform your recommended ROE for Indiana Michigan Power?

A74. I have considered the results of the Bond Yield Risk Premium analysis in setting my recommended ROE range for the Company. As noted, investors consider the authorized

ROE of a company when assessing the risk of that company as compared to utilities of comparable risk operating in other jurisdictions. The risk premium analysis takes into account this comparison by estimating the return expectations of investors based on the current and past ROE awards of electric utilities across the US.

VIII. REGULATORY AND BUSINESS RISKS

Q75. Do the DCF, CAPM, ECAPM, and Risk Premium results for the proxy group, taken alone, provide an appropriate estimate of the cost of equity for Indiana Michigan Power?

A75. No. These results provide only a range of the appropriate estimate of the Company's cost of equity. There are several additional factors that must be taken into consideration when determining where the Company's cost of equity falls within the range of results. These factors, which are discussed below, should be considered with respect to their overall effect on the Company's risk profile.

a. Flotation Costs

Q76. What are flotation costs?

A76. Flotation costs are the costs associated with the sale of new issues of common stock. These costs include out-of-pocket expenditures for preparation, filing, underwriting, and other issuance costs.

Q77. Why is it important to consider flotation costs in the allowed ROE?

A77. A regulated utility must have the opportunity to earn an ROE that is both competitive and compensatory to attract and retain new investors. To the extent that a company is denied

the opportunity to recover prudently incurred flotation costs, actual returns will fall short of expected (or required) returns, thereby diluting equity share value.

Q78. Are flotation costs part of the utility's invested costs or part of the utility's expenses?

A78. Flotation costs are part of the invested costs of the utility, which are properly reflected on the balance sheet under "paid in capital." They are not current expenses, and, therefore, are not reflected on the income statement. Rather, like investments in rate base or the issuance costs of long-term debt, flotation costs are incurred over time. As a result, the great majority of a utility's flotation costs are incurred prior to the test year but remain part of the cost structure that exists during the test year and beyond, and as such, should be recognized for ratemaking purposes. Therefore, it is irrelevant whether an issuance occurs during the test year or is planned for the test year because failure to allow recovery of past flotation costs may deny the Company the opportunity to earn its required rate of return in the future.

Q79. Please provide an example of why a flotation cost adjustment is necessary to compensate investors for the capital they have invested.

A79. Suppose AEP, the parent company of I&M, issues stock with a value of $100, and an equity investor invests $100 in AEP in exchange for that stock. Further, suppose that after paying flotation costs associated with the equity issuance, which include fees paid to underwriters and attorneys, among others, AEP ends up with only $97 of net issuance proceeds rather than the $100 the investor contributed. AEP invests that $97 in plant used to serve its customers, which becomes part of rate base. Absent a flotation cost adjustment, the investor will thereafter earn a return on only the $97 invested in rate base, even though she

contributed $100. Making a small flotation cost adjustment gives the investor a reasonable opportunity to earn the authorized return, rather than the lower return that results when the authorized return is applied to an amount less than what the investor contributed.

Q80. Is the date of AEP's last issuance of common equity important in the determination of flotation costs?

A80. No, the vintage of the issuance is not particularly important because an investor should have a reasonable opportunity to earn a return on the full amount of capital that she has contributed, but without the recognition of flotation costs, the investor suffers a shortfall in every year after which the capital has been invested. For example, the last two equity issuances for AEP are shown in Attachment AEB-9. AEP closed on equity issuances of approximately $1,470 million and $1,047.5 million (for a total of 110 million shares of common stock) in April 2009 and February 2003, respectively. Returning to my earlier example, the investor who contributed $100 is entitled to a reasonable opportunity to earn a return on $100 not only in the first year after the investment, but in every subsequent year in which she has the $100 invested. Leaving aside depreciation, which is dealt with separately, there is no basis to conclude that the investor is entitled to earn a return on $100 in the first year after issuance, but thereafter is only entitled to earn a return on only $97. For as long as the $100 is invested, the investor should have a reasonable opportunity to earn a return on the entire amount.

Q81. Is the need to consider flotation costs eliminated because Indiana Michigan Power is a wholly-owned subsidiary of AEP?

A81. No, it is not. Although Indiana Michigan Power is a wholly-owned subsidiary of AEP, it is appropriate to consider flotation costs. Wholly-owned subsidiaries receive equity capital

from their parent and provide returns on the capital that roll up to the parent, which is designated to attract and raise capital based upon the returns of those subsidiaries. To deny recovery of issuance costs associated with the capital that is invested in the subsidiaries ultimately penalizes the investors that fund utility operations and inhibits the utility's ability to obtain new equity capital at a reasonable cost. This is particularly important for Indiana Michigan Power because, as I discuss below, it is planning significant capital expenditures over the next five years.

Q82. Is the need to consider flotation costs recognized by the academic and financial communities?

A82. Yes, it is. The need to reimburse shareholders for the lost returns associated with equity issuance costs is recognized by the academic and financial communities in the same spirit that investors are reimbursed for the costs of issuing debt. This treatment is consistent with the philosophy of a fair rate of return. According to Dr. Shannon Pratt:

> Flotation costs occur when new issues of stock or debt are sold to the public. The firm usually incurs several kinds of flotation or transaction costs, which reduce the actual proceeds received by the firm. Some of these are direct out-of-pocket outlays, such as fees paid to underwriters, legal expenses, and prospectus preparation costs. Because of this reduction in proceeds, the firm's required returns on these proceeds equate to a higher return to compensate for the additional costs. Flotation costs can be accounted for either by amortizing the cost, thus reducing the cash flow to discount, or by incorporating the cost into the cost of capital. Because flotation costs are not typically applied to operating cash flow, one must incorporate them into the cost of capital.[46]

Further, Dr. Myron Gordon recognized that the DCF model did not include the cost of floating a new stock issue and proposed a means for regulators to recognize these costs in his text on the subject.[47]

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[46] Pratt, Shannon P. Cost of Capital Estimation and Applications. Second Edition, at 220-21.

[47] Gordon, Myron, "The Cost of Capital to a Public Utility", 1974, pp. 164-166.

Q83. What is the effect of flotation costs on Indiana Michigan Power's cost of equity?

A83. My flotation cost is estimated on the costs of issuing equity that were incurred by AEP in its two most recent common equity issuances. As shown in Attachment AEB-9, based on the flotation costs of those two issuances, the impact on the proxy group's cost of equity amounts to 14 basis points (*i.e.*, 0.14 percent) based on the median and 12 basis points (*i.e.*, 0.12 percent) based on the mean.

Q84. Has the Commission provided any guidance on the consideration of flotation costs?

A84. Yes. The Commission has approved inclusion of flotation costs, including a 2004 order, which agreed to an adjustment to the return on equity to account for actual flotation costs incurred by the company. In that proceeding, the Commission ordered a 15 basis-point upward adjustment to the cost of equity.[48] In a later Order, the Commission stated that while adjustments such as flotation costs are often inappropriate to include in the cost of equity, it reiterated that the "Commission will only allow flotation cost adjustments when they are based on verifiable actual costs so that the reasonableness and appropriateness of the costs may be examined."[49] As detailed above, my flotation cost analysis relies on the flotation cost percentage based on AEP's most recent two equity issuances, which is appropriate to consider according to multiple previous Commission orders.

Q85. Do your final cost of equity model results include an adjustment for flotation cost recovery?

[48] PSI Energy, Inc. Petition for Authority to Increase Its Rates, Cause No. 42359, Indiana Utility Regulatory Commission Order Approved May 18, 2004, at 43.

[49] Indiana Michigan Power Company Petition for Authority to Increase its Rates, Cause No. 44075, Indiana Utility Regulatory Commission Order Approved February 13, 2013, at 43.

A85. No, I did not make an explicit adjustment for flotation costs to any of the quantitative results of my cost of equity models. Rather, the incremental cost associated with stock issuance supports my recommended ROE of 10.50 percent.

b. Capital Expenditures

Q86. Please summarize the Company's capital expenditure requirements.

A86. As discussed in the direct testimony of Company Witness Baker, the Company is embarking on a major generation fleet transformation, with the retirement of Rockport Units 1 and 2 by 2028, representing approximately 50 percent of the Company's generation portfolio. The Company plans to transition to more renewable resources, diversify its generation portfolio and reduce carbon emissions. The near term plan, which is from 2025 through 2028 includes the addition of 800 MW of wind resources, 1300 MW of solar resources and 1,000 MW of natural gas peaking resources.[50] Indiana Michigan Power's current capital investment projections for its electric operations in Indiana and Michigan over the period of 2024 through 2027 include approximately $3.06 billion in capital investments.[51] Based on Indiana Michigan Power's net utility plant of approximately $6.80 billion, the Company's anticipated capital expenditures are approximately 45.04 percent of Indiana Michigan Power's net utility plant as of December 31, 2022.[52]

Q87. How is Indiana Michigan Power's risk profile affected by its capital expenditure requirements?

[50] Indiana Michigan 2021 Integrated Resources Plan Summary at 6.

[51] Data provided by Indiana Michigan Power for Capital Expenditures 2024-2027.

[52] Data provided by Indiana Michigan Power.

A87. As with any utility facing increased capital expenditure requirements, Indiana Michigan Power's risk profile may be adversely affected in two significant and related ways: (1) the heightened level of investment increases the risk of under recovery or delayed recovery of the invested capital; and (2) an inadequate return would put downward pressure on key credit metrics.

Q88. Do credit rating agencies recognize the risks associated with elevated levels of capital expenditures?

A88. Yes, they do. From a credit perspective, the additional pressure on cash flows associated with high levels of capital expenditures exerts corresponding pressure on credit metrics and, therefore, credit ratings. To that point, S&P explains the importance of regulatory support for large capital projects:

> When applicable, a jurisdiction's willingness to support large capital projects with cash during construction is an important aspect of our analysis. This is especially true when the project represents a major addition to rate base and entails long lead times and technological risks that make it susceptible to construction delays. Broad support for all capital spending is the most credit-sustaining. Support for only specific types of capital spending, such as specific environmental projects or system integrity plans, is less so, but still favorable for creditors. Allowance of a cash return on construction work-in-progress or similar ratemaking methods historically were extraordinary measures for use in unusual circumstances, but when construction costs are rising, cash flow support could be crucial to maintain credit quality through the spending program. Even more favorable are those jurisdictions that present an opportunity for a higher return on capital projects as an incentive to investors.[53]

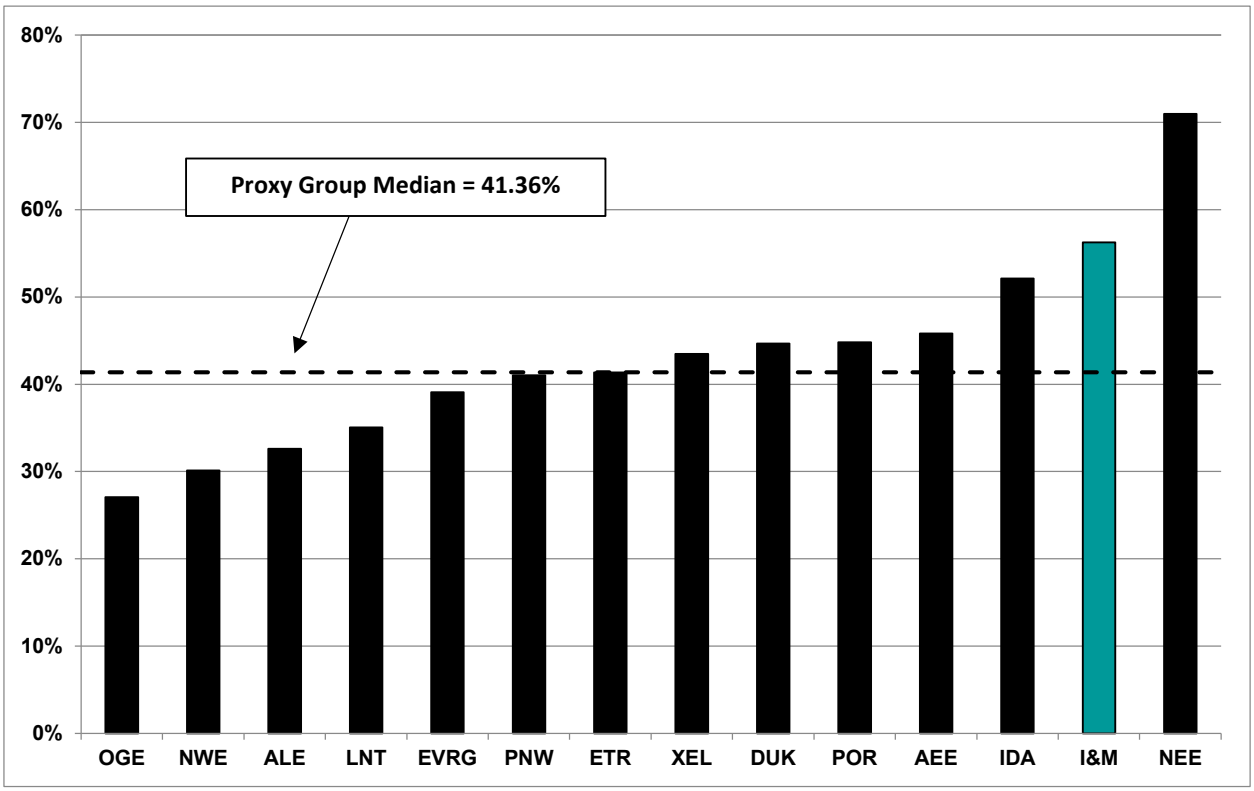
Therefore, to the extent that Indiana Michigan Power's rates do not permit the opportunity to recover its full cost of doing business, Indiana Michigan Power will face increased recovery risk and thus increased pressure on its credit metrics.

[53] S&P Global Ratings, "Assessing U.S. Investor-Owned Utility Regulatory Environments," August 10, 2016, at 7.

Q89. How do Indiana Michigan Power's capital expenditure requirements compare to those of the proxy group companies?

A89. As shown in Attachment AEB-10, I calculated the ratio of expected capital expenditures to net utility plant for Indiana Michigan Power and each of the companies in the proxy group by dividing each company's projected capital expenditures for the period from 2024-2027 by its total net utility plant as of December 31, 2022. As shown in Attachment AEB-10 (*see* also Figure 13 below), Indiana Michigan Power's ratio of capital expenditures as a percentage of net utility plant of 45.04 percent is approximately 1.09 times the median for the proxy group companies of 41.36 percent. The incremental risk associated with the Company's capital investment plan indicates slightly greater risk relative to the companies in the proxy group.

Figure 13: Comparison of Capital Expenditures—Proxy Group Companies



Q90. Does Indiana Michigan Power have a capital tracking mechanism to recover the costs associated with its capital expenditures plan between rate cases?

A90. Yes. I&M has implemented a recovery mechanism to recover Network Integration Transmission Services ("NITS") costs associated with PJM transmission investments and an environmental cost rider that recovers investment in clean coal technology projects, consumables and state and federal emissions allowances approved by the Commission. The transmission costs are significant and vary, as noted by the Commission in a previous rate case:

> Substantial evidence shows NITS costs are variable and subject to potentially significant changes due to market and economic conditions, public policy, NERC and FERC requirements, environmental and state regulatory requirements, and other factors that can be unpredictable.[54]

[54] IURC, Cause No. 45235, March 11, 2020, at 110.

Q91. Are the PJM NITS tracker and the Environmental Cost Rider ("ECR") sufficiently risk reducing to adjust the ROE?

A91. No. The ROE analysis is conducted using market data for a proxy group of comparable companies and necessarily considers the relative risk of the subject company and the proxy group in the final determination of the ROE. Therefore, while I&M's use of the PJM NITS tracker and the ECR may reduce its own risk, the appropriate point of comparison is whether or not this tracking mechanism is risk reducing relative to the proxy group, which I discuss below. It is important to note, however, that if the PJM tracker were to be eliminated, the Company's overall risk profile would be higher than the average of the proxy group companies.

Q92. How do the existence of these trackers compare with the capital investment and other trackers that have been implemented by the proxy companies?

A92. As shown in Attachment AEB-11, 39 out of 56 (or approximately 70 percent) of the operating companies held by the proxy group recover costs through capital tracking mechanisms. Therefore, because the proxy group has similar tracking mechanisms, the financial risk for the Company is comparable to the proxy group. However, as mentioned above, if I&M's PJM tracker is not renewed, the Company would be at an elevated level of regulatory risk.

Q93. What are your conclusions regarding the effect of Indiana Michigan Power's capital spending requirements on its risk profile and cost of capital?

A93. Indiana Michigan Power's capital expenditure forecast is significant. The Company's proposed use of rate adjustment mechanisms to recover capital investment in a timely manner, such as PJM NITS costs, and environmental investments remains important.

Without it, the Company would be at greater risk than that of the proxy group. This would result in a risk profile that is greater than that of the proxy group and would support an ROE toward the higher end of the reasonable range of ROEs.

c. Regulatory Risk

Q94. How does the regulatory environment affect investors' risk assessments?

A94. The ratemaking process is premised on the principle that, for investors and companies to commit the capital needed to provide safe and reliable utility services, the subject utility must have the opportunity to recover invested capital and the market-required return on such capital. Regulatory commissions recognize that because utility operations are capital intensive, regulatory decisions should enable the utility to attract capital at reasonable terms, which balances the long-term interests of investors and customers. In that respect, the regulatory framework in which a utility operates is one of the most important factors considered in both debt and equity investors' risk assessments.

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

From the perspective of equity investors, the authorized return must be adequate to provide a risk-comparable return on the equity portion of the Company's capital

investments. Because equity investors are the residual claimants on the Company's cash flows (that is, debt interest must be paid prior to any equity dividends), equity investors are particularly concerned with the regulatory framework in which a utility operates and its effect on future earnings and cash flows.

Q95. How do credit rating agencies consider regulatory risk in establishing a company's credit rating?

A95. Both S&P and Moody's consider the overall regulatory framework in establishing credit ratings. Moody's establishes credit ratings based on four key factors: (1) regulatory framework; (2) the ability to recover costs and earn returns; (3) diversification; and (4) financial strength, liquidity, and key financial metrics. Of these criteria, regulatory framework and the ability to recover costs and earn returns are each given a broad rating factor of 25.00 percent. Therefore, Moody's assigns regulatory risk a 50.00 percent weighting in the overall assessment of business and financial risk for regulated utilities.[55]

S&P also identifies the regulatory framework as an important factor in credit ratings for regulated utilities, stating: "One significant aspect of regulatory risk that influences credit quality is the regulatory environment in the jurisdictions in which a utility operates."[56] S&P identifies four specific factors that it uses to assess the credit implications of the regulatory jurisdictions of investor-owned regulated utilities: (1) regulatory stability; (2) tariff-setting procedures and design; (3) financial stability; and (4) regulatory independence and insulation.[57]

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[55] Moody's Investors Service, Rating Methodology: Regulated Electric and Gas Utilities, June 23, 2017, at 4.

[56] Standard & Poor's Global Ratings, Ratings Direct, U.S. and Canadian Regulatory Jurisdictions Support Utilities' Credit Quality—But Some More So Than Others, June 25, 2018, at 2.

[57] Id., at 1.

Q96. How does the regulatory environment in which a utility operates affect its access to and cost of capital?

A96. The regulatory environment can significantly affect both the access to, and cost of capital in several ways. First, the proportion and cost of debt capital available to utility companies are influenced by the rating agencies' assessment of the regulatory environment. As noted by Moody's, "[f]or rate regulated utilities, which typically operate as a monopoly, the regulatory environment and how the utility adapts to that environment are the most important credit considerations."[58] Moody's has further highlighted the relevance of a stable and predictable regulatory environment to a utility's credit quality, noting: "[b]roadly speaking, the Regulatory Framework is the foundation for how all the decisions that affect utilities are made (including the setting of rates), as well as the predictability and consistency of decision-making provided by that foundation."[59]

Q97. Have you conducted any analysis of the regulatory framework in Indiana relative to the jurisdictions in which the companies in your proxy group operate?

A97. Yes. I have evaluated the regulatory framework in Indiana considering two factors that are important to ensuring Indiana Michigan Power maintains access to capital at reasonable terms. As I will discuss in more detail below, the two factors are: 1) cost recovery mechanisms which allow a utility to recover costs in a timely manner between rate cases and provide the utility the opportunity to earn its authorized return; and 2) comparable return standard because an awarded ROE that is significantly below the ROEs awarded to other utilities with comparable risks can affect the ability of a utility to attract capital at reasonable terms.

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[58] Moody's Investors Service, Rating Methodology: Regulated Electric and Gas Utilities, June 23, 2017, at 6.

[59] Id.

Q98. Have you reviewed the most recent credit opinions for the Company?

A98. Yes. I reviewed the Moody's Credit Opinion as of March 2023. While Moody's notes that I&M has strong regulatory support, it also notes that the Company's financial position will be pressured in 2025 and 2026 when it plans to invest approximately $1 billion annually to add new renewable generation. Further, Moody's projects the Cash Flow from Operations ("CFO") to pre-working capital to decline beyond the 20% to 22% range, due to the increase in debt to achieve its allowed regulatory capital structure.[60]

i. Cost Recovery Mechanisms

Q99. Have you conducted any analysis to compare the cost recovery mechanisms of Indiana to the cost recovery mechanisms approved in the jurisdictions in which the companies in your proxy group operate?

A99. Yes. I selected three mechanisms that are important to provide a regulated utility an opportunity to earn its authorized ROE. These are: 1) test year convention (i.e., forecast vs. historical); 2) use of revenue decoupling mechanisms or other clauses that mitigate volumetric risk; and 3) prevalence of capital cost recovery between rate cases. The results of this regulatory risk assessment are shown in Attachment AEB-11 and are summarized below.

1. Test year convention: Indiana Michigan Power is allowed to use a future test year in Indiana, which is consistent with 25 out of 56 (approximately 45 percent) of the operating companies held by the proxy group provide service in jurisdictions that use a fully or partially forecast test year.

[60] Moody's Investor Service, Credit Opinion, Indiana Michigan Power Company: Update following outlook change to stable, March 22, 2023, p. 4.

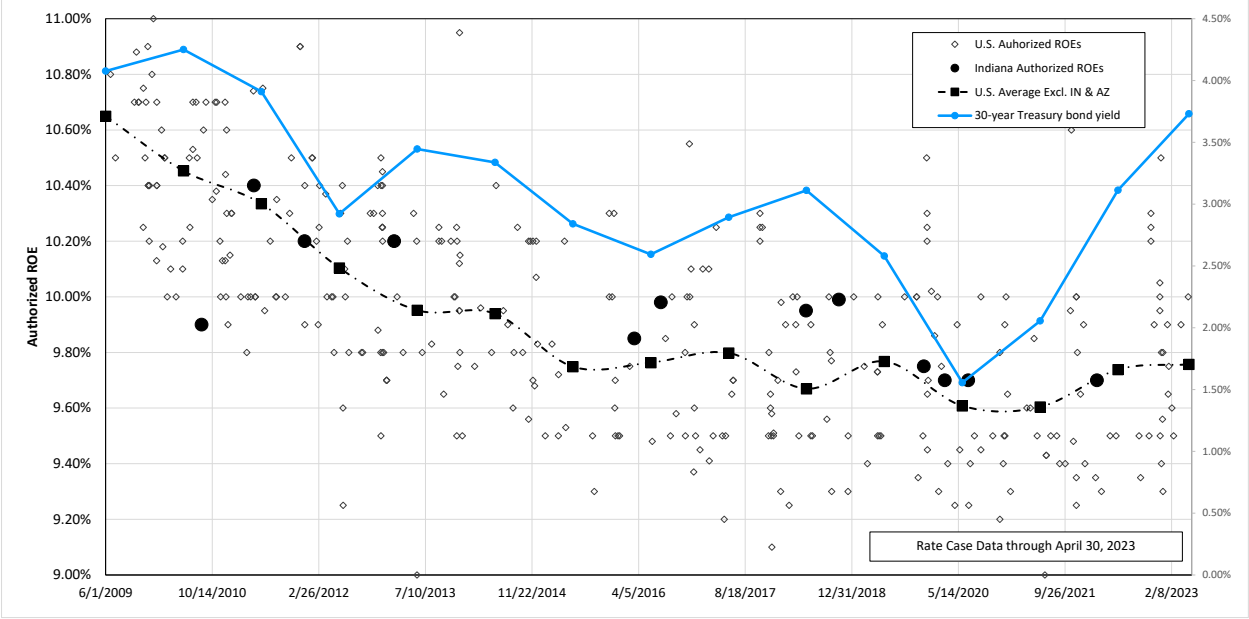
2. Volumetric Risk: Indiana Michigan Power does have protection against volumetric risk in Indiana through a lost revenue tracking mechanism. This type of mechanism is generally consistent with the companies in the proxy group where 30 out of 56 (approximately 54 percent) of the operating companies held by the proxy group have some form of protection against volumetric risk.
3. Capital Cost Recovery: As discussed above, Indiana Michigan Power has a capital tracking mechanism available under its PJM and ECR trackers to recover capital investment costs between rate cases (i.e., generic infrastructure costs). This is consistent with 39 out of 56 (approximately 70 percent) of the operating companies held by the proxy group have some form of capital cost recovery mechanism in place.

ii. Authorized ROEs

Q100. How do recent returns in Indiana compare to the authorized returns in other jurisdictions?

A100. The authorized ROEs for electric utilities in Indiana, while partially the result of settlement agreements approved by the Commission, have been above the average authorized ROEs for vertically integrated electric utilities across the U.S. Figure 14 below shows the authorized returns for vertically integrated electric utilities in other jurisdictions since June 2009, the returns authorized in Indiana for electric companies and the yield on the 30-year Treasury bond. As shown in Figure 14, the authorized returns for electric utilities in Indiana have historically been in the mid- to upper range produced by the authorized ROEs from other state jurisdictions. The 2022 authorized ROE for the Company was slightly lower than the recent historical ROEs issued in Indiana and was at the national average for that time-period. As discussed previously, since that 2022 settlement, the yield on the 30-year Treasury bond has increased significantly.

Figure 14: Comparison of Indiana and U.S. Authorized Vertically Integrated Electric Returns



Q101. Should the Commission be concerned about authorizing equity returns that are at the low end of the range established by other state regulatory jurisdictions?

A101. Yes. Placing Indiana Michigan Power at the low end of authorized ROEs across the country can negatively affect the Company's access to capital and the overall cost of capital over the longer term. As I discuss below, the recent negative rate case determination, including a below average authorized ROE, for Arizona Public Service Company ("APS") resulted in a 24 percent decline in the share price for Pinnacle West Capital Corporation ("PNW"), increasing the overall COE for that company.

Second, as noted in Sections V and VII, interest rates increased significantly in 2022 due to inflation and the Federal Reserve's normalization of monetary policy, which is expected to remain restrictive for the near-term. While historical authorized ROEs provide investors with a range of recent returns, it is important to recognize that the recent decisions do not take into consideration the effect of the recent change in market conditions on the investor required return. Therefore, it is important that the Commission consider

the results of forward-looking methodologies such as the CAPM, ECAPM, and Bond Yield Plus Risk Premium which rely directly on current and projected interest rates in the estimation of the COE.

Q102. Do credit rating agencies consider the authorized ROE in the overall risk assessment of a utility?

A102. Yes, they do. To the extent that the returns in a jurisdiction are lower than the returns that have been authorized more broadly, credit rating agencies will consider this in the overall risk assessment of the regulatory jurisdiction in which the company operates. It is important to consider credit ratings because they affect the overall cost of borrowing, and they act as a signal to equity investors about the risk of investing in the equity of a company. Therefore, lower credit ratings can affect both the cost of debt and equity. Examples of recent credit rating agency responses include ALLETE, Inc., and PNW.

Moody's downgraded ALLETE, Inc. from A3 to Baa1 primarily based on the less than favorable outcome in Minnesota Power's 2016 fully litigated rate case in Minnesota which included what Moody's noted was a below average authorized ROE of 9.25 percent.[61] In addition, FitchRatings recently downgraded and maintained a negative outlook for APS and its parent, PNW, following the hearings conducted by the Arizona Corporation Commission ("ACC") in October 2021 regarding APS' then current rate case proceeding.[62] While the ACC had not issued a final order in APS' rate case at the time, FitchRatings noted that the developments at the hearing in October indicate a likely credit negative outcome that will negatively affect the financial metrics of both APS and PNW.

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

[62] FitchRatings, "Fitch Downgrades Pinnacle West Capital & Arizona Public Service to 'BBB+'; Outlooks Remain Negative," October 12, 2021.

It is also important to note that both Standard & Poor's and Moody's downgraded PNW's and APS' credit rating and put the companies on credit watch negative following the Commission's November 2021 vote that officially authorized the 8.70 percent ROE.[63]

Q103. Are you aware of any utilities that have been affected by adverse rate case developments?

A103. Yes, I am. The market has responded negatively to recent returns authorized by the ACC. As noted above, the most recent ROE determination in Arizona was for APS. The Recommended Opinion and Order ("ROO") issued in the APS rate proceeding on August 2, 2021, recommended an ROE of 9.16 percent. In October 2021, that recommendation was amended to reduce the company's ROE to 8.70 percent. The final ROE that was established for APS was 8.70 percent.[64] The market reacted strongly to the proposed order and subsequent amendment and final decision. Guggenheim Securities LLC, an equity analyst that follows PNW, the parent company of APS, informed its clients that

> [T]he "Arizona Corporation Commission is now confirmed to be the single most value destructive regulatory environment in the country as far as investor-owned utilities are concerned".[65]

S&P Global Market Intelligence ("Regulatory Research Associates") noted that this decision was "among the lowest ROEs RRA had encountered in its coverage of vertically integrated electric utilities in the past 30 years."[66]

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[63] 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).

[64] Arizona Corporation Commission Docket No. E-01345A-19-0236, Commissioner Olson Proposed Amendment No. 1 to the Recommended Opinion and Order. October 4, 2021.

[65] S&P Global Market Intelligence, "Pinnacle West shares tumble after regulators slash returns in rate case," October 7, 2021.

[66] S&P Global Market Intelligence, RRA Regulatory Focus, "Commission accords Arizona Public Service Company a well below average ROE," October 8, 2021.

As shown in Figure 15 below, PNW's stock price declined approximately 24 percent from August 2, 2021 to November 4, 2021 following the issuance of the ROO, which recommended an ROE of 9.16 percent, and then the subsequent amendment to that opinion recommending the 8.70 percent ROE ultimately adopted by the ACC. Moreover, the Value Line five-year projected EPS growth rates for this company have fallen from 5.0 percent in July 2021, prior to the deliberations in the rate proceeding to "Nil" in October 2021 and most recently 2.5 percent on April 21, 2023. For PNW, the APS decision has had a significant effect on the share price and growth rate assumptions used in the DCF model.

Figure 15: Pinnacle West Capital Stock Price VS. S&P 500

Q104. How should the Commission use the information regarding authorized ROEs in other jurisdictions in determining the ROE for Indiana Michigan Power?

A104. The companies in the proxy group operate in multiple jurisdictions across the U.S. Since Indiana Michigan Power must compete directly for capital with investments of similar risk,

it is appropriate to review the authorized ROEs in other jurisdictions. The comparison is important because investors are considering the authorized returns across the U.S. and are likely to invest equity in those utilities with the highest returns. However, when reviewing this data, it is important to recognize that the authorized ROEs are based on the market conditions at the time of the rate proceeding. Therefore, while it is reasonable to review this data, it is important to consider differences in market conditions and the investor required return at the time that the ROE was authorized.

Q105. Has RRA provided recent regulatory ranking for Indiana Michigan Power?

A105. Yes. As of May 2023, RRA affords the regulatory environment in Indiana a ranking of Average/1.

Q106. What are your conclusions regarding the perceived risks related to the Indiana regulatory environment?

A106. As discussed throughout this section of my testimony, both Moody's and S&P have identified the supportiveness of the regulatory environment as an important consideration in developing their overall credit ratings for regulated utilities. Considering the regulatory adjustment mechanisms, many of the companies in the proxy group have cost recovery mechanisms that are similar to those implemented by I&M (through forecasted test years, cost recovery trackers, and revenue stabilization mechanisms) in Indiana. For that reason, I conclude that the regulatory risks for I&M are comparable to the proxy group. However, if the PJM tracker did not exist, the Company will have greater risk than the proxy group, particularly considering the Company's most recent ROE decision was predicated on access to the PJM tracker. Without these provisions, I&M will be at an elevated financial risk.

IX. CAPITAL STRUCTURE

Q107. Is the capital structure of the Company an important consideration in the determination of the appropriate ROE?

A107. Yes, it is. The equity ratio is the primary indicator of financial risk for a regulated utility such as I&M. All else equal, a higher debt ratio increases the risk to equity investors. For debt holders, higher debt ratios result in a greater portion of the available cash flow being required to meet debt service, thereby increasing the risk associated with the payments on debt. The result of increased risk is a higher interest rate. The incremental risk of a higher debt ratio is more significant for common equity shareholders, whose claim on the cash flow of the Company is secondary to debt holders. Therefore, the greater the debt service requirement, the less cash flow available for common equity holders. To the extent the equity ratio is reduced, it is necessary to increase the authorized ROE to compensate investors for the greater financial risk associated with a lower equity ratio.

Q108. What is Indiana Michigan Power's proposed capital structure?

A108. I&M is proposing a capital structure that is composed of 51.20 percent common equity, and 48.80 percent long-term debt.

Q109. Did you conduct any analysis to determine if this requested equity ratio was reasonable?

A109. Yes. As shown in Attachment AEB-12, I compared the Company's proposed capital structure relative to the actual capital structures of the utility operating subsidiaries of the companies in the proxy group. Since the ROE is set based on the return that is derived from the risk-comparable proxy group, it is reasonable to look to the average capital structure for the proxy group to benchmark the equity ratios for the Company.

Q110. Please discuss your analysis of the capital structures of the proxy group companies.

A110. I calculated the average proportion of common equity, long-term debt, and preferred equity for the most recent eight quarters (2021 Q2 – 2023 Q1) for each of the companies in the proxy group at the operating subsidiary level. As shown in Attachment AEB-12, the average common equity ratio for operating subsidiaries of the proxy group companies was 53.34 percent (representing a range from 45.51 percent to 61.41 percent). I&M's proposed equity ratio of 51.20 percent is in the range of equity ratios for the utility operating subsidiaries of the proxy group companies and is therefore reasonable.

Q111. Are there other factors to be considered in evaluating the Company's capital structure?

A111. Yes, there are other factors that should be considered in evaluating the Company's capital structure, namely the challenges that the credit rating agencies have highlighted as placing pressure on the outlook for utilities in 2023.

For example, Moody's recently revised its 2023 outlook for the regulated gas and electric utilities sector to "negative" based on ongoing challenges of inflation, increasing interest rates and higher natural gas prices. Moody's noted that these challenges increase the pressure on customer affordability, and thus face heightened public scrutiny and the ability of utilities to promptly recover their costs. Moody's concluded that regulated utilities' financial metrics are already under pressure with little cushion, and that sustained capital spending is likely as utilities continue progress towards emissions reductions and net-zero goals. Moody's noted that the outlook could return to stable if regulatory support remains intact, natural gas prices are at a level where utilities are able to recover their fuel and purchased power costs without delay beyond 12 months, overall inflation moderates,

interest rates stabilize and/or utilities' aggregate funds from operations-to-debt ratio remains between 14% to 15%.[67]

Fitch Ratings ("Fitch") also highlights similar factors identified by Moody's as challenging utilities' outlook for 2023, stating that the sector faces mounting cost pressures due to "elevated commodity prices, inflationary headwinds and rising interest costs," and that some offset in managing these headwinds include "higher authorized ROEs and the use of tools such as securitization of under-recovered fuel balances."[68]

Likewise, S&P also continues to maintain a negative outlook for the utility industry, noting that downgrades have outpaced upgrades for the third consecutive year in 2022 with a median investor-owned utility credit rating of "BBB+".[69] Further, S&P expects the industry to have negative discretionary cash flow as a result of significant capital spending and consistent dividends.[70] Therefore, the utility industry will need ongoing access to capital markets to fund the capital expenditures. However, S&P notes that inflation, rising interest rates and decreasing equity prices may "hamper" consistent access to capital markets and result in additional pressure on cash flows.[71] Moreover, S&P indicates that if inflation risks persist over the near-term and customer bills increase, regulatory credit support could decrease resulting in weaker financial metrics for the industry:

> Over the past decade the industry's financial measures have weakened from a combination of rising capital spending, regulatory lag, and lower authorized return on equity (ROE). The industry's return on capital was about 6% a decade ago and today is closer to 4%. More recently, we

[67] Moody's Investors Service, Outlook. "2023 outlook negative due to higher natural gas prices, inflation and rising interest rates." November 10, 2022; Moody's Investors Service. Outlook, Sector In-Depth. "Inflation, high natural gas prices complicate prospects for supportive rate increases." November 11, 2022.

[68] Fitch Ratings. "North American Utilities, Power & Gas Outlook 2023." December 7, 2022, at 1-2.

[69] S&P Global Ratings. Industry Top Trends, "North American Regulated Utilities: The industries outlook remains negative." January 23, 2023.

[70] *Id.*

[71] *Id.*

> have seen instances where not only is the authorized ROE lowered but also the equity ratio is lowered. These results have weakened the industry's financial measures, pressuring credit quality. Under our base case of moderating inflationary risks during 2023, we expect the industry's credit measures to generally remain flat. However, if inflationary risks persist, it may further pressure the customer bill, potentially decreasing the level of regulatory credit support, weakening the industry's financial performance.[72]

The credit rating agencies' continued concerns over the negative effects of inflation and increased capital expenditures underscore the importance of maintaining adequate cash flow metrics for the industry as a whole, and I&M in particular in the context of this proceeding.

Q112. Is there a relationship between the equity ratio and the authorized ROE?

A112. Yes. The equity ratio is the primary indicator of financial risk for a regulated utility such as I&M. To the extent the equity ratio is lower than the average of the proxy group, it is necessary reflect the incrementally higher risk financial through a higher authorized ROE.

Q113. What is your conclusion regarding an appropriate equity ratio for I&M?

A113. Considering the actual capital structures of the utility operating subsidiaries of the proxy group, I believe that the Company's proposed common equity ratio of 51.20 percent is reasonable. Specifically, the Company's proposed equity ratio is below the average equity ratios of the utility operating subsidiaries of the proxy group, which, all else equal, suggests that the Company has relatively greater financial risk as compared to the proxy group.

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[72] *Id.*

X. CONCLUSIONS AND RECOMMENDATIONS

Q114. What is your conclusion regarding a fair ROE for I&M?

A114. Figure 16 summarizes the results of my cost of equity analyses. Based on the quantitative and qualitative analyses presented in my direct testimony, the business and financial risks of the Company as compared to the proxy group and current and prospective capital market conditions, I recommend an ROE of 10.50 percent for the Company. The cost of capital, when considered in the context of the overall rate request, is expected to enable the Company to maintain its financial integrity and therefore its ability to attract capital at reasonable rates under a variety of economic and financial market conditions, while continuing to provide safe, reliable and affordable electric utility service to customers in Indiana.

Figure 16: Summary of Analytical Results

Constant Growth DCF			
	Mean Low	Mean	Mean High
30-Day Average	8.52%	9.76%	11.03%
90-Day Average	8.56%	9.80%	11.06%
180-Day Average	8.59%	9.83%	11.09%
Constant Growth Average	8.56%	9.80%	11.06%
	Median Low	Median	Median High
30-Day Average	9.12%	9.52%	10.77%
90-Day Average	9.15%	9.69%	10.78%
180-Day Average	9.15%	9.83%	10.72%
Constant Growth Average	9.14%	9.68%	10.75%
CAPM			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Value Line Beta	11.04%	11.05%	11.07%
Bloomberg Beta	10.45%	10.46%	10.49%
Long-term Avg. Beta	10.02%	10.03%	10.07%
ECAPM			
Value Line Beta	11.28%	11.29%	11.30%
Bloomberg Beta	10.84%	10.85%	10.87%
Long-term Avg. Beta	10.51%	10.53%	10.55%
Risk Premium			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Risk Premium Results	10.22%	10.25%	10.31%

Q115. What is your conclusion with respect to the Company's projected capital structure?

A115. My conclusion is that I&M's projected capital structure consisting of 51.20 percent common equity, 48.80 percent long-term debt is reasonable when compared to the capital structures of the companies in the proxy group and taking in consideration the effect of inflation and increased capital expenditures on the cash flows, and therefore should be adopted.

Q116. Does this conclude your direct testimony?

A116. Yes, it does.

VERIFICATION

I, Ann E. Bulkley, Principal, The Brattle Group, affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information, and belief.

Date: 8/8/23

Ann E. Bulkley

Brattle

Ann E. Bulkley

PRINCIPAL

Boston 508.981.0866 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.

AREAS OF EXPERTISE

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

EDUCATION

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

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

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 approached. 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.

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Arizona Corporation Commission				
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Arkansas Public Service Commission				
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
California Public Utilities Commission				
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
Colorado Public Utilities Commission				
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Connecticut Public Utilities Regulatory Authority				
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
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
Federal Energy Regulatory Commission				
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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
Tallgrass Interstate Gas Transmission	10/15	Tallgrass Interstate Gas Transmission	RP16-137	Return on Equity
Idaho Public Utilities Commission				
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
Illinois Commerce Commission				
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
Indiana Utility Regulatory Commission				
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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
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
Iowa Department of Commerce Utilities Board				
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
Kansas Corporation Commission				
Evergy Kansas	04/23	Evergy Kansas	**Docket No. 23-_____-_____-RTS**	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Atmos Energy Corporation	08/15	Atmos Energy Corporation	Docket No. 16-ATMG-079-RTS	Return on Equity
Kentucky Public Service Commission				
Kentucky American Water Company	11/18	Kentucky American Water Company	Docket No. 2018-00358	Return on Equity
Maine Public Utilities Commission				
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
Maryland Public Service Commission				
Maryland American Water Company	06/18	Maryland American Water Company	Case No. 9487	Return on Equity
Massachusetts Appellate Tax Board				
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
Massachusetts Department of Public Utilities				
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
Michigan Public Service Commission				
Michigan Gas Utilities Corporation	03/23	Michigan Gas Utilities Corporation	Case No. U-21366	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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
Michigan Tax Tribunal				
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
Covert Township	07/14	New Covert Generating Co., LLC.	Docket No. 399578	Valuation of Electric Generation Assets
Minnesota Public Utilities Commission				
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Minnesota Energy Resources Corporation	10/17	Minnesota Energy Resources Corporation	Docket No. G011/GR-17-563	Return on Equity
Missouri Public Service Commission				
Ameren Missouri	08/22	Ameren Missouri	File No. ER-2022-0337	Return on Equity
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
Montana Public Service Commission				
Montana-Dakota Utilities Co.	11/22	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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Montana-Dakota Utilities Co.	09/18	Montana-Dakota Utilities Co.	D2018.9.60	Return on Equity
New Hampshire - Board of Tax and Land Appeals				
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
New Hampshire Public Utilities Commission				
Public Service Company of New Hampshire	05/19	Public Service Company of New Hampshire	DE-19-057	Return on Equity
New Hampshire-Merrimack County Superior Court				
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
New Hampshire-Rockingham Superior Court				
Eversource Energy	05/18	Public Service Commission of New Hampshire	218-2016-CV-00899 218-2017-CV-00917	Valuation of Utility Property
New Jersey Board of Public Utilities				
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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
New Mexico Public Regulation Commission				
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
New York State Department of Public Service				
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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
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
North Dakota Public Service Commission				
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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
Oklahoma Corporation Commission				
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
Oregon Public Service Commission				
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
Pennsylvania Public Utility Commission				
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
South Dakota Public Utilities Commission				
MidAmerican Energy Company	05/22	MidAmerican Energy Company	D-NG22-005	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Northern States Power Company	06/14	Northern States Power Company	Docket No. EL14-058	Return on Equity
Texas Public Utility Commission				
Entergy Texas, Inc.	07/22	Entergy Texas, Inc.	D-53719	Return on Equity
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
Utah Public Service Commission				
PacifiCorp d/b/a Rocky Mountain Power	05/20	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20-035-04	Return on Equity
Virginia State Corporation Commission				
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
Washington Utilities Transportation Commission				
PacifiCorp d/b/a Pacific Power & Light	03/23	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-230172	Return on Equity
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
West Virginia Public Service Commission				
West Virginia American Water Company	04/21	West Virginia American Water Company	Case No. 21-02369-W-42T	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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
Wisconsin Public Service Commission				
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
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
Wyoming Public Service Commission				
PacifiCorp d/b/a Rocky Mountain Power	02/23	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20000-633-ER-23	Return on Equity
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

CERTIFICATIONS/ACCREDITATIONS

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

SUMMARY OF COE ANALYSES RESULTS

Constant Growth DCF			
	Mean Low	Mean	Mean High
30-Day Average	8.52%	9.76%	11.03%
90-Day Average	8.56%	9.80%	11.06%
180-Day Average	8.59%	9.83%	11.09%
Constant Growth Average	8.56%	9.80%	11.06%
	Median Low	Median	Median High
30-Day Average	9.12%	9.52%	10.77%
90-Day Average	9.15%	9.69%	10.78%
180-Day Average	9.15%	9.83%	10.72%
Constant Growth Average	9.14%	9.68%	10.75%
CAPM			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Value Line Beta	11.04%	11.05%	11.07%
Bloomberg Beta	10.45%	10.46%	10.49%
Long-term Avg. Beta	10.02%	10.03%	10.07%
ECAPM			
Value Line Beta	11.28%	11.29%	11.30%
Bloomberg Beta	10.84%	10.85%	10.87%
Long-term Avg. Beta	10.51%	10.53%	10.55%
Risk Premium			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Risk Premium Results	10.22%	10.25%	10.31%

PROXY GROUP SCREENING DATA AND RESULTS

Company	Ticker	[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! First 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 > 80%	[9] Announced Merger
ALLETE, Inc.	ALE	Yes	BBB	Yes	Yes	Yes	41.54%	102.84%	97.70%	No
Alliant Energy Corporation	LNT	Yes	A-	Yes	Yes	Yes	70.97%	96.96%	90.66%	No
Ameren Corporation	AEE	Yes	BBB+	Yes	Yes	Yes	76.04%	100.00%	84.34%	No
Duke Energy Corporation	DUK	Yes	BBB+	Yes	Yes	Yes	82.34%	99.66%	91.34%	No
Entergy Corporation	ETR	Yes	BBB+	Yes	Yes	Yes	68.34%	98.74%	99.57%	No
Evergy, Inc.	EVRG	Yes	A-	Yes	Yes	Yes	62.52%	100.00%	100.00%	No
IDACORP, Inc.	IDA	Yes	BBB	Yes	Yes	Yes	68.95%	99.91%	100.00%	No
NextEra Energy, Inc.	NEE	Yes	A-	Yes	Yes	Yes	96.85%	92.16%	100.00%	No
NorthWestern Corporation	NWE	Yes	BBB	Yes	Yes	Yes	56.48%	99.75%	84.49%	No
OGE Energy Corporation	OGE	Yes	BBB+	Yes	Yes	Yes	55.06%	100.00%	100.00%	No
Pinnacle West Capital Corporation	PNW	Yes	BBB+	Yes	Yes	Yes	77.40%	100.00%	100.00%	No
Portland General Electric Company	POR	Yes	BBB+	Yes	Yes	Yes	60.82%	100.00%	100.00%	No
Xcel Energy Inc.	XEL	Yes	A-	Yes	Yes	Yes	57.64%	100.00%	86.47%	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 2022, 2021, and 2019
[8] Source: Form 10-K's for 2022, 2021, and 2019
[9] Source: S&P Capital IQ Pro Financial News Releases

30-DAY CONSTANT GROWTH DCF -- INDIANA MICHIGAN POWER COMPANY 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	$2.71	$63.71	4.25%	4.41%	6.00%	8.70%	7.80%	7.50%	10.38%	11.91%	13.14%
Alliant Energy Corporation	LNT	$1.81	$53.39	3.39%	3.50%	6.50%	6.20%	6.50%	6.40%	9.70%	9.90%	10.00%
Ameren Corporation	AEE	$2.52	$87.54	2.88%	2.98%	6.50%	6.90%	7.00%	6.80%	9.47%	9.78%	9.98%
Duke Energy Corporation	DUK	$4.02	$97.21	4.14%	4.25%	5.00%	5.80%	6.20%	5.67%	9.24%	9.92%	10.46%
Entergy Corporation	ETR	$4.28	$106.09	4.03%	4.10%	0.50%	6.60%	2.80%	3.30%	4.54%	7.40%	10.77%
Evergy, Inc.	EVRG	$2.45	$61.24	4.00%	4.10%	7.50%	2.67%	5.20%	5.12%	6.72%	9.23%	11.65%
IDACORP, Inc.	IDA	$3.16	$108.33	2.92%	2.97%	4.50%	3.70%	3.70%	3.97%	6.67%	6.94%	7.48%
NextEra Energy, Inc.	NEE	$1.87	$77.05	2.43%	2.54%	10.00%	8.80%	8.40%	9.07%	10.93%	11.60%	12.55%
NorthWestern Corporation	NWE	$2.56	$58.15	4.40%	4.51%	3.50%	4.50%	6.60%	4.87%	7.98%	9.38%	11.15%
OGE Energy Corporation	OGE	$1.66	$37.07	4.47%	4.66%	6.50%	negative	10.20%	8.35%	11.11%	13.01%	14.90%
Pinnacle West Capital Corporation	PNW	$3.46	$78.09	4.43%	4.54%	2.50%	7.05%	5.40%	4.98%	6.99%	9.52%	11.64%
Portland General Electric Company	POR	$1.81	$49.22	3.68%	3.77%	5.00%	4.18%	6.10%	5.09%	7.93%	8.86%	9.89%
Xcel Energy Inc.	XEL	$2.08	$68.69	3.03%	3.12%	6.00%	6.40%	6.60%	6.33%	9.12%	9.46%	9.73%
Mean				3.70%	3.80%	5.38%	5.96%	6.35%	5.96%	8.52%	9.76%	11.03%
Median				4.00%	4.10%	6.00%	6.30%	6.50%	5.67%	9.12%	9.52%	10.77%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 30-day average as of April 30, 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 -- INDIANA MICHIGAN POWER COMPANY PROXY GROUP

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line EPS Growth	Yahoo! Finance EPS Growth	Zacks EPS Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	$2.71	$62.76	4.32%	4.48%	6.00%	8.70%	7.80%	7.50%	10.45%	11.98%	13.21%
Alliant Energy Corporation	LNT	$1.81	$53.15	3.41%	3.51%	6.50%	6.20%	6.50%	6.40%	9.71%	9.91%	10.02%
Ameren Corporation	AEE	$2.52	$86.30	2.92%	3.02%	6.50%	6.90%	7.00%	6.80%	9.51%	9.82%	10.02%
Duke Energy Corporation	DUK	$4.02	$98.61	4.08%	4.19%	5.00%	5.80%	6.20%	5.67%	9.18%	9.86%	10.40%
Entergy Corporation	ETR	$4.28	$105.88	4.04%	4.11%	0.50%	6.60%	2.80%	3.30%	4.55%	7.41%	10.78%
Evergy, Inc.	EVRG	$2.45	$60.97	4.02%	4.12%	7.50%	2.67%	5.20%	5.12%	6.74%	9.24%	11.67%
IDACORP, Inc.	IDA	$3.16	$105.51	2.99%	3.05%	4.50%	3.70%	3.70%	3.97%	6.75%	7.02%	7.56%
NextEra Energy, Inc.	NEE	$1.87	$77.54	2.41%	2.52%	10.00%	8.80%	8.40%	9.07%	10.91%	11.59%	12.53%
NorthWestern Corporation	NWE	$2.56	$57.27	4.47%	4.58%	3.50%	4.50%	6.60%	4.87%	8.05%	9.45%	11.22%
OGE Energy Corporation	OGE	$1.66	$37.50	4.42%	4.60%	6.50%	negative	10.20%	8.35%	11.06%	12.95%	14.84%
Pinnacle West Capital Corporation	PNW	$3.46	$75.42	4.59%	4.70%	2.50%	7.05%	5.40%	4.98%	7.14%	9.69%	11.80%
Portland General Electric Company	POR	$1.81	$48.06	3.77%	3.86%	5.00%	4.18%	6.10%	5.09%	8.02%	8.96%	9.98%
Xcel Energy Inc.	XEL	$2.08	$68.00	3.06%	3.16%	6.00%	6.40%	6.60%	6.33%	9.15%	9.49%	9.76%
Mean				3.73%	3.84%	5.38%	5.96%	6.35%	5.96%	8.56%	9.80%	11.06%
Median				4.02%	4.11%	6.00%	6.30%	6.50%	5.67%	9.15%	9.69%	10.78%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 90-day average as of April 30, 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 -- INDIANA MICHIGAN POWER COMPANY PROXY GROUP

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line EPS Growth	Yahoo! Finance EPS Growth	Zacks EPS Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	$2.71	$60.19	4.50%	4.67%	6.00%	8.70%	7.80%	7.50%	10.64%	12.17%	13.40%
Alliant Energy Corporation	LNT	$1.81	$54.17	3.34%	3.45%	6.50%	6.20%	6.50%	6.40%	9.65%	9.85%	9.95%
Ameren Corporation	AEE	$2.52	$86.01	2.93%	3.03%	6.50%	6.90%	7.00%	6.80%	9.53%	9.83%	10.03%
Duke Energy Corporation	DUK	$4.02	$98.34	4.09%	4.20%	5.00%	5.80%	6.20%	5.67%	9.19%	9.87%	10.41%
Entergy Corporation	ETR	$4.28	$107.40	3.99%	4.05%	0.50%	6.60%	2.80%	3.30%	4.50%	7.35%	10.72%
Evergy, Inc.	EVRG	$2.45	$61.41	3.99%	4.09%	7.50%	2.67%	5.20%	5.12%	6.71%	9.22%	11.64%
IDACORP, Inc.	IDA	$3.16	$104.62	3.02%	3.08%	4.50%	3.70%	3.70%	3.97%	6.78%	7.05%	7.59%
NextEra Energy, Inc.	NEE	$1.87	$79.76	2.34%	2.45%	10.00%	8.80%	8.40%	9.07%	10.84%	11.52%	12.46%
NorthWestern Corporation	NWE	$2.56	$54.95	4.66%	4.77%	3.50%	4.50%	6.60%	4.87%	8.24%	9.64%	11.41%
OGE Energy Corporation	OGE	$1.66	$37.72	4.39%	4.57%	6.50%	negative	10.20%	8.35%	11.03%	12.92%	14.82%
Pinnacle West Capital Corporation	PNW	$3.46	$72.70	4.76%	4.88%	2.50%	7.05%	5.40%	4.98%	7.32%	9.86%	11.98%
Portland General Electric Company	POR	$1.81	$47.58	3.80%	3.90%	5.00%	4.18%	6.10%	5.09%	8.06%	8.99%	10.02%
Xcel Energy Inc.	XEL	$2.08	$68.02	3.06%	3.15%	6.00%	6.40%	6.60%	6.33%	9.15%	9.49%	9.76%
Mean				3.76%	3.87%	5.38%	5.96%	6.35%	5.96%	8.59%	9.83%	11.09%
Median				3.99%	4.05%	6.00%	6.30%	6.50%	5.67%	9.15%	9.83%	10.72%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 180-day average as of April 30, 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])

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

$$K = Rf + \beta\,(Rm - Rf)$$
$$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta (β)	Market Return (Rm)	Risk Premium (Rm − Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.69%	0.90	12.00%	8.31%	11.17%	11.38%
Alliant Energy Corporation	LNT	3.69%	0.85	12.00%	8.31%	10.76%	11.07%
Ameren Corporation	AEE	3.69%	0.85	12.00%	8.31%	10.76%	11.07%
Duke Energy Corporation	DUK	3.69%	0.85	12.00%	8.31%	10.76%	11.07%
Entergy Corporation	ETR	3.69%	0.95	12.00%	8.31%	11.59%	11.69%
Evergy, Inc.	EVRG	3.69%	0.90	12.00%	8.31%	11.17%	11.38%
IDACORP, Inc.	IDA	3.69%	0.80	12.00%	8.31%	10.34%	10.76%
NextEra Energy, Inc.	NEE	3.69%	0.95	12.00%	8.31%	11.59%	11.69%
NorthWestern Corporation	NWE	3.69%	0.90	12.00%	8.31%	11.17%	11.38%
OGE Energy Corporation	OGE	3.69%	1.00	12.00%	8.31%	12.00%	12.00%
Pinnacle West Capital Corporation	PNW	3.69%	0.90	12.00%	8.31%	11.17%	11.38%
Portland General Electric Company	POR	3.69%	0.85	12.00%	8.31%	10.76%	11.07%
Xcel Energy Inc.	XEL	3.69%	0.80	12.00%	8.31%	10.34%	10.76%
Mean						11.04%	11.28%
Median						11.17%	11.38%

Notes:
[1] Source: Bloomberg Professional, as of April 30, 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

$$K = Rf + \beta\,(Rm - Rf)$$
$$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q3 2023 - Q3 2024)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.76%	0.90	12.00%	8.24%	11.18%	11.39%
Alliant Energy Corporation	LNT	3.76%	0.85	12.00%	8.24%	10.77%	11.08%
Ameren Corporation	AEE	3.76%	0.85	12.00%	8.24%	10.77%	11.08%
Duke Energy Corporation	DUK	3.76%	0.85	12.00%	8.24%	10.77%	11.08%
Entergy Corporation	ETR	3.76%	0.95	12.00%	8.24%	11.59%	11.69%
Evergy, Inc.	EVRG	3.76%	0.90	12.00%	8.24%	11.18%	11.39%
IDACORP, Inc.	IDA	3.76%	0.80	12.00%	8.24%	10.35%	10.77%
NextEra Energy, Inc.	NEE	3.76%	0.95	12.00%	8.24%	11.59%	11.69%
NorthWestern Corporation	NWE	3.76%	0.90	12.00%	8.24%	11.18%	11.39%
OGE Energy Corporation	OGE	3.76%	1.00	12.00%	8.24%	12.00%	12.00%
Pinnacle West Capital Corporation	PNW	3.76%	0.90	12.00%	8.24%	11.18%	11.39%
Portland General Electric Company	POR	3.76%	0.85	12.00%	8.24%	10.77%	11.08%
Xcel Energy Inc.	XEL	3.76%	0.80	12.00%	8.24%	10.35%	10.77%
Mean						11.05%	11.29%
Median						11.18%	11.39%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 5, May 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

$$K = Rf + \beta\,(Rm - Rf)$$
$$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2024 - 2028)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.90%	0.90	12.00%	8.10%	11.19%	11.40%
Alliant Energy Corporation	LNT	3.90%	0.85	12.00%	8.10%	10.79%	11.09%
Ameren Corporation	AEE	3.90%	0.85	12.00%	8.10%	10.79%	11.09%
Duke Energy Corporation	DUK	3.90%	0.85	12.00%	8.10%	10.79%	11.09%
Entergy Corporation	ETR	3.90%	0.95	12.00%	8.10%	11.60%	11.70%
Evergy, Inc.	EVRG	3.90%	0.90	12.00%	8.10%	11.19%	11.40%
IDACORP, Inc.	IDA	3.90%	0.80	12.00%	8.10%	10.38%	10.79%
NextEra Energy, Inc.	NEE	3.90%	0.95	12.00%	8.10%	11.60%	11.70%
NorthWestern Corporation	NWE	3.90%	0.90	12.00%	8.10%	11.19%	11.40%
OGE Energy Corporation	OGE	3.90%	1.00	12.00%	8.10%	12.00%	12.00%
Pinnacle West Capital Corporation	PNW	3.90%	0.90	12.00%	8.10%	11.19%	11.40%
Portland General Electric Company	POR	3.90%	0.85	12.00%	8.10%	10.79%	11.09%
Xcel Energy Inc.	XEL	3.90%	0.80	12.00%	8.10%	10.38%	10.79%
Mean						11.07%	11.30%
Median						11.19%	11.40%

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

$$K = Rf + \beta\,(Rm - Rf)$$
$$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.69%	0.83	12.00%	8.31%	10.61%	10.96%
Alliant Energy Corporation	LNT	3.69%	0.80	12.00%	8.31%	10.33%	10.75%
Ameren Corporation	AEE	3.69%	0.76	12.00%	8.31%	10.01%	10.51%
Duke Energy Corporation	DUK	3.69%	0.73	12.00%	8.31%	9.75%	10.31%
Entergy Corporation	ETR	3.69%	0.86	12.00%	8.31%	10.82%	11.11%
Evergy, Inc.	EVRG	3.69%	0.79	12.00%	8.31%	10.24%	10.68%
IDACORP, Inc.	IDA	3.69%	0.80	12.00%	8.31%	10.38%	10.78%
NextEra Energy, Inc.	NEE	3.69%	0.82	12.00%	8.31%	10.54%	10.90%
NorthWestern Corporation	NWE	3.69%	0.86	12.00%	8.31%	10.87%	11.15%
OGE Energy Corporation	OGE	3.69%	0.93	12.00%	8.31%	11.43%	11.57%
Pinnacle West Capital Corporation	PNW	3.69%	0.84	12.00%	8.31%	10.66%	11.00%
Portland General Electric Company	POR	3.69%	0.79	12.00%	8.31%	10.26%	10.69%
Xcel Energy Inc.	XEL	3.69%	0.75	12.00%	8.31%	9.94%	10.45%
Mean						10.45%	10.84%
Median						10.38%	10.78%

Notes:
[1] Source: Bloomberg Professional, as of April 30, 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

$$K = Rf + \beta\,(Rm - Rf)$$
$$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q3 2023 - Q3 2024)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.76%	0.83	12.00%	8.24%	10.62%	10.97%
Alliant Energy Corporation	LNT	3.76%	0.80	12.00%	8.24%	10.34%	10.76%
Ameren Corporation	AEE	3.76%	0.76	12.00%	8.24%	10.02%	10.52%
Duke Energy Corporation	DUK	3.76%	0.73	12.00%	8.24%	9.76%	10.32%
Entergy Corporation	ETR	3.76%	0.86	12.00%	8.24%	10.83%	11.12%
Evergy, Inc.	EVRG	3.76%	0.79	12.00%	8.24%	10.25%	10.69%
IDACORP, Inc.	IDA	3.76%	0.80	12.00%	8.24%	10.39%	10.79%
NextEra Energy, Inc.	NEE	3.76%	0.82	12.00%	8.24%	10.55%	10.91%
NorthWestern Corporation	NWE	3.76%	0.86	12.00%	8.24%	10.88%	11.16%
OGE Energy Corporation	OGE	3.76%	0.93	12.00%	8.24%	11.43%	11.57%
Pinnacle West Capital Corporation	PNW	3.76%	0.84	12.00%	8.24%	10.67%	11.01%
Portland General Electric Company	POR	3.76%	0.79	12.00%	8.24%	10.27%	10.70%
Xcel Energy Inc.	XEL	3.76%	0.75	12.00%	8.24%	9.95%	10.47%
Mean						10.46%	10.85%
Median						10.39%	10.79%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 5, May 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

$$K = Rf + \beta\,(Rm - Rf)$$
$$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2024 - 2028)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.90%	0.83	12.00%	8.10%	10.64%	10.98%
Alliant Energy Corporation	LNT	3.90%	0.80	12.00%	8.10%	10.37%	10.78%
Ameren Corporation	AEE	3.90%	0.76	12.00%	8.10%	10.06%	10.54%
Duke Energy Corporation	DUK	3.90%	0.73	12.00%	8.10%	9.80%	10.35%
Entergy Corporation	ETR	3.90%	0.86	12.00%	8.10%	10.85%	11.14%
Evergy, Inc.	EVRG	3.90%	0.79	12.00%	8.10%	10.28%	10.71%
IDACORP, Inc.	IDA	3.90%	0.80	12.00%	8.10%	10.42%	10.81%
NextEra Energy, Inc.	NEE	3.90%	0.82	12.00%	8.10%	10.57%	10.93%
NorthWestern Corporation	NWE	3.90%	0.86	12.00%	8.10%	10.90%	11.18%
OGE Energy Corporation	OGE	3.90%	0.93	12.00%	8.10%	11.44%	11.58%
Pinnacle West Capital Corporation	PNW	3.90%	0.84	12.00%	8.10%	10.70%	11.02%
Portland General Electric Company	POR	3.90%	0.79	12.00%	8.10%	10.30%	10.73%
Xcel Energy Inc.	XEL	3.90%	0.75	12.00%	8.10%	9.99%	10.49%
Mean						10.49%	10.87%
Median						10.42%	10.81%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 41, No. 12, December 1, 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

$$K = Rf + \beta\,(Rm - Rf)$$
$$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.69%	0.79	12.00%	8.31%	10.22%	10.66%
Alliant Energy Corporation	LNT	3.69%	0.75	12.00%	8.31%	9.93%	10.45%
Ameren Corporation	AEE	3.69%	0.73	12.00%	8.31%	9.72%	10.29%
Duke Energy Corporation	DUK	3.69%	0.67	12.00%	8.31%	9.22%	9.92%
Entergy Corporation	ETR	3.69%	0.75	12.00%	8.31%	9.88%	10.41%
Evergy, Inc.	EVRG	3.69%	0.95	12.00%	8.31%	11.59%	11.69%
IDACORP, Inc.	IDA	3.69%	0.73	12.00%	8.31%	9.76%	10.32%
NextEra Energy, Inc.	NEE	3.69%	0.73	12.00%	8.31%	9.76%	10.32%
NorthWestern Corporation	NWE	3.69%	0.75	12.00%	8.31%	9.88%	10.41%
OGE Energy Corporation	OGE	3.69%	0.93	12.00%	8.31%	11.42%	11.57%
Pinnacle West Capital Corporation	PNW	3.69%	0.74	12.00%	8.31%	9.80%	10.35%
Portland General Electric Company	POR	3.69%	0.75	12.00%	8.31%	9.93%	10.45%
Xcel Energy Inc.	XEL	3.69%	0.66	12.00%	8.31%	9.14%	9.85%
Mean						10.02%	10.51%
Median						9.88%	10.41%

Notes:
[1] Source: Bloomberg Professional, as of April 30, 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

$$K = Rf + \beta\,(Rm - Rf)$$
$$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q3 2023 - Q3 2024)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.76%	0.79	12.00%	8.24%	10.23%	10.67%
Alliant Energy Corporation	LNT	3.76%	0.75	12.00%	8.24%	9.94%	10.46%
Ameren Corporation	AEE	3.76%	0.73	12.00%	8.24%	9.74%	10.30%
Duke Energy Corporation	DUK	3.76%	0.67	12.00%	8.24%	9.24%	9.93%
Entergy Corporation	ETR	3.76%	0.75	12.00%	8.24%	9.90%	10.43%
Evergy, Inc.	EVRG	3.76%	0.95	12.00%	8.24%	11.59%	11.69%
IDACORP, Inc.	IDA	3.76%	0.73	12.00%	8.24%	9.78%	10.33%
NextEra Energy, Inc.	NEE	3.76%	0.73	12.00%	8.24%	9.78%	10.33%
NorthWestern Corporation	NWE	3.76%	0.75	12.00%	8.24%	9.90%	10.43%
OGE Energy Corporation	OGE	3.76%	0.93	12.00%	8.24%	11.43%	11.57%
Pinnacle West Capital Corporation	PNW	3.76%	0.74	12.00%	8.24%	9.82%	10.37%
Portland General Electric Company	POR	3.76%	0.75	12.00%	8.24%	9.94%	10.46%
Xcel Energy Inc.	XEL	3.76%	0.66	12.00%	8.24%	9.16%	9.87%
Mean						10.03%	10.53%
Median						9.90%	10.43%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 5, May 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

$$K = Rf + \beta\ (Rm - Rf)$$
$$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2024 - 2028)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.90%	0.79	12.00%	8.10%	10.26%	10.70%
Alliant Energy Corporation	LNT	3.90%	0.75	12.00%	8.10%	9.98%	10.48%
Ameren Corporation	AEE	3.90%	0.73	12.00%	8.10%	9.77%	10.33%
Duke Energy Corporation	DUK	3.90%	0.67	12.00%	8.10%	9.29%	9.97%
Entergy Corporation	ETR	3.90%	0.75	12.00%	8.10%	9.94%	10.45%
Evergy, Inc.	EVRG	3.90%	0.95	12.00%	8.10%	11.60%	11.70%
IDACORP, Inc.	IDA	3.90%	0.73	12.00%	8.10%	9.82%	10.36%
NextEra Energy, Inc.	NEE	3.90%	0.73	12.00%	8.10%	9.82%	10.36%
NorthWestern Corporation	NWE	3.90%	0.75	12.00%	8.10%	9.94%	10.45%
OGE Energy Corporation	OGE	3.90%	0.93	12.00%	8.10%	11.44%	11.58%
Pinnacle West Capital Corporation	PNW	3.90%	0.74	12.00%	8.10%	9.86%	10.39%
Portland General Electric Company	POR	3.90%	0.75	12.00%	8.10%	9.98%	10.48%
Xcel Energy Inc.	XEL	3.90%	0.66	12.00%	8.10%	9.21%	9.91%
Mean						10.07%	10.55%
Median						9.94%	10.45%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 41, No. 12, December 1, 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])

HISTORICAL BETA - 2013 - 2022

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	12/31/2013	12/31/2014	12/31/2015	12/31/2016	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022	Average
ALLETE, Inc.	ALE	0.75	0.80	0.80	0.75	0.80	0.65	0.65	0.85	0.90	0.90	0.79
Alliant Energy Corporation	LNT	0.75	0.80	0.80	0.70	0.70	0.60	0.60	0.85	0.85	0.85	0.75
Ameren Corporation	AEE	0.80	0.75	0.75	0.65	0.70	0.55	0.55	0.85	0.80	0.85	0.73
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
Entergy Corporation	ETR	0.70	0.70	0.70	0.65	0.65	0.60	0.60	0.95	0.95	0.95	0.75
Evergy, Inc.	EVRG						NMF	NMF	1.00	0.95	0.90	0.95
IDACORP, Inc.	IDA	0.75	0.80	0.80	0.75	0.70	0.55	0.55	0.80	0.80	0.80	0.73
NextEra Energy, Inc.	NEE	0.70	0.70	0.75	0.65	0.65	0.55	0.55	0.90	0.90	0.95	0.73
NorthWestern Corporation	NWE	0.70	0.70	0.70	0.70	0.70	0.55	0.60	0.95	0.95	0.90	0.75
OGE Energy Corporation	OGE	0.85	0.90	0.95	0.90	0.95	0.85	0.75	1.10	1.05	1.00	0.93
Pinnacle West Capital Corporation	PNW	0.75	0.70	0.75	0.70	0.70	0.55	0.50	0.90	0.90	0.90	0.74
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
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	0.76	0.70	0.70	0.59	0.58	0.90	0.89	0.88	0.76

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])

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

[1] Estimated Weighted Average Dividend Yield	1.73%
[2] Estimated Weighted Average Long-Term Growth Rate	10.19%
[3] S&P 500 Estimated Required Market Return	12.00%

STANDARD AND POOR'S 500 INDEX

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Value Line Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
LyondellBasell Industries NV	LYB	325.27	94.61	30,774.17	0.11%	5.03%	0.01%	3.00%	0.00%
American Express Co	AXP	743.24	161.34	119,914.50	0.41%	1.49%	0.01%	10.00%	0.04%
Verizon Communications Inc	VZ	4,203.99	38.83	163,240.97	0.56%	6.72%	0.04%	2.50%	0.01%
Broadcom Inc	AVGO	416.92	626.50	261,202.89		2.94%		30.00%	
Boeing Co/The	BA	601.59	206.78	124,397.61					
Caterpillar Inc	CAT	516.35	218.80	112,976.29	0.39%	2.19%	0.01%	10.50%	0.04%
JPMorgan Chase & Co	JPM	2,931.46	138.24	405,245.17	1.39%	2.89%	0.04%	5.00%	0.07%
Chevron Corp	CVX	1,894.64	168.58	319,398.92		3.58%		45.00%	
Coca-Cola Co/The	KO	4,324.58	64.15	277,421.68	0.95%	2.87%	0.03%	8.00%	0.08%
AbbVie Inc	ABBV	1,769.40	151.12	267,391.73	0.92%	3.92%	0.04%	2.00%	0.02%
Walt Disney Co/The	DIS	1,826.83	102.50	187,249.56				65.00%	
FleetCor Technologies Inc	FLT	73.83	213.92	15,793.29	0.05%			10.50%	0.01%
Extra Space Storage Inc	EXR	135.01	152.04	20,526.46	0.07%	4.26%	0.00%	6.50%	0.00%
Exxon Mobil Corp	XOM	4,059.29	118.34	480,376.85		3.08%			
Phillips 66	PSX	460.91	99.00	45,630.39		4.24%			
General Electric Co	GE	1,088.96	98.97	107,774.37		0.32%		21.00%	
HP Inc	HPQ	985.33	29.71	29,274.09	0.10%	3.53%	0.00%	12.50%	0.01%
Home Depot Inc/The	HD	1,012.67	300.54	304,347.54	1.05%	2.78%	0.03%	9.00%	0.09%
Monolithic Power Systems Inc	MPWR	47.31	461.97	21,853.49		0.87%		21.00%	
International Business Machines Corp	IBM	908.05	126.41	114,785.97	0.39%	5.25%	0.02%	3.00%	0.01%
Johnson & Johnson	JNJ	2,598.73	163.70	425,412.76	1.46%	2.91%	0.04%	8.00%	0.12%
McDonald's Corp	MCD	730.03	295.75	215,906.96	0.74%	2.06%	0.02%	9.00%	0.07%
Merck & Co Inc	MRK	2,537.69	115.47	293,027.53	1.01%	2.53%	0.03%	8.50%	0.09%
3M Co	MMM	551.67	106.22	58,598.60	0.20%	5.65%	0.01%	4.50%	0.01%
American Water Works Co Inc	AWK	194.64	148.25	28,855.97	0.10%	1.91%	0.00%	3.00%	0.00%
Bank of America Corp	BAC	7,972.40	29.28	233,431.87	0.80%	3.01%	0.02%	8.50%	0.07%
Pfizer Inc	PFE	5,644.40	38.89	219,510.79	0.76%	4.22%	0.03%	2.00%	0.02%
Procter & Gamble Co/The	PG	2,356.97	156.38	368,582.81	1.27%	2.41%	0.03%	5.50%	0.07%
AT&T Inc	T	7,149.00	17.67	126,322.83	0.43%	6.28%	0.03%	1.00%	0.00%
Travelers Cos Inc/The	TRV	230.98	181.14	41,839.17	0.14%	2.21%	0.00%	7.50%	0.01%
Raytheon Technologies Corp	RTX	1,461.14	99.90	145,968.09	0.50%	2.36%	0.01%	14.00%	0.07%
Analog Devices Inc	ADI	505.85	179.88	90,992.66	0.31%	1.91%	0.01%	11.50%	0.04%
Walmart Inc	WMT	2,697.35	150.97	407,218.48	1.40%	1.51%	0.02%	6.50%	0.09%
Cisco Systems Inc	CSCO	4,095.82	47.25	193,527.64	0.67%	3.30%	0.02%	8.50%	0.06%
Intel Corp	INTC	4,171.00	31.06	129,551.26		1.61%			
General Motors Co	GM	1,390.12	33.04	45,929.66	0.16%	1.09%	0.00%	8.50%	0.01%
Microsoft Corp	MSFT	7,435.49	307.26	2,284,628.04	7.86%	0.89%	0.07%	15.00%	1.18%
Dollar General Corp	DG	219.11	221.46	48,523.66	0.17%	1.07%	0.00%	7.00%	0.01%
Cigna Group/The	CI	297.03	253.29	75,235.49	0.26%	1.94%	0.01%	10.00%	0.03%
Kinder Morgan Inc	KMI	2,241.21	17.15	38,436.82	0.13%	6.59%	0.01%	18.50%	0.02%
Citigroup Inc	C	1,946.80	47.07	91,635.88	0.32%	4.33%	0.01%	3.50%	0.01%
American International Group Inc	AIG	733.67	53.04	38,913.75	0.13%	2.41%	0.00%	6.50%	0.01%
Altria Group Inc	MO	1,785.04	47.51	84,807.25	0.29%	7.91%	0.02%	6.00%	0.02%
HCA Healthcare Inc	HCA	275.19	287.33	79,070.34	0.27%	0.84%	0.00%	12.50%	0.03%
International Paper Co	IP	347.06	33.11	11,491.06	0.04%	5.59%	0.00%	9.50%	0.00%
Hewlett Packard Enterprise Co	HPE	1,295.87	14.32	18,556.84	0.06%	3.35%	0.00%	7.50%	0.00%
Abbott Laboratories	ABT	1,737.95	110.47	191,990.89	0.66%	1.85%	0.01%	6.50%	0.04%
Aflac Inc	AFL	605.95	69.85	42,325.75	0.15%	2.41%	0.00%	8.00%	0.01%
Air Products and Chemicals Inc	APD	222.08	294.36	65,372.35	0.22%	2.38%	0.01%	10.50%	0.02%
Royal Caribbean Cruises Ltd	RCL	255.60	65.43	16,724.10					
Hess Corp	HES	307.05	145.06	44,540.82		1.21%			
Archer-Daniels-Midland Co	ADM	544.64	78.08	42,525.10	0.15%	2.31%	0.00%	7.50%	0.01%
Automatic Data Processing Inc	ADP	413.50	220.00	90,970.00	0.31%	2.27%	0.01%	10.00%	0.03%
Verisk Analytics Inc	VRSK	144.46	194.11	28,040.55	0.10%	0.70%	0.00%	13.00%	0.01%
AutoZone Inc	AZO	18.40	2,663.31	48,999.58	0.17%			13.00%	0.02%
Avery Dennison Corp	AVY	81.11	174.48	14,151.90	0.05%	1.86%	0.00%	9.50%	0.00%
Enphase Energy Inc	ENPH	137.04	164.20	22,502.62				24.50%	
MSCI Inc	MSCI	80.06	482.45	38,626.39	0.13%	1.14%	0.00%	12.50%	0.02%
Ball Corp	BALL	314.40	53.18	16,719.53		1.50%		21.50%	
Ceridian HCM Holding Inc	CDAY	152.70	63.48	9,693.21					
Carrier Global Corp	CARR	834.84	41.82	34,912.93	0.12%	1.77%	0.00%	13.00%	0.02%
Bank of New York Mellon Corp/The	BK	789.13	42.59	33,609.22	0.12%	3.47%	0.00%	6.00%	0.01%
Otis Worldwide Corp	OTIS	413.29	85.30	35,253.72	0.12%	1.59%	0.00%	10.00%	0.01%
Baxter International Inc	BAX	505.85	47.68	24,118.93	0.08%	2.43%	0.00%	7.00%	0.01%
Becton Dickinson & Co	BDX	283.90	264.31	75,038.14	0.26%	1.38%	0.00%	4.50%	0.01%
Berkshire Hathaway Inc	BRK/B	1,298.19	328.55	426,520.32	1.47%			6.00%	0.09%
Best Buy Co Inc	BBY	218.05	74.52	16,248.79	0.06%	4.94%	0.00%	3.00%	0.00%
Boston Scientific Corp	BSX	1,437.33	52.12	74,913.54	0.26%			15.50%	0.04%
Bristol-Myers Squibb Co	BMY	2,100.85	66.77	140,273.55		3.41%			
Brown-Forman Corp	BF/B	310.00	65.09	20,177.97	0.07%	1.26%	0.00%	12.50%	0.01%
Coterra Energy Inc	CTRA	765.50	25.60	19,596.90		8.91%			
Campbell Soup Co	CPB	299.48	54.30	16,261.55	0.06%	2.73%	0.00%	5.00%	0.00%
Hilton Worldwide Holdings Inc	HLT	264.63	144.02	38,111.58		0.42%			
Carnival Corp	CCL	1,116.01	9.21	10,278.49					
Qorvo Inc	QRVO	99.89	92.08	9,197.78	0.03%			14.50%	0.00%
UDR Inc	UDR	329.17	41.33	13,604.72	0.05%	4.06%	0.00%	17.00%	0.01%
Clorox Co/The	CLX	123.53	165.62	20,458.21	0.07%	2.85%	0.00%	7.00%	0.00%
Paycom Software Inc	PAYC	60.31	290.37	17,511.05				21.00%	
CMS Energy Corp	CMS	291.66	62.26	18,158.50	0.06%	3.13%	0.00%	6.50%	0.00%
Newell Brands Inc	NWL	414.10	12.15	5,031.32		7.57%			
Colgate-Palmolive Co	CL	829.57	79.80	66,199.53	0.23%	2.41%	0.01%	6.00%	0.01%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Estimated Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Value Line Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
EPAM Systems Inc	EPAM	57.86	282.44	16,341.13				20.50%	
Comerica Inc	CMA	131.67	43.37	5,710.53	0.02%	6.55%	0.00%	8.50%	0.00%
Conagra Brands Inc	CAG	476.91	37.96	18,103.39	0.06%	3.48%	0.00%	4.00%	0.00%
Consolidated Edison Inc	ED	346.44	98.47	34,113.75	0.12%	3.29%	0.00%	4.50%	0.01%
Corning Inc	GLW	850.13	33.22	28,241.32	0.10%	3.37%	0.00%	17.50%	0.02%
Cummins Inc	CMI	141.54	235.04	33,267.56	0.11%	2.67%	0.00%	8.50%	0.01%
Caesars Entertainment Inc	CZR	215.20	45.29	9,746.18					
Danaher Corp	DHR	737.90	236.91	174,815.65	0.60%	0.46%	0.00%	16.00%	0.10%
Target Corp	TGT	460.36	157.75	72,622.42	0.25%	2.74%	0.01%	11.00%	0.03%
Deere & Co	DE	296.32	378.02	112,015.64	0.39%	1.32%	0.01%	12.50%	0.05%
Dominion Energy Inc	D	835.25	57.14	47,726.24	0.16%	4.67%	0.01%	4.00%	0.01%
Dover Corp	DOV	139.85	146.16	20,440.62	0.07%	1.38%	0.00%	9.00%	0.01%
Alliant Energy Corp	LNT	251.14	55.14	13,847.75	0.05%	3.28%	0.00%	6.00%	0.00%
Steel Dynamics Inc	STLD	171.58	103.95	17,835.53	0.06%	1.64%	0.00%	2.00%	0.00%
Duke Energy Corp	DUK	770.65	98.88	76,201.67	0.26%	4.07%	0.01%	5.00%	0.01%
Regency Centers Corp	REG	171.31	61.43	10,523.45	0.04%	4.23%	0.00%	10.50%	0.00%
Eaton Corp PLC	ETN	398.00	167.12	66,513.76	0.23%	2.06%	0.00%	12.00%	0.03%
Ecolab Inc	ECL	284.67	167.84	47,778.84	0.16%	1.26%	0.00%	6.00%	0.01%
PerkinElmer Inc	PKI	126.41	130.49	16,495.50	0.06%	0.21%	0.00%	4.00%	0.00%
Emerson Electric Co	EMR	571.40	83.26	47,574.76	0.16%	2.50%	0.00%	6.50%	0.01%
EOG Resources Inc	EOG	587.72	119.47	70,215.39		2.76%		26.00%	
Aon PLC	AON	204.25	325.18	66,416.71	0.23%	0.76%	0.00%	7.50%	0.02%
Entergy Corp	ETR	212.09	106.50	22,587.35	0.08%	4.02%	0.00%	0.50%	0.00%
Equifax Inc	EFX	122.64	208.38	25,556.56	0.09%	0.75%	0.00%	7.00%	0.01%
EQT Corp	EQT	361.64	34.84	12,599.64		1.72%			
IQVIA Holdings Inc	IQV	185.55	188.23	34,925.89	0.12%			14.50%	0.02%
Gartner Inc	IT	79.06	302.46	23,912.79	0.08%			17.50%	0.01%
FedEx Corp	FDX	251.35	227.78	57,252.96	0.20%	2.21%	0.00%	9.00%	0.02%
FMC Corp	FMC	125.14	123.58	15,465.05	0.05%	1.88%	0.00%	10.50%	0.01%
Brown & Brown Inc	BRO	283.64	64.39	18,263.84	0.06%	0.71%	0.00%	8.00%	0.01%
Ford Motor Co	F	3,929.11	11.88	46,677.80		5.05%		27.50%	
NextEra Energy Inc	NEE	2,023.42	76.63	155,054.83	0.53%	2.44%	0.01%	10.00%	0.05%
Franklin Resources Inc	BEN	500.36	26.88	13,449.62	0.05%	4.46%	0.00%	2.00%	0.00%
Garmin Ltd	GRMN	191.36	98.17	18,785.71	0.06%			5.00%	0.00%
Freeport-McMoRan Inc	FCX	1,433.26	37.91	54,334.70	0.19%	1.58%	0.00%	18.50%	0.03%
Dexcom Inc	DXCM	387.64	121.34	47,035.75					
General Dynamics Corp	GD	274.34	218.34	59,898.52	0.21%	2.42%	0.00%	9.50%	0.02%
General Mills Inc	GIS	587.35	88.63	52,057.19	0.18%	2.44%	0.00%	4.50%	0.01%
Genuine Parts Co	GPC	140.52	168.31	23,650.25	0.08%	2.26%	0.00%	10.50%	0.01%
Atmos Energy Corp	ATO	143.16	114.14	16,340.62	0.06%	2.59%	0.00%	7.00%	0.00%
WW Grainger Inc	GWW	50.17	695.57	34,894.66	0.12%	1.07%	0.00%	9.00%	0.01%
Halliburton Co	HAL	902.20	32.75	29,546.89		1.95%		30.00%	
L3Harris Technologies Inc	LHX	189.45	195.15	36,971.75	0.13%	2.34%	0.00%	17.00%	0.02%
Healthpeak Properties Inc	PEAK	547.00	21.97	12,017.50	0.04%	5.46%	0.00%	14.50%	0.01%
Insulet Corp	PODD	69.69	318.04	22,165.48					
Catalent Inc	CTLT	180.09	50.12	9,026.11				21.00%	
Fortive Corp	FTV	353.55	63.09	22,305.47	0.08%	0.44%	0.00%	12.00%	0.01%
Hershey Co/The	HSY	147.29	273.06	40,217.64	0.14%	1.52%	0.00%	8.50%	0.01%
Synchrony Financial	SYF	428.57	29.28	12,548.56	0.04%	3.14%	0.00%	9.50%	0.00%
Hormel Foods Corp	HRL	546.53	40.44	22,101.79	0.08%	2.72%	0.00%	7.50%	0.01%
Arthur J Gallagher & Co	AJG	214.20	208.06	44,566.45	0.15%	1.06%	0.00%	18.50%	0.03%
Mondelez International Inc	MDLZ	1,361.85	76.72	104,481.36	0.36%	2.01%	0.01%	10.00%	0.04%
CenterPoint Energy Inc	CNP	629.43	30.47	19,178.79	0.07%	2.49%	0.00%	6.50%	0.00%
Humana Inc	HUM	124.95	530.49	66,282.07	0.23%	0.67%	0.00%	12.50%	0.03%
Willis Towers Watson PLC	WTW	106.41	231.60	24,645.25	0.08%	1.45%	0.00%	8.50%	0.01%
Illinois Tool Works Inc	ITW	304.82	241.94	73,748.39	0.25%	2.17%	0.01%	11.00%	0.03%
CDW Corp/DE	CDW	135.14	169.59	22,917.71	0.08%	1.39%	0.00%	8.50%	0.01%
Trane Technologies PLC	TT	228.05	185.81	42,373.97		1.61%			
Interpublic Group of Cos Inc/The	IPG	386.03	35.73	13,792.96	0.05%	3.47%	0.00%	10.00%	0.00%
International Flavors & Fragrances Inc	IFF	255.07	96.96	24,731.30	0.09%	3.34%	0.00%	6.00%	0.01%
Generac Holdings Inc	GNRC	61.89	102.22	6,326.09	0.02%			19.00%	0.00%
NXP Semiconductors NV	NXPI	259.74	163.74	42,529.01	0.15%	2.48%	0.00%	11.00%	0.02%
Kellogg Co	K	342.67	69.77	23,907.95	0.08%	3.38%	0.00%	3.50%	0.00%
Broadridge Financial Solutions Inc	BR	117.69	145.41	17,113.74	0.06%	1.99%	0.00%	8.50%	0.01%
Kimberly-Clark Corp	KMB	337.38	144.89	48,883.13	0.17%	3.26%	0.01%	7.00%	0.01%
Kimco Realty Corp	KIM	619.89	19.19	11,895.73	0.04%	4.79%	0.00%	11.00%	0.00%
Oracle Corp	ORCL	2,699.80	94.72	255,725.25	0.88%	1.69%	0.01%	10.00%	0.09%
Kroger Co/The	KR	717.47	48.63	34,890.47	0.12%	2.14%	0.00%	6.00%	0.01%
Lennar Corp	LEN	253.77	112.81	28,628.13	0.10%	1.33%	0.00%	8.50%	0.01%
Eli Lilly & Co	LLY	949.27	395.86	375,779.21	1.29%	1.14%	0.01%	11.50%	0.15%
Bath & Body Works Inc	BBWI	228.95	35.10	8,036.18		2.28%		26.50%	
Charter Communications Inc	CHTR	150.58	368.70	55,517.00	0.19%			15.50%	0.03%
Lincoln National Corp	LNC	169.54	21.73	3,684.06		8.28%		30.50%	
Loews Corp	L	230.88	57.57	13,291.53	0.05%	0.43%	0.00%	18.50%	0.01%
Lowe's Cos Inc	LOW	596.36	207.83	123,940.67	0.43%	2.02%	0.01%	11.00%	0.05%
IDEX Corp	IEX	75.58	206.32	15,592.84	0.05%	1.16%	0.00%	8.00%	0.00%
Marsh & McLennan Cos Inc	MMC	494.72	180.19	89,143.78	0.31%	1.31%	0.00%	11.00%	0.03%
Masco Corp	MAS	225.09	53.51	12,044.51	0.04%	2.13%	0.00%	8.00%	0.00%
S&P Global Inc	SPGI	320.80	362.58	116,315.66	0.40%	0.99%	0.00%	6.50%	0.03%
Medtronic PLC	MDT	1,330.42	90.95	121,002.06	0.42%	2.99%	0.01%	7.50%	0.03%
Viatris Inc	VTRS	1,196.81	9.33	11,166.27		5.14%			
CVS Health Corp	CVS	1,279.83	73.31	93,824.26	0.32%	3.30%	0.01%	5.00%	0.02%
DuPont de Nemours Inc	DD	459.02	69.72	32,002.60	0.11%	2.07%	0.00%	10.00%	0.01%
Micron Technology Inc	MU	1,094.39	64.36	70,435.20	0.24%	0.71%	0.00%	9.50%	0.02%
Motorola Solutions Inc	MSI	167.47	291.40	48,799.88	0.17%	1.21%	0.00%	10.50%	0.02%
Cboe Global Markets Inc	CBOE	105.74	139.70	14,772.30	0.05%	1.43%	0.00%	12.50%	0.01%
Laboratory Corp of America Holdings	LH	88.50	226.71	20,064.06	0.07%	1.27%	0.00%	1.50%	0.00%
Newmont Corp	NEM	794.71	47.40	37,669.35	0.13%	3.38%	0.00%	8.00%	0.01%
NIKE Inc	NKE	1,232.09	126.72	156,130.70		1.07%		23.00%	
NiSource Inc	NI	412.51	28.46	11,739.98	0.04%	3.51%	0.00%	9.50%	0.00%
Norfolk Southern Corp	NSC	227.64	203.03	46,217.75	0.16%	2.66%	0.00%	10.00%	0.02%
Principal Financial Group Inc	PFG	242.98	74.69	18,148.18	0.06%	3.43%	0.00%	6.50%	0.00%

STANDARD AND POOR'S 500 INDEX

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Eversource Energy	ES	348.67	77.61	27,060.51	0.09%	3.48%	0.00%	6.50%	0.01%
Northrop Grumman Corp	NOC	151.86	461.27	70,048.00	0.24%	1.50%	0.00%	9.50%	0.02%
Wells Fargo & Co	WFC	3,763.20	39.75	149,587.20	0.51%	3.02%	0.02%	12.00%	0.06%
Nucor Corp	NUE	251.93	148.18	37,330.84	0.13%	1.38%	0.00%	9.50%	0.01%
Occidental Petroleum Corp	OXY	898.12	61.53	55,261.02		1.17%			
Omnicom Group Inc	OMC	199.52	90.57	18,070.07	0.06%	3.09%	0.00%	6.50%	0.00%
ONEOK Inc	OKE	447.44	65.41	29,267.05	0.10%	5.84%	0.01%	11.50%	0.01%
Raymond James Financial Inc	RJF	211.60	90.53	19,156.15	0.07%	1.86%	0.00%	15.00%	0.01%
PG&E Corp	PCG	1,995.76	17.11	34,147.47	0.12%			7.50%	0.01%
Parker-Hannifin Corp	PH	128.27	324.88	41,671.06	0.14%	1.82%	0.00%	14.50%	0.02%
Rollins Inc	ROL	492.79	42.25	20,820.25	0.07%	1.23%	0.00%	10.50%	0.01%
PPL Corp	PPL	737.06	28.72	21,168.25	0.07%	3.34%	0.00%	3.50%	0.00%
ConocoPhillips	COP	1,217.38	102.89	125,256.54	0.43%	0.58%	0.00%	20.00%	0.09%
PulteGroup Inc	PHM	223.22	67.15	14,989.49	0.05%	0.95%	0.00%	7.00%	0.00%
Pinnacle West Capital Corp	PNW	113.25	78.46	8,885.67	0.03%	4.41%	0.00%	2.50%	0.00%
PNC Financial Services Group Inc/The	PNC	399.00	130.25	51,969.75	0.18%	4.61%	0.01%	12.00%	0.02%
PPG Industries Inc	PPG	235.36	140.26	33,011.31	0.11%	1.77%	0.00%	4.00%	0.00%
Progressive Corp/The	PGR	585.37	136.40	79,843.92	0.27%	0.29%	0.00%	6.50%	0.02%
Public Service Enterprise Group Inc	PEG	498.77	63.20	31,522.26	0.11%	3.61%	0.00%	4.50%	0.00%
Robert Half International Inc	RHI	107.84	73.00	7,872.10	0.03%	2.63%	0.00%	9.50%	0.00%
Edison International	EIX	382.63	73.60	28,161.35	0.10%	4.01%	0.00%	10.00%	0.01%
Schlumberger NV	SLB	1,425.33	49.35	70,340.08		2.03%		26.50%	
Charles Schwab Corp/The	SCHW	1,791.45	52.24	93,585.24	0.32%	1.91%	0.01%	9.00%	0.03%
Sherwin-Williams Co/The	SHW	257.89	237.54	61,259.19	0.21%	1.02%	0.00%	7.00%	0.01%
West Pharmaceutical Services Inc	WST	74.24	361.24	26,819.54	0.09%	0.21%	0.00%	17.00%	0.02%
J M Smucker Co/The	SJM	106.64	154.41	16,465.66	0.06%	2.64%	0.00%	4.50%	0.00%
Snap-on Inc	SNA	52.93	259.41	13,731.09	0.05%	2.50%	0.00%	6.00%	0.00%
AMETEK Inc	AME	230.09	137.93	31,736.87	0.11%	0.73%	0.00%	10.00%	0.01%
Southern Co/The	SO	1,091.52	73.55	80,280.93	0.28%	3.81%	0.01%	6.50%	0.02%
Truist Financial Corp	TFC	1,331.92	32.58	43,393.89	0.15%	6.38%	0.01%	5.50%	0.01%
Southwest Airlines Co	LUV	595.07	30.29	18,024.76		2.38%			
W R Berkley Corp	WRB	262.54	58.92	15,468.68	0.05%	0.68%	0.00%	17.50%	0.01%
Stanley Black & Decker Inc	SWK	153.06	86.34	13,214.77	0.05%	3.71%	0.00%	1.00%	0.00%
Public Storage	PSA	175.80	294.83	51,829.64	0.18%	4.07%	0.01%	7.50%	0.01%
Arista Networks Inc	ANET	306.40	160.16	49,072.22	0.17%			12.00%	0.02%
Sysco Corp	SYY	507.60	76.74	38,953.53		2.61%		22.00%	
Corteva Inc	CTVA	712.61	61.12	43,554.42	0.15%	0.98%	0.00%	15.50%	0.02%
Texas Instruments Inc	TXN	907.65	167.20	151,759.75	0.52%	2.97%	0.02%	4.50%	0.02%
Textron Inc	TXT	201.68	66.94	13,500.46	0.05%	0.12%	0.00%	16.00%	0.01%
Thermo Fisher Scientific Inc	TMO	385.70	554.90	214,023.82	0.74%	0.25%	0.00%	11.00%	0.08%
TJX Cos Inc/The	TJX	1,151.49	78.82	90,760.68	0.31%	1.69%	0.01%	17.00%	0.05%
Globe Life Inc	GL	96.52	108.52	10,474.46	0.04%	0.83%	0.00%	8.50%	0.00%
Johnson Controls International plc	JCI	687.21	59.84	41,122.89	0.14%	2.41%	0.00%	11.50%	0.02%
Ulta Beauty Inc	ULTA	50.20	551.43	27,679.03	0.10%			13.50%	0.01%
Union Pacific Corp	UNP	609.70	195.70	119,317.31	0.41%	2.66%	0.01%	9.50%	0.04%
Keysight Technologies Inc	KEYS	178.14	144.64	25,766.02	0.09%			13.00%	0.01%
UnitedHealth Group Inc	UNH	932.85	492.09	459,044.68	1.58%	1.34%	0.02%	12.00%	0.19%
Marathon Oil Corp	MRO	622.88	24.16	15,048.66		1.66%		24.00%	
Bio-Rad Laboratories Inc	BIO	24.52	450.79	11,054.27	0.04%			11.50%	0.00%
Ventas Inc	VTR	400.05	48.05	19,222.55		3.75%		23.50%	
VF Corp	VFC	388.66	23.51	9,137.33	0.03%	5.10%	0.00%	9.00%	0.00%
Vulcan Materials Co	VMC	133.06	175.12	23,300.94	0.08%	0.98%	0.00%	9.00%	0.01%
Weyerhaeuser Co	WY	732.51	29.91	21,909.28	0.08%	2.54%	0.00%	5.00%	0.00%
Whirlpool Corp	WHR	54.76	139.59	7,643.67	0.03%	5.01%	0.00%	6.00%	0.00%
Williams Cos Inc/The	WMB	1,218.81	30.26	36,881.25	0.13%	5.92%	0.01%	11.00%	0.01%
Constellation Energy Corp	CEG	326.66	77.40	25,283.79		1.46%			
WEC Energy Group Inc	WEC	315.44	96.17	30,335.38	0.10%	3.24%	0.00%	6.00%	0.01%
Adobe Inc	ADBE	458.70	377.56	173,186.77	0.60%			13.00%	0.08%
AES Corp/The	AES	669.03	23.66	15,829.27	0.05%	2.80%	0.00%	14.00%	0.01%
Amgen Inc	AMGN	534.33	239.74	128,099.55	0.44%	3.55%	0.02%	5.50%	0.02%
Apple Inc	AAPL	15,821.95	169.68	2,684,667.80	9.24%	0.54%	0.05%	10.50%	0.97%
Autodesk Inc	ADSK	214.78	194.79	41,837.58	0.14%			14.00%	0.02%
Cintas Corp	CTAS	101.70	455.77	46,352.72	0.16%	1.01%	0.00%	14.00%	0.02%
Comcast Corp	CMCSA	4,159.38	41.37	172,073.67	0.59%	2.80%	0.02%	8.50%	0.05%
Molson Coors Beverage Co	TAP	200.35	59.48	11,917.00		2.76%		50.00%	
KLA Corp	KLAC	137.20	386.54	53,032.90	0.18%	1.35%	0.00%	20.00%	0.04%
Marriott International Inc/MD	MAR	308.88	169.34	52,306.42	0.18%	0.94%	0.00%	17.50%	0.03%
McCormick & Co Inc/MD	MKC	250.84	87.85	22,036.12	0.08%	1.78%	0.00%	4.50%	0.00%
PACCAR Inc	PCAR	522.60	74.69	39,032.99	0.13%	1.34%	0.00%	5.00%	0.01%
Costco Wholesale Corp	COST	443.48	503.22	223,169.52	0.77%	0.81%	0.01%	10.50%	0.08%
Stryker Corp	SYK	378.83	299.65	113,516.71	0.39%	1.00%	0.00%	6.50%	0.03%
Tyson Foods Inc	TSN	285.62	62.49	17,848.14	0.06%	3.07%	0.00%	6.00%	0.00%
Lamb Weston Holdings Inc	LW	145.70	111.81	16,291.16	0.06%	1.00%	0.00%	15.50%	0.01%
Applied Materials Inc	AMAT	845.12	113.03	95,523.69	0.33%	1.13%	0.00%	10.50%	0.03%
American Airlines Group Inc	AAL	652.86	13.64	8,905.05					
Cardinal Health Inc	CAH	257.64	82.10	21,152.16	0.07%	2.42%	0.00%	5.00%	0.00%
Cincinnati Financial Corp	CINF	157.21	106.44	16,733.75	0.06%	2.82%	0.00%	9.00%	0.01%
Paramount Global	PARA	609.81	23.33	14,226.91	0.05%	4.11%	0.00%	1.50%	0.00%
DR Horton Inc	DHI	341.07	109.57	37,370.06	0.13%	0.91%	0.00%	1.00%	0.00%
Electronic Arts Inc	EA	274.23	127.28	34,903.74	0.12%	0.60%	0.00%	13.00%	0.02%
Fair Isaac Corp	FICO	24.99	727.95	18,193.65	0.06%			16.00%	0.01%
Expeditors International of Washington Inc	EXPD	154.40	113.84	17,576.67	0.06%	1.18%	0.00%	10.00%	0.01%
Fastenal Co	FAST	570.96	53.84	30,740.54	0.11%	2.60%	0.00%	6.50%	0.01%
M&T Bank Corp	MTB	165.87	125.80	20,865.82	0.07%	4.13%	0.00%	9.00%	0.01%
Xcel Energy Inc	XEL	550.36	69.91	38,475.39	0.13%	2.98%	0.00%	6.00%	0.01%
Fiserv Inc	FISV	617.31	122.12	75,385.90	0.26%			11.00%	0.03%
Fifth Third Bancorp	FITB	680.54	26.20	17,830.07	0.06%	5.04%	0.00%	10.00%	0.01%
Gilead Sciences Inc	GILD	1,248.00	82.21	102,598.08	0.35%	3.65%	0.01%	12.00%	0.04%
Hasbro Inc	HAS	138.22	59.22	8,185.39	0.03%	4.73%	0.00%	6.50%	0.00%
Huntington Bancshares Inc/OH	HBAN	1,443.62	11.20	16,168.49	0.06%	5.54%	0.00%	12.50%	0.01%
Welltower Inc	WELL	496.30	79.22	39,316.49	0.14%	3.08%	0.00%	12.00%	0.02%
Biogen Inc	BIIB	144.74	304.23	44,034.86				-10.50%	

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Estimated Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Value Line Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Northern Trust Corp	NTRS	208.34	78.16	16,284.01	0.06%	3.84%	0.00%	8.00%	0.00%
Packaging Corp of America	PKG	89.88	135.26	12,157.71	0.04%	3.70%	0.00%	11.00%	0.00%
Paychex Inc	PAYX	360.51	109.86	39,605.52	0.14%	3.24%	0.00%	10.50%	0.01%
QUALCOMM Inc	QCOM	1,115.00	116.80	130,232.00	0.45%	2.74%	0.01%	9.50%	0.04%
Roper Technologies Inc	ROP	106.24	454.78	48,317.19	0.17%	0.60%	0.00%	7.00%	0.01%
Ross Stores Inc	ROST	342.05	106.73	36,507.21	0.13%	1.26%	0.00%	14.00%	0.02%
IDEXX Laboratories Inc	IDXX	82.97	492.16	40,835.99	0.14%			11.50%	0.02%
Starbucks Corp	SBUX	1,149.30	114.29	131,353.50	0.45%	1.85%	0.01%	16.00%	0.07%
KeyCorp	KEY	935.23	11.26	10,530.68	0.04%	7.28%	0.00%	7.50%	0.00%
Fox Corp	FOXA	296.92	33.26	9,875.46	0.03%	1.50%	0.00%	8.50%	0.00%
Fox Corp	FOX	237.64	30.54	7,257.65		1.64%			
State Street Corp	STT	334.26	72.26	24,153.56	0.08%	3.49%	0.00%	8.50%	0.01%
Norwegian Cruise Line Holdings Ltd	NCLH	421.93	13.35	5,632.77					
US Bancorp	USB	1,533.00	34.28	52,551.24	0.18%	5.60%	0.01%	7.00%	0.01%
A O Smith Corp	AOS	124.54	68.29	8,504.70	0.03%	1.76%	0.00%	11.00%	0.00%
Gen Digital Inc	GEN	639.13	17.67	11,293.41	0.04%	2.83%	0.00%	10.50%	0.00%
T Rowe Price Group Inc	TROW	224.51	112.33	25,219.66	0.09%	4.34%	0.00%	3.00%	0.00%
Waste Management Inc	WM	406.82	166.05	67,551.96	0.23%	1.69%	0.00%	6.50%	0.02%
Constellation Brands Inc	STZ	183.23	228.58	41,882.44	0.14%	1.56%	0.00%	5.50%	0.01%
DENTSPLY SIRONA Inc	XRAY	215.36	41.93	9,030.13	0.03%	1.34%	0.00%	12.00%	0.00%
Zions Bancorp NA	ZION	148.10	27.86	4,126.07	0.01%	5.89%	0.00%	6.50%	0.00%
Alaska Air Group Inc	ALK	127.24	43.46	5,529.98					
Invesco Ltd	IVZ	458.20	17.13	7,848.97	0.03%	4.67%	0.00%	6.50%	0.00%
Intuit Inc	INTU	280.55	443.95	124,548.40	0.43%	0.70%	0.00%	16.50%	0.07%
Morgan Stanley	MS	1,672.37	89.97	150,462.86	0.52%	3.45%	0.02%	7.50%	0.04%
Microchip Technology Inc	MCHP	547.80	72.99	39,983.63	0.14%	1.96%	0.00%	10.00%	0.01%
Chubb Ltd	CB	414.15	201.56	83,475.47	0.29%	1.65%	0.00%	14.50%	0.04%
Hologic Inc	HOLX	246.55	86.01	21,205.85				25.00%	
Citizens Financial Group Inc	CFG	484.31	30.49	14,766.15	0.05%	5.51%	0.00%	8.00%	0.00%
O'Reilly Automotive Inc	ORLY	61.04	917.31	55,991.69	0.19%			12.00%	0.02%
Allstate Corp/The	ALL	263.17	115.76	30,464.21	0.10%	3.08%	0.00%	2.50%	0.00%
Equity Residential	EQR	378.90	63.25	23,965.30		4.19%		-5.00%	
BorgWarner Inc	BWA	233.79	48.13	11,252.07	0.04%	1.41%	0.00%	9.50%	0.00%
Keurig Dr Pepper Inc	KDP	1,403.78	32.70	45,903.48	0.16%	2.45%	0.00%	12.50%	0.02%
Organon & Co	OGN	254.38	24.63	6,265.45		4.55%			
Host Hotels & Resorts Inc	HST	713.48	16.17	11,536.96		2.97%		51.00%	
Incyte Corp	INCY	222.97	74.41	16,590.83				27.00%	
Simon Property Group Inc	SPG	326.73	113.32	37,025.27	0.13%	6.35%	0.01%	3.50%	0.00%
Eastman Chemical Co	EMN	119.15	84.27	10,040.94	0.03%	3.75%	0.00%	7.00%	0.00%
AvalonBay Communities Inc	AVB	140.01	180.37	25,253.60	0.09%	3.66%	0.00%	7.00%	0.01%
Prudential Financial Inc	PRU	366.97	87.00	31,926.74	0.11%	5.75%	0.01%	3.00%	0.00%
United Parcel Service Inc	UPS	723.30	179.81	130,056.39	0.45%	3.60%	0.02%	7.50%	0.03%
Walgreens Boots Alliance Inc	WBA	862.80	35.25	30,413.56	0.10%	5.45%	0.01%	2.50%	0.00%
STERIS PLC	STE	99.28	188.55	18,720.00	0.06%	1.00%	0.00%	10.00%	0.01%
McKesson Corp	MCK	136.94	364.24	49,878.66	0.17%	0.59%	0.00%	10.00%	0.02%
Lockheed Martin Corp	LMT	253.25	464.45	117,623.36	0.40%	2.58%	0.01%	7.00%	0.03%
AmerisourceBergen Corp	ABC	202.26	166.85	33,746.75	0.12%	1.16%	0.00%	8.50%	0.01%
Capital One Financial Corp	COF	381.08	97.30	37,079.08		2.47%			
Waters Corp	WAT	59.02	300.36	17,727.25	0.06%			6.00%	0.00%
Nordson Corp	NDSN	57.26	216.31	12,386.13	0.04%	1.20%	0.00%	10.50%	0.00%
Dollar Tree Inc	DLTR	221.23	153.71	34,004.96	0.12%			10.00%	0.01%
Darden Restaurants Inc	DRI	120.93	151.93	18,372.74	0.06%	3.19%	0.00%	17.50%	0.01%
Evergy Inc	EVRG	229.58	62.11	14,259.40	0.05%	3.94%	0.00%	7.50%	0.00%
Match Group Inc	MTCH	279.32	36.90	10,307.06				21.00%	
Domino's Pizza Inc	DPZ	35.34	317.47	11,219.07	0.04%	1.52%	0.00%	13.00%	0.01%
NVR Inc	NVR	3.24	5,840.00	18,933.28	0.07%			5.50%	0.00%
NetApp Inc	NTAP	213.91	62.89	13,452.49	0.05%	3.18%	0.00%	8.50%	0.00%
DXC Technology Co	DXC	227.68	23.85	5,430.22	0.02%			12.00%	0.00%
Old Dominion Freight Line Inc	ODFL	110.03	320.39	35,251.23	0.12%	0.50%	0.00%	12.50%	0.02%
DaVita Inc	DVA	90.40	90.36	8,168.54	0.03%			7.50%	0.00%
Hartford Financial Services Group Inc/The	HIG	310.24	70.99	22,023.58	0.08%	2.39%	0.00%	6.50%	0.00%
Iron Mountain Inc	IRM	291.57	55.24	16,106.55	0.06%	4.48%	0.00%	10.00%	0.01%
Estee Lauder Cos Inc/The	EL	231.68	246.72	57,159.60	0.20%	1.07%	0.00%	14.00%	0.03%
Cadence Design Systems Inc	CDNS	272.68	209.45	57,113.66	0.20%			12.00%	0.02%
Tyler Technologies Inc	TYL	41.93	379.03	15,890.83	0.05%			12.00%	0.01%
Universal Health Services Inc	UHS	62.79	150.35	9,440.48	0.03%	0.53%	0.00%	5.50%	0.00%
Skyworks Solutions Inc	SWKS	159.15	105.90	16,854.30	0.06%	2.34%	0.00%	9.00%	0.01%
Quest Diagnostics Inc	DGX	112.01	138.81	15,547.97	0.05%	2.05%	0.00%	5.00%	0.00%
Activision Blizzard Inc	ATVI	784.27	77.71	60,945.93	0.21%			11.50%	0.02%
Rockwell Automation Inc	ROK	114.88	283.41	32,556.72	0.11%	1.67%	0.00%	9.50%	0.01%
Kraft Heinz Co/The	KHC	1,227.00	39.27	48,184.25	0.17%	4.07%	0.01%	6.00%	0.01%
American Tower Corp	AMT	466.04	204.39	95,254.53	0.33%	3.05%	0.01%	6.00%	0.02%
Regeneron Pharmaceuticals Inc	REGN	107.89	801.79	86,506.73	0.30%			5.00%	0.01%
Amazon.com Inc	AMZN	10,260.35	105.45	1,081,954.33				26.50%	
Jack Henry & Associates Inc	JKHY	72.99	163.34	11,922.35	0.04%	1.27%	0.00%	8.50%	0.00%
Ralph Lauren Corp	RL	41.10	114.79	4,717.64	0.02%	2.61%	0.00%	12.00%	0.00%
Boston Properties Inc	BXP	156.83	53.36	8,368.45		7.35%		-1.00%	
Amphenol Corp	APH	595.32	75.47	44,928.72	0.15%	1.11%	0.00%	12.50%	0.02%
Howmet Aerospace Inc	HWM	411.80	44.29	18,238.80	0.06%	0.36%	0.00%	14.00%	0.01%
Pioneer Natural Resources Co	PXD	233.74	217.55	50,849.27		6.14%		21.00%	
Valero Energy Corp	VLO	361.52	114.67	41,455.15		3.56%		29.50%	
Synopsys Inc	SNPS	152.30	371.32	56,552.78	0.19%			12.50%	0.02%
Etsy Inc	ETSY	123.33	101.03	12,459.93				24.50%	
CH Robinson Worldwide Inc	CHRW	116.44	100.87	11,745.20	0.04%	2.42%	0.00%	8.50%	0.00%
Accenture PLC	ACN	662.60	280.29	185,719.03	0.64%	1.60%	0.01%	12.50%	0.08%
TransDigm Group Inc	TDG	54.60	765.00	41,767.47	0.14%			20.00%	0.03%
Yum! Brands Inc	YUM	280.11	140.58	39,377.58	0.14%	1.72%	0.00%	10.50%	0.01%
Prologis Inc	PLD	923.45	125.25	115,662.11	0.40%	2.78%	0.01%	2.50%	0.01%
FirstEnergy Corp	FE	572.84	39.80	22,798.91	0.08%	3.92%	0.00%	3.00%	0.00%
VeriSign Inc	VRSN	104.10	221.80	23,088.49	0.08%			11.00%	0.01%
Quanta Services Inc	PWR	144.00	169.64	24,428.33	0.08%	0.19%	0.00%	15.50%	0.01%
Henry Schein Inc	HSIC	131.20	80.81	10,601.87	0.04%			6.00%	0.00%

STANDARD AND POOR'S 500 INDEX

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Ameren Corp	AEE	262.48	88.97	23,352.40	0.08%	2.83%	0.00%	6.50%	0.01%
ANSYS Inc	ANSS	87.09	313.92	27,338.04	0.09%			8.50%	0.01%
FactSet Research Systems Inc	FDS	38.32	411.69	15,775.55	0.05%	0.86%	0.00%	10.50%	0.01%
NVIDIA Corp	NVDA	2,470.00	277.49	685,400.30		0.06%		23.00%	
Sealed Air Corp	SEE	144.39	47.99	6,929.04	0.02%	1.67%	0.00%	9.00%	0.00%
Cognizant Technology Solutions Corp	CTSH	507.47	59.71	30,300.79	0.10%	1.94%	0.00%	8.00%	0.01%
Intuitive Surgical Inc	ISRG	350.40	301.22	105,546.89	0.36%			10.00%	0.04%
Take-Two Interactive Software Inc	TTWO	168.68	124.29	20,964.62	0.07%			2.50%	0.00%
Republic Services Inc	RSG	316.28	144.62	45,740.70	0.16%	1.37%	0.00%	12.50%	0.02%
eBay Inc	EBAY	534.50	46.43	24,816.97	0.09%	2.15%	0.00%	12.50%	0.01%
Goldman Sachs Group Inc/The	GS	333.80	343.44	114,638.55	0.39%	2.91%	0.01%	5.00%	0.02%
SBA Communications Corp	SBAC	108.32	260.89	28,260.13		1.30%		35.50%	
Sempra Energy	SRE	314.65	155.49	48,924.93	0.17%	3.06%	0.01%	6.00%	0.01%
Moody's Corp	MCO	183.50	313.12	57,457.52	0.20%	0.98%	0.00%	4.00%	0.01%
ON Semiconductor Corp	ON	431.57	71.96	31,055.99	0.11%			18.50%	0.02%
Booking Holdings Inc	BKNG	37.21	2,686.31	99,962.97				22.00%	
F5 Inc	FFIV	60.47	134.36	8,124.08	0.03%			10.00%	0.00%
Akamai Technologies Inc	AKAM	156.30	81.97	12,812.24	0.04%			5.00%	0.00%
Charles River Laboratories International Inc	CRL	50.99	190.12	9,693.46	0.03%			12.00%	0.00%
MarketAxess Holdings Inc	MKTX	37.67	318.37	11,992.68	0.04%	0.90%	0.00%	10.50%	0.00%
Devon Energy Corp	DVN	643.84	53.43	34,400.58		6.66%		27.50%	
Bio-Techne Corp	TECH	157.28	79.88	12,563.13	0.04%	0.40%	0.00%	13.00%	0.01%
Alphabet Inc	GOOGL	5,941.00	107.34	637,706.94					
Teleflex Inc	TFX	46.97	272.52	12,799.17	0.04%	0.50%	0.00%	10.00%	0.00%
Bunge Ltd	BG	149.93	93.60	14,033.07	0.05%	2.67%	0.00%	1.50%	0.00%
Netflix Inc	NFLX	444.54	329.93	146,667.41	0.50%			14.50%	0.07%
Allegion plc	ALLE	87.95	110.48	9,716.38	0.03%	1.63%	0.00%	11.00%	0.00%
Agilent Technologies Inc	A	295.70	135.43	40,046.92	0.14%	0.66%	0.00%	12.00%	0.02%
Warner Bros Discovery Inc	WBD	2,435.60	13.61	33,148.52					
Elevance Health Inc	ELV	237.06	468.65	111,096.29	0.38%	1.26%	0.00%	12.50%	0.05%
Trimble Inc	TRMB	246.95	47.10	11,631.44	0.04%			7.00%	0.00%
CME Group Inc	CME	359.74	185.77	66,828.90	0.23%	2.37%	0.01%	8.50%	0.02%
Juniper Networks Inc	JNPR	321.59	30.15	9,696.00	0.03%	2.92%	0.00%	11.00%	0.00%
BlackRock Inc	BLK	149.91	671.20	100,616.24	0.35%	2.98%	0.01%	7.50%	0.03%
DTE Energy Co	DTE	206.11	112.41	23,168.60	0.08%	3.39%	0.00%	4.50%	0.00%
Nasdaq Inc	NDAQ	489.00	55.37	27,076.10	0.09%	1.59%	0.00%	7.50%	0.01%
Celanese Corp	CE	110.83	106.24	11,774.05	0.04%	2.64%	0.00%	6.50%	0.00%
Philip Morris International Inc	PM	1,552.20	99.97	155,173.13	0.53%	5.08%	0.03%	5.00%	0.03%
Salesforce Inc	CRM	1,000.00	198.37	198,370.00	0.68%			15.50%	0.11%
Ingersoll Rand Inc	IR	404.68	57.02	23,074.74		0.14%			
Huntington Ingalls Industries Inc	HII	39.93	201.66	8,051.48	0.03%	2.46%	0.00%	10.00%	0.00%
MetLife Inc	MET	774.36	61.33	47,491.62	0.16%	3.39%	0.01%	7.50%	0.01%
Tapestry Inc	TPR	236.08	40.81	9,634.26	0.03%	2.94%	0.00%	12.00%	0.00%
CSX Corp	CSX	2,033.06	30.64	62,292.81	0.21%	1.44%	0.00%	10.50%	0.02%
Edwards Lifesciences Corp	EW	606.22	87.98	53,335.06	0.18%			11.00%	0.02%
Ameriprise Financial Inc	AMP	105.15	305.12	32,082.76	0.11%	1.77%	0.00%	13.50%	0.01%
Zebra Technologies Corp	ZBRA	51.41	288.03	14,806.18	0.05%			11.50%	0.01%
Zimmer Biomet Holdings Inc	ZBH	210.06	138.44	29,081.26	0.10%	0.69%	0.00%	4.50%	0.00%
CBRE Group Inc	CBRE	310.83	76.66	23,828.38	0.08%			8.50%	0.01%
Camden Property Trust	CPT	106.76	110.05	11,749.16		3.63%		-4.00%	
Mastercard Inc	MA	940.40	380.03	357,381.73	1.23%	0.60%	0.01%	18.50%	0.23%
CarMax Inc	KMX	158.09	70.03	11,071.11				-3.50%	
Intercontinental Exchange Inc	ICE	559.72	108.93	60,969.75	0.21%	1.54%	0.00%	7.00%	0.01%
Fidelity National Information Services Inc	FIS	592.43	58.72	34,787.61		3.54%		52.00%	
Chipotle Mexican Grill Inc	CMG	27.59	2,067.62	57,045.64	0.20%			20.00%	0.04%
Wynn Resorts Ltd	WYNN	113.68	114.28	12,991.58				27.00%	
Live Nation Entertainment Inc	LYV	231.59	67.78	15,697.24					
Assurant Inc	AIZ	52.92	123.13	6,516.16	0.02%	2.27%	0.00%	15.50%	0.00%
NRG Energy Inc	NRG	232.27	34.17	7,936.67		4.42%		-2.50%	
Regions Financial Corp	RF	934.56	18.26	17,065.10	0.06%	4.38%	0.00%	11.50%	0.01%
Monster Beverage Corp	MNST	1,046.64	56.00	58,611.84	0.20%			11.00%	0.02%
Mosaic Co/The	MOS	332.10	42.85	14,230.44	0.05%	1.87%	0.00%	7.50%	0.00%
Baker Hughes Co	BKR	1,012.36	29.24	29,601.46		2.60%			
Expedia Group Inc	EXPE	147.83	93.96	13,889.64					
CF Industries Holdings Inc	CF	195.77	71.58	14,013.07	0.05%	2.24%	0.00%	11.00%	0.01%
Leidos Holdings Inc	LDOS	137.19	93.26	12,794.62	0.04%	1.54%	0.00%	8.00%	0.00%
APA Corp	APA	311.05	36.85	11,462.08		2.71%		21.00%	
Alphabet Inc	GOOG	5,874.00	108.22	635,684.28	2.19%			18.50%	0.40%
First Solar Inc	FSLR	106.83	182.58	19,504.29				24.50%	
TE Connectivity Ltd	TEL	315.12	122.37	38,560.62	0.13%	1.93%	0.00%	10.50%	0.01%
Cooper Cos Inc/The	COO	49.46	381.45	18,864.99	0.06%	0.02%	0.00%	12.00%	0.01%
Discover Financial Services	DFS	253.95	103.47	26,275.79	0.09%	2.71%	0.00%	8.50%	0.01%
Linde PLC	LIN	490.25	369.45	181,123.60	0.62%	1.38%	0.01%	10.00%	0.06%
Visa Inc	V	1,618.22	232.73	376,609.04	1.30%	0.77%	0.01%	13.50%	0.17%
Mid-America Apartment Communities Inc	MAA	116.66	153.80	17,942.31		3.64%		-12.50%	
Xylem Inc/NY	XYL	180.28	103.84	18,720.07	0.06%	1.27%	0.00%	6.00%	0.00%
Marathon Petroleum Corp	MPC	441.63	122.00	53,878.37		2.46%			
Tractor Supply Co	TSCO	109.57	238.40	26,121.01	0.09%	1.73%	0.00%	13.50%	0.01%
Advanced Micro Devices Inc	AMD	1,609.41	89.37	143,832.61				25.50%	
ResMed Inc	RMD	146.93	240.96	35,404.49	0.12%	0.73%	0.00%	8.50%	0.01%
Mettler-Toledo International Inc	MTD	22.07	1,491.50	32,917.41	0.11%			13.50%	0.02%
Jacobs Solutions Inc	J	126.71	115.46	14,630.40	0.05%	0.90%	0.00%	12.00%	0.01%
Copart Inc	CPRT	476.59	79.05	37,674.68	0.13%			7.00%	0.01%
VICI Properties Inc	VICI	1,004.21	33.94	34,082.72	0.12%	4.60%	0.01%	7.00%	0.01%
Albemarle Corp	ALB	117.30	185.46	21,754.27		0.86%		21.50%	
Fortinet Inc	FTNT	784.37	63.05	49,454.78				24.00%	
Moderna Inc	MRNA	385.68	132.89	51,252.75				-2.50%	
Essex Property Trust Inc	ESS	64.18	219.73	14,102.71		4.21%		-3.00%	
CoStar Group Inc	CSGP	408.54	76.95	31,437.08	0.11%			13.00%	0.01%
Realty Income Corp	O	660.52	62.84	41,507.14	0.14%	4.87%	0.01%	5.50%	0.01%
Westrock Co	WRK	254.65	29.93	7,621.73	0.03%	3.68%	0.00%	10.00%	0.00%
Westinghouse Air Brake Technologies Corp	WAB	179.87	97.67	17,567.90	0.06%	0.70%	0.00%	9.50%	0.01%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Estimated Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Value Line Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Pool Corp	POOL	39.04	351.32	13,714.83	0.05%	1.14%	0.00%	14.00%	0.01%
Western Digital Corp	WDC	319.32	34.44	10,997.45	0.04%			4.00%	0.00%
PepsiCo Inc	PEP	1,377.69	190.89	262,987.82	0.90%	2.41%	0.02%	5.50%	0.05%
Diamondback Energy Inc	FANG	181.61	142.20	25,824.23		8.30%			
ServiceNow Inc	NOW	203.74	459.42	93,602.23				45.50%	
Church & Dwight Co Inc	CHD	244.26	97.12	23,722.92	0.08%	1.12%	0.00%	6.00%	0.00%
Federal Realty Investment Trust	FRT	81.35	98.89	8,045.00	0.03%	4.37%	0.00%	2.50%	0.00%
MGM Resorts International	MGM	372.89	44.92	16,750.31				25.00%	
American Electric Power Co Inc	AEP	514.41	92.42	47,541.49	0.16%	3.59%	0.01%	6.00%	0.01%
SolarEdge Technologies Inc	SEDG	56.34	285.63	16,093.25				27.00%	
Invitation Homes Inc	INVH	611.86	33.37	20,417.80		3.12%			
PTC Inc	PTC	118.26	125.79	14,876.30				29.00%	
JB Hunt Transport Services Inc	JBHT	103.65	175.29	18,168.46	0.06%	0.96%	0.00%	10.00%	0.01%
Lam Research Corp	LRCX	134.34	524.08	70,404.91	0.24%	1.32%	0.00%	14.00%	0.03%
Mohawk Industries Inc	MHK	63.68	105.90	6,743.71	0.02%			10.00%	0.00%
GE HealthCare Technologies Inc	GEHC	454.68	81.34	36,983.43		0.15%			
Pentair PLC	PNR	164.95	58.08	9,580.30	0.03%	1.52%	0.00%	12.00%	0.00%
Vertex Pharmaceuticals Inc	VRTX	257.59	340.73	87,768.30	0.30%			13.50%	0.04%
Amcor PLC	AMCR	1,485.78	10.97	16,299.01	0.06%	4.47%	0.00%	14.50%	0.01%
Meta Platforms Inc	META	2,212.15	240.32	531,624.61	1.83%			11.00%	0.20%
T-Mobile US Inc	TMUS	1,199.89	143.90	172,664.46	0.59%			16.00%	0.10%
United Rentals Inc	URI	68.73	361.11	24,819.45	0.09%	1.64%	0.00%	18.50%	0.02%
Honeywell International Inc	HON	665.68	199.84	133,028.89	0.46%	2.06%	0.01%	12.00%	0.05%
Alexandria Real Estate Equities Inc	ARE	173.01	124.18	21,484.88	0.07%	3.90%	0.00%	11.00%	0.01%
Delta Air Lines Inc	DAL	642.72	34.31	22,051.62					
Seagate Technology Holdings PLC	STX	207.08	58.77	12,170.21	0.04%	4.76%	0.00%	12.00%	0.01%
United Airlines Holdings Inc	UAL	326.73	43.80	14,310.73					
News Corp	NWS	193.24	17.75	3,430.06		1.13%			
Centene Corp	CNC	548.77	68.93	37,826.65	0.13%			9.00%	0.01%
Martin Marietta Materials Inc	MLM	62.00	363.20	22,517.31	0.08%	0.73%	0.00%	4.50%	0.00%
Teradyne Inc	TER	156.05	91.38	14,259.67	0.05%	0.48%	0.00%	19.00%	0.01%
PayPal Holdings Inc	PYPL	1,122.81	76.00	85,333.26	0.29%			12.00%	0.04%
Tesla Inc	TSLA	3,169.50	164.31	520,781.20				21.50%	
Arch Capital Group Ltd	ACGL	372.20	75.07	27,941.05				21.50%	
DISH Network Corp	DISH	292.72	7.51	2,198.30				-4.00%	
Dow Inc	DOW	707.99	54.40	38,514.60	0.13%	5.15%	0.01%	8.50%	0.01%
Everest Re Group Ltd	RE	49.01	378.00	18,525.02	0.06%	1.75%	0.00%	9.50%	0.01%
Teledyne Technologies Inc	TDY	47.05	414.40	19,495.86	0.07%			9.50%	0.01%
News Corp	NWSA	382.36	17.61	6,733.41		1.14%			
Exelon Corp	EXC	994.30	42.44	42,198.05		3.39%			
Global Payments Inc	GPN	263.78	112.71	29,731.09	0.10%	0.89%	0.00%	17.00%	0.02%
Crown Castle Inc	CCI	434.00	123.09	53,421.06	0.18%	5.09%	0.01%	13.50%	0.02%
Aptiv PLC	APTV	270.95	102.86	27,869.92				30.00%	
Advance Auto Parts Inc	AAP	59.43	125.53	7,460.75	0.03%	4.78%	0.00%	3.50%	0.00%
Align Technology Inc	ALGN	76.74	325.30	24,963.20	0.09%			17.00%	0.01%
Illumina Inc	ILMN	158.03	205.56	32,485.06	0.11%			6.50%	0.01%
Targa Resources Corp	TRGP	226.28	75.53	17,090.63		2.65%			
LKQ Corp	LKQ	267.29	57.73	15,430.65	0.05%	1.91%	0.00%	13.00%	0.01%
Zoetis Inc	ZTS	462.95	175.78	81,376.47	0.28%	0.85%	0.00%	9.00%	0.03%
Equinix Inc	EQIX	93.52	724.08	67,712.34	0.23%	1.88%	0.00%	15.00%	0.03%
Digital Realty Trust Inc	DLR	291.30	99.15	28,882.30		4.92%		-1.00%	
Molina Healthcare Inc	MOH	58.30	297.89	17,366.99	0.06%			12.50%	0.01%
Las Vegas Sands Corp	LVS	764.27	63.85	48,798.70					

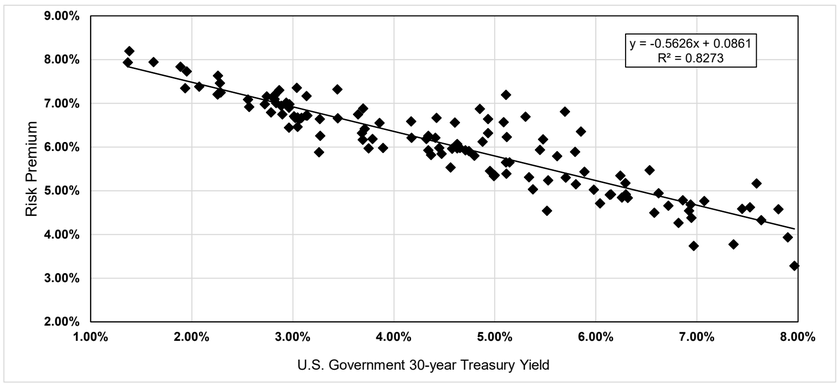
Notes:
[1] Equals sum of Col. [9]
[2] Equals sum of Col. [11]
[3] Equals ([1] x (1 + (0.5 x [2]))) + [2]
[4] Source: Bloomberg Professional as of April 30, 2023
[5] Source: Bloomberg Professional as of April 30, 2023
[6] Equals [4] x [5]
[7] Equals weight in S&P 500 based on market capitalization [6] if Growth Rate >0% and ≤20%
[8] Source: Bloomberg Professional, as of April 30, 2023
[9] Equals [7] x [8]
[10] Source: Value Line, as of April 30, 2023
[11] Equals [7] x [10]

BOND YIELD PLUS RISK PREMIUM

	[1]	[2]	[3]
Quarter	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%

BOND YIELD PLUS RISK PREMIUM

	[1]	[2]	[3]
Quarter	Average Authorized VI Electric ROE	U.S. Govt. 30-year Treasury	Risk Premium
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	9.72%	3.75%	5.97%
2023.2	10.00%	3.68%	6.32%
AVERAGE	10.59%	4.54%	6.05%
MEDIAN	10.55%	4.59%	6.18%



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.909547
R Square	0.827276
Adjusted R Square	0.825883
Standard Error	0.004254
Observations	126

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.010750	0.010750	593.906695	0.000000
Residual	124	0.002244	0.000018		
Total	125	0.012995			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.0861	0.0011	77.19	0.00000	0.08387	0.08828	0.08387	0.08828
U.S. Govt. 30-year Treasury	(0.5626)	0.0231	(24.37)	0.00000	(0.60832)	(0.51693)	(0.60832)	(0.51693)

	U.S. Govt. 30-year Treasury	Risk Premium	ROE
Current 30-day average of 30-year U.S. Treasury bond yield [4]	3.69%	6.53%	10.22%
Blue Chip Near-Term Projected Forecast (Q3 2023 - Q3 2024) [5]	3.76%	6.49%	10.25%
Blue Chip Long-Term Projected Forecast (2024-2028) [6]	3.90%	6.41%	10.31%
AVERAGE			10.26%

Notes:
[1] Source: Regulatory Research Associates, rate cases through April 30, 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 April 30, 2023
[5] Source: Blue Chip Financial Forecasts, Vol. 42, No. 5, May 1, 2023, 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 0.086072 + (-0.562623 x Column [7])
[9] Equals Column [7] + Column [8]

FLOTATION COST ADJUSTMENT

Company	Ticker	[1] Date [i]	[2] Shares Issued (000)	[3] Offering Price	[4] Under-writing Discount [ii]	[5] Offering Expense ($000)	[6] Net Proceeds Per Share	[7] Total Flotation Costs ($000)	[8] Gross Equity Issue Before Costs ($000)	[9] Net Proceeds ($000)	[10] Flotation Cost Percentage	
American Electric Power Company [iii]	AEP	4/1/2009	60,000	24.50	0.740	400	23.75	44,800.00	1,470,000.00	1,425,200	3.05%	[iii]
American Electric Power Company [iii]	AEP	2/27/2003	50,000	20.95	0.630	550	20.31	32,050.00	1,047,500.00	1,015,450	3.06%	[iii]
										Mean	3.05%	

Note: Table excludes At-the-Market (ATM) equity offerings because of variation in offering prices and underwriting discounts.

[i] Offering Completion Date
[ii] Underwriting discount is calculated as the market price minus the offering price when not explicitly given in the prospectus.
[iii] American Electric Power Company: AEP Prospectus 424B5 02/27/2003 and AEP Prospectus 424B2 04/01/2009.

The flotation cost adjustment is derived by dividing the dividend yield by 1 − F (where F = flotation costs expressed in percentage terms), or by 1.0000, and adding that result to the constant growth rate to determine the cost of equity. Using the formulas shown previously in my testimony, the Constant Growth DCF calculation is modified as follows to accommodate an adjustment for flotation costs:

$$k = \frac{D \times (1 + 0.5g)}{P \times (1 - F)} + g$$

Company	Ticker	[11] Annualized Dividend	[12] Stock Price	[13] Dividend Yield	[14] Expected Dividend Yield	[15] Expected Dividend Yield Adjusted for Flotation Costs	[16] Value Line Earnings Growth	[17] Yahoo! Finance Earnings Growth	[18] Zacks Earnings Growth	[19] Average Earnings Growth	[20] Cost of Equity: Mean Growth Rate	[21] Cost of Equity Adjusted for Flotation Costs
ALLETE, Inc.	ALE	$2.71	$63.71	4.25%	4.41%	4.55%	6.00%	8.70%	7.80%	7.50%	11.91%	12.05%
Alliant Energy Corporation	LNT	$1.81	$53.39	3.39%	3.50%	3.61%	6.50%	6.20%	6.50%	6.40%	9.90%	10.01%
Ameren Corporation	AEE	$2.52	$87.54	2.88%	2.98%	3.07%	6.50%	6.90%	7.00%	6.80%	9.78%	9.87%
Duke Energy Corporation	DUK	$4.02	$97.21	4.14%	4.25%	4.39%	5.00%	5.80%	6.20%	5.67%	9.92%	10.05%
Entergy Corporation	ETR	$4.28	$106.09	4.03%	4.10%	4.23%	0.50%	6.60%	2.80%	3.30%	7.40%	7.53%
Evergy, Inc.	EVRG	$2.45	$61.24	4.00%	4.10%	4.23%	7.50%	2.67%	5.20%	5.12%	9.23%	9.36%
IDACORP, Inc.	IDA	$3.16	$108.33	2.92%	2.97%	3.07%	4.50%	3.70%	3.70%	3.97%	6.94%	7.04%
NextEra Energy, Inc.	NEE	$1.87	$77.05	2.43%	2.54%	2.62%	10.00%	8.80%	8.40%	9.07%	11.60%	11.68%
NorthWestern Corporation	NWE	$2.56	$58.15	4.40%	4.51%	4.65%	3.50%	4.50%	6.60%	4.87%	9.38%	9.52%
OGE Energy Corporation	OGE	$1.66	$37.07	4.47%	4.66%	4.80%	6.50%	negative	10.20%	8.35%	13.01%	13.15%
Pinnacle West Capital Corporation	PNW	$3.46	$78.09	4.43%	4.54%	4.68%	2.50%	7.05%	5.40%	4.98%	9.52%	9.67%
Portland General Electric Company	POR	$1.81	$49.22	3.68%	3.77%	3.89%	5.00%	4.18%	6.10%	5.09%	8.86%	8.98%
Xcel Energy Inc.	XEL	$2.08	$68.69	3.03%	3.12%	3.22%	6.00%	6.40%	6.60%	6.33%	9.46%	9.56%
Mean											9.76%	9.88%
Median											9.52%	9.67%
Flotation Cost Adjustment (Mean) [22]												0.12%
Flotation Cost Adjustment (Median) [23]												0.14%

Notes:
[1] - [5] See Note [iii] above
[6] Equals [9]/[2]
[7] Equals [5] + ([4] x [2])
[8] Equals [2] x [3]
[9] Equals [8] - [7]
[10] Equals [7] / [8]
[11] Bloomberg Professional
[12] Bloomberg Professional, equals 30-day average as of April 30, 2023
[13] Equals [11] / [12]
[14] Equals [13] x (1 + 0.5 x [19])
[15] Equals [14] / (1 − Flotation Cost)
[16] Value Line
[17] Yahoo! Finance
[18] Zacks Investment Research
[19] Equals Average of [16], [17], [18]
[20] Equals [14] + [19]
[21] Equals [15] + [19]
[22] Equals [21] (Mean) − [20] (Mean)
[23] Equals [21] (Median) − [20] (Median)

2024-2027 CAPITAL EXPENDITURES AS A PERCENT OF 2022 NET PLANT
($ Millions)

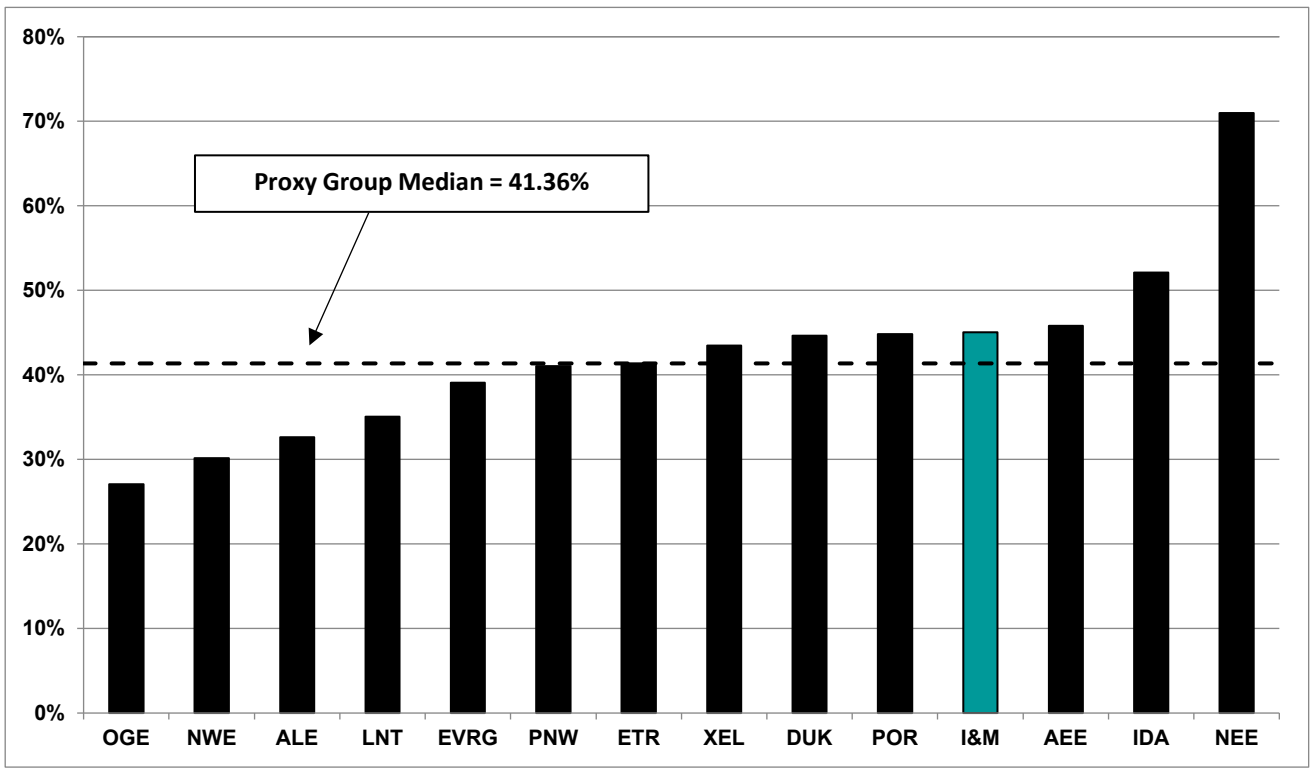
		[1]	[2]	[3]	[4]	[5]	[6]	
		2022	2024	2025	2026	2027	2024-27 Cap. Ex. / 2022 Net Plant	Rank
ALLETE, Inc.	ALE							
Capital Spending per Share			$5.95	$6.60	$7.25	$7.25		
Common Shares Outstanding			59.00	60.00	61.00	61.00		
Capital Expenditures			$351.1	$396.0	$442.3	$442.3	32.60%	3
Net Plant		$5,004.0						
Alliant Energy Corporation	LNT							
Capital Spending per Share			$5.80	$5.60	$5.40	$5.40		
Common Shares Outstanding			256.00	256.50	257.00	257.00		
Capital Expenditures			$1,484.8	$1,436.4	$1,387.8	$1,387.8	35.06%	4
Net Plant		$16,247.0						
Ameren Corporation	AEE							
Capital Spending per Share			$12.55	$12.78	$13.00	$13.00		
Common Shares Outstanding			269.00	277.00	285.00	285.00		
Capital Expenditures			$3,376.0	$3,538.7	$3,705.0	$3,705.0	45.82%	12
Net Plant		$31,262.0						
Duke Energy Corporation	DUK							
Capital Spending per Share			$17.60	$17.18	$16.75	$16.75		
Common Shares Outstanding			770.00	770.00	770.00	770.00		
Capital Expenditures			$13,552.0	$13,224.8	$12,897.5	$12,897.5	44.66%	9
Net Plant		$117,725.0						
Entergy Corporation	ETR							
Capital Spending per Share			$19.00	$19.38	$19.75	$19.75		
Common Shares Outstanding			218.00	224.00	230.00	230.00		
Capital Expenditures			$4,142.0	$4,340.0	$4,542.5	$4,542.5	41.36%	7
Net Plant		$42,477.0						
Evergy, Inc.	EVRG							
Capital Spending per Share			$9.25	$9.38	$9.50	$9.50		
Common Shares Outstanding			230.00	230.00	230.00	230.00		
Capital Expenditures			$2,127.5	$2,156.3	$2,185.0	$2,185.0	39.09%	5
Net Plant		$22,137.0						
IDACORP, Inc.	IDA							
Capital Spending per Share			$16.00	$13.50	$11.00	$11.00		
Common Shares Outstanding			51.50	52.25	53.00	53.00		
Capital Expenditures			$824.0	$705.4	$583.0	$583.0	52.10%	13
Net Plant		$5,173.0						

2024-2027 CAPITAL EXPENDITURES AS A PERCENT OF 2022 NET PLANT
($ Millions)

		[1]	[2]	[3]	[4]	[5]	[6]	
		2022	2024	2025	2026	2027	2024-27 Cap. Ex. / 2022 Net Plant	Rank
NextEra Energy, Inc.	NEE							
Capital Spending per Share			$9.50	$9.63	$9.75	$9.75		
Common Shares Outstanding			2025.00	2037.50	2050.00	2050.00		
Capital Expenditures			$19,237.5	$19,610.9	$19,987.5	$19,987.5	70.97%	14
Net Plant		$111,059.0						
NorthWestern Corporation	NWE							
Capital Spending per Share			$7.50	$7.00	$6.50	$6.50		
Common Shares Outstanding			62.00	62.00	62.00	62.00		
Capital Expenditures			$465.0	$434.0	$403.0	$403.0	30.14%	2
Net Plant		$5,657.5						
OGE Energy Corporation	OGE							
Capital Spending per Share			$4.75	$4.75	$4.75	$4.75		
Common Shares Outstanding			200.20	200.20	200.20	200.20		
Capital Expenditures			$951.0	$951.0	$951.0	$951.0	27.05%	1
Net Plant		$10,546.8						
Pinnacle West Capital Corporation	PNW							
Capital Spending per Share			$14.50	$14.50	$14.50	$14.50		
Common Shares Outstanding			118.00	119.00	120.00	120.00		
Capital Expenditures			$1,711.0	$1,725.5	$1,740.0	$1,740.0	41.04%	6
Net Plant		$16,854.0						
Portland General Electric Company	POR							
Capital Spending per Share			$9.50	$9.50	$9.50	$9.50		
Common Shares Outstanding			99.50	99.75	100.00	100.00		
Capital Expenditures			$945.3	$947.6	$950.0	$950.0	44.81%	10
Net Plant		$8,465.0						
Xcel Energy Inc.	XEL							
Capital Spending per Share			$9.25	$9.38	$9.50	$9.50		
Common Shares Outstanding			553.00	556.50	560.00	560.00		
Capital Expenditures			$5,115.3	$5,217.2	$5,320.0	$5,320.0	43.46%	8
Net Plant		$48,253.0						
I&M	I&M							
Capital Expenditures [7]			$518.00	$1,026.00	$1,029.00	$491.00	45.04%	11
Net Plant [8]		$6,802.8						
I&M CapEx Total (2024 - 2027)							$3,064.0	
I&M CapEx Annual Average							$766.0	
Proxy Group Median							41.36%	
I&M as % Proxy Group Median							1.09	

Notes:
[1] - [5] Source: Value Line, dated February 10, March 10, April 21.
[6] Equals (Column [2] + [3] + [4] + [5]) / Column [1]
[7] Source: Company Provided Data
[8] Source: Company Provided Data

2024-2027 CAPITAL EXPENDITURES AS A PERCENT OF 2022 NET PLANT



Projected CAPEX / 2022 Net Plant

Rank	Company		2024-2027
1	OGE Energy Corporation	OGE	27.05%
2	NorthWestern Corporation	NWE	30.14%
3	ALLETE, Inc.	ALE	32.60%
4	Alliant Energy Corporation	LNT	35.06%
5	Evergy, Inc.	EVRG	39.09%
6	Pinnacle West Capital Corporation	PNW	41.04%
7	Entergy Corporation	ETR	41.36%
8	Xcel Energy Inc.	XEL	43.46%
9	Duke Energy Corporation	DUK	44.66%
10	Portland General Electric Company	POR	44.81%
11	I&M	I&M	45.04%
12	Ameren Corporation	AEE	45.82%
13	IDACORP, Inc.	IDA	52.10%
14	NextEra Energy, Inc.	NEE	70.97%
	Proxy Group Median		41.36%
	I&M / Proxy Group		1.09

Notes:
Source: Attachment AEB-10, pages 1-2 col. [6]

[1]

Proxy Group Company	Operating Subsidiary	Jurisdiction	Service	Test Year
ALLETE, Inc.	ALLETE (Minnesota Power)	Minnesota	Electric	Fully Forecast
Alliant Energy Corporation	Interstate Power & Light Co.	Iowa	Electric	Historical
	Interstate Power & Light Co.	Iowa	Gas	Historical
	Wisconsin Power & Light Co.	Wisconsin	Electric	Fully Forecast
	Wisconsin Power & Light Co.	Wisconsin	Gas	Fully Forecast
Ameren Corporation	Ameren Illinois Co.	Illinois	Electric	Historical
	Ameren Illinois Co.	Illinois	Gas	Fully Forecast
	Union Electric Co.	Missouri	Electric	Historical
	Union Electric Co.	Missouri	Gas	Historical
Duke Energy Corporation	Duke Energy Florida LLC	Florida	Electric	Fully Forecast
	Duke Energy Indiana LLC	Indiana	Electric	Historical
	Duke Energy Kentucky Inc.	Kentucky	Electric	Fully Forecast
	Duke Energy Kentucky Inc.	Kentucky	Gas	Fully Forecast
	Duke Energy Carolinas LLC/Duke Energy Progress L	North Carolina	Electric	Historical
	Piedmont Natural Gas Co. Inc.	North Carolina	Gas	Historical
	Duke Energy Ohio Inc.	Ohio	Electric	Partially Forecast
	Duke Energy Ohio Inc.	Ohio	Gas	Partially Forecast
	Duke Energy Carolinas LLC/Duke Energy Progress L	South Carolina	Electric	Historical
	Piedmont Natural Gas Co. Inc.	South Carolina	Gas	Historical
	Piedmont Natural Gas Co. Inc.	Tennessee	Gas	Fully Forecast
Entergy Corporation	Entergy Arkansas LLC	Arkansas	Electric	Fully Forecast
	Entergy New Orleans LLC	Louisiana-NOCC	Electric	Partially Forecast
	Entergy New Orleans LLC	Louisiana-NOCC	Gas	Partially Forecast
	Entergy Louisiana LLC	Louisiana	Electric	Historical
	Entergy Louisiana LLC	Louisiana	Gas	Historical
	Entergy Mississippi LLC	Mississippi	Electric	Fully Forecast
	Entergy Texas Inc.	Texas	Electric	Historical
Evergy, Inc.	Evergy Kansas Central Inc	Kansas	Electric	Historical
	Evergy Metro Inc.	Kansas	Electric	Historical
	Evergy Metro Inc	Missouri	Electric	Historical
	Evergy Missouri West Inc.	Missouri	Electric	Historical
IDACORP, Inc.	Idaho Power Co.	Idaho	Electric	Partially Forecast
	Idaho Power Co.	Oregon	Electric	Partially Forecast
NextEra Energy, Inc.	Florida Power & Light Co.	Florida	Electric	Fully Forecast
	Pivotal Utility Holdings Inc.	Florida	Gas	Fully Forecast
	Lone Star Transmission LLC	Texas	Electric	Historical
NorthWestern Corporation	NorthWestern Corporation	Montana	Electric	Historical
	NorthWestern Corporation	Montana	Gas	Historical
	NorthWestern Corporation	Nebraska	Gas	Historical
	NorthWestern Corporation	South Dakota	Electric	Historical
	NorthWestern Corporation	South Dakota	Gas	Historical
OGE Energy Corporation	Oklahoma Gas and Electric Co.	Arkansas	Electric	Historical
	Oklahoma Gas & Electric Co.	Oklahoma	Electric	Historical
Pinnacle West Capital Corporation	Arizona Public Service Co.	Arizona	Electric	Historical

				[2]	[3]	[4]	[5]
				Non-Volumetric Rate Design			
Proxy Group Company	**Operating Subsidiary**	**Jurisdiction**	**Service**	**Revenue Decoupling**	**Formula-based rates**	**Straight Fixed-Variable Rate Design**	**Non-Volumetric Rate Design**
ALLETE, Inc.	ALLETE (Minnesota Power)	Minnesota	Electric	No	No	No	No
Alliant Energy Corporation	Interstate Power & Light Co.	Iowa	Electric	No	No	No	No
	Interstate Power & Light Co.	Iowa	Gas	No	No	No	No
	Wisconsin Power & Light Co.	Wisconsin	Electric	No	No	No	No
	Wisconsin Power & Light Co.	Wisconsin	Gas	No	No	No	No
Ameren Corporation	Ameren Illinois Co.	Illinois	Electric	Partial	Yes	No	Yes
	Ameren Illinois Co.	Illinois	Gas	Partial	No	No	Yes
	Union Electric Co.	Missouri	Electric	Partial	No	No	Yes
	Union Electric Co.	Missouri	Gas	Partial	No	No	Yes
Duke Energy Corporation	Duke Energy Florida LLC	Florida	Electric	No	No	No	No
	Duke Energy Indiana LLC	Indiana	Electric	Partial	No	No	Yes
	Duke Energy Kentucky Inc.	Kentucky	Electric	Partial	No	No	Yes
	Duke Energy Kentucky Inc.	Kentucky	Gas	Partial	No	No	Yes
	Duke Energy Carolinas LLC/Duke Energy Progress L	North Carolina	Electric	No	No	No	No
	Piedmont Natural Gas Co. Inc.	North Carolina	Gas	Full	No	No	Yes
	Duke Energy Ohio Inc.	Ohio	Electric	Partial	No	No	Yes
	Duke Energy Ohio Inc.	Ohio	Gas	No	No	Yes	Yes
	Duke Energy Carolinas LLC/Duke Energy Progress L	South Carolina	Electric	No	No	No	No
	Piedmont Natural Gas Co. Inc.	South Carolina	Gas	Partial	No	No	Yes
	Piedmont Natural Gas Co. Inc.	Tennessee	Gas	Partial	No	No	Yes
Entergy Corporation	Entergy Arkansas LLC	Arkansas	Electric	Partial	Yes	No	Yes
	Entergy New Orleans LLC	Louisiana-NOC	Electric	No	Yes	No	Yes
	Entergy New Orleans LLC	Louisiana-NOC	Gas	No	Yes	No	Yes
	Entergy Louisiana LLC	Louisiana	Electric	Partial	Yes	No	Yes
	Entergy Louisiana LLC	Louisiana	Gas	No	Yes	No	Yes
	Entergy Mississippi LLC	Mississippi	Electric	Partial	Yes	No	Yes
	Entergy Texas Inc.	Texas	Electric	No	No	No	No
Evergy, Inc.	Evergy Kansas Central Inc	Kansas	Electric	Partial	No	No	Yes
	Evergy Metro Inc.	Kansas	Electric	No	No	No	No
	Evergy Metro Inc	Missouri	Electric	Partial	No	No	Yes
	Evergy Missouri West Inc.	Missouri	Electric	Partial	No	No	Yes
IDACORP, Inc.	Idaho Power Co.	Idaho	Electric	Full	No	No	Yes
	Idaho Power Co.	Oregon	Electric	No	No	No	No
NextEra Energy, Inc.	Florida Power & Light Co.	Florida	Electric	No	No	No	No
	Pivotal Utility Holdings Inc.	Florida	Gas	No	No	No	No
	Lone Star Transmission LLC	Texas	Electric	No	No	No	No
NorthWestern Corporation	NorthWestern Corporation	Montana	Electric	No	No	No	No
	NorthWestern Corporation	Montana	Gas	No	No	No	No
	NorthWestern Corporation	Nebraska	Gas	No	No	No	No
	NorthWestern Corporation	South Dakota	Electric	No	No	No	No
	NorthWestern Corporation	South Dakota	Gas	No	No	No	No
OGE Energy Corporation	Oklahoma Gas and Electric Co.	Arkansas	Electric	Partial	Yes	No	Yes
	Oklahoma Gas & Electric Co.	Oklahoma	Electric	Partial	No	No	Yes
Pinnacle West Capital Corporation	Arizona Public Service Co.	Arizona	Electric	Partial	No	No	Yes

				[6]	[7]	[8]	[9]	[10]
				Capital Cost Recovery				
Proxy Group Company	**Operating Subsidiary**	**Jurisdiction**	**Service**	**Traditional Generation**	**Renewables/Non-Traditional Generation**	**Delivery Infrastructure**	**Environmental Compliance**	**Capital Cost Recovery**
ALLETE, Inc.	ALLETE (Minnesota Power)	Minnesota	Electric	No	Yes	No	No	Yes
Alliant Energy Corporation	Interstate Power & Light Co.	Iowa	Electric	No	Yes	No	Yes	Yes
	Interstate Power & Light Co.	Iowa	Gas	No	No	No	No	No
	Wisconsin Power & Light Co.	Wisconsin	Electric	No	No	No	No	No
	Wisconsin Power & Light Co.	Wisconsin	Gas	No	No	No	No	No
Ameren Corporation	Ameren Illinois Co.	Illinois	Electric	No	Yes	No	Yes	Yes
	Ameren Illinois Co.	Illinois	Gas	No	No	Yes	Yes	Yes
	Union Electric Co.	Missouri	Electric	No	Yes	Yes	No	Yes
	Union Electric Co.	Missouri	Gas	No	No	Yes	No	Yes
Duke Energy Corporation	Duke Energy Florida LLC	Florida	Electric	Yes	Yes	No	Yes	Yes
	Duke Energy Indiana LLC	Indiana	Electric	No	Yes	Yes	Yes	Yes
	Duke Energy Kentucky Inc.	Kentucky	Electric	No	No	No	Yes	Yes
	Duke Energy Kentucky Inc.	Kentucky	Gas	No	No	Yes	No	Yes
	Duke Energy Carolinas LLC/Duke Energy Progress L	North Carolina	Electric	No	Yes	No	Yes	Yes
	Piedmont Natural Gas Co. Inc.	North Carolina	Gas	No	No	Yes	No	Yes
	Duke Energy Ohio Inc.	Ohio	Electric	No	Yes	Yes	No	Yes
	Duke Energy Ohio Inc.	Ohio	Gas	No	No	Yes	Yes	Yes
	Duke Energy Carolinas LLC/Duke Energy Progress L	South Carolina	Electric	No	Yes	No	Yes	Yes
	Piedmont Natural Gas Co. Inc.	South Carolina	Gas	No	No	No	No	No
	Piedmont Natural Gas Co. Inc.	Tennessee	Gas	No	No	Yes	No	Yes
Entergy Corporation	Entergy Arkansas LLC	Arkansas	Electric	Yes	Yes	Yes	No	Yes
	Entergy New Orleans LLC	Louisiana-NOC	Electric	No	Yes	No	Yes	Yes
	Entergy New Orleans LLC	Louisiana-NOC	Gas	No	No	No	No	No
	Entergy Louisiana LLC	Louisiana	Electric	No	No	No	Yes	Yes
	Entergy Louisiana LLC	Louisiana	Gas	No	No	Yes	No	Yes
	Entergy Mississippi LLC	Mississippi	Electric	No	No	No	No	No
	Entergy Texas Inc.	Texas	Electric	Yes	No	Yes	No	Yes
Evergy, Inc.	Evergy Kansas Central Inc	Kansas	Electric	No	Yes	No	Yes	Yes
	Evergy Metro Inc.	Kansas	Electric	No	No	Yes	No	Yes
	Evergy Metro Inc	Missouri	Electric	No	No	Yes	No	Yes
	Evergy Missouri West Inc.	Missouri	Electric	No	Yes	Yes	No	Yes
IDACORP, Inc.	Idaho Power Co.	Idaho	Electric	No	No	No	No	No
	Idaho Power Co.	Oregon	Electric	No	No	No	No	No
NextEra Energy, Inc.	Florida Power & Light Co.	Florida	Electric	Yes	Yes	No	Yes	Yes
	Pivotal Utility Holdings Inc.	Florida	Gas	No	No	Yes	Yes	Yes
	Lone Star Transmission LLC	Texas	Electric	No	No	Yes	No	Yes
NorthWestern Corporation	NorthWestern Corporation	Montana	Electric	No	No	No	No	No
	NorthWestern Corporation	Montana	Gas	No	No	No	No	No
	NorthWestern Corporation	Nebraska	Gas	No	No	No	No	No
	NorthWestern Corporation	South Dakota	Electric	No	No	No	No	No
	NorthWestern Corporation	South Dakota	Gas	No	No	No	No	No
OGE Energy Corporation	Oklahoma Gas and Electric Co.	Arkansas	Electric	Yes	Yes	Yes	No	Yes
	Oklahoma Gas & Electric Co.	Oklahoma	Electric	No	No	Yes	Yes	Yes
Pinnacle West Capital Corporation	Arizona Public Service Co.	Arizona	Electric	No	Yes	No	Yes	Yes

Proxy Group Company	Operating Subsidiary	Jurisdiction	Service	[1] Test Year
Portland General Electric Company	Portland General Electric Co.	Oregon	Electric	Fully Forecast
Xcel Energy Inc.	Public Service Co. of Colorado	Colorado	Electric	Historical
	Public Service Co. of Colorado	Colorado	Gas	Historical
	Northern States Power Co.-Minnesota	Minnesota	Electric	Fully Forecast
	Northern States Power Co.-Minnesota	Minnesota	Gas	Fully Forecast
	Southwestern Public Service Co.	New Mexico	Electric	Historical
	Northern States Power Co.-Minnesota	North Dakota	Electric	Fully Forecast
	Northern States Power Co.-Minnesota	North Dakota	Gas	Fully Forecast
	Northern States Power Co.-Minnesota	South Dakota	Electric	Historical
	Southwestern Public Service Co.	Texas	Electric	Historical
	Northern States Power Co.-Wisconsin	Wisconsin	Electric	Fully Forecast
	Northern States Power Co.-Wisconsin	Wisconsin	Gas	Fully Forecast
Proxy Group Average			Fully Forecast	19
			Partially Forecast	6
			Historical	31
			Forecast	44.64%
I&M [11]				Fully Forecasted

Notes:
[1] Sources: Regulatory Research Associates, effective as of April 30, 2023
[2] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022. Operating subsidiaries not covered in this report were e
[3] Sources: Company Form 10-K, Company Tariffs, S&P Capital IQ Pro
[4] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[5] Equals IF(AND([2]=No, [3]=No, [4]=No), No, Yes)
[6] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[7] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[8] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[9] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[10] Equals IF(AND([6]=No, [7]=No, [8]=No, [9]=No), No, Yes)
[11] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.

				[2]	[3]	[4]	[5]
				Non-Volumetric Rate Design			
Proxy Group Company	**Operating Subsidiary**	**Jurisdiction**	**Service**	**Revenue Decoupling**	**Formula-based rates**	**Straight Fixed-Variable Rate Design**	**Non-Volumetric Rate Design**
Portland General Electric Company	Portland General Electric Co.	Oregon	Electric	No	No	No	No
Xcel Energy Inc.	Public Service Co. of Colorado	Colorado	Electric	Partial	No	No	Yes
	Public Service Co. of Colorado	Colorado	Gas	Partial	No	No	Yes
	Northern States Power Co.-Minnesota	Minnesota	Electric	Partial	Yes	No	Yes
	Northern States Power Co.-Minnesota	Minnesota	Gas	No	No	No	No
	Southwestern Public Service Co.	New Mexico	Electric	No	No	No	No
	Northern States Power Co.-Minnesota	North Dakota	Electric	No	No	No	No
	Northern States Power Co.-Minnesota	North Dakota	Gas	No	No	Yes	Yes
	Northern States Power Co.-Minnesota	South Dakota	Electric	Partial	No	No	Yes
	Southwestern Public Service Co.	Texas	Electric	No	No	No	No
	Northern States Power Co.-Wisconsin	Wisconsin	Electric	No	No	No	No
	Northern States Power Co.-Wisconsin	Wisconsin	Gas	No	No	No	No

		Non-Volumetric Rate Design
Proxy Group Average	Yes	30
	No	26
	NVRD	53.57%

I&M [11]				Partial	No	No	Yes

Notes:
[1] Sources: Regulatory Research Associates, effective as of April 30, 2023
[2] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022. Operating subxcluded from this exhibit.
[3] Sources: Company Form 10-K, Company Tariffs, S&P Capital IQ Pro
[4] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[5] Equals IF(AND([2]=No, [3]=No, [4]=No), No, Yes)
[6] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[7] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[8] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[9] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[10] Equals IF(AND([6]=No, [7]=No, [8]=No, [9]=No), No, Yes)
[11] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.

				[6]	[7]	[8]	[9]	[10]
				Capital Cost Recovery				
Proxy Group Company	**Operating Subsidiary**	**Jurisdiction**	**Service**	**Traditional Generation**	**Renewables/Non-Traditional Generation**	**Delivery Infrastructure**	**Environmental Compliance**	**Capital Cost Recovery**
Portland General Electric Company	Portland General Electric Co.	Oregon	Electric	Yes	Yes	No	Yes	Yes
Xcel Energy Inc.	Public Service Co. of Colorado	Colorado	Electric	No	Yes	No	No	Yes
	Public Service Co. of Colorado	Colorado	Gas	No	No	Yes	No	Yes
	Northern States Power Co.-Minnesota	Minnesota	Electric	No	Yes	No	Yes	Yes
	Northern States Power Co.-Minnesota	Minnesota	Gas	No	No	Yes	No	Yes
	Southwestern Public Service Co.	New Mexico	Electric	No	Yes	No	No	Yes
	Northern States Power Co.-Minnesota	North Dakota	Electric	No	Yes	Yes	No	Yes
	Northern States Power Co.-Minnesota	North Dakota	Gas	No	No	No	No	No
	Northern States Power Co.-Minnesota	South Dakota	Electric	Yes	No	Yes	Yes	Yes
	Southwestern Public Service Co.	Texas	Electric	No	No	No	No	No
	Northern States Power Co.-Wisconsin	Wisconsin	Electric	No	No	No	No	No
	Northern States Power Co.-Wisconsin	Wisconsin	Gas	No	No	No	No	No
								CCRM
Proxy Group Average							Yes	39
							No	17
							CCRM	69.64%
I&M [11]				No	Yes	Yes	Yes	Yes

Notes:
[1] Sources: Regulatory Research Associates, effective as of April 30, 2023
[2] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022. Operating sub
[3] Sources: Company Form 10-K, Company Tariffs, S&P Capital IQ Pro
[4] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[5] Equals IF(AND([2]=No, [3]=No, [4]=No), No, Yes)
[6] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[7] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[8] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[9] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[10] Equals IF(AND([6]=No, [7]=No, [8]=No, [9]=No), No, Yes)
[11] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.

CAPITAL STRUCTURE ANALYSIS

Proxy Group Company	Ticker	Most Recent 8 Quarters (2021Q2 - 2023Q1) Common Equity Ratio	Long-Term Debt Ratio	Preferred Equity Ratio	Total Capitalization
ALLETE, Inc.	ALE	57.86%	42.14%	0.00%	100%
Alliant Energy Corporation	LNT	52.13%	47.47%	0.40%	100%
Ameren Corporation	AEE	53.10%	46.32%	0.58%	100%
Duke Energy Corporation	DUK	53.00%	47.00%	0.00%	100%
Entergy Corporation	ETR	46.84%	53.06%	0.10%	100%
Evergy, Inc.	EVRG	61.00%	39.00%	0.00%	100%
IDACORP, Inc.	IDA	53.96%	46.04%	0.00%	100%
NextEra Energy, Inc.	NEE	61.41%	38.59%	0.00%	100%
NorthWestern Corporation	NWE	48.82%	51.18%	0.00%	100%
OGE Energy Corporation	OGE	53.96%	46.04%	0.00%	100%
Pinnacle West Capital Corporation	PNW	51.35%	48.65%	0.00%	100%
Portland General Electric Company	POR	45.51%	54.49%	0.00%	100%
Xcel Energy Inc.	XEL	54.46%	45.54%	0.00%	100%
	Average	53.34%	46.58%	0.08%	
	Median	53.10%	46.32%	0.00%	
	Maximum	61.41%	54.49%	0.58%	
	Minimum	45.51%	38.59%	0.00%	

Notes:
[1] Ratios are weighted by actual common capital, preferred capital, and long-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.