MONTANA-DAKOTA UTILITIES CO.
BEFORE THE MONTANA PUBLIC SERVICE COMMISSION
DOCKET NO. 2022.11.___
PREPARED DIRECT TESTIMONY OF
ANN E. BULKLEY

Q1. Please state your name and business address

A1. My name is Ann E. Bulkley. My business address is One Beacon Street, Suite 2600, Boston, Massachusetts 02108.

Q2. What is your position with The Brattle Group ("Brattle")?

A2. I am employed by The Brattle Group ("Brattle") as a Principal.

Q3. On whose behalf are you submitting this testimony?

A3. I am submitting Direct Testimony before the Montana Public Service Commission ("Commission") on behalf of Montana-Dakota Utilities Co. My testimony addresses the regulated electric utility operations of Montana-Dakota Utilities Co. within Montana ("Montana-Dakota" or the "Company").

Q4. Please describe your background and professional experience in the energy and utility industries.

A4. 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 provided testimony regarding financial matters, including the cost of capital, before multiple regulatory agencies. 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. A summary of my professional and educational background is presented in Exhibit No. ___ (AEB-2), Schedule 1.

Q5. Have you testified before any regulatory authorities?

A5. Yes. A list of proceedings in which I have provided testimony is provided in Exhibit No. ___ (AEB-2), Schedule 1.

I. PURPOSE AND OVERVIEW OF DIRECT TESTIMONY

Q6. What is the purpose of your Direct Testimony?

A6. The purpose of my Direct Testimony is to present evidence and provide a recommendation regarding the Montana-Dakota's return on equity ("ROE") for its electric utility operations to be used for ratemaking purposes. I also address the appropriateness of the Company's proposed capital structure. My analyses and recommendations are supported by the data presented in Exhibit No. ___(AEB-2), Schedules 2 through 15, which were prepared by me or under my direction.

Q7. Please provide a brief overview of the analyses that led to your ROE recommendation.

A7. As discussed more in Section VI in developing my ROE recommendation, I applied several Cost of Equity ("COE") estimation methodologies including the Constant Growth Discounted Cash Flow ("DCF") model, the Capital Asset Pricing Model ("CAPM"), the Empirical Capital Asset Pricing Model ("ECAPM"), and the Risk Premium approach. My recommendation also takes into consideration: (1) the Company's customer concentration; (2) the Company's small size; (3) Flotation Costs; (4) the Company's capital expenditure requirements; and (5) the regulatory environment in which the Company operates. Finally,

I consider the Company's proposed capital structure as compared to the capital structures of the proxy companies. While I did not make any specific adjustments to my COE estimates for any of these factors, I did take them into consideration in aggregate where the Company's ROE falls within the range of analytical results.

Q8. How is the remainder of your Direct Testimony organized?

A8. Section II provides a summary of my analyses and conclusions. Section III reviews the regulatory guidelines pertinent to the development of the cost of capital. Section IV discusses current and projected capital market conditions and the effect of those conditions on Montana-Dakota's cost of equity. Section V explains my selection of proxy group of electric utilities. Section VI describes my analyses and the analytical basis for the recommendation of the appropriate ROE for Montana-Dakota. Section VII provides a discussion of specific regulatory, business, and financial risks that have a direct bearing on the ROE to be authorized for the Company in this case. Section VIII discusses the capital structure of the Company as compared with the proxy group. Section IX presents my conclusions and recommendations for the market cost of equity.

II. SUMMARY OF ANALYSIS AND CONCLUSIONS

Q9. Please summarize the key factors considered in your analyses and upon which you base your recommended ROE.

A9. My analyses and recommendations considered the following:

- The *Hope* and *Bluefield* decisions[1,2] that established the standards for determining a fair and reasonable allowed ROE, including consistency of the allowed return with other businesses having similar risk, adequacy of the return to provide access to capital and support credit quality, and that the end result must lead to just and reasonable rates.
- The effect of current and projected capital market conditions on investors' return requirements.
- The results of several analytical approaches that provide estimates of the Company's cost of equity. Because the Company's required ROE should be a forward-looking estimate, 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, etc.)
- The Company's regulatory, business, and financial risks relative to the proxy group of comparable companies and the implications of those risks in arriving at the appropriate ROE.

Q10. Please explain how you considered those factors.

A10. I have relied on several analytical approaches to estimate Montana-Dakota's cost of equity based on a proxy group of publicly traded companies. As shown in Figure 1, those COE estimation models produce a wide range of results. My conclusion as to the appropriate ROE for Montana-Dakota within that range of results is based on Montana-Dakota's business and financial risk relative to the proxy group. While my proxy group is generally comparable to Montana-Dakota, Montana-Dakota faces higher risk than the group. In order

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[1] U.S. Supreme Court, *Bluefield Water works & Improvement Company v. Public Service Commission of West Virginia*, 262 U.S. 679, 693 (1923).

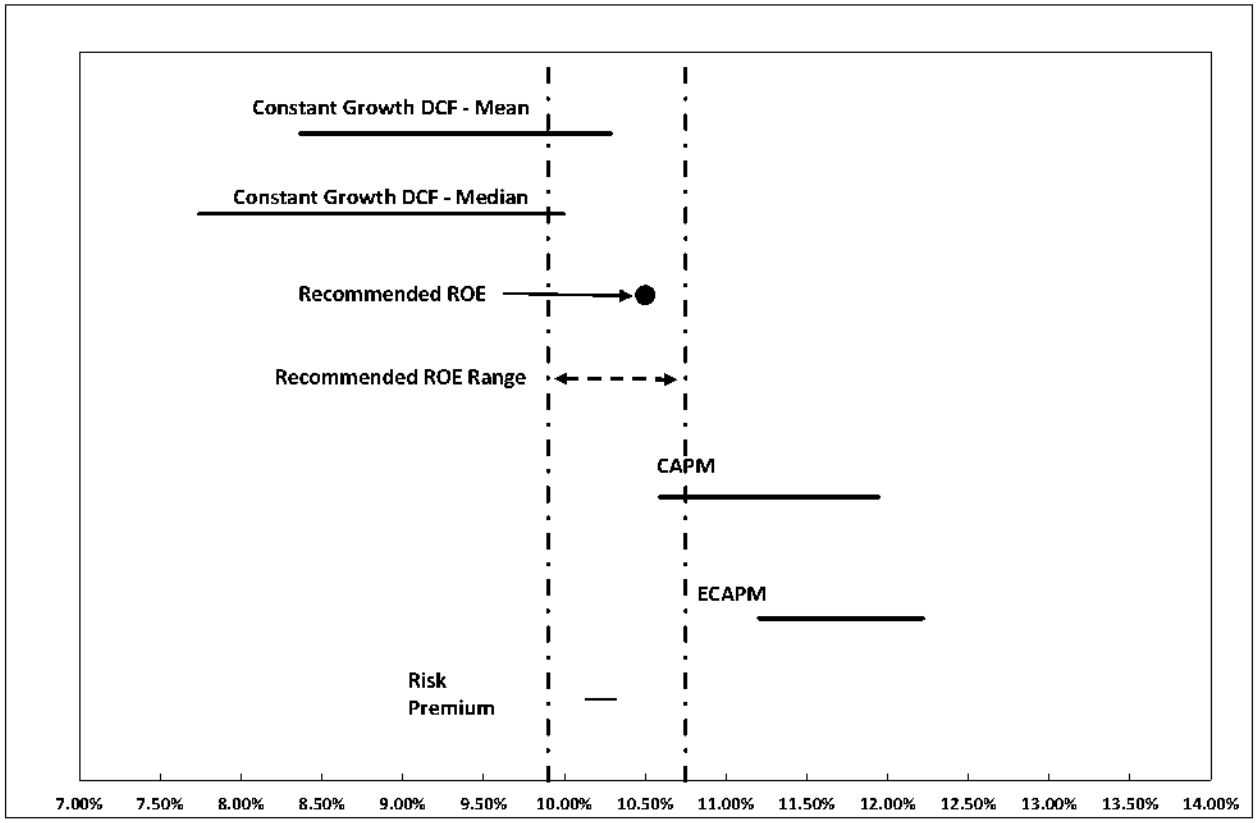
[2] U.S. Supreme Court, *Federal Power Commission v. Hope Natural Gas Company*, 320 U.S. 591, 603 (1944).

for Montana-Dakota to compete for capital within the proxy companies, those additional risk factors should be acknowledged and reflected in Montana-Dakota's ROE.

Q11. Please summarize the COE estimation models that you considered to establish the range of ROEs for Montana-Dakota.

A11. I considered the results of the Constant Growth DCF model, the Capital Asset Pricing Model ("CAPM"), the Empirical CAPM and the Bond Yield Plus Risk Premium methodology. Figure 1 summarizes the range of results established using each of these estimation methodologies.

Figure 1: Summary of Cost of Equity Analytical Results



As shown in Figure 1, (and in Exhibit No.___(AEB-2), Schedule 2), the range of results produced by the COE estimation models 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. As a result, my ROE recommendation considers the range of results of the Constant Growth DCF model, as well as the results of the CAPM, ECAPM, and Bond Yield Plus Risk Premium analyses. My ROE recommendation also considers Montana-Dakota's company-specific risk factors and current and prospective capital market conditions.

Q12. What is your recommended ROE for Montana-Dakota?

A12. Considering the analytical results presented in Figure 1, as well as the level of regulatory, business, and financial risk faced by Montana-Dakota's electric operations in Montana relative to the proxy group, I believe a range of returns from 9.90 to 10.75 percent is reasonable. Within that range, a return of 10.50 percent is reasonable. This recommendation reflects the range of results for the proxy group companies, the relative risk of Montana-Dakota's electric operations in Montana as compared to the proxy group, and current capital market conditions.

Q13. Please summarize your analysis of the appropriate ratemaking capital structure for the Company.

A13. Based on the analysis presented in Section VIII of my testimony, I conclude that Montana-Dakota's proposed 50.30 percent common equity ratio is reasonable. To determine if Montana-Dakota's requested capital structure was reasonable, I reviewed the capital structures of the utility subsidiaries of the proxy companies. As shown in Exhibit No.___(AEB-2), Schedule 15, the results of that analysis demonstrate that the average equity ratios for the utility operating companies of the proxy group range from 45.43 percent to 59.86 percent, with an average of 52.29 percent. Comparing the recommended equity ratio to the proxy group demonstrates that the Company's requested equity ratio is well within the range equity ratios for the utility operating subsidiaries of the proxy group companies. Further, the Company's proposed equity ratio is reasonable considering the negative effects from Tax Cuts and Jobs Act of 2017 ("TCJA") on coverage ratios and increased capital expenditures on the cash flows and credit metrics of regulated utilities.

III. REGULATORY GUIDELINES

Q14. Please describe the guiding principles to be used in establishing the cost of capital for a regulatory utility.

A14. The United States Supreme Court's precedent-setting *Hope* and *Bluefield* cases established the standards for determining the fairness or reasonableness of a utility's allowed 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]

Based on those recognized standards, the return authorized in this case should provide the Company with the opportunity to earn an ROE that is:

- Adequate to attract capital on reasonable terms, thereby enabling the Company to provide safe, reliable service;
- Sufficient to ensure the financial soundness of the Company's operations; and
- Commensurate with returns on investments in comparable risk enterprises.

The allowed ROE should enable the Company to finance capital expenditures on reasonable terms and optimize its financial flexibility over the period during which rates are expected to remain in effect.

Q15. Has the Commission provided similar guidance in establishing the appropriate return on common equity?

A15. Yes, it has. In Docket No. D2017.9.80 for Energy West Montana, Inc. ("EWM"), the Commission stated that:

> [t]he paradigm of utility regulation requires commissions to authorize ROEs commensurate with returns on alternative investments with similar risk. See Hope and Bluefield.[4]

Additionally, the Commission further noted that:

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

[4] Docket No. D2017.9.80, Order No. 7575c, IN THE MATTER OF the Joint Application for Approval to Change and Establish Natural Gas Delivery Rates for Energy West Montana, Inc. and Cut Bank Gas Company (Sep. 26, 2018), at 50.

> [t]he cost of equity is a vigorously contested issue in this proceeding, because unlike long-term debt which is priced based on transparent agreements between the utility and a third-party issuer, the cost of equity is estimated based on expectations of what equity investors demand in return for the time-value of their money and the risk of the investment at hand.[5]

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

Q16. Is fixing a fair rate of return just about protecting the utility's interests?

A16. No. As the court noted in *Bluefield*, 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." Bluefield Waterworks & Imp. Co. vs. Pub. Serv. Commn. of W. Va., 262 US 679, 693, 43 S Ct 675, 679, 67 L Ed 1176 (1923). As the Court went on to explain in *Hope*, "[t]he rate-making process … involves balancing of the investor and consumer interests." Fed Power Commn. v. Hope Nat. Gas Co., 320 US 591, 603 (1944).

Q17. 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?

A17. An ROE that is adequate to attract capital at reasonable terms enables the Company to continue to provide safe, reliable electric utility service while maintaining its financial

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[5] Id., at 39-40.

integrity. To the extent the Company has the opportunity to earn its market-based cost of capital, neither customers nor shareholders are disadvantaged.

Q18. Is a utility's ability to attract capital also affected by the ROEs that are authorized for other utilities?

A18. Yes. Utilities compete directly for capital with other investments of similar risk, which include other natural gas and electric utilities. Therefore, the ROE awarded to a utility sends an important signal to investors regarding whether there is regulatory support for financial integrity, dividends, growth, and fair compensation for business and financial risk. The cost of capital represents an opportunity cost to investors. If higher returns are available for other investments of comparable risk, investors have an incentive to direct their capital to those investments. Thus, an authorized ROE that is not in line with authorized ROEs for other natural gas and electric utilities, on a risk adjusted basis, can inhibit the utility's ability to attract capital for investment in Montana.

While Montana-Dakota is committed to investing the required capital to provide safe and reliable service, because Montana-Dakota is a subsidiary of MDU Resources, the Company competes with the other MDU Resources subsidiaries for discretionary investment capital. In determining how to allocate its finite discretionary capital resources, it would be reasonable for MDU Resources to consider the authorized ROE of each of its subsidiaries.

Q19. What are your conclusions regarding regulatory guidelines and capital market expectations?

A19. 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. Further, in light of the Company's market and regulatory risks as discussed below, it is important that Montana-Dakota be afforded the opportunity to maintain a financial profile that will enable it to access the capital markets at reasonable rates.

IV. CAPITAL MARKET CONDITIONS

Q20. Why is it important to analyze capital market conditions?

A20. The COE estimation models 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 COE estimation models can be affected by prevailing market conditions at the time the analysis is performed. While the ROE that is established in a rate proceeding is intended to be forward-looking, the analyst uses current and projected market data, specifically stock prices, dividends, growth rates and interest rates, in the COE estimation models to estimate the required return for the subject company.

As a result, it is important to consider the effect of these conditions on the COE estimation models when determining the appropriate range and 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 COE 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.

Q21. What factors are affecting the cost of equity for regulated utilities in the current and prospective capital markets?

A21. The COE for regulated utility companies is being affected by several factors in the current and prospective capital markets, including: 1) persistently high inflation, 2) changes in monetary policy, and 3) rising long-term interest rates. These factors affect the assumptions used in the COE estimation models. In this section, I discuss each of these factors and how they affect the models used to estimate the cost of equity for regulated utilities.

Q22. What effect do current and prospective market conditions have on the COE for Montana-Dakota?

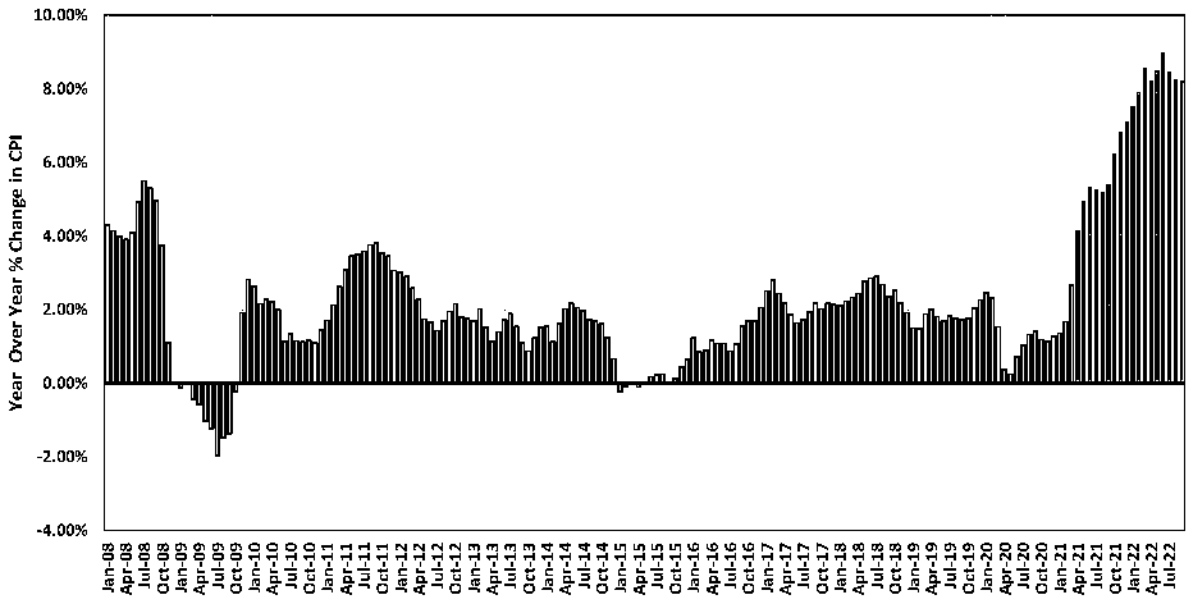
A22. As is discussed in more detail in the remainder of this section, the combination of persistently high inflation, and the Federal Reserve's changes in monetary policy, contribute to an expectation of increased market risk and an increase in the investor-required return. It is essential that these factors be considered in setting a forward-looking cost of equity. Inflation has recently been at some of the highest levels seen in approximately 40 years. Interest rates, which have increased from the pandemic lows seen in 2020 are expected to continue to increase in direct response to the Federal Reserve's monetary policy. Since there is a strong historical inverse correlation between interest rates and the share prices of utility stocks (share prices of utility stocks typically fall when interest rates rise), it is reasonable to expect that investors' required COE for utility companies will also continue to increase. Therefore, COE estimates based solely on current market conditions will understate the COE required by investors during the future period that the Company's rates determined in this proceeding will be in effect.

A. Inflationary Expectations in Current and Project Capital Market Conditions

Q23. Has inflation increased significantly over the past year?

A23. Yes. As shown in Figure 2, the YOY change in the Consumer Price Index ("CPI") published by the Bureau of Labor statistics has increased steadily since the beginning of 2021, rising from 1.37 percent in January 2021. Since that time, and particularly since the start of 2022, inflation has increased steadily, reaching a high of 9.0 percent YOY change in June 2022, which was the largest 12-month increase since 1981 and significantly greater than any level seen since January 2008, in September CPI decreased to 8.22 percent, which is still at levels not seen since the 1980s.

Figure 2: Price Index—YOY Percent Change January 2008–September 2022[6]



Q24. What are the expectations for inflation over the near-term?

A24. The expectation is that inflation will remain elevated over the near-term. This expectation is supported by recent comments of the Chair and Vice Chair of the Federal Reserve. For

[6] Source: Bureau of Labor Statistics, shaded area indicates a recession.

example, in her speech on September 7, 2022 at the Clearing House and Bank Policy Institute 2022 Annual Conference, Vice Chair Lael Brainard noted that:

> **We are in this for as long as it takes to get inflation down.** So far, we have expeditiously raised the policy rate to the peak of the previous cycle, and the policy rate will need to rise further. As of this month, the maximum monthly reduction in the balance sheet will be nearly double the level of the previous cycle. Together, the increase in the policy rate and the reduction in the balance sheet should help bring demand into alignment with supply. **Monetary policy will need to be restrictive for some time to provide confidence that inflation is moving down to target.** The economic environment is highly uncertain, and the path of policy will be data dependent. While the precise course of action will depend on the evolution of the outlook, I am confident we will achieve a return to 2 percent inflation. Our resolve is firm, our goals are clear, and our tools are up to the task.[7]

Similarly, Chair Powell in his press conference at the Federal Open Market Committee meeting in September 2022 that:

> Inflation remains well above our 2 percent longer-run goal. … Price pressures remain evident across a broad range of goods and services. Although gasoline prices have turned down in recent months, they remain well above year-earlier levels, in part reflecting Russia's war against Ukraine, which has boosted prices for energy and food and has created additional upward pressure on inflation. The median projection in the SEP for total PCE inflation is 5.4 percent this year and falls to 2.8 percent next year, 2.3 percent in 2024, and 2 percent in 2025; participants continue to see risks to inflation as weighted to the upside.[8]

B. The Effect of Monetary Policy on Market Dynamics

Q25. What policy actions has the Federal Reserve enacted to respond to increased inflation?

A25. The dramatic increase in inflation has prompted the Federal Reserve to pursue an aggressive normalization of monetary policy, removing the accommodative policy

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[7] Vice Chair Lael Brainard, "Bringing Inflation Down," Clearing House and Bank Policy Institute 2022 Annual Conference, September 7, 2022.

[8] Transcript, Chair Powell, Press Conference, September 21, 2022.

programs used to mitigate the economic effects of COVID-19. As of the September 21, 2022 meeting, the Federal Reserve has taken the following actions:

- Completed its taper of Treasury bond and mortgage-backed securities purchases;[9]
- Increased the target federal funds rate beginning in March 2022 through a series of five increases from 0.00 – 0.25 percent to 3.00 percent to 3.25 percent;[10,11,12,13]
- Anticipated the need to bring the Fed Funds rate to a restrictive level and keep it there for some time in order to achieve its goals of maximum employment at the inflation rate of 2 percent over the long-run;[14] and
- Began reducing its holdings of Treasury and mortgage-backed securities on June 1, 2022.[15] The Federal Reserve is reducing the size of its balance sheet by only reinvesting principle payments on owned securities after the total amount of payments received exceeds a defined cap. For Treasury Securities, the cap is set at $60 billion per month. The cap for mortgage-backed securities is set at $35 billion per month.[16]

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

Q26. What effect will inflation and Federal Reserve's normalization of monetary policy have on long-term interest rates?

A26. Inflation and the Federal Reserve's normalization of monetary policy will likely result in increases in long-term interest rates. Specifically, inflation reduces the purchasing power of the future interest payments an investor expects to receive over the duration of the bond. This risk increases the longer the duration of the bond. As a result, if investors expect

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[9] Source: Federal Reserve Bank of New York, https://www.newyorkfed.org/markets/domestic-market-operations/monetary-policy-implementation/treasury-securities/treasury-securities-operational-details#monthly-details.

[10] Federal Reserve, Press Release, March 16, 2022.

[11] Federal Reserve, Press Release, May 4, 2022.

[12] Federal Reserve, Press Release, June 15, 2022.

[13] Federal Reserve, Press Release, September 21, 2022.

[14] Transcript, Chair Powell, Press Conference, September 21, 2022.

[15] Source: Federal Reserve, Press Release, May 4, 2022.

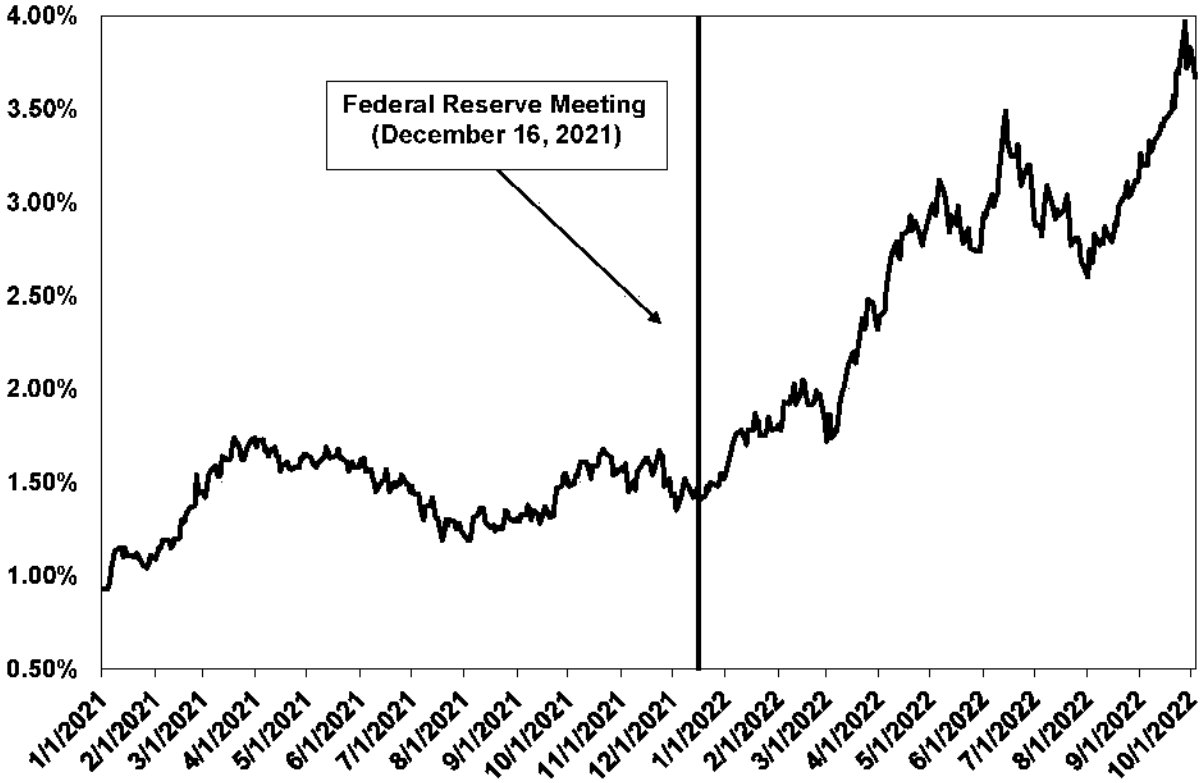
[16] Source: Federal Reserve, Press Release, September 21, 2022.

increased levels of inflation, they will require higher yields to compensate for the increased risk of inflation, which means interest rates will increase.

Q27. Have the yields on long-term government bonds increased in response to inflation and the Federal Reserve's normalization of monetary policy?

A27. Yes, they have. At the FOMC meetings throughout 2022, the Federal Reserve has continued to note its concerns over the sustained increased levels of inflation and has continued to accelerate the process of normalizing monetary policy to combat inflation. As shown in Figure 3, since the Federal Reserve's December 2021 meeting, the yield on 10-year Treasury bond has more than doubled, increasing from 1.47 percent on December 15, 2021 to 3.83 percent on September 30, 2022. The increase is due to the Federal Reserve's announcements at the each of the meetings since December 2021, and the continued increased levels of inflation that are now expected to persist much longer than the Federal Reserve and investors had originally projected.

Figure 3: 10-Year Treasury Bond Yield—Janaury 2021– September 30, 2022[17]



Q28. Do recent changes in GDP affect the current outlook for inflation and interest rates?

A28. No. While FOMC participants have reduced their projections for economic activity for real GDP growth of 0.2 percent in 2022 and 1.2 percent in 2023, which is well below the median estimate for the longer-run normal GDP growth rate, the Fed has highlighted that the labor market continues to be extremely tight. Specifically, Chair Powell noted at the September 2022 FOMC meeting that unemployment remained near 50-year lows and job vacancies near historical highs. Therefore, with a tight labor market and persistently high

[17] S&P Capital IQ Pro.

inflation, the Fed has indicated its need to continue a restrictive monetary policy to moderate demand to better align it with supply.[18]

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

Q29. Are utility share prices correlated to changes in the yields on long-term government bonds?

A29. Yes. Interest rates and utility share prices are inversely correlated which means, for example, that an increase in interest rates will result in a decline in the share prices of utilities. 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).[19]

Q30. How do equity analysts expect the utilities sector to perform in an increasing interest rate environment?

A30. Equity analysts project that utilities will underperform the broader market as interest rates increase. Fidelity recently classified the utility sector as underweight[20] and Morningstar recently stated that a long as inflation persists the utility sector will underperform.[21] Specifically, Morningstar indicated that:

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[18] Federal Reserve, Transcript of Chair Powell's Press Conference, September 21, 2022.

[19] Lee, Justina. "Wall Street Is Rethinking the Treasury Threat to Big Tech Stocks." Bloomberg.com, 11 Mar. 2021, www.bloomberg.com/news/articles/2021-03-11/wall-street-is-rethinking-the-treasury-threat-to-big-tech-stocks.

[20] Fidelity, "Top sectors to watch in Q3," August 3, 2022.

[21] Miller, Travis, "As Long as Inflation Worries Persist, We Expect Utilities to Underperform: Renewable energy continues to be a long-term boon for the sector," July 6, 2022.

> [a]s long as inflation remains the market's top concern, we expect utilities to underperform. Utilities are the most sensitive to inflation because of their mostly fixed revenue, large capital investment budgets, and borrowing needs. We think long-term investors who want utilities in their portfolios should focus on those in constructive regulatory environments with the most protection from inflation.[22]

Additionally, the Wall Street Journal ("WSJ") recently noted in an article published on October 18, 2022 that the S&P Utilities Index was down 14 percent over the past month. The WSJ attributed the decline in the S&P Utilities Index to the recent increase in long-term treasury yields:

> A big draw of utility stocks has become less attractive as interest rates have climbed. Utility stocks are known for their sizable dividends, offering investors a regular stream of income. Companies in the S&P 500 utilities sector offer a dividend yield of 3.3%, among the highest payout percentages in the index, according to FactSet.
>
> But the outsize dividends of utility stocks are no match for climbing bond yields. The yield on the benchmark 10-year Treasury note finished above 4% on Monday for a second consecutive session. Friday marked the 10-year yield's first close above the 4% level since 2008 and 11 straight weeks of gains. Treasurys are viewed as essentially risk-free if held to maturity.
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> "The 10-year is repricing everything. I've got something that's even safer and yields even more," said Kevin Barry, chief investment officer at Summit Financial, comparing Treasurys and utility stocks.[23]

Q31. Have you reviewed any market indicators that may imply that utilities will underperform over the near-term?

A31. Yes, I have. As discussed above, the utility sector is considered a "bond proxy" or a sector that investors view as a "safe haven" alternative to bonds, and changes in utility stock prices are therefore inversely related to changes in interest rates. For example, the utility sector tends to perform well when interest rates are low since the dividend yields for

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[22] *Ibid.*

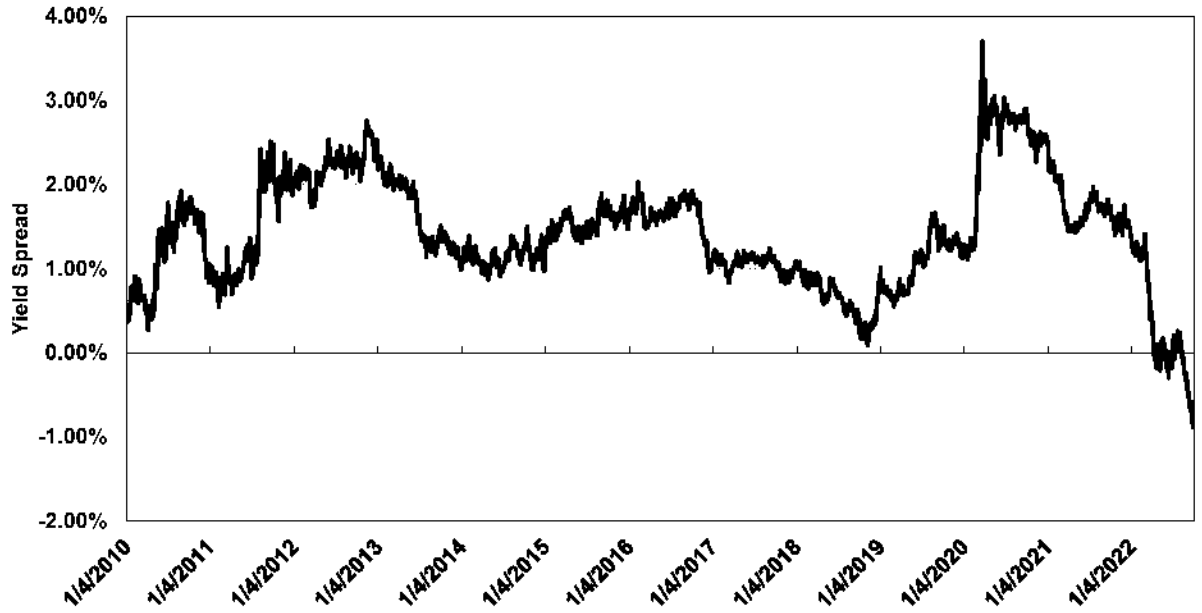
[23] Miao, Hannah, "Utility Stock stumble as treasury yields climb," The Wall Street Journal, October 18, 2022.

utilities offer investors the prospect of higher returns when compared to the yields on long-term government bonds. Conversely, the utility sector underperforms as the yields on long-term government bonds increase and the spread between the dividend yields on utility stocks and the yields on long-term government bonds decreases. Therefore, I examined the difference ("yield spread") between the dividend yields of utility stocks and the yields on long-term government bonds from January 2010 through September 2022. I selected the dividend yield on the S&P Utilities Index as the measure of the dividend yields for the utility sector and the yield on the 10-year Treasury Bond as the estimate of the yield on long-term government bonds.

As shown in Figure 4ices of utilities.

Figure 4**: Yield Spread between the Dividend Yield on the S&P Utilities Index and the Yield on the 10-year Treasury Bond – January 2012 – September 2022**, the yield spread as of September 30, 2022, was -0.59 percent indicating that the yield on the 10-year Treasury Bond has exceeded the dividend yield for the S&P Utilities Index. Furthermore, the current yield spread of -0.59 percent is well below the long-term average since January 2010 of 1.41 percent. Given that the yield spread is currently well below the long-term average as well as the expectation that interest rates will continue to increase, it is reasonable to conclude that utility sector will most likely underperform over the near-term. This is because investors that purchased utility stocks as an alternative to the lower yields on long-term government bonds would otherwise be inclined to rotate back into government bonds, particularly as the yields on long-term government bonds continue to increase, thus resulting in a decrease in the share prices of utilities.

Figure 4: Yield Spread between the Dividend Yield on the S&P Utilities Index and the Yield on the 10-year Treasury Bond – January 2012 – September 2022[24]

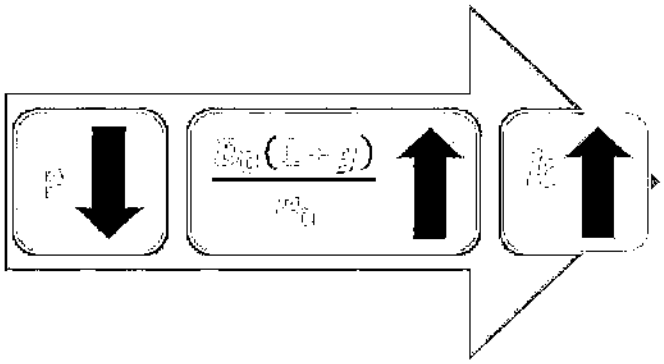


Q32. What is the significance of the inverse relationship between interest rates and utility share prices in the current market?

A32. As discussed above, the Federal Reserve is currently normalizing monetary policy in response to inflation which actions are expected to increase long-term government bond yields. If interest rates increase as expected, then the share prices of utilities will decline. If the prices of utility stocks decline, then the DCF model, which relies on historical averages of share prices, is likely to understate the cost of equity. For example, Figure 5, below summarizes the effect of price on the dividend yield in the Constant Growth DCF model.

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

Figure 5: The Effect of a Decline in Stock Prices on the Constant Growth DCF Model



A decline in stock prices will increase the dividend yields and thus the estimate of the COE produced by the Constant Growth DCF model. Therefore, this expected change in market conditions supports consideration of the range of COE results produced by the mean to mean-high DCF results since the mean DCF results would likely understate the cost of equity during the period that the Company's rates will be in effect. Moreover, prospective market conditions warrant consideration of other COE estimation models such as the CAPM and ECAPM, which may better reflect expected market conditions. For example, two out of three inputs to the CAPM (*i.e.*, the market risk premium and risk-free rate) are forward-looking.

Q33. Have regulatory commissions acknowledged that the DCF model might understate the cost of equity given the current capital market conditions of high inflation and increasing interest rates?

A33. 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.[25]
>
> .....
>
> We have previously determined, above, that we shall utilize I&E's DCF and CAPM methodologies. I&E's DCF and CAPM produce a range of reasonableness for the ROE in this proceeding from 8.90% [DCF] to 9.89% [CAPM]. Based upon our informed judgment, which includes consideration of a variety of factors, including increasing inflation leading to increases in interest rates and capital costs since the rate filing, we determine that a base ROE of 9.75% is reasonable and appropriate for Aqua.[26]

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[25] *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.

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

E. Conclusion

Q34. What are your conclusions regarding the effect of current market conditions on the cost of equity for the Company?

A34. Over the near-term, investors expect long-term interest rates to increase 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, an increase in long-term government bond yields will likely result in a decline in utility share prices, which is the reason a number of equity analysts expect the utility sector to underperform over the near-term. 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. This change in market conditions also supports the use of other COE estimation models such as the CAPM and the ECAPM, which may more directly reflect expected market conditions.

V. PROXY GROUP SELECTION

Q35. Why have you used a group of proxy companies to estimate the cost of equity for Montana-Dakota?

A35. In this proceeding, we are focused on estimating the cost of equity for Montana-Dakota's electric utility operations. Since the cost of equity is a market-based concept, and given that Montana-Dakota does not make up the entirety of a publicly traded entity, it is necessary to establish a group of companies that are both publicly traded and comparable to Montana-Dakota in certain fundamental business and financial respects to serve as its "proxy" in the ROE estimation process.

Even if Montana-Dakota's electric utility operations in Montana did constitute the entirety of a publicly-traded entity, it is possible that transitory events could bias its market value over a given period of time. 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 proxy companies used in my analyses all possess a set of operating and risk characteristics that are substantially comparable to the Company, and thus provide a reasonable basis to derive and estimate the appropriate ROE for Montana-Dakota.

Q36. Please provide a brief profile of Montana-Dakota.

A36. Montana-Dakota Utilities Co. is a wholly owned subsidiary of MDU Resources. It provides regulated retail natural gas and/or electric service to parts of Montana, North Dakota, South Dakota, and Wyoming. The Company provides electric service to approximately 25,500 customers in 30 communities in Montana.[27] As of June 30, 2022, the Company's net utility electric plant in Montana was approximately $253.18 million.[28] In addition, the Company had total electric sales in Montana in 2021 of approximately 746,634 MWh, composed of 24.41 percent residential, 15.40 percent commercial, 58.74 percent industrial and 1.45 percent other customers.[29] For the Company's parent entity, MDU Resources, Montana accounted for 22 percent of its total electric retail sales revenue in 2021, while North Dakota operations were 64 percent, South Dakota was 5 percent, and Wyoming was 9

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[27] Montana-Dakota Utilities Co. 2021 Annual Report to the Montana Public Service Commission, at Montana Customer Information, at 33.

[28] Data provided by Montana-Dakota Utilities Co.

[29] Montana-Dakota Utilities Co. 2021 Annual Report to the Montana Public Service Commission, at Montana Consumption and Revenues at 41.

percent.[30] Montana-Dakota Utilities Co. currently has an investment-grade long-term rating of BBB+ (Outlook: Stable) from S&P and BBB+ (Outlook: Stable) from Fitch[31].

Q37. How did you select the companies included in your proxy group?

A37. I began with the group of 36 companies that *Value Line* classifies as electric utilities and applied the following screening criteria to select companies that:

- pay consistent quarterly cash dividends because such companies cannot be analyzed using the Constant Growth DCF model;
- have positive long-term earnings growth forecasts from at least two equity analysts;
- have investment grade long-term issuer ratings from both S&P and Moody's;
- own generation assets included in rate base;
- have more than 40 percent of company-owned generation;
- derive more than 60 percent of total operating income from regulated operations;
- derive more than 80 percent of their total regulated operating income from regulated electric operations; and
- were not party to a merger or transformative transaction during the analytical period considered.

Q38. Did you exclude any other companies from the proxy group?

A38. Yes. I also excluded Pinnacle West Capital Corporation ("PNW") and Hawaiian Electric Industries, Inc. ("HE"). For PNW, the share price decreased approximately 24 percent over a two-month period from October through November 2021 resulting from a negative regulatory decision for its largest operating company, Arizona Public Service Company ("APS"). Further, the Value Line five-year projected EPS growth rates for this company

[30] MDU Resources Group, Inc., Form 2021 SEC Form 10-K at 12.
[31] S&P and Fitch Ratings accessed September 30, 2022.

have fallen from 5.0 percent in July 2021, prior to the deliberations in the rate proceeding to "Nil" in October 2021 and most recently 0.5 percent in July 2022. Specifically, Value Line noted the following in PNW's July 2022 report:

> Untimely Pinnacle West stock is still seeking its equilibrium level after the regulatory blow the company suffered last year. From mid-2021, it became apparent that the company's utility (APS) wasn't going to get the rate relief it was seeking from its regulatory agency (ACC). APS and ACC staff were far apart on the size of their proposed increases, and the state's residential consumer office was seeking a large cut. When the rate decision arrived in November, Pinnacle West saw its allowed return on equity (ROE) reduced from 10% to 8.7% (one of the lowest in the U.S.), and its annual earning power cut by $0.90 a share. **PNW stock fell 30% (May to November) before exhibiting an impressive relief rally into April, finally giving much of that back with the broad market decline and the realization that restitution may be unlikely**.
>
> The utility has thus far been unsuccessful in its bid for a judiciary appeal. In December, APS filed a petition for special action with the Arizona Supreme Court, but was turned down. It also put in a request to argue its case before the state Court of Appeals but has had no response.[32]

Based on the fact that the assumptions used in the DCF model have been affected significantly by PNW's last rate decision, I have excluded PNW from my proxy group.

HE's operations are concentrated on the islands of Hawaii; therefore, the company faces geographic concentration risk. As HE noted in the company's 2021 Form10-K:

> The Company is subject to the risks associated with the geographic concentration of its businesses and current lack of interconnections that could result in service interruptions at the Utilities or higher default rates on loans held by ASB [American Savings Bank].[33]

The increased risk of service interruptions resulting from HE's geographic location which could result in revenue loss and increased costs is a risk unique to HE and would not apply

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[32] Value Line, Pinnacle West, July 22, 2022. (emphasis added)
[33] Hawaii Electric Industries, Inc., 2021 Form 10-K, at 23.

to utilities located on the U.S. mainland. Furthermore, HE's unregulated operations which represent approximately 33 percent of the company's operation income in 2021 are concentrated in the banking sector through the ownership of American Savings Bank ("ASB").[34] ASB also only operates on Hawaii; thus, all of the company's consumer and commercial loans are to customers on Hawaii. If Hawaii were to face an adverse economic or political event, ASB could face severe financial effects given the company's geographic concentration in Hawaii.[35] As a result, I have excluded HE from my proxy group considering HE's unique geographical risks.

Q39. What is the composition of your proxy group?

A39. The screening criteria discussed above is shown in Exhibit No. ___(AEB-2), Schedule 3 and resulted in a proxy group consisting of the companies shown in Figure 6 below:

Figure 6: Proxy Group

Company	Ticker
ALLETE, Inc.	ALE
Alliant Energy Corporation	LNT
Ameren Corporation	AEE
American Electric Power Company, Inc.	AEP
Duke Energy Corporation	DUK
Entergy Corporation	ETR
Evergy, Inc.	EVRG
IDACORP, Inc.	IDA
NextEra Energy, Inc.	NEE

[34] *Id.*, at 86.
[35] *Id.*, at 20.

NorthWestern Corporation	NWE
OGE Energy Corporation	OGE
Otter Tail Corporation	OTTR
Portland General Electric Company	POR
Southern Company	SO
Xcel Energy Inc.	XEL

VI. COST OF EQUITY ESTIMATION

Q40. Please briefly discuss the ROE in the context of the regulated rate of return.

A40. The overall rate of return for a regulated utility is based on its weighted average cost of capital, in which the cost rates of the individual sources of capital are weighted by their respective book values. While the cost of debt and preferred stock can be directly observed, the COE is market-based and, therefore, must be estimated based on observable market data.

Q41. How is the required COE determined?

A41. While the cost of debt can be directly observed, the required COE is market-based and, therefore, must be estimated based on observable market information. The required COE is determined by using one or more analytical techniques that rely on market data to quantify investor expectations regarding the range of required equity returns. Informed judgment is applied, based on the results of those analyses, to determine where within the range of results the cost of equity for a company falls. As a general proposition, the key consideration in determining the cost of equity is to ensure that the methodologies employed reasonably reflect investors' views of the financial markets, the proxy group companies, and the subject company's risk profile.

Q42. What methods did you use to determine your recommended ROE in this proceeding?

A42. I considered the results of the Constant Growth DCF model, the CAPM, the ECAPM, and the Bond Yield Plus Risk Premium Analysis. As discussed in more detail below, a reasonable ROE estimate appropriately considers alternative methodologies and the reasonableness of their individual and collective results.

A. Importance of Multiple Analytical Approaches

Q43. Why is it important to use more than one analytical approach?

A43. Because the COE is not directly observable, it must be estimated based on both quantitative and qualitative information. When faced with the task of estimating the COE, analysts and investors are inclined to gather and evaluate as much relevant data as reasonably can be analyzed. A number of models have been developed to estimate the COE, and I use multiple approaches to estimate the COE. As a practical matter, however, all of the models available for estimating the COE are subject to limiting assumptions or other methodologies constraints. Consequently, many well-regarded finance texts recommended using multiple approaches when estimating the COE. For example, Copeland, Koller, and Murrin[36] suggest using the CAPM and Arbitrage Pricing Theory model, while Brigham and Gapenski[37] recommend the CAPM, DCF, and "bond yield plus risk premium" approaches.

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

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

Q44. Do current market conditions support the use of more than one analytical approach?

A44. Yes. Interest rates have increased and are expected to continue to increase from the lows as a result of the COVID-19 pandemic. Given the inverse relationship between interest rates and utility share prices, the dividend yields of utilities are expected to increase over the near-term. Therefore, the current low dividend yields for utilities result in DCF cost of equity estimates that are understating the forward-looking cost of equity. The CAPM and Bond Yield Plus Risk Premium method offer some balance through the use of projected interest rates. Therefore, it is important to use multiple analytical approaches to ensure that the COE results reflect the market conditions that are expected during the period that Company's rates will be in effect. Given the expectation that interest rates will increase, it is important to moderate the impact that the current lower interest rates are having on the COE estimates, especially the DCF analysis, and where possible consider using projected market data in the models to estimate the return for the forward-looking period.

Q45. Are you aware of any regulatory commissions that have recognized the importance of considering the results of multiple models?

A45. Yes, several regulatory commissions consider the results of multiple COE estimation methodologies such as the DCF, CAPM, and ECAPM in determining the authorized ROE, including the Minnesota Public Utilities Commission ("Minnesota PUC")[38], the Michigan Public Service Commission ("Michigan PSC")[39], the Iowa Utilities Board ("IUB")[40], the

[38] Docket No. G011/GR-17-563, Findings of Fact, Conclusions and Order, at 27; Docket No. E015/GR-16-664, Findings of Fact, Conclusions and Order, at 60-61.

[39] Michigan Public Service Commission Order, DTE Gas Company, Case No. U-18999, September 13, 2018, at 45-47.

[40] Iowa Utilities Board, Iowa-American Water Company, RPU-2016-0002, Final Decision and Order issued February 27, 2017, at 35.

Washington Utilities and Transportation Commission ("Washington UTC")[41] and the New Jersey Board of Public Utilities ("NJBPU")[42]. For example, the Washington UTC has repeatedly emphasized that it "places value on each of the methodologies used to calculate the cost of equity and does not find it appropriate to select a single method as being the most accurate or instructive."[43] The Washington UTC has also explained that "[f]inancial circumstances are constantly shifting and changing, and we welcome a robust and diverse record of evidence based on a variety of analytics and cost of capital methodologies."[44]

Additionally, in its recent order for DTE Gas Company ("DTE Gas") in Case No. U-18999, the Michigan PSC considered the results of each of the models presented by the ROE witnesses, which included the DCF, CAPM, and ECAPM in the determination of the authorized ROE.[45] The Commission also considered authorized ROEs in other states, increased volatility in capital markets and the company-specific business risks of DTE Gas.

Q46. Has the Commission recognized that it is important to consider the results of multiple models?

A46. Yes. It is my understanding that in its order for EWM, the Commission determined the authorized ROE for EWM based on variations of both the DCF and the ECAPM. Specifically, the Commission noted that:

> [t]he Commission calculates the allowed ROE as follows: (1) calculates the arithmetic mean of the three DCF results, (2) calculates the arithmetic

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41 *Wash. Utils. & Transp. Comm'n v. PacifiCorp*, Docket UE-130043, Order 05, n. 89 (Dec. 4, 2013); *Wash. Utils. & Transp. Comm'n v. PacifiCorp*, Docket UE-100749, Order 06, ¶ 91 (March 25, 2011).

42 NJBPU Docket No. ER12111052, OAL Docket No. PUC16310-12, Order Adopting Initial Decision with Modifications and Clarifications, March 18, 2015, at 71.

43 *Wash. Utils. & Transp. Comm'n v. PacifiCorp*, Docket UE-130043, Order 05, n. 89 (Dec. 4, 2013).

44 *Wash. Utils. & Transp. Comm'n v. PacifiCorp*, Docket UE-100749, Order 06, ¶ 91 (March 25, 2011).

45 Michigan Public Service Commission Order, DTE Gas Company, Case No. U-18999, September 13, 2018, at 45-47.

> mean of the two ECAPM analyses, (3) takes the results of the Commissions Modified ECAPM using a MRP of 9.19% and a β of .72 Supra ¶ 124. (4) calculates both the arithmetic and geometric means of the resulting figures from steps 1-3.[46]

While the Commission preferred the ECAPM model to the DCF model, the Commission relied on the DCF model as a check on the results of the ECAPM to ensure the COE results from the ECAPM model were consistent with investors' expectations.[47]

Q47. What are your conclusions about the results of the DCF and CAPM models?

A47. Recent market data that is used as the basis for the assumptions for both models have been affected by market conditions. As a result, relying exclusively on historical assumptions in these models, without considering whether these assumptions are consistent with investors' future expectations, will underestimate the cost of equity that investors would require over the period that the rates in this case are to be in effect. In this instance, relying on the historically low dividend yields that are not expected to continue over the period that the new rates will be in effect will underestimate the ROE for Montana-Dakota.

Furthermore, as discussed in Section IV above, long-term interest rates have increased since August 2020 and this trend is expected to continue as the Federal Reserve normalizes monetary policy in response to increased inflation. Therefore, the use of current averages of Treasury bond yields as the estimate of the risk-free rate in the CAPM is not appropriate since recent market conditions are not expected to continue over the long-term. Instead, analysts should rely on projected yields of Treasury Bonds in the CAPM. The projected

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[46] Docket No. D2017.9.80, Order No. 7575c, IN THE MATTER OF the Joint Application for Approval to Change and Establish Natural Gas Delivery Rates for Energy West Montana, Inc. and Cut Bank Gas Company (Sep. 26, 2018), at 46.

[47] *Ibid.*

Treasury Bond yields result in CAPM estimates that are more reflective of the market conditions that investors expect during the period that the Company's rates will be in effect.

B. Constant Growth DCF Model

Q48. Please describe the DCF approach.

A48. 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:

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

Where P_0 represents the current stock price, D1…D∞ are all expected future dividends, and k is the discount rate, or required COE. 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.

Q49. What assumptions are required for the Constant Growth DCF model?

A49. The Constant Growth DCF model requires the following assumptions: (1) a constant growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a constant price-to-earnings ("P/E") ratio; and (4) a discount rate greater than the expected growth rate. To the extent any of these assumptions is violated, considered judgment and/or specific adjustments should be applied to the results.

Q50. What market data did you use to calculate the dividend yield in your Constant Growth DCF model?

A50. The dividend yield in my Constant Growth DCF model is based on the proxy companies' current annual dividend and average closing stock prices over the 30-, 90-, and 180-trading days as of September 30, 2022.

Q51. Why did you use three averaging periods for stock prices?

A51. In my Constant Growth DCF model, I use an average of recent trading days to calculate the price term (P_0) in the DCF model to ensure that the COE is not skewed by anomalous events that may affect stock prices on any given trading day. The averaging period should also be reasonably representative of expected capital market conditions over the long-term. However, as discussed above, recent market data is not representative of expected market conditions over the long-term. Therefore, the results of my Constant Growth DCF model using historical data may underestimate the forward-looking cost of equity. As a result, I place more weight on the median to median-high results produced by my Constant Growth DCF model.

Q52. Did you make any adjustments to the dividend yield to account for periodic growth in dividends?

A52. Yes, I did. Because utility companies tend to increase their quarterly dividends at different times throughout the year, it is reasonable to assume that dividend increases will be evenly distributed over calendar quarters. Given that assumption, it is reasonable to apply one-half of the expected annual dividend growth rate for purposes of calculating the expected dividend yield component of the DCF model. This adjustment ensures that the expected

first year dividend yield is, on average, representative of the coming twelve-month period, and does not overstate the aggregated dividends to be paid during that time.

Q53. Why is it important to select appropriate measures of long-term growth in applying the DCF model?

A53. In its Constant Growth form, the DCF model (i.e., Equation [2]) assumes a single long-term growth rate in perpetuity. To reduce the long-term growth rate to a single measure, one must assume that the dividend 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.

Q54. What sources of long-term growth rates did you rely on in your Constant Growth DCF model?

A54. My Constant Growth DCF model incorporates the following sources of long-term growth rates: (1) consensus long-term earnings growth estimates from Zacks Investment Research; (2) consensus long-term earnings growth estimates from Thomson First Call (provided by Yahoo! Finance); and (3) long-term earnings growth estimates from Value Line.

Q55. How did you calculate the expected dividend yield?

A55. I adjusted the dividend yield to reflect the growth rate that was being used in that particular scenario. This ensures that the growth rate used in the dividend yield calculation and the growth rate used as the "g" term of the DCF model are internally consistent.

Q56. How did you calculate the range of results for the Constant Growth DCF model?

A56. I calculated the low DCF result using the minimum growth rate (i.e., the lowest of the Thomson First Call, Zacks, and Value Line earnings growth rates) for each of the proxy group companies. Thus, the low result reflects the minimum DCF result for the proxy group. I used a similar approach to calculate the high results, using the highest growth rate for each proxy group company. The mean results were calculated using the average growth rates from all sources.

Q57. Please summarize the results of your Constant Growth DCF analyses.

A57. Figure 7 (see also Exhibit No. ___(AEB-2), Schedule 4), present the results of the Constant Growth DCF analyses using a 30-Day, 90-Day, or 180-Day average for the closing stock price of the proxy groups as of September 30, 2022. The mean results range from 9.12 percent to 9.19 percent. The mean high results range from 10.14 percent to 10.21 percent. The median and median high results range from 9.22 percent to 9.35 percent and 9.99 percent to 10.01 percent respectively. While I also summarize the low DCF results, 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 the low DCF results at this time.

Figure 7: Summary of Constant Growth DCF Results

Constant Growth DCF			
	Mean Low	Mean	Mean High
30-Day Average	8.05%	9.12%	10.14%
90-Day Average	8.09%	9.16%	10.18%
180-Day Average	8.12%	9.19%	10.21%
	Median Low	Median	Median High
30-Day Average	7.60%	9.22%	9.99%
90-Day Average	7.74%	9.28%	9.98%

180-Day Average	7.87%	9.35%	10.01%

Q58. What are your conclusions about the results of the Constant Growth DCF model?

A58. As discussed previously, one primary assumption of the DCF model is a constant P/E ratio. That assumption is heavily influenced by the market price of utility stocks. Since utility stocks are expected to underperform the broader market over the near-term as interest rates increase, it is important to consider the results of the DCF models with caution because the DCF tends to understate the cost of equity in rising interest rate and higher inflationary environments, which, as discussed previously, currently exist. Therefore, while I have given weight to the results of the Constant Growth DCF model, my recommendation also gives weight to the results of other COE estimation models.

C. Capital Asset Pricing Model

Q59. Please briefly describe the Capital Asset Pricing Model ("CAPM")

A59. 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. This form of risk cannot be diversified away using a portfolio of assets. Non-systematic risk is the risk of a specific company that can be mitigated through portfolio diversification.

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

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

Where:

K_e = the required market COE;

β = Beta coefficient of an individual security;

r_f = the risk-free ROR; and

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

In this specification, the term ($r_m - r_f$) represents the Market Risk Premium. According to the theory underlying the CAPM, since unsystematic risk can be diversified away, investors should only be concerned with systematic risk. Systematic risk is measured by Beta. Beta is a measure of the volatility of a security as compared to the market as a whole. Beta 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. 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.

Q60. What risk-free rate did you use in your CAPM analysis?

A60. I relied on three sources for my estimate of the risk-free rate: (1) the current 30 day average yield on 30-year U.S. Treasury bonds (i.e., 3.47 percent);[48] (2) the projected 30-year U.S. Treasury bond yield for Q1 2023 through Q1 2024 (i.e., 3.88 percent);[49] and (3) the projected 30-year U.S. Treasury bond yield for 2024 through 2028 (i.e., 3.80 percent).[50]

Q61. Would you place more weight on one of these scenarios?

A61. Yes. Based on current market conditions, I place more weight on the results of the projected yields on the 30-year Treasury bonds. As discussed previously, the estimation of the cost of equity in this case should be forward-looking because it is the return that investors would receive over the future rate period. Therefore, the inputs and assumptions used in the CAPM analysis should reflect the expectations of the market at that time. While I have included the results of a CAPM analysis that relies on the current average risk-free rate, this analysis fails to take into consideration the effect of the market's expectations for interest rate increases on the cost of equity.

Q62. Has the Commission relied on projected long-term U.S. Treasury Bond yields as the estimate of the risk-free rate?

A62. Yes. In Docket No. D2017.9.80 for EWM, the Commission relied on a projection of the 30-year U.S. Treasury Bond yield as the estimate of the risk-free rate in the ECAPM which

[48] Bloomberg, as of September 30, 2022
[49] Blue Chip Financial Forecasts, Vol. 41, No. 4, September 1, 2022, at 2.
[50] Blue Chip Financial Forecasts, Vol. 40, No. 12, June 1, 2022, at 14.

is the model the Commission placed primary reliance on to determine the authorized ROE for EWM.[51]

Q63. What beta coefficients did you use in your CAPM analysis?

A63. As shown in Exhibit No. ___(AEB-2), 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 were calculated using ten years of weekly returns relative to the S&P 500 Index. Value Line's calculation is based on five years of weekly returns relative to the New York Stock Exchange Composite Index.

Additionally, as shown in Exhibit No. ___(AEB-2), Schedule 6, I also considered an additional CAPM analysis which relies on the long-term average utility Beta coefficient for the companies in my proxy group. The long-term average utility Beta coefficient was calculated as an average of the Value Line Beta coefficients for the companies in my proxy group from 2013 through 2021.

Q64. How did you estimate the Market Risk Premium in the CAPM?

A64. I estimated the Market Risk Premium ("MRP") as the difference between the implied expected equity market return and the risk-free rate. As shown in Exhibit No. ___(AEB-2), Schedule 7, the expected return on the S&P 500 Index is calculated using the Constant Growth DCF model discussed earlier in my testimony for the companies in the S&P 500 Index. Based on an estimated market capitalization-weighted dividend yield of 1.98

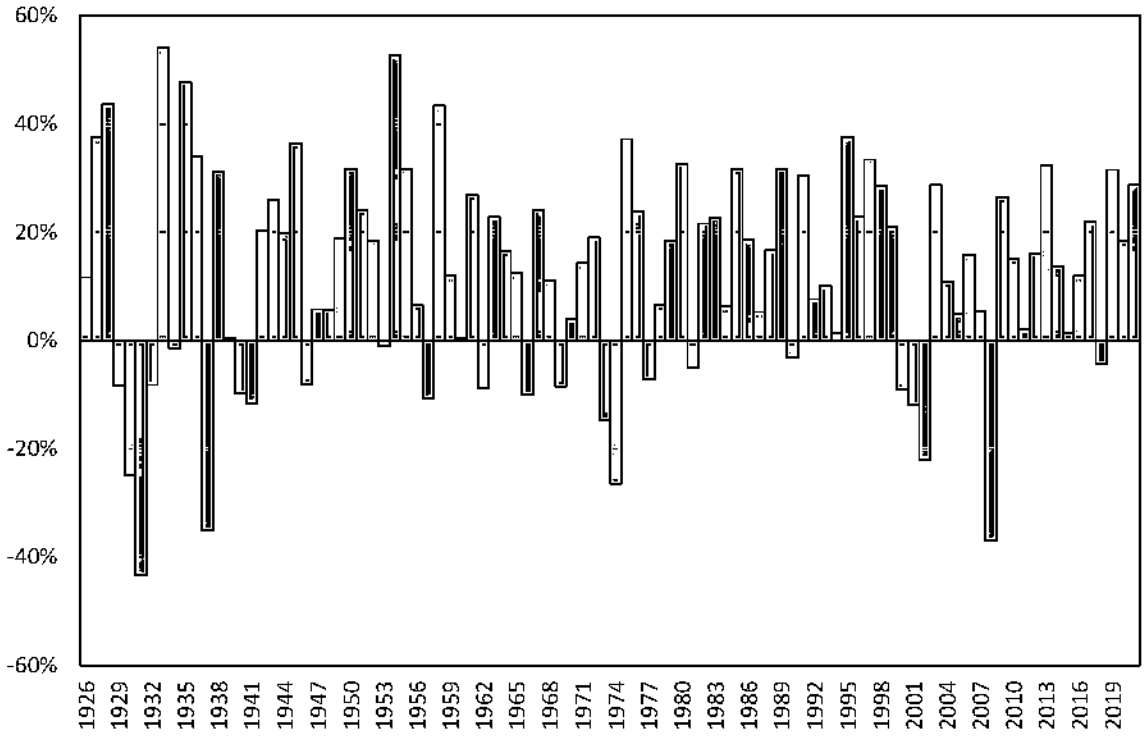
[51] Docket No. D2017.9.80, Order No. 7575c, IN THE MATTER OF the Joint Application for Approval to Change and Establish Natural Gas Delivery Rates for Energy West Montana, Inc. and Cut Bank Gas Company (Sep. 26, 2018), at 42-43.

percent and a weighted long-term growth rate of 10.95 percent, the estimated required market return for the S&P 500 Index is 13.04 percent.

Q65. How does the current expected market return of 13.04 percent compare to observed historical market returns?

A65. Given the range of annual equity returns that have been observed over the past 96 years (shown in Figure 8 below), a current expected return of 13.04 percent is not unreasonable. In 50 of the past 96 years (i.e., in approximately 52 percent of all observations), the realized total equity return was at least 13.04 percent or greater.

Figure 8: Realized U.S. Equity Market Returns (1926-2021)[52]



Q66. Did you consider another form of the CAPM in your analysis?

A66. Yes. I have also considered the results of an Empirical CAPM ("ECAPM" or alternatively referred to as the Zero-Beta CAPM)[53] in estimating the cost of equity for Montana-Dakota. 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:

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

Where:

[52] Depicts total annual returns on large company stocks, as reported in the 2022 *Kroll* SBBI Yearbook.
[53] See e.g., Roger A. Morin, New Regulatory Finance, Public Utilities Reports, Inc., 2006, at 189.

k_e = the required market COE

β = Adjusted Beta coefficient of an individual security

r_f = the risk-free rate of return

r_m = the required return on the market as a whole

In essence, the Empirical form of the CAPM addresses the tendency of the "traditional" CAPM to underestimate the cost of equity for companies with low Beta coefficients such as regulated utilities. In that regard, the ECAPM is not redundant to the use of adjusted Betas; 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.[54]

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

Q67. Has the Commission relied on the ECAPM analysis?

A67. Yes. As noted above, in Docket No. D2017.9.80 for EWM, the Commission placed primary reliance on the results of the ECAPM and incorporated the results of the DCF analysis as a check on the ECAPM results to ensure the ECAPM did not produce results

[54] *Id.*, at 191.

that differed wildly from investor's expected returns.[55] Further, in regard to the use of adjusted Beta coefficients in the ECAPM, the Commission noted the following:

> Hill asserts that the use of the ECAPM with the use of adjusted betas is inappropriate as both serve to lower the slope of the Capital Market Line. Test. Hill 65. However, the Commission is persuaded by Morin's representation that "[t]he ECAPM and the use of adjusted betas comprise two separate features of asset pricing. Even if a company's beta is estimated accurately, the CAPM still understates the return for low-beta stocks." See Morin, Roger A. "Chapter 6: Alternative Asset Pricing Models." New Regulatory Finance Vienna: Public Utilities Reports, Inc. 2006.191. The Commission agrees with Scheig that the issue should be remedied by adopting the ECAPM, including his x factor of 0.25, which is intended to approximate the α effect identified by the academic literature reviewed in Morin's textbook.[56]

Q68. What are the results of your CAPM analyses?

A68. As shown in Figure 9 (see also Exhibit No. ___(AEB-2), Schedule 5), my traditional CAPM analysis produces a range of returns from 10.59 percent to 11.94 percent. The ECAPM analysis results range from 11.21 percent to 12.22 percent.

Figure 9: 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	11.89%	11.94%	11.93%
Bloomberg Beta	11.32%	11.40%	11.38%
Long-term Avg. Beta	10.59%	10.70%	10.68%
ECAPM			
Value Line Beta	12.18%	12.22%	12.21%
Bloomberg Beta	11.75%	11.81%	11.80%
Long-term Avg. Beta	11.21%	11.29%	11.27%

[55] Docket No. D2017.9.80, Order No. 7575c, IN THE MATTER OF the Joint Application for Approval to Change and Establish Natural Gas Delivery Rates for Energy West Montana, Inc. and Cut Bank Gas Company (Sep. 26, 2018), at 46.

[56] *Id.*, at 42.

D. Bond Yield Plus Risk Premium Analysis

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

A69. In general terms, this approach is based on the fundamental principle that equity investors bear the residual risk associated with equity ownership and therefore require a premium over the return they would have earned as a bondholder. That is, because returns to equity holders have greater risk than returns to bondholders, equity investors must be compensated to bear that risk. Risk premium approaches, therefore, 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 used actual authorized returns for electric utility companies as the historical measure of the cost of equity to determine the risk premium.

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

A70. Yes. It is important to recognize both academic literature and market evidence indicating that the equity risk premium (as used in this approach) is inversely related to the level of interest rates. That is, as interest rates increase (decrease), the equity risk premium decreases (increases). 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 U.S. Treasury bond yields. If we let authorized ROEs for electric utilities serve as the measure of required equity returns and

define the yield on the long-term U.S. Treasury bond as the relevant measure of interest rates, the risk premium simply would be the difference between those two points.[57]

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

A71. Yes. Investors are aware of ROE awards in other jurisdictions, and they consider those awards 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.

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

A72. As shown in Figure 10 below, from 1992 through September 30, 2022, 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:

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

Where

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

a = intercept term

b = slope term

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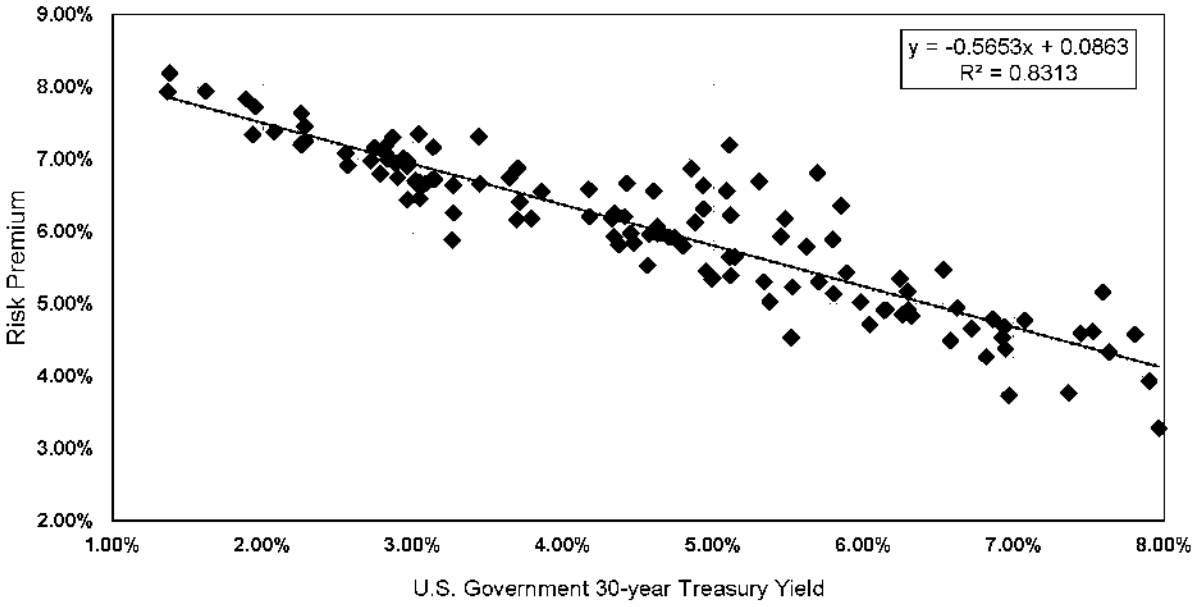
[57] *See e.g.*, S. Keith Berry, *Interest Rate Risk and Utility Risk Premia during 1982-93*, Managerial and Decision Economics, Vol. 19, No. 2 (March, 1998), in which the author used a methodology similar to the regression approach described below, including using allowed ROEs as the relevant data source,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

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

Data regarding allowed ROEs were derived from 686 vertically integrated electric utility rate cases from 1992 through September 2022 as reported by Regulatory Research Associates ("RRA").[58] This equation's coefficients were statistically significant at the 99.00 percent level.

Figure 10: Risk Premium Results



As shown on Exhibit No. ___(AEB-2), Schedule 8, based on the current 30-day average of the 30-year U.S. Treasury bond yield (i.e., 3.47 percent), the risk premium would be 6.67 percent, resulting in an estimated ROE of 10.14 percent. Based on the near-term (Q1 2023–Q1 2024) projections of the 30-year U.S. Treasury bond yield (i.e., 3.88 percent), the risk premium would be 6.44 percent, resulting in an estimated ROE of 10.32 percent. Based on longer-term (2024-2028) projections of the 30-year U.S. Treasury bond yield (i.e., 3.80

[58] This analysis began with a total of 1,401 cases and was screened to eliminate limited issue rider cases, transmission-only cases, distribution cases, and cases that were silent with respect to the authorized ROE. After applying those screening criteria, the analysis was based on data for 686 cases.

percent), the risk premium would be 6.48 percent, resulting in an estimated ROE of 10.28 percent.

Q73. How did the results of the Bond Yield Risk Premium inform your recommended ROE for Montana-Dakota?

A73. I have considered the results of the Bond Yield Risk Premium analysis in setting my recommended ROE for Montana-Dakota. As noted above, investors consider the ROE determination by a regulator when assessing the risk of that company as compared to utilities of comparable risk operating in other jurisdictions. The risk premium analysis takes into account this comparison by estimating the return expectations of investors based on the current and past ROE awards of electric utilities across the US.

E. Commission's ROE Methodology in Docket D2017.9.80 for Energy West Montana

Q74. Please describe the Commission's approach to determine the authorized ROE in its recent order for Energy West Montana ("EWM").

A74. As discussed above, the Commission developed a formula to calculate the COE based on the results of various specifications of the DCF model and ECAPM using market data provided by EWM in the case.[59] Specifically, to calculate the COE, the Commission calculated the average of the Constant Growth DCF analyses using earnings growth rate estimates from Value Line, Zacks and Bloomberg. The Commission also calculated the average of the ECAPM analyses using a historical market risk premium and Beta

[59] Docket No. D2017.9.80, Order No. 7575c, IN THE MATTER OF the Joint Application for Approval to Change and Establish Natural Gas Delivery Rates for Energy West Montana, Inc. and Cut Bank Gas Company (Sep. 26, 2018), at 46-47.

coefficient estimates from Value Line and Bloomberg. In addition, the Commission also relied on a version of the ECAPM analysis using a forward-looking market risk premium and Beta coefficients from Value Line. Finally, the Commission calculated the arithmetic and geometric averages of the average DCF result, the average ECAPM result using a historical market risk premium and the ECAPM result using a forward-looking market risk premium. The resulting arithmetic and geometric averages were used to determine the authorized ROE for EWM.

Q75. How does your ROE recommendation compare with the return that would be derived using the Commission's approach of averaging the results of the DCF and ECAPM analyses to estimate the COE?

A75. While I continue to believe that it is also important to rely on the results of the Risk Premium analysis, I did calculate the resulting COE using the Commission's methodology in its recent order for EWM. The Commission's methodology is calculated by averaging the results of the Constant Growth DCF analysis and the ECAPM analysis. As shown in Figure 11 below, I calculated the average of my median Constant Growth DCF results using the 30-, 90- and 180-day stock price averaging periods. I also calculated the average of my ECAPM results which were estimated using a forward-looking market risk premium, Value Line, Bloomberg and long-term average Beta coefficients and current and projected interest rates. As shown in Figure 11, based on the Commission methodology, the COE calculated as the average of the DCF and ECAPM results is 10.52 percent. This demonstrates that my ROE recommendation of 10.50 percent is in line with the COE estimated using the averaging convention relied on by the Commission in its order for EWM.

Figure 11: Summary of the Commission's Methodology in Docket D2017.9.80 for EWM

Model	COE Estimate
Constant Growth Discounted Cash Flow (Average Earnings Growth Estimate):	
30-day Average Price	9.22%
90-day Average Price	9.28%
180-day Average Price	9.35%
Average	**9.28%**
ECAPM (Forward-looking Market Risk Premium):	
Value Line Beta Coefficient:	
Current Risk-Free Rate	12.18%
2023Q1–2024Q1 Projected Risk-Free Rate	12.22%
2024-2028 Projected Risk-Free Rate	12.21%
Bloomberg Beta Coefficient:	
Current Risk-Free Rate	11.75%
2023Q1–2024Q1 Projected Risk-Free Rate	11.81%
2024-2028 Projected Risk-Free Rate	11.80%
Long-Term Average Beta Coefficient:	
Current Risk-Free Rate	11.21%
2023Q1–2024Q1 Projected Risk-Free Rate	11.29%
2024-2028 Projected Risk-Free Rate	11.27%
Average	**11.75%**
Average COE	**10.52%**

Q76. Has the Commission issued an order since its decision in Docket D2017.9.80 for EWM?

A76. Yes. The Commission issued an order in Docket D2018.2.12 for Northwestern Energy on December 19, 2019.

Q77. How did the Commission determine the authorized ROE for Northwestern Energy in Docket D2018.2.12?

A77. In Docket D2018.2.12, the parties in the case filed a partial settlement on May 10, 2019 which specified that the parties had agreed to an ROE for Northwestern Energy of 9.65 percent. Therefore, the Commission in its order on December 20, 2019, considered the reasonableness of the agreed to ROE of 9.65 percent. To evaluate the reasonableness of the parties' proposed 9.65 percent ROE, the Commission considered the initial recommendations of each of the parties in the case as well as the model results that were provided by each witness in support of their recommendation.[60] Thus, the Commission consider the results produced by models such as the DCF, CAPM, ECAPM, Rick Premium and Expected Earnings.[61] Based on its review of the models results and recommendations, the Commission concluded that a fair and reasonable ROE for Northwestern Energy would fall in the range of 9.2 percent to 10.0 percent and thus concluded that the parties' proposed ROE of 9.65 percent was reasonable.[62] Therefore, in the case for Northwestern Energy, the Commission considered the results of each of the COE estimation models presented by the parties as opposed to only relying on the DCF and the ECAPM results as it did when determined the authorized ROE for EWN in Docket D2017.9.80.

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[60] Docket No. D2018.2.12, Order No. 7604u, IN THE MATTER OF NorthWestern Energy's Application for Authority to Increase Retail Electric Utility Service Rates and for Approval of Electric Service Schedules and Rules and Allocated Cost of Service and Rate Design (Dec. 20, 2019), at 17-21.

[61] *Id.*, at 18.

[62] *Id.*, at 21.

Q78. Is the approach you have relied on to determine your recommended ROE of 10.50 percent for Montana-Dakota consistent with the Commission's approach in Docket D2018.2.12 for Northwestern Energy?

A78. Yes, it is. The Commission considered the results of each of the COE estimation methodologies provided in Docket D2018.2.12 to determine a range of reasonableness of 9.20 percent to 10.0 percent for Northwestern Energy. Similarly, as discussed above, in the current proceeding, I considered the range of results produced by my DCF, CAPM, ECAPM and Risk Premium analyses as well as current and prospective market conditions and the relative business and financial risk of Montana-Dakota to the proxy group in first determining my recommended ROE range of 9.75 percent to 10.75 percent and then ultimately my recommended ROE of 10.50 percent.

VII. REGULATORY AND BUSINESS RISKS

Q79. Do the DCF, CAPM, and ECAPM results for the proxy group, taken alone, provide an appropriate estimate of the COE for Montana-Dakota?

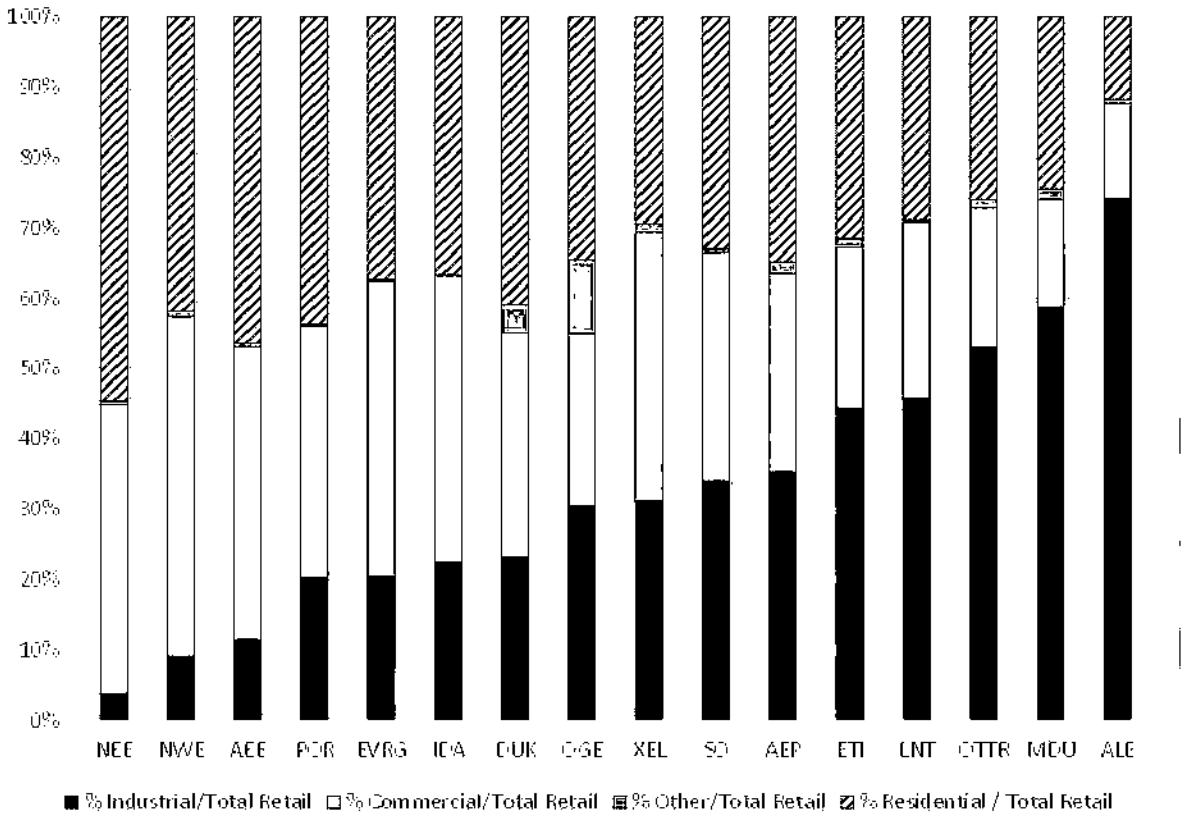
A79. No. These results provide only a range of the appropriate estimate of the Company's cost of equity. There are several additional factors that must be taken into consideration when determining where the Company's cost of equity falls within the range of results. These factors, which are discussed below, should be considered with respect to their overall effect on the Company's risk profile.

A. Customer Concentration

Q80. Please summarize Montana-Dakota's customer concentration risk.

A80. Approximately 60 percent of Montana-Dakota's 2021 total retail electric sales in Montana were derived from industrial customers. As shown in Figure 12, Montana-Dakota's commercial and industrial sales volume as a percentage of total retail electric sales was 75 percent, which is higher than all but one of the companies in the proxy group.[63]

Figure 12: Summary: Customer Concentration[64]



[63] Does not include "other" or residential customers.

[64] Source: S&P Capital IQ Pro - Other sales includes: Total Public Street and Highway Lighting, Other Sales to Public Authorities, Sales to Railroad and Railways, and Interdepartmental Sales.

Q81. How does customer concentration and the Company's service territory affect business risk?

A81. An extremely high concentration of industrial 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. Moreover, the loss of large industrial customers would have an effect on the local economy which would ultimately also affect the sales to residential and commercial customers. As noted by Dhaliwal, Judd, Serfling and Shaikh in their article, *Customer Concentration Risk and the Cost of Equity Capital*:

> 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. 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).[65]

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

[65] 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.

a more concentrated customer base will have the effect of increasing a company's cost of equity.[66]

Q82. Please describe how changes in economic conditions and the interdependent nature of Montana-Dakota's service territory can affect its business risk?

A82. Montana-Dakota 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 Montana. The customer is engaged in oil and natural gas exploration and production. It is well-documented that the oil and natural gas production industry is very cyclical and may be undergoing changes as a result of green initiatives across the country. Additionally, like other industries, the oil and natural gas production industry is also dependent on the general business cycle. As a result, the customer's production could change based on general or industry specific economic conditions thereby impacting the customer's energy consumption.

Furthermore, Montana-Dakota is also in direct competition with other sources of energy such as natural gas, diesel, solar and wind among others. This creates an additional risk that customers in the commercial and industrial classes could install onsite generation to serve a substantial portion of their energy needs. For Montana-Dakota, the risk is much greater since the Company depends on a single customer for a substantial portion of sales.

[66] *Id.*, at 4.

Q83. How dependent is Montana-Dakota's electric volume on the customer engaged in oil and natural gas production?

A83. The customer represents 29.85 percent of the Company's retail electric sales in Montana.[67] Therefore, if the customer were to decrease production as a result of fluctuations in the price of oil and natural gas or install onsite generation to serve its energy needs, Montana-Dakota could experience a significant decrease in electric sales. Furthermore, if the customer were to reduce output due to decreases in oil prices, the effect on the Montana-Dakota system could be compounded if reduced production affected the local economy. Thus, Montana-Dakota's reliance on a single large customer's load results in increased risk with respect to sales, earnings, and cash flow.

Q84. What is your conclusion regarding the Company's customer concentration and its effect on the cost of equity for Montana-Dakota's electric operations in Montana?

A84. Montana-Dakota is heavily reliant on sales to commercial and industrial customers. As noted above, 75 percent of Montana-Dakota's total retail electric sales in Montana were to commercial and industrial customers. This concentration is higher than all but one of the proxy group companies. In addition, 29.85 percent of Montana-Dakota's electric retail sales are to one customer. A high degree of customer concentration increases Montana-Dakota'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. Thus, Montana-Dakota's heavy customer concentration implies

[67] Data provided by Montana-Dakota Utilities Co.

that the Company has an above average risk profile when compared to the companies in the proxy group.

B. Small Size Risk

Q85. Please explain the risk associated with small size.

A85. 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.[68]

Q86. How does the smaller size of a utility affect its business risk?

A86. 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, or 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

[68] Michael Annin, Equity and the Small-Stock Effect, Public Utilities Fortnightly, October 15, 1995.

or demand reduction. Taken together, these risks affect the return required by investors for smaller companies.

Q87. How does Montana-Dakota's electric operations in Montana compare in size to the companies in the Initial Proxy Group?

A87. Montana-Dakota's electric operations in Montana are substantially smaller than the median for the companies in my proxy group in terms of market capitalization. Exhibit No.___(AEB-2), Schedule 9 provides the actual market capitalization for the companies in my proxy group and estimates the implied market capitalization for Montana-Dakota (i.e., the implied market capitalization if Montana-Dakota's electric operations in Montana were a stand-alone publicly-traded entity). To estimate the size of the Company's market capitalization relative to the proxy group, I calculated Montana-Dakota's proposed capital structure equity component of $124.24 million by multiplying Montana-Dakota's test year rate base of $247 million by Montana-Dakota's test year common equity ratio of 50.30 percent. I then applied the median market-to-book ratio for the proxy group of 2.04 to Montana-Dakota's implied common equity balance and arrived at an implied market capitalization of approximately $253.23 million, or 1.63 percent of the median market capitalization for the proxy group.

Q88. How did you estimate the size premium for Montana-Dakota?

A88. Given this relative size information, it is possible to estimate the impact of size on the ROE for Montana-Dakota using *Kroll* data that estimates the stock risk premia based on the size of a company's market capitalization. As shown in Exhibit No.___(AEB-2), Schedule 9, the median market capitalization of the proxy group of approximately $15.54 billion corresponds to the third decile of the *Kroll* market capitalization data. Based on *Kroll*'s

analysis, that decile corresponds to a size premium of 0.55 percent (i.e., 55 basis points). Montana-Dakota's implied market capitalization of approximately $253.23 million falls within the tenth decile, which comprises market capitalization levels up to $289.01 million and corresponds to a size premium of 4.80 percent (i.e., 480 basis points). The difference between those size premia is 425 basis points (i.e., 4.80 percent minus 0.55 percent).

Q89. Has the Commission recently considered the small size risk premium?

A89. Yes. In Docket D2017.9.80 for EWM, the Commission considered the evidence presented by EWM concerning an adjustment to the authorized ROE for small size risk. However, the Commission rejected the proposed small size risk premium due to the following reasons:[69]

- EWM did not show that the COE results did not already include a size premium given that the companies in the proxy group are made up of numerous smaller operating subsidiaries.

- A smaller firm should have a higher Beta coefficient due to the additional risk associated with the firm's small size; however, the Commission noted that this relationship did not hold with the companies contained in the proxy group used to estimate the COE for EWM;

[69] Docket No. D2017.9.80, Order No. 7575c, IN THE MATTER OF the Joint Application for Approval to Change and Establish Natural Gas Delivery Rates for Energy West Montana, Inc. and Cut Bank Gas Company (Sep. 26, 2018), at 51-53.

- The Commission agreed with the Montana Consumer Counsel that the small size risk premium for the broader market could not be seamlessly applied to the regulated utility industry; and

- The Commission reasoned that EWM did not provide enough detail to show how the company arrived at the estimated small size risk premium.

While the Commission rejected the small size risk premium in the rate case for EWM, the Commission indicated that it would be open to reviewing small size risk premium proposals in future cases. The Commission reasoned that for a small size risk premium an applicant must show that the small size effect is applicable to the regulated utility industry and that the COE results based on the companies in the proxy group did not already contain a small size risk premium.[70]

Q90. Have you considered the Commission's criteria for a small size risk premium?

A90. Yes, I have. One of the reasons the Commission rejected the small size risk premium in the EWM rate case was that the smallest companies in the proxy group did not necessarily have the highest Beta coefficients which would indicate greater risk. However, there are two important reasons why a smaller company may not always have the highest Beta coefficient. First, smaller companies are traded more infrequently than larger companies. A lower trading frequency can bias the estimate of the Beta coefficient. As Thomas Zepp notes in his article "Utility stocks and the size effect – revisited":

> Roll (1980) concluded trading infrequency seems to be a powerful cause of bias in beta risk estimates when time intervals of a month or less are used to estimate betas for small stocks. When a small stock is thinly

[70] *Id.*, at 53.

> traded, its stock price does not reflect the movement of the market, which drives down the apparent covariance with the market and creates an artificially low beta estimate.[71]

In fact, Zepp showed that Beta coefficients for a sample of water companies were greater when annual data (i.e., the approach employed by Ibbotson Associates) was used to estimate the Beta coefficient than the Beta coefficients reported by Value Line which use weekly data.[72]

Second, the Beta coefficients for small companies do not account for all of the risk associated with a company's small size. For example, Figure 13 contains the average Beta coefficient, average arithmetic annual return and average annual standard deviation for the companies included in each size decile developed by *Kroll*. As shown in Figure 13, the average annual arithmetic return for the tenth decile (i.e., the decile in which Montana-Dakota would be classified) was 20.04 percent. This equates to an equity risk premium of 15.17 percent if the long-term income only return of 4.87 percent from long-term government bonds is subtracted from the total annual return. Conversely, we could also estimate the equity risk premium using the Beta coefficient for the tenth decile and the historical market risk premium as report by *Kroll* from 1926-2021. If we multiply the historical market risk premium as reported by *Kroll* of 7.46 percent[73] by the Beta coefficient for the tenth decile of 1.39, the resulting equity risk premium is 10.37 percent. Thus, calculating the equity risk premium using the Beta coefficient significantly

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[71] Zepp, Thomas M. "Utility Stocks and the Size Effect—Revisited." *The Quarterly Review of Economics and Finance*, vol. 43, no. 3, 2003, pp. 578–582., doi:10.1016/s1062-9769(02)00172-2.

[72] *Ibid.*

[73] The market risk premium from 1926-2021 is calculated as the average return on large company stocks from 1926-2021 minus the average income only return on long-term government bonds from 1926-2021 (i.e., 12.34 percent – 4.87 percent = 7.46 percent). Source: Kroll, 2022 SBBI Yearbook.

understates the actual long-term equity risk premium for companies contained in the tenth decile. Therefore, the Beta coefficient does not appropriately account for the additional risk associated with small size.

Figure 13: Kroll – CRSP Deciles Size Study as of December 31, 2021[74]

Decile	Beta	Annual Arithmetic Mean Return	Annual Standard Deviation of Returns
1 – Largest	0.92	11.54%	18.74%
2	1.04	13.04%	21.13%
3	1.11	13.68%	22.94%
4	1.13	13.82%	25.05%
5	1.17	14.47%	25.65%
6	1.18	14.83%	26.58%
7	1.25	15.51%	28.46%
8	1.30	15.80%	32.20%
9	1.34	16.93%	36.30%
10 - Smallest	1.39	20.04%	41.47%

Q91. Were utility companies included in the size premium study conducted by Duff and Phelps?

A91. Yes. In fact, as shown in Exhibit 7.2 of Kroll's 2019 Valuation Handbook, OGE Energy Corp. had the largest market capitalization of the companies contained in the fourth decile.[75] Therefore, Kroll did include utility companies in its size risk premium study.

Q92. Is the size premium applicable to companies in regulated industries?

A92. Yes, it is. For example, returning to Thomas Zepp's article "Utility stocks and the size effect – revisited" referenced above, Zepp provided the results of two studies which showed evidence of the required risk premium for small water utilities. The first study conducted by the California Public Utilities Commission Staff ("CPUC Staff") computed

[74] Source: Kroll, Cost of Capital Navigator, CRSP Deciles Size Study – Supplementary Data Exhibits.

[75] Source: Kroll, Valuation Handbook: Guide to Cost of Capital, 2019, Exhibit 7.2.

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.[76] The second study referenced by Zepp examined the differences in required returns over the period of 1987-1997 for two large and two small water utilities in California. As Zepp showed, 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. [77]

Additionally, Stéphane Chrétien and Frank Coggins in the article "Cost of Equity for Energy Utilities: Beyond the CAPM",[78] recently studied the CAPM and its ability to estimate the risk premium for the utility industry in particular subgroups of natural gas utilities. The article considered the CAPM, the Fama-French three-factor model and a model similar to the ECAPM that I have also considered above. In the article, the Fama-French three-factor model explicitly included an adjustment to the CAPM for risk associated with size. As Chrétien and Coggins 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.[79] These two studies demonstrate that the size premium is evident in market data and is clearly applicable to regulated utilities.

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[76] Zepp, Thomas M. "Utility Stocks and the Size Effect—Revisited." *The Quarterly Review of Economics and Finance*, vol. 43, no. 3, 2003, pp. 578–582., doi:10.1016/s1062-9769(02)00172-2.

[77] *Ibid.*

[78] Chrétien, Stéphane, and Frank Coggins. "Cost Of Equity For Energy Utilities: Beyond The CAPM." Energy Studies Review, vol. 18, no. 2, 2011, doi:10.15173/esr.v18i2.531.

[79] Chrétien, Stéphane, and Frank Coggins. "Cost of Equity For Energy Utilities: Beyond The CAPM." Energy Studies Review, vol. 18, no. 2, 2011, doi:10.15173/esr.v18i2.531.

Q93. Have regulators in other jurisdictions made a specific risk adjustment to the COE results based on a company's small size?

A93. 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 COE analyses in this case, without an explicit adjustment, would adequately compensate AEL&P for its greater risk."[80] Thus, the RCA awarded AEL&P an ROE of 12.875 percent which was 108 basis points above the highest return on equity estimate from any model presented in the case.[81] Similarly, in Order No. 19, the RCA 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.[82] 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.[83]

Additionally, in Docket No. E017/GR-15-1033 for Otter Tail Power Company ("Otter Tail"), the Minnesota Public Utilities Commission ("Minnesota PUC") selected an ROE

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[80] Docket No. U-10-29, In the Matter of the Revenue Requirement and Cost of Service Study Designated as TA381-1 Filed by Alaska Electric Light and Power Company, Order entered September 2, 2011 (Order No. 15) at 37.

[81] *Id.*, at 32 and 37.

[82] Docket No. U-16-066, In the Matter of the Tariff Revision Designated as TA285-4 Filed by ENSTAR Natural Gas Company, A Division of Semco Energy, Inc., Order entered September 22, 2017 (Order No. 19) at 50-52.

[83] Ibid.

above the mean DCF results, as a result of multiple factors including Otter Tail'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.[84]

Finally, in Opinion No. 569 and 569-A, the FERC has relied on a size premium adjustment in its CAPM estimates for electric utilities. In those decisions, the FERC noted that "the size adjustment was necessary to correct for the CAPM's inability to fully account for the impact of firm size when determining the cost of equity."[85,86]

Q94. How have you considered the smaller size of Montana-Dakota in your recommendation?

A94. While I have estimated the effect of Montana-Dakota's small size on the ROE, I am not proposing a specific adjustment for this risk factor. Rather, I believe it is important to consider the small size of Montana-Dakota's electric operations in Montana in the determination of where, within the range of analytical results, the Company's required ROE falls. Therefore, the additional risk associated with small size indicates that the Company's ROE should be established above the mean/median results for the companies in my proxy group.

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[84] Order in Docket No. E017/GR-15-1033, In the Matter of the Application of Otter Tail Power Company for Authority to Increase Rates for Electric Service in the State of Minnesota (August 16, 2016) at 55.

[85] Federal Energy Regulatory Commission, Opinion No. 569-A, May 21, 2020, at para 75.

[86] The U.S. Court of Appeals recently vacated the FERC Order 569 decisions that related to its risk premium model and remanded the case to FERC to reopen proceedings. However, in that decision, the Court did not reject FERC's inclusion of the size premium to estimate the CAPM. United States Court of Appeals Case No. 16-1325, Decision No. 16-1325, August 9, 2022 at 20.

C. Flotation Cost

Q95. What are flotation costs?

A95. 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.

Q96. Why is it important to consider flotation costs in the allowed ROE?

A96. 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.

Q97. Are flotation costs part of the utility's invested costs or part of the utility's expenses?

A97. 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 cost is incurred prior to the test year but remains 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 Montana-Dakota the opportunity to earn its required ROR in the future.

Q98. Please provide an example of why a flotation cost adjustment is necessary to compensate investors for the capital they have invested.

A98. Suppose MDU Resources issues stock with a value of $100, and an equity investor invests $100 in MDU Resources in exchange for that stock. Further suppose that, after paying the flotation costs associated with the equity issuance, which include fees paid to underwriters and attorneys, among others, MDU Resources ends up with only $97 of issuance proceeds, rather than the $100 the investor contributed. MDU Resources 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.

Q99. Is the date of MDU Resources' last issued common equity important in the determination of flotation costs?

A99. No. As shown in Exhibit No. ___(AEB-2), Schedule 10, MDU Resources closed on equity issuances of approximately $58 million and $54 million (for a total of 4.7 million shares of common stock) in November 2002 and February 2004, respectively. The vintage of the issuance, however, is not particularly important because the investor suffers a shortfall in every year that he should have a reasonable opportunity to earn a return on the full amount of capital that he has contributed. Returning to my earlier example, the investor who contributed $100 is entitled to a reasonable opportunity to earn a return on $100 not only in the first year after the investment, but in every subsequent year in which he has the $100

invested. Leaving aside depreciation, which is dealt with separately, there is no basis to conclude that the investor is entitled to earn a return on $100 in the first year after issuance, but thereafter is entitled to earn a return on only $97. As long as the $100 is invested, the investor should have a reasonable opportunity to earn a return on the entire amount.

Q100. Is the need to consider flotation costs recognized by the academic and financial communities?

A100. Yes. 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 ROR. 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.[87]

Q101. How did you calculate the flotation costs for MDU Resources?

A101. My flotation cost calculation is based on the costs of issuing equity that were incurred by MDU Resources in its two most recent common equity issuance. These issuance costs were applied to my proxy group. Applying the actual issuance costs for MDU Resources

[87] Shannon P. Pratt, Cost of Capital Estimation and Applications, Second Edition, at 220-221.

provided in Exhibit No. ___(AEB-2), Schedule 10, to the DCF analysis, the flotation costs are estimated to be 0.13 percent (i.e., 13 basis points).

Q102. Do your final results include an adjustment for flotation cost recovery?

A102. No. I did not make an explicit adjustment for flotation costs to any of my quantitative analyses. Rather, I provide the above result for consideration in my recommended ROE, which reflects the range of results from my Constant Growth DCF, CAPM, ECAPM and Risk Premium analyses.

D. Capital Expenditures

Q103. Please summarize the projected capital expenditure requirements for Montana-Dakota.

A103. The capital expenditure projections for Montana-Dakota are approximately $158.6 million for the period from 2023 through 2027.[88] These investments relate predominantly to replacement of aging transmission infrastructure and are required to provide safe and reliable service. Based on the Company's net utility plant of approximately $253.2 million as of December 31, 2021, the anticipated capital expenditures represent approximately 62.66 percent of Company's net utility plant as of December 31, 2021.

Q104. How are the Company's risk profile affected by their substantial capital expenditure requirements?

A104. 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

[88] Data provided by Montana-Dakota Utilities Co. for Capital Expenditures 2023-2027.

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.

Q105. Do credit rating agencies recognize the risks associated with significant capital expenditures?

A105. Yes, they do. From a credit perspective, the additional pressure on cash flows associated with high levels of capital expenditures exerts corresponding pressure on credit metrics and, therefore, credit ratings. To that point, S&P explains the importance of regulatory support for large capital projects:

> When applicable, a jurisdiction's willingness to support large capital projects with cash during construction is an important aspect of our analysis. This is especially true when the project represents a major addition to rate base and entails long lead times and technological risks that make it susceptible to construction delays. Broad support for all capital spending is the most credit-sustaining. Support for only specific types of capital spending, such as specific environmental projects or system integrity plans, is less so, but still favorable for creditors. Allowance of a cash return on construction work-in-progress or similar ratemaking methods historically were extraordinary measures for use in unusual circumstances, but when construction costs are rising, cash flow support could be crucial to maintain credit quality through the spending program. Even more favorable are those jurisdictions that present an opportunity for a higher return on capital projects as an incentive to investors.[89]

Therefore, to the extent that the Company`s rates do not permit the opportunity to recover its capital investments on a regular and timely basis, the Company will face increased recovery risk and thus increased pressure on its credit metrics.

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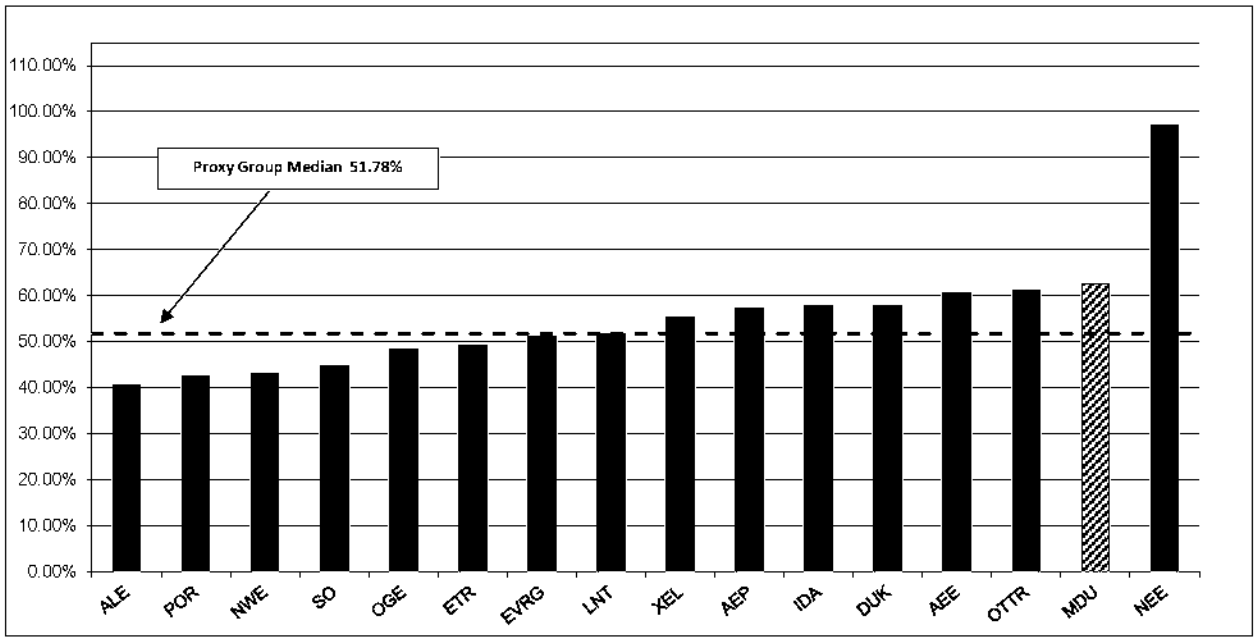
[89] S&P Global Ratings, Ratings Direct, "Assessing U.S. Investor-Owned Utility Regulatory Environments," August 10, 2016, at 7.

Q106. Have you conducted any analysis of the Company's projected capital expenditures relative to the proxy companies?

A106. As shown in Exhibit No. ___(AEB-2), Schedule 11, I calculated the ratio of expected capital expenditures to net utility plant for Montana-Dakota and each of the companies in the proxy group by dividing each company's projected capital expenditures for the period 2023-2027 by its total net utility plant as of December 31, 2021. As shown in Exhibit No. ___(AEB-2), Schedule 11 (*see* also Figure 14 below), MDU's ratio of capital expenditures as a percentage of net utility plant of 62.66 percent is approximately 1.21 times the median for the proxy group companies of 51.78 percent. This result indicates a risk level for Montana-Dakota that is higher than the proxy group companies.

Figure 14: Comparison of Capital Expenditures – Proxy Group Companies



Q107. Does Montana-Dakota have a capital tracking mechanism to recover the costs associated with its capital expenditures plan between rate cases?

A107. No. Montana-Dakota currently has not requested approval to recover capital investment costs between rate cases utilizing a capital tracking mechanism. Therefore, Montana-Dakota depends entirely on rate case filings for capital cost recovery. However, significant programs like Montana-Dakota's that drive capital expenditure requirements generally receive cost recovery through infrastructure and capital trackers. As shown in Exhibit No.___(AEB-2), Schedule 12, 74.03 percent of the companies in the proxy group have some form of capital cost recovery mechanisms in place. Since Montana-Dakota does not currently have a capital tracking mechanism, Montana-Dakota's risk relative to the proxy group is significantly increased.

Q108. What are your conclusions regarding the effect of the Company's capital spending requirements on its risk profile and cost of capital?

A108. The Company's capital expenditure requirements as a percentage of net utility plant are significant and will continue over the next few years. Additionally, unlike a number of the operating subsidiaries of the proxy group, Montana-Dakota does not have a comprehensive capital tracking mechanism to recover the Company's projected capital expenditures. Therefore, Montana-Dakota's significant capital expenditures plan and limited ability to recover the capital investment on an as incurred basis results in a risk profile that is greater than that of the proxy group and supports an ROE toward the higher end of the reasonable range of ROEs.

E. Regulatory Risk

Q109. Please explain how the regulatory framework affects investors' risk assessments.

A109. The ratemaking process is premised on the principle that, for investors and companies to commit the capital needed to provide safe and reliable utility services, the subject utility must have the opportunity to recover invested capital and the market-required return on such capital. Regulatory commissions recognize that because utility operations are capital intensive, regulatory decisions should enable the utility to attract capital at reasonable terms, which balances the long-term interests of investors and customers. In that respect, the regulatory framework in which a utility operates is one of the most important factors considered in both debt and equity investors' risk assessments.

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

From the perspective of equity investors, the authorized return must be adequate to provide a risk-comparable return on the equity portion of the Company's capital investments. Because equity investors are the residual claimants on the Company's cash flows (that is, debt interest must be paid prior to any equity dividends), equity investors are particularly

concerned with the regulatory framework in which a utility operates and its effect on future earnings and cash flows.

Q110. Please explain how credit rating agencies consider the regulatory framework in establishing a company's credit rating.

A110. 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. [90]

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." [91] S&P identifies four specific factors that it uses to assess the credit implications of the regulatory environment in which investor-owned regulated utilities operate: (1) regulatory stability; (2) tariff-setting procedures and design; (3) financial stability; and (4) regulatory independence and insulation.[92]

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[90] Moody's Investors Service, Rating Methodology: Regulated Electric and Gas Utilities, June 23, 2017, at 4.
[91] Standard & Poor's Global Ratings, Ratings Direct, U.S. and Canadian Regulatory Jurisdictions Support Utilities' Credit Quality—But Some More So Than Others, June 25, 2018, at 2.
[92] *Id.*, at 1.

Q111. How does the regulatory environment in which a utility operates affect its access to and cost of capital?

A111. 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."[93] Moody's 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." [94]

Q112. Have you conducted any analysis of the regulatory framework in Montana relative to the jurisdictions in which the companies in your proxy group operate?

A112. Yes. I have evaluated the regulatory framework in Montana based on four factors that are important in terms of providing a regulated utility an opportunity to earn its authorized ROE. These factors are: 1) fuel cost recovery; 2) test year convention (i.e., forecast vs. historical); 3) use of revenue decoupling mechanisms or other clauses that mitigate volumetric risk; and 4) prevalence of capital cost recovery between rate cases. The results of my regulatory risk assessment are shown in Exhibit No. ___(AEB-2), Schedule 12 and are summarized below.

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[93] Moody's Investors Service, Rating Methodology: Regulated Electric and Gas Utilities, at 6 (June 23, 2017).
[94] *Ibid.*

Fuel Cost Recovery: Montana-Dakota has a Fuel and Purchased Power Cost Tracking Adjustment Mechanism to recover electric fuel and purchased power costs. However, while traditional fuel cost recovery mechanisms allow all variances between projected fuel costs and actual fuel costs to be recovered from or refunded to customers, the Fuel and Purchased Power Cost Tracking Adjustment Mechanism for Montana-Dakota requires the Company to absorb some portion of the variation in power costs. Specifically, Montana-Dakota's Fuel and Purchased Power Cost Tracking Adjustment Mechanism allows the Company to only defer and recover 90 percent of the difference between actual fuel and purchased power costs and the cost of fuel and purchased power costs included in base rates plus the annual unreflected fuel cost adjustment. As a result, the Fuel and Purchased Power Cost Tracking Adjustment Mechanism does not fully mitigate the power cost risk for Montana-Dakota. This is important to investors because fuel and purchased power costs typically account for 50–60 percent of the total operating costs for a regulated utility. Moreover, according to S&P Capital IQ Pro, there are only nine states (i.e., Arizona, Hawaii, Idaho, Missouri, Montana, Oregon, Vermont, Washington, and Wyoming) that have fuel cost recovery mechanisms with sharing bands. The remaining 41 states either have restructured and the electric utilities do not own generation or have fuel cost recovery mechanisms with a true-up between actual and forecasted fuel costs. In addition, approximately 90.91 percent of the operating companies held by the proxy group are allowed to pass through fuel costs and purchased power costs directly to customers, without deadbands, sharing bands and earnings tests.

Test year convention: Montana-Dakota uses a historical test year adjusted for known and measurable changes in Montana, while 49.35 percent of the operating companies held by the proxy group provide service in jurisdictions that use a fully or partially forecast test year. Forecast test years have been relied on for several years and produce cost estimates that are more reflective of future costs which results in more accurate recovery of incurred costs and mitigates the regulatory lag associated with historical test years. As Lowry, Hovde, Getachew, and Makos explain in their 2010 report, *Forward Test Years for US Electric Utilities*:

> This report provides an in depth discussion of the test year issue. It includes the results of empirical research which explores why the unit costs of electric IOUs are rising and shows that utilities operating under forward test years realize higher returns on capital and have credit ratings that are materially better than those of utilities operating under historical test years. The research suggests that shifting to a future test year is a prime strategy for rebuilding utility credit ratings as insurance against an uncertain future.[95]

Non-Volumetric Rate Design: Montana-Dakota does not have protection against volumetric risk in Montana, either through a revenue decoupling mechanism, formula rate plan or straight fixed-variable rate design. However, 43 out of 77 (55.84 percent) of the operating companies held by the proxy group have some form of non-volumetric rate design that allow them to break the link between customer usage and revenues.

Capital Cost Recovery: As discussed above, Montana-Dakota does not have a capital tracking mechanism to recover capital investment costs between rate cases. However,

[95] M.N. Lowry, D. Hovde, L. Getachew, and M. Makos, Forward Test Years for US Electric Utilities, prepared for Edison Electric Institute, August 2010, at 1.

74.03 percent of the operating companies held by the proxy group have some form of capital cost recovery mechanism in place.

Q113. Have you developed any additional analyses to evaluate the regulatory environment in Montana as compared to the jurisdictions in which the companies in your proxy group operate?

A113. Yes. I have conducted two additional analyses to compare the regulatory framework of Montana to the jurisdictions in which the companies in the proxy group operate. Specifically, I considered two different rankings: (1) the Regulatory Research Associates ("RRA") ranking of regulatory jurisdictions; and (2) S&P's ranking of the credit supportiveness of regulatory jurisdictions.

Q114. Please explain how you used the RRA ratings to compare the regulatory jurisdictions of the proxy group companies with the Company's regulatory jurisdiction.

A114. RRA develops their ranking based on their assessment of how investors perceive the regulatory risk associated with ownership of utility securities in that jurisdiction, specifically reflecting their assessment of the probable level and quality of earnings to be realized by the State's utilities as a result of regulatory, legislative, and court actions. RRA assigns a ranking for each regulatory jurisdiction between "Above Average/1" to "Below Average/3," with nine total rankings between these categories. I applied a numeric ranking system to the RRA rankings with "Above Average/1" assigned the highest ranking ("1") and "Below Average/3" assigned the lowest ranking ("9"). As shown in Exhibit No. _____(AEB-2), Schedule 13, the Montana regulatory environment is ranked as "Below Average/1," while the proxy group is ranked between "Average/1" and "Average/2."

Additionally, Montana is one of nine Commissions[96] out of the 53 Commissions that RRA ranks to receive a rating of either "Below Average/1", "Below Average/2" or "Below Average/3".

Q115. How did you conduct your analysis of the S&P Credit Supportiveness?

A115. S&P classifies the regulatory jurisdictions into five categories ranging from "Credit Supportive" to "Most Credit Supportive" based on the level of credit supportiveness. Similar to the RRA regulatory ranking analysis discussed above, I assigned a numerical ranking to each jurisdiction ranked by S&P, from most credit supportive ("1") to credit supportive ("5"). As shown in Exhibit No._(AEB-2), Schedule 14, the proxy group is ranked between very credit supportive and highly credit supportive while the Montana regulatory jurisdiction is only ranked as more credit supportive. Thus, similar to the results using the RRA regulatory rankings, Montana is perceived as being below the average for the proxy group.

Q116. Has RRA provided recent commentary regarding its regulatory ranking for the Montana?

A116. Yes. In July 2022, RRA updated its evaluation of the regulatory environment in Montana and noted the following:

> The regulatory climate in Montana is somewhat restrictive from an investor point-of-view. Authorized ROEs have generally been consistent with prevailing industry averages at the time established, as calculated by Regulatory Research Associates, an offering of S&P Global Market Intelligence. In addition, the PSC relies upon historical test periods,

[96] The other eight Commissions are the Arizona Corporation Commission, the Regulatory Commission of Alaska, the Public Utilities Regulatory Authority of Connecticut, the District of Columbia Public Service Commission, the Kansas Corporation Commission, the New Jersey Board of Public Utilities, the New Mexico Public Regulation Commission, and the Public Service Commission of West Virginia.

> which coupled with an average rate base valuation methodology, exacerbates regulatory lag. While many rate cases are resolved by settlements, the regulators have been known to modify certain aspects of the agreement, and in so doing, lowering the authorized rate increase. State law initially called for implementation of retail competition for electric generation, but subsequent legislation reversed this process. While Montana utilities are permitted to seek pre-approval of the regulatory framework to apply to new generation assets, a cash return on construction work in progress is not allowed. Also, the PSC has opposed strategic mergers, rejecting one recent major deal outright. Regulation of the gas local distribution companies, or LDCs, has been more stable, as retail choice has been in place since the late-1990s, and LDCs are now permitted to acquire upstream assets. Both the electric and gas utilities have mechanisms in place to provide expedited recognition of changes in commodity and related costs; some of these include cost-sharing provisions. However, there are no other innovative or alternative ratemaking provisions in place. RRA accords Montana a Below Average/1 ranking.[97]

Q117. What is your conclusion regarding the regulatory framework in Montana as compared with the jurisdictions in which the proxy group companies operate?

A117. As discussed throughout this section of my testimony, both Moody's and S&P have identified the supportiveness of the regulatory environment as an important consideration in developing their overall credit ratings for regulated utilities. Considering the regulatory adjustment mechanisms, many of the companies in the proxy group have more timely cost recovery through comprehensive fuel cost recovery mechanisms, forecasted test years, capital cost recovery trackers and non-volumetric rate design than Montana-Dakota has in Montana. In addition, the RRA jurisdictional ranking and the S&P credit supportiveness ranking for Montana indicates greater risk than the average for the proxy group. Therefore, the average ROE for the proxy group would understate the return on equity that an investor

[97] Regulatory Research Associates, Profile of Montana Public Service Commission, accessed October 19, 2022.

would require in Montana because the risks of timely and full cost recovery are greater for Montana-Dakota in Montana than for the proxy group. For these reasons, I conclude that Montana-Dakota has greater than average regulatory risk when compared to the proxy group, indicating that the authorized ROE for Montana-Dakota should be higher than the proxy group median/mean.

VIII. CAPITAL STRUCTURE

Q118. Is the capital structure of the Company an important consideration in the determination of the appropriate ROE?

A118. Yes, it is. Assuming other factors are equal, a higher debt ratio increases the risk to 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, who are the residual claimants on the cash flow of the Company. Therefore, the greater the debt service requirement, the less cash flow is available for common equity holders.

Q119. What is Montana-Dakota's proposed capital structure?

A119. Montana-Dakota's proposal is to establish a capital structure consisting of 50.30 percent common equity, 46.061 percent long-term debt and 3.639 percent short-term debt.

Q120. Did you conduct any analysis to determine if this projected equity ratio was reasonable?

A120. Yes, I did. I reviewed the Company's proposed capital structure and the capital structures of the utility operating subsidiaries of the proxy companies. Because the ROE is set based

on the return that is derived from the risk-comparable proxy group, it is reasonable to look to the proxy group average capital structure to benchmark the equity ratio for the Company.

Q121. Please discuss your analysis of the capital structures of the proxy group companies.

A121. I calculated the mean proportions of common equity, long-term debt and short-term debt for the most recent eight quarters[98] for each of the companies in the proxy group at the operating subsidiary level. My analysis of the capital structures of the proxy group companies is provided in Exhibit No. ___(AEB-2), Schedule 15. As shown in Exhibit No. ___(AEB-2), Schedule 15, the equity ratios for the proxy group ranged from 45.43 percent to 59.86 percent, with an average of 52.29 percent. Montana-Dakota's proposed equity ratio of 50.30 percent is below the average equity ratio for the utility operating subsidiaries of the proxy group and is therefore reasonable.

Q122. Are there other factors to be considered in setting the Company's capital structure?

A122. The credit rating agencies' response to the Tax Cuts and Jobs Act of 2017 (TCJA) must also be considered when determining the equity ratio. While I recognize that the TCJA was enacted in 2017, the changes to the cash flow for utilities was altered permanently through this Act, as noted by all three rating agencies at the time that the legislation was enacted. S&P and Fitch specifically identified increasing the equity ratio as one approach to ensure that utilities have sufficient cash flows following the federal income tax rate reductions and the loss of bonus depreciation. As S&P noted "[r]egulators must also recognize that tax reform is a strain on utility credit quality, and we expect companies to

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

request stronger capital structures and other means to offset some of the negative impact".[99] Furthermore, Moody's downgraded the rating outlook for the entire utilities sector in June 2018 and has continued to downgrade the ratings of utilities based in part on the negative effects of the TCJA on cash flows.

S&P continues to maintain a negative outlook for the utility industry in 2022[100] and noted that since downgrades outpaced upgrades for a second consecutive year in 2021 for the first time ever the median investor-owned utility credit rating fell to the "BBB" category.[101] Further, S&P expects continued pressure on cash flows over the near-term as utilities continue to increase leverage to fund capital expenditure plans necessary to reduce greenhouse gas emission and improve safety and reliability. Finally, S&P also highlighted inflation, higher interest rates and rising commodity prices as additional risks that could further constrain the credit metrics for utilities over the near-term. In regards to inflation S&P noted:

> Inflation recently spiked to its highest level in decades after rising for several consecutive months in 2021. Given the sustained increase to the U.S. consumer price index in 2021, inflation no longer appears to be just transitory and may have financial implications for the investor-owned North American regulated utility industry. Because of the regulatory lag within the industry, inflation, which causes prices to rise, typically leads to a weakening of financial performance. The regulatory lag is the timing difference between when costs are incurred and when regulators allow those costs to be fully recovered from ratepayers.[102]

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[99] Standard & Poor's Ratings, "U.S. Tax Reform: For Utilities' Credit Quality, Challenges Abound", January 24, 2018, at 5.

[100] S&P Global Ratings, "Regulated Utilities: Credit quality has weakened and credit risks are rising," July 14, 2022.

[101] S&P Global Ratings, "For The First Time Ever, The Median Investor-Owned Utility Ratings Falls To The 'BBB' Category," January 20, 2022.

[102] *Ibid.*

The credit ratings agencies continued concerns over the negative effects or the TCJA, inflation, and increased capital expenditures underscores the importance of maintaining adequate cash flow metrics for the industry, as a whole, and Montana-Dakota, particularly, in the context of this proceeding.

Q123. Is there a relationship between the equity ratio and the authorized ROE?

A123. Yes. The equity ratio is the primary indicator of financial risk for a regulated utility such as Montana-Dakota. 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.

Q124. What is your conclusion regarding an appropriate equity ratio for Montana-Dakota?

A124. Considering the actual capital structures of the proxy group operating companies, I believe that Montana-Dakota's proposed common equity ratio of 50.30 percent is reasonable. The proposed equity ratio is within the range of equity ratios established by the capital structures of the utility operating subsidiaries of the proxy companies. Finally, based on the cash flow concerns raised by credit rating agencies as a result of the TCJA, inflation, and increased capital expenditures, it is reasonable to rely on a higher equity ratio than the Company may have relied on in prior rate cases.

IX. CONCLUSION AND RECOMMENDATION

Q125. What is your conclusion regarding a fair ROE for Montana-Dakota?

A125.

A126. Figure 15 below provides a summary of my analytical results for the proxy group. Based on these results, the qualitative analyses presented in my Direct Testimony, the business and financial risks of Montana-Dakota compared to the proxy group, and current conditions in capital markets including the expectation for rising interest rates and increase in inflationary pressure, it is my view that an ROE of 10.50 percent is reasonable and would fairly balance the interests of customers and shareholders. This ROE would enable the Company to maintain its ability to attract capital at reasonable rates under a variety of economic and financial market conditions, while continuing to provide safe, reliable, and affordable electric utility service to customers in Montana.

Figure 15: Summary of Analytical Results

	Constant Growth DCF		
	Mean Low	Mean	Mean High
30-Day Average	8.05%	9.12%	10.14%
90-Day Average	8.09%	9.16%	10.18%
180-Day Average	8.12%	9.19%	10.21%
	Median Low	Median	Median High
30-Day Average	7.60%	9.22%	9.99%
90-Day Average	7.74%	9.28%	9.98%
180-Day Average	7.87%	9.35%	10.01%
	CAPM		
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Value Line Beta	11.89%	11.94%	11.93%
Bloomberg Beta	11.32%	11.40%	11.38%
Long-term Avg. Beta	10.59%	10.70%	10.68%
	ECAPM		
Value Line Beta	12.18%	12.22%	12.21%
Bloomberg Beta	11.75%	11.81%	11.80%
Long-term Avg. Beta	11.21%	11.29%	11.27%
	Bond Yield Risk Premium		
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Risk Premium Results	10.14%	10.32%	10.28%

Q126. What is your conclusion regarding the Company's proposed common equity ratio?

A127. I conclude that Montana-Dakota's proposed capital structure consisting of 50.30 percent common equity, 46.061 percent long-term debt and 3.639 percent short-term debt is reasonable when compared to the capital structures of the companies in the proxy group and taking in consideration the effect of the TCJA, and increased capital expenditures and inflation on cash flows and therefore should be adopted.

Q127. Does this conclude you direct testimony?

A128. Yes, it does.

Brattle

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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 sectors, including rate of return, cost of equity, and capital structure issues.

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

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

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

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

AREAS OF EXPERTISE

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

EDUCATION

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

PROFESSIONAL EXPERIENCE

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

SELECTED CONSULTING EXPERIENCE & EXPERT TESTIMONY

REGULATORY ANALYSIS AND RATEMAKING

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

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

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

COST OF CAPITAL

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

RATEMAKING

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

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

VALUATION

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

Representative projects/clients have included:

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

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

STRATEGIC AND FINANCIAL ADVISORY SERVICES

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

Representative projects include:

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

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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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		Return on Equity
San Jose Water Company	05/21	San Jose Water Company	A2105004	Return on Equity
Colorado Public Utilities Commission				
Public Service Company of Colorado	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	05/21	United Illuminating	Docket No. 17-12-03RE11	Return on Equity
Connecticut Water Company	01/21	Connecticut Water Company	Docket No. 20-12-30	Return on Equity

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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Tallgrass Interstate Gas Transmission	10/15	Tallgrass Interstate Gas Transmission	RP16-137	Return on Equity
Idaho Public Utilities Commission				
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				
Illinois American Water	02/22	Illinois American Water	Docket No. 22-0210	Return on Equity
North Shore Gas Company	02/21	North Shore Gas Company	No. 20-0810	Return on Equity
Indiana Utility Regulatory Commission				
Indiana Michigan Power Co.	07/21	Indiana Michigan Power Co.	IURC Cause No. 45576	Return on Equity
Indiana Gas Company Inc.	12/20	Indiana Gas Company Inc.	IURC Cause No. 45468	Return on Equity
Southern Indiana Gas and Electric Company	10/20	Southern Indiana Gas and Electric Company	IURC Cause No. 45447	Return on Equity
Indiana and Michigan American Water Company	09/18	Indiana and Michigan American Water Company	IURC Cause No. 45142	Return on Equity
Indianapolis Power and Light Company	12/17	Indianapolis Power and Light Company	Cause No. 45029	Fair Value
Northern Indiana Public Service Company	09/17	Northern Indiana Public Service Company	Cause No. 44988	Fair Value
Indianapolis Power and Light Company	12/16	Indianapolis Power and Light Company	Cause No.44893	Fair Value
Northern Indiana Public Service Company	10/15	Northern Indiana Public Service Company	Cause No. 44688	Fair Value

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Indianapolis Power and Light Company	09/15	Indianapolis Power and Light Company	Cause No. 44576 Cause No. 44602	Fair Value
Kokomo Gas and Fuel Company	09/10	Kokomo Gas and Fuel Company	Cause No. 43942	Fair Value
Northern Indiana Fuel and Light Company, Inc.	09/10	Northern Indiana Fuel and Light Company, Inc.	Cause No. 43943	Fair Value
Iowa Department of Commerce Utilities Board				
MidAmerican Energy Company	01/22	MidAmerican Energy Company	Docket No. RPU-2022-0001	Return on Equity
Iowa-American Water Company	08/20	Iowa-American Water Company	Docket No. RPU-2020-0001	Return on Equity
Kansas Corporation Commission				
Atmos Energy Corporation	08/15	Atmos Energy Corporation	Docket No. 16-ATMG-079-RTS	Return on Equity
Kentucky Public Service Commission				
Kentucky American Water Company	11/18	Kentucky American Water Company	Docket No. 2018-00358	Return on Equity
Maine Public Utilities Commission				
Central Maine Power	08/22	Central Maine Power	Docket No. 2022-00152	Return on Equity
Central Maine Power	10/18	Central Maine Power	Docket No. 2018-194	Return on Equity
Maryland Public Service Commission				
Maryland American Water Company	06/18	Maryland American Water Company	Case No. 9487	Return on Equity
Massachusetts Appellate Tax Board				
Hopkinton LNG Corporation	03/20	Hopkinton LNG Corporation	Docket No.	Valuation of LNG Facility

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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	03/21	Michigan Gas Utilities Corporation	Case No. U-20718	Return on Equity
Wisconsin Electric Power Company	12/11	Wisconsin Electric Power Company	Case No. U-16830	Return on Equity
Michigan Tax Tribunal				
New Covert Generating Co., LLC.	03/18	The Township of New Covert Michigan	MTT Docket No. 000248TT and 16-001888-TT	Valuation of Electric Generation Assets
Covert Township	07/14	New Covert Generating Co., LLC.	Docket No. 399578	Valuation of Electric Generation Assets
Minnesota Public Utilities Commission				
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Otter Tail Power Company	11/20	Otter Tail Power Company	E017/GR-20-719	Return on Equity
Allete, Inc. d/b/a Minnesota Power	11/19	Allete, Inc. d/b/a Minnesota Power	E015/GR-19-442	Return on Equity
CenterPoint Energy Resources Corporation d/b/a CenterPoint Energy Minnesota Gas	10/19	CenterPoint Energy Resources Corporation d/b/a CenterPoint Energy Minnesota Gas	G-008/GR-19-524	Return on Equity
Great Plains Natural Gas Co.	09/19	Great Plains Natural Gas Co.	Docket No. G004/GR-19-511	Return on Equity
Minnesota Energy Resources Corporation	10/17	Minnesota Energy Resources Corporation	Docket No. G011/GR-17-563	Return on Equity
Missouri Public Service Commission				
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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.	06/20	Montana-Dakota Utilities Co.	D2020.06.076	Return on Equity
Montana-Dakota Utilities Co.	09/18	Montana-Dakota Utilities Co.	D2018.9.60	Return on Equity
New Hampshire - Board of Tax and Land Appeals				
Public Service Company of New Hampshire d/b/a Eversource Energy	11/19 12/19	Public Service Company of New Hampshire d/b/a Eversource Energy	Master Docket No. 28873-14-15-16-17PT	Valuation of Utility Property and Generating Assets
New Hampshire Public Utilities Commission				
Public Service Company of New Hampshire	05/19	Public Service Company of New Hampshire	DE-19-057	Return on Equity
New Hampshire-Merrimack County Superior Court				
Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	04/18	Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	220-2012-CV-1100	Valuation of Utility Property
New Hampshire-Rockingham Superior Court				
Eversource Energy	05/18	Public Service Commission of New Hampshire	218-2016-CV-00899 218-2017-CV-00917	Valuation of Utility Property
New Jersey Board of Public Utilities				
New Jersey American Water Company, Inc.	01/22	New Jersey American Water Company, Inc.	WR22010019	Return on Equity
Public Service Electric and Gas Company	10/20	Public Service Electric and Gas Company	EO18101115	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
New Jersey American Water Company, Inc.	12/19	New Jersey American Water Company, Inc.	WR19121516	Return on Equity
Public Service Electric and Gas Company	04/19	Public Service Electric and Gas Company	EO18060629 GO18060630	Return on Equity
Public Service Electric and Gas Company	02/18	Public Service Electric and Gas Company	GR17070776	Return on Equity
Public Service Electric and Gas Company	01/18	Public Service Electric and Gas Company	ER18010029 GR18010030	Return on Equity
New Mexico Public Regulation Commission				
Southwestern Public Service Company	07/19	Southwestern Public Service Company	19-00170-UT	Return on Equity
Southwestern Public Service Company	10/17	Southwestern Public Service Company	Case No. 17-00255-UT	Return on Equity
Southwestern Public Service Company	12/16	Southwestern Public Service Company	Case No. 16-00269-UT	Return on Equity
Southwestern Public Service Company	10/15	Southwestern Public Service Company	Case No. 15-00296-UT	Return on Equity
Southwestern Public Service Company	06/15	Southwestern Public Service Company	Case No. 15-00139-UT	Return on Equity
New York State Department of Public Service				
New York State Electric and Gas Company Rochester Gas and Electric	05/22	New York State Electric and Gas Company Rochester Gas and Electric	22-E-0317 22-G-0318 22-E-0319 22-G-0320	Return on Equity
Corning Natural Gas Corporation	07/21	Corning Natural Gas Corporation	Case No. 21-G-0394	Return on Equity
Central Hudson Gas and Electric Corporation	08/20	Central Hudson Gas and Electric Corporation	Electric 20-E-0428 Gas 20-G-0429	Return on Equity