BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN

Application of Madison Gas and Electric Company for Authority to Adjust Electric and Natural Gas Rates — Docket 3270-UR-126

DIRECT TESTIMONY OF MICHAEL BATES ON BEHALF OF APPLICANT

Q. Please state your name, title, and business address.

A. My name is Michael Bates. I am the Manager of Financial Planning for Madison Gas and Electric Company, and my business address is 623 Railroad Street, Madison, Wisconsin 53703.

Q. On whose behalf are you testifying?

A. I am testifying on the behalf of Madison Gas and Electric Company (MGE or the Company).

Q. What is your educational background and work experience?

A. I have a Bachelor of Science degree in Finance from the University of Utah's David Eccles School of Business. I have earned the Chartered Financial Analyst (CFA) designation from the CFA Institute and the Certified Rate of Return Analyst (CRRA) designation from the Society of Regulatory and Financial Analysts (SURFA). I have been employed by MGE since April 2021, in which capacity I support various functions related to planning and raising debt and equity capital required by the Company. As part of my role, I work with my colleagues to manage corporate liquidity, financing, and treasury operations, and interact with equity and fixed income investors, securities research analysts, commercial and investment banks, and credit rating agencies. Immediately prior to working at MGE, I was employed by the Public Service Commission of Wisconsin (PSCW or Commission) as a Principal Financial Analyst in the

Division of Energy Regulation and Analysis. In my role at the PSCW, I advised the Commission on a range of matters pertaining to finance and economics, including rate of return, capital structure, and credit quality. My professional experience prior to accepting a position at the Commission in 2017 was primarily as a securities analyst and provider of equity research focused on publicly traded utilities. In that capacity, I monitored the capital markets and analyzed strategic and regulatory developments impacting utilities across the United States to discern investment implications and develop proprietary earnings and cash flow projections, valuation models, and buy/sell recommendations of securities for institutional investors.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my direct testimony is to present evidence and provide a recommendation regarding the appropriate return on equity (ROE) for MGE which should be used for the purposes of calculating its revenue requirement in this proceeding.

Q. What is the recommended ROE for MGE?

A. MGE recommends an increase to the Company's authorized ROE from the current 9.7 percent to 10.0 percent in order to appropriately balance the interests of customers and investors. This recommendation is based on the results of the analyses identified in my testimony and considers the economic requirements necessary to support continuous access to capital at a reasonable cost.

Q. What factors support MGE's request for a 10.0 percent ROE in this proceeding?

A. The proposed ROE is supported by numerous factors, including (1) the need to continue to attract capital and maintain financial strength as MGE continues to undertake its largest ever capital investment plan to modernize its distribution and generation infrastructure to provide safe, reliable, affordable service to its customers; (2) the risk profile of MGE

compared to the proxy group; (3) the current state of the global and United States economy and capital markets; (4) established principles for setting a fair and reasonable ROE, including ensuring the financial soundness and credit of the utility; and (5) results of economic models used to estimate the cost of equity, each of which are described in my direct testimony.

Q. Are you sponsoring any exhibits in support of your direct testimony?

A. Yes. I am sponsoring the following exhibits, which were prepared by me or under my direction:

- Ex.-MGE-Bates-1: Summary of Modeling Results
- Ex.-MGE-Bates-2: Screening Results for Proxy Group Selection
- Ex.-MGE-Bates-3: CAPM and ECAPM Results
- Ex.-MGE-Bates-4: DCF Model Results
- Ex.-MGE-Bates-5: Bond Yield Plus Risk Premium Model Results
- Ex.-MGE-Bates-6: Comparable Earnings Model Results

Q. Please summarize the key factors considered in your analyses and upon which you base MGE's proposed ROE.

A. My analyses considered the following:

- For regulated companies, the landmark United States Supreme Court case decisions in *Hope*[1] and *Bluefield*[2] established the minimum standards for determining a fair and reasonable rate of return. Per the principles established in those cases, a utility must be authorized (1) a return consistent with returns on investments of comparable risk; (2) a return that allows the utility to attract capital on reasonable terms; and (3) a return

[1] U.S. Supreme Court, Federal Power Commission v. Hope Natural Gas Company, 320 U.S. 591, 603 (1944).
[2] U.S. Supreme Court, Bluefield Water Works & Improvement Company v. Public Service Commission of West Virginia, 262 U.S. 679, 693 (1923).

sufficient to assure confidence in the utility's financial integrity. These principles are consistent with the economic theory of opportunity cost of investment. Opportunity cost represents the return that investors forgo in order to invest in opportunities of similar risk, which may vary depending on market and business conditions. The principles set forth in those cases were used in determining the ROE requested in this case.

- I developed a proxy group of publicly traded electric and natural gas utility companies with business profiles and fundamental risk and return characteristics which are generally comparable to the business, regulatory, operational, and other financial risks faced by MGE. Although the companies in the selected proxy group are generally comparable to MGE, each company is unique with respect to its risk profile. As such, I evaluated the regulatory, business, and financial risk profile of MGE relative to the companies included in the proxy group in determining where the proposed ROEs should fall within the reasonable range of analytical results in order to appropriately account for material and relevant differences in risk.
- I estimated the cost of equity for MGE by applying several analytical approaches to the selected proxy group. Because MGE's required ROE should be established on a forward-looking basis consistent with the period during which the Company's rates will be in effect, these analyses rely on forward-looking inputs and assumptions and incorporate both current and projected economic and capital market conditions on investors' return requirements (e.g., analysts projected growth rates, the forecasted risk-free rate, the equity market risk premium, etc.).

Q. Discuss the role of ROE in attracting capital.

A. One of the key principles in setting an ROE is to maintain the financial integrity of the utility, translating to healthy credit metrics and access to the capital markets as needed. Equally

important is setting an ROE that attracts capital. The State of Wisconsin and MGE's customer base have encouraged the utility to pursue ambitious goals to upgrade utility infrastructure and reduce the carbon intensity of its electric generation fleet, which will require significant capital. As an investor-owned utility, before investing capital resources, MGE's management must evaluate its impact on investors as they owe a fiduciary obligation to shareholders and must be cautious when investing capital in projects where returns are less attractive relative to other projects. Wisconsin must compete for investment dollars with other state jurisdictions which may provide ROEs that are more attractive than MGE's current 9.7 percent, and to the extent investors perceive a risk that invested capital will be subject to further downward pressure in the future, they will be increasingly cautious about potential investments in order to avoid this risk. Authorization of the proposed 10.0 percent ROE for the test period in this case will send an important signal to investors that Wisconsin utilities are not operating in a declining regulatory environment.

Q. How does MGE's planned capital investment program impact the appropriate authorized ROE for the purposes of this proceeding?

A. MGE plans to continue making significant needed capital investments in Wisconsin to provide safe, reliable, and affordable service to its customers. MGE's five-year plan includes investment of approximately $1.4 billion, which is the highest in the Company's history. Sustaining this elevated level of capital investment increases MGE's risk profile from the perspective of investors and the rating agencies. Authorizing an ROE at a level that investors view as adequate to compensate for these risks is necessary to attract the needed capital to fund these investments at reasonable cost while keeping MGE financially healthy to the benefit of customers who ultimately bear those costs. Authorizing an ROE that investors consider to be below expectations could drive further increases in the cost of capital or

hinder MGE's ability to access capital at a reasonable cost when needed, neither of which would be in the interest of its customers.

Q. How were the backdrop of MGE's capital investment program and the general economic environment incorporated into the various methodologies to determine the proposed ROE in this proceeding?

A. The application of an overall qualitative assessment of the marketplace, coupled with the multiple quantitative models described, provides a more comprehensive evaluation of the cost of common equity capital and equity investors' required rates of return.

Q. Describe your analysis in support of the proposed ROE for MGE in this proceeding.

A. I took into consideration several analytical approaches to estimate the cost of equity and develop an ROE recommendation, including Capital Asset Pricing Model (CAPM) and Empirical Capital Asset Pricing Model (ECAPM), Discounted Cash Flow (DCF), Bond Yield Plus Risk Premium, and Comparable Earnings. In estimating the expected test-year cost of common equity, the various models provide insights regarding the equity returns expected by investors in MGE. My analysis also takes into consideration MGE's business risk related to its (1) small size, (2) customer concentration, and (3) capital expenditure requirements. While I did not make specific adjustments to my cost of equity estimates for these factors, I took them into consideration in aggregate in determining where an appropriate ROE falls within the range of model results. I also considered current and forecasted interest rates, the overall state of the economy, and the expected investment risk associated with holding MGE's securities during the test-year period.

Q. Why were multiple methodologies employed to determine a proposed ROE?

A. Multiple methodologies were utilized because the measurement of investors' required rate of return are imprecise calculations. As a result, each of the methods produces a range of

values that should be considered in relation to the others in the context of determining a fair and reasonable ROE. Additionally, because certain quantitative models rely upon theoretical assumptions or backward-looking inputs which may not reflect current economic and financial conditions, the results of these quantitative models often do not necessarily fully reflect the returns that investors require. As such, utilization of multiple methods as well as an understanding of the relevant model assumptions, in combination with a qualitative assessment of the capital markets and MGE's unique business characteristics, provide a more comprehensive analysis of the required rate of return.

Q. How are limitations of various quantitative models considered in ROE analysis?

A. The quantitative models typically utilized to measure the cost of equity rely on either static conditions or use historical data as benchmarks that do not reflect current market conditions or the market conditions anticipated to occur during the test years under consideration in this proceeding. The limitations of various models can be addressed in part by employing multiple methodologies, using projections for market inputs (risk-free rates, dividends, and risk premiums), and using independent judgment based on conversations with capital markets participants.

Q. Please summarize the results of MGE's cost of common equity analyses.

A. The results of the analyses are summarized in the table below and further detailed in Ex.-MGE-Bates-1.

Figure 1: Summary of ROE Estimates

Model	ROE Range
Capital Asset Pricing Model (CAPM)	8.46% - 10.15%
Empirical Capital Asset Pricing Model (ECAPM)	8.65% - 10.03%
Analyst Consensus Discounted Cash Flow (DCF)	9.65% - 10.99%
Bond Yield Plus Risk Premium	10.34% - 10.69%
Comparable Earnings	8.10% - 13.96%
Recommended Range	**9.80% - 10.40%**

Q. How did MGE determine that a 10.0 percent ROE is appropriate based on this range?

A. Based on analyses and consideration of the factors discussed below, an appropriate ROE range for MGE's electric and natural gas business for the test years is 9.8 percent to 10.4 percent. The significant need for capital investment related to upgrading MGE's electric and natural gas distribution infrastructure and transitioning its electric generation fleet underscores the importance of maintaining access to the capital markets at reasonable cost going forward and would support an ROE in the upper half of the range. The proposed ROE of 10.0 percent, while above the current authorized ROE, is below the midpoint of the reasonable ROE range and represents what is reasonable for the Company based on its business and financial risk profile relative to the proxy group detailed in Ex.-MGE-Bates-2. Although the selected proxy group consists of utilities generally comparable to MGE, MGE faces a higher degree of risk than the group. In order to compete with utility peers for access to capital at reasonable terms, MGE's unique risk factors must be acknowledged and reflected in its authorized ROE. MGE's proposed ROE represents a reasonable rate of return that reflects its risk profile in addition to maintaining customer affordability and supporting its financial strength and credit rating.

Q. Was the current state of the economy considered in performing MGE's ROE analysis?

A. Yes, several analyses require inputs of market observations impacted by the current state of the national economy. In addition, global economic factors influence investor considerations due to the integrated nature of financial markets, which directly affect the United States economy.

Q. Why is consideration of economic and capital market conditions important for rate of return analysis?

A. A thorough understanding of current economic and capital market conditions is critical to ensure that an authorized ROE is just and reasonable because input values for the various models are significantly influenced by these conditions. For example, anomalous interest rate levels and proxy group stock prices can distort the estimated cost of equity in the CAPM, Bond Yield Plus Risk Premium, and DCF models, respectively.

Q. How does economic uncertainty impact risk and required rates of return as it relates to this proceeding?

A. Elevated levels of economic uncertainty is a direct cause of capital market risk and volatility, which in turn drives investors' required rates of return higher to compensate for the incremental risk. Economic risks have risen dramatically since 2020 and have manifested in the form of more volatile energy prices, supply chain disruptions, rapid increases in interest rates, and dramatically higher rates of inflation which may be further exacerbated by the impact of new and potential tariffs for products and equipment procured internationally, to name a few. These factors have increased the level of risk taken by investors, driving more competition for capital to fund projects which serve MGE's customers, which impacts an analysis of ROE. Despite these challenges, MGE continues to invest in prudent projects to provide customers with safe, reliable, and affordable utility service.

Q. What role do interest rates play in cost of capital determinations?

A. Because debt comprises a large proportion of MGE's capital structure, both short-term and long-term interest rates directly influence its overall cost of capital. MGE's debt outstanding is primarily comprised of long-term debt of a fixed interest rate structure; therefore, long-term interest rates will affect its planned financings as it funds operating expenses and executes its capital investment plan. Additionally, observation of historical and recent trends in spreads between regulatory authorized ROEs and interest rates on debt can provide insights in the context of utility rate cases when determining the reasonable ROE.

Q. How are interest rates anticipated to move going forward?

A. The Federal Reserve has increased short-term rates dramatically since 2022 in an attempt to counteract inflationary pressures in the market. Economists are divided in their expectations of future interest rate movements, but the majority surveyed and included in the most recent Blue Chip Financial Forecasts panel outlook signaled expectations for interest rates to remain higher for longer than previously anticipated.[3] Additionally, the elevated levels of continued uncertainty with regard to the economy, inflation, tariffs, geopolitical conflicts, and Federal Reserve policy result in a wide range of expectations for future interest rates.

Q. Discuss the methodology for selecting the utility proxy group.

A. For the purposes of estimating a reasonable ROE of MGE, I applied the following screening criteria to the S&P Capital IQ Utility Industry data set to establish a proxy group of comparable regulated utilities:

1. Must be publicly traded on a major U.S.-based exchange, headquartered within the United States, and categorized as an electric, multi, or gas utility;

[3] Wolters Kluwer. (February 28, 2025). *Blue Chip Financial Forecasts*. Any information contained in this citation, based solely on this citation, is not record evidence.

2. Must be currently paying common dividends;

3. Must own regulated electric generation assets;

4. Must have investment-grade long-term issuer ratings;

5. Must not be involved in a significant merger, acquisition, or other transformative transaction or distressed situation during the period of the analysis (this type of activity can materially distort a company's data to the extent it should not be credibly included in a proxy group);

6. Must derive at least 80 percent of consolidated operating income from regulated electric or gas utility operations, as reported in its 2024 financial results;

7. Must derive at least 60 percent of its regulated utility operating income from electric utility operations and at least 5 percent from gas utility operations, as reported in its 2024 financial results; and

8. Must have at least two published sell-side analyst estimates for the next fiscal year.

Q. Did you include MGEE in your analysis?

A. No, but MGEE would have met these screening criteria. It is important for the subject company to be excluded from the proxy group to avoid circular logic.

Q. What is the composition of your proxy group?

A. The proxy group utilized in the analysis includes the following:

Entity Name	Ticker
Ameren Corporation	AEE
Avista Corporation	AVA
CMS Energy Corporation	CMS
DTE Energy Company	DTE
Alliant Energy Corporation	LNT
NorthWestern Corporation	NWE
PPL Corporation	PPL
Southern Company	SO
WEC Energy Group, Inc.	WEC
Xcel Energy Inc.	XEL

Q. What is the basic theory behind CAPM and ECAPM?

A. The CAPM and ECAPM framework is based on the concept that investors demand higher returns for assuming additional risk, and accordingly, higher risk securities are priced to yield higher returns than lower-risk securities. Under CAPM and ECAPM, the expected rate of return on an investment is equal to a risk-free rate of return (which is traditionally seen as the income return available from investing in United States Treasury securities) plus a risk premium commensurate with the incremental risk borne. The general form of the CAPM

formula is expressed as:

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

where:
- K = cost of equity
- R_f = risk free rate
- β = beta
- R_m = return on market
- $R_m - R_f$ = market risk premium

The size of the risk premium for an investment is dependent on the amount of unavoidable (or systematic) risk taken. Systematic risk is reflected by the application of a beta, which is a measure of the risk arising from exposure to general market movement and is used as an indication of the risk of an investment relative to the risk of a market portfolio consisting of all types of risk-bearing assets. The model assumes prices for individual securities are determined in efficient markets where information is freely available and instantaneously reflected in security prices.

Q. A projected risk-free rate was applied to the CAPM and ECAPM analyses in order to partially adjust for the shortcomings of the CAPM model. How were the projected risk-free rates calculated?

A. The test year risk-free rate is based upon forecasted yields on 10-year and 30-year United States Treasury Bonds as reflected in the Wolters Kluwer "Blue Chip Economic Indicators/ Financial Forecasts" dated February 28, 2025.

Q. Please explain the application of beta to determine risk premium.

A. Under the theory of CAPM, systematic risk is measured by beta, which is a measure of the systematic risk of a security as compared to the systematic risk of the investable market. CAPM theory states because unsystematic risk can be mitigated through diversification, investors should primarily be concerned with systematic or non-diversifiable risk. In this

context, beta is a coefficient resulting from a regression of the return of a single stock to the return of the market. The market beta is always equal to 1.00.

Q. What beta was used for purposes of the Company's CAPM and ECAPM analyses?

A. The average beta for the selected proxy group is 0.93. The values of beta calculated by Value Line were used. Value Line computes historical betas using data over the last five years and adjusts this historical beta using the method prescribed by the academic Marshall E. Blume to calculate an expected beta.

Q. Do CAPM model results capture all the risk faced by utility investors?

A. No, the CAPM model has shortcomings particularly relevant to public utilities which have been documented in academic literature[4], which has shown a tendency for CAPM to overstate the sensitivity of the cost of capital to beta. Low beta assets tend to have higher average returns than would be predicted, while high beta assets have lower returns. Historically, utility stock betas (including for MGE's proxy group) are typically less than 1.00 and, therefore, tend to have higher average returns than predicted by the model. Further, CAPM relies on beta to capture all the systemic risk faced by a company and assumes that the only unavoidable (or systemic) risks are fluctuations in the market. Market beta calculates a low result for a company with a low correlation to the broad market; when in fact, the company could experience high stock volatility which is simply not correlated with the market. Further, utilities are interest rate sensitive and exposed to regulatory risk, neither of which market force is captured by traditional CAPM analysis.

[4] Academic literature documenting the shortcomings of CAPM as it relates to public utility ratemaking includes (but is not limited to) Fama and French: "The CAPM is Wanted, Dead or Alive;" Tony Tassell: "The time has come for the CAPM to RIP" Financial Times; Chartoff, Mayo, and Smith: "The Case Against the Use of the Capital Asset Pricing Model in Public Utility Ratemaking;" Chretien and Coggins: "Cost of Equity for Energy Utilities: Beyond the CAPM;" Robert Morin: New Regulatory Finance. Any information contained in this citation, based solely on this citation, is not record evidence.

Q. How did MGE address the shortcomings of CAPM?

A. Projections for the risk-free rate and the risk premium were applied in order to partially adjust for the shortcomings of the CAPM model in this case. The analysis also incorporated ECAPM to further address the shortcomings.

Q. Please describe the ECAPM approach.

A. ECAPM is premised on the same assumptions as the CAPM and includes simple adjustments which are focused on the understatement of ROE for low beta stocks[5]. To better predict the relationship between asset returns and risk, the ECAPM includes an "alpha" adjustment to the risk-return line. The specific formula of ECAPM is expressed as:

$$K = R_f + \alpha + \beta*(MRP - \alpha)$$

where:
- K = cost of equity
- R_f = risk free rate
- α = alpha: intercept of risk-return line
- MRP = market risk premium
- β = beta

Q. What is alpha for the purposes of the ECAPM approach?

A. The alpha adjustment in the ECAPM approach is an adjustment made to the CAPM formula for the purpose of more closely aligning the expected returns with market observed results.

Q. What values were assumed for the components of this analysis?

A. Except for alpha, which is not a component of the original CAPM formula, the same values as the CAPM were used. For alpha, 1.50 percent was applied, which is the mid-point in the

[5] Dr. Morin's detailed analysis of the ECAPM can be found in Chapter 13 of his book, Regulatory Finance, and Chapter 6 of his later book, The New Regulatory Finance. Any information contained in this citation, based solely on this citation, is not record evidence.

range of 1.00 percent to 2.00 percent described as reasonable by Dr. Robert Morin in his book *New Regulatory Finance*.

Q. What are the results of applying the CAPM on the group of proxy companies?

A. The CAPM results are detailed in Ex.-MGE-Bates-3. Schedule 1 reflects the analysis based on current and forecasted yields on 10-year United States Treasuries. The CAPM ROEs are displayed in Column 4 and show the average ROE for the proxy group is 9.05 percent and range from a minimum of 8.65 percent to a maximum of 9.90 percent based on forecasted yields on 10-year United States Treasury Bonds. When the CAPM is based on current yields on 10-year United States Treasury Bonds, the average ROE for the proxy group is 8.86 percent within a range of 8.46 percent to 9.71 percent. Schedule 2 reflects the analysis based on current and forecasted yields on 30-year United States Treasury Bonds and shows the average ROE for the proxy group is 9.30 percent and range from a minimum of 8.90 percent to a maximum of 10.15 percent based on forecasted yields on 30-year Treasuries. When the CAPM is based on current yields on 30-year United States Treasury Bonds, the average ROE for the proxy group is 9.22 percent within a range of 8.82 percent to 10.07 percent.

Q. What are the results of applying the ECAPM on the group of proxy companies?

A. The ECAPM ROEs are displayed in Column 5 of Ex.-MGE-Bates-3 and show the average ROE for the proxy group is 9.14 percent and range from a minimum of 8.84 percent to a maximum of 9.78 percent based on forecasted yields on 10-year United States Treasuries. When the ECAPM is based on current yields on 10-year United States Treasuries, the average ROE for the proxy group is 8.95 percent within a range of 8.65 percent to 9.58 percent. Schedule 2 reflects the analysis based on current and forecasted yields on 30-year United States Treasury Bonds and shows the average ECAPM ROE for the proxy group is 9.39 percent and range from a minimum of 9.09 percent to a maximum of 10.03 percent

based on forecasted yields on 30-year Treasuries. When the ECAPM is based on current yields on 30-year United States Treasury Bonds, the average ROE for the proxy group is 9.31 percent within a range of 9.01 percent to 9.95 percent.

Q. Discuss the logic underpinning the DCF model.

A. The DCF model is based upon the principles that (1) the current value of an investment should be equal to the discounted value of its future cash flows (in the case of common stocks, this includes dividends and the proceeds from eventually selling the stock) and (2) investors will value a dollar to be received in the future less than a dollar received today (i.e., the time value of money). From a theoretical perspective, it assumes that an investor knowing the current dividend with reasonable assumptions related to the rate of growth for the dividend can calculate the price at which a prudent investor would be justified in purchasing the security. Conversely, knowing the purchase price of the security, its current dividend, and the rate of growth of the dividend, an investor can calculate the required return. The DCF can be based on a constant growth model, where it is assumed that the current growth rate would continue indefinitely, or use multiple stages, which recognize that the current growth rate may not be obtainable indefinitely or that the growth rate may currently be adversely affected. The model can be described as follows:

$$P = \frac{D_1}{(1+k_1)} + \frac{D_2}{(1+k_2)^2} + \cdots + \frac{D_n}{(1+k_n)^n} = \sum_{i-1}^{n} \frac{D_t}{(1+k)^t}$$

where: P = current stock price

D_1 = dividends paid in period 1, etc.

k_1 = discount rate in period 1, etc.

t = time period of given cash flow

The relationship can be simplified if dividends are assumed to grow at a constant rate of g.

The constant growth model can be described as follows:

$$k = \frac{D}{P} + g$$

where: k = cost of equity
D = current dividend payment
P = current stock price
g = dividend growth rate

Q. Discuss the DCF models underlying Ex.-MGE-Bates-4.

A. The analyses are based upon single-stage growth in earnings per share (EPS). Schedule 1 reflects the analysis using data sets representing stock price valuations for the peer group as of market close on March 31, 2025. Schedule 2 reflects a similar analysis using data sets representing average stock valuations for the 30-day period ending March 31, 2025. Schedule 3 reflects a similar analysis using data sets representing average stock valuations for the 90-day period ending March 31, 2025.

Q. What were the findings of your DCF analysis on the group of proxy companies?

A. The DCF ROEs are displayed in Columns 8 through 10 of Ex.-MGE-Bates-4 and show the average investors' required rate of return for the proxy group is 10.16 percent and range from a minimum of 9.66 percent to a maximum of 10.88 percent based on stock valuations for the peer group as of market close on March 31, 2025. Based on the 30-day period observed in Schedule 2, the required rate of return for the proxy group is 10.15 percent and range from a minimum of 9.65 percent to a maximum of 10.86 percent. Based on the 30-day period observed in Schedule 3, the required rate of return for the proxy group is 10.27 percent and range from a minimum of 9.78 percent to a maximum of 10.99 percent.

Q. Describe the theoretical underpinning of the Bond Yield Plus Risk Premium model.

A. The risk premium approach is based on the principle that an equity investment requires an incremental return premium when compared to returns available for bondholders to compensate for residual risk exposure. Debt is generally perceived to be less risky than equity because (1) it receives a priority claim on assets in bankruptcy and (2) interest payments are mandatory and cannot be deferred (unlike dividends paid on equity). Investors in equity securities, therefore, demand a premium relative to the returns available on debt securities to compensate for the additional risk incurred. Under the Risk Premium approach, the estimated cost of equity can be calculated as the sum of the yield on selected classes of debt securities plus an equity risk premium.

The risk premium approach is described in the following formula:

$$K = C_D + P_R$$

where: K = cost of equity

C_D = cost of debt

P_R = risk premium

For the purposes of my Bond Yield Plus Risk Premium analysis, I compared a time series of national average authorized vertically integrated electric utility ROEs (acting as the measure of required equity returns) with yields on United States Treasuries, with the equity risk premium calculated as the difference between those points.

Q. What insights and considerations stem from the Bond Yield Plus Risk Premium approach?

A. Insights can be gained through analysis of historical correlations and spreads between authorized utility ROEs relative to prevailing debt security yields at the time rate case decisions are announced. The data provides an additional measure of the risk premium required by equity investors in comparison with other investment options with different business models, regulations, credit ratings, and other financial characteristics. It is common

for utility investors to monitor ROE authorizations nationwide and consider those decisions a benchmark of what constitutes reasonable equity returns for utilities of comparable risk operating across jurisdictions.

Q. Describe the key observations from your Risk Premium analysis.

A. As shown in Ex.-MGE-Bates-5, an examination of market evidence from January 2000 through March 31, 2025 shows an inverse relationship between the level of interest rates and the equity risk premium. Stated differently, the equity risk premium has generally decreased (increased) as interest rates have increased (decreased) over time, depicted graphically in Figure 2. To estimate that relationship, I conducted a regression analysis using the following equation:

$$RP = a + b(T)$$

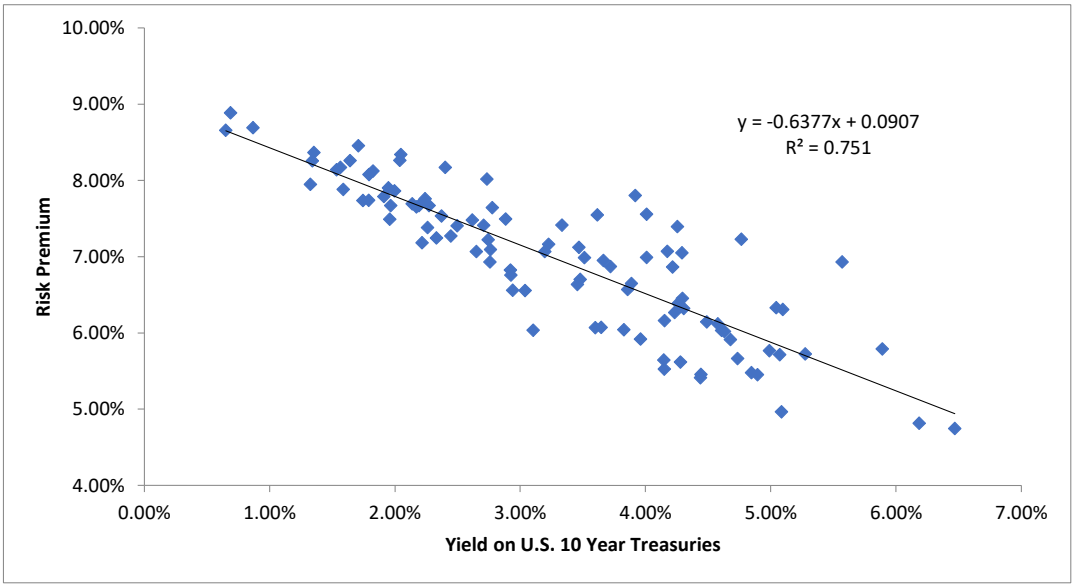
where: RP = Risk Premium (difference between ROEs and treasury yields)
a = intercept term
b = slope term
T = U.S. Treasury bond yield

Data regarding allowed ROEs were derived from 632 vertically integrated electric utility rate cases from January 2000 through March 2025 as reported by Regulatory Research Associates (RRA), which is a division of Standard and Poor's[6]. Schedule 1 presents an analysis of authorized ROEs for vertically integrated electric utilities based in the U.S. since 2000 and compares average authorized returns by calendar quarter to the average yields of 10-year U.S. Treasuries, 30-year U.S. Treasuries, and the index of Moody's Seasoned Baa-Rated Corporate Bonds for the corresponding time periods. For the period of January 2000 through March 2025, the simple average authorized ROEs for vertically integrated regulated electric

[6] This analysis began with a total data set of 1,391 cases and was screened to eliminate limited issue rider cases, transmission-only cases, and cases which did not explicitly state the authorized ROE. After applying those screening criteria, the analysis was based on data for 632 cases.

utilities was 6.96 percentage points over 10-year U.S. Treasury bond yields, 7.16 percentage points over 30-year U.S. Treasury bond yields, and 4.46 percentage points over Moody's Seasoned Baa-rated corporate bond yields.

Figure 2: Risk Premium Results



Q. What were the conclusions from your Bond Yield Plus Risk Premium analysis?

A. I applied these data to an analysis of the historical spreads between authorized vertically integrated electric utility ROEs and the yields on U.S. Treasury bonds and Baa-rated corporate bonds, coupled with forecasted yields on the relevant debt securities during the 2026 and 2027 test years based on the February 28, 2025, Blue Chip Financial Forecast. As shown in Schedule 2, the results were as follows:

- Based on data as of March 31, 2025, yields on 10-year U.S. Treasury bonds (4.21 percent), 30-year U.S. Treasury bonds (4.58 percent), and Baa-rated corporate bonds (6.06 percent), the risk premium would be 6.39 percent, 5.94 percent, and 4.31 percent, respectively, resulting in an estimated ROE of 10.60 percent, 10.52 percent, and 10.37 percent, respectively.

- Based on the 90-day average yields (period ending March 31, 2025) on 10-year U.S. Treasury bonds (4.46 percent), 30-year U.S. Treasury bonds (4.72 percent), and Baa-rated corporate bonds (5.98 percent), the risk premium would be 6.23 percent, 5.86 percent, and 4.35 percent, respectively, resulting in an estimated ROE of 10.69 percent, 10.57 percent, and 10.34 percent, respectively.
- Based on the Blue Chip Financial Forecasts near-term (2Q 2025 through 2Q 2026) projected yields on 10-year U.S. Treasury bonds (4.30 percent), 30-year U.S. Treasury bonds (4.30 percent), and Baa-rated corporate bonds (6.20 percent), the risk premium would be 6.33 percent, 6.11 percent, and 4.22 percent, respectively, resulting in an estimated ROE of 10.63 percent, 10.41 percent, and 10.42 percent, respectively.

Q. Are there any caveats concerning the Bond Yield Plus Risk Premium approach?

A. Yes. The estimated returns are based on premiums over debt securities relative to past authorized returns. These premiums are not necessarily reflections of market-required premiums at this point in time, but rather reflect the premiums based on past utility commission decisions across the country. To the extent interest rates rise at a pace in excess of increases in authorized ROEs, the financial health of utilities will be diminished.

Q. Describe the theoretical underpinning of the Comparable Earnings approach.

A. The Comparable Earnings approach is premised on the economic concept of opportunity cost and is derived from the "corresponding risk" standard established by the U.S. Supreme Court in *Bluefield* and *Hope* as investors compare potential investments against the next best opportunity. An analysis of rates of return available from alternative investments of comparable risk provides a benchmark in assessing a reasonable range of rates of return to equity owners under the standards of *Bluefield* and *Hope*. The standards are that the returns must be (1) sufficient to maintain the credit of the company and confidence in its financial

integrity, (2) permit the company to attract required additional capital on reasonable terms, and (3) provide an earnings opportunity commensurate with the returns available on investments in other enterprises with corresponding risk. If the utility is unable to offer a return similar to that available from other opportunities of comparable risk, investors will become unwilling to supply capital on reasonable terms. Denying a given utility a reasonable opportunity to earn returns available via alternatives with a similar risk profile prevents existing investors from earning their opportunity cost of capital. The intent of this approach is to provide a direct measure of the fair return, translating the competitive principle upon which regulation rests into practice.

Q. What insights and considerations stem from the Comparable Earnings approach?

A. The Comparable Earnings test is traditionally based on an examination of reported and/or projected returns on common equity (net income divided by average book value) for an identified proxy group of companies believed to carry a similar risk profile to the utility. The Comparable Earnings method avoids several of the subjective factors required by other cost-of-capital methodologies to indirectly infer investors' perceptions from stock prices or other market data, such as forecasted growth rates utilized in the DCF method or the expectational variables such as market returns and beta utilized under the CAPM methodologies. This can be an important distinction because regulators *influence* but do not *set* the returns investors will earn in the market, which are a function of dividend payments and fluctuations in common stock prices for a given holding period. The Commission's authority to establish the allowed ROE which is applied to the book value of utility rate base is consistent with the Comparable Earnings approach, which measures the return that investors may reasonably expect the utility to earn on its book value. As a result, the Comparable Earnings approach provides a benchmark to ensure that the allowed ROE is similar to what other utilities of

comparable risk may reasonably be expected to earn. As long as the proxy companies are similar in risk, their expected earned returns on invested equity capital provide a direct benchmark for investors' opportunity costs that is independent of fluctuating stock prices, market-to-book ratios, debates over DCF growth rates, or the limitations inherent in any theoretical model of investor behavior. My Comparable Earnings analysis is based upon the proxy group of utilities examined for the CAPM and DCF models.

Q. What was the range of ROEs indicated by the Comparable Earnings analysis?

A. Ex.-MGE-Bates-6 details projected returns on average common equity for the period of 2025 through 2027, based upon analyst consensus projections as of March 31, 2025. These forecasted returns indicate an average expected ROEs of 11.06 percent, within a range of 8.10 percent to 13.96 percent.

Q. Does this conclude your direct testimony?

A. Yes, it does.