Volume 2B

Direct Testimony and Supporting Schedules:

Ann E. Bulkley

Before the North Dakota Public Service Commission
State of North Dakota

In the Matter of the Application of Otter Tail Power Company
For Authority to Increase Rates for Electric Utility
Service in North Dakota

Case No. PU-23-

Exhibit___(AEB-1)

RETURN OF EQUITY

Direct Testimony and Schedules of

ANN E. BULKLEY

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November 2, 2023

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I. INTRODUCTION AND QUALIFICATIONS

Q. WHAT IS YOUR NAME, BUSINESS ADDRESS, AND POSITION?

A. 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.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND, AS WELL AS YOUR BUSINESS AND PROFESSIONAL EXPERIENCE.

A. I hold a Bachelor's degree in Economics and Finance from Simmons College and a Master's degree in Economics from Boston University, with more than 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 qualifications and a summary of testimony that I have filed in other proceedings as Exhibit___(AEB-1), Schedule 1 to this testimony.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am submitting this direct testimony before the North Dakota Public Service Commission (Commission) on behalf of Otter Tail Power Company (OTP or the Company), a wholly-owned subsidiary of Otter Tail Corporation (OTTR).

II. PURPOSE AND OVERVIEW OF DIRECT TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. The purpose of my direct testimony is to present evidence and provide a recommendation regarding the appropriate return on equity (ROE) for OTP and to provide an assessment of the capital structure to be used for ratemaking purposes.

Q. ARE YOU SPONSORING ANY EXHIBITS OR SCHEDULES IN SUPPORT OF YOUR DIRECT TESTIMONY?

A. Yes. My analyses and recommendations are supported by the data presented in Exhibit____(AEB-1), Schedules 2 through 15.

Q. PLEASE PROVIDE A BRIEF OVERVIEW OF THE ANALYSES THAT LED TO YOUR ROE RECOMMENDATION?

A. I have estimated the Company's cost of equity by applying several traditional estimation methodologies to a proxy group of comparable utilities, including the Discounted Cash Flow (DCF) model, the Capital Asset Pricing Model (CAPM), the Empirical Capital Asset Pricing Model (ECAPM), and a Bond Yield Risk Premium (BYRP or Risk Premium) analysis. My recommendation also takes into consideration the following factors: (1) the Company's small size; (2) limited trading volume; (3) limited institutional ownership; (4) OTP's customer concentration; (5) the Company's capital expenditure requirements; (6) the regulatory environment in which the Company operates; (7) flotation costs; and (8) the Company's proposed capital structure as compared to the capital structures of the proxy group companies. While I do not make specific adjustments to my ROE recommendation for these factors, I did consider them in the aggregate when determining where my recommended ROE falls within the range of the analytical results.

Q. HOW IS THE REMAINDER OF YOUR DIRECT TESTIMONY ORGANIZED?

A. 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 the Company's cost of equity.
- Section VI explains my selection of the proxy group for the Company.

- Section VII describes my analyses and the basis for my recommended ROE in this proceeding.
- Section VIII provides a discussion of specific regulatory, business, and financial risks that have a direct bearing on the ROE to be authorized in this proceeding.
- Section IX assesses the proposed capital structure as compared to the proxy group.
- Section X presents my conclusions and recommendations for the market cost of equity.

III. SUMMARY OF ANALYSIS AND CONCLUSIONS

Q. WHAT IS YOUR RECOMMENDED ROE FOR OTP IN THIS PROCEEDING?

A. Considering the analytical results presented in Figure 2, below, and discussed further throughout my testimony, current and prospective capital market conditions, as well as the level of risk faced by OTP's operations in North Dakota relative to the proxy group, I conclude that the range of reasonable ROEs for OTP is 10.00 to 11.00, and within that range, I recommend an ROE of 10.60 percent.

Q. IS OTP'S REQUESTED CAPITAL STRUCTURE REASONABLE AND APPROPRIATE?

A. Yes. The Company's proposed equity ratio of 53.50 percent is within the range of equity ratios for the proxy group. Further, the Company's proposed equity ratio is reasonable considering credit rating agencies' continued concern with the negative effect on the cash flows and credit metrics associated with increasing interest rates, inflation and capital expenditures.

Q. PLEASE SUMMARIZE THE KEY FACTORS CONSIDERED IN YOUR ANALYSES AND UPON WHICH YOU BASE YOUR RECOMMENDED ROE.

A. 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,[1] which 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. Because the Company's authorized ROE should be a forward-looking estimate over the period during which the rates will be in effect, these analyses rely on forward-looking inputs and assumptions (e.g., projected analyst growth rates in the DCF model, forecasted risk-free rate and market risk premium in the CAPM analysis).

- The Company's risks relative to the proxy group of comparable companies and the implications of those risks.

Q. ARE CURRENT CAPITAL MARKET CONDITIONS DIFFERENT THAN THOSE PRESENT DURING THE COMPANY'S LAST NORTH DAKOTA RATE CASE?

A. Yes. As shown in Figure 1, when the Commission authorized a settlement ROE of 9.77 percent in the Company's last North Dakota rate case (Case No. PU-17-398), interest rates (as measured by the 30-year Treasury bond yield) were 3.09 percent and inflation was 2.20 percent. Since then, long-term interest rates have increased over 80 basis points as the Federal Reserve has increased the federal funds rate to combat inflation, which, as shown in Figure 1, also is significantly higher than during the Company's last rate case, and, as noted, remains above the Federal Reserve's target. As I will discuss in more detail below, I considered this change in

[1] 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").

market conditions as well as expected market conditions during the rate period in determining my recommended ROE for OTP.

Figure 1: Change in Market Conditions Since the Company's Last Rate Case[2]

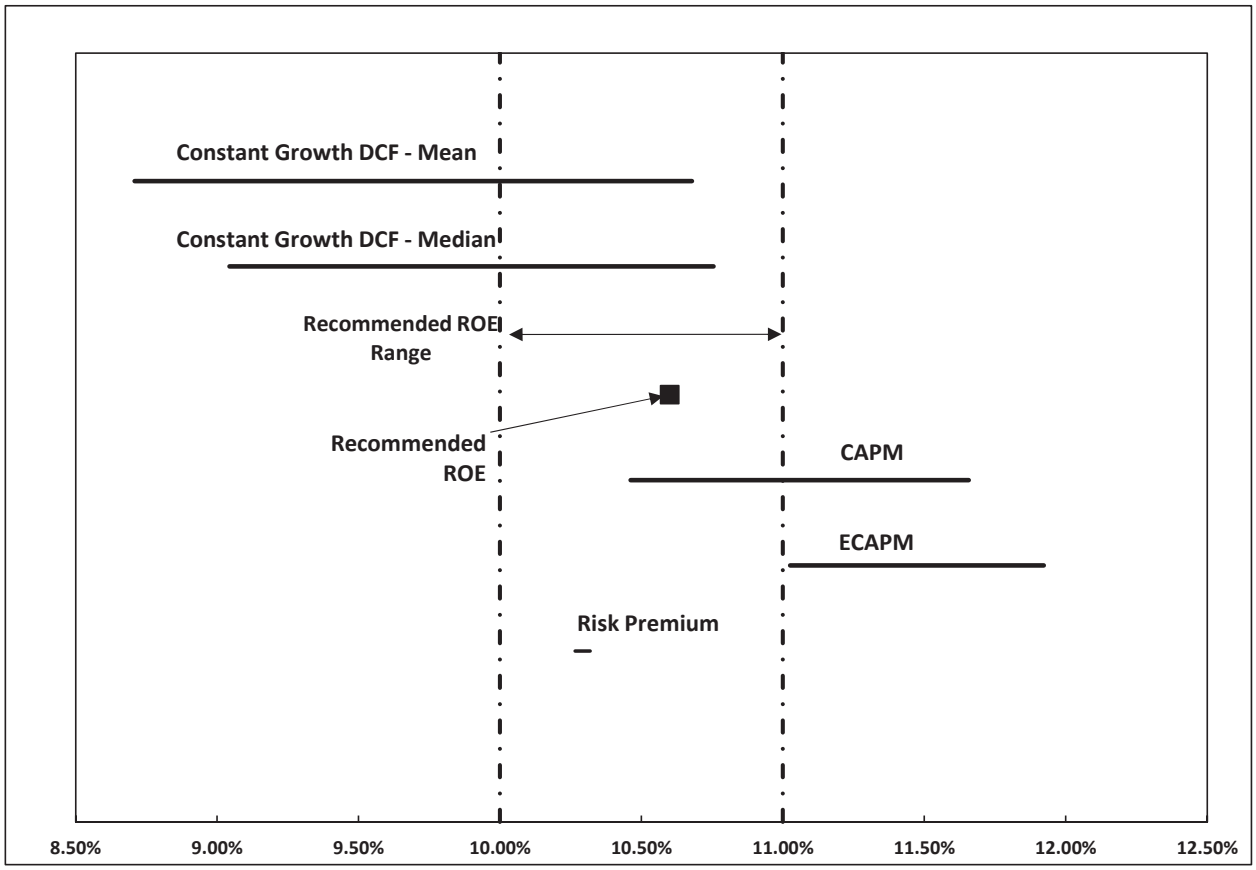
Case	Date	Federal Funds Rate	30-Day Avg of 30-Year Treasury Bond Yield	Inflation Rate	Auth'd ROE
PU-17-398	9/26/2018	1.95%	3.09%	2.20%	9.77%
Current	7/31/2023	5.12%	3.92%	4.70%	

Q. WHAT ARE THE RESULTS OF THE MODELS THAT YOU HAVE USED TO ESTIMATE THE COST OF EQUITY FOR OTP?

A. Figure 2 summarizes the range of results produced by the constant growth DCF, CAPM, ECAPM, and Bond Yield Plus Risk Premium analysis.

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

Figure 2: Summary of Cost of Equity Analytical Results



As shown in Figure 2, the range of results across all methodologies is wide. While it is common to consider multiple models to estimate the cost of equity, it is particularly important when the range of results varies considerably across methodologies.

Q. ARE PROSPECTIVE CAPITAL MARKET CONDITIONS EXPECTED TO AFFECT THE RESULTS OF THE COST OF EQUITY FOR THE COMPANY DURING THE PERIOD IN WHICH THE RATES ESTABLISHED IN THIS PROCEEDING WILL BE IN EFFECT?

A. 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 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 through the test year, and likely beyond that time frame, in response to inflation.
- 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 next year.
- The utility sector is expected to underperform because: (1) utility dividend yields are now less attractive than the risk-free rates of government bonds; (2) interest rates are expected to remain near current levels over the few years; and (3) utility stock prices are inversely related to changes in interest rates.
- If utility stock prices decline as expected then the dividend yields of utilities will increase and thus, all else equal, so too will the cost of equity estimates produced by the DCF model.
- Consequently, the results of the DCF model, which relies on current utility share prices, likely understates the cost of equity during the period that the Company's rates will be in effect.
- Furthermore, expected market conditions warrant consideration of forward-looking cost of equity estimation models such as the CAPM and ECAPM, which rely on interest rates as a direct input into the models and thus may better reflect the market expected during the period that the Company's rates will be in effect.
- Rating agencies have cited increased risk in the utility sector due to increased interest rates, inflation and elevated capital expenditures.

IV. REGULATORY PRINCIPLES AND GUIDELINES

Q. PLEASE DESCRIBE THE GUIDING PRINCIPLES TO BE USED IN ESTABLISHING THE COST OF CAPITAL FOR A REGULATED UTILITY.

A. 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) that the end result, as opposed to the methodology employed, is the controlling factor in arriving at just and reasonable rates.[3]

Q. HOW DID THE COURT CONNECT THE ACHIEVEMENT OF A FAIR RATE OF RETURN TO THE PROVISION OF UTILITY SERVICE?

A. In *Bluefield*, the Court noted a proper rate of return not only assures "confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit [but also] enable[s the utility] to raise the money necessary for the proper discharge of its public duties."[4] As the Court further explained in *Hope*, "[t]he rate-making process … involves balancing of the investor and consumer interests."[5]

Q. WHY IS IT IMPORTANT FOR A UTILITY TO BE ALLOWED THE OPPORTUNITY TO EARN AN ROE THAT IS ADEQUATE TO ATTRACT CAPITAL AT REASONABLE TERMS?

A. An authorized ROE that is adequate to attract capital at reasonable terms enables the utility to continue to provide safe, reliable electric service while maintaining its financial integrity. That return should be commensurate with returns required by investors elsewhere in the market for investments of comparable risk. It is important to recognize that equity investors have a choice of where to invest capital. If the authorized ROE is not comparable to the returns available for comparable risk investments, it is not just the value to current equity holders that will be harmed, but rather, access to incremental equity is also affected. It is reasonable to expect that equity investors will seek alternative investment

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

4 *Bluefield*, 262 U.S. at 679, 693.

5 *Hope*, 320 U.S. at 591, 603.

opportunities for which the expected return reflects the perceived risks, thereby inhibiting the Company's ability to attract new equity capital at reasonable cost.

Q. IS A UTILITY'S ABILITY TO ATTRACT CAPITAL ALSO AFFECTED BY THE ROES THAT ARE AUTHORIZED FOR OTHER UTILITIES?

A. Yes. Utilities compete directly for capital with other investments of similar risk, which include other 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. Put another way: the cost of capital represents an opportunity cost to investors. If higher returns are available for other investments of comparable or lower 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.

Q. IS THE REGULATORY FRAMEWORK, INCLUDING THE AUTHORIZED ROE AND EQUITY RATIO, IMPORTANT TO THE FINANCIAL COMMUNITY?

A. Yes. The regulatory framework is one of the most important factors in debt and equity investors' assessments of risk. Specifically regarding debt investors, credit rating agencies consider the authorized ROE and equity ratio for regulated utilities to be very important for two reasons: (1) they help determine the cash flows and credit metrics of the regulated utility; and (2) they provide an indication of the degree of regulatory support for credit quality in the jurisdiction. To the extent that the authorized 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. Not only do credit ratings affect the overall cost of borrowing, they also

act as a signal to equity investors about the risk of investing in the equity of a company.

Q. WHAT IS THE STANDARD FOR SETTING THE ROE IN ANY JURISDICTION?

A. The stand-alone ratemaking principle is the foundation of jurisdictional ratemaking. This principle requires that the rates that are charged in any operating jurisdiction be for the costs incurred in that jurisdiction. The stand-alone ratemaking principle ensures that customers in each jurisdiction only pay for the costs of the service provided in that jurisdiction, which is not influenced by the business operations in other operating companies. In order to maintain this principle, the cost of equity analysis is performed for an individual operating company as a stand-alone entity. As such, I have evaluated the investor-required return for the OTP's electric operations in North Dakota.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING REGULATORY GUIDELINES?

A. The ratemaking process is premised on the principle that, in order for investors and companies to commit the capital needed to provide safe and reliable utility services, a utility must have a reasonable opportunity to recover the return of, and the market-required return on, its invested capital. This is particularly true for utilities, which are capital-intensive operations and are required to make investments in a variety of economic and financial market conditions. Preserving that ability benefits both investors and customers.

Accordingly, the Commission's order in this proceeding should establish rates that provide the Company with a reasonable opportunity to earn an ROE that is: (1) adequate to attract capital at reasonable terms; (2) sufficient to ensure its financial integrity; and (3) commensurate with returns on investments in enterprises with similar risk. It is important for the ROE authorized in this proceeding to take into consideration current and projected capital market

conditions, as well as investors' expectations and requirements for both risks and returns. 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. Providing the opportunity to earn a market-based cost of capital supports the financial integrity of the Company, which is in the interest of both customers and shareholders.

V. CAPITAL MARKET CONDITIONS

Q. IS IT IMPORTANT TO ANALYZE CURRENT AND PROSPECTIVE CAPITAL MARKET CONDITIONS?

A. Yes. 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 both 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.

Q. IS THIS RELATIONSHIP BETWEEN CURRENT AND FUTURE MARKET CONDITIONS PARTICULARLY IMPORTANT IN THIS CASE?

A. Yes. As discussed in more detail below, interest rates have increased significantly since the end of 2021 as the Federal Reserve normalized monetary policy to combat inflation. Empirical evidence demonstrate a strong inverse relationship between utility stock prices and interest rates, however, while utility valuations have declined since July 2022, utility valuations still do not fully reflect the effect in the recent increase in interest rates. For example, the dividend yields of utilities are still below the yields on long-term government bonds when historically the dividend yields of utilities have exceeded the yields on long-term government bonds. Given that interest rates are expected to remain elevated over the next few years, it is reasonable to expect the share prices of utilities will continue to decline as the difference between the dividend yields of utility stocks and the yields on long-term government bonds (yield spread) normalizes to historical levels. These declining share prices will put upward pressure on dividend yields and thus, the cost of equity measured by the DCF model. As a result, DCF models, which rely on recent historical share price data, most likely currently are understating investors' required return over the period that OTP's rates will be in effect. Therefore, this expected change in market conditions supports consideration of the higher 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.

Q. WHAT FACTORS ARE AFFECTING THE COST OF EQUITY FOR REGULATED UTILITIES IN THE CURRENT AND PROSPECTIVE CAPITAL MARKETS?

A. The cost of equity for regulated utility companies is being affected by several factors in the current and prospective capital markets, including: (1) changes in monetary policy; (2) relatively 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.

Q. WHAT EFFECT DO CURRENT AND PROSPECTIVE MARKET CONDITIONS HAVE ON THE COST OF EQUITY FOR OTP?

A. Historically, there has been a strong, 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). Since the yields on long-term government bonds currently exceed the dividend yields of utilities, and historically, long-term government bond yields have been lower than the dividend yields of utilities, it is reasonable to expect that utility investors' required returns for investing in utility stocks is increasing.

Q. HOW DOES THAT AFFECT THE COST OF EQUITY ANALYSIS IN THIS PROCEEDING?

A. Because the cost of equity in this proceeding is being estimated for the future period during which 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, likely will understate the cost of equity during the future period that the Company's rates will be in effect.

Q. HOW WOULD YOU CHARACTERIZE THE MARKET CONDITIONS EXPECTED TO BE IN PLACE DURING THE FUTURE PERIOD THAT THE COMPANY'S RATES WILL BE IN EFFECT?

A. As is discussed in more detail in the remainder of this section, inflation continues to exceed the Federal Reserve's target level. The Federal Reserve's change in monetary policy (form one of accommodation to one focused on combatting inflation) contributes to expectations of relatively elevated interest rates, increased market risk and an increase in the cost of the investor-required return. It is important that these factors be considered in setting a forward-looking ROE.

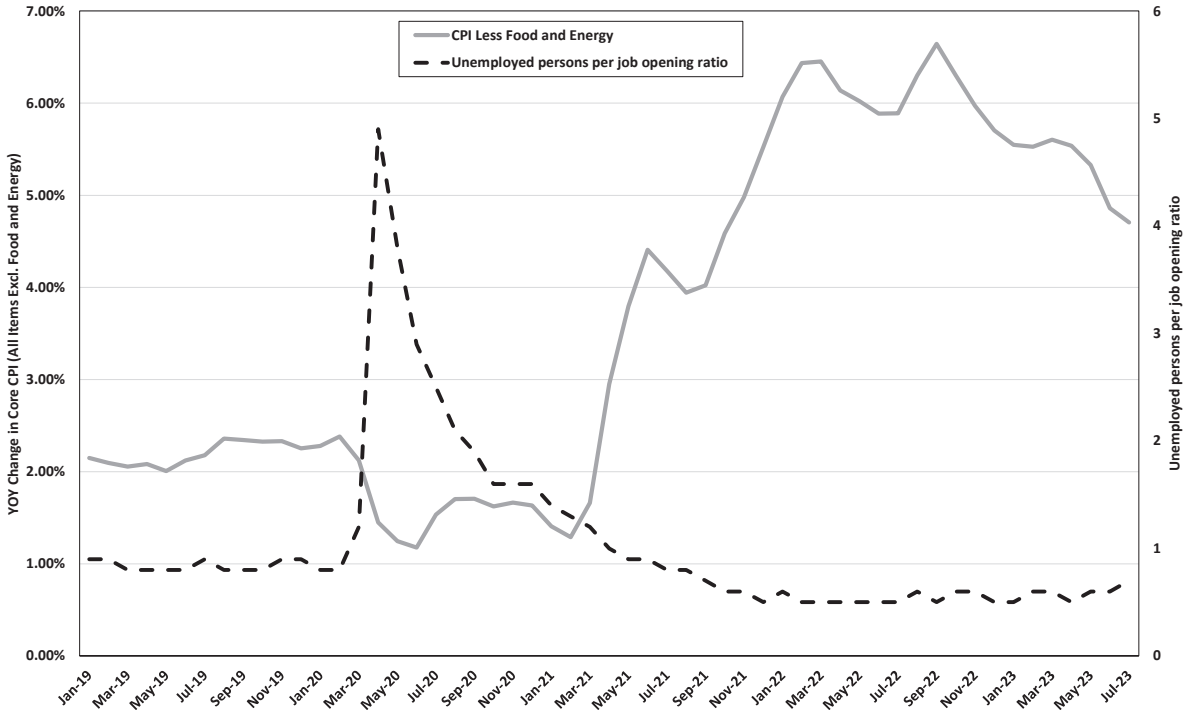
A. Inflationary Expectations in Current and Projected Capital Market Conditions

Q. WHAT IS THE CURRENT LEVEL OF INFLATION IN THE ECONOMY?

A. While down from near 40-year highs, inflation remains at elevated levels. Figure 3 presents the year-over-year (YOY) change in core inflation as measured by the Consumer Price Index (CPI) excluding food and energy prices as published by the Bureau of Labor Statistics.[6] As shown in Figure 3, core inflation increased steadily beginning in early 2021, rising from 1.41 percent in January 2021 to a high of 6.64 percent in September 2022, which was the largest 12-month increase since 1982. While core inflation has declined from the 40-year high in response to the Federal Reserve's monetary policy, it remains above the Federal Reserve's target level of 2.0 percent.

[6] I considered core inflation because it is the preferred inflation indicator of the Federal Reserve for determining the direction of monetary policy. Core inflation is preferred by the Federal Reserve since it removes the effect of food and energy prices, which can be highly volatile.

Figure 3: Core Inflation and Unemployed Persons-to-Job Openings, January 2019 – July 2023[7]



Q. IS THE FEDERAL RESERVE STILL COMMITTED TO TAKING POLICY ACTIONS TO REDUCE INFLATION?

A. Yes. Despite the declines from 40-year highs, the Federal Reserve has indicated that it expects inflation will remain above its target level over at least the next year and that monetary policy will remain restrictive in order to reduce inflation. For example, Federal Reserve Chair Powell observed at the Federal Open Market Committee (FOMC) meeting in September 2023 that while inflation is down from its recent highs, it remains significantly above the Federal Reserve's long-term target:

> Inflation remains well above our longer-run goal of 2 percent. Based on the Consumer Price Index and other data, we estimate that total PCE [personal consumption expenditures] prices rose 3.4 percent over the 12 months ending in August; and that, excluding the volatile food and energy categories, core PCE prices rose 3.9 percent. Inflation has moderated somewhat since the middle of last year, and

7 Bureau of Labor Statistics.

> longer-term inflation expectations appear to remain well anchored, as reflected in a broad range of surveys of households, businesses, and forecasters, as well as measures from financial markets. Nevertheless, the process of getting inflation sustainably down to 2 percent has a long way to go. The median projection in the SEP for total PCE inflation is 3.3 percent this year, falls to 2.5 percent next year, and reaches 2 percent in 2026.[8]

As a result, Federal Reserve Chair Powell noted that they intend to maintain a restrictive policy stance until substantial progress has been made to reduce inflation to the long-term target of 2 percent.[9] Moreover, the Federal Reserve is currently forecasting an additional 25 basis point increase in the federal funds rate in 2023.[10] Given the expectation that monetary policy will remain restrictive, as noted previously, yields on long-term government bonds are expected to remain elevated over the near-term.

B. The Use of Monetary Policy to Address Inflation

Q. WHAT POLICY ACTIONS HAS THE FEDERAL RESERVE ENACTED TO RESPOND TO INCREASED INFLATION?

A. 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. Since the March 2022 FOMC meeting, the Federal Reserve increased the target federal funds rate through a series of increases, from 0.00 – 0.25 percent to 5.25 – 5.50 percent.[11] Further, as noted above, while the Federal Reserve acknowledges that inflation has declined from its peak, it still is well above the Federal Reserve's target of 2 percent. Therefore, the Federal Reserve anticipates the continued need to maintain the

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8 Federal Reserve, Transcript of Chair Powell's Press Conference, September 20, 2023, p 2.

9 *Id.,* at 3.

10 Federal Reserve, Summary of Economic Projections, September 20, 2023, at 2.

11 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, May 3, 2023, July 26, 2023. Federal Reserve Board - Press Releases

federal funds rate at a restrictive level in order to achieve its goal of 2 percent inflation over the long-run.

Q. IS THE FEDERAL RESERVE ABLE TO PURSUE THESE POLICY ACTIONS AND STILL FULFILL ITS DUAL MANDATE?

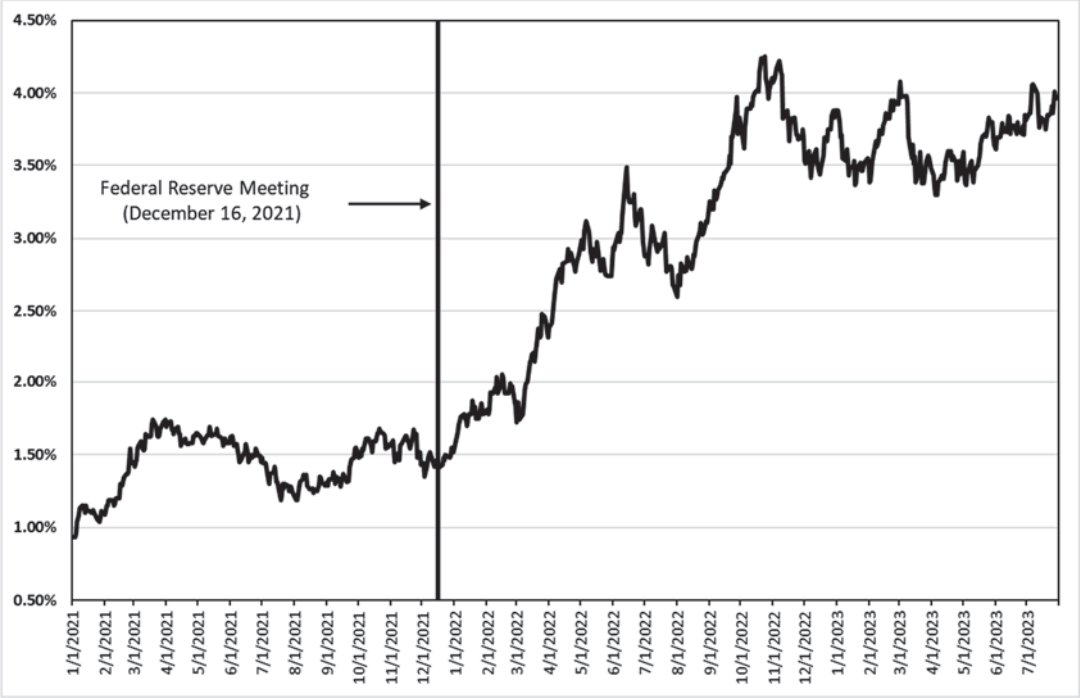
A. Yes. Figure 3 identifies the ratio of unemployed persons per job opening, which currently is 0.7 and has been consistently below 1.0 since 2021 despite the Federal Reserve's policy actions. This metric indicates sustained strength in the labor market. Given the Federal Reserve's dual mandate of maximum employment and price stability, the continued increased levels of core inflation coupled with the strength in the labor market has resulted in the Federal Reserve's sustained focus on the priority of reducing inflation.

C. The Effect of Inflation and Monetary policy on Interest Rates and the Investor-Required Return

Q. HAVE THE YIELDS ON LONG-TERM GOVERNMENT BONDS INCREASED IN RESPONSE TO INFLATION AND THE FEDERAL RESERVE'S NORMALIZATION OF MONETARY POLICY?

A. Yes. As the Federal Reserve has substantially increased the federal funds rate in response to increased levels of inflation that have persisted for longer than originally projected, longer term interest rates have also increased. As shown in Figure 4, since the FOMC's December 2021 meeting, the yield on 10-year Treasury bonds has more than doubled, increasing from 1.47 percent on December 15, 2021 to 3.97 percent at the end of July 2023.

Figure 4: 10-Year Treasury Bond Yield, January 2021 – July 2023[12]



Q. DO FINANCIAL MARKETS EXPECT LONG-TERM GOVERNMENT BOND YIELDS TO REMAIN AT ELEVATED LEVELS?

A. Yes. Leading equity analysts have noted that they expect the yields on long-term government bonds to remain elevated through at least the first quarter of 2025. 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 3.80 percent through the first quarter of 2025.[13] It is reasonable to expect that if government bond yields remain elevated, the cost of equity will be higher than the levels experienced in the 2020 and 2021 lower interest rate environment.

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12 S&P Capital IQ Pro.

13 *Blue Chip Financial Forecasts*, Vol. 48, No. 10, October 2, 2023, p. 2.

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

Q. ARE UTILITY SHARE PRICES CORRELATED TO CHANGES IN THE YIELDS ON LONG-TERM GOVERNMENT BONDS?

A. 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).[14]

Q. HOW DO EQUITY ANALYSTS EXPECT THE UTILITIES SECTOR TO PERFORM IN AN INCREASING INTEREST RATE ENVIRONMENT?

A. Equity analysts project that utilities will underperform the broader market in a high inflation, high interest rate environment. For example, Fidelity classifies the utility sector as underweight,[15] and Bank of America recently noted that it is "not so constructive on [u]tilities" given that the dividend yields for utilities are below the yields available on both long- and short-term government bonds.[16]

Q. WHY DO EQUITY ANALYSTS EXPECT THE UTILITY SECTOR TO UNDERPERFORM OVER THE NEAR-TERM?

A. As noted above, there is an empirically demonstrated, inverse relationship between utility stock prices and interest rates. Yet, despite substantial interest rate increases over the past year, the valuations of utilities have not fully reflected the effect of the recent increase in interest rates, resulting in a negative yield spread

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

15 Fidelity. "Third Quarter 2023 Investment Research Update." July 24, 2023.

16 Dumoulin-Smith, "US Electric Utilities & IPPs: As the leaves fall, preparing for Autumn utility outlook. Macro still has potholes," September 6, 2023.

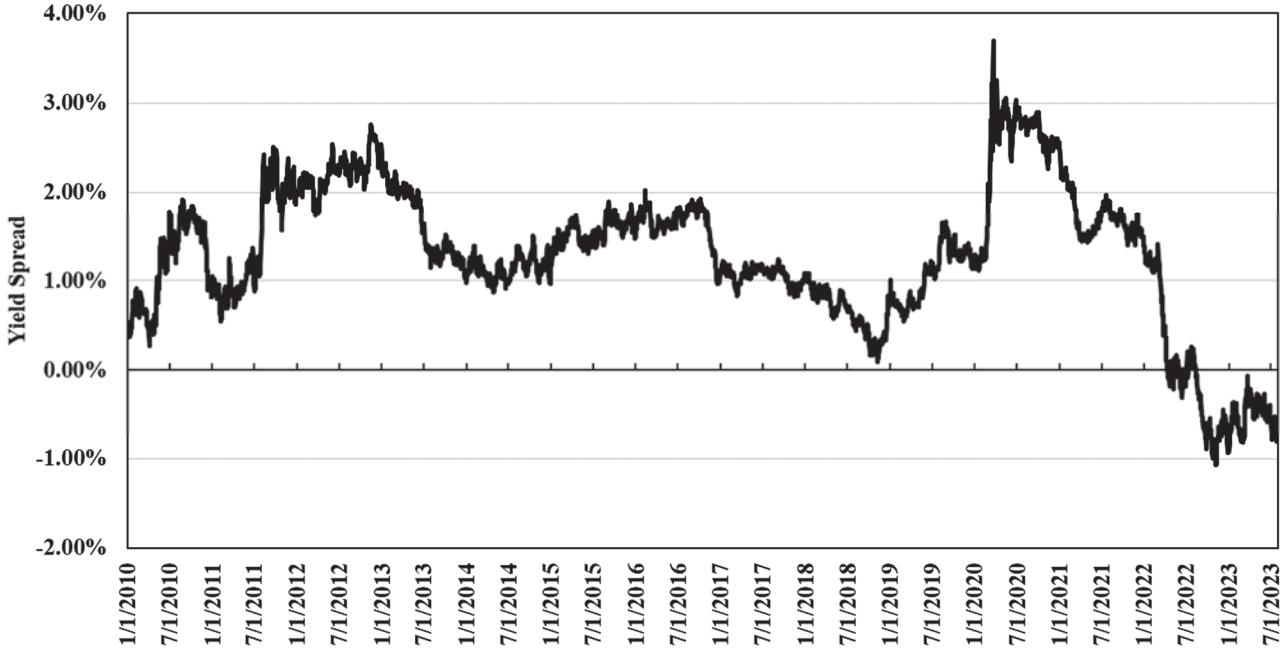
which is counter to the historical average spread that demonstrates the dividend yields of utilities have exceeded long-term government bonds. Therefore, it is reasonable to conclude that the current level of the yield spread is not sustainable over the long-term and will normalize to historical levels.

Q. WHY DO YOU CONSIDER THE CURRENT YIELD SPREAD TO BE UNSUSTAINABLE?

A. I examined the yield spread from January 2010 through July 2023, utilizing 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 5, 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 July 31, 2023 was negative 0.76 percent, meaning that the yield on the 10-year Treasury bond exceeds the dividend yield for the S&P Utilities Index. However, the long-term average yield spread from 2010 to 2023 is 1.29 percent. Therefore, the current yield spread is well below the long-term average. Because the yield spread currently is well below the long-term average, and the expectation that interest rates will remain relatively high at least over the next few years, it is reasonable to conclude that the utility sector will most likely underperform over the near-term. This is because investors that purchased utility stocks as an alternative to 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. The rotation away from utility stocks will result in a decrease in the share prices of utilities.

Figure 5: Spread between the S&P Utilities Index Dividend Yield and the 10-year Treasury Bond Yield, January 2010 – July 2023[17]



Q. DO YOU HAVE ANY FURTHER CONTEXT AS TO HOW UNLIKELY IT IS TO HAVE A NEGATIVE YIELD SPREAD OF THIS MAGNITUDE?

A. Yes. For further context as to how unlikely it is to have a yield spread of negative 0.76 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 negative 0.76 percent has a z-score of -2.56,[18] indicating that a yield spread of negative 0.76 percent is over 2 standard deviations from the average yield spread from January 2010 through July 2023. In other words, 95 percent (*i.e.*, two standard deviations) of the daily yield spread observations over this period fall between -0.31 percent and 2.89 percent, with the current yield spread of negative

17 S&P Capital IQ Pro and Bloomberg Professional.

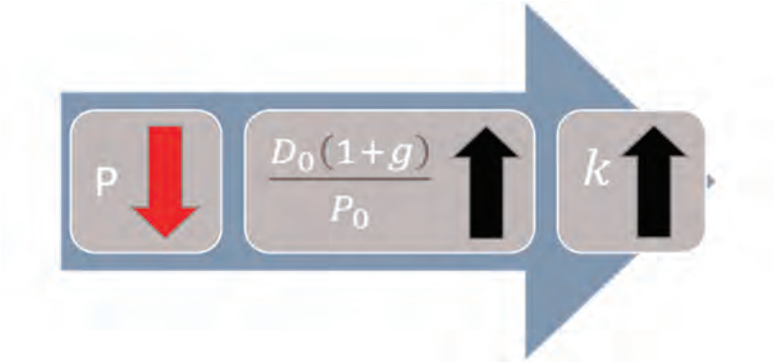
18 The z-score is calculated as: [the yield spread at July 31, 2023 minus the average yield spread January 2010 through July 2023] / standard deviation of yield spread from January 2010 through July 2023. The z-score equals: [-0.0076 minus 0.0129]/0.0080.

0.76 percent being outside of that range. Thus, the current yield spread is an outlier, which is why equity analysts do not expect this current level to hold.

Q. WHAT IS THE SIGNIFICANCE OF THE INVERSE RELATIONSHIP BETWEEN INTEREST RATES AND UTILITY SHARE PRICES IN THE CURRENT MARKET?

A. 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. Figure 6 below summarizes the effect of price on the dividend yield in the Constant Growth DCF model.

Figure 6: The Effect of a Decline in Stock Prices on the Constant Growth DCF Model



Q. HAVE REGULATORY COMMISSIONS ACKNOWLEDGED THAT THE DCF MODEL MIGHT UNDERSTATE THE COST OF EQUITY GIVEN CURRENT CAPITAL MARKET CONDITIONS?

A. 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.[19]

More recently, the Massachusetts Department of Public Utilities (MDPU) also recently came to a similar conclusion:

> The Department recently considered the relationship between low interest rates and utility stock prices over the last several years and whether a projected increase in long-term interest rates caused the DCF analysis to understate the cost of equity. D.P.U. 20-120, at 416-419. The Department found that, although utility stocks had increased above historic levels in conjunction with low interest rates, the evidence in that proceeding that long-term interest rates would change was speculative. D.P.U. 20-120, at 417-419. In this proceeding, the record is clear that long-term interest rates have increased compared to the period of time from which the parties derived the dividend yields used in the DCF analyses (Exh. ES-VVR-Rebutal-1, at 23-26; Tr. 14, at 1463). We also have considered the Attorney General's evidence of investors forecasting that utility stocks will retain their high valuations in the near term (Tr. 14, at 1449-1452; RR-DPU-48). ***Based on the foregoing evidence,***

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[19] *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.

the Department finds that there is greater certainty that the DCF results understate the Company's cost of equity.[20]

E. Conclusion

Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE EFFECT OF CURRENT MARKET CONDITIONS ON THE COST OF EQUITY FOR THE COMPANY?

A. Investors expect long-term interest rates to remain relatively high through 2024 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 already are greater than utility stock dividend yields (*i.e.*, at levels that are not sustainable over the long-term), the share prices of utilities are likely to continue to decline, which is the reason a number of equity analysts have classified the 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 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.

[20] The Commonwealth of Massachusetts Department of Public Utilities, D.P.U. 22-22, Petition of NSTAR Electric Company, doing business as Eversource Energy, pursuant to G.L. c. 164, § 94 and 220 CMR 5.00, for Approval of a General Increase in Base Distribution Rates for Electric Service and a Performance Based Ratemaking Plan, November 30, 2022, p. 385-386; emphasis added.

VI. PROXY GROUP SELECTION

Q. WHY HAVE YOU USED A GROUP OF PROXY COMPANIES TO ESTIMATE THE COST OF EQUITY FOR OTP?

A. One of the purposes of this proceeding is to estimate the cost of equity for an electric company that is not itself publicly traded. Because the cost of equity is a market-based concept and because OTP'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 generally comparable to OTP in certain fundamental business and financial respects to serve as its "proxy" in the cost of equity estimation process. As discussed below, however, OTP has risk factors that differentiates it from the companies in my proxy group.

Further, even if OTP were 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 generally comparable to OTP's, and thus provide a reasonable basis to derive and estimate the appropriate cost of equity for OTP.

Q. PLEASE PROVIDE A BRIEF PROFILE OF OTP.

A. OTP is a vertically integrated electric distribution company that is a wholly-owned subsidiary of Otter Tail Corporation. OTP provides electric service to more than 133,000 customers in North Dakota, South Dakota and Minnesota (40.1 percent of which are located in North Dakota).[21] OTP had operating revenues of $550 million in 2022.[22] OTP owns generation facilities, including coal, natural gas, wind, and solar generation facilities. OTP has an investment grade long-term

[21] Otter Tail Corporation, 2022 SEC Form 10-K, at 5-6.

[22] *Id.*, at 29.

rating of BBB+ (Outlook: Stable) from S&P, a rating of A3 (Outlook: Stable) from Moody's Investor Services, and BBB+ (Outlook: Stable) from Fitch Ratings.[23]

Q. HOW DID YOU SELECT THE COMPANIES INCLUDED IN YOUR PROXY GROUP?

A. 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 that have not been reduced in the last three years, since companies that do not pay dividends 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 40.00 percent of generation from owned generation;
- derive at least 60.00 percent of the Company's operating income from regulated electric operations; and
- 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.

I developed the screening criteria and thresholds for each screen based on judgment with the intention of balancing the need to maintain a proxy group that is of sufficient size against establishing a proxy group of companies that are comparable in business and financial risk to the Company.

[23] SNL Financial, August 24, 2023; Moody's Investor Services, October 3, 2022; and Fitch Ratings, September 23, 2023.

Q. DID YOU INCLUDE OTTR IN YOUR PROXY GROUP?

A. No. Consistent with my general practice of excluding the subject company, or its parent holding company, from the proxy group, I excluded OTTR from my proxy group for OTP.

Q. DID YOU EXCLUDE ANY OTHER COMPANIES FROM THE PROXY GROUP?

Yes. I excluded Hawaiian Electric Industries, Inc. (HE). Although, it is my general practice to exclude HE because its operations are concentrated in Hawaii and, therefore, faces geographic concentration risk for both its regulated and substantial unregulated operations not applicable to the other utilities considered[24], HE also should be excluded in this case due to the uncertainty the company is facing following the recent wildfires in Hawaii. For example, the share price for HE declined 37 percent on August 14, 2023 due to investors' concerns regarding possible lawsuits and the resulting financial effect,[25] and on August 15, 2023, S&P subsequently downgraded the credit rating for HE from BBB- to BB-, which is below investment grade.[26] Therefore, the recent significant decline in HE's share price and the fact that the Company would no longer meet my credit rating screen provide additional support for my decision to exclude HE from my proxy group.

Q. WHAT IS THE COMPOSITION OF YOUR PROXY GROUP?

A. The proxy group consists of the following seventeen companies shown in Figure 7.

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24 Hawaii Electric Industries, Inc., 2022 Form 10-K, at 22.

25 Dattilo, Emily. "Hawaiian Electric Stock Sinks 37%. The Maui Wildfires Are Tied to the Drop." Barron's, August 14, 2023.

26 S&P Global Ratings, "Hawaiian Electric Industries Inc. And Subs. Downgraded To 'BB-'; Placed On CreditWatch Negative On Higher Wildfire Risk, August 15, 2023.

Figure 7: Proxy Group

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

VII. COST OF EQUITY ESTIMATION

Q. PLEASE BRIEFLY DISCUSS THE ROE IN THE CONTEXT OF THE REGULATED RATE OF RETURN.

A. 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. The ROE is the cost of common equity capital in the utility's capital structure for ratemaking purposes. 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.

Q. HOW IS THE REQUIRED ROE DETERMINED?

A. The required ROE is estimated by using one or more analytical techniques that rely on market-based data to quantify investor expectations regarding required 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. 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.

Q. WHAT METHODS DID YOU USE TO ESTABLISH YOUR RECOMMENDED ROE IN THIS PROCEEDING?

A. I considered the results of the constant growth DCF model, the CAPM model, the ECAPM model, and the Bond Yield Plus Risk Premium methodology. As discussed in more detail below, a reasonable cost of equity estimate appropriately considers alternative methodologies and the reasonableness of their individual and collective results.

A. Importance of Multiple Analytical Approaches

Q. IS IT IMPORTANT TO USE MORE THAN ONE ANALYTICAL APPROACH TO ESTIMATE THE COST OF EQUITY?

A. 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 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[27] suggest using the CAPM and

[27] Copeland, Tom, Tim Koller and Jack Murrin. Valuation: Measuring and Managing the Value of Companies. New York, McKinsey & Company, Inc., 3rd Ed., 2000, at 214.

Arbitrage Pricing Theory model, while Brigham and Gapenski[28] recommend the CAPM, DCF, and Bond Yield Plus Risk Premium approaches.

Q. DO CURRENT MARKET CONDITIONS SUPPORT YOUR RELIANCE ON MORE THAN ONE ANALYTICAL APPROACH?

A. Yes. As discussed previously, interest rates have increased substantially over the past year and are expected to remain elevated over at least the next year from the lows seen during the COVID-19 pandemic. While the share prices of utilities have declined, the negative yield spread noted above is an indication that the share prices have not declined sufficiently to account for the recent rise in interest rates. As a result, equity analysts expect the utility sector to continue to underperform over the next year. Given the expected underperformance, it is reasonable to conclude that the DCF model is likely understating the forward-looking cost of equity because the model relies on historical share prices. The CAPM, ECAPM, and Bond Yield Plus Risk Premium analyses offer some balance through the use of interest rates as a direct input into the models and therefore may better reflect the market conditions expected when the Company's rates are in effect. These recent changes in market conditions highlight the benefit of using multiple models since each model relies on different assumptions, certain of which may better reflect current and projected market conditions at different times. It is important to use multiple analytical approaches to ensure that the cost of equity results reflect market conditions that are expected during the period that the Company's rates will be in effect.

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[28] Brigham, Eugene and Louis Gapenski. Financial Management: Theory and Practice. Orlando, Dryden Press, 1994, at 341.

B. Constant Growth DCF Model

Q. PLEASE DESCRIBE THE DCF APPROACH.

A. 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:

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

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:

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

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.

Q. WHAT ASSUMPTIONS ARE REQUIRED FOR THE CONSTANT GROWTH DCF MODEL?

A. 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 violated, considered judgment and/or specific adjustments should be applied to the results.

Q. WHAT MARKET DATA DID YOU USE TO CALCULATE THE DIVIDEND YIELD IN YOUR CONSTANT GROWTH DCF MODEL?

A. The dividend yield in my constant growth DCF model is based on the proxy companies' current annualized dividend and average closing stock prices over the 30-, 90-, and 180-trading days ended July 31, 2023.

Q. WHY DID YOU USE 30-, 90-, AND 180-DAY AVERAGING PERIODS?

A. 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.

Q. DID YOU MAKE ANY ADJUSTMENTS TO THE DIVIDEND YIELD TO ACCOUNT FOR PERIODIC GROWTH IN DIVIDENDS?

A. Yes. 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.

Q. WHY IS IT IMPORTANT TO SELECT APPROPRIATE MEASURES OF LONG-TERM GROWTH IN APPLYING THE DCF MODEL?

A. 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 incorporate a variety of sources of long-term earnings growth rates into the constant growth DCF model.

Q. WHICH SOURCES OF LONG-TERM EARNINGS GROWTH RATES DID YOU USE?

A. My constant growth DCF model incorporates three sources of long-term earnings per share (EPS) growth rates: (1) Zacks Investment Research (Zacks); (2) Yahoo! Finance; and (3) Value Line.

Q. WHY ARE EPS GROWTH RATES THE APPROPRIATE GROWTH RATES TO BE RELIED ON IN THE DCF MODEL?

A. Earnings are the fundamental driver of a company's ability to pay dividends; therefore, projected EPS growth is the appropriate measure of a company's long-term growth. In contrast, changes in a company's dividend payments are based on management decisions related to cash management and other factors. For example, a company may decide to retain earnings rather than pay out a portion of those earnings to shareholders through dividends. Therefore, dividend growth rates are less likely than earnings growth rates to reflect accurately investor perceptions of a company's growth prospects.

Q. HOW DID YOU CALCULATE THE RANGE OF RESULTS FOR THE CONSTANT GROWTH DCF MODELS?

A. I calculated a low-end result for the DCF models 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. Lastly, I also calculated results using the average growth rate from all three sources for each proxy group company.

Q. WHAT ARE THE RESULTS OF YOUR DCF ANALYSES?

A. Figure 8 summarizes the results of my DCF analyses. As shown, the mean DCF results using the average growth rates range from 9.66 percent to 9.86 percent, and the mean results using the maximum growth rates range from 10.65 percent to

10.81 percent.[29] While I also summarize the mean DCF results using the minimum growth rates, given the expected underperformance of utility stocks and thus the likelihood that the DCF model is understating the cost of equity, I do not believe it is appropriate to consider these DCF results at this time.

Figure 8: Discounted Cash Flow Results

Constant Growth DCF			
	Mean Low	Mean	Mean High
30-Day Average	8.75%	9.86%	10.72%
90-Day Average	8.69%	9.80%	10.66%
180-Day Average	8.69%	9.80%	10.66%
Constant Growth Average	8.71%	9.82%	10.68%
	Median Low	Median	Median High
30-Day Average	9.11%	9.76%	10.65%
90-Day Average	9.01%	9.66%	10.80%
180-Day Average	9.01%	9.71%	10.81%
Constant Growth Average	9.04%	9.71%	10.76%

Q. WHAT ARE YOUR CONCLUSIONS ABOUT THE RESULTS OF THE DCF MODELS?

A. As discussed previously, one primary assumption of the DCF models is a constant price-to-earnings ratio, and 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 DCF models, my recommendation also gives weight to the results of other cost of equity estimation models.

[29] *See* Exhibit___(AEB-1), Schedule 4.

C. CAPM Analysis

Q. PLEASE BRIEFLY DESCRIBE THE CAPM.

A. 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:

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

Where:

K_e = the required market ROE;

β = beta coefficient of an individual security;

r_f = the risk-free rate of return; and

r_m = the required return on the market.

In this specification, the term $(r_m - r_f)$ 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:

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

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.

Q. WHAT RISK-FREE RATE DID YOU USE IN YOUR CAPM ANALYSIS?

A. I rely on three sources for my estimate of the risk-free rate: (1) the current 30-day average yield on 30-year Treasury bonds of 3.92 percent;[30] (2) the average projected 30-year Treasury yield for the fourth quarter of 2023 through the fourth quarter of 2024, which is 3.90 percent;[31] and (3) the average projected 30-year Treasury bond yield for the period 2025 through 2029 of 3.80 percent.[32]

Q. WHAT BETA COEFFICIENTS DID YOU USE IN YOUR CAPM ANALYSIS?

A. As shown on Exhibit____(AEB-1), Schedule 5, I used the 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. The Value Line beta coefficients are calculated based on five years of weekly returns relative to the New York Stock Exchange Composite Index. Additionally, as shown in Exhibit____(AEB-1), Schedule 6, I also consider 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.

Q. HOW DID YOU ESTIMATE THE MARKET RISK PREMIUM IN THE CAPM?

A. I estimated the market risk premium as the difference between the implied expected equity market return and the risk-free rate. As shown in Exhibit____(AEB-1), Schedule 7, the expected market return is calculated using

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30 Bloomberg Professional as of July 31, 2023.

31 *Blue Chip Financial Forecasts*, Vol. 42, No. 8, August 1, 2023, at 2.

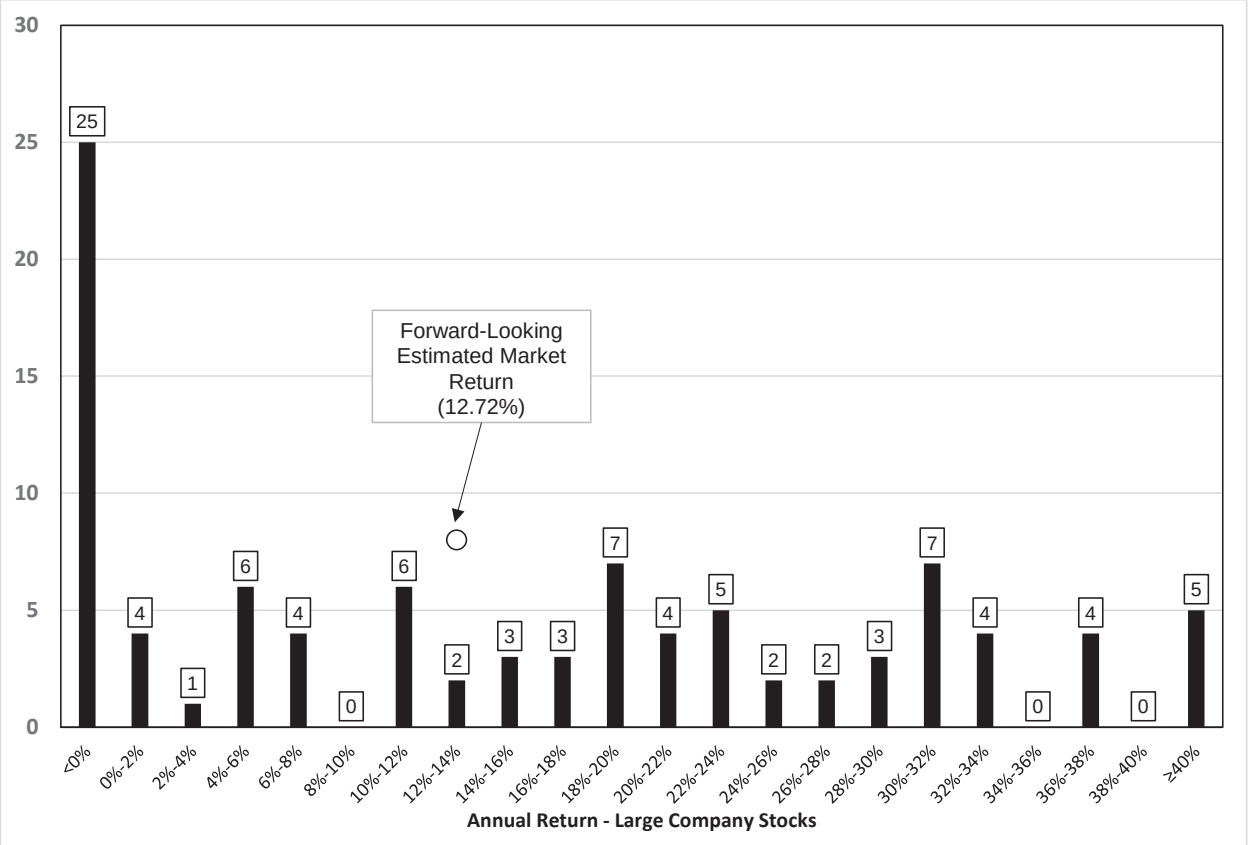
32 *Blue Chip Financial Forecasts*, Vol. 42, No. 6, June 1, 2023, at 14.

the constant growth DCF model discussed previously as applied to the companies in the S&P 500 Index. Based on an estimated market capitalization-weighted dividend yield of 1.60 percent and a weighted long-term growth rate of 11.03 percent, the estimated required market return for the S&P 500 Index as of July 31, 2023 is 12.72 percent. Based on the three risk-free rates considered, the market risk premium ranges from 8.80 percent to 8.92 percent.

Q. HOW DOES THE CURRENT EXPECTED MARKET RETURN COMPARE TO OBSERVED HISTORICAL MARKET RETURNS?

A. As shown in Figure 9, given the range of annual equity returns that have been observed over the past century, a current expected market return of 12.72 percent is reasonable. In 50 out of the past 97 years (or roughly 52 percent of observations), the realized equity market return was 12.72 percent or greater.

Figure 9: Realized U.S. equity market returns (1926-2022) [33]



Q. DID YOU CONSIDER ANOTHER FORM OF THE CAPM IN YOUR ANALYSIS?

A. Yes, I did. I have also considered the results of an ECAPM in estimating the cost of equity for OTP.[34] 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:

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

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

[34] *See, e.g.*, Morin, Roger A. New Regulatory Finance. Public Utilities Reports, Inc., 2006, at 189.

Where:

k_e = the required market ROE;

β = Adjusted beta coefficient of an individual security;

rf = the risk-free rate of return; and

r_m = the required return on the market as a whole.

In essence, the ECAPM 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, but 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.[35]

Consistent with my CAPM, my application of the ECAPM uses the same three yields on the 30-year Treasury bonds as the risk-free rate, forward-looking market risk premium estimates, and beta coefficients.

Q. WHAT ARE THE RESULTS OF YOUR CAPM AND ECAPM ANALYSES?

A. As shown in Figure 10 (*see* also Exhibit___(AEB-1), Schedule 5), my traditional CAPM analysis produces a range of returns from 10.46 percent to 11.66 percent, and the ECAPM analysis results range from 11.03 percent to 11.92 percent.

[35] *Id*. at 191.

Figure 10: CAPM and ECAPM Results

	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
CAPM			
Value Line Beta	11.66%	11.65%	11.64%
Bloomberg Beta	10.90%	10.89%	10.87%
Long-term Avg. Beta	10.49%	10.49%	10.46%
ECAPM			
Value Line Beta	11.92%	11.92%	11.91%
Bloomberg Beta	11.35%	11.35%	11.33%
Long-term Avg. Beta	11.05%	11.04%	11.03%

D. Bond Yield Plus Risk Premium Analysis

Q. PLEASE DESCRIBE THE BOND YIELD PLUS RISK PREMIUM APPROACH.

A. 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 bondholders. 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.

Q. ARE THERE OTHER CONSIDERATIONS THAT SHOULD BE ADDRESSED IN CONDUCTING THIS ANALYSIS?

A. 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.[36]

Q. IS THE BOND YIELD PLUS RISK PREMIUM ANALYSIS RELEVANT TO INVESTORS?

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

Q. WHAT DID YOUR BOND YIELD PLUS RISK PREMIUM ANALYSIS REVEAL?

A. As shown in Figure 11, from 1992 through July 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:

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

Where:

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

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[36] *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.

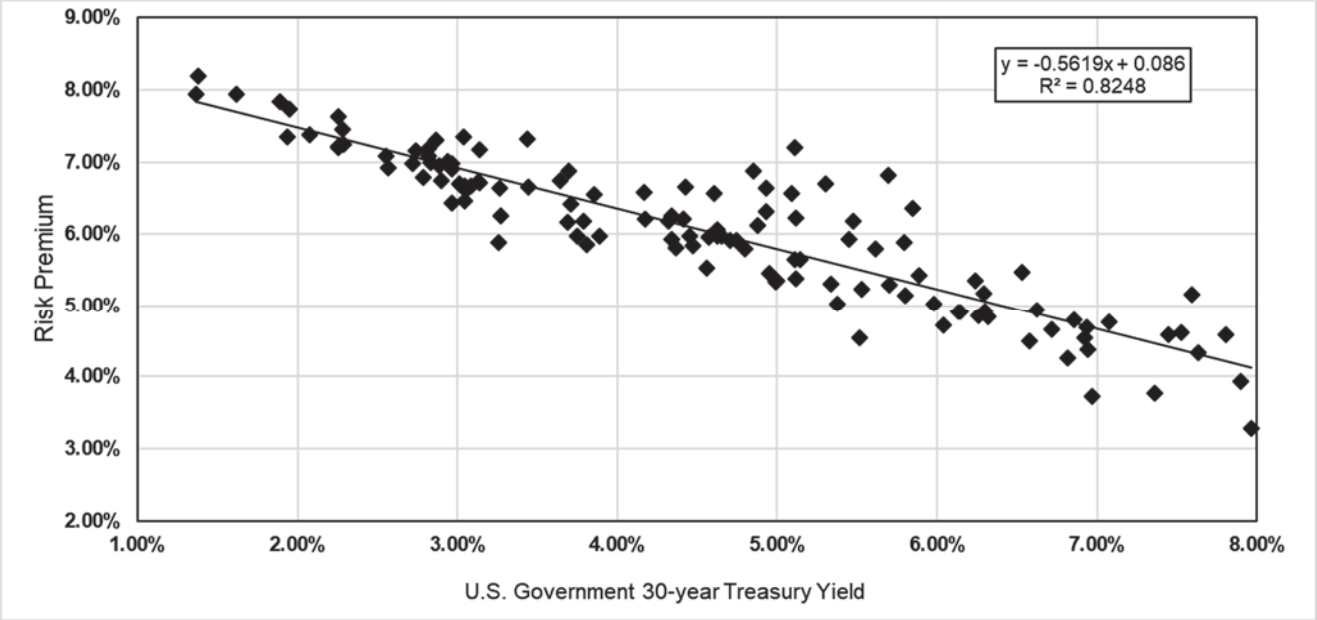
a = intercept term

b = slope term

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

Data regarding allowed ROEs were derived from all vertically integrated electric rate cases from 1992 through July 2023 as reported by Regulatory Research Associates (RRA).[37] This equation's coefficients were statistically significant at the 99.00 percent level.

Figure 11: Risk Premium Regression Analysis



As shown on Exhibit___(AEB-1), Schedule 8, based on the current 30-day average of the 30-year Treasury bond yield (*i.e.*, 3.92 percent), the risk premium would be 6.40 percent, resulting in an estimated cost of equity of 10.32 percent. Based on the consensus estimate of the near-term (*i.e.*, Q4/2023 – Q4/2024) projected 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. Based on a

[37] This analysis began with over 1,400 cases and was screened to eliminate limited issue rider cases, transmission-only cases, distribution-only cases and cases that were silent with respect to the authorized ROE. After applying those screening criteria, the analysis was based on data from over 700 cases.

consensus estimate of the longer-term (*i.e.*, 2025 – 2029) projection of the 30-year Treasury bond yield (*i.e.*, 3.80 percent), the risk premium would be 6.47 percent, resulting in an estimated cost of equity of 10.27 percent.

Q. HOW DID THE RESULTS OF THE BOND YIELD RISK PREMIUM INFORM YOUR RECOMMENDED ROE FOR OTP?

A. I have considered the results of the Bond Yield Risk Premium analysis in my recommended ROE for OTP. 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.

VIII. REGULATORY AND BUSINESS RISK

Q. TAKEN ALONE, DO THE RESULTS FROM THE COST OF EQUITY ESTIMATION MODELS FOR THE PROXY GROUP PROVIDE AN APPROPRIATE ESTIMATE OF THE COST OF EQUITY FOR THE COMPANY?

A. 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. Small Size

Q. DO SMALLER SIZE FIRMS, INCLUDING UTILITIES, FACE HIGHER RISKS?

A. Yes. Both the financial and academic communities have long accepted the proposition that the cost of equity for small firms is subject to a "size effect." While empirical evidence of the size effect often is based on studies of industries other than regulated utilities, utility analysts also have noted the risk associated with small market capitalizations. Specifically, an analyst for Ibbotson Associates noted:

> For small utilities, investors face additional obstacles, such as a smaller customer base, limited financial resources, and a lack of diversification across customers, energy sources, and geography. These obstacles imply a higher investor return.[38]

Q. HOW DOES THE SMALLER SIZE OF A UTILITY AFFECT ITS BUSINESS RISK?

A. In general, smaller companies are less able to withstand adverse events that affect their revenues and expenses. The impact of weather variability, the loss of large customers to bypass opportunities, the destruction of demand as a result of general macroeconomic conditions, or fuel price volatility will have a proportionately greater impact on the earnings and cash flow volatility of smaller utilities. Similarly, capital expenditures for non-revenue producing investments, such as system maintenance and replacements, will put proportionately greater pressure on customer costs, potentially leading to customer attrition or demand reduction. Taken together, these risks affect the return required by investors for smaller companies.

Q. HOW DO OTP'S ELECTRIC OPERATIONS IN NORTH DAKOTA COMPARE IN SIZE TO THE PROXY GROUP COMPANIES?

A. Comparing the market capitalization of OTTR and the implied market capitalization of OTP to the proxy group demonstrates that both the holding company and the electric service operations of OTP in North Dakota are substantially smaller than the median of the proxy group. Exhibit No.____(AEB-1), Schedule 9 provides the actual market capitalization for the proxy group companies and OTTR and estimates the implied market capitalization for OTP (i.e., the implied market capitalization if OTP's electric service operations in North

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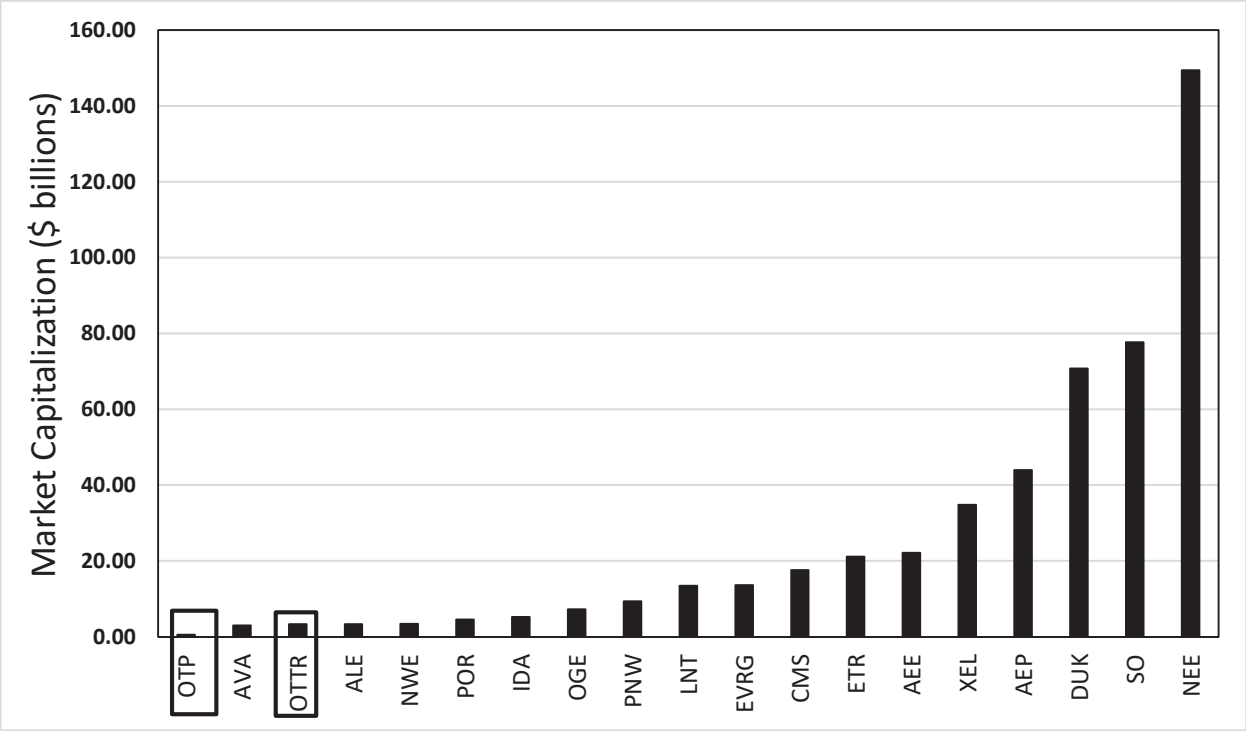
38 Annin, Michael. "Equity and the Small-Stock Effect." Public Utilities Fortnightly, October 15, 1995.

Dakota were a stand-alone publicly-traded entity).[39] Figure 12 below shows that the implied market capitalization for OTP is the lowest, and far below, any of the proxy group companies.

Figure 12: Market Capitalization of the Proxy Group Companies and OTTR[40]



Q. DID YOU ESTIMATE A SMALL SIZE RISK PREMIUM FOR OTP?

A. Yes. Given this relative size information, it is possible to estimate the impact of size on the cost of equity for the Company using *Kroll* Cost of Capital Navigator data that estimates the stock risk premia based on the size of a company's market capitalization.[41] As shown in Exhibit No.___(AEB-1), Schedule 9, the median market capitalization of the proxy group is approximately $13.64 billion, which

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39 To estimate the size of the Company's implied market capitalization relative to the proxy group, I first calculated the implied equity balance of OTP's capital structure by multiplying the Company's test year rate base by the Company's proposed common equity ratio of 53.50 percent. I then applied the median market-to-book ratio for the proxy group of 1.66 to the Company's implied common equity balance to estimate an implied market capitalization, which is approximately $586.65 million, or approximately 4.30 percent of the median market capitalization for the proxy group.

40 Exhibit___(AEB-1), Schedule 9.

41 *Kroll* Cost of Capital Navigator – Size Premium; annual data as of December 31, 2022.

corresponds to the second decile of *Kroll's* market capitalization data.[42] Based on *Kroll's* analysis, that decile corresponds to a size premium of 0.45 percent (*i.e.*, 45 basis points). In comparison, OTP's implied market capitalization of approximately 586.65 million falls within the eighth decile, which corresponds to a size premium of 1.18 percent (*i.e.*, 118 basis points). The difference between the size premium for the Company and the size premium for the proxy group is 73 basis points (*i.e.*, 118 percent minus 0.45 percent).

Q. WERE UTILITY COMPANIES INCLUDED IN *KROLL'S* SMALL SIZE RISK PREMIUM STUDY?

A. Yes. As shown in Exhibit 7.2 of the *Kroll* (formerly *Duff & Phelps*) 2019 Valuation Handbook, OGE Energy Corp. had the largest market capitalization of the companies contained in the fourth decile, which indicates that *Kroll* has included utility companies in its size risk premium study.[43]

Q. IS THE SIZE PREMIUM APPLICABLE TO COMPANIES IN REGULATED INDUSTRIES?

A. Yes. For example, Zepp (2003) provided the results of two studies that showed evidence of the required risk premium for small water utilities. The first study, which was conducted by the Staff of the California Public Utilities Commission, computed proxies for beta risk using accounting data from 1981 through 1991 for 58 water utilities and concluded that smaller water utilities had greater risk and required higher returns on equity than larger water utilities.[44] The second study examined the differences in required returns over the period of 1987 through 1997 for two large and two small water utilities in California. As Zepp (2003) showed,

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42 *Id.*

43 Kroll. Valuation Handbook: Guide to Cost of Capital. 2019, Exhibit 7.2.

44 Zepp, Thomas M. "Utility Stocks and the Size Effect—Revisited." The Quarterly Review of Economics and Finance, Vol. 43, No. 3, 2003, at 578–582.

the required return for the two small water utilities calculated using the DCF model was on average 99 basis points higher than the two larger water utilities.[45]

Additionally, Chrétien and Coggins (2011) studied the CAPM and its ability to estimate the risk premium for the utility industry, and in particular subgroups of utilities.[46] The article considered the CAPM, the Fama-French three-factor model, and a model similar to the ECAPM, which as previously discussed, I have also considered in estimating the cost of equity for the Company. In the study, the Fama-French three-factor model explicitly included an adjustment to the CAPM for risk associated with size. As Chrétien and Coggins (2011) show, the beta coefficient on the size variable for the U.S. natural gas utility group was positive and statistically significant indicating that small size risk was relevant for regulated natural gas utilities.[47]

Q. HAVE REGULATORS IN OTHER JURISDICTIONS MADE A SPECIFIC RISK ADJUSTMENT TO THE COST OF EQUITY RESULTS BASED ON A COMPANY'S SMALL SIZE?

A. Yes. In Order No. 15, the Regulatory Commission of Alaska (RCA) concluded that Alaska Electric Light and Power Company (AEL&P) was riskier than the proxy group companies due to small size as well as other business risks. The RCA did "not believe that adopting the upper end of the range of ROE analyses in this case, without an explicit adjustment, would adequately compensate AEL&P for its greater risk."[48] Thus, the RCA awarded AEL&P an ROE of 12.875 percent, which was 108 basis points above the highest cost of equity estimate from any model

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45 *Id.*

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

47 *Id.*

48 Regulatory Commission of Alaska, Docket No. U-10-29, Order No. 15, September 2, 2011, at 37.

presented in the case.[49] Similarly, the RCA has also noted that small size, as well as other business risks such as structural regulatory lag, weather risk, alternative rate mechanisms, gas supply risk, geographic isolation and economic conditions, increased the risk of ENSTAR Natural Gas Company.[50] Ultimately, the RCA concluded that:

> Although we agree that the risk factors identified by ENSTAR increase its risk, we do not attempt to quantify the amount of that increase. Rather, we take the factors into consideration when evaluating the remainder of the record and the recommendations presented by the parties. After applying our reasoned judgment to the record, we find that 11.875% represents a fair ROE for ENSTAR.[51]

Additionally, the Minnesota Public Utilities Commission (Minnesota PUC) authorized an ROE for OTP above the mean DCF results as a result of multiple factors, including OTP's small size. The Minnesota PUC stated:

> The record in this case establishes a compelling basis for selecting an ROE above the mean average within the DCF range, given Otter Tail's unique characteristics and circumstances relative to other utilities in the proxy group. These factors include the company's relatively smaller size, geographically diffuse customer base, and the scope of the Company's planned infrastructure investments.[52]

Finally, in Opinion Nos. 569 and 569-A, the Federal Energy Regulatory Commission (FERC) adopted a size premium adjustment in its CAPM estimates for electric utilities. In those decisions, the FERC noted that "the size adjustment

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49 *Id.*, at 32 and 37.

50 Regulatory Commission of Alaska, Docket No. U-16-066, Order No. 19, September 22, 2017, at 50-52.

51 *Id.*

52 Minnesota Public Utilities Commission, Docket No. E017/GR-15-1033, Order, August 16, 2016, at 55.

was necessary to correct for the CAPM's inability to fully account for the impact of firm size when determining the cost of equity."[53]

Q. HOW HAVE YOU CONSIDERED THE SMALLER SIZE OF OTP IN YOUR RECOMMENDATION OF THE COMPANY'S ROE IN THIS PROCEEDING?

A. While I have estimated the effect of the Company's small size on the cost of equity, I am not proposing a specific adjustment for this risk factor. Rather, I believe it is important to consider the small size of the Company's electric operations in North Dakota in the determination of where, within the range of analytical results, the Company's required cost of equity falls. All else equal, the additional risk associated with the Company's small size supports an ROE toward the upper end of the range of results from the cost of equity estimation models.

B. Trading Volumes

Q. WHAT IS TRADING VOLUME AND WHAT EFFECT DOES A COMPANY'S TRADING VOLUME HAVE ON A LARGE INVESTOR'S ABILITY TO SELL A STAKE IN THE COMPANY?

A. Trading volume in this case refers to the number of publicly traded shares of a company. Institutional investors[54] often hold a large volume of shares in each investment. A smaller company (such as OTTR) often has a lower number of shares outstanding and fewer shares traded than larger firms. Institutional ownership of stock in a smaller company may limit the investor's ability to sell its shares without affecting the market price of the company, which presents a liquidity risk. Thus,

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53 *Ass'n. of Businesses Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, 171 FERC ¶ 61,154 (2020), at ¶ 75. The U.S. Court of Appeals recently vacated FERC Order No. 569 decisions that related to its risk premium model and remanded the case to FERC to reopen the proceedings. However, in its decision, the Court did not reject FERC's inclusion of the size premium to estimate the CAPM. (*See*, United States Court of Appeals Case No. 16-1325, Decision No. 16-1325, August 9, 2022, at 20).

54 Institutional ownership refers to the degree to which a company's common stock is held by large financial institutions, endowments, insurance companies, and mutual funds.

investors in companies with lower trading volume typically require a higher expected return as compensation for the liquidity risk.[55]

Q. HOW DO OTTER TAIL CORPORATION'S DAILY TRADING VOLUMES COMPARE TO OTHER UTILITIES IN THE PROXY GROUP?

A. The daily trading volumes of OTTR are far below those of the proxy group, as shown below in Figure 13. OTTR ranges between 7-10 percent that of total share volumes traded for the proxy group, or between 53-78 percent by volume as a proportion of outstanding shares, over a number of periods. Further, while OTTR was added to the S&P SmallCap 600 Index on February 23, 2023 (announced on February 16, 2023)[56], for the 30-day and 90-day averages (i.e., representative of the time period after OTTR was added to the S&P SmallCap 600 Index), OTTR is approximately 9 percent that of total share volumes traded for the proxy group, or between 66-74 percent by volume as a proportion of outstanding shares. As a result, despite the addition to the S&P SmallCap 600, OTTR's daily trading volumes are still far below those of the proxy group.

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[55] Liquidity risk is defined as a financial risk associated with the inability to trade a financial asset quickly enough in the market without adversely impacting the asset's market price. An illiquid asset is one held long term, such as a home, while a liquid asset is one that can be quickly traded without a significant value loss, such as marketable securities.

[56] S&P Global, "UFP Industries Set to Join S&P MidCap 400; Otter Tail to Join S&P SmallCap 600," February 16, 2023.

Figure 13: Trading Volume Analysis[57]

Average Since	OTTR/Proxy Group	
	By Volume	By Volume As % of Shares Outs.
30-Day Avg.	9%	66%
90-day Avg.	9%	74%
180-day Avg.	9%	74%
2023 YTD	10%	78%
Jan 2022 - Present	9%	70%
Jan 2021 - Present	8%	62%
Jan 2020 - Present	7%	58%
Jan 2019 - Present	7%	53%

Q. WHAT IS YOUR CONCLUSION REGARDING THE TRADING VOLUME ANALYSIS?

A. OTTR has very low trading volume relative to the proxy group. As a result, the trading volume disparity between OTTR and the proxy group indicate illiquidity with regard to OTTR shares, underscoring a higher cost of equity for OTTR and its subsidiary OTP.

C. Institutional Ownership

Q. WHAT IS "INSTITUTIONAL OWNERSHIP" AND HOW DOES IT RELATE TO COMMON EQUITY?

A. Institutional ownership refers to the degree to which a company's common stock is held by large financial institutions, endowments, insurance companies, and mutual funds. This differs from "retail ownership," which refers to common stock ownership by individual investors. Institutional investors typically have more resources and access to in-depth research than do retail owners, and thus, often take larger positions in a company's stock. Companies benefit from institutional

[57] Source: S&P Capital IQ Pro. See also Exhibit___(AEB-1), Schedule 10. Daily Average Volumes for OTTR excludes 2/17/2023 through 2/23/2023. The addition of OTTR to the S&P SmallCap 600 caused a brief significant increase trading volumes for OTTR between 2/17/2023 and 2/23/2023 that is not representative of the normal trading volume for OTTR.

investors as an important source of additional demand for a company's equity and as an efficient source of equity capital. Companies with lower levels of institutional ownership are at a disadvantage, lacking access to efficient capital.

Q. HOW DOES OTTR COMPARE TO THE PROXY GROUP IN TERMS OF INSTITUTIONAL OWNERSHIP?

A. As shown on Exhibit___(AEB-1), Schedule 11, as of September 14, 2023, approximately 60.74 percent of OTTR's common equity stock is held by institutional investors, compared to 81.71 percent for the proxy group average. OTTR's institutional ownership is also lower than every company included in the proxy group.

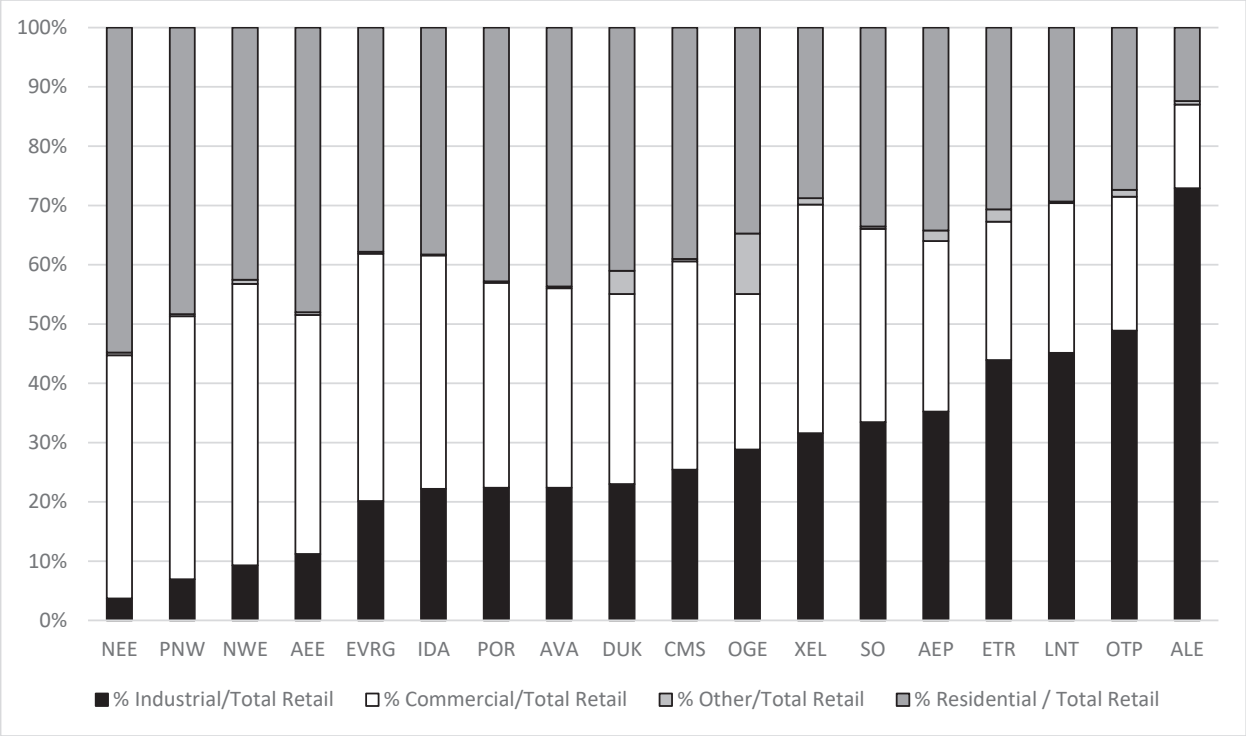
D. Customer Concentration

Q. PLEASE SUMMARIZE OTP'S CUSTOMER CONCENTRATION RISK.

A. OTP serves approximately 59,000 customers in North Dakota, all in the eastern portion of the State. As shown below in Figure 14, 48.89 percent of OTP's electric sales were derived from industrial load. Based on 2022 data, OTP's combined industrial and commercial sales are the second highest of the companies in the proxy group.[58]

[58] Does not include "other" commercial or residential customers.

Figure 14: Customer Concentration – 2022 Sales[59]



Q. HOW DOES CUSTOMER CONCENTRATION AND THE COMPANY'S SERVICE TERRITORY AFFECT BUSINESS RISK?

A. An extremely high concentration of industrial and large commercial customers results in higher business risk. Since the customers are large, they can represent a significant portion of a company's sales, which could be lost if a customer goes out of business or otherwise stops taking service from the utility. As noted by Dhaliwal, Judd, Serfling and Shaikh in their article, *Customer Concentration Risk and the Cost of Equity Capital,* there can be significant risks related to a single customer representing a large portion of sales:

> Depending on a major customer for a large portion of sales can be risky for a supplier for two primary reasons. First, a supplier faces the risk of losing substantial future sales if a major customer becomes financially distressed or declares bankruptcy, switches to a different supplier, or decides to develop products internally.

[59] Source: S&P Global Market Intelligence (FERC Form 1) and Otter Tail Power Company, 2023 Annual Report, North Dakota Public Service Commission Case No. PU-23-249, June 27, 2023 at 7. Other sales includes: Total Public Street and Highway Lighting, Other Sales to Public Authorities, Sales to Railroad and Railways, and Interdepartmental Sales.

> Consistent with this notion, Hertzel et al. (2008) and Kolay et al. (2015) document negative supplier abnormal stock returns to the announcement that a major customer declares bankruptcy. Further, a customer's weak financial condition or actions could signal inherent problems about the supplier's viability to its remaining customers and lead to compounding losses in sales. Second, a supplier faces the risk of losing anticipated cash flows from being unable to collect outstanding receivables if the customer goes bankrupt. This assertion is consistent with the finding that suppliers offering customers more trade credit experience larger negative abnormal stock returns around the announcement of a customer filing for Chapter 11 bankruptcy (Jorion and Zhang, 2009; Kolay et al., 2015).[60]

Therefore, a company that has a high degree of customer concentration will be inherently riskier than a company that derived income from a larger customer base. Furthermore, as Dhaliwal, Judd, Serfling and Shaik detail in the article, the increased risk associated with a more concentrated customer base will have the effect of increasing a company's cost of equity.[61]

Q. DO YOU EXPECT OTP'S CUSTOMER CONCENTRATION TO INCREASE?

A. Yes. The portion of OTP's sales derived from industrial and large commercial customers is likely to exceed 2022 levels. As explained by Company witness Ms. Amber M. Stalboerger, OTP began serving a large data processing customer in 2022, with the customer only operating at full capacity starting in late August of 2022. In fact, OTP is projecting to derive approximately 56 percent of total sales from industrial and large commercial customers for the 2024 Test Year, with the data processing customer accounting for approximately **[PROTECTED DATA BEGINS… … PROTECTED DATA ENDS]** percent of total 2024 Test Year sales.

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[60] Dhaliwal, Dan S., J. Scott Judd, Matthew A. Serfling, and Sarah Shaikh. "Customer Concentration Risk and the Cost of Equity Capital." SSRN Electronic Journal (2016): 1-2. Web.

[61] *Id.,* at 4.

Q. WHAT ASPECTS OF CUSTOMER CONCENTRATION SHOULD BE CONSIDERED IN THE ASSESSMENT OF OTP'S BUSINESS RISK RELATIVE TO THE COMPANIES IN THE PROXY GROUP?

A. There are two: (1) a disproportionately large, single customer; and (2) industry concentration.

Q. DOES OTP RELY ON A SINGLE LARGE CUSTOMER FOR A SIGNIFICANT PORTION OF SALES IN NORTH DAKOTA?

Yes. OTP is unique in that unlike most electric and natural gas utilities, the Company is dependent on a single customer for a large portion of its electric sales in North Dakota. And that customer has some unique attributes. For example, its operations are highly energy intensive - electricity comprises approximately 5 percent of a typical large customer's variable costs; for the data processing customer electricity comprises more than 15 times that proportion of variable costs.[62] The customer therefore is very sensitive to changes in power costs. Given the relatively low capital investment associated with its business the customer could move to another location where power costs are lower or could install onsite generation. In fact, in its 2022 Form 10-K, the customer noted vertically integrated power assets were a part of its growth strategy.[63]

The customer also provides services to customers in the cryptomining business,[64] a relatively new and extremely volatile industry.[65] The customer has identified its significant concentration of cryptomining customers as a risk factor to its business.[66] These two factors ((1) the customer's extremely high energy

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62 NDPSC Case No. 21-366, Application of Otter Tail Power Company for Confirmation of Compliance with and Approval of Electric Service Request under Otter Tail Power Company Rate Schedule 10.06 at 1 (Aug. 9, 2021).

63 Applied Digital Corporation, 2022 Form 10-K, *a*t 7.

64 Applied Digital Corporation, 2022 Form 10-K, at 5.

65 Powell, Tyler. "Utility Companies Face Credit Risk from Bankruptcies of Crypto Miners", February 24, 2023.

66 Applied Digital Corporation, 2022 Form 10-K, at 13.

dependence and sensitivity to energy prices; and (2) underlying volatility to the economic prospects of its customers) increase the risk OTP could see a sudden and significant decrease in load.

Q. ARE OTP'S REMAINING COMMERCIAL AND INDUSTRIAL CUSTOMERS CONCENTRATED IN CERTAIN INDUSTRIES?

A. Yes. A large portion of OTP's electric sales were to industrial customers that operate in the agricultural industry. Moreover, since the economy within and around OTP's service territories are reliant on the agricultural industry, OTP's commercial and residential customers also rely on the industry for sales and employment. For example, agricultural production in North Dakota accounts for 24.2 percent of the state GDP and 20.6 percent of state labor income, a majority of which is concentrated in crop production, processing, and handling.[67] Therefore, fluctuations in the business cycle, commodity prices, and ongoing trade disputes between the U.S. and China could adversely impact economic conditions in OTP's service territory. This could result in a reduction in sales to industrial customers. Further, if agricultural customers reduce output due to weak economic conditions, the effect would be compounded by a decline in local employment, which would also reduce electric sales to OTP's residential and commercial customers.

Q. HOW WOULD OTP'S PROPOSED SALES RIDER AFFECT THE COMPANY'S CUSTOMER CONCENTRATION RISK?

A. As explained by Company witness Ms. Amber M. Stalboerger, OTP's proposed sales rider would mitigate the risk associated with volatility in industrial and large commercial customer sales by either recovering or crediting the difference between the revenue requirement approved in this proceeding for the 2024 test year (i.e.,

[67] North Dakota Agriculture Industry, Economic Contribution Analysis, *NDSU Agribusiness and Applied Economics Report No. 816-S*, December 2022.

2024 Sales Rider Baseline Jurisdictional Cost of Service Study (JCOSS))[68] and the actual revenue requirement for each subsequent year (*i.e.*, Comparison JCOSS). The Comparison JCOSS would be developed by adjusting the 2024 Sales Rider Baseline JCOSS to reflect changes in actual sales, jurisdictional allocation factors, and base revenue from the calendar year. Variances would then be either credited or collected from customers in the subsequent year. In essence, the sales rider would allow the Company to account for the level of base revenues approved by the Commission in this proceeding by recovering(crediting) all variances under(over) that level from(to) customers.

Q. HOW WOULD THE PROPOSED SALES RIDER ADDRESS THE COMPANY'S CUSTOMER CONCENTRATION RISK AS COMPARED TO THE PROXY GROUP?

A. OTP's proposed sales rider would reduce the impact of customer concentration risk of the Company by recovering(crediting) variances between 2024 test year revenue and actual revenue from(to) customers. As shown in Exhibit___(AEB-1), Schedule 13 and discussed in more detail below, approximately 60 percent of the operating companies held by the proxy group have some form of non-volumetric rate design through either revenue decoupling, formula rates or straight fixed-variable rate design which mitigate the customer concentration and electric sales variability risk. Since the proxy group companies have already implemented similar risk mitigation measures for loads that are typically less concentrated than OTP's, OTP would not have less risk than the benchmark group if the Company's proposed sales rider was approved. Conversely, to the extent that OTP is not granted its proposed sales rider in this rate case, the Company's risk would be substantially elevated, relative to the proxy group.

[68] The 2024 Sales Rider Baseline JCOSS excludes 2024 tear year riders costs and revenues.

Q. WHAT IS YOUR CONCLUSION REGARDING OTP'S CUSTOMER CONCENTRATION RISK AND ITS EFFECT ON THE COST OF EQUITY?

A. OTP is heavily reliant on sales to industrial and large commercial customers. As noted above, in 2022, 48.89 percent of OTP's electric sales by volume were to industrial customers. This concentration is higher than all of the proxy group companies, except one, and expected to increase in 2024. In addition, a large share of OTP's electric retail sales are to one customer. A high degree of customer concentration increases OTP's risk related to competition from alternative energy sources and economic conditions. Increased customer diversity decreases the effect that any one customer can have on a company's sales. Therefore, the risk of eroding revenue resulting from customer concentration is higher for OTP than the proxy group companies on average.

OTP has proposed a sales rider to mitigate the risk posed by customer concentration. When considering the relative risk of the Company and the proxy group, it is important to recognize that most of the companies in the proxy group have some form of a mechanism to mitigate electric sales risk. Therefore, adopting a sales rider will result in volumetric risk for the Company that is similar to the volumetric risk faced by the proxy group companies.

Absent the implementation of the sales rider, OTP has significant risk related to its high concentration of sales in a small number of customers, which is greater than the risk faced by the proxy group companies on average, the majority of which have some form of non-volumetric rate design. If the Company's proposed sales rider were not approved, then the Company is at much higher overall risk than the proxy group companies, and I would recommend that the authorized ROE for OTP be placed at the very high-end of my recommended ROE range.

E. Capital Expenditures

Q. PLEASE SUMMARIZE THE COMPANY'S CAPITAL EXPENDITURE REQUIREMENTS.

A. As of December 31, 2022, OTP had net utility plant in Minnesota, North Dakota and South Dakota of approximately $2.098 billion, and the Company currently projects capital expenditures for 2024 through 2027 of approximately $888 million.[69] Therefore, the Company's projected capital expenditures represent approximately 42.33 percent of its net utility plant as of December 31, 2022.

Q. HOW IS THE COMPANY'S RISK PROFILE AFFECTED BY ITS SUBSTANTIAL CAPITAL EXPENDITURE REQUIREMENTS?

A. As with any utility faced with substantial capital expenditure requirements, the Company'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.

Q. DO CREDIT RATING AGENCIES RECOGNIZE THE RISKS ASSOCIATED WITH ELEVATED LEVELS OF CAPITAL EXPENDITURES?

A. 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

[69] Otter Tail Corporation Second Quarter Earnings Conference Call Presentation at 36 (Aug. 1, 2023).

> 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.[70]

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

Q. HOW DO OTP'S CAPITAL EXPENDITURE REQUIREMENTS COMPARE TO THOSE OF THE PROXY GROUP COMPANIES?

A. As shown in Exhibit___(AEB-1), Schedule 12, I calculated the ratio of expected capital expenditures to net utility plant for OTP 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 therein OTP's ratio of capital expenditures as a percentage of net utility plant is in line with the median for the proxy group.

Q. DOES OTP HAVE THE ABILITY TO RECOVER CERTAIN CAPITAL EXPENDITURES BETWEEN RATE CASES?

A. Yes. OTP has an opportunity to recover certain capital expenditures through its Generation Cost Recovery Rider (GCR), Transmission Cost Recovery Rider (TCR), Advanced Meter Distribution Technology Cost Recovery Rider (AMDT), Renewable Resource Rider (RRR), and Environmental Cost Recovery Rider (ECR). These tracking mechanisms allow for recovery of certain costs in between rate cases for costs related to new generation facilities, new transmission facilities, advanced metering and outage management infrastructure, investment in new renewable energy projects, and investment in environmental improvement projects.

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

Q. DOES THE AVAILABILITY OF THESE RIDERS JUSTIFY ADJUSTING THE ROE AUTHORIZED IN THIS CASE?

A. No. The cost of equity 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. Accordingly, although OTP's use of the capital tracking mechanisms may reduce its own risk, the appropriate point of comparison is whether those tracking mechanisms are reducing risk relative to the proxy group, which I discuss below.

Q. HOW DOES THE EXISTENCE OF THESE TRACKERS COMPARE WITH THE CAPITAL INVESTMENT AND OTHER TRACKERS THAT HAVE BEEN IMPLEMENTED BY THE PROXY COMPANIES?

A. As shown in Exhibit___(AEB-1), Schedule 13, 56 out of 83 (or approximately 67 percent) of the operating companies held by the proxy group recover costs through capital tracking mechanisms. So, while OTP's capital tracking mechanisms are a positive aspect of North Dakota regulation, as shown in Exhibit___(AEB-1), Schedule 13, such clauses have become commonplace in utility regulation. As a result, OTP's capital tracking mechanisms do not reduce the Company's risk vis-à-vis that of the proxy group.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE EFFECT OF OTP'S CAPITAL SPENDING REQUIREMENTS ON ITS RISK PROFILE AND COST OF CAPITAL?

A. The Company's capital expenditure requirements as a percentage of net utility plant are significant and will continue over the next few years. Additionally, similar to a number of the operating subsidiaries of the proxy group, OTP can recover some portion of the Company's projected capital expenditures through capital tracking mechanisms. Therefore, I conclude that, the Company's risk profile regarding capital expenditures is consistent with that of the proxy group.

F. Regulatory Risk

Q. PLEASE EXPLAIN HOW THE REGULATORY ENVIRONMENT AFFECTS INVESTORS' RISK ASSESSMENTS.

A. The ratemaking process is premised on the principle that, for investors and companies to commit the capital needed to provide safe and reliable utility service, the subject utility must have a reasonable opportunity to recover the return of, and the market-required return on, invested capital. Regulatory authorities recognize that because utility operations are capital intensive, regulatory decisions should enable the utility to attract capital at reasonable terms, and doing so balances the long-term interests of investors and customers. To achieve this balance, the Company must be able to finance its operations assuming a reasonable opportunity to earn an appropriate return on invested capital to maintain an acceptable financial profile. In that respect, the regulatory environment is one of the most important factors considered in both debt and equity investors' risk assessments.

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

In addition, equity investors require that the authorized return be adequate to provide a risk-comparable return on the equity portion of the utility's capital

investments. Because equity investors are the residual claimants on the utility's cash flows (which is to say that the equity return is subordinate to interest payments), they are particularly concerned with the strength of regulatory support and its effect on future cash flows.

Q. HOW DO CREDIT RATING AGENCIES CONSIDER REGULATORY RISK IN ESTABLISHING A COMPANY'S CREDIT RATING?

A. 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.[71]

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."[72] 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.[73]

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

72 Standard & Poor's Global Ratings. Ratings Direct. "Assessing U.S. Investor-Owned Utility Regulatory Environments." August 10, 2016, at 2.

73 *Id.*

Q. HOW DOES THE REGULATORY ENVIRONMENT IN WHICH A UTILITY OPERATES AFFECT ITS ACCESS TO AND COST OF CAPITAL?

A. 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."[74] 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."[75]

Q. HAVE YOU CONDUCTED ANY ANALYSIS OF THE REGULATORY FRAMEWORK IN NORTH DAKOTA RELATIVE TO THE JURISDICTIONS IN WHICH THE COMPANIES IN YOUR PROXY GROUP OPERATE?

A. Yes. I have evaluated the regulatory framework in North Dakota on three factors that are important in terms of providing a regulated utility a reasonable 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 provide revenue stabilization; and (3) the prevalence of capital cost recovery between rate cases. The results of this regulatory risk assessment are shown in Exhibit___(AEB-1), Schedule 13 and are summarized below.

Test Year Convention: OTP is proposing a forecasted test year. As shown in Exhibit___(AEB-1), Schedule 13, approximately 45 percent of the utility

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

75 *Id.*

operating subsidiaries of the companies in the proxy group also have partially or fully forecast test years.

Volumetric Risk: OTP does not currently have protection against volumetric risk through a revenue decoupling mechanism, formula-based rate, or a straight fixed-variable rate design. Although the Company is requesting a sales rider in this proceeding to mitigate the effect of volumetric risk, approximately 60 percent of the utility operating subsidiaries of the proxy group companies have some form of non-volumetric rate design that allow them to break the link between customer usage and revenues.

Capital Cost Recovery: OTP does have the opportunity to recover certain capital expenditures through capital tracking mechanisms. Similarly, approximately 67 percent of the utility operating subsidiaries of the proxy group companies have some form of capital cost recovery mechanism in place.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE PERCEIVED RISKS RELATED TO THE NORTH DAKOTA REGULATORY ENVIRONMENT?

A. 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, similar to OTP, many of the companies in the proxy group have timely cost recovery through forecasted test years, cost recovery trackers and revenue stabilization mechanisms. As a result, I conclude, that if the Company's proposed sales rider were approved, OTP's regulatory risk would be similar to that of the proxy group.

Finally, while my analysis assumes that the Company's proposed sales rider will be approved, the volumetric risk of OTP would increase substantially if the Commission does not approve the Company's proposal. Thus, if the sales rider is

not approved, then the authorized ROE for OTP should be placed at the very high-end of my recommended ROE range.

G. Flotation Costs

Q. WHAT ARE FLOTATION COSTS?

A. 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.

Q. WHY IS IT IMPORTANT TO CONSIDER FLOTATION COSTS IN THE ALLOWED ROE?

A. 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.

Q. ARE FLOTATION COSTS PART OF THE UTILITY'S INVESTED COSTS OR PART OF THE UTILITY'S EXPENSES?

A. 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.

Q. PLEASE PROVIDE AN EXAMPLE OF WHY A FLOTATION COST ADJUSTMENT IS NECESSARY TO COMPENSATE INVESTORS FOR THE CAPITAL THEY HAVE INVESTED.

A. Suppose OTTR, the parent company of OTP, issues stock with a value of $100, and an equity investor invests $100 in OTTR 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, OTTR ends up with only $97 of net issuance proceeds rather than the $100 the investor contributed. OTTR 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.

Q. IS THE DATE OF OTTR'S LAST ISSUANCE OF COMMON EQUITY IMPORTANT IN THE DETERMINATION OF FLOTATION COSTS?

A. No. As shown in Exhibit___(AEB-1), Schedule 14, OTTR has closed on several equity issuances over the past several years, including an approximately $36 million at-the-market (ATM) issuance in 2020.[76] However, it is important to recognize flotation costs for all equity issuances since these costs reduce the permanent capital structure of the company. Therefore, 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

[76] Issuance information provided by OTP.

in every year of the investment. As noted in my earlier example, the investor contributed $100, but due to flotation costs, OTTR only ends up with $97 to invest in rate base. Without the recognition of flotation costs, the investor will only earn a return on the $97 invested in rate base in year 1 as well as every subsequent year of the investment. Therefore, adjusting the ROE in year 1 to recognize flotation costs will only award the opportunity for the investor earn a return on her full investment in year 1 and then in year 2 and after the investor will still only earn a return on the $97 invested in rate base. As a result, the ROE should be adjusted for flotation costs in every year regardless of the vintage of the issuance because as long as the $100 is invested, the investor should have a reasonable opportunity to earn a return on the entire amount.

Q. IS THE NEED TO CONSIDER FLOTATION COSTS ELIMINATED BECAUSE OTP IS A WHOLLY OWNED SUBSIDIARY OF OTTR?

A. No, it is not. Although OTP is a wholly owned subsidiary of OTTR, it is appropriate to consider flotation costs. A wholly owned subsidiary receives equity capital from its parent and provides returns on the capital that rolls up to the parent, which is designated to attract and raise capital based upon the returns of its subsidiary, or 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 OTP because, as I previously discuss, it is planning significant capital expenditures over the next several years.

Q. IS THE NEED TO CONSIDER FLOTATION COSTS RECOGNIZED BY THE ACADEMIC AND FINANCIAL COMMUNITIES?

A. 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.[77]

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.[78]

Q. WHAT IS THE EFFECT OF FLOTATION COSTS ON OTP'S COST OF EQUITY?

A. My flotation cost calculation is based on the costs of issuing equity that were incurred by OTTR in each of the company's common equity issuances since 2004. As shown in Exhibit___(AEB-1), Schedule 14, based on the flotation costs of previous 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 14 basis points (*i.e.*, 0.14 percent) based on the mean.

Q. DO YOUR FINAL COST OF EQUITY MODEL RESULTS INCLUDE AN ADJUSTMENT FOR FLOTATION COST RECOVERY?

A. No, I did not make an explicit adjustment for flotation costs to any of the quantitative results of my cost of equity models. Rather, I considered the incremental cost associated with stock issuance as part of my overall

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

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

recommendations regarding the range of reasonable ROEs and ultimate recommended ROE.

IX. CAPITAL STRUCTURE

Q. IS THE CAPITAL STRUCTURE OF THE COMPANY AN IMPORTANT CONSIDERATION IN THE DETERMINATION OF THE APPROPRIATE ROE?

A. Yes. The equity ratio is the primary indicator of financial risk for a regulated utility such as OTP. 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 the claim of 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.

Q. WHAT IS OTP'S PROPOSED CAPITAL STRUCTURE?

A. The Company is proposing to establish a capital structure consisting of 53.50 percent common equity, 43.55 percent long-term debt, and 2.95 percent short-term debt.

Q. DID YOU CONDUCT ANY ANALYSIS TO DETERMINE IF THIS REQUESTED EQUITY RATIO WAS REASONABLE?

A. Yes. 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.

Q. PLEASE DISCUSS YOUR ANALYSIS OF THE CAPITAL STRUCTURES OF THE PROXY GROUP COMPANIES.

A. I calculated the average proportion of common equity, long-term debt, preferred equity and short-term debt for the most recent eight quarters for each of the companies in the proxy group at the operating subsidiary level. As shown on Exhibit___(AEB-1), Schedule 15, the average common equity ratio for the operating subsidiaries of the proxy group companies was 52.06 percent (within a range from 45.30 percent to 60.41 percent). Given that OTP's proposed equity ratio of 53.50 percent is well within the range of equity ratios for the utility operating subsidiaries of the proxy group companies, I consider its proposed equity ratio to be reasonable.

Q. ARE THERE OTHER FACTORS TO BE CONSIDERED IN SETTING THE COMPANY'S CAPITAL STRUCTURE?

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

For example, while Moody's recently revised its outlook for the utility sector from "negative" to "stable", Moody's continues to note that high interest rates and increased capital spending will place pressure on credit metrics. Thus, Moody's highlights constructive regulatory outcomes that promote timely cost recovery as a key factor in supporting utility credit quality.[79]

Fitch Ratings (Fitch) also highlights similar factors identified by Moody's as challenging utilities' outlook for 2023, stating that the sector faces mounting cost

[79] Moody's Investors Service, Outlook. "Outlook turns stable on low prices and credit-supportive regulation." September 7, 2023.

pressures due to "elevated commodity prices, inflationary headwinds and rising interest costs," and that some counterbalances/offsets against these headwinds include "higher authorized ROEs and the use of tools such as securitization of under-recovered fuel balances."[80]

Likewise, while S&P also recently revised its outlook for the industry from negative to stable, S&P continues to see significant risks over the near-term for the industry resulting from inflation and increased levels of capital spending. Specifically, S&P noted:

> Despite the improvement in economic data, we expect inflation, rising interest rates, higher capital spending, and the strategic decision by many companies to operate with only minimal financial cushion from their downgrade thresholds to continue to pressure the industry's credit quality. Throughout 2022 and so far in 2023, the Federal Reserve has consistently raised interest rates to reduce the pace of inflation. While these actions appear to have had a positive effect on slowing inflation, there's still been a modest weakening in the industry's financial measures because of inflation and rising interest rates. An environment of continuously rising costs tends to weaken the industry's financial measures because of the timing difference between when the higher costs are incurred and when they are ultimately recovered from ratepayers.[81]

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

Q. WHAT IS YOUR CONCLUSION REGARDING AN APPROPRIATE EQUITY RATIO FOR OTP?

A. 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 53.50 percent is reasonable. The proposed equity ratio is well within the range of equity

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

81 S&P Global Ratings. "The Outlook for North American Regulated Utilities Turns Stable," May 18, 2023, at 8.

ratios established by the capital structures of the utility operating subsidiaries of the proxy companies.

X. CONCLUSION AND RECOMMENDATION

Q. WHAT IS YOUR CONCLUSION REGARDING A FAIR ROE FOR OTP?

A. Figure 15 summarizes the results of my cost of equity analyses. Based on the quantitative and qualitative analyses presented in my direct testimony, and the business and financial risks of the Company as compared to the proxy group, an ROE of 10.60 percent reasonable.

Figure 15: Summary of Analytical Results

Constant Growth DCF			
	Mean Low	Mean	Mean High
30-Day Average	8.75%	9.86%	10.72%
90-Day Average	8.69%	9.80%	10.66%
180-Day Average	8.69%	9.80%	10.66%
Constant Growth Average	8.71%	9.82%	10.68%
	Median Low	Median	Median High
30-Day Average	9.11%	9.76%	10.65%
90-Day Average	9.01%	9.66%	10.80%
180-Day Average	9.01%	9.71%	10.81%
Constant Growth Average	9.04%	9.71%	10.76%
CAPM			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Value Line Beta	11.66%	11.65%	11.64%
Bloomberg Beta	10.90%	10.89%	10.87%
Long-term Avg. Beta	10.49%	10.49%	10.46%
ECAPM			
Value Line Beta	11.92%	11.92%	11.91%
Bloomberg Beta	11.35%	11.35%	11.33%
Long-term Avg. Beta	11.05%	11.04%	11.03%
Risk Premium			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Risk Premium Results	10.32%	10.31%	10.27%

Q. WHAT IS YOUR CONCLUSION WITH RESPECT TO OTP'S PROPOSED CAPITAL STRUCTURE?

A. My conclusion is that the Company's proposal to establish a capital structure consisting of 53.50 percent common equity, 43.55 percent long-term debt, and 2.95 percent short-term debt is reasonable when compared to actual capital structures of the proxy group companies. Further, taking into consideration the impact of current and projected market conditions on the cash flows of utilities as

raised by the credit rating agencies, I conclude that the Company's proposal is reasonable and should be adopted for ratemaking purposes.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

Ann E. Bulkley

PRINCIPAL

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With more than 25 years of experience in the energy industry, Ms. Bulkley specializes in regulatory economics for the electric and natural gas and water utility sectors, including valuation of regulated and unregulated utility assets, cost of capital, 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 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.

- Conducted a strategic review of the acquisition of nuclear generation assets. Review included the evaluation of the operating costs of the facilities and the long-term liabilities associated with the assets including the decommissioning of the assets.
- 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.
- Conducted a valuation of regulated utility assets for the fair value rate base estimate used in electric rate proceedings in Indiana.
- 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 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.

BULKLEY TESTIMONY LISTING

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
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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
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				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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 American Water Company	03/23	Indiana and Michigan American Water Company	IURC Cause No. 45870	Return on Equity
Indiana Michigan Power Co.	07/21	Indiana Michigan Power Co.	IURC Cause No. 45576	Return on Equity
Indiana Gas Company Inc.	12/20	Indiana Gas Company Inc.	IURC Cause No. 45468	Return on Equity
Southern Indiana Gas and Electric Company	10/20	Southern Indiana Gas and Electric Company	IURC Cause No. 45447	Return on Equity
Indiana and Michigan American Water Company	09/18	Indiana and Michigan American Water Company	IURC Cause No. 45142	Return on Equity
Indianapolis Power and Light Company	12/17	Indianapolis Power and Light Company	Cause No. 45029	Fair Value

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Northern Indiana Public Service Company	09/17	Northern Indiana Public Service Company	Cause No. 44988	Fair Value
Indianapolis Power and Light Company	12/16	Indianapolis Power and Light Company	Cause No.44893	Fair Value
Northern Indiana Public Service Company	10/15	Northern Indiana Public Service Company	Cause No. 44688	Fair Value
Indianapolis Power and Light Company	09/15	Indianapolis Power and Light Company	Cause No. 44576 Cause No. 44602	Fair Value
Kokomo Gas and Fuel Company	09/10	Kokomo Gas and Fuel Company	Cause No. 43942	Fair Value
Northern Indiana Fuel and Light Company, Inc.	09/10	Northern Indiana Fuel and Light Company, Inc.	Cause No. 43943	Fair Value
Iowa Department of Commerce Utilities Board				
MidAmerican Energy Company	06/23	MidAmerican Energy Company	Docket No. RPU-2023-___	Return on Equity
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
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	06/23	Kentucky American Water Company	Docket No. 2023-____	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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
Michigan Gas Utilities Corporation	03/21	Michigan Gas Utilities Corporation	Case No. U-20718	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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				
Liberty Utilities (Granite State Electric)	05/23	Liberty Utilities (Granite State Electric)	Docket No. DE 23-039	Return on Equity
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Public Service Electric and Gas Company	04/19	Public Service Electric and Gas Company	EO18060629 GO18060630	Return on Equity
Public Service Electric and Gas Company	02/18	Public Service Electric and Gas Company	GR17070776	Return on Equity
Public Service Electric and Gas Company	01/18	Public Service Electric and Gas Company	ER18010029 GR18010030	Return on Equity
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				
Liberty Utilities (New York Water)	5/23	Liberty Utilities (New York Water)	Case 23-____	Return on Equity
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Niagara Mohawk Power Corporation	07/20	National Grid USA	Case No. 20-E-0380 20-G-0381	Return on Equity
Corning Natural Gas Corporation	02/20	Corning Natural Gas Corporation	Case No. 20-G-0101	Return on Equity
New York State Electric and Gas Company Rochester Gas and Electric	05/19	New York State Electric and Gas Company Rochester Gas and Electric	19-E-0378 19-G-0379 19-E-0380 19-G-0381	Return on Equity
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				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Montana-Dakota Utilities Co.	05/22	Montana-Dakota Utilities Co.	C-PU-22-194	Return on Equity
Montana-Dakota Utilities Co.	08/20	Montana-Dakota Utilities Co.	C-PU-20-379	Return on Equity
Northern States Power Company	12/12	Northern States Power Company	C-PU-12-813	Return on Equity
Northern States Power Company	12/10	Northern States Power Company	C-PU-10-657	Return on Equity
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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	05/23	West Virginia American Water Company	Case No. 23-0383-W-42T	Return on Equity
West Virginia American Water Company	04/21	West Virginia American Water Company	Case No. 21-02369-W-42T	Return on Equity
West Virginia American Water Company	04/18	West Virginia American Water Company	Case No. 18-0573-W-42T Case No. 18-0576-S-42T	Return on Equity
Wisconsin Public Service Commission				
Wisconsin Power and Light	05/23	Wisconsin Power and Light	Docket No. 6680-UR-124	Return on Equity
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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	8.75%	9.86%	10.72%
90-Day Average	8.69%	9.80%	10.66%
180-Day Average	8.69%	9.80%	10.66%
Constant Growth Average	8.71%	9.82%	10.68%
	Median Low	Median	Median High
30-Day Average	9.11%	9.76%	10.65%
90-Day Average	9.01%	9.66%	10.80%
180-Day Average	9.01%	9.71%	10.81%
Constant Growth Average	9.04%	9.71%	10.76%
CAPM			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Value Line Beta	11.66%	11.65%	11.64%
Bloomberg Beta	10.90%	10.89%	10.87%
Long-term Avg. Beta	10.49%	10.49%	10.46%
ECAPM			
Value Line Beta	11.92%	11.92%	11.91%
Bloomberg Beta	11.35%	11.35%	11.33%
Long-term Avg. Beta	11.05%	11.04%	11.03%
Risk Premium			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Risk Premium Results	10.32%	10.31%	10.27%

PROXY GROUP SCREENING DATA AND RESULTS

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Company	Ticker	Dividends	S&P Credit Rating Between BBB- and AAA	Covered by More Than 1 Analyst	Positive Growth Rates from at least two sources (Value Line, Yahoo! First Call, and Zacks)	Generation Assets Included in Rate Base	% Company-Owned Generation > 40%	% Regulated Electric Operating Income > 60% of Total Operating Income	Announced Merger
ALLETE, Inc.	ALE	Yes	BBB	Yes	Yes	Yes	43.27%	100.56%	No
Alliant Energy Corporation	LNT	Yes	A-	Yes	Yes	Yes	72.75%	87.90%	No
Ameren Corporation	AEE	Yes	BBB+	Yes	Yes	Yes	75.34%	84.57%	No
American Electric Power Company, Inc.	AEP	Yes	A-	Yes	Yes	Yes	51.62%	97.34%	No
Avista Corporation	AVA	Yes	BBB	Yes	Yes	Yes	59.47%	73.85%	No
CMS Energy Corporation	CMS	Yes	BBB+	Yes	Yes	Yes	42.50%	65.48%	No
Duke Energy Corporation	DUK	Yes	BBB+	Yes	Yes	Yes	81.53%	91.02%	No
Entergy Corporation	ETR	Yes	BBB+	Yes	Yes	Yes	71.43%	98.21%	No
Evergy, Inc.	EVRG	Yes	A-	Yes	Yes	Yes	62.14%	100.00%	No
IDACORP, Inc.	IDA	Yes	BBB	Yes	Yes	Yes	65.35%	99.91%	No
NextEra Energy, Inc.	NEE	Yes	A-	Yes	Yes	Yes	96.40%	92.16%	No
NorthWestern Corporation	NWE	Yes	BBB	Yes	Yes	Yes	55.82%	84.28%	No
OGE Energy Corporation	OGE	Yes	BBB+	Yes	Yes	Yes	50.65%	100.00%	No
Pinnacle West Capital Corporation	PNW	Yes	BBB+	Yes	Yes	Yes	76.09%	100.00%	No
Portland General Electric Company	POR	Yes	BBB+	Yes	Yes	Yes	54.88%	100.00%	No
Southern Company	SO	Yes	BBB+	Yes	Yes	Yes	76.85%	75.31%	No
Xcel Energy Inc.	XEL	Yes	A-	Yes	Yes	Yes	57.97%	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 2020
[8] Source: Form 10-K's for 2022, 2021, and 2020
[9] Source: S&P Capital IQ Pro Financial News Releases

30-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line EPS Growth	Yahoo! Finance EPS Growth	Zacks EPS Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	$2.71	$58.12	4.66%	4.84%	6.00%	8.10%	8.10%	7.40%	10.80%	12.24%	12.95%
Alliant Energy Corporation	LNT	$1.81	$53.11	3.41%	3.52%	6.50%	7.00%	6.50%	6.67%	10.02%	10.19%	10.53%
Ameren Corporation	AEE	$2.52	$84.17	2.99%	3.09%	6.50%	5.90%	6.40%	6.27%	8.98%	9.35%	9.59%
American Electric Power Company, Inc.	AEP	$3.32	$85.37	3.89%	4.00%	6.00%	5.20%	5.60%	5.60%	9.19%	9.60%	10.01%
Avista Corporation	AVA	$1.84	$38.97	4.72%	4.87%	6.50%	6.30%	6.30%	6.37%	11.17%	11.24%	11.37%
CMS Energy Corporation	CMS	$1.95	$59.91	3.25%	3.37%	6.50%	7.80%	7.80%	7.37%	9.86%	10.74%	11.18%
Duke Energy Corporation	DUK	$4.02	$91.84	4.38%	4.50%	5.00%	5.74%	6.10%	5.61%	9.49%	10.11%	10.61%
Entergy Corporation	ETR	$4.28	$99.98	4.28%	4.37%	0.50%	6.60%	5.70%	4.27%	4.79%	8.64%	11.02%
Evergy, Inc.	EVRG	$2.45	$59.41	4.12%	4.23%	7.50%	2.67%	5.20%	5.12%	6.85%	9.35%	11.78%
IDACORP, Inc.	IDA	$3.16	$102.78	3.07%	3.14%	5.00%	3.70%	3.70%	4.13%	6.83%	7.27%	8.15%
NextEra Energy, Inc.	NEE	$1.87	$73.81	2.53%	2.65%	9.50%	8.80%	8.40%	8.90%	11.04%	11.55%	12.15%
NorthWestern Corporation	NWE	$2.56	$57.12	4.48%	4.58%	3.50%	4.50%	5.20%	4.40%	8.06%	8.98%	9.80%
OGE Energy Corporation	OGE	$1.66	$35.97	4.60%	4.72%	6.50%	negative	3.70%	5.10%	8.39%	9.82%	11.25%
Pinnacle West Capital Corporation	PNW	$3.46	$81.98	4.22%	4.33%	2.50%	6.10%	6.30%	4.97%	6.77%	9.29%	10.65%
Portland General Electric Company	POR	$1.90	$47.35	4.01%	4.13%	5.00%	5.90%	6.00%	5.63%	9.11%	9.76%	10.13%
Southern Company	SO	$2.80	$71.21	3.93%	4.05%	6.50%	7.30%	4.00%	5.93%	8.01%	9.98%	11.38%
Xcel Energy Inc.	XEL	$2.08	$63.31	3.29%	3.39%	6.00%	6.15%	6.30%	6.15%	9.38%	9.54%	9.69%
Mean				3.87%	3.99%	5.62%	6.11%	5.96%	5.88%	8.75%	9.86%	10.72%
Median				4.01%	4.13%	6.00%	6.13%	6.10%	5.63%	9.11%	9.76%	10.65%

Notes:

[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 30-day average as of July 31, 2023
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])

90-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line EPS Growth	Yahoo! Finance EPS Growth	Zacks EPS Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	$2.71	$60.73	4.46%	4.63%	6.00%	8.10%	8.10%	7.40%	10.60%	12.03%	12.74%
Alliant Energy Corporation	LNT	$1.81	$52.96	3.42%	3.53%	6.50%	7.00%	6.50%	6.67%	10.03%	10.20%	10.54%
Ameren Corporation	AEE	$2.52	$85.01	2.96%	3.06%	6.50%	5.90%	6.40%	6.27%	8.95%	9.32%	9.56%
American Electric Power Company, Inc.	AEP	$3.32	$87.56	3.79%	3.90%	6.00%	5.20%	5.60%	5.60%	9.09%	9.50%	9.91%
Avista Corporation	AVA	$1.84	$41.27	4.46%	4.60%	6.50%	6.30%	6.30%	6.37%	10.90%	10.97%	11.10%
CMS Energy Corporation	CMS	$1.95	$59.78	3.26%	3.38%	6.50%	7.80%	7.80%	7.37%	9.87%	10.75%	11.19%
Duke Energy Corporation	DUK	$4.02	$93.61	4.29%	4.41%	5.00%	5.74%	6.10%	5.61%	9.40%	10.03%	10.53%
Entergy Corporation	ETR	$4.28	$102.70	4.17%	4.26%	0.50%	6.60%	5.70%	4.27%	4.68%	8.52%	10.90%
Evergy, Inc.	EVRG	$2.45	$59.91	4.09%	4.19%	7.50%	2.67%	5.20%	5.12%	6.81%	9.32%	11.74%
IDACORP, Inc.	IDA	$3.16	$105.42	3.00%	3.06%	5.00%	3.70%	3.70%	4.13%	6.75%	7.19%	8.07%
NextEra Energy, Inc.	NEE	$1.87	$74.95	2.49%	2.61%	9.50%	8.80%	8.40%	8.90%	11.00%	11.51%	12.11%
NorthWestern Corporation	NWE	$2.56	$57.50	4.45%	4.55%	3.50%	4.50%	5.20%	4.40%	8.03%	8.95%	9.77%
OGE Energy Corporation	OGE	$1.66	$36.24	4.57%	4.69%	6.50%	negative	3.70%	5.10%	8.36%	9.79%	11.22%
Pinnacle West Capital Corporation	PNW	$3.46	$79.25	4.37%	4.47%	2.50%	6.10%	6.30%	4.97%	6.92%	9.44%	10.80%
Portland General Electric Company	POR	$1.90	$48.51	3.92%	4.03%	5.00%	5.90%	6.00%	5.63%	9.01%	9.66%	10.03%
Southern Company	SO	$2.80	$71.08	3.94%	4.06%	6.50%	7.30%	4.00%	5.93%	8.02%	9.99%	11.38%
Xcel Energy Inc.	XEL	$2.08	$65.62	3.17%	3.27%	6.00%	6.15%	6.30%	6.15%	9.26%	9.42%	9.57%
Mean				3.81%	3.92%	5.62%	6.11%	5.96%	5.88%	8.69%	9.80%	10.66%
Median				3.94%	4.06%	6.00%	6.13%	6.10%	5.63%	9.01%	9.66%	10.80%

Notes:

[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 90-day average as of July 31, 2023
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])

180-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line EPS Growth	Yahoo! Finance EPS Growth	Zacks EPS Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE
ALLETE, Inc.	ALE	$2.71	$61.40	4.41%	4.58%	6.00%	8.10%	8.10%	7.40%	10.55%	11.98%	12.69%
Alliant Energy Corporation	LNT	$1.81	$52.94	3.42%	3.53%	6.50%	7.00%	6.50%	6.67%	10.03%	10.20%	10.54%
Ameren Corporation	AEE	$2.52	$85.04	2.96%	3.06%	6.50%	5.90%	6.40%	6.27%	8.95%	9.32%	9.56%
American Electric Power Company, Inc.	AEP	$3.32	$89.50	3.71%	3.81%	6.00%	5.20%	5.60%	5.60%	9.01%	9.41%	9.82%
Avista Corporation	AVA	$1.84	$40.91	4.50%	4.64%	6.50%	6.30%	6.30%	6.37%	10.94%	11.01%	11.14%
CMS Energy Corporation	CMS	$1.95	$59.98	3.25%	3.37%	6.50%	7.80%	7.80%	7.37%	9.86%	10.74%	11.18%
Duke Energy Corporation	DUK	$4.02	$95.66	4.20%	4.32%	5.00%	5.74%	6.10%	5.61%	9.31%	9.93%	10.43%
Entergy Corporation	ETR	$4.28	$105.06	4.07%	4.16%	0.50%	6.60%	5.70%	4.27%	4.58%	8.43%	10.81%
Evergy, Inc.	EVRG	$2.45	$59.79	4.10%	4.20%	7.50%	2.67%	5.20%	5.12%	6.82%	9.33%	11.75%
IDACORP, Inc.	IDA	$3.16	$104.49	3.02%	3.09%	5.00%	3.70%	3.70%	4.13%	6.78%	7.22%	8.10%
NextEra Energy, Inc.	NEE	$1.87	$76.95	2.43%	2.54%	9.50%	8.80%	8.40%	8.90%	10.93%	11.44%	12.05%
NorthWestern Corporation	NWE	$2.56	$56.61	4.52%	4.62%	3.50%	4.50%	5.20%	4.40%	8.10%	9.02%	9.84%
OGE Energy Corporation	OGE	$1.66	$36.85	4.49%	4.61%	6.50%	negative	3.70%	5.10%	8.28%	9.71%	11.14%
Pinnacle West Capital Corporation	PNW	$3.46	$76.38	4.53%	4.64%	2.50%	6.10%	6.30%	4.97%	7.09%	9.61%	10.97%
Portland General Electric Company	POR	$1.90	$47.66	3.99%	4.10%	5.00%	5.90%	6.00%	5.63%	9.09%	9.73%	10.11%
Southern Company	SO	$2.80	$68.72	4.07%	4.20%	6.50%	7.30%	4.00%	5.93%	8.16%	10.13%	11.52%
Xcel Energy Inc.	XEL	$2.08	$66.41	3.13%	3.23%	6.00%	6.15%	6.30%	6.15%	9.23%	9.38%	9.53%
Mean				3.81%	3.92%	5.62%	6.11%	5.96%	5.88%	8.69%	9.80%	10.66%
Median				4.07%	4.16%	6.00%	6.13%	6.10%	5.63%	9.01%	9.71%	10.81%

Notes:

[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 180-day average as of July 31, 2023
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])

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

$K = Rf + \beta (Rm - Rf)$

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

Company	Ticker	[1] Current 30-day average of 30-year U.S. Treasury bond yield	[2] Beta (β)	[3] Market Return (Rm)	[4] Market Risk Premium (Rm − Rf)	[5] ROE (K)	[6] ECAPM ROE (K)
ALLETE, Inc.	ALE	3.92%	0.90	12.72%	8.80%	11.84%	12.06%
Alliant Energy Corporation	LNT	3.92%	0.85	12.72%	8.80%	11.40%	11.73%
Ameren Corporation	AEE	3.92%	0.85	12.72%	8.80%	11.40%	11.73%
American Electric Power Company, Inc.	AEP	3.92%	0.75	12.72%	8.80%	10.52%	11.07%
Avista Corporation	AVA	3.92%	0.90	12.72%	8.80%	11.84%	12.06%
CMS Energy Corporation	CMS	3.92%	0.80	12.72%	8.80%	10.96%	11.40%
Duke Energy Corporation	DUK	3.92%	0.85	12.72%	8.80%	11.40%	11.73%
Entergy Corporation	ETR	3.92%	0.90	12.72%	8.80%	11.84%	12.06%
Evergy, Inc.	EVRG	3.92%	0.90	12.72%	8.80%	11.84%	12.06%
IDACORP, Inc.	IDA	3.92%	0.80	12.72%	8.80%	10.96%	11.40%
NextEra Energy, Inc.	NEE	3.92%	0.95	12.72%	8.80%	12.28%	12.39%
NorthWestern Corporation	NWE	3.92%	0.95	12.72%	8.80%	12.28%	12.39%
OGE Energy Corporation	OGE	3.92%	1.00	12.72%	8.80%	12.72%	12.72%
Pinnacle West Capital Corporation	PNW	3.92%	0.90	12.72%	8.80%	11.84%	12.06%
Portland General Electric Company	POR	3.92%	0.90	12.72%	8.80%	11.84%	12.06%
Southern Company	SO	3.92%	0.90	12.72%	8.80%	11.84%	12.06%
Xcel Energy Inc.	XEL	3.92%	0.85	12.72%	8.80%	11.40%	11.73%
Mean						11.66%	11.92%
Median						11.84%	12.06%

Notes:

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

[2] Source: Value Line

[3] Source: Market Return

[4] Equals [3] - [1]

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

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

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

$K = Rf + \beta (Rm - Rf)$

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

Company	Ticker	[1] Near-term projected 30-year U.S. Treasury bond yield (Q4 2023 - Q4 2024)	[2] Beta (β)	[3] Market Return (Rm)	[4] Market Risk Premium (Rm − Rf)	[5] ROE (K)	[6] ECAPM ROE (K)
ALLETE, Inc.	ALE	3.90%	0.90	12.72%	8.82%	11.84%	12.06%
Alliant Energy Corporation	LNT	3.90%	0.85	12.72%	8.82%	11.40%	11.73%
Ameren Corporation	AEE	3.90%	0.85	12.72%	8.82%	11.40%	11.73%
American Electric Power Company, Inc.	AEP	3.90%	0.75	12.72%	8.82%	10.51%	11.06%
Avista Corporation	AVA	3.90%	0.90	12.72%	8.82%	11.84%	12.06%
CMS Energy Corporation	CMS	3.90%	0.80	12.72%	8.82%	10.95%	11.40%
Duke Energy Corporation	DUK	3.90%	0.85	12.72%	8.82%	11.40%	11.73%
Entergy Corporation	ETR	3.90%	0.90	12.72%	8.82%	11.84%	12.06%
Evergy, Inc.	EVRG	3.90%	0.90	12.72%	8.82%	11.84%	12.06%
IDACORP, Inc.	IDA	3.90%	0.80	12.72%	8.82%	10.95%	11.40%
NextEra Energy, Inc.	NEE	3.90%	0.95	12.72%	8.82%	12.28%	12.39%
NorthWestern Corporation	NWE	3.90%	0.95	12.72%	8.82%	12.28%	12.39%
OGE Energy Corporation	OGE	3.90%	1.00	12.72%	8.82%	12.72%	12.72%
Pinnacle West Capital Corporation	PNW	3.90%	0.90	12.72%	8.82%	11.84%	12.06%
Portland General Electric Company	POR	3.90%	0.90	12.72%	8.82%	11.84%	12.06%
Southern Company	SO	3.90%	0.90	12.72%	8.82%	11.84%	12.06%
Xcel Energy Inc.	XEL	3.90%	0.85	12.72%	8.82%	11.40%	11.73%
Mean						11.65%	11.92%
Median						11.84%	12.06%

Notes:

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

$K = Rf + \beta (Rm - Rf)$

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

Company	Ticker	[1] Projected 30-year U.S. Treasury bond yield (2025 - 2029)	[2] Beta (β)	[3] Market Return (Rm)	[4] Market Risk Premium (Rm − Rf)	[5] ROE (K)	[6] ECAPM ROE (K)
ALLETE, Inc.	ALE	3.80%	0.90	12.72%	8.92%	11.83%	12.05%
Alliant Energy Corporation	LNT	3.80%	0.85	12.72%	8.92%	11.38%	11.71%
Ameren Corporation	AEE	3.80%	0.85	12.72%	8.92%	11.38%	11.71%
American Electric Power Company, Inc.	AEP	3.80%	0.75	12.72%	8.92%	10.49%	11.05%
Avista Corporation	AVA	3.80%	0.90	12.72%	8.92%	11.83%	12.05%
CMS Energy Corporation	CMS	3.80%	0.80	12.72%	8.92%	10.93%	11.38%
Duke Energy Corporation	DUK	3.80%	0.85	12.72%	8.92%	11.38%	11.71%
Entergy Corporation	ETR	3.80%	0.90	12.72%	8.92%	11.83%	12.05%
Evergy, Inc.	EVRG	3.80%	0.90	12.72%	8.92%	11.83%	12.05%
IDACORP, Inc.	IDA	3.80%	0.80	12.72%	8.92%	10.93%	11.38%
NextEra Energy, Inc.	NEE	3.80%	0.95	12.72%	8.92%	12.27%	12.38%
NorthWestern Corporation	NWE	3.80%	0.95	12.72%	8.92%	12.27%	12.38%
OGE Energy Corporation	OGE	3.80%	1.00	12.72%	8.92%	12.72%	12.72%
Pinnacle West Capital Corporation	PNW	3.80%	0.90	12.72%	8.92%	11.83%	12.05%
Portland General Electric Company	POR	3.80%	0.90	12.72%	8.92%	11.83%	12.05%
Southern Company	SO	3.80%	0.90	12.72%	8.92%	11.83%	12.05%
Xcel Energy Inc.	XEL	3.80%	0.85	12.72%	8.92%	11.38%	11.71%
Mean						11.64%	11.91%
Median						11.83%	12.05%

Notes:

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

$K = Rf + \beta (Rm - Rf)$

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

Company	Ticker	[1] Current 30-day average of 30-year U.S. Treasury bond yield	[2] Beta (β)	[3] Market Return (Rm)	[4] Market Risk Premium (Rm − Rf)	[5] ROE (K)	[6] ECAPM ROE (K)
ALLETE, Inc.	ALE	3.92%	0.82	12.72%	8.80%	11.17%	11.56%
Alliant Energy Corporation	LNT	3.92%	0.79	12.72%	8.80%	10.87%	11.33%
Ameren Corporation	AEE	3.92%	0.75	12.72%	8.80%	10.52%	11.07%
American Electric Power Company, Inc.	AEP	3.92%	0.76	12.72%	8.80%	10.58%	11.12%
Avista Corporation	AVA	3.92%	0.75	12.72%	8.80%	10.50%	11.05%
CMS Energy Corporation	CMS	3.92%	0.75	12.72%	8.80%	10.51%	11.06%
Duke Energy Corporation	DUK	3.92%	0.72	12.72%	8.80%	10.25%	10.87%
Entergy Corporation	ETR	3.92%	0.85	12.72%	8.80%	11.44%	11.76%
Evergy, Inc.	EVRG	3.92%	0.78	12.72%	8.80%	10.78%	11.26%
IDACORP, Inc.	IDA	3.92%	0.79	12.72%	8.80%	10.90%	11.35%
NextEra Energy, Inc.	NEE	3.92%	0.81	12.72%	8.80%	11.08%	11.49%
NorthWestern Corporation	NWE	3.92%	0.86	12.72%	8.80%	11.46%	11.77%
OGE Energy Corporation	OGE	3.92%	0.92	12.72%	8.80%	12.04%	12.21%
Pinnacle West Capital Corporation	PNW	3.92%	0.83	12.72%	8.80%	11.19%	11.57%
Portland General Electric Company	POR	3.92%	0.78	12.72%	8.80%	10.79%	11.27%
Southern Company	SO	3.92%	0.77	12.72%	8.80%	10.72%	11.22%
Xcel Energy Inc.	XEL	3.92%	0.74	12.72%	8.80%	10.43%	11.00%
Mean						10.90%	11.35%
Median						10.79%	11.27%

Notes:

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

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

[3] Source: Market Return

[4] Equals [3] - [1]

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

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

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

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

Company	Ticker	[1] Near-term projected 30-year U.S. Treasury bond yield (Q4 2023 - Q4 2024)	[2] Beta (β)	[3] Market Return (Rm)	[4] Market Risk Premium (Rm − Rf)	[5] ROE (K)	[6] ECAPM ROE (K)
ALLETE, Inc.	ALE	3.90%	0.82	12.72%	8.82%	11.17%	11.55%
Alliant Energy Corporation	LNT	3.90%	0.79	12.72%	8.82%	10.87%	11.33%
Ameren Corporation	AEE	3.90%	0.75	12.72%	8.82%	10.52%	11.07%
American Electric Power Company, Inc.	AEP	3.90%	0.76	12.72%	8.82%	10.58%	11.11%
Avista Corporation	AVA	3.90%	0.75	12.72%	8.82%	10.49%	11.05%
CMS Energy Corporation	CMS	3.90%	0.75	12.72%	8.82%	10.50%	11.06%
Duke Energy Corporation	DUK	3.90%	0.72	12.72%	8.82%	10.25%	10.86%
Entergy Corporation	ETR	3.90%	0.85	12.72%	8.82%	11.44%	11.76%
Evergy, Inc.	EVRG	3.90%	0.78	12.72%	8.82%	10.77%	11.26%
IDACORP, Inc.	IDA	3.90%	0.79	12.72%	8.82%	10.89%	11.35%
NextEra Energy, Inc.	NEE	3.90%	0.81	12.72%	8.82%	11.08%	11.49%
NorthWestern Corporation	NWE	3.90%	0.86	12.72%	8.82%	11.45%	11.77%
OGE Energy Corporation	OGE	3.90%	0.92	12.72%	8.82%	12.03%	12.20%
Pinnacle West Capital Corporation	PNW	3.90%	0.83	12.72%	8.82%	11.19%	11.57%
Portland General Electric Company	POR	3.90%	0.78	12.72%	8.82%	10.78%	11.27%
Southern Company	SO	3.90%	0.77	12.72%	8.82%	10.72%	11.22%
Xcel Energy Inc.	XEL	3.90%	0.74	12.72%	8.82%	10.42%	11.00%
Mean						10.89%	11.35%
Median						10.78%	11.27%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 8, August 1, 2023, at 2
[2] Source: Bloomberg Professional, based on 10-year weekly returns
[3] 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

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

Company	Ticker	[1] Projected 30-year U.S. Treasury bond yield (2025 - 2029)	[2] Beta (β)	[3] Market Return (Rm)	[4] Market Risk Premium (Rm − Rf)	[5] ROE (K)	[6] ECAPM ROE (K)
ALLETE, Inc.	ALE	3.80%	0.82	12.72%	8.92%	11.15%	11.54%
Alliant Energy Corporation	LNT	3.80%	0.79	12.72%	8.92%	10.85%	11.31%
Ameren Corporation	AEE	3.80%	0.75	12.72%	8.92%	10.49%	11.05%
American Electric Power Company, Inc.	AEP	3.80%	0.76	12.72%	8.92%	10.55%	11.09%
Avista Corporation	AVA	3.80%	0.75	12.72%	8.92%	10.47%	11.03%
CMS Energy Corporation	CMS	3.80%	0.75	12.72%	8.92%	10.48%	11.04%
Duke Energy Corporation	DUK	3.80%	0.72	12.72%	8.92%	10.22%	10.84%
Entergy Corporation	ETR	3.80%	0.85	12.72%	8.92%	11.42%	11.75%
Evergy, Inc.	EVRG	3.80%	0.78	12.72%	8.92%	10.75%	11.24%
IDACORP, Inc.	IDA	3.80%	0.79	12.72%	8.92%	10.87%	11.33%
NextEra Energy, Inc.	NEE	3.80%	0.81	12.72%	8.92%	11.06%	11.47%
NorthWestern Corporation	NWE	3.80%	0.86	12.72%	8.92%	11.44%	11.76%
OGE Energy Corporation	OGE	3.80%	0.92	12.72%	8.92%	12.03%	12.20%
Pinnacle West Capital Corporation	PNW	3.80%	0.83	12.72%	8.92%	11.17%	11.56%
Portland General Electric Company	POR	3.80%	0.78	12.72%	8.92%	10.76%	11.25%
Southern Company	SO	3.80%	0.77	12.72%	8.92%	10.69%	11.20%
Xcel Energy Inc.	XEL	3.80%	0.74	12.72%	8.92%	10.40%	10.98%
Mean						10.87%	11.33%
Median						10.76%	11.25%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 6, June 1, 2023, at 14.
[2] Source: Bloomberg Professional, based on 10-year weekly returns
[3] 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

$K = Rf + \beta (Rm - Rf)$

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

Company	Ticker	[1] Current 30-day average of 30-year U.S. Treasury bond yield	[2] Beta (β)	[3] Market Return (Rm)	[4] Market Risk Premium (Rm − Rf)	[5] ROE (K)	[6] ECAPM ROE (K)
ALLETE, Inc.	ALE	3.92%	0.79	12.72%	8.80%	10.83%	11.30%
Alliant Energy Corporation	LNT	3.92%	0.75	12.72%	8.80%	10.52%	11.07%
Ameren Corporation	AEE	3.92%	0.73	12.72%	8.80%	10.30%	10.90%
American Electric Power Company, Inc.	AEP	3.92%	0.68	12.72%	8.80%	9.86%	10.57%
Avista Corporation	AVA	3.92%	0.79	12.72%	8.80%	10.83%	11.30%
CMS Energy Corporation	CMS	3.92%	0.69	12.72%	8.80%	9.99%	10.67%
Duke Energy Corporation	DUK	3.92%	0.67	12.72%	8.80%	9.77%	10.51%
Entergy Corporation	ETR	3.92%	0.75	12.72%	8.80%	10.47%	11.04%
Evergy, Inc.	EVRG	3.92%	0.95	12.72%	8.80%	12.28%	12.39%
IDACORP, Inc.	IDA	3.92%	0.73	12.72%	8.80%	10.34%	10.94%
NextEra Energy, Inc.	NEE	3.92%	0.73	12.72%	8.80%	10.34%	10.94%
NorthWestern Corporation	NWE	3.92%	0.75	12.72%	8.80%	10.47%	11.04%
OGE Energy Corporation	OGE	3.92%	0.93	12.72%	8.80%	12.10%	12.26%
Pinnacle West Capital Corporation	PNW	3.92%	0.74	12.72%	8.80%	10.39%	10.97%
Portland General Electric Company	POR	3.92%	0.75	12.72%	8.80%	10.52%	11.07%
Southern Company	SO	3.92%	0.66	12.72%	8.80%	9.68%	10.44%
Xcel Energy Inc.	XEL	3.92%	0.66	12.72%	8.80%	9.68%	10.44%
Mean						10.49%	11.05%
Median						10.39%	10.97%

Notes:

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

[2] Source: LT Beta

[3] Source: Market Return

[4] Equals [3] - [1]

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

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

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

$K = Rf + \beta (Rm - Rf)$

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

Company	Ticker	[1] Near-term projected 30-year U.S. Treasury bond yield (Q4 2023 - Q4 2024)	[2] Beta (β)	[3] Market Return (Rm)	[4] Market Risk Premium (Rm − Rf)	[5] ROE (K)	[6] ECAPM ROE (K)
ALLETE, Inc.	ALE	3.90%	0.79	12.72%	8.82%	10.82%	11.30%
Alliant Energy Corporation	LNT	3.90%	0.75	12.72%	8.82%	10.51%	11.06%
Ameren Corporation	AEE	3.90%	0.73	12.72%	8.82%	10.29%	10.90%
American Electric Power Company, Inc.	AEP	3.90%	0.68	12.72%	8.82%	9.85%	10.57%
Avista Corporation	AVA	3.90%	0.79	12.72%	8.82%	10.82%	11.30%
CMS Energy Corporation	CMS	3.90%	0.69	12.72%	8.82%	9.98%	10.67%
Duke Energy Corporation	DUK	3.90%	0.67	12.72%	8.82%	9.76%	10.50%
Entergy Corporation	ETR	3.90%	0.75	12.72%	8.82%	10.47%	11.03%
Evergy, Inc.	EVRG	3.90%	0.95	12.72%	8.82%	12.28%	12.39%
IDACORP, Inc.	IDA	3.90%	0.73	12.72%	8.82%	10.34%	10.93%
NextEra Energy, Inc.	NEE	3.90%	0.73	12.72%	8.82%	10.34%	10.93%
NorthWestern Corporation	NWE	3.90%	0.75	12.72%	8.82%	10.47%	11.03%
OGE Energy Corporation	OGE	3.90%	0.93	12.72%	8.82%	12.10%	12.25%
Pinnacle West Capital Corporation	PNW	3.90%	0.74	12.72%	8.82%	10.38%	10.97%
Portland General Electric Company	POR	3.90%	0.75	12.72%	8.82%	10.51%	11.06%
Southern Company	SO	3.90%	0.66	12.72%	8.82%	9.68%	10.44%
Xcel Energy Inc.	XEL	3.90%	0.66	12.72%	8.82%	9.68%	10.44%
Mean						10.49%	11.04%
Median						10.38%	10.97%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 8, August 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 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	Projected 30-year U.S. Treasury bond yield (2025 - 2029)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	ROE (K)	ECAPM ROE (K)
ALLETE, Inc.	ALE	3.80%	0.79	12.72%	8.92%	10.80%	11.28%
Alliant Energy Corporation	LNT	3.80%	0.75	12.72%	8.92%	10.49%	11.05%
Ameren Corporation	AEE	3.80%	0.73	12.72%	8.92%	10.27%	10.88%
American Electric Power Company, Inc.	AEP	3.80%	0.68	12.72%	8.92%	9.82%	10.54%
Avista Corporation	AVA	3.80%	0.79	12.72%	8.92%	10.80%	11.28%
CMS Energy Corporation	CMS	3.80%	0.69	12.72%	8.92%	9.95%	10.64%
Duke Energy Corporation	DUK	3.80%	0.67	12.72%	8.92%	9.73%	10.48%
Entergy Corporation	ETR	3.80%	0.75	12.72%	8.92%	10.44%	11.01%
Evergy, Inc.	EVRG	3.80%	0.95	12.72%	8.92%	12.27%	12.38%
IDACORP, Inc.	IDA	3.80%	0.73	12.72%	8.92%	10.31%	10.91%
NextEra Energy, Inc.	NEE	3.80%	0.73	12.72%	8.92%	10.31%	10.91%
NorthWestern Corporation	NWE	3.80%	0.75	12.72%	8.92%	10.44%	11.01%
OGE Energy Corporation	OGE	3.80%	0.93	12.72%	8.92%	12.09%	12.25%
Pinnacle West Capital Corporation	PNW	3.80%	0.74	12.72%	8.92%	10.35%	10.95%
Portland General Electric Company	POR	3.80%	0.75	12.72%	8.92%	10.49%	11.05%
Southern Company	SO	3.80%	0.66	12.72%	8.92%	9.64%	10.41%
Xcel Energy Inc.	XEL	3.80%	0.66	12.72%	8.92%	9.64%	10.41%
Mean						10.46%	11.03%
Median						10.35%	10.95%

Notes:

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

Company	Ticker	[1] 12/31/2013	[2] 12/31/2014	[3] 12/31/2015	[4] 12/31/2016	[5] 12/31/2017	[6] 12/31/2018	[7] 12/31/2019	[8] 12/31/2020	[9] 12/31/2021	[10] 12/31/2022	[11] Average
ALLETE, Inc.	ALE	0.75	0.80	0.80	0.75	0.80	0.65	0.65	0.85	0.90	0.90	0.79
Alliant Energy Corporation	LNT	0.75	0.80	0.80	0.70	0.70	0.60	0.60	0.85	0.85	0.85	0.75
Ameren Corporation	AEE	0.80	0.75	0.75	0.65	0.70	0.55	0.55	0.85	0.80	0.85	0.73
American Electric Power Company, Inc.	AEP	0.70	0.70	0.70	0.65	0.65	0.55	0.55	0.75	0.75	0.75	0.68
Avista Corporation	AVA	0.75	0.80	0.80	0.70	0.75	0.65	0.60	0.95	0.95	0.90	0.79
CMS Energy Corporation	CMS	0.70	0.70	0.75	0.65	0.65	0.55	0.50	0.80	0.80	0.80	0.69
Duke Energy Corporation	DUK	0.65	0.60	0.65	0.60	0.60	0.50	0.50	0.85	0.85	0.85	0.67
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
Southern Company	SO	0.55	0.55	0.60	0.55	0.55	0.50	0.50	0.90	0.95	0.90	0.66
Xcel Energy Inc.	XEL	0.65	0.65	0.65	0.60	0.60	0.50	0.50	0.80	0.80	0.80	0.66
Mean		0.72	0.73	0.75	0.68	0.69	0.58	0.57	0.89	0.89	0.87	0.75

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

MARKET RISK PREMIUM DERIVED FROM S&P 500 INDEX

[1] Estimated Weighted Average Dividend Yield	1.60%
[2] Estimated Weighted Average Long-Term Growth Rate	11.03%
[3] S&P 500 Estimated Required Market Return	12.72%

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] Bloomberg Growth Rate	[11] Cap-Weighted Long-Term Growth Est.
LyondellBasell Industries NV	LYB	325.27	98.86	32,157	0.11%	5.06%	0.01%	13.50%	0.01%
American Express Co	AXP	736.46	168.88	124,373	0.42%	1.42%	0.01%	11.89%	0.05%
Verizon Communications Inc	VZ	4,204.04	34.08	143,274		7.66%			
Broadcom Inc	AVGO	412.69	898.65	370,859	1.26%	2.05%	0.03%	12.79%	0.16%
Boeing Co/The	BA	603.20	238.85	144,075					
Caterpillar Inc	CAT	515.36	265.17	136,657	0.47%	1.96%	0.01%	15.00%	0.07%
JPMorgan Chase & Co	JPM	2,922.29	157.96	461,605		2.53%		0.00%	
Chevron Corp	CVX	1,853.00	163.66	303,262	1.03%	3.69%	0.04%	8.77%	0.09%
Coca-Cola Co/The	KO	4,324.35	61.93	267,807	0.91%	2.97%	0.03%	7.19%	0.07%
AbbVie Inc	ABBV	1,764.29	149.58	263,902	0.90%	3.96%	0.04%	2.48%	0.02%
Walt Disney Co/The	DIS	1,827.31	88.89	162,429				22.77%	
FleetCor Technologies Inc	FLT	73.83	248.91	18,378	0.06%			12.18%	0.01%
Extra Space Storage Inc	EXR	211.21	139.57	29,478	0.10%	2.89%	0.00%	3.96%	0.00%
Exxon Mobil Corp	XOM	4,003.00	107.24	429,282	1.46%	3.39%	0.05%	13.89%	0.20%
Phillips 66	PSX	460.91	111.55	51,415	0.18%	3.77%	0.01%	9.46%	0.02%
General Electric Co	GE	1,088.38	114.24	124,336	0.42%	0.28%	0.00%	7.00%	0.03%
HP Inc	HPQ	985.96	32.83	32,369		3.20%		-4.44%	
Home Depot Inc/The	HD	1,005.38	333.84	335,635	1.14%	2.50%	0.03%	0.56%	0.01%
Monolithic Power Systems Inc	MPWR	47.42	559.49	26,533		0.71%			
International Business Machines Corp	IBM	911.01	144.18	131,349	0.45%	4.61%	0.02%	3.35%	0.01%
Johnson & Johnson	JNJ	2,598.97	167.53	435,405	1.48%	2.84%	0.04%	4.54%	0.07%
McDonald's Corp	MCD	730.09	293.20	214,064	0.73%	2.07%	0.02%	9.60%	0.07%
Merck & Co Inc	MRK	2,537.44	106.65	270,618		2.74%		27.61%	
3M Co	MMM	551.99	111.50	61,547	0.21%	5.38%	0.01%	10.00%	0.02%
American Water Works Co Inc	AWK	194.67	147.43	28,700	0.10%	1.92%	0.00%	7.95%	0.01%
Bank of America Corp	BAC	7,946.37	32.00	254,284		3.00%		-4.00%	
Pfizer Inc	PFE	5,645.31	36.06	203,570		4.55%		-1.00%	
Procter & Gamble Co/The	PG	2,362.10	156.30	369,196	1.26%	2.41%	0.03%	5.69%	0.07%
AT&T Inc	T	7,149.00	14.52	103,803	0.35%	7.64%	0.03%	2.44%	0.01%
Travelers Cos Inc/The	TRV	228.94	172.61	39,518	0.13%	2.32%	0.00%	14.92%	0.02%
RTX Corp	RTX	1,455.52	87.93	127,983	0.44%	2.68%	0.01%	8.88%	0.04%
Analog Devices Inc	ADI	501.42	199.53	100,048	0.34%	1.72%	0.01%	7.50%	0.03%
Walmart Inc	WMT	2,692.84	159.86	430,477	1.47%	1.43%	0.02%	8.00%	0.12%
Cisco Systems Inc	CSCO	4,075.06	52.04	212,066	0.72%	3.00%	0.02%	7.50%	0.05%
Intel Corp	INTC	4,188.00	35.77	149,805	0.51%	1.40%	0.01%	5.65%	0.03%
General Motors Co	GM	1,375.91	38.37	52,793	0.18%	0.94%	0.00%	0.36%	0.00%
Microsoft Corp	MSFT	7,429.76	335.92	2,495,806	8.50%	0.81%	0.07%	16.62%	1.41%
Dollar General Corp	DG	219.34	168.86	37,038	0.13%	1.40%	0.00%	3.36%	0.00%
Cigna Group/The	CI	295.87	295.10	87,312	0.30%	1.67%	0.00%	10.80%	0.03%
Kinder Morgan Inc	KMI	2,228.17	17.71	39,461	0.13%	6.38%	0.01%	2.00%	0.00%
Citigroup Inc	C	1,936.70	47.66	92,303		4.45%		-7.06%	
American International Group Inc	AIG	723.75	60.28	43,628	0.15%	2.39%	0.00%	9.50%	0.01%
Altria Group Inc	MO	1,785.04	45.42	81,077	0.28%	8.28%	0.02%	6.00%	0.02%
HCA Healthcare Inc	HCA	275.19	272.81	75,075	0.26%	0.88%	0.00%	7.58%	0.02%
International Paper Co	IP	346.00	36.06	12,477		5.13%		-2.00%	
Hewlett Packard Enterprise Co	HPE	1,291.52	17.38	22,447	0.08%	2.76%	0.00%	3.72%	0.00%
Abbott Laboratories	ABT	1,738.95	111.33	193,597	0.66%	1.83%	0.01%	2.18%	0.01%
Aflac Inc	AFL	604.23	72.34	43,710	0.15%	2.32%	0.00%	4.66%	0.01%
Air Products and Chemicals Inc	APD	222.12	305.33	67,821	0.23%	2.29%	0.01%	10.26%	0.02%
Royal Caribbean Cruises Ltd	RCL	256.17	109.11	27,951				124.32%	
Hess Corp	HES	307.05	151.73	46,589		1.15%		-23.46%	
Archer-Daniels-Midland Co	ADM	536.10	84.96	45,547		2.12%		-6.10%	
Automatic Data Processing Inc	ADP	412.10	247.26	101,896	0.35%	2.02%	0.01%	16.00%	0.06%
Verisk Analytics Inc	VRSK	144.79	228.94	33,148	0.11%	0.59%	0.00%	11.71%	0.01%
AutoZone Inc	AZO	18.16	2,481.72	45,058	0.15%			13.48%	0.02%
Avery Dennison Corp	AVY	80.73	184.01	14,855	0.05%	1.76%	0.00%	7.00%	0.00%
Enphase Energy Inc	ENPH	136.36	151.83	20,703				23.17%	
MSCI Inc	MSCI	79.09	548.08	43,347	0.15%	1.01%	0.00%	14.63%	0.02%
Ball Corp	BALL	314.55	58.69	18,461	0.06%	1.36%	0.00%	9.50%	0.01%
Axon Enterprise Inc	AXON	73.89	185.93	13,737	0.05%			15.10%	0.01%
Ceridian HCM Holding Inc	CDAY	155.03	70.81	10,978					
Carrier Global Corp	CARR	837.63	59.55	49,881	0.17%	1.24%	0.00%	10.65%	0.02%
Bank of New York Mellon Corp/The	BK	778.78	45.36	35,326	0.12%	3.70%	0.00%	10.00%	0.01%
Otis Worldwide Corp	OTIS	411.75	90.96	37,452	0.13%	1.50%	0.00%	9.00%	0.01%
Baxter International Inc	BAX	506.41	45.23	22,905	0.08%	2.56%	0.00%	0.83%	0.00%
Becton Dickinson & Co	BDX	284.02	278.62	79,132	0.27%	1.31%	0.00%	9.60%	0.03%
Berkshire Hathaway Inc	BRK/B	1,295.97	351.96	456,130					
Best Buy Co Inc	BBY	218.21	83.05	18,122	0.06%	4.43%	0.00%	3.14%	0.00%
Boston Scientific Corp	BSX	1,437.70	51.85	74,545	0.25%			12.10%	0.03%
Bristol-Myers Squibb Co	BMY	2,089.10	62.19	129,921	0.44%	3.67%	0.02%	2.55%	0.01%
Brown-Forman Corp	BF/B	310.11	70.60	21,894	0.07%	1.16%	0.00%	8.55%	0.01%
Coterra Energy Inc	CTRA	757.45	27.54	20,860		2.90%		25.02%	
Campbell Soup Co	CPB	298.09	45.82	13,659	0.05%	3.23%	0.00%	3.39%	0.00%
Hilton Worldwide Holdings Inc	HLT	261.51	155.49	40,663	0.14%	0.39%	0.00%	17.14%	0.02%
Carnival Corp	CCL	1,116.01	18.84	21,026					
Qorvo Inc	QRVO	98.74	110.02	10,863				-12.00%	
UDR Inc	UDR	329.48	40.88	13,469	0.05%	4.11%	0.00%	8.23%	0.00%
Clorox Co/The	CLX	123.62	151.48	18,727	0.06%	3.17%	0.00%	17.02%	0.01%
Paycom Software Inc	PAYC	60.29	368.76	22,234		0.41%			
CMS Energy Corp	CMS	291.73	60.58	17,672	0.06%	3.22%	0.00%	7.90%	0.00%
Newell Brands Inc	NWL	414.20	11.16	4,622		2.51%		-4.00%	

		[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	Bloomberg Growth Rate	Cap-Weighted Long-Term Growth Est.
Colgate-Palmolive Co	CL	826.69	76.26	63,044	0.21%	2.52%	0.01%	6.93%	0.01%
EPAM Systems Inc	EPAM	57.91	236.81	13,713	0.05%			4.39%	0.00%
Comerica Inc	CMA	131.78	53.96	7,111		5.26%		-6.12%	
Conagra Brands Inc	CAG	477.06	32.81	15,652	0.05%	4.27%	0.00%	1.31%	0.00%
Consolidated Edison Inc	ED	346.54	94.86	32,873	0.11%	3.42%	0.00%	4.00%	0.00%
Corning Inc	GLW	852.98	33.94	28,950	0.10%	3.30%	0.00%	6.58%	0.01%
Cummins Inc	CMI	141.56	260.80	36,919		2.58%			
Caesars Entertainment Inc	CZR	215.20	59.02	12,701					
Danaher Corp	DHR	738.35	255.06	188,324	0.64%	0.42%	0.00%	9.00%	0.06%
Target Corp	TGT	461.56	136.47	62,989	0.21%	3.22%	0.01%	8.91%	0.02%
Deere & Co	DE	293.19	429.60	125,955	0.43%	1.16%	0.00%	17.28%	0.07%
Dominion Energy Inc	D	835.94	53.55	44,765	0.15%	4.99%	0.01%	2.21%	0.00%
Dover Corp	DOV	139.87	145.97	20,417	0.07%	1.38%	0.00%	13.00%	0.01%
Alliant Energy Corp	LNT	251.39	53.74	13,510	0.05%	3.37%	0.00%	6.48%	0.00%
Steel Dynamics Inc	STLD	169.03	106.58	18,016		1.60%			
Duke Energy Corp	DUK	771.00	93.62	72,181	0.25%	4.38%	0.01%	6.12%	0.02%
Regency Centers Corp	REG	171.00	65.53	11,205	0.04%	3.97%	0.00%	3.57%	0.00%
Eaton Corp PLC	ETN	398.60	205.32	81,841	0.28%	1.68%	0.00%	15.00%	0.04%
Ecolab Inc	ECL	284.72	183.14	52,144	0.18%	1.16%	0.00%	14.00%	0.02%
Revvity Inc	RVTY	125.44	122.95	15,423		0.23%		-6.17%	
Emerson Electric Co	EMR	571.50	91.35	52,207	0.18%	2.28%	0.00%	10.31%	0.02%
EOG Resources Inc	EOG	584.86	132.53	77,511	0.26%	2.49%	0.01%	10.83%	0.03%
Aon PLC	AON	202.87	318.50	64,613	0.22%	0.77%	0.00%	10.09%	0.02%
Entergy Corp	ETR	211.45	102.70	21,716	0.07%	4.17%	0.00%	6.33%	0.00%
Equifax Inc	EFX	122.72	204.08	25,045	0.09%	0.76%	0.00%	11.40%	0.01%
EQT Corp	EQT	361.66	42.18	15,255		1.42%		29.19%	
IQVIA Holdings Inc	IQV	185.55	223.76	41,518	0.14%			9.04%	0.01%
Gartner Inc	IT	79.04	353.59	27,948	0.10%			7.53%	0.01%
FedEx Corp	FDX	251.19	269.95	67,808	0.23%	1.87%	0.00%	13.00%	0.03%
FMC Corp	FMC	125.04	96.23	12,033	0.04%	2.41%	0.00%	3.50%	0.00%
Brown & Brown Inc	BRO	283.61	70.45	19,981	0.07%	0.65%	0.00%	9.00%	0.01%
Ford Motor Co	F	3,931.37	13.21	51,933	0.18%	4.54%	0.01%	10.96%	0.02%
NextEra Energy Inc	NEE	2,023.71	73.30	148,338	0.51%	2.55%	0.01%	8.48%	0.04%
Franklin Resources Inc	BEN	498.98	29.24	14,590		4.10%		-5.90%	
Garmin Ltd	GRMN	191.29	105.89	20,256	0.07%	2.76%	0.00%	5.60%	0.00%
Freeport-McMoRan Inc	FCX	1,433.29	44.65	63,996		1.34%		-13.66%	
Dexcom Inc	DXCM	387.87	124.56	48,313				30.96%	
General Dynamics Corp	GD	273.04	223.58	61,047	0.21%	2.36%	0.00%	10.90%	0.02%
General Mills Inc	GIS	585.18	74.74	43,737	0.15%	3.16%	0.00%	8.00%	0.01%
Genuine Parts Co	GPC	140.44	155.72	21,869	0.07%	2.44%	0.00%	8.95%	0.01%
Atmos Energy Corp	ATO	144.49	121.71	17,586	0.06%	2.43%	0.00%	7.96%	0.00%
WW Grainger Inc	GWW	50.00	738.49	36,925		1.01%			
Halliburton Co	HAL	898.55	39.08	35,115		1.64%		23.40%	
L3Harris Technologies Inc	LHX	189.13	189.49	35,839	0.12%	2.41%	0.00%	2.29%	0.00%
Healthpeak Properties Inc	PEAK	547.05	21.83	11,942	0.04%	5.50%	0.00%	4.72%	0.00%
Insulet Corp	PODD	69.70	276.75	19,288				35.05%	
Catalent Inc	CTLT	180.27	48.52	8,747				-6.33%	
Fortive Corp	FTV	352.02	78.35	27,581	0.09%	0.36%	0.00%	7.93%	0.01%
Hershey Co/The	HSY	149.85	231.31	34,663	0.12%	2.06%	0.00%	9.50%	0.01%
Synchrony Financial	SYF	418.18	34.54	14,444		2.90%		64.00%	
Hormel Foods Corp	HRL	546.27	40.88	22,331	0.08%	2.69%	0.00%	2.50%	0.00%
Arthur J Gallagher & Co	AJG	215.50	214.80	46,289	0.16%	1.02%	0.00%	13.20%	0.02%
Mondelez International Inc	MDLZ	1,360.42	74.13	100,848	0.34%	2.29%	0.01%	8.89%	0.03%
CenterPoint Energy Inc	CNP	629.43	30.09	18,940	0.06%	2.53%	0.00%	8.02%	0.01%
Humana Inc	HUM	124.95	456.83	57,079	0.19%	0.77%	0.00%	13.82%	0.03%
Willis Towers Watson PLC	WTW	104.82	211.33	22,152	0.08%	1.59%	0.00%	10.82%	0.01%
Illinois Tool Works Inc	ITW	303.90	263.32	80,024	0.27%	1.99%	0.01%	3.75%	0.01%
CDW Corp/DE	CDW	134.79	187.07	25,215	0.09%	1.26%	0.00%	13.10%	0.01%
Trane Technologies PLC	TT	228.05	199.44	45,483	0.15%	1.50%	0.00%	10.10%	0.02%
Interpublic Group of Cos Inc/The	IPG	384.94	34.23	13,176	0.04%	3.62%	0.00%	6.99%	0.00%
International Flavors & Fragrances Inc	IFF	255.09	84.61	21,583		3.83%		21.71%	
Generac Holdings Inc	GNRC	62.19	153.70	9,559	0.03%			8.00%	0.00%
NXP Semiconductors NV	NXPI	257.80	222.98	57,485		1.82%		20.50%	
Kellogg Co	K	342.76	66.89	22,927	0.08%	3.59%	0.00%	2.40%	0.00%
Broadridge Financial Solutions Inc	BR	117.98	167.92	19,811		1.73%			
Kimberly-Clark Corp	KMB	338.19	129.10	43,660	0.15%	3.66%	0.01%	9.71%	0.01%
Kimco Realty Corp	KIM	619.89	20.26	12,559	0.04%	4.54%	0.00%	4.65%	0.00%
Oracle Corp	ORCL	2,714.26	117.23	318,193	1.08%	1.36%	0.01%	15.00%	0.16%
Kroger Co/The	KR	717.75	48.64	34,911	0.12%	2.38%	0.00%	4.76%	0.01%
Lennar Corp	LEN	252.53	126.83	32,028		1.18%		-3.15%	
Eli Lilly & Co	LLY	949.27	454.55	431,492		0.99%		21.73%	
Bath & Body Works Inc	BBWI	228.91	37.06	8,483	0.03%	2.16%	0.00%	11.46%	0.00%
Charter Communications Inc	CHTR	149.67	405.19	60,645	0.21%			15.90%	0.03%
Lincoln National Corp	LNC	169.56	28.04	4,754		6.42%			
Loews Corp	L	225.51	62.65	14,128		0.40%			
Lowe's Cos Inc	LOW	585.98	234.27	137,278		1.88%		20.63%	
IDEX Corp	IEX	75.60	225.81	17,072	0.06%	1.13%	0.00%	10.00%	0.01%
Marsh & McLennan Cos Inc	MMC	493.95	188.42	93,071	0.32%	1.51%	0.00%	11.25%	0.04%
Masco Corp	MAS	224.93	60.68	13,649	0.05%	1.88%	0.00%	6.74%	0.00%
S&P Global Inc	SPGI	318.20	394.51	125,533	0.43%	0.91%	0.00%	13.72%	0.06%
Medtronic PLC	MDT	1,330.41	87.76	116,756	0.40%	3.14%	0.01%	3.23%	0.01%
Viatris Inc	VTRS	1,199.03	10.53	12,626		4.56%		-1.16%	
CVS Health Corp	CVS	1,282.03	74.69	95,754	0.33%	3.24%	0.01%	6.90%	0.02%
DuPont de Nemours Inc	DD	459.02	77.63	35,633	0.12%	1.85%	0.00%	7.53%	0.01%
Micron Technology Inc	MU	1,095.30	71.39	78,194		0.64%		-15.93%	
Motorola Solutions Inc	MSI	167.72	286.63	48,073		1.23%			
Cboe Global Markets Inc	CBOE	105.57	139.68	14,747		1.43%			
Laboratory Corp of America Holdings	LH	88.60	213.93	18,954		1.35%		-4.73%	
Newmont Corp	NEM	794.73	42.92	34,110	0.12%	3.73%	0.00%	11.86%	0.01%
NIKE Inc	NKE	1,225.07	110.39	135,236	0.46%	1.23%	0.01%	15.34%	0.07%
NiSource Inc	NI	413.06	27.84	11,500	0.04%	3.59%	0.00%	7.50%	0.00%

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] Bloomberg Growth Rate	[11] Cap-Weighted Long-Term Growth Est.
Norfolk Southern Corp	NSC	227.02	232.22	52,717	0.18%	2.33%	0.00%	3.17%	0.01%
Principal Financial Group Inc	PFG	242.78	79.87	19,390	0.07%	3.26%	0.00%	7.61%	0.01%
Eversource Energy	ES	348.84	72.33	25,232	0.09%	3.73%	0.00%	5.96%	0.01%
Northrop Grumman Corp	NOC	151.30	445.00	67,329	0.23%	1.68%	0.00%	4.03%	0.01%
Wells Fargo & Co	WFC	3,667.70	45.80	167,987	0.57%	3.06%	0.02%	13.41%	0.08%
Nucor Corp	NUE	251.22	172.09	43,233		1.19%		-10.56%	
Occidental Petroleum Corp	OXY	891.75	63.13	56,296		1.14%		-14.19%	
Omnicom Group Inc	OMC	197.57	84.62	16,718	0.06%	3.31%	0.00%	6.31%	0.00%
ONEOK Inc	OKE	447.44	67.04	29,997	0.10%	5.70%	0.01%	8.77%	0.01%
Raymond James Financial Inc	RJF	208.50	110.07	22,950		1.53%			
PG&E Corp	PCG	2,568.99	17.61	45,240	0.15%			6.26%	0.01%
Parker-Hannifin Corp	PH	128.30	410.01	52,603	0.18%	1.44%	0.00%	14.56%	0.03%
Rollins Inc	ROL	492.82	40.83	20,122	0.07%	1.27%	0.00%	13.72%	0.01%
PPL Corp	PPL	737.07	27.53	20,291	0.07%	3.49%	0.00%	7.21%	0.00%
ConocoPhillips	COP	1,211.88	117.72	142,662		0.51%		-7.00%	
PulteGroup Inc	PHM	219.45	84.39	18,519		0.76%		-3.91%	
Pinnacle West Capital Corp	PNW	113.26	82.82	9,380	0.03%	4.18%	0.00%	6.16%	0.00%
PNC Financial Services Group Inc/The	PNC	398.00	136.89	54,482		4.53%			
PPG Industries Inc	PPG	235.51	143.90	33,890	0.12%	1.81%	0.00%	13.00%	0.02%
Progressive Corp/The	PGR	585.30	125.98	73,736		0.32%		38.28%	
Public Service Enterprise Group Inc	PEG	498.97	63.12	31,495	0.11%	3.61%	0.00%	5.05%	0.01%
Robert Half Inc	RHI	107.76	74.15	7,991	0.03%	2.59%	0.00%	0.78%	0.00%
Edison International	EIX	383.29	71.96	27,581	0.09%	4.10%	0.00%	5.35%	0.01%
Schlumberger NV	SLB	1,421.19	58.34	82,912		1.71%		27.56%	
Charles Schwab Corp/The	SCHW	1,769.14	66.10	116,940	0.40%	1.51%	0.01%	5.31%	0.02%
Sherwin-Williams Co/The	SHW	257.15	276.50	71,102	0.24%	0.88%	0.00%	8.49%	0.02%
West Pharmaceutical Services Inc	WST	73.86	368.04	27,184	0.09%	0.21%	0.00%	18.65%	0.02%
J M Smucker Co/The	SJM	102.05	150.65	15,373	0.05%	2.81%	0.00%	5.08%	0.00%
Snap-on Inc	SNA	52.92	272.44	14,417	0.05%	2.38%	0.00%	4.87%	0.00%
AMETEK Inc	AME	230.48	158.60	36,553	0.12%	0.63%	0.00%	6.86%	0.01%
Southern Co/The	SO	1,091.52	72.34	78,960	0.27%	3.87%	0.01%	4.50%	0.01%
Truist Financial Corp	TFC	1,331.98	33.22	44,248	0.15%	6.26%	0.01%	4.13%	0.01%
Southwest Airlines Co	LUV	595.63	34.16	20,347		2.11%		29.08%	
W R Berkley Corp	WRB	257.52	61.69	15,886	0.05%	0.71%	0.00%	12.50%	0.01%
Stanley Black & Decker Inc	SWK	153.14	99.27	15,203		3.26%			
Public Storage	PSA	175.81	281.75	49,535	0.17%	4.26%	0.01%	3.41%	0.01%
Arista Networks Inc	ANET	308.28	155.09	47,812	0.16%			18.07%	0.03%
Sysco Corp	SYY	506.68	76.31	38,665		2.62%		46.00%	
Corteva Inc	CTVA	710.68	56.43	40,104	0.14%	1.13%	0.00%	19.90%	0.03%
Texas Instruments Inc	TXN	907.97	180.00	163,434	0.56%	2.76%	0.02%	7.80%	0.04%
Textron Inc	TXT	198.07	77.77	15,404	0.05%	0.10%	0.00%	11.18%	0.01%
Thermo Fisher Scientific Inc	TMO	385.72	548.66	211,630		0.26%			
TJX Cos Inc/The	TJX	1,149.24	86.53	99,444	0.34%	1.54%	0.01%	10.00%	0.03%
Globe Life Inc	GL	95.56	112.17	10,718		0.80%			
Johnson Controls International plc	JCI	686.10	69.55	47,718	0.16%	2.13%	0.00%	14.69%	0.02%
Ulta Beauty Inc	ULTA	49.80	444.80	22,152	0.08%			6.09%	0.00%
Union Pacific Corp	UNP	609.46	232.02	141,406	0.48%	2.24%	0.01%	6.50%	0.03%
Keysight Technologies Inc	KEYS	178.37	161.08	28,732	0.10%			6.74%	0.01%
UnitedHealth Group Inc	UNH	931.03	506.37	471,447	1.61%	1.49%	0.02%	12.79%	0.21%
Marathon Oil Corp	MRO	617.60	26.27	16,224	0.06%	1.52%	0.00%	1.50%	0.00%
Bio-Rad Laboratories Inc	BIO	24.54	405.36	9,946					
Ventas Inc	VTR	400.05	48.52	19,411	0.07%	3.71%	0.00%	9.48%	0.01%
VF Corp	VFC	388.68	19.81	7,700	0.03%	6.06%	0.00%	1.44%	0.00%
Vulcan Materials Co	VMC	133.06	220.50	29,340		0.78%		21.48%	
Weyerhaeuser Co	WY	730.75	34.06	24,889		2.23%			
Whirlpool Corp	WHR	54.82	144.26	7,908		4.85%		-1.35%	
Williams Cos Inc/The	WMB	1,218.19	34.45	41,967	0.14%	5.20%	0.01%	3.50%	0.01%
Constellation Energy Corp	CEG	326.66	96.65	31,572		1.17%		-152.43%	
WEC Energy Group Inc	WEC	315.44	89.86	28,345	0.10%	3.47%	0.00%	6.26%	0.01%
Adobe Inc	ADBE	455.80	546.17	248,944	0.85%			16.88%	0.14%
AES Corp/The	AES	669.34	21.63	14,478	0.05%	3.07%	0.00%	9.12%	0.00%
Amgen Inc	AMGN	534.33	234.15	125,113	0.43%	3.64%	0.02%	4.00%	0.02%
Apple Inc	AAPL	15,728.70	196.45	3,089,904	10.53%	0.49%	0.05%	13.00%	1.37%
Autodesk Inc	ADSK	213.73	211.99	45,308	0.15%			16.39%	0.03%
Cintas Corp	CTAS	101.74	502.04	51,079	0.17%	1.08%	0.00%	9.74%	0.02%
Comcast Corp	CMCSA	4,115.69	45.26	186,276	0.63%	2.56%	0.02%	8.68%	0.06%
Molson Coors Beverage Co	TAP	200.38	69.77	13,981	0.05%	2.35%	0.00%	9.05%	0.00%
KLA Corp	KLAC	137.20	513.95	70,513	0.24%	1.01%	0.00%	9.27%	0.02%
Marriott International Inc/MD	MAR	303.35	201.81	61,220	0.21%	1.03%	0.00%	16.26%	0.03%
Fiserv Inc	FI	609.62	126.21	76,940	0.26%			14.63%	0.04%
McCormick & Co Inc/MD	MKC	251.10	89.48	22,468	0.08%	1.74%	0.00%	7.01%	0.01%
PACCAR Inc	PCAR	522.80	86.13	45,029	0.15%	1.25%	0.00%	12.00%	0.02%
Costco Wholesale Corp	COST	443.15	560.67	248,460	0.85%	0.73%	0.01%	12.46%	0.11%
Stryker Corp	SYK	379.61	283.41	107,585	0.37%	1.06%	0.00%	8.82%	0.03%
Tyson Foods Inc	TSN	285.60	55.72	15,914		3.45%		-21.58%	
Lamb Weston Holdings Inc	LW	145.67	103.35	15,054	0.05%	1.08%	0.00%	12.14%	0.01%
Applied Materials Inc	AMAT	839.75	151.59	127,297	0.43%	0.84%	0.00%	1.87%	0.01%
American Airlines Group Inc	AAL	653.36	16.75	10,944				80.75%	
Cardinal Health Inc	CAH	254.60	91.47	23,288	0.08%	2.19%	0.00%	13.54%	0.01%
Cincinnati Financial Corp	CINF	156.86	107.58	16,875	0.06%	2.79%	0.00%	17.66%	0.01%
Paramount Global	PARA	610.85	16.03	9,792		1.25%		-20.15%	
DR Horton Inc	DHI	338.30	127.02	42,970		0.79%		-8.43%	
Electronic Arts Inc	EA	272.12	136.35	37,103	0.13%	0.56%	0.00%	7.73%	0.01%
Fair Isaac Corp	FICO	24.99	837.97	20,943					
Expeditors International of Washington Inc	EXPD	152.79	127.30	19,450		1.08%			
Fastenal Co	FAST	571.33	58.61	33,486		2.39%			
M&T Bank Corp	MTB	165.89	139.86	23,202	0.08%	3.72%	0.00%	11.10%	0.01%
Xcel Energy Inc	XEL	551.53	62.73	34,598	0.12%	3.32%	0.00%	6.35%	0.01%
Fifth Third Bancorp	FITB	680.85	29.10	19,813		4.54%		25.00%	
Gilead Sciences Inc	GILD	1,248.82	76.14	95,085	0.32%	3.94%	0.01%	0.42%	0.00%
Hasbro Inc	HAS	138.61	64.56	8,949	0.03%	4.34%	0.00%	6.66%	0.00%

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Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Bloomberg Growth Rate	Cap-Weighted Long-Term Growth Est.
Huntington Bancshares Inc/OH	HBAN	1,447.88	12.24	17,722		5.07%		-5.65%	
Welltower Inc	WELL	497.03	82.15	40,831	0.14%	2.97%	0.00%	10.64%	0.01%
Biogen Inc	BIIB	144.82	270.19	39,130	0.13%			1.73%	0.00%
Northern Trust Corp	NTRS	207.00	80.12	16,585	0.06%	3.74%	0.00%	13.00%	0.01%
Packaging Corp of America	PKG	89.93	153.35	13,791	0.05%	3.26%	0.00%	3.00%	0.00%
Paychex Inc	PAYX	360.55	125.47	45,238	0.15%	2.84%	0.00%	7.00%	0.01%
QUALCOMM Inc	QCOM	1,114.00	132.17	147,237		2.42%		-0.48%	
Ross Stores Inc	ROST	340.66	114.64	39,053	0.13%	1.17%	0.00%	10.00%	0.01%
IDEXX Laboratories Inc	IDXX	83.01	554.73	46,045	0.16%			17.27%	0.03%
Starbucks Corp	SBUX	1,146.40	101.57	116,440	0.40%	2.09%	0.01%	17.52%	0.07%
KeyCorp	KEY	935.73	12.31	11,519	0.04%	6.66%	0.00%	7.53%	0.00%
Fox Corp	FOXA	269.06	33.45	9,000	0.03%	1.49%	0.00%	10.84%	0.00%
Fox Corp	FOX	235.58	31.41	7,400	0.03%	1.59%	0.00%	10.84%	0.00%
State Street Corp	STT	318.64	72.44	23,082	0.08%	3.81%	0.00%	6.16%	0.00%
Norwegian Cruise Line Holdings Ltd	NCLH	424.17	22.07	9,361					
US Bancorp	USB	1,532.92	39.68	60,826	0.21%	4.84%	0.01%	8.00%	0.02%
A O Smith Corp	AOS	124.59	72.63	9,049		1.65%			
Gen Digital Inc	GEN	639.42	19.45	12,437		2.57%			
T Rowe Price Group Inc	TROW	224.30	123.26	27,647		3.96%		-1.18%	
Waste Management Inc	WM	405.06	163.79	66,345	0.23%	1.71%	0.00%	9.80%	0.02%
Constellation Brands Inc	STZ	183.30	272.80	50,005	0.17%	1.30%	0.00%	9.73%	0.02%
DENTSPLY SIRONA Inc	XRAY	212.48	41.52	8,822	0.03%	1.35%	0.00%	9.33%	0.00%
Zions Bancorp NA	ZION	148.14	38.25	5,667		4.29%		-3.00%	
Alaska Air Group Inc	ALK	127.35	48.63	6,193				23.98%	
Invesco Ltd	IVZ	448.60	16.80	7,536	0.03%	4.76%	0.00%	4.54%	0.00%
Intuit Inc	INTU	280.06	511.70	143,307	0.49%	0.61%	0.00%	15.94%	0.08%
Morgan Stanley	MS	1,670.11	91.56	152,916	0.52%	3.71%	0.02%	3.76%	0.02%
Microchip Technology Inc	MCHP	545.38	93.94	51,233	0.17%	1.63%	0.00%	8.64%	0.02%
Chubb Ltd	CB	410.74	204.41	83,958	0.29%	1.68%	0.00%	14.00%	0.04%
Hologic Inc	HOLX	246.12	79.42	19,547				-26.13%	
Citizens Financial Group Inc	CFG	474.68	31.84	15,114		5.28%		-6.14%	
O'Reilly Automotive Inc	ORLY	60.40	925.79	55,920	0.19%			11.57%	0.02%
Allstate Corp/The	ALL	262.85	112.68	29,618		3.16%		48.41%	
Equity Residential	EQR	379.03	65.94	24,993	0.09%	4.02%	0.00%	5.68%	0.00%
BorgWarner Inc	BWA	234.37	46.50	10,898	0.04%	0.95%	0.00%	12.56%	0.00%
Keurig Dr Pepper Inc	KDP	1,397.26	34.01	47,521	0.16%	2.35%	0.00%	6.35%	0.01%
Organon & Co	OGN	255.06	21.98	5,606	0.02%	5.10%	0.00%	5.48%	0.00%
Host Hotels & Resorts Inc	HST	711.24	18.40	13,087		3.26%			
Incyte Corp	INCY	223.09	63.72	14,215				66.14%	
Simon Property Group Inc	SPG	326.99	124.60	40,743	0.14%	5.94%	0.01%	3.52%	0.00%
Eastman Chemical Co	EMN	118.56	85.58	10,146	0.03%	3.69%	0.00%	5.93%	0.00%
AvalonBay Communities Inc	AVB	142.00	188.65	26,788	0.09%	3.50%	0.00%	8.50%	0.01%
Prudential Financial Inc	PRU	365.00	96.49	35,219	0.12%	5.18%	0.01%	11.13%	0.01%
United Parcel Service Inc	UPS	724.78	187.13	135,628		3.46%		-0.78%	
Walgreens Boots Alliance Inc	WBA	863.26	29.97	25,872		6.41%		-6.57%	
STERIS PLC	STE	98.65	225.55	22,251		0.92%			
McKesson Corp	MCK	135.51	402.40	54,530	0.19%	0.62%	0.00%	9.80%	0.02%
Lockheed Martin Corp	LMT	251.83	446.37	112,410	0.38%	2.69%	0.01%	6.99%	0.03%
AmerisourceBergen Corp	ABC	201.98	186.90	37,751	0.13%	1.04%	0.00%	8.93%	0.01%
Capital One Financial Corp	COF	381.44	117.02	44,636		2.05%		-3.03%	
Waters Corp	WAT	59.03	276.21	16,306	0.06%			6.61%	0.00%
Nordson Corp	NDSN	56.99	251.61	14,340		1.03%		48.00%	
Dollar Tree Inc	DLTR	220.39	154.33	34,012	0.12%			9.23%	0.01%
Darden Restaurants Inc	DRI	121.07	168.92	20,451	0.07%	3.10%	0.00%	10.79%	0.01%
Evergy Inc	EVRG	229.58	59.97	13,768	0.05%	4.09%	0.00%	4.74%	0.00%
Match Group Inc	MTCH	278.46	46.51	12,951					
Domino's Pizza Inc	DPZ	35.09	396.74	13,923	0.05%	1.22%	0.00%	13.94%	0.01%
NVR Inc	NVR	3.26	6,306.44	20,565				-3.60%	
NetApp Inc	NTAP	210.82	78.01	16,446	0.06%	2.56%	0.00%	7.40%	0.00%
DXC Technology Co	DXC	210.07	27.65	5,809	0.02%			11.42%	0.00%
Old Dominion Freight Line Inc	ODFL	109.65	419.49	45,998	0.16%	0.38%	0.00%	4.45%	0.01%
DaVita Inc	DVA	90.70	101.99	9,250	0.03%			14.60%	0.00%
Hartford Financial Services Group Inc/The	HIG	305.82	71.88	21,982	0.07%	2.37%	0.00%	7.00%	0.01%
Iron Mountain Inc	IRM	291.62	61.40	17,906	0.06%	4.03%	0.00%	4.00%	0.00%
Estee Lauder Cos Inc/The	EL	231.87	180.00	41,737	0.14%	1.47%	0.00%	18.89%	0.03%
Cadence Design Systems Inc	CDNS	271.79	234.01	63,602	0.22%			19.00%	0.04%
Tyler Technologies Inc	TYL	42.08	396.63	16,689					
Universal Health Services Inc	UHS	62.93	138.96	8,745	0.03%	0.58%	0.00%	8.65%	0.00%
Skyworks Solutions Inc	SWKS	159.16	114.37	18,203	0.06%	2.17%	0.00%	9.40%	0.01%
Quest Diagnostics Inc	DGX	112.24	135.21	15,175		2.10%		-20.34%	
Activision Blizzard Inc	ATVI	786.80	91.77	72,204	0.25%	1.08%	0.00%	5.00%	0.01%
Rockwell Automation Inc	ROK	114.88	336.29	38,631	0.13%	1.40%	0.00%	18.98%	0.02%
Kraft Heinz Co/The	KHC	1,227.24	36.18	44,401	0.15%	4.42%	0.01%	3.92%	0.01%
American Tower Corp	AMT	466.16	190.31	88,714	0.30%	3.30%	0.01%	11.96%	0.04%
Regeneron Pharmaceuticals Inc	REGN	107.89	741.91	80,046	0.27%			7.00%	0.02%
Amazon.com Inc	AMZN	10,260.35	133.68	1,371,604				59.71%	
Jack Henry & Associates Inc	JKHY	72.88	167.57	12,212	0.04%	1.24%	0.00%	5.62%	0.00%
Ralph Lauren Corp	RL	40.39	131.33	5,304	0.02%	2.28%	0.00%	10.38%	0.00%
Boston Properties Inc	BXP	156.84	66.63	10,450	0.04%	5.88%	0.00%	1.21%	0.00%
Amphenol Corp	APH	596.45	88.31	52,673	0.18%	0.95%	0.00%	5.46%	0.01%
Howmet Aerospace Inc	HWM	413.29	51.10	21,118	0.07%	0.31%	0.00%	16.69%	0.01%
Pioneer Natural Resources Co	PXD	233.74	225.67	52,747		5.92%		-2.23%	
Valero Energy Corp	VLO	353.13	127.89	45,162		3.19%		-7.69%	
Synopsys Inc	SNPS	152.16	451.80	68,746	0.23%			16.62%	0.04%
Etsy Inc	ETSY	123.35	101.65	12,539	0.04%			14.97%	0.01%
CH Robinson Worldwide Inc	CHRW	116.44	100.18	11,665	0.04%	2.44%	0.00%	10.00%	0.00%
Accenture PLC	ACN	630.80	316.35	199,552	0.68%	1.42%	0.01%	10.00%	0.07%
TransDigm Group Inc	TDG	54.93	899.72	49,420				24.54%	
Yum! Brands Inc	YUM	280.09	137.67	38,560	0.13%	1.76%	0.00%	11.71%	0.02%
Prologis Inc	PLD	923.45	124.75	115,200	0.39%	2.79%	0.01%	8.95%	0.04%
FirstEnergy Corp	FE	572.84	39.39	22,564		3.96%		-0.33%	

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Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Bloomberg Growth Rate	Cap-Weighted Long-Term Growth Est.
VeriSign Inc	VRSN	103.13	210.95	21,756	0.07%			12.30%	0.01%
Quanta Services Inc	PWR	145.18	201.62	29,270		0.16%			
Henry Schein Inc	HSIC	131.00	78.79	10,322	0.04%			5.04%	0.00%
Ameren Corp	AEE	262.48	85.67	22,486	0.08%	2.94%	0.00%	6.93%	0.01%
ANSYS Inc	ANSS	86.66	342.10	29,647	0.10%			10.26%	0.01%
FactSet Research Systems Inc	FDS	38.15	435.04	16,595	0.06%	0.90%	0.00%	11.97%	0.01%
NVIDIA Corp	NVDA	2,470.00	467.29	1,154,206		0.03%		35.00%	
Sealed Air Corp	SEE	144.39	45.62	6,587	0.02%	1.75%	0.00%	4.30%	0.00%
Cognizant Technology Solutions Corp	CTSH	507.48	66.03	33,509	0.11%	1.76%	0.00%	12.00%	0.01%
Intuitive Surgical Inc	ISRG	351.36	324.40	113,980	0.39%			16.14%	0.06%
Take-Two Interactive Software Inc	TTWO	169.83	152.94	25,974				-1.04%	
Republic Services Inc	RSG	316.28	151.11	47,793	0.16%	1.42%	0.00%	9.09%	0.01%
eBay Inc	EBAY	532.16	44.51	23,686	0.08%	2.25%	0.00%	6.50%	0.01%
Goldman Sachs Group Inc/The	GS	332.45	355.87	118,308	0.40%	3.09%	0.01%	9.00%	0.04%
SBA Communications Corp	SBAC	108.34	218.95	23,721		1.55%			
Sempra	SRE	314.65	149.02	46,889	0.16%	3.19%	0.01%	4.04%	0.01%
Moody's Corp	MCO	183.50	352.75	64,730	0.22%	0.87%	0.00%	13.87%	0.03%
ON Semiconductor Corp	ON	431.53	107.75	46,497	0.16%			8.50%	0.01%
Booking Holdings Inc	BKNG	36.93	2,970.80	109,724	0.37%			20.00%	0.07%
F5 Inc	FFIV	59.30	158.24	9,383	0.03%			10.19%	0.00%
Akamai Technologies Inc	AKAM	156.30	94.50	14,771	0.05%			10.00%	0.01%
Charles River Laboratories International Inc	CRL	51.18	209.54	10,725	0.04%			14.00%	0.01%
MarketAxess Holdings Inc	MKTX	37.68	268.50	10,116		1.07%			
Devon Energy Corp	DVN	641.70	54.00	34,652		5.33%		20.68%	
Bio-Techne Corp	TECH	157.44	83.40	13,130		0.38%			
Alphabet Inc	GOOGL	5,933.00	132.72	787,428	2.68%			16.51%	0.44%
Teleflex Inc	TFX	46.97	251.17	11,798	0.04%	0.54%	0.00%	6.15%	0.00%
Bunge Ltd	BG	150.62	108.67	16,368		2.44%		-5.81%	
Allegion plc	ALLE	87.78	116.86	10,258	0.03%	1.54%	0.00%	5.43%	0.00%
Netflix Inc	NFLX	443.15	438.97	194,528				32.28%	
Warner Bros Discovery Inc	WBD	2,436.11	13.07	31,840					
Agilent Technologies Inc	A	295.38	121.77	35,968	0.12%	0.74%	0.00%	14.00%	0.02%
Trimble Inc	TRMB	247.75	53.80	13,329					
Elevance Health Inc	ELV	235.65	471.63	111,139	0.38%	1.26%	0.00%	12.07%	0.05%
CME Group Inc	CME	359.72	198.96	71,569	0.24%	2.21%	0.01%	6.14%	0.01%
Juniper Networks Inc	JNPR	321.36	27.80	8,934	0.03%	3.17%	0.00%	7.89%	0.00%
BlackRock Inc	BLK	149.76	738.85	110,652	0.38%	2.71%	0.01%	9.20%	0.03%
DTE Energy Co	DTE	206.11	114.30	23,558	0.08%	3.33%	0.00%	6.50%	0.01%
Celanese Corp	CE	108.79	125.39	13,641	0.05%	2.23%	0.00%	10.27%	0.00%
Nasdaq Inc	NDAQ	490.77	50.49	24,779	0.08%	1.74%	0.00%	2.68%	0.00%
Philip Morris International Inc	PM	1,552.35	99.72	154,800	0.53%	5.09%	0.03%	7.99%	0.04%
Ingersoll Rand Inc	IR	404.52	65.27	26,403		0.12%			
Salesforce Inc	CRM	974.00	225.01	219,160				22.50%	
Huntington Ingalls Industries Inc	HII	39.89	229.67	9,162		2.16%		40.00%	
Roper Technologies Inc	ROP	106.59	493.05	52,555		0.55%			
MetLife Inc	MET	765.82	62.97	48,224	0.16%	3.30%	0.01%	8.89%	0.01%
Tapestry Inc	TPR	231.80	43.15	10,002	0.03%	2.78%	0.00%	14.00%	0.00%
CSX Corp	CSX	2,006.33	33.32	66,851	0.23%	1.32%	0.00%	3.11%	0.01%
Edwards Lifesciences Corp	EW	607.92	82.07	49,892	0.17%			10.65%	0.02%
Ameriprise Financial Inc	AMP	104.18	348.45	36,301	0.12%	1.55%	0.00%	17.59%	0.02%
Zebra Technologies Corp	ZBRA	51.43	307.96	15,838					
Zimmer Biomet Holdings Inc	ZBH	208.57	138.15	28,814	0.10%	0.69%	0.00%	9.20%	0.01%
Camden Property Trust	CPT	106.76	109.09	11,647	0.04%	3.67%	0.00%	3.48%	0.00%
CBRE Group Inc	CBRE	309.84	83.31	25,813					
Mastercard Inc	MA	934.85	394.28	368,592	1.26%	0.58%	0.01%	18.18%	0.23%
CarMax Inc	KMX	158.21	82.61	13,070	0.04%			15.54%	0.01%
Intercontinental Exchange Inc	ICE	559.87	114.80	64,273	0.22%	1.46%	0.00%	11.21%	0.02%
Fidelity National Information Services Inc	FIS	592.44	60.38	35,771	0.12%	3.44%	0.00%	3.02%	0.00%
Chipotle Mexican Grill Inc	CMG	27.59	1,962.28	54,135				26.95%	
Wynn Resorts Ltd	WYNN	113.80	108.98	12,402		0.92%			
Live Nation Entertainment Inc	LYV	230.15	87.75	20,196					
Assurant Inc	AIZ	53.15	134.51	7,149	0.02%	2.08%	0.00%	11.43%	0.00%
NRG Energy Inc	NRG	230.23	37.99	8,747	0.03%	3.97%	0.00%	4.03%	0.00%
Monster Beverage Corp	MNST	1,046.71	57.49	60,175				22.52%	
Regions Financial Corp	RF	938.31	20.37	19,113	0.07%	4.71%	0.00%	2.08%	0.00%
Baker Hughes Co	BKR	1,009.65	35.79	36,136		2.24%		57.62%	
Mosaic Co/The	MOS	332.11	40.76	13,537	0.05%	1.96%	0.00%	7.00%	0.00%
Expedia Group Inc	EXPE	142.60	122.53	17,473	0.06%			17.50%	0.01%
CF Industries Holdings Inc	CF	194.92	82.08	15,999	0.05%	1.95%	0.00%	6.00%	0.00%
APA Corp	APA	308.60	40.49	12,495		2.47%		-2.60%	
Leidos Holdings Inc	LDOS	137.17	93.53	12,829	0.04%	1.54%	0.00%	5.95%	0.00%
Alphabet Inc	GOOG	5,801.00	133.11	772,171	2.63%			16.51%	0.43%
First Solar Inc	FSLR	106.83	207.40	22,157				44.40%	
Cooper Cos Inc/The	COO	49.51	391.26	19,371	0.07%	0.02%	0.00%	9.00%	0.01%
TE Connectivity Ltd	TEL	313.94	143.49	45,047	0.15%	1.64%	0.00%	3.10%	0.00%
Discover Financial Services	DFS	249.95	105.55	26,382	0.09%	2.65%	0.00%	6.85%	0.01%
Linde PLC	LIN	487.95	390.67	190,626	0.65%	1.31%	0.01%	13.50%	0.09%
Visa Inc	V	1,606.79	237.73	381,982	1.30%	0.76%	0.01%	14.91%	0.19%
Mid-America Apartment Communities Inc	MAA	116.68	149.66	17,462		3.74%			
Xylem Inc/NY	XYL	239.35	112.75	26,987		1.17%			
Marathon Petroleum Corp	MPC	424.28	133.02	56,438		2.26%		29.12%	
Advanced Micro Devices Inc	AMD	1,610.36	114.40	184,225	0.63%			6.10%	0.04%
Tractor Supply Co	TSCO	109.57	223.99	24,542	0.08%	1.84%	0.00%	7.63%	0.01%
ResMed Inc	RMD	147.07	222.35	32,701	0.11%	0.79%	0.00%	11.62%	0.01%
Mettler-Toledo International Inc	MTD	21.87	1,257.47	27,495	0.09%			9.75%	0.01%
VICI Properties Inc	VICI	1,013.43	31.48	31,903	0.11%	4.96%	0.01%	6.33%	0.01%
Copart Inc	CPRT	477.44	88.39	42,201	0.14%			10.00%	0.01%
Jacobs Solutions Inc	J	126.85	125.41	15,908	0.05%	0.83%	0.00%	9.26%	0.01%
Fortinet Inc	FTNT	785.20	77.72	61,025	0.21%			18.50%	0.04%
Albemarle Corp	ALB	117.34	212.28	24,908		0.75%		36.57%	
Moderna Inc	MRNA	381.21	117.66	44,853				-65.68%	

		[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	Bloomberg Growth Rate	Cap-Weighted Long-Term Growth Est.
Essex Property Trust Inc	ESS	64.18	243.55	15,632	0.05%	3.79%	0.00%	9.80%	0.01%
CoStar Group Inc	CSGP	408.34	83.97	34,288	0.12%			20.00%	0.02%
Realty Income Corp	O	673.22	60.97	41,046	0.14%	5.03%	0.01%	0.25%	0.00%
Westrock Co	WRK	256.13	33.29	8,527		3.30%		-24.09%	
Westinghouse Air Brake Technologies Corp	WAB	179.13	118.44	21,216	0.07%	0.57%	0.00%	11.33%	0.01%
Pool Corp	POOL	39.05	384.74	15,025		1.14%		-4.92%	
Western Digital Corp	WDC	319.94	42.56	13,617				-22.46%	
PepsiCo Inc	PEP	1,376.58	187.46	258,054	0.88%	2.70%	0.02%	8.64%	0.08%
Diamondback Energy Inc	FANG	181.09	147.32	26,679	0.09%	2.28%	0.00%	2.00%	0.00%
Palo Alto Networks Inc	PANW	305.86	249.96	76,452				30.00%	
ServiceNow Inc	NOW	204.00	583.00	118,932				30.00%	
Church & Dwight Co Inc	CHD	246.05	95.67	23,539	0.08%	1.14%	0.00%	5.85%	0.00%
Federal Realty Investment Trust	FRT	81.52	101.52	8,275	0.03%	4.26%	0.00%	6.20%	0.00%
MGM Resorts International	MGM	363.80	50.77	18,470					
American Electric Power Co Inc	AEP	515.18	84.74	43,656	0.15%	3.92%	0.01%	5.61%	0.01%
SolarEdge Technologies Inc	SEDG	56.35	241.46	13,605				36.57%	
Invitation Homes Inc	INVH	611.96	35.50	21,724	0.07%	2.93%	0.00%	7.96%	0.01%
PTC Inc	PTC	118.35	145.81	17,257	0.06%			16.99%	0.01%
JB Hunt Transport Services Inc	JBHT	103.35	203.52	21,033	0.07%	0.83%	0.00%	15.00%	0.01%
Lam Research Corp	LRCX	133.30	718.49	95,773		0.96%			
Mohawk Industries Inc	MHK	63.68	106.34	6,772				-1.83%	
Pentair PLC	PNR	165.11	69.50	11,475	0.04%	1.27%	0.00%	6.14%	0.00%
GE HealthCare Technologies Inc	GEHC	454.84	78.00	35,477	0.12%	0.15%	0.00%	13.50%	0.02%
Vertex Pharmaceuticals Inc	VRTX	257.55	352.34	90,746	0.31%			14.12%	0.04%
Amcor PLC	AMCR	1,471.44	10.26	15,097		4.78%		-0.83%	
Meta Platforms Inc	META	2,222.58	318.60	708,115				21.72%	
T-Mobile US Inc	TMUS	1,176.46	137.77	162,080	0.55%			5.00%	0.03%
United Rentals Inc	URI	68.28	464.68	31,730		1.27%		21.02%	
Alexandria Real Estate Equities Inc	ARE	173.03	125.68	21,746	0.07%	3.95%	0.00%	4.05%	0.00%
Honeywell International Inc	HON	663.96	194.13	128,895	0.44%	2.12%	0.01%	9.50%	0.04%
Delta Air Lines Inc	DAL	643.42	46.26	29,765		0.86%		37.89%	
United Airlines Holdings Inc	UAL	326.73	54.31	17,745				67.35%	
Seagate Technology Holdings PLC	STX	207.08	63.50	13,150	0.04%	4.41%	0.00%	1.21%	0.00%
News Corp	NWS	192.52	20.11	3,871	0.01%	0.99%	0.00%	1.60%	0.00%
Centene Corp	CNC	541.48	68.09	36,869	0.13%			8.43%	0.01%
Martin Marietta Materials Inc	MLM	61.80	446.46	27,593	0.09%	0.59%	0.00%	19.03%	0.02%
Teradyne Inc	TER	155.04	112.94	17,510	0.06%	0.39%	0.00%	20.00%	0.01%
PayPal Holdings Inc	PYPL	1,115.71	75.82	84,593	0.29%			15.72%	0.05%
Tesla Inc	TSLA	3,173.99	267.43	848,821	2.89%			16.00%	0.46%
Arch Capital Group Ltd	ACGL	372.90	77.69	28,971	0.10%			14.50%	0.01%
Dow Inc	DOW	703.08	56.47	39,703	0.14%	4.96%	0.01%	2.78%	0.00%
Everest Group Ltd	EG	43.40	360.51	15,646		1.83%		33.49%	
Teledyne Technologies Inc	TDY	47.08	384.53	18,102	0.06%			6.47%	0.00%
News Corp	NWSA	380.95	19.82	7,550	0.03%	1.01%	0.00%	1.60%	0.00%
Exelon Corp	EXC	994.30	41.86	41,621	0.14%	3.44%	0.00%	5.30%	0.01%
Global Payments Inc	GPN	261.95	110.25	28,880	0.10%	0.91%	0.00%	13.69%	0.01%
Crown Castle Inc	CCI	434.00	108.29	46,998		5.78%			
Aptiv PLC	APTV	270.51	109.49	29,618	0.10%			11.94%	0.01%
Advance Auto Parts Inc	AAP	59.44	74.39	4,422		1.34%		-7.41%	
Align Technology Inc	ALGN	76.52	377.89	28,915	0.10%			17.54%	0.02%
Illumina Inc	ILMN	158.10	192.15	30,379					
Targa Resources Corp	TRGP	226.02	81.99	18,531		2.44%			
LKQ Corp	LKQ	267.56	54.79	14,659		2.01%			
Zoetis Inc	ZTS	462.11	188.09	86,919	0.30%	0.80%	0.00%	10.91%	0.03%
Digital Realty Trust Inc	DLR	299.24	124.62	37,291	0.13%	3.92%	0.00%	6.59%	0.01%
Equinix Inc	EQIX	93.52	809.92	75,746	0.26%	1.68%	0.00%	14.96%	0.04%
Las Vegas Sands Corp	LVS	764.45	59.81	45,722		0.33%			
Molina Healthcare Inc	MOH	58.30	304.49	17,752	0.06%			11.74%	0.01%

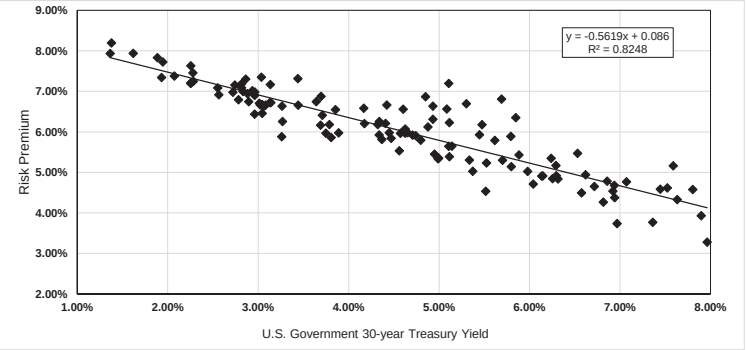
Notes:
[1] Equals sum of Col. [9]
[2] Equals sum of Col. [11]
[3] Equals ([1] x (1 + (0.5 x [2]))) + [2]
[4] Source: Bloomberg Professional as of July 31, 2023
[5] Source: Bloomberg Professional as of July 31, 2023
[6] Equals [4] x [5]
[7] Equals weight in the S&P 500
[8] Source: Bloomberg Professional as of July 31, 2023
[9] Equals [7] x [8]
[10] Source: Bloomberg Professional, as of July 31, 2023
[11] Equals [7] x [10]

BOND YIELD PLUS RISK PREMIUM

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

BOND YIELD PLUS RISK PREMIUM

	[1]	[2]	[3]
Quarter	Average Authorized VI Electric ROE	U.S. Govt. 30-year Treasury	Risk Premium
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	9.67%	3.81%	5.86%
AVERAGE	10.59%	4.54%	6.05%
MEDIAN	10.55%	4.59%	6.17%



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.908174
R Square	0.824780
Adjusted R Square	0.823367
Standard Error	0.004285
Observations	126

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.010715	0.010715	583.682526	0.000000
Residual	124	0.002276	0.000018		
Total	125	0.012991			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.0860	0.0011	76.56	0.00000	0.08378	0.08823	0.08378	0.08823
U.S. Govt. 30-year Treasury	(0.5619)	0.0233	(24.16)	0.00000	(0.60790)	(0.51583)	(0.60790)	(0.51583)

	[7] U.S. Govt. 30-year Treasury	[8] Risk Premium	[9] ROE
Current 30-day average of 30-year U.S. Treasury bond yield [4]	3.92%	6.40%	10.32%
Blue Chip Near-Term Projected Forecast (Q4 2023 - Q4 2024) [5]	3.90%	6.41%	10.31%
Blue Chip Long-Term Projected Forecast (2025-2029) [6]	3.80%	6.47%	10.27%
AVERAGE			10.30%

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

SIZE PREMIUM CALCULATION

Proxy Group Market Capitalization and Market-to-Book Ratio

Company	Ticker	[1] Market Capitalization ($ billions)	[2] Market-to-Book Ratio
ALLETE, Inc.	ALE	3.33	1.23
Alliant Energy Corporation	LNT	13.46	2.13
Ameren Corporation	AEE	22.10	2.08
American Electric Power Company, Inc.	AEP	43.95	1.85
Avista Corporation	AVA	2.95	1.24
CMS Energy Corporation	CMS	17.62	2.57
Duke Energy Corporation	DUK	70.78	1.50
Entergy Corporation	ETR	21.14	1.62
Evergy, Inc.	EVRG	13.64	1.44
IDACORP, Inc.	IDA	5.24	1.86
NextEra Energy, Inc.	NEE	149.35	3.46
NorthWestern Corporation	NWE	3.42	1.27
OGE Energy Corporation	OGE	7.24	1.66
Pinnacle West Capital Corporation	PNW	9.38	1.55
Portland General Electric Company	POR	4.60	1.47
Southern Company	SO	77.65	2.54
Xcel Energy Inc.	XEL	34.85	2.07
Average		29.45	1.85
Median		13.64	1.66
Otter Tail Power Corporation	OTTR	3.32	2.63

OTP		
Test Year Rate Base ($millions)	[3]	$ 661.77
Proposed Common Equity Ratio	[4]	53.50%
Common Equity ($ millions)	[5]	$ 354.05
Implied Market Capitalization	[6]	$ 586.65
Market Capitalization of Proxy Group (median) ($millions)	[7]	$ 13,644.96
In % of Proxy Group Market Capitalization (median)	[8]	4.30%

Kroll Cost of Capital Navigator -- Size Premium

Breakdown of Deciles 1-10	[9] Market Capitalization of Largest Company ($ millions)	[10] Size Premium
1-Largest	2,203,381.29	-0.26%
2	31,316.51	0.45%
3	12,323.85	0.57%
4	5,916.02	0.58%
5	3,769.88	0.93%
6	2,365.08	1.16%
7	1,389.12	1.37%
8	782.38	1.18%
9	373.88	2.15%
10-Smallest	218.23	4.83%
OTP - Implied Market Capitalization	[6] 586.65	1.18%
Proxy Group Market Capitalization (median)	[7] 13,644.96	0.45%
Size Premium	[11]	0.73%

Notes:
[1]-[2] S&P Capital IQ Pro, equals 30-day average as of July 31, 2023
[3] Data provided by the Company
[4] Data provided by the Company
[5] Equals [3] x [4]
[6] Equals [5] x median market-to-book ratio of proxy group
[7] Equals median market capitalization of proxy group x 1000
[8] Equals [6] / [7]
[9]-[10] Kroll Cost of Capital Navigator - Size Premium: Annual Data as of 12/31/2022
[11] Size Premium of OTP less Size Premium of Proxy Group

TRADING VOLUME ANALYSIS

Average Since	Proxy Group		OTTR		OTTR/Proxy Group	
	Daily Average Volume Traded (Millions)	Daily Average Volume Traded as % of Shares Outstanding	Daily Average Volume Traded (Millions)	Daily Average Volume Traded as % of Shares Outstanding	By Volume	By Volume As % of Shares Outs.
30-Day Avg.	2.04	0.633%	0.17	0.418%	9%	66%
90-day Avg.	1.87	0.559%	0.17	0.416%	9%	74%
180-day Avg.	1.95	0.600%	0.26	0.621%	13%	104%
2023 YTD	1.96	0.595%	0.28	0.683%	15%	115%
Jan 2022 - Present	2.01	0.595%	0.21	0.497%	10%	84%
Jan 2021 - Present	1.96	0.587%	0.17	0.412%	9%	70%
Jan 2020 - Present	2.03	0.613%	0.16	0.389%	8%	63%
Jan 2019 - Present	2.02	0.612%	0.14	0.351%	7%	57%

Notes:

[1] Source: S&P Capital IQ, as of July 31, 2023

[2] Daily Average Volumes for OTTR excludes 2/17/2023 through 2/23/2023. The addition of OTTR to the S&P SmallCap 600 caused a brief significant increase in trading volumes for OTTR between 2/17/2023 and 2/23/2023.

INSTITUTIONAL OWNERSHIP ANALYSIS

Company	Ticker	[1] Institutional Ownership by Percent Shares Held	[2] Rank
ALLETE, Inc.	ALE	77.26%	13
Alliant Energy Corporation	LNT	78.36%	12
Ameren Corporation	AEE	79.34%	10
American Electric Power Company, Inc.	AEP	75.87%	14
Avista Corporation	AVA	79.94%	8
CMS Energy Corporation	CMS	98.84%	3
Duke Energy Corporation	DUK	64.82%	16
Entergy Corporation	ETR	88.14%	4
Evergy, Inc.	EVRG	84.22%	6
IDACORP, Inc.	IDA	83.59%	7
NextEra Energy, Inc.	NEE	79.70%	9
NorthWestern Corporation	NWE	98.97%	2
OGE Energy Corporation	OGE	68.40%	15
Pinnacle West Capital Corporation	PNW	88.12%	5
Portland General Electric Company	POR	100.00%	1
Southern Company	SO	64.33%	17
Xcel Energy Inc.	XEL	79.23%	11
Otter Tail Corporation	OTTR	60.74%	18
Average Excl. OTTR		81.71%	

Notes:

[1] Source: S&P Capital IQ Pro, as of September 14, 2023.

[2] The proxy group companies are ranked with 1 representing the highest level of institutional ownership and 18 representing the lowest.

[3] For all % greater than 100%, Brattle manually adjusted the values to 100%.

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

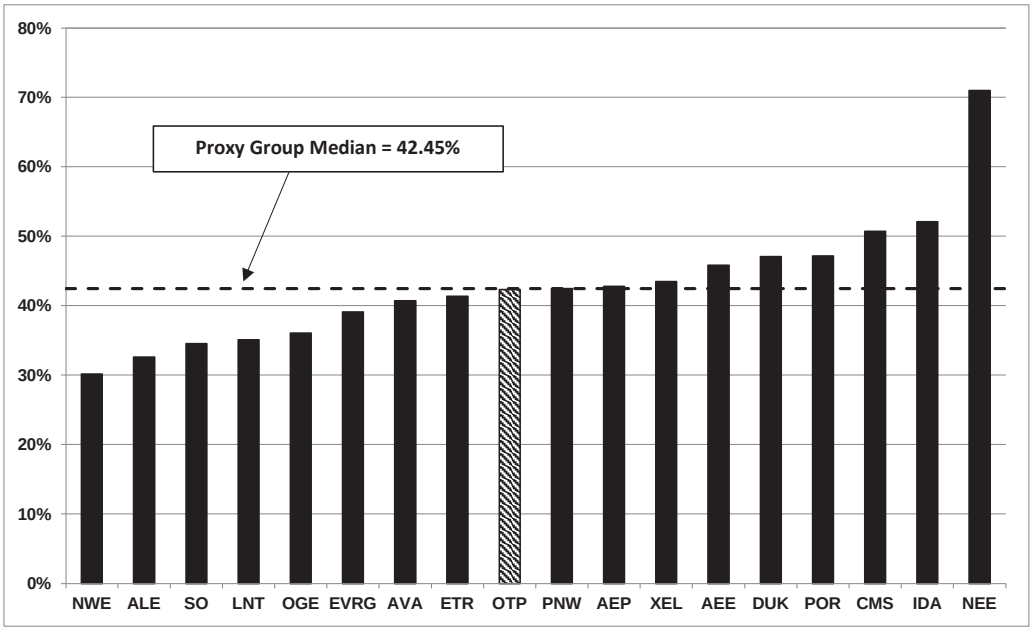
		[1]	[2]	[3]	[4]	[5]	[6]	
		2022	2024	2025	2026	2027	2024-27 Cap. Ex. / 2022 Net Plant	Rank
ALLETE, Inc.	ALE							
Capital Spending per Share			$5.95	$6.60	$7.25	$7.25		
Common Shares Outstanding			59.00	60.00	61.00	61.00		
Capital Expenditures			$351.1	$396.0	$442.3	$442.3	32.60%	2
Net Plant		$5,004.0						
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%	13
Net Plant		$31,262.0						
American Electric Power Company	AEP							
Capital Spending per Share			$14.15	$14.08	$14.00	$14.00		
Common Shares Outstanding			530.00	540.00	550.00	550.00		
Capital Expenditures			$7,499.5	$7,600.5	$7,700.0	$7,700.0	42.79%	11
Net Plant		$71,283.0						
Avista Corporation	AVA							
Capital Spending per Share			$6.55	$6.68	$6.80	$6.80		
Common Shares Outstanding			78.50	81.75	85.00	85.00		
Capital Expenditures			$514.2	$545.7	$578.0	$578.0	40.70%	7
Net Plant		$5,444.7						
CMS Energy Corporation	CMS							
Capital Spending per Share			$9.50	$9.63	$9.75	$9.75		
Common Shares Outstanding			295.00	297.50	300.00	300.00		
Capital Expenditures			$2,802.5	$2,863.4	$2,925.0	$2,925.0	50.70%	16
Net Plant		$22,713.0						
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	47.04%	14
Net Plant		$111,748.0						
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%	8
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%	6
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%	17
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%	18
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%	1
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	36.07%	5
Net Plant		$10,546.8						
Pinnacle West Capital Corporation	PNW							
Capital Spending per Share			$15.00	$15.00	$15.00	$15.00		
Common Shares Outstanding			118.00	119.00	120.00	120.00		
Capital Expenditures			$1,770.0	$1,785.0	$1,800.0	$1,800.0	42.45%	10
Net Plant		$16,854.0						
Portland General Electric Company	POR							
Capital Spending per Share			$10.00	$10.00	$10.00	$10.00		
Common Shares Outstanding			99.50	99.75	100.00	100.00		
Capital Expenditures			$995.0	$997.5	$1,000.0	$1,000.0	47.16%	15
Net Plant		$8,465.0						
Southern Company	SO							
Capital Spending per Share			$7.85	$7.68	$7.50	$7.50		
Common Shares Outstanding			1070.00	1070.00	1070.00	1070.00		
Capital Expenditures			$8,399.5	$8,212.3	$8,025.0	$8,025.0	34.54%	3
Net Plant		$94,570.0						
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%	12
Net Plant		$48,253.0						
Otter Tail Power Company	OTP							
Capital Expenditures [7]			$247.00	$208.00	$239.00	$194.00	42.33%	9
Net Plant [8]		$2,098.0						
OTP CapEx Total (2024 - 2027)							$888.0	
OTP CapEx Annual Average							$222.0	
Proxy Group Median							42.45%	
OTP as % Proxy Group Median							1.00	

Notes:
[1] - [5] Source: Value Line, dated May 12, June 9, July 21, 2023.
[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	NorthWestern Corporation	NWE	30.14%
2	ALLETE, Inc.	ALE	32.60%
3	Southern Company	SO	34.54%
4	Alliant Energy Corporation	LNT	35.06%
5	OGE Energy Corporation	OGE	36.07%
6	Evergy, Inc.	EVRG	39.09%
7	Avista Corporation	AVA	40.70%
8	Entergy Corporation	ETR	41.36%
9	Otter Tail Power Company	OTP	42.33%
10	Pinnacle West Capital Corporation	PNW	42.45%
11	American Electric Power Company	AEP	42.79%
12	Xcel Energy Inc.	XEL	43.46%
13	Ameren Corporation	AEE	45.82%
14	Duke Energy Corporation	DUK	47.04%
15	Portland General Electric Company	POR	47.16%
16	CMS Energy Corporation	CMS	50.70%
17	IDACORP, Inc.	IDA	52.10%
18	NextEra Energy, Inc.	NEE	70.97%

Proxy Group Median	42.45%
OTP / Proxy Group	1.00

Notes:
Source: Exhibit___(AEB-1), Schedule 12, pages 1-2 col. [6]

COMPARISON OF OTTER TAIL POWER COMPANY AND PROXY GROUP COMPANIES
RISK ASSESSMENT

				[1]	[2]	[3]	[4]	[5]
					Non-Volumetric Rate Design			
Proxy Group Company	Operating Subsidiary	Jurisdiction	Service	Test Year	Revenue Decoupling	Formula-based rates	Straight Fixed-Variable Rate Design	Non-Volumetric Rate Design
ALLETE, Inc.	ALLETE (Minnesota Power)	Minnesota	Electric	Fully Forecast	No	No	No	No
Alliant Energy Corporation	Interstate Power & Light Co.	Iowa	Electric	Historical	No	No	No	No
	Interstate Power & Light Co.	Iowa	Gas	Historical	No	No	No	No
	Wisconsin Power & Light Co.	Wisconsin	Electric	Fully Forecast	No	No	No	No
	Wisconsin Power & Light Co.	Wisconsin	Gas	Fully Forecast	No	No	No	No
Ameren Corporation	Ameren Illinois Co.	Illinois	Electric	Historical	Partial	Yes	No	Yes
	Ameren Illinois Co.	Illinois	Gas	Fully Forecast	Partial	No	No	Yes
	Union Electric Co.	Missouri	Electric	Historical	Partial	No	No	Yes
	Union Electric Co.	Missouri	Gas	Historical	Partial	No	No	Yes
American Electric Power Company, Inc.	Southwestern Electric Power Co.	Arkansas	Electric	Historical	Partial	Yes	No	Yes
	Indiana Michigan Power Co.	Indiana	Electric	Fully Forecast	Full	No	No	Yes
	Kentucky Power Co.	Kentucky	Electric	Fully Forecast	Partial	No	No	Yes
	Southwestern Electric Power Co.	Louisiana	Electric	Historical	Partial	Yes	No	Yes
	Indiana Michigan Power Co.	Michigan	Electric	Fully Forecast	Partial	No	No	Yes
	Ohio Power Co.	Ohio	Electric	Partially Forecast	Partial	No	No	Yes
	Public Service Co. of Oklahoma	Oklahoma	Electric	Historical	Partial	No	No	Yes
	Kingsport Power Co.	Tennessee	Electric	Fully Forecast	No	No	No	No
	AEP Texas Inc.	Texas	Electric	Historical	No	No	No	No
	Southwestern Electric Power Co.	Texas	Electric	Historical	No	No	No	No
	Appalachian Power Co.	Virginia	Electric	Historical	No	No	No	No
	Appalachian Power Co./Wheeling Power Co.	West Virginia	Electric	Historical	No	No	No	No
Avista Corporation	Alaska Electric Light & Power Co.	Alaska	Electric	Historical	No	No	No	No
	Avista Corp.	Idaho	Electric	Historical	Full	No	No	Yes
	Avista Corp.	Idaho	Gas	Historical	Full	No	No	Yes
	Avista Corp.	Oregon	Gas	Fully Forecast	Partial	No	No	Yes
	Avista Corp.	Washington	Electric	Historical	Full	No	No	Yes
	Avista Corp.	Washington	Gas	Historical	Full	No	No	Yes
CMS Energy Corporation	Consumers Energy Co.	Michigan	Electric	Fully Forecast	No	No	No	No
	Consumers Energy Co.	Michigan	Gas	Fully Forecast	Partial	No	No	Yes
Duke Energy Corporation	Duke Energy Florida LLC	Florida	Electric	Fully Forecast	No	No	No	No
	Duke Energy Indiana LLC	Indiana	Electric	Historical	Partial	No	No	Yes
	Duke Energy Kentucky Inc.	Kentucky	Electric	Fully Forecast	Partial	No	No	Yes
	Duke Energy Kentucky Inc.	Kentucky	Gas	Fully Forecast	Partial	No	No	Yes
	Duke Energy Carolinas LLC/Duke Energy Progress LLC	North Carolina	Electric	Historical	No	No	No	No
	Piedmont Natural Gas Co. Inc.	North Carolina	Gas	Historical	Full	No	No	Yes
	Duke Energy Ohio Inc.	Ohio	Electric	Partially Forecast	Partial	No	No	Yes
	Duke Energy Ohio Inc.	Ohio	Gas	Partially Forecast	No	No	Yes	Yes
	Duke Energy Carolinas LLC/Duke Energy Progress LLC	South Carolina	Electric	Historical	No	No	No	No
	Piedmont Natural Gas Co. Inc.	South Carolina	Gas	Historical	Partial	No	No	Yes
	Piedmont Natural Gas Co. Inc.	Tennessee	Gas	Fully Forecast	Partial	No	No	Yes
Entergy Corporation	Entergy Arkansas LLC	Arkansas	Electric	Fully Forecast	Partial	Yes	No	Yes
	Entergy New Orleans LLC	Louisiana-NOCC	Electric	Partially Forecast	No	Yes	No	Yes
	Entergy New Orleans LLC	Louisiana-NOCC	Gas	Partially Forecast	No	Yes	No	Yes
	Entergy Louisiana LLC	Louisiana	Electric	Historical	Partial	Yes	No	Yes
	Entergy Louisiana LLC	Louisiana	Gas	Historical	No	Yes	No	Yes
	Entergy Mississippi LLC	Mississippi	Electric	Fully Forecast	Partial	Yes	No	Yes
	Entergy Texas Inc.	Texas	Electric	Historical	No	No	No	No
Evergy, Inc.	Evergy Kansas Central Inc	Kansas	Electric	Historical	Partial	No	No	Yes
	Evergy Metro Inc.	Kansas	Electric	Historical	No	No	No	No
	Evergy Metro Inc	Missouri	Electric	Historical	Partial	No	No	Yes
	Evergy Missouri West Inc.	Missouri	Electric	Historical	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
American Electric Power Company, Inc.	Southwestern Electric Power Co.	Arkansas	Electric	Yes	No	No	Yes	Yes
	Indiana Michigan Power Co.	Indiana	Electric	No	Yes	Yes	Yes	Yes
	Kentucky Power Co.	Kentucky	Electric	No	No	Yes	No	Yes
	Southwestern Electric Power Co.	Louisiana	Electric	No	No	No	No	No
	Indiana Michigan Power Co.	Michigan	Electric	No	Yes	No	No	Yes
	Ohio Power Co.	Ohio	Electric	No	Yes	Yes	No	Yes
	Public Service Co. of Oklahoma	Oklahoma	Electric	No	Yes	Yes	No	Yes
	Kingsport Power Co.	Tennessee	Electric	No	No	No	No	No
	AEP Texas Inc.	Texas	Electric	No	No	Yes	No	Yes
	Southwestern Electric Power Co.	Texas	Electric	No	No	Yes	No	Yes
	Appalachian Power Co.	Virginia	Electric	Yes	No	No	Yes	Yes
	Appalachian Power Co./Wheeling Power Co.	West Virginia	Electric	No	No	No	Yes	Yes
Avista Corporation	Alaska Electric Light & Power Co.	Alaska	Electric	No	No	No	No	No
	Avista Corp.	Idaho	Electric	No	No	No	No	No
	Avista Corp.	Idaho	Gas	No	No	No	No	No
	Avista Corp.	Oregon	Gas	No	No	No	No	No
	Avista Corp.	Washington	Electric	No	No	No	No	No
	Avista Corp.	Washington	Gas	No	No	No	No	No
CMS Energy Corporation	Consumers Energy Co.	Michigan	Electric	No	Yes	No	No	Yes
	Consumers Energy Co.	Michigan	Gas	No	No	No	No	No
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 LLC	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 LLC	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-NOCC	Electric	No	Yes	No	Yes	Yes
	Entergy New Orleans LLC	Louisiana-NOCC	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

COMPARISON OF OTTER TAIL POWER COMPANY AND PROXY GROUP COMPANIES
RISK ASSESSMENT

				[1]	[2]	[3]	[4]	[5]
					Non-Volumetric Rate Design			
Proxy Group Company	**Operating Subsidiary**	**Jurisdiction**	**Service**	**Test Year**	**Revenue Decoupling**	**Formula-based rates**	**Straight Fixed-Variable Rate Design**	**Non-Volumetric Rate Design**
IDACORP, Inc.	Idaho Power Co.	Idaho	Electric	Partially Forecast	Full	No	No	Yes
	Idaho Power Co.	Oregon	Electric	Partially Forecast	No	No	No	No
NextEra Energy, Inc.	Florida Power & Light Co.	Florida	Electric	Fully Forecast	No	No	No	No
	Pivotal Utility Holdings Inc.	Florida	Gas	Fully Forecast	No	No	No	No
	Lone Star Transmission LLC	Texas	Electric	Historical	No	No	No	No
NorthWestern Corporation	NorthWestern Corporation	Montana	Electric	Historical	No	No	No	No
	NorthWestern Corporation	Montana	Gas	Historical	No	No	No	No
	NorthWestern Corporation	Nebraska	Gas	Historical	No	No	No	No
	NorthWestern Corporation	South Dakota	Electric	Historical	No	No	No	No
	NorthWestern Corporation	South Dakota	Gas	Historical	No	No	No	No
OGE Energy Corporation	Oklahoma Gas & Electric Co.	Arkansas	Electric	Historical	Partial	No	Yes	Yes
	Oklahoma Gas & Electric Co.	Oklahoma	Electric	Historical	Partial	No	Yes	Yes
Pinnacle West Capital Corporation	Arizona Public Service Co.	Arizona	Electric	Historical	Partial	No	No	Yes
Portland General Electric Company	Portland General Electric Co.	Oregon	Electric	Fully Forecast	No	No	No	No
Southern Company	Alabama Power Co.	Alabama	Electric	Historical	No	Yes	No	Yes
	Atlanta Gas Light Co.	Georgia	Electric	Fully Forecast	No	Yes	No	Yes
	Georgia Power Co.	Georgia	Gas	Fully Forecast	No	Yes	Yes	Yes
	Northern Illinois Gas Co.	Illinois	Gas	Fully Forecast	Partial	No	No	Yes
	Mississippi Power Co.	Mississippi	Electric	Fully Forecast	Partial	Yes	No	Yes
	Chattanooga Gas Co.	Tennessee	Gas	Historical	Partial	Yes	No	Yes
	Virginia Natural Gas Inc.	Virginia	Gas	Historical	Partial	No	No	Yes
Xcel Energy Inc.	Public Service Co. of Colorado	Colorado	Electric	Historical	Partial	No	No	Yes
	Public Service Co. of Colorado	Colorado	Gas	Historical	Partial	No	No	Yes
	Northern States Power Co.-Minnesota	Minnesota	Electric	Fully Forecast	Partial	Yes	No	Yes
	Northern States Power Co.-Minnesota	Minnesota	Gas	Fully Forecast	No	No	No	No
	Southwestern Public Service Co.	New Mexico	Electric	Historical	No	No	No	No
	Northern States Power Co.-Minnesota	North Dakota	Electric	Fully Forecast	No	No	No	No
	Northern States Power Co.-Minnesota	North Dakota	Gas	Fully Forecast	No	No	Yes	Yes
	Northern States Power Co.-Minnesota	South Dakota	Electric	Historical	Partial	No	No	Yes
	Southwestern Public Service Co.	Texas	Electric	Historical	No	No	No	No
	Northern States Power Co.-Wisconsin	Wisconsin	Electric	Fully Forecast	No	No	No	No
	Northern States Power Co.-Wisconsin	Wisconsin	Gas	Fully Forecast	No	No	No	No

			Non-Volumetric Rate Design	
Proxy Group Average	Fully Forecast	30	Yes	50
	Partially Forecast	7	No	33
	Historical	46		
	Forecast	44.58%	NVRD	60.24%

OTP [11]	Fully Forecasted	No	No	No	No

Notes:
[1] Sources: Regulatory Research Associates, effective as of July 31, 2023
[2] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022. Operating subsidiaries not covered in this report were excluded 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.

COMPARISON OF OTTER TAIL POWER COMPANY AND PROXY GROUP COMPANIES
RISK ASSESSMENT

Proxy Group Company	Operating Subsidiary	Jurisdiction	Service	[6] Capital Cost Recovery: Traditional Generation	[7] Capital Cost Recovery: Renewables/Non-Traditional Generation	[8] Capital Cost Recovery: Delivery Infrastructure	[9] Capital Cost Recovery: Environmental Compliance	[10] Capital Cost Recovery
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 & Electric Co.	Arkansas	Electric	No	No	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
Portland General Electric Company	Portland General Electric Co.	Oregon	Electric	Yes	Yes	No	Yes	Yes
Southern Company	Alabama Power Co.	Alabama	Electric	Yes	Yes	No	Yes	Yes
	Atlanta Gas Light Co.	Georgia	Electric	No	No	Yes	Yes	Yes
	Georgia Power Co.	Georgia	Gas	Yes	No	No	Yes	Yes
	Northern Illinois Gas Co.	Illinois	Gas	No	No	Yes	Yes	Yes
	Mississippi Power Co.	Mississippi	Electric	No	No	No	Yes	Yes
	Chattanooga Gas Co.	Tennessee	Gas	No	No	No	No	No
	Virginia Natural Gas Inc.	Virginia	Gas	No	No	Yes	No	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	56
No	27
CCRM	67.47%

OTP [11]				Yes	Yes	Yes	Yes	Yes

Notes:
[1] Sources: Regulatory Research Associates, effective as of July 31, 2023
[2] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022. Operating subsidiaries not co\
[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.

FLOTATION COST ADJUSTMENT

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Company	Ticker	Date [i]	Shares Issued (000)	Offering Price	Under-writing Discount [ii]	Offering Expense ($000)	Net Proceeds Per Share	Total Flotation Costs ($000)	Gross Equity Issue Before Costs ($000)	Net Proceeds ($000)	Flotation Cost Percentage
Otter Tail Corporation - Secondary	OTTR	2004-05	3,075.00	25.45	0.95	391.45	24.37	3,312.70	78,258.75	74,946.05	4.23%
Otter Tail Corporation - Secondary	OTTR	2008	5,175.00	30.00	1.09	807.19	28.76	6,435.00	155,250.00	148,815.00	4.14%
Otter Tail Corporation - ESPP	OTTR	2004	66.96	19.31	-	-	19.31	0.00	1,293.00	1,293.00	0.00%
Otter Tail Corporation - ESPP	OTTR	2009	62.45	19.18	-	-	19.18	0.00	1,197.79	1,197.79	0.00%
Otter Tail Corporation - ESPP	OTTR	2014	39.22	26.75	-	-	26.75	0.00	1,049.14	1,049.14	0.00%
Otter Tail Corporation - ESPP	OTTR	2015	42.25	25.93	-	-	25.93	0.00	1,095.54	1,095.54	0.00%
Otter Tail Corporation - ESPP	OTTR	2016	53.88	27.68	-	1.16	27.66	1.16	1,491.40	1,490.24	0.08%
Otter Tail Corporation - ESPP	OTTR	2017	5.28	39.85	-	0.37	39.78	0.37	210.41	210.04	0.17%
Otter Tail Corporation - ESPP	OTTR	2019	15.45	44.3	-	0.84	44.25	0.84	684.44	683.60	0.12%
Otter Tail Corporation - ESPP	OTTR	2020	24.37	35.9	-	1.54	35.84	1.54	874.78	873.24	0.18%
Otter Tail Corporation - DRIP	OTTR	2004	223.17	19.3	-	-	19.30	0.00	4,307.18	4,307.18	0.00%
Otter Tail Corporation - DRIP	OTTR	2009	233.94	19.21	-	5.88	19.18	5.88	4,493.99	4,488.11	0.13%
Otter Tail Corporation - DRIP	OTTR	2014	288.05	26.76	-	-	26.76	0.00	7,708.22	7,708.22	0.00%
Otter Tail Corporation - DRIP	OTTR	2015	330.38	25.93	-	56.55	25.76	56.55	8,566.75	8,510.20	0.66%
Otter Tail Corporation - DRIP	OTTR	2016	302.52	36.68	-	32.97	36.57	32.97	11,096.43	11,063.46	0.30%
Otter Tail Corporation - DRIP	OTTR	2017	107.29	38.58	-	17.55	38.42	17.55	4,139.25	4,121.70	0.42%
Otter Tail Corporation - DRIP	OTTR	2019	51.35	49.58	-	7.13	49.44	7.13	2,545.93	2,538.80	0.28%
Otter Tail Corporation - DRIP	OTTR	2020	190.68	42.03	-	20.93	41.92	20.93	8,014.92	7,993.99	0.26%
Otter Tail Corporation - ATM	OTTR	2014	519.64	29.51	0.59	780.62	27.42	1,087.36	15,334.58	14,247.21	7.09%
Otter Tail Corporation - ATM	OTTR	2015	133.20	28.42	0.42	339.16	25.45	395.65	3,785.54	3,389.89	10.45%
Otter Tail Corporation - ATM	OTTR	2016	1,014.12	32.77	-	561.55	32.22	561.55	33,235.73	32,674.18	1.69%
Otter Tail Corporation - ATM	OTTR	2019	372.00	50.96	1.55	237.22	48.77	814.35	18,957.30	18,142.95	4.30%
Otter Tail Corporation - ATM	OTTR	2020	843.48	42.89	-	452.23	42.36	452.23	36,178.36	35,726.13	1.25%
Total								$ 13,203.76	$ 399,769.43	$ 386,565.67	
										WEIGHTED AVERAGE FLOTATION COSTS	3.30%

[i] Offering Completion Date

[ii] Underwriting discount is calculated as the market price minus the offering price when not explicitly given in the prospectus.

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:

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

		[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Expected Dividend Yield Adjusted for Flotation Costs	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Earnings Growth	Cost of Equity: Mean Growth Rate	Cost of Equity Adjusted for Flotation Costs
ALLETE, Inc.	ALE	$2.71	$58.12	4.66%	4.84%	5.00%	6.00%	8.10%	8.10%	7.40%	12.24%	12.40%
Alliant Energy Corporation	LNT	$1.81	$53.11	3.41%	3.52%	3.64%	6.50%	7.00%	6.50%	6.67%	10.19%	10.31%
Ameren Corporation	AEE	$2.52	$84.17	2.99%	3.09%	3.19%	6.50%	5.90%	6.40%	6.27%	9.35%	9.46%
American Electric Power Company, Inc.	AEP	$3.32	$85.37	3.89%	4.00%	4.13%	6.00%	5.20%	5.60%	5.60%	9.60%	9.73%
Avista Corporation	AVA	$1.84	$38.97	4.72%	4.87%	5.04%	6.50%	6.30%	6.30%	6.37%	11.24%	11.40%
CMS Energy Corporation	CMS	$1.95	$59.91	3.25%	3.37%	3.49%	6.50%	7.80%	7.80%	7.37%	10.74%	10.86%
Duke Energy Corporation	DUK	$4.02	$91.84	4.38%	4.50%	4.65%	5.00%	5.74%	6.10%	5.61%	10.11%	10.27%
Entergy Corporation	ETR	$4.28	$99.98	4.28%	4.37%	4.52%	0.50%	6.60%	5.70%	4.27%	8.64%	8.79%
Evergy, Inc.	EVRG	$2.45	$59.41	4.12%	4.23%	4.37%	7.50%	2.67%	5.20%	5.12%	9.35%	9.50%
IDACORP, Inc.	IDA	$3.16	$102.78	3.07%	3.14%	3.25%	5.00%	3.70%	3.70%	4.13%	7.27%	7.38%
NextEra Energy, Inc.	NEE	$1.87	$73.81	2.53%	2.65%	2.74%	9.50%	8.80%	8.40%	8.90%	11.55%	11.64%
NorthWestern Corporation	NWE	$2.56	$57.12	4.48%	4.58%	4.74%	3.50%	4.50%	5.20%	4.40%	8.98%	9.14%
OGE Energy Corporation	OGE	$1.66	$35.97	4.60%	4.72%	4.88%	6.50%	negative	3.70%	5.10%	9.82%	9.98%
Pinnacle West Capital Corporation	PNW	$3.46	$81.98	4.22%	4.33%	4.47%	2.50%	6.10%	6.30%	4.97%	9.29%	9.44%
Portland General Electric Company	POR	$1.90	$47.35	4.01%	4.13%	4.27%	5.00%	5.90%	6.00%	5.63%	9.76%	9.90%
Southern Company	SO	$2.80	$71.21	3.93%	4.05%	4.19%	6.50%	7.30%	4.00%	5.93%	9.98%	10.12%
Xcel Energy Inc.	XEL	$2.08	$63.31	3.29%	3.39%	3.50%	6.00%	6.15%	6.30%	6.15%	9.54%	9.65%
Mean											9.86%	10.00%
Median											9.76%	9.90%
Flotation Cost Adjustment (Mean)												0.14%
Flotation Cost Adjustment (Median)												0.14%

Notes:

[1] - [5] Source: Company-provided information
[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 July 31, 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)

CAPITAL STRUCTURE ANALYSIS

		Most Recent 8 Quarters (2021Q3 - 2023Q2)				
Proxy Group Company	Ticker	Common Equity Ratio	Long-Term Debt Ratio	Preferred Equity Ratio	Short-Term Debt Ratio	Total Capitalization
ALLETE, Inc.	ALE	58.57%	41.35%	0.00%	0.08%	100%
Alliant Energy Corporation	LNT	51.57%	47.23%	0.19%	1.01%	100%
Ameren Corporation	AEE	52.18%	45.41%	0.56%	1.85%	100%
American Electric Power Company, Inc.	AEP	46.98%	51.11%	0.00%	1.91%	100%
Avista Corporation	AVA	47.50%	48.00%	0.00%	4.50%	100%
CMS Energy Corporation	CMS	51.32%	47.96%	0.19%	0.53%	100%
Duke Energy Corporation	DUK	51.78%	46.30%	0.00%	1.92%	100%
Entergy Corporation	ETR	47.30%	52.59%	0.10%	0.00%	100%
Evergy, Inc.	EVRG	57.55%	36.65%	0.00%	5.79%	100%
IDACORP, Inc.	IDA	53.66%	46.33%	0.00%	0.00%	100%
NextEra Energy, Inc.	NEE	60.41%	38.16%	0.00%	1.43%	100%
NorthWestern Corporation	NWE	49.29%	50.71%	0.00%	0.00%	100%
OGE Energy Corporation	OGE	53.40%	45.52%	0.00%	1.09%	100%
Pinnacle West Capital Corporation	PNW	49.76%	47.83%	0.00%	2.41%	100%
Portland General Electric Company	POR	45.30%	54.23%	0.00%	0.46%	100%
Southern Company	SO	54.52%	43.38%	0.23%	1.87%	100%
Xcel Energy Inc.	XEL	54.00%	45.20%	0.00%	0.80%	100%
Average		52.06%	46.35%	0.08%	1.51%	
Median		51.78%	46.33%	0.00%	1.09%	
Maximum		60.41%	54.23%	0.56%	5.79%	
Minimum		45.30%	36.65%	0.00%	0.00%	

Notes:
[1] Ratios are weighted by actual common capital, preferred capital, long-term debt and short-term debt of the operating subsidiaries.
[2] Electric and Natural Gas operating subsidiaries with data listed as N/A from S&P Capital IQ have been excluded from the analysis.