BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF OKLAHOMA GAS AND ELECTRIC COMPANY FOR AN ORDER OF THE COMMISSION AUTHORIZING APPLICANT TO MODIFY ITS RATES, CHARGES, AND TARIFFS FOR RETAIL ELECTRIC SERVICE IN OKLAHOMA	CASE NO. PUD 2023-000087

RESPONSIVE TESTIMONY OF

DAVID J. GARRETT

PART I – RATE OF RETURN

ON BEHALF OF
OKLAHOMA INDUSTRIAL ENERGY CONSUMERS

APRIL 26, 2024

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I. INTRODUCTION

Q. State your name and occupation.

A. My name is David J. Garrett. I am a consultant specializing in public utility regulation. I am the managing member of Resolve Utility Consulting, PLLC.

Q. Summarize your educational background and professional experience.

A. I received a B.B.A. degree with a major in Finance, an M.B.A. degree, and a Juris Doctor degree from the University of Oklahoma. I worked in private legal practice for several years before accepting a position as assistant general counsel at the Oklahoma Corporation Commission ("Commission") in 2011. At the Commission, I worked in the Office of General Counsel assisting in regulatory proceedings. In 2012, I began working for the Public Utility Division as a regulatory analyst providing testimony in regulatory proceedings. After leaving the Oklahoma Commission, I formed Resolve Utility Consulting, PLLC, where I have represented various consumer groups and state agencies in utility regulatory proceedings, primarily in the areas of cost of capital and depreciation. I have testified in numerous regulatory proceedings in multiple jurisdictions on the issues of cost of capital and depreciation. I am a Certified Depreciation Professional with the Society of Depreciation Professionals. I am also a Certified Rate of Return Analyst with the Society of Utility and Regulatory Financial Analysts. A more complete description of my qualifications and regulatory experience is included in my curriculum vitae.[1]

[1] Direct Exhibit DJG-1-1.

Q. Have your qualifications as an expert witness been accepted by the Oklahoma Corporation Commission?

A. Yes. I have testified before the Commission many times and my qualifications have been accepted each time.

Q. On whose behalf are you testifying in this proceeding?

A. I am testifying on behalf of Oklahoma Industrial Energy Consumers ("OIEC").

Q. Describe the scope and organization of your testimony.

A. My testimony addresses the authorized rate of return and depreciation rates proposed by Oklahoma Gas and Electric Company ("OG&E" or the "Company"). Collectively, these issues are voluminous, so I am submitting two separate testimony documents – Part I and Part II. Part I of my responsive testimony (this document) addresses rate of return, cost of capital and related issues, and I respond to the direct testimonies of Company witnesses Ann Bulkley and Charles Walworth. Part II of my testimony addresses depreciation rates and related issues, and I respond to the direct testimony of Company witness Dane Watson. The exhibits attached to Part I of my testimony have a prefix of "DJG-1," and the exhibits attached to Part II of my testimony have a prefix of "DJG-2."

II. EXECUTIVE SUMMARY

A. Overview

Q. Describe OG&E's position regarding the awarded rate of return in this case.

A. In this case, Ms. Bulkley proposes an awarded return on equity ("ROE") for OG&E of 10.5%, and she supports the Company's proposed ratemaking capital structure consisting

of 46.5% debt and 53.5% equity.[2] Ms. Bulkley relies on the Discounted Cash Flow ("DCF") Model, the Capital Asset Pricing Model ("CAPM"), and other models.

Q. Please summarize your analyses and conclusions regarding OG&E's cost of equity.

A. A utility's awarded ROE should be based on an objective estimate of its market-based cost of equity. In estimating OG&E's cost of equity, I analyzed a proxy group of utility companies with relatively similar risk profiles. Based on this proxy group, I evaluated the results of the two most widely used and widely accepted financial models for calculating cost of equity in utility rate proceedings: the CAPM and DCF Model. My model results are shown in the figure below.

Figure 1:
Rate of Return Recommendation

Model	Cost of Equity
CAPM (at Proxy Debt Ratio)	9.1%
Hamada CAPM (at Company-Proposed Debt Ratio)	8.4%
DCF Model (Sustainable Growth)	8.6%
Average	**8.7%**
Model Results Range	**8.4% - 9.1%**

As shown in this figure, the results of my modeling range from 8.4% - 9.1%.

[2] *See* Direct Testimony of Ann E. Bulkley, p. 8.

Q. Please explain the relatively wide range in your cost of equity estimates.

A. The reason why the range of cost of equity estimates is relatively wide in this case is because of the very wide discrepancy between OG&E's proposed debt ratio and the average debt ratio of the proxy group. We use key inputs from the proxy group when conducting the CAPM and DCF Model, such as stock prices, dividends, growth rates, and betas. The capital structures of the proxy group should be considered when assessing OG&E's cost of equity to ensure the modeling results are accurate. That is, the indicated costs of equity produced by the models are necessarily connected with the capital structures of each proxy company. Thus, the cost of equity for OG&E depends on which capital structure is selected for the modeling, and ultimately adopted by the Commission. OG&E's proposed debt ratio of only 46.5% is significantly lower than the average debt ratio of the proxy group, which is 55.2%. This means that OG&E has much less financial risk relative to the proxy group. We can mathematically adjust OG&E's indicated cost of equity based on its lower level of financial risk using the Hamada variation of the CAPM. Using the Hamada method shows that OG&E's cost of equity under its equity-rich capital structure is only 8.4%, as shown in the figure above.

B. Recommendation

Q. Please summarize your recommendation to the Commission regarding a fair authorized ROE and ratemaking capital structure for OG&E.

A. My primary recommendation to the Commission is to authorize an ROE of 9.0% and authorize a ratemaking capital structure consisting of 55.2% debt and 44.8% equity, which is equal to the proxy group average capital structure ratios. An awarded ROE of 9.0% considers the results of the CAPM and DCF Model of 9.1% and 8.6%, respectively. The average of these two results is 8.9%, but my recommendation gives more consideration to

the results of CAPM, which I believe provides a more accurate indication of the utility's cost of equity. Regarding capital structure, it is not fair to require customers to pay a premium for OG&E's equity rich capital structure. The proxy companies I analyzed in this case demonstrate that utilities can operate with much higher levels of debt and remain financially healthy. If the Commission imputes a ratemaking debt ratio of 55.2% for OG&E, then OG&E's awarded ROE should be 9.0%. Alternatively, if the Commission accepts OG&E's proposed capital structure, then the Commission should award OG&E with an ROE of 8.4%, which is OG&E's cost of equity estimate using its low-risk, equity-rich capital structure based on the Hamada model.

III. LEGAL STANDARDS AND THE AWARDED RETURN

Q. Discuss the legal standards governing the awarded rate of return on capital investments for regulated utilities.

A. In *Wilcox v. Consolidated Gas Co. of New York*, the U.S. Supreme Court ("Court" or "Supreme Court") first addressed the meaning of a fair rate of return for public utilities.[3] The Court found that "the amount of risk in the business is a most important factor" in determining the appropriate allowed rate of return.[4] Later in two landmark cases, the Court set forth the standards by which public utilities are allowed to earn a return on capital investments. In *Bluefield Water Works & Improvement Co. v. Public Service Commission of West Virginia*, the Court held:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public. . . but it has no constitutional right to profits such as are realized or

[3] *Wilcox v. Consolidated Gas Co. of New York*, 212 U.S. 19 (1909).

[4] *Id.* at 48.

> anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties.[5]

In *Federal Power Commission v. Hope Natural Gas Company*, the Court expanded on the guidelines set forth in *Bluefield* and stated:

> From the investor or company point of view it is important that there be enough revenue not only for operating expenses *but also for the capital costs of the business*. These include service on the debt and dividends on the stock. By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.[6]

The cost of capital models I have employed in this case are in accordance with the foregoing legal standards.

Q. Should the awarded rate of return be based on the Company's actual cost of capital?

A. Yes. The *Hope* Court makes it clear that the allowed return should be based on the actual cost of capital. Under the rate base rate of return model, a utility should be allowed to recover all its reasonable expenses, its capital investments through depreciation, and a return on its capital investments sufficient to satisfy the required return of its investors. The "required return" from the investors' perspective is synonymous with the "cost of capital" from the utility's perspective. Scholars agree that the allowed rate of return should be based on the actual cost of capital:

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[5] *Bluefield Water Works & Improvement Co. v. Public Service Commission of West Virginia*, 262 U.S. 679, 692-93 (1923).

[6] *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591, 603 (1944) (emphasis added).

> Since by definition the cost of capital of a regulated firm represents precisely the expected return that investors could anticipate from other investments while bearing no more or less risk, and since investors will not provide capital unless the investment is expected to yield its opportunity cost of capital, the correspondence of the definition of the cost of capital with the court's definition of legally required earnings appears clear.[7]

The models I have employed in this case closely estimate the Company's true cost of equity. If the Commission sets the awarded return based on my lower, and more reasonable rate of return, it will comply with the U.S. Supreme Court's standards, allow the Company to maintain its financial integrity, and satisfy the claims of its investors. On the other hand, if the Commission sets the allowed rate of return *higher* than the true cost of capital, it can result in an excessive transfer of wealth from ratepayers to shareholders. Thus, it is important to understand that the *awarded* return and the *cost* of capital are different but related concepts. The two concepts are related in that the legal and technical standards encompassing this issue require that the awarded return reflect the true cost of capital. On the other hand, the two concepts are different in that the legal standards do not mandate that awarded returns exactly match the cost of capital. Awarded returns are set through the regulatory process and may be influenced by a number of factors other than objective market drivers. The cost of capital, on the other hand, should be evaluated objectively and be closely tied to economic realities. In other words, the cost of capital is driven by stock prices, dividends, growth rates, and most importantly – it is driven by risk. The cost of capital can be estimated by financial models used by firms, investors, and academics around the world for decades. The problem is, with respect to regulated utilities, there has

[7] A. Lawrence Kolbe, James A. Read, Jr. & George R. Hall, *The Cost of Capital: Estimating the Rate of Return for Public Utilities* 21 (The MIT Press 1984).

been a trend in which awarded returns fail to closely track with actual market-based cost of capital as further discussed below. To the extent this occurs, the results are detrimental to ratepayers and the state's economy.

IV. GENERAL CONCEPTS AND METHODOLOGY

Q. Discuss your approach to estimating the cost of equity in this case.

A. While a competitive firm must estimate its own cost of capital to assess the profitability of competing capital projects, regulators determine a utility's cost of capital to establish a fair rate of return. The legal standards set forth above do not include specific guidelines regarding the models that must be used to estimate the cost of equity. Over the years, however, regulatory commissions have consistently relied on several models. The models I have employed in this case have been the two most widely used and accepted in regulatory proceedings for many years. These models are the Discounted Cash Flow Model ("DCF Model") and the Capital Asset Pricing Model ("CAPM"). The specific inputs and calculations for these models are described in more detail below.

Q. Please explain why you used multiple models to estimate the cost of equity.

A. The models used to estimate the cost of equity attempt to measure the return on equity required by investors by estimating several different inputs. It is preferable to use multiple models because the results of any one model may contain a degree of imprecision, especially depending on the reliability of the inputs used at the time of conducting the model. By using multiple models, the analyst can compare the results of the models and look for outlying results and inconsistencies. Likewise, if multiple models produce a similar result, it may indicate a narrower range for the cost of equity estimate.

Q. Please discuss the benefits of choosing a proxy group of companies in conducting cost of capital analyses.

A. The cost of equity models in this case can be used to estimate the cost of capital of any individual, publicly-traded company. There are advantages, however, to conducting cost of capital analysis on a "proxy group" of companies that are comparable to the target company. First, it is better to assess the financial soundness of a utility by comparing it to a group of other financially sound utilities. Second, using a proxy group provides more reliability and confidence in the overall results because there is a larger sample size. Finally, the use of a proxy group is often a pure necessity when the target company is a subsidiary that is not publicly traded. This is because the financial models used to estimate the cost of equity require information from publicly-traded firms, such as stock prices and dividends.

Q. Describe the proxy group you selected in this case.

A. In this case, I chose to use the same proxy group used by Ms. Bulkley. There could be reasonable arguments made for the inclusion or exclusion of a particular company in a proxy group; however, the cost of equity results are influenced far more by the underlying assumptions and inputs to the various financial models than the composition of the proxy groups.[8] By using the same proxy group, we can remove a relatively insignificant variable from the equation and focus on the primary factors driving OG&E's cost of equity estimate in this case.

[8] *See* Exhibit DJG-1-3.

V. RISK AND RETURN CONCEPTS

Q. Discuss the general relationship between risk and return.

A. Risk is among the most important factors for the Commission to consider when determining the allowed return. Thus, it is necessary to understand the relationship between risk and return. There is a direct relationship between risk and return: the more (or less) risk an investor assumes, the larger (or smaller) return the investor will demand. There are two primary types of risk: firm-specific risk and market risk. Firm-specific risk affects individual companies, while market risk affects all companies in the market to varying degrees.

Q. Discuss the differences between firm-specific risk and market risk.

A. Firm-specific risk affects individual companies, rather than the entire market. For example, a competitive firm might overestimate customer demand for a new product, resulting in reduced sales revenue. This is an example of a firm-specific risk called "project risk."[9] There are several other types of firm-specific risks, including: (1) "financial risk" – the risk that equity investors of leveraged firms face as residual claimants on earnings; (2) "default risk" – the risk that a firm will default on its debt securities; and (3) "business risk" – which encompasses all other operating and managerial factors that may result in investors realizing less than their expected return in that particular company. While firm-specific risk affects individual companies, market risk affects all companies in the market to varying degrees. Examples of market risk include interest rate risk, inflation risk, and the

[9] Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset* 62-63 (3rd ed., John Wiley & Sons, Inc. 2012).

risk of major socio-economic events. When there are changes in these risk factors, they affect all firms in the market to some extent.[10]

Analysis of the U.S. market in 2001 provides a good example for contrasting firm-specific risk and market risk. During that year, Enron Corp.'s stock fell from $80 per share and the company filed bankruptcy at the end of the year. If an investor's portfolio had held only Enron stock at the beginning of 2001, this irrational investor would have lost the entire investment by the end of the year due to assuming the full exposure of Enron's firm-specific risk (in that case, imprudent management). On the other hand, a rational, diversified investor who invested the same amount of capital in a portfolio holding every stock in the S&P 500 would have had a much different result that year. The rational investor would have been relatively unaffected by the fall of Enron because her portfolio included about 499 other stocks. Each of those stocks, however, would have been affected by various *market* risk factors that occurred that year, including the terrorist attacks on September 11th, which affected all stocks in the market. Thus, the rational investor would have incurred a relatively minor loss due to market risk factors, while the irrational investor would have lost everything due to firm-specific risk factors.

Q. Can investors easily minimize firm-specific risk?

A. Yes. A fundamental concept in finance is that firm-specific risk can be eliminated through diversification.[11] If someone irrationally invested all their funds in one firm, they would be exposed to all the firm-specific risk and the market risk inherent in that single firm.

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[10] *See* Zvi Bodie, Alex Kane & Alan J. Marcus, *Essentials of Investments* 149 (9th ed., McGraw-Hill/Irwin 2013).

[11] *See* John R. Graham, Scott B. Smart & William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do* 179-80 (3rd ed., South Western Cengage Learning 2010).

Rational investors, however, are risk-averse and seek to eliminate risk they can control. Investors can eliminate firm-specific risk by adding more stocks to their portfolio through a process called "diversification." There are two reasons why diversification eliminates firm-specific risk. First, each stock in a diversified portfolio represents a much smaller percentage of the overall portfolio than it would in a portfolio of just one or a few stocks. Thus, any firm-specific action that changes the stock price of one stock in the diversified portfolio will have only a small impact on the entire portfolio.[12]

The second reason why diversification eliminates firm-specific risk is that the effects of firm-specific actions on stock prices can be either positive or negative for each stock. Thus, in large diversified portfolios, the net effect of these positive and negative firm-specific risk factors will be essentially zero and will not affect the value of the overall portfolio.[13] Firm-specific risk is also called "diversifiable risk" because it can be easily eliminated through diversification.

Q. Is it well-known and accepted that, because firm-specific risk can be easily eliminated through diversification, the market does not reward such risk through higher returns?

A. Yes. Because investors eliminate firm-specific risk through diversification, they know they cannot expect a higher return for assuming the firm-specific risk in any one company. Thus, the risks associated with an individual firm's operations are not rewarded by the market. In fact, firm-specific risk is also called "unrewarded" risk for this reason. Market risk, on the other hand, cannot be eliminated through diversification. Because market risk

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[12] *See* Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset* 64 (3rd ed., John Wiley & Sons, Inc. 2012).

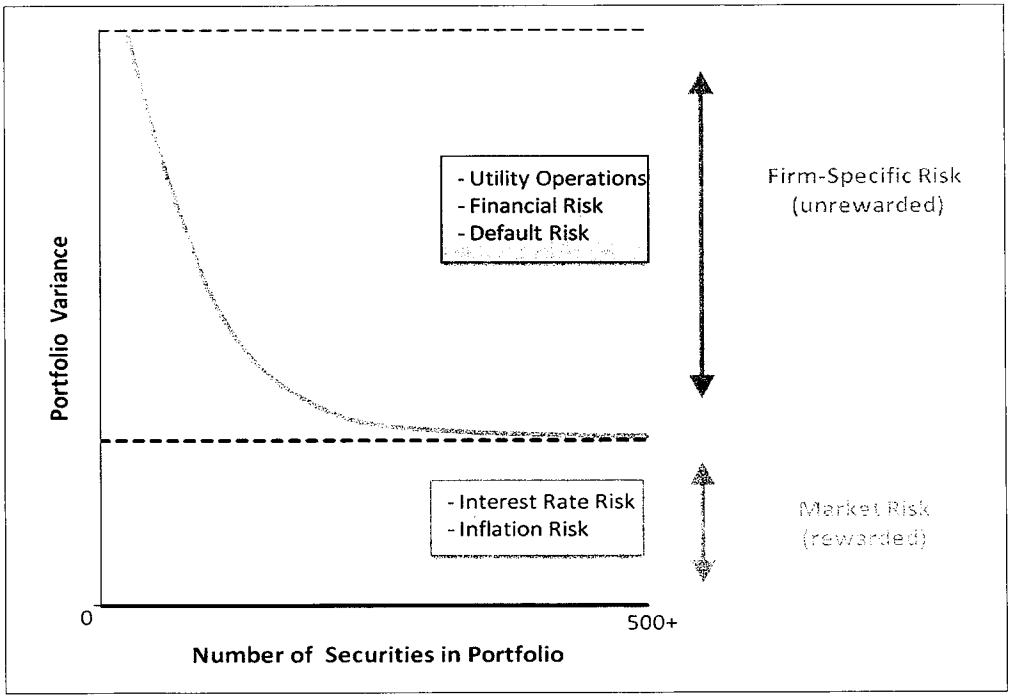
[13] *Id.*

cannot be eliminated through diversification, investors expect a return for assuming this type of risk. Market risk is also called "systematic risk." Scholars recognize the fact that market risk, or "systematic risk," is the only type of risk for which investors expect a return for bearing:

> If investors can cheaply eliminate some risks through diversification, then we should not expect a security to earn higher returns for risks that can be eliminated through diversification. Investors can expect compensation only for bearing systematic risk (i.e., risk that cannot be diversified away).[14]

These important concepts are illustrated in the figure below. Some form of this figure is found in many financial textbooks.

Figure 2:
Effects of Portfolio Diversification



[14] *See* John R. Graham, Scott B. Smart & William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do* 180 (3rd ed., South Western Cengage Learning 2010).

This figure shows that as stocks are added to a portfolio, the amount of firm-specific risk is reduced until it is essentially eliminated. No matter how many stocks are added, however, there remains a certain level of fixed market risk. The level of market risk will vary from firm to firm. Market risk is the only type of risk that is rewarded by the market and is thus the primary type of risk the Commission should consider when determining the allowed return.

Q. Describe how market risk is measured.

A. Investors who want to eliminate firm-specific risk must hold a fully diversified portfolio. To determine the amount of risk that a single stock adds to the overall market portfolio, investors measure the covariance between a single stock and the market portfolio. The result of this calculation is called "beta."[15] Beta represents the sensitivity of a given security to the market as a whole. The market portfolio of all stocks has a beta equal to one. Stocks with betas greater than one are relatively more sensitive to market risk than the average stock. For example, if the market increases (decreases) by 1.0%, a stock with a beta of 1.5 will, on average, increase (decrease) by 1.5%. In contrast, stocks with betas of less than one are less sensitive to market risk, such that if the market increases (decreases) by 1.0%, a stock with a beta of 0.5 will, on average, only increase (decrease) by 0.5%. Thus, stocks with low betas are relatively insulated from market conditions. The beta term is used in the Capital Asset Pricing Model to estimate the cost of equity, which is discussed in more detail later.[16]

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[15] *Id.* at 180-81.

[16] Though it will be discussed in more detail later, Exhibit DJG-1-9 shows that the average beta of the proxy group was less than 1.0. This confirms the well-known concept that utilities are relatively low-risk firms.

Q. Are public utilities characterized as defensive firms that have low betas, low market risk, and are relatively insulated from overall market conditions?

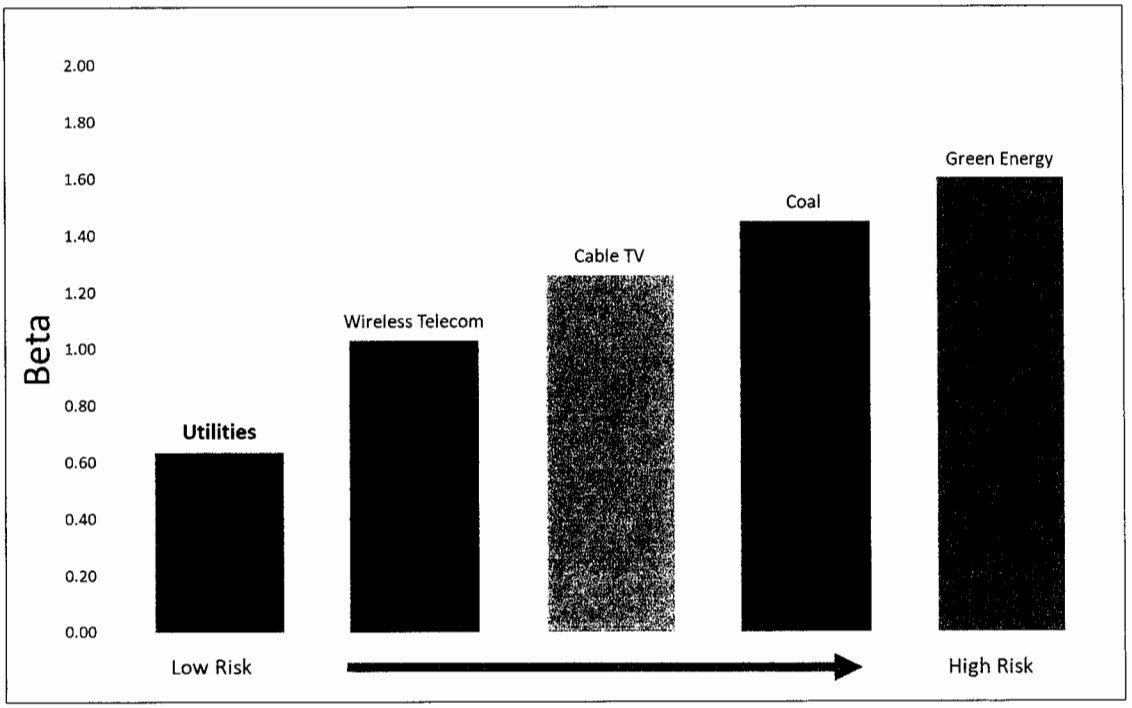
A. Yes. Although market risk affects all firms in the market, it affects different firms to varying degrees. Firms with high betas are affected more than firms with low betas, which is why firms with high betas are riskier. Stocks with betas greater than one are generally known as "cyclical stocks." Firms in cyclical industries are sensitive to recurring patterns of recession and recovery known as the "business cycle."[17] Thus, cyclical firms are exposed to a greater level of market risk. Securities with betas less than one, other the other hand, are known as "defensive stocks." Companies in defensive industries, such as public utility companies, "will have low betas and performance that is comparatively unaffected by overall market conditions."[18] In fact, financial textbooks often use utility companies as prime examples of low-risk, defensive firms. The figure below compares the betas of several industries and illustrates that the utility industry is one of the least risky industries in the U.S. market.[19]

[17] *See* Zvi Bodie, Alex Kane & Alan J. Marcus, *Essentials of Investments* 382 (9th ed., McGraw-Hill/Irwin 2013).

[18] *Id.* at 383.

[19] *See* Betas by Sector (US) at http://pages.stern.nyu.edu/~adamodar/. The exact beta calculations are not as important as illustrating the well-known fact that utilities are very low-risk companies. The fact that the utility industry is one of the lowest risk industries in the country should not change from year to year.

Figure 3:
Beta by Industry



The fact that utilities are defensive firms that are exposed to little market risk is beneficial to society. When the business cycle enters a recession, consumers can be assured that their utility companies will be able to maintain normal business operations and provide safe and reliable service under prudent management. Likewise, utility investors can be confident that utility stock prices will not widely fluctuate. So, while it is preferable that utilities are defensive firms that experience little market risk and are relatively insulated from market conditions, this fact should also be appropriately reflected in OG&E's awarded return.

Q. Are there firm-specific risk factors for OG&E the Commission could consider when determining the appropriate authorized ROE for the Company?

A. Yes. As discussed above, the financial models used to assess market risk should be the primary focus when estimating the cost of equity for a company. However, one unique

risk-reducing factor for utilities, particularly OG&E, is the Company's ability to collect revenues through riders – a risk-reducing mechanism that competitive firms do not have access to. For OG&E, more than 60% of the Company's revenue is through riders.[20] Riders reduce the risk of full cost recovery by reducing the effects of regulatory lag.

Q. Have you made a specific, quantitative adjustment to your cost of equity estimate or authorized ROE recommendation to reflect OG&E's rider revenues?

A. No. The amount of OG&E's rider revenues has no quantitative impact on my cost of equity estimate or authorized ROE recommendation. However, the risk-reducing effect of riders provides another reason why OGE's authorized ROE should not be any higher than my estimated range for the Company's cost of equity. As discussed above, my cost of equity model results range from 8ve, my cost of equity model results range from 8.4% - 9.1%. My authorized ROE recommendation of 9.1% is already near the top end of that range.

VI. DISCOUNTED CASH FLOW ANALYSIS

Q. Describe the Discounted Cash Flow ("DCF") model.

A. The Discounted Cash Flow ("DCF") Model is based on a fundamental financial model called the "dividend discount model," which maintains that the value of a security is equal to the present value of the future cash flows it generates. Cash flows from common stock are paid to investors in the form of dividends. There are several variations of the DCF Model. These versions, along with other formulas and theories related to the DCF Model are discussed in more detail in Appendix A.

[20] *See* OG&E Schedule H-2.

Q. Describe the inputs to the DCF Model.

A. There are three primary inputs in the DCF Model: (1) stock price; (2) dividend; and (3) the long-term growth rate. The stock prices and dividends are known inputs based on recorded data, while the growth rate projection must be estimated. I discuss each of these inputs separately below.

A. Stock Price

Q. How did you determine the stock price input of the DCF Model?

A. For the stock price (P_0), I used a 30-day average of stock prices for each company in the proxy group.[21] Analysts sometimes rely on average stock prices for longer periods (e.g., 60, 90, or 180 days). According to the efficient market hypothesis, however, markets reflect all relevant information available at a particular time, and prices adjust instantaneously to the arrival of new information.[22] Past stock prices, in essence, reflect outdated information. The DCF Model used in utility rate cases is a derivation of the dividend discount model, which is used to determine the current value of an asset. Thus, according to the dividend discount model and the efficient market hypothesis, the value for the "P_0" term in the DCF Model should technically be the current stock price, rather than an average.

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[21] *See* Exhibit DJG-1-3.

[22] *See* Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, Vol. 25, No. 2 The Journal of Finance 383 (1970); *see also* John R. Graham, Scott B. Smart & William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do* 357 (3rd ed., South Western Cengage Learning 2010). The efficient market hypothesis was formally presented by Eugene Fama in 1970 and is a cornerstone of modern financial theory and practice.

Q. Why did you use a 30-day average for the current stock price input?

A. Using a short-term average of stock prices for the current stock price input adheres to market efficiency principles while avoiding any irregularities that may arise from using a single current stock price. In the context of a utility rate proceeding there is a significant length of time from when an application is filed, and testimony is due. Choosing a current stock price for one particular day could raise a separate issue concerning which day was chosen to be used in the analysis. In addition, a single stock price on a particular day may be unusually high or low. It is arguably ill-advised to use a single stock price in a model that is ultimately used to set rates for several years, especially if a stock is experiencing some volatility. Thus, it is preferable to use a short-term average of stock prices, which represents a good balance between adhering to well-established principles of market efficiency while avoiding any unnecessary contentions that may arise from using a single stock price on a given day. The stock prices I used in my DCF analysis are based on 30-day averages of adjusted closing stock prices for each company in the proxy group.[23]

B. Dividend

Q. Describe how you determined the dividend input of the DCF Model.

A. The dividend term in the DCF Model represents dividends per share (d_0). I used forward-looking annualized dividends published by Yahoo! Finance for the dividend input to my

[23] Exhibit DJG-1-3. Adjusted closing prices, rather than actual closing prices, are ideal for analyzing historical stock prices. The adjusted price provides an accurate representation of the firm's equity value beyond the mere market price because it accounts for stock splits and dividends.

constant growth DCF Model.[24] Dividing these dividends by the stock prices for each proxy company results in the dividend yield for each company.[25]

Q. Are the stock price and dividend inputs for each proxy company a significant issue in this case?

A. No. Although my stock price and dividend inputs are more recent than those used by Ms. Bulkley, there is not a statistically significant difference between them because utility stock prices and dividends are generally quite stable. This is another reason cost of capital models such as the CAPM and the DCF Model are well-suited to be conducted on utilities. The differences between my DCF Model and Ms. Bulkley's DCF Model are primarily driven by differences in our growth rate estimates, which are further discussed below.

C. Growth Rate

Q. Summarize the growth rate input in the DCF Model.

A. The most critical input in the DCF Model is the growth rate. Unlike the stock price and dividend inputs, the growth rate input (g) must be estimated. As a result, the growth rate is often the most contentious issue related to DCF model inputs in utility rate cases. The DCF model used in this case is based on the sustainable growth valuation model. Under this model, a stock is valued by the present value of its future cash flows in the form of dividends. Before future cash flows are discounted by the cost of equity, however, they must be "grown" into the future by a sustainable growth rate. As stated above, one of the inherent assumptions of this model is that these cash flows in the form of dividends grow

[24] Exhibit DJG-1-4.

[25] *Id.*

at a sustainable rate forever. For young, high-growth firms, estimating the growth rate to be used in the model can be especially difficult, and may require the use of multi-stage growth models. For mature, low-growth firms such as utilities, however, estimating the sustainable growth rate is more transparent. The growth term of the DCF Model is one of the most important, yet least understood, aspects of cost of equity estimations in utility regulatory proceedings. I provide a more detailed explanation on the various determinants of growth below.

Q. Describe the various determinants of growth that can be considered for the growth rate input in the DCF Model.

A. Although the DCF Model directly considers the growth of dividends, there are a variety of growth determinants that should be considered when estimating growth rates. It should be noted that these various growth determinants are used primarily to determine the short-term growth rates in multi-stage DCF models. For utility companies, it is necessary to focus primarily on a long-term growth rate in dividends. This is also known as a "sustainable" growth rate, since this is the growth rate assumed for the company's dividends in perpetuity. That is not to say that these growth determinants cannot be considered when estimating sustainable growth; however, as discussed below, sustainable growth must be constrained much more than short-term growth, especially for young firms with high growth opportunities. Additionally, I briefly discuss these growth determinants here because it may reveal some of the sources of confusion in this area.

A. <u>Historical Growth</u>

Looking at a firm's actual historical experience may theoretically provide a good starting point for estimating short-term growth. However, past growth is not always a good indicator of future growth. Some metrics that might be considered here are a historical

growth in revenues, operating income, and net income. Since dividends are paid from earnings, estimating historical earnings growth may provide an indication of future earnings and dividend growth.

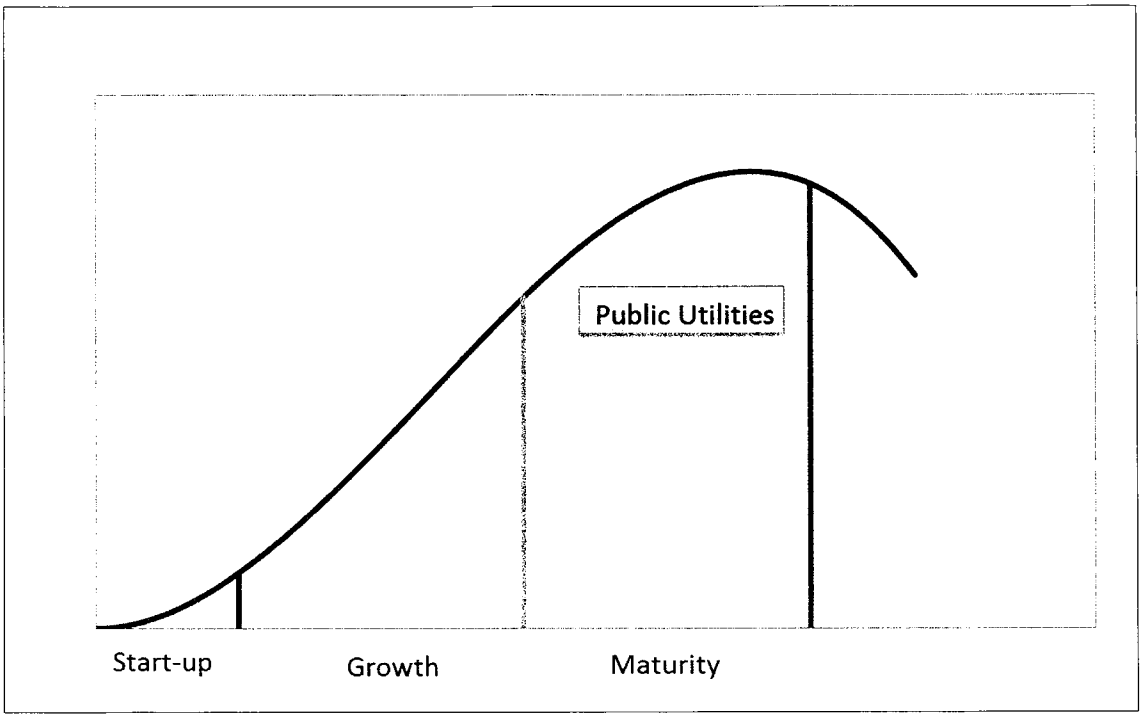
B. Analyst Growth Rates

Analyst growth rates refer to short-term projections of earnings growth published by institutional research analysts such as Value Line and Bloomberg. Analyst growth rates, including the limitations with using them in the DCF Model to estimate utility cost of equity, are discussed in more detail below.

C. Sustainable Growth Rates

In order to make the DCF Model a viable, practical model, an infinite stream of future cash flows must be estimated and then discounted back to the present. Otherwise, each annual cash flow would have to be estimated separately. Some analysts use "multi-stage" DCF Models to estimate the value of high-growth firms through two or more stages of growth, with the final stage of growth being sustainable. However, it is not necessary to use multi-stage DCF Models to analyze the cost of equity of regulated utility companies. This is because regulated utilities are already in their "sustainable," low growth stage. Unlike most competitive firms, the growth of regulated utilities is constrained by physical service territories and limited primarily by ratepayer and load growth within those territories. The figure below illustrates the well-known business/industry life-cycle pattern.

Figure 4:
Industry Life Cycle



In an industry's early stages, there are ample opportunities for growth and profitable reinvestment. In the maturity stage however, growth opportunities diminish, and firms choose to pay out a larger portion of their earnings in the form of dividends instead of reinvesting them in operations to pursue further growth opportunities. Once a firm is in the maturity stage, it is not necessary to consider higher short-term growth metrics in multi-stage DCF Models; rather, it is sufficient to analyze the cost of equity using a stable growth DCF Model with one sustainable growth rate.

Q. Should the annual sustainable growth rate used in the DCF Model exceed the annual growth rate of the aggregate economy?

A. No. A fundamental concept in finance is that no firm can grow forever at a rate higher than the growth rate of the economy in which it operates.[26] Thus, the sustainable growth rate used in the DCF Model should not exceed the aggregate economic growth rate. This is especially true when the DCF Model is conducted on public utilities because these firms have defined service territories. As stated by Dr. Damodaran: "[i]f a firm is a purely domestic company, either because of internal constraints . . . or external constraints (such as those imposed by a government), the growth rate in the domestic economy will be the limiting value."[27]

In fact, it is reasonable to assume that a regulated utility would grow at a rate that is less than the U.S. economic growth rate. Unlike competitive firms, which might increase their growth by launching a new product line, franchising, or expanding into new and developing markets, utility operating companies with defined service territories cannot do any of these things to grow. Gross Domestic Product ("GDP") is one of the most widely used measures of economic production and is used to measure aggregate economic growth. According to the Congressional Budget Office's 2023 Long-Term Budget Outlook, the long-term forecast for nominal U.S. GDP growth is 4.0%.[28]

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[26] *See* Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, 306 (3rd ed., John Wiley & Sons, Inc. 2012).

[27] *Id.*

[28] Congressional Budget Office, The 2022 Long-Term Budget Outlook, https://www.cbo.gov/system/files/2022-07/57971-LTBO.pdf.

Q. Please illustrate the sustainable growth rate determinants you considered for your DCF Models.

A. The following figure compares the growth rate determinants I considered in my DCF analysis in this case.[29]

Figure 5:
Sustainable Growth Rate Determinants

Terminal Growth Determinants	Rate
Nominal GDP	4.0%
Real GDP	1.7%
OG&E Historical Load Growth (2013-2022)	1.6%
OG&E Historical Customer Growth (2013-2022)	1.1%
Average	2.1%
Long-Term Growth Ceiling	**4.0%**

Each of these growth determinants avoids the circular reference problem inherent in other growth determinants such as dividends and earnings growth when conducting a DCF Model on a regulated utility for purposes of setting a fair awarded ROE (because the awarded ROE more directly impacts earnings and dividends).

Q. Did you also consider growth determinants specific to OG&E when assessing the reasonableness of your DCF growth inputs?

A. Yes. I considered firm-specific qualitative growth determinants, namely load growth and customer growth, to assess the reasonableness of my long-term growth rate inputs.

[29] *See also* Exhibit DJG-1-5.

OG&E's historical load and customer growth rates are only 1.6% and 1.1%, respectively.[30] As with the terminal growth determinants discussed above, these firm-specific growth determinants also avoid the circular reference problem inherent in considering earnings and dividend growth when conducting a DCF Model on a regulated utility for purposes of setting a fair awarded ROE. Although I did not use these Company-specific growth determinants in my DCF model, they provide even further indication that the long-term growth rate input in a sustainable growth DCF Model should not exceed GDP, particularly for a utility company.

Q. What are the final results of your DCF Models?

A. Using the inputs discussed above, my DCF Model indicates a cost of equity for OG&E of 8.6%.[31] I considered this result along with the results of my CAPM discussed further below as part of my ROE recommendation.

D. Response to Ms. Bulkley's DCF Model

Q. Ms. Bulkley's DCF Model yielded much higher results. Did you find any errors in her analysis?

A. Yes, I found several errors. Ms. Bulkley's DCF Model produced results as high as 11.4%.[32] The results of Ms. Bulkley's DCF Model are overstated primarily because of a fundamental error regarding her growth rate inputs.

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[30] Exhibit DJG-1-5.

[31] Exhibit DJG-1-6.

[32] *See* Direct Testimony of Ann E. Bulkley, Direct Exhibit AEB-4.

Q. Describe the problems with Ms. Bulkley's long-term growth input.

A. Ms. Bulkley used long-term growth rates in her proxy group as high as 11%,[33] which is nearly three times as high as projected, long-term nominal U.S. GDP growth. This means Ms. Bulkley's growth rate assumption violates the basic principle that no company can grow at a greater rate than the economy in which it operates over the long-term, especially a regulated utility company with a defined service territory. Furthermore, Ms. Bulkley used short-term, quantitative growth estimates published by analysts. As discussed above, these analysts' estimates are inappropriate to use in the DCF Model as long-term growth rates because they are estimates for short-term growth. For example, Ms. Bulkley considered a growth rate estimate of 11% for Entergy Corporation, as published by Yahoo! Finance.[34] This means that an analyst at Yahoo apparently thinks Energy's earnings will quantitatively increase by 11% each year over the next several years (i.e., short-term growth). However, it is *Ms. Bulkley*, not the Yahoo analyst, who is suggesting to the Commission that Energy's earnings will grow by 11% each year for many decades into the future.[35] This assumption is simply not realistic, and it contradicts fundamental concepts of long-term growth. The growth rate assumptions used by Ms. Bulkley for the other proxy companies suffer from the same shortcomings.[36]

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[33] *Id.*

[34] *Id.*

[35] *Id.* Technically, the constant growth rate in the DCF Model grows dividends each year to "infinity." Yet even if we assumed that the growth rate applied to only a few decades, the annual growth rate would still be too high to be considered realistic.

[36] Exhibit AEB-8.

VII. CAPITAL ASSET PRICING MODEL ANALYSIS

Q. Describe the Capital Asset Pricing Model.

A. The Capital Asset Pricing Model ("CAPM") is a market-based model founded on the principle that investors expect higher returns for incurring additional risk.[37] The CAPM estimates this expected return. The various assumptions, theories, and equations involved in the CAPM are discussed further in Appendix B. Using the CAPM to estimate the cost of equity of a regulated utility is consistent with the legal standards governing the fair rate of return. The U.S. Supreme Court has recognized that "the amount of risk in the business is a most important factor" in determining the allowed rate of return,[38] and that "the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks."[39] The CAPM is a useful model because it directly considers the amount of risk inherent in a business. The CAPM directly measures the most important component of a fair rate of return analysis: Risk.

Q. Describe the inputs for the CAPM.

A. The basic CAPM equation requires only three inputs to estimate the cost of equity: (1) the risk-free rate; (2) the beta coefficient; and (3) the equity risk premium. Each input is discussed separately below.

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[37] William F. Sharpe, *A Simplified Model for Portfolio Analysis* 277-93 (Management Science IX 1963); *see also* John R. Graham, Scott B. Smart & William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do* 208 (3rd ed., South Western Cengage Learning 2010).

[38] *Wilcox*, 212 U.S. at 48 (emphasis added).

[39] *Hope Natural Gas Co.*, 320 U.S. at 603 (emphasis added).

A. The Risk-Free Rate

Q. Explain the risk-free rate.

A. The first term in the CAPM is the risk-free rate (R_F). The risk-free rate is simply the level of return investors can achieve without assuming any risk. The risk-free rate represents the bare minimum return that any investor would require on a risky asset. Even though no investment is technically void of risk, investors often use U.S. Treasury securities to represent the risk-free rate because they accept that those securities essentially contain no default risk. The Treasury issues securities with different maturities, including short-term Treasury Bills, intermediate-term Treasury Notes, and long-term Treasury Bonds.

Q. Is it preferable to use the yield on long-term Treasury bonds for the risk-free rate in the CAPM?

A. Yes. In valuing an asset, investors estimate cash flows over long periods of time. Common stock is viewed as a long-term investment, and the cash flows from dividends are assumed to last indefinitely. Thus, short-term Treasury bill yields are rarely used in the CAPM to represent the risk-free rate. Short-term rates are subject to greater volatility and thus can lead to unreliable estimates. Instead, long-term Treasury bonds are usually used to represent the risk-free rate in the CAPM. I considered a 30-day average of daily Treasury yield curve rates on 30-year Treasury bonds in my risk-free rate estimate, which resulted in a risk-free rate of 4.34%.[40]

[40] Exhibit DJG-1-7.

B. The Beta Coefficient

Q. How is the beta coefficient used in this model?

A. As discussed above, beta represents the sensitivity of a given security to movements in the overall market. The CAPM states that in efficient capital markets, the expected risk premium on each investment is proportional to its beta. Recall that a security with a beta greater (less) than one is more (less) risky than the market portfolio. An index such as the S&P 500 Index is used as a proxy for the market portfolio. The historical betas for publicly traded firms are published by various institutional analysts. Beta may also be calculated through a linear regression analysis, which provides additional statistical information about the relationship between a single stock and the market portfolio. As discussed above, beta also represents the sensitivity of a given security to the market as a whole. The market portfolio of all stocks has a beta equal to one. Stocks with betas greater than one are relatively more sensitive to market risk than the average stock. For example, if the market increases (decreases) by 1.0%, a stock with a beta of 1.5 will, on average, increase (decrease) by 1.5%. In contrast, stocks with betas of less than one are less sensitive to market risk. For example, if the market increases (decreases) by 1.0%, a stock with a beta of 0.5 will, on average, only increase (decrease) by 0.5%.

Q. Describe the source for the betas you used in your CAPM analysis.

A. I used betas recently published by Value Line Investment Survey. The beta for each proxy company is less than 1.0. Thus, we have an objective measure to prove the well-known concept that utility stocks are less risky than the average stock in the market. While there is evidence suggesting that betas published by sources such as Value Line may actually

overestimate the risk of utilities (and thus overestimate the CAPM), I used the betas published by Value Line in the interest of reasonableness.[41]

C. The Equity Risk Premium

Q. Describe the equity risk premium.

A. The final term of the CAPM is the equity risk premium ("ERP"), which is the required return on the market portfolio less the risk-free rate ($R_M - R_F$). In other words, the ERP is the level of return investors expect above the risk-free rate in exchange for investing in risky securities. Many experts would agree that "the single most important variable for making investment decisions is the equity risk premium."[42] Likewise, the ERP is arguably the single most important factor in estimating the cost of capital in this matter. I considered several approaches in developing my ERP estimate, including expert surveys, an implied ERP calculation, and reviewing ERPs published by other experts and analysts.

Q. Describe the expert survey approach to estimating the ERP.

A. As its name implies, the expert survey approach to estimating the ERP involves conducting a survey of experts including professors, analysts, chief financial officers, and other executives around the country and asking them what they think the ERP is. The IESE Business School conducts such a survey each year. Their 2023 expert survey reported an average ERP of 5.7%.[43]

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[41] *See* Exhibit DJG-1-9; *See also* Appendix B for a more detailed discussion of raw beta calculations and adjustments.

[42] Elroy Dimson, Paul Marsh & Mike Staunton, *Triumph of the Optimists: 101 Years of Global Investment Returns* 4 (Princeton University Press 2002).

[43] Pablo Fernandez, Pablo Linares & Isabel F. Acin, *Survey: Market Risk Premium and Risk-Free Rate used for 81 countries in 2020* (IESE Business School 2020), copy available at http://www.valumonics.com/wp-content/uploads/2017/06/Discount-rate-Pablo-Fern%C3%A1ndez.pdf. IESE Business School is the graduate

Q. Describe the implied equity risk premium approach.

A. The third method of estimating the ERP is arguably the best. The implied ERP relies on the stable growth model proposed by Gordon, often called the "Gordon Growth Model," which is a basic stock valuation model widely used in finance for many years.[44] This model is a mathematical derivation of the DCF Model. In fact, the underlying concept in both models is the same: The current value of an asset is equal to the present value of its future cash flows. Instead of using this model to determine the discount rate of one company, we can use it to determine the discount rate for the entire market by substituting the inputs of the model. Specifically, instead of using the current stock price (P_0), we will use the current value of the S&P 500 (V_{500}). Instead of using the dividends of a single firm, we will consider the dividends paid by the entire market. Additionally, we should consider potential dividends. In other words, stock buybacks should be considered in addition to paid dividends, as stock buybacks represent another way for the firm to transfer free cash flow to shareholders. Focusing on dividends alone without considering stock buybacks could understate the cash flow component of the model, and ultimately understate the implied ERP. The market dividend yield plus the market buyback yield gives us the gross cash yield to use as our cash flow in the numerator of the discount model. This gross cash yield is increased each year over the next five years by the growth rate. These cash flows must be discounted to determine their present value. The discount rate in each denominator is the risk-free rate (R_F) plus the discount rate (K). The following formula shows how the

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business school of the University of Navarra. IESE offers Master of Business Administration (MBA), Executive MBA and Executive Education programs. IESE is consistently ranked among the leading business schools in the world.

[44] Myron J. Gordon and Eli Shapiro, *Capital Equipment Analysis: The Required Rate of Profit* 102-10 (Management Science Vol. 3, No. 1 Oct. 1956).

implied return is calculated. Since the current value of the S&P is known, we can solve for K: The implied market return.[45]

Equation 1:
Implied Market Return

$$V_{500} = \frac{CY_1(1+g)^1}{(1+R_F+K)^1} + \frac{CY_2(1+g)^2}{(1+R_F+K)^2} + \cdots + \frac{CY_5(1+g)^5 + TV}{(1+R_F+K)^5}$$

where:

V_{500}	=	*current value of index (S&P 500)*
$CY_{1\text{-}5}$	=	*average cash yield over last five years (includes dividends and buybacks)*
g	=	*compound growth rate in earnings over last five years*
R_F	=	*risk-free rate*
K	=	*implied market return (this is what we are solving for)*
TV	=	*terminal value* $= CY_5 (1+R_F) / K$

The discount rate is called the "implied" return here because it is based on the current value of the index as well as the value of free cash flow to investors projected over the next five years. Thus, based on these inputs, the market is "implying" the expected return; or in other words, based on the current value of all stocks (the index price), and the projected value of future cash flows, the market is telling us the return expected by investors for investing in the market portfolio. After solving for the implied market return (K), we simply subtract the risk-free rate from it to arrive at the implied ERP.

Equation 2:
Implied Equity Risk Premium

$$Implied\ Expected\ Market\ Return - R_F = Implied\ ERP$$

Q. Discuss the results of your implied ERP calculation.

A. After collecting data for the index value, operating earnings, dividends, and buybacks for the S&P 500 over the past six years, I calculated the dividend yield, buyback yield, and

[45] *See* Exhibit DJG-9 for detailed calculation.

gross cash yield for each year. I also calculated the compound annual growth rate (g) from operating earnings. I used these inputs, along with the risk-free rate and current value of the index to calculate a current expected return on the entire market of 9.7%. I subtracted the risk-free rate to arrive at the implied equity risk premium of 5.4%.[46] Dr. Damodaran, one of the world's leading experts on the ERP, promotes the implied ERP method discussed above. He calculates monthly and annual implied ERPs with this method and publishes his results. Dr. Damodaran's average ERP estimate for March 2024 using several implied ERP variations was 4.5%.[47]

Q. What are the results of your final ERP estimate?

A. For the final ERP estimate I used in my CAPM analysis, I considered the results of the ERP surveys along with the implied ERP calculations and the ERP reported by Kroll (formerly Duff & Phelps).[48] The results are presented in the following figure:

Figure 6:
Equity Risk Premium Results

IESE Business School Survey	5.7%
Kroll (Duff & Phelps) Report	5.5%
Damodaran (average)	4.5%
Garrett	5.4%
Average	**5.3%**

[46] *Id.*

[47] http://pages.stern.nyu.edu/~adamodar/

[48] *See also* Exhibit DJG-1-10.

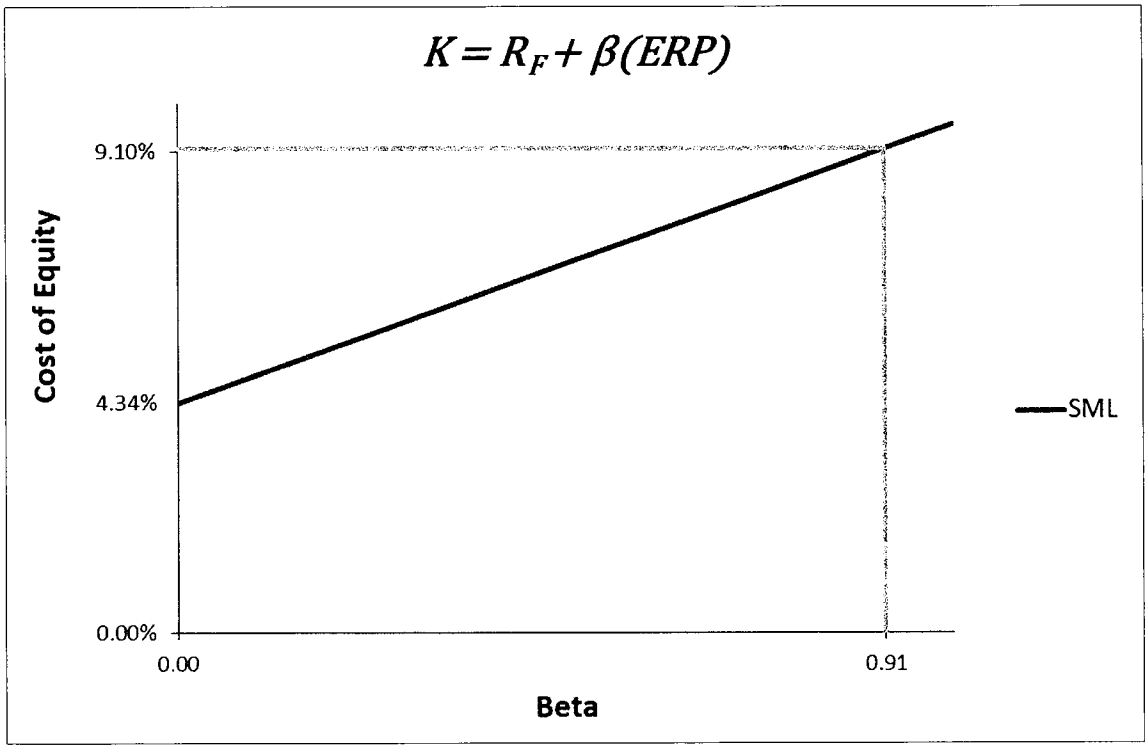
The average ERP from these sources is 5.3%.

Q. Please explain the final results of your CAPM analysis.

A. Using the inputs for the risk-free rate, beta coefficient, and equity risk premium discussed above, I estimate that OG&E's CAPM cost of equity is 8.7% (assuming a capital structure equal to the proxy group average).[49] The CAPM may be displayed graphically through what is known as the Security Market Line ("SML"). The following figure shows the expected return (cost of equity) on the y-axis, and the average beta for the proxy group on the x-axis. The SML intercepts the y-axis at the level of the risk-free rate. The slope of the SML is the equity risk premium.

[49] Exhibit DJG-11.

Figure 7:
CAPM Graph



The SML provides the rate of return that will compensate investors for the beta risk of that investment. Thus, at an average beta of 0.88 for the proxy group, the estimated CAPM cost of equity for OG&E is 9.1%.

D. Response to Ms. Bulkley's CAPM Analysis

Q. Please summarize Ms. Bulkley's CAPM results.

A. Ms. Bulkley's traditional CAPM produced results as high as 11.8%.[50] Ms. Bulkley also conducted an empirical or "ECAPM" variation, which generally inflated her base CAPM results.[51]

[50] *See* Direct Testimony of Ann E. Bulkley, Direct Exhibit AEB-5.

[51] *See id.*

Q. Do you believe Ms. Bulkley's CAPM result indicates a reasonable cost of equity estimate for OG&E?

A. No. Ms. Bulkley's CAPM result is much higher than any reasonable estimate for OG&E's cost of equity in my opinion. This is the case primarily because of her overestimation of the ERP. I also address Ms. Bulkley's ECAPM analysis as well as her other risk premium analyses in this section.

1. Equity Risk Premium

Q. Did Ms. Bulkley rely on a reasonable measure for the ERP?

A. No. Ms. Bulkley uses an ERP as high as 8.46% in her CAPM.[52] The ERP is one of three inputs in the CAPM equation, and it is one of the most important factors for estimating the cost of equity in this case. As discussed above, I used three widely accepted methods for estimating the ERP, including consulting expert surveys, calculating the implied ERP based on aggregate market data, and considering the ERPs published by reputable analysts. The average ERP from these sources is only 5.3%.

Q. Please discuss and illustrate how Ms. Bulkley's ERP compares with other estimates for the ERP.

A. As discussed above, the 2023 IESE Business School expert survey reports an average ERP of 5.7%. Similarly, Kroll (formerly Duff & Phelps) recently estimated an ERP of 5.5%. The following chart illustrates that Ms. Bulkley's ERP estimate is far out of line with industry norms[53].

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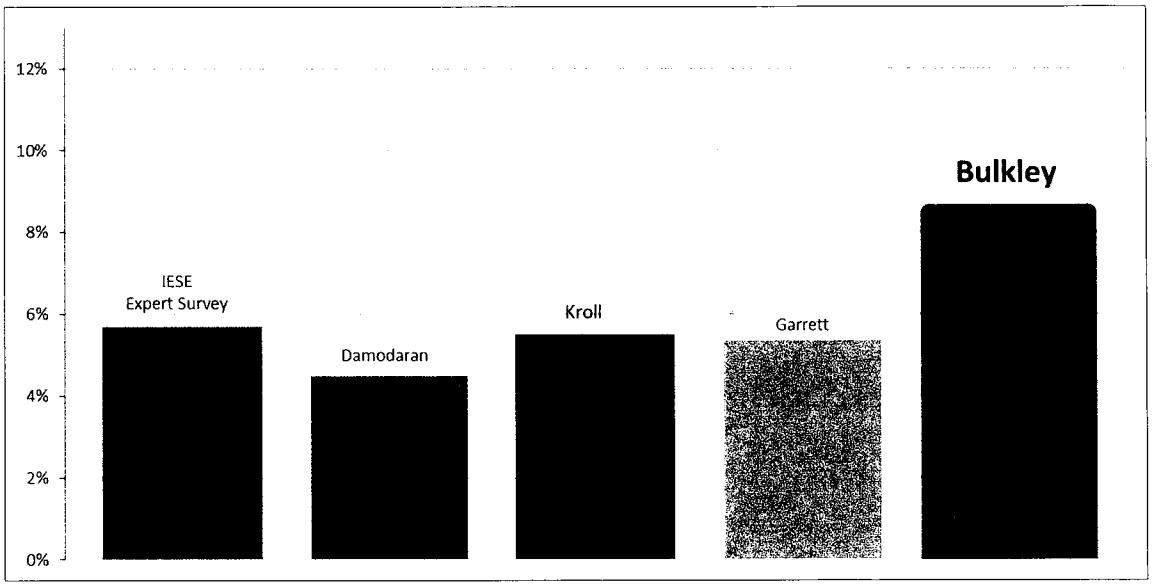
[52] *Id.*

[53] The ERP estimated by Dr. Damodaran is the average of several ERP estimates under slightly differing assumptions.

Figure 8:
Equity Risk Premium Comparison



When compared with other independent sources for the ERP (as well as my estimate), which do not have a wide variance, Ms. Bulkley's ERP estimate is clearly not within the range of reasonableness. As a result, her CAPM cost of equity estimate is overstated.

2. Empirical CAPM

Q. Please summarize Ms. Bulkley's ECAPM analysis.

A. Ms. Bulkley offers another version of the CAPM that she calls the "ECAPM". The results of her ECAPM further inflate the results of her traditional CAPM.[54]

Q. Do you agree with Ms. Bulkley's ECAPM results?

A. No. The premise of Ms. Bulkley's ECAPM is that the traditional CAPM underestimates the return required from low-beta securities, such as those of the proxy group. There are

[54] *Id.*

several problems with this concept, however. First, the betas both Ms. Bulkley and I used in the traditional CAPM already account for the theory that low-beta stocks might tend to be underestimated. In other words, the raw betas for each of the utility stocks in the proxy groups have already been adjusted by Value Line to be higher. Second, there is empirical evidence suggesting that the type of beta-adjustment method used by Value Line actually overstates betas from consistently low-beta industries like utilities. According to this research, it is better to employ an adjustment method that adjusts raw betas toward an industry average, rather than the market average, which ultimately would result in betas that are lower than those published in Value Line.[55] Finally, Ms. Bulkley's ECAPM still suffers from the same overestimated risk-free rate and ERP inputs discussed above. Thus, regardless of the differing theories regarding the mean reversion tendencies of low-beta securities, Ms. Bulkley's ECAPM should be disregarded for its ERP input alone.

3. Bond Yield Plus Risk Premium

Q. Please summarize Ms. Bulkley's Bond Yield Plus Risk Premium results.

A. I am addressing Ms. Bulkley's Allowed Risk Premium analysis in this section because the CAPM itself is a risk premium model. Ms. Bulkley's Allowed Risk Premium analysis considers authorized ROEs from around the country dating back to 1980 and compares these results to Treasury bond yields.[56] This model produces as high as 10.8%.[57]

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[55] *See* Appendix B for further discussion on these theories.

[56] Direct Testimony of Ann E. Bulkley, Direct Exhibit AEB-8..

[57] Direct Testimony of Ann E. Bulkley, p. 46, Fig. 12.

Q. Do you agree with the results of Ms. Bulkley's risk premium analysis?

A. No. Not only do I disagree with the results of Ms. Bulkley's risk premium analysis, but I also disagree with the entire premise of the analysis. Ms. Bulkley's risk premium model considers ROEs allowed by regulatory commissions for electric utilities dating back more than 40 years[58] – which contradicts Ms. Bulkley's acknowledgement that" the Company's authorized ROE should be a *forward-looking* estimate over the period during which the rates will be in effect, these analyses rely on *forward-looking* inputs and assumptions. . . ."[59] Relaying on data from the Carter administration is not "forward looking." Moreover, her model is especially problematic considering the fact that capital costs and awarded ROEs were much higher several decades ago than they are currently. According to Ms. Bulkley's data, the average authorized ROE in 1980 was more than 14%, and the yield on 30-year Treasury bonds was about 12%.[60]

Furthermore, the risk premium analysis offered by Ms. Bulkley is completely unnecessary when we already have a real risk premium model to use: the CAPM. The CAPM itself is a "risk premium" model; it takes the bare minimum return any investor would require for buying a stock (the risk-free rate), then adds a *premium* to compensate the investor for the extra risk he or she assumes by buying a stock rather than a riskless U.S. Treasury security. The CAPM has been utilized by companies around the world for decades for the same purpose we are using it in this case – to estimate cost of equity.

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[58] Exhibit RAM-8.

[59] Direct Testimony of Ann E. Bulkley, p. 6, lines 12-15 (emphasis added).

[60] Direct Testimony of Ann E. Bulkley, Direct Exhibit AEB-8..

In stark contrast to the Nobel-prize-winning CAPM, the type of risk premium model used by Ms. Bulkley in this case is not strictly market-based, and therefore has no value in helping us estimate the market-based cost of equity. These types of risk premium models attempt to create an inappropriate link between market-based factors, such as interest rates, with awarded returns on equity. Inevitably, this type of model is used to justify a cost of equity that is much higher than one that would be dictated by market forces.

VIII. CAPITAL STRUCTURE

Q. Describe in general the concept of a company's "capital structure."

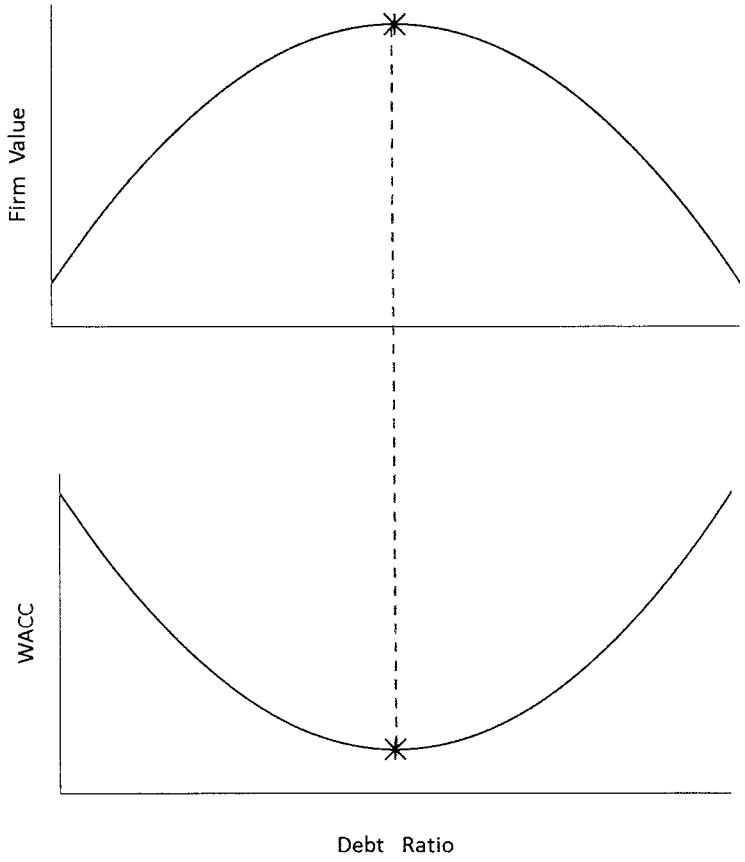
A. "Capital structure" refers to the way a company finances its overall operations through external financing. The primary sources of long-term, external financing are debt capital and equity capital. Debt capital usually comes in the form of contractual bond issues that require the firm to make payments, while equity capital represents an ownership interest in the form of stock. Because a firm cannot pay dividends on common stock until it satisfies its debt obligations to bondholders, stockholders are referred to as "residual claimants." The fact that stockholders have a lower priority to claims on company assets increases their risk and the required return relative to bondholders. Thus, equity capital has a higher cost than debt capital. Firms can reduce their weighted average cost of capital ("WACC") by recapitalizing and increasing their debt financing. In addition, because interest expense is deductible, increasing debt also adds value to the firm by reducing the firm's tax obligation.

Q. Is it true that, by increasing debt, competitive firms can add value and reduce their WACC?

A. Yes, it is. A competitive firm can add value by increasing debt. After a certain point, however, the marginal cost of additional debt outweighs its marginal benefit. This is

because the more debt the firm uses, the higher interest expense it must pay, and the likelihood of loss increases. This also increases the risk of non-recovery for both bondholders and shareholders, causing both groups of investors to demand a greater return on their investment. Thus, if debt financing is too high, the firm's WACC will increase instead of decrease. The following figure illustrates these concepts.

Figure 9:
Optimal Debt Ratio



As shown in this figure, a competitive firm's value is maximized when the WACC is minimized. In both graphs, the debt ratio is shown on the x-axis. By increasing its debt ratio, a competitive firm can minimize its WACC and maximize its value. At a certain point, however, the benefits of increasing debt do not outweigh the costs of the additional

risks to both bondholders and shareholders, as each type of investor will demand higher returns for the additional risk they have assumed.[61]

Q. Does the rate base rate of return model effectively incentivize utilities to operate at the optimal capital structure?

A. No. While it is true that competitive firms maximize their value by minimizing their WACC, this is not the case for regulated utilities. Under the rate base rate of return model, a higher WACC results in higher rates, all else held constant. The basic revenue requirement equation is as follows:

Equation 3:
Revenue Requirement for Regulated Utilities

$$RR = O + d + T + \boldsymbol{r}(A - D)$$

where:

RR	=	*revenue requirement*
O	=	*operating expenses*
d	=	*depreciation expense*
T	=	*corporate tax*
r	=	***weighted average cost of capital (WACC)***
A	=	*plant investments*
D	=	*accumulated depreciation*

As shown in this equation, utilities can increase their revenue requirement by increasing their WACC, not by minimizing it. Thus, because there is no incentive for a regulated utility to minimize its WACC, a commission standing in the place of competition must ensure that the regulated utility is operating at the lowest reasonable WACC.

[61] *See* John R. Graham, Scott B. Smart & William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do* 440-41 (3rd ed., South Western Cengage Learning 2010).

Q. Can utilities generally afford to have higher debt levels than other industries?

A. Yes. Because regulated utilities have large amounts of fixed assets, stable earnings, and low risk relative to other industries, they can afford to have relatively higher debt ratios (or "leverage"). As aptly stated by Dr. Damodaran:

> Since financial leverage multiplies the underlying business risk, it stands to reason that firms that have high business risk should be reluctant to take on financial leverage. It also stands to reason that firms that operate in stable businesses should be much more willing to take on financial leverage. Utilities, for instance, have historically had high debt ratios but have not had high betas, mostly because their underlying businesses have been stable and fairly predictable.[62]

Note that the author explicitly contrasts utilities with firms that have high underlying business risk. Because utilities have low levels of risk and operate a stable business, they should generally operate with relatively high levels of debt to achieve their optimal capital structure. There are objective methods available to estimate the optimal capital structure, as discussed further below.

Q. In OG&E's 2015 rate case, did the Commission order that OG&E should evaluate its capital structure to maximize the benefits of low-cost debt?

A. Yes. In the Final Order in OG&E's 2015 rate case, the Commission stated the following:

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[62] Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset* 196 (3rd ed., John Wiley & Sons, Inc. 2012) (emphasis added).

> Despite accepting the recommendation of the ALJ, the Commission is concerned with OG&E's current equity to debt ratio, which is not in line with averages of other utilities. OG&E should further evaluate adjusting its equity to debt ratio to maximize the benefits of lower cost debt, similar to that of other utilities, by its next base rate proceeding. The Commission will be closely reviewing OG&E's weighted average cost of capital in a future base rate proceeding and is not opposed to considering utilizing a hypothetical capital structure for OG&E if sufficiently persuaded based upon the evidence in that case."[63]

It is pertinent that the Commission's order reflects much of the fundamental concepts discussed above concerning capital structure. In my opinion, the Commission's order recognizes the benefits of low-cost debt in reducing the weighted average cost of capital to a reasonable level. The evidence presented below indicates that OG&E's ratemaking capital structure should consist of 53.5% debt and 46.5% equity.

Q. What did OG&E do in this case to address the Commission's concerns regarding the Company's low debt ratio?

A. Apparently nothing. In OG&E's 2015 rate case, its equity ratio was 53.31%, and the Commission expressed concern that it was too high.[64] In its 2021 rate case, the Company's proposed equity ratio is even higher, at 53.37%.[65] This is case, the Company's proposed equity ratio continues to increase and is now at 53.5%.

[63] Final Order (No. 662059), pp. 5-6, Cause No. PUD 201500273.

[64] *Id.* at p. 5.

[65] Cause No. PUD 202100164, WP F-1.

Q. Describe the approach you used in this case to assess the reasonableness of OG&E's capital structure for ratemaking purposes?

A. To assess a reasonable capital structure for OG&E, I examined the capital structures of the proxy group and I compared OG&E's proposed debt ratio with debt ratios observed in other industries. I discuss these approaches in more detail below.

A. Proxy Debt Ratios and the Hamada Model

Q. Please describe the debt ratios of the proxy group.

A. According to the debt ratios recently reported in Value Line for the utility proxy group (the same proxy group used by Ms. Bulkley), the average debt ratio of the proxy group is 55.2%.[66] This is notably higher than OG&E's proposed debt ratio of only 46.5%.

Q. Is it reasonable to use the proxy group for cost of equity estimation while ignoring the capital structures of the proxy group?

A. No. This is because cost of equity and capital structure are necessarily interrelated. As discussed above, a company's debt ratio affects the cost of debt and the cost of equity. Thus, the indicated cost of equity estimates derived from the CAPM and DCF Model are influenced by the capital structures of the proxy group. Therefore, it is advisable to consider the capital structures of the same proxy group when determining a fair and reasonable ratemaking capital structure for OG&E.

Q. You discussed above that the debt ratio affects the cost of equity. Is there a way to measure that in this case as it relates to OG&E?

A. Yes. We can use the Hamada formula to assess OG&E's indicated cost of equity at different debt ratios.

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[66] Exhibit DJG-1-13.

Q. What is the premise of the Hamada formula?

A. The Hamada formula can be used to analyze changes in a firm's cost of capital as it adds or reduces financial leverage, or debt, in its capital structure by starting with an "unlevered" beta and then "relevering" the beta at different debt ratios. As leverage increases, equity investors bear increasing amounts of risk, leading to higher betas. Before the effects of financial leverage can be accounted for, however, the effects of leverage must first be removed, which is accomplished through the Hamada formula. The Hamada formula for unlevering beta is stated as follows:[67]

Equation 4:
Hamada Formula

$$\beta_U = \frac{\beta_L}{\left[1 + (1 - T_c)\left(\frac{D}{E}\right)\right]}$$

where:

β_U	=	*unlevered beta (or "asset" beta)*
β_L	=	*average levered beta of proxy group*
T_C	=	*corporate tax rate*
D	=	*book value of debt*
E	=	*book value of equity*

Using this equation, the beta for the firm can be unlevered, and then "relevered" based on various debt ratios (by rearranging this equation to solve for β_L).

Q. What are the results of the Hamada model as it pertains to OG&E's cost of equity and capital structure?

A. The figure below summarizes the results of the Hamada model for OG&E.[68]

[67] Damodaran *supra* n. 18, at 197. This formula was originally developed by Hamada in 1972.

[68] *See also* Exhibit DJG-1-18.

Figure 10:
Market Cost of Equity Summary

Unlevering Beta		
Proxy Debt Ratio	55%	[1]
Proxy Equity Ratio	45%	[2]
Proxy Debt / Equity Ratio	1.2	[3]
Tax Rate	21%	[4]
Equity Risk Premium	5.3%	[5]
Risk-free Rate	4.3%	[6]
Proxy Group Beta	0.91	[7]
Unlevered Beta	0.46	[8]

[9]	[10]	[11]	[12]
Relevered Betas and Cost of Equity Estimates			
Debt Ratio	D/E Ratio	Levered Beta	Cost of Equity
0%	0.0	0.46	6.8%
20%	0.3	0.55	7.3%
30%	0.4	0.62	7.6%
40%	0.7	0.71	8.1%
47%	**0.9**	**0.78**	**8.4%**
55%	**1.2**	**0.91**	**9.1%**
60%	1.5	1.01	9.7%

As shown in this table, we start with the capital structures of the proxy group, since we are using other metrics from this same group to conduct the cost of equity models. Once we unlever the beta, we can relever the beta under different debt ratios. Not surprisingly, relevering beta back to the original debt ratio of 55.2% produces of cost of equity estimate that is equal to my CAPM cost of equity estimate at the proxy group debt ratio, which is 9.1%. Moreover, this figure shows that if we use OG&E's proposed lower debt ratio of 46.5%, the Company's estimated cost of equity is only 8.4%.

Q. What conclusions do you draw from this analysis?

A. The Hamada model confirms that if the Commission adopts OG&E's equity-rich capital structure, then it should also authorize a notably lower ROE that accurately reflects OG&E's lower financial risk relative to the proxy group. The Hamada Model shows that this lower ROE should be about 8.4%.

B. Competitive Industry Debt Ratios

Q. Did you asses the reasonableness of your capital structure conclusions by looking at the debt ratios from other competitive industries.

A: Yes. There are currently more than 1,500 companies in the in U.S. industries with higher debt ratios greater than 51% and with an average debt ratio of about 62%.[69] The following figure shows a sample of these industries with debt ratios higher than 56%.

[69] *See* Exhibit DJG-1-14.

Figure 11:
Industries with Debt Ratios Greater than 55%

Industry	# Firms	Debt Ratio
Hotel/Gaming	68	84%
Hospitals/Healthcare Facilities	32	80%
Retail (Automotive)	30	80%
Brokerage & Investment Banking	27	79%
Air Transport	25	78%
Bank (Money Center)	15	69%
Packaging & Container	11	68%
Cable TV	10	**67%**
Recreation	55	66%
Advertising	57	66%
Computers/Peripherals	36	65%
Rubber& Tires	3	65%
Transportation (Railroads)	4	65%
Food Wholesalers	14	64%
Retail (Special Lines)	105	64%
Transportation	110	63%
Telecom (Wireless)	13	62%
Oil/Gas Distribution	24	62%
Telecom. Services	42	**62%**
Retail (Grocery and Food)	14	61%
Power	50	**61%**
R.E.I.T.	181	61%
Insurance (Life)	23	60%
Information Services	18	59%
Auto & Truck	34	59%
Broadcasting	22	58%
Utility (General)	14	**58%**
Chemical (Diversified)	4	58%
Environmental & Waste Services	57	58%
Real Estate (Operations & Services)	60	58%
Office Equipment & Services	17	57%
Retail (Distributors)	62	57%
Total / Average	**1,237**	**65%**

Many of the industries shown here, like public utilities, are generally well-established industries with large amounts of capital assets. The shareholders of these industries generally prefer these higher debt ratios in order to maximize their profits. There are

several notable industries that are relatively comparable to public utilities. For example, the Cable TV, Telecom, Power, and Water Utility industries all have an average debt ratios greater than 60%.

Q. Does this analysis provide further indication that your proposed ratemaking debt ratio for OG&E is reasonable?

A. Yes. Although I am not basing my capital structure recommendation in this case on any industry outside of the utility proxy group, this analysis confirms that there are many other companies operating with higher levels of debt in their capital structure than OG&E's proposed debt ratio.

Q. How does your proposed ratemaking capital structure for OG&E compare with the proposal made by the General Staff of the Arkansas Public Service Commission in a recent filing by OG&E before the Arkansas Public Service Commission?

A. In Docket 21-087-U, the Arkansas Staff testified that the Arkansas commission has "routinely" imputed capital structures for ratemaking purposes. In that case, the Staff proposed an imputed debt ratio of 55% for OG&E, which is essentially identical to the debt ratio I propose in this case.[70]

Q. What did the Arkansas Public Service Commission order in that case regarding OG&E's capital structure?

A. The Arkansas Commission agreed that a 55% imputed debt ratio for OG&E was appropriate. OG&E filed a Petition for Rehearing regarding the capital structure issues. In its Order on rehearing, the Arkansas Commission affirmed its order, and found "the

[70] Direct Testimony of Michael Marchand, p. 34, lines 19-21, Docket No. 21-087-U before the Arkansas Public Service Commission.

appropriate capital structure at this time is that proposed by Staff, which is 55 percent debt and 45 percent equity."

C. Double Leverage

Q. Please describe the capital structure of OG&E's parent company, OGE Energy Corp.

A. OGE Energy Corp.'s ("OGE") capital structure consists of 52% debt and 48% equity.[71] OGE'S debt ratio is significantly higher than the Company's proposed debt ratio of only 46.5%.

Q. What is significant about the large discrepancy between OGE's debt ratio and OG&E's debt ratio?

A. The capital structure of OGE, as with other parent companies comprising the proxy group, are not directly set by regulatory commissions. Thus, those debt ratios are more reflective of the debt ratios that might be seen if utilities operated in a purely competitive environment. Moreover, since OG&E is a wholly owned subsidiary of OGE, that means OG&E's "equity" is funded by OGE. Since OGE has a debt ratio of 52%, this means that OGE is using debt to finance the purchase of OG&E's equity – a strategy known as "double leveraging." This results in excess profits to the utility since the cost of debt is notably lower than the cost of equity. If the Commission approves OG&E's proposed capital structures, it would allow OGE to earn a windfall equity return on debt that was borrowed at lower rates – at the expense of customers. This arrangement is completely unfair to customers, and it is important for the Commission to make an appropriate adjustment to ensure that excess funds are not being extracted from OG&E's customers to enrich OGE's

[71] OGE Value Line Report, YE 2023.

shareholders through this double leverage arrangement. The best way for the Commission to limit the double leverage windfall is to impute a capital structure for OG&E that is equal to the proxy group average (i.e., my primary recommendation). If the Commission does not adopt my primary recommendation regarding capital structure, then it should, at the very least, impute a ratemaking debt ratio for OG&E that is equal to OGE's debt ratio of 52%.

D. Capital Structure and Credit Ratings

Q. Please summarize arguments made by Mr. Walworth in his testimony related to the Company's capital structure and credit ratings.

A. Mr. Walworth supports the Company's proposed capital structure. Mr. Walworth ultimately suggests that adopting the Company's proposed capital structure will result in a better credit rating and lower costs of debt for customers. Mr. Walworth also suggests that the State of Oklahoma would benefit if the Commission adopts OG&E's proposed ROE.[72]

Q. Do you generally agree with Mr. Walworth's narrative regarding the link between the Company's capital structure and credit ratings?

A. No. Mr. Walworth's testimony on these issues is generally misleading. For example, Mr. Walworth suggests that lower credit ratings can lead to a lower cost of debt and "lower rates for customers."[73] This statement is misleading for several reasons. Utilities often make this nonsensical argument to support their equity-rich capital structures. The main problem with Mr. Walworth's assertion is that it only focuses on the cost of debt. Rather, it is the overall cost of capital and weighted average rate of return that ultimately drives

[72] See generally Direct Testimony of Charles B. Walworth.

[73] *Id.* at p. 11, lines 1-2.

rates. If the Commission were to adopt OG&E's proposed capital structure and ROE, and it somehow resulted in a slight decrease in the Company's cost of debt over time, this minor savings in debt cost would be dwarfed by the inflated equity ratio in the capital structure and cost of equity that is more than two times the cost of debt.

Furthermore, OG&E's actual capital structure going forward is within the discretion of Company management. The capital structure authorized by the Commission in this case is simply one component of the overall rate of return that will be applied to rate base. If the ultimate goal is to set a fair ROR, then setting a fair capital structure is a key component of that formula. The supposed scare tactics underlying the suggestions made in Mr. Walworth's testimony as they relate to credit ratings and the cost of debt simply cannot negate the glaring real-world example we observe in the proxy group: The capital structures of the proxy group demonstrate that a comparable group of financially healthy utility companies can operate with an average debt ratio of 55.2%.

Q. Does this conclude your testimony?

A. Yes. To the extent I have not addressed an issue, method, calculation, account, or other matter relevant to the Company's proposals in this proceeding, it should not be construed that I agree with the same.

CERTIFICATE OF MAILING

This is to certify that on this 26th day of April, 2024, a true and correct copy of the above and foregoing was emailed, addressed to:

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