BEFORE THE WYOMING PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE APPLICATION OF ROCKY MOUNTAIN POWER FOR AUTHORITY TO INCREASE ITS RETAIL ELECTRIC SERVICE RATES BY APPROXIMATELY $7.1 MILLION PER YEAR OR 1.1 PERCENT, TO REVISE THE ENERGY COST ADJUSTMENT MECHANISM, AND TO DISCONTINUE OPERATIONS AT CHOLLA UNIT 4	DOCKET NO. 20000-578-ER-20 (Record No. 15464)

DIRECT TESTIMONY

AND EXHIBITS

OF

DAVID J. GARRETT

On Behalf of

Wyoming Industrial Energy Consumers

August 7, 2020

WIEC Exhibit No. 301

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is David J. Garrett. My business address is 101 Park Avenue, Suite 1125, Oklahoma City, Oklahoma 73102.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am the managing member of Resolve Utility Consulting, LLC. I am an independent consultant specializing in public utility regulation.

Q. PLEASE 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 J.D. degree from the University of Oklahoma. I worked in private legal practice for several years before working as assistant general counsel at the Oklahoma Corporation Commission in 2011. At the commission, I worked in the Office of General Counsel in regulatory proceedings. In 2012, I worked 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 numerous consumer groups and state agencies in utility regulatory proceedings, primarily in the areas 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] WIEC Exhibit No. 301.3.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE WYOMING PUBLIC SERVICE COMMISSION?

A. Yes, I have previously testified before the Wyoming Public Service Commission ("PSC" or "the Commission") and many other state regulatory commissions.[2]

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. My testimony is being sponsored by the Wyoming Industrial Energy Consumers ("WIEC").

Q. DESCRIBE THE PURPOSE AND SCOPE OF YOUR TESTIMONY IN THIS PROCEEDING.

A. The primary purpose of my testimony is to provide my opinion on the estimated cost of capital for PacifiCorp d/b/a Rocky Mountain Power ("RMP" or "the Company"), which is an indirect wholly owned subsidiary of Berkshire Hathaway Energy. In doing so, I present my recommendations regarding a fair awarded rate of return for RMP, as well as a prudent imputed capital structure for RMP. I am responding to the direct testimonies of RMP witnesses Ann E. Bulkley and Nikki L. Kobliha.

Q. PLEASE DESCRIBE THE ORGANIZATION OF YOUR TESTIMONY.

A. In the executive summary below, I provide an overview of cost of capital issues, my recommendations, and my response to the Company's testimony on these issues. In the sections that follow, I discuss the legal standards governing the awarded return issue as well as the general concepts involved in estimating the cost of equity. I provide detailed analysis of the Discounted Cash Flow ("DCF") Model, the Capital Asset Pricing Model

[2] *Id.*

("CAPM"), including my results for these models and my responses to Ms. Bulkley's results. I also address capital structure, which is a key component to the cost of capital. Finally, I address issues raised in Ms. Kobliha's testimony regarding the Company's credit ratings as it relates to RMP's proposed capital structure.

Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS TO THE COMMISSION REGARDING RMP'S COST OF CAPITAL AND CAPITAL STRUCTURE.

A. My testimony can be distilled to the following recommendations:

1) The Commission should reject the Company's proposed ROE of 10.2% as excessive and unsupported. An objective cost of equity analysis shows that RMP's cost of equity is about 6.5%. Even using Ms. Bulkley's proxy group and all her CAPM inputs, while substituting her equity risk premium ("ERP") with the ERP reported by thousands of unbiased experts, we arrive at a cost of equity estimate of only 6.7%. An objective analysis shows a market cost of equity estimate of 6.9%. This is effectively a "ceiling" for RMP's cost of equity.

2) Accordingly, I recommend the Commission award RMP an authorized ROE of 9.0%, which is within – albeit at the high end of – a more reasonable ROE range of 7.5% to 9.0%. Although 9.0% is still well above RMP's cost of equity, the recommendation is fair to ratepayers while still affording the Company the opportunity to maintain its financial integrity.

3) I recommend the Commission reject RMP's equity-rich capital structure of 46.47% long term debt, 53.52% common equity, and 0.01% preferred equity. RMP is capitalized with insufficient amounts of debt. By choosing to have greater amounts of high-cost equity instead of low-cost debt in its capital structure, the Company is not minimizing its weighted average cost of capital ("WACC") to its lowest reasonable level.

4) Based on the capital structures of the proxy group and the capital structures of similar competitive industries, I instead recommend the Commission impute a capital structure for RMP consisting of 50% debt, 49.99% common equity, and 0.01% preferred equity.

5) Fundamentally, the Commission's duties are to regulate RMP, to support the Company's financial integrity such that it can continue to attract capital at reasonable terms, and to ensure that resulting rates for ratepayers remain just and reasonable. The PSC need not be beholden to shareholders' interests in investment returns achieved by inflated ROEs and equity ratios, which would simply increase the Company's revenue requirement at ratepayers' expense. The Commission's decisions here should be based on sound analytics, reflected by market conditions, to result in an ROE and debt ratios that promote the lowest reasonable weighted average return, even if doing so slightly increases RMP's cost of debt.

II. EXECUTIVE SUMMARY

A. Overview and Background

Q. PLEASE EXPLAIN THE CONCEPT AND SIGNIFICANCE OF THE COST OF CAPITAL.

A. The term cost of capital, or WACC,[3] refers to the weighted average cost of the components within a company's capital structure, including the costs of both debt and equity. The three components of a company's WACC include the following:

1) Cost of Debt
2) Cost of Equity
3) Capital Structure

Determining the cost of debt is relatively straight-forward. Interest payments on bonds are contractual, embedded costs that are generally calculated by dividing total interest payments by the book value of outstanding debt. Determining the cost of equity, on the other hand, is more complex. Unlike the known, contractual, and embedded cost of debt, there isn't any explicitly quantifiable "cost" of equity. Instead, the cost of equity must be

[3] The terms cost of capital and WACC are synonymous and used interchangeably throughout this testimony.

estimated through various financial models. Cost of capital is expressed as a weighted average because it is based upon a company's relative levels of debt and equity, as defined by the particular capital structure of that company. The basic WACC equation used in regulatory proceedings is presented as follows:

Equation DJG-1:

Weighted Average Cost of Capital

$$WACC = \left(\frac{D}{D+E}\right)C_D + \left(\frac{E}{D+E}\right)C_E$$

where: $WACC$ = *weighted average cost of capital*
D = *book value of debt*
C_D = *embedded cost of debt capital*
E = *book value of equity*
C_E = *market-based cost of equity capital*

Companies in the competitive market often use their WACC as the discount rate to determine the value of capital projects, so it is important that this figure be estimated accurately.

Q. DESCRIBE THE RELATIONSHIP BETWEEN THE COST OF EQUITY, REQUIRED RETURN ON EQUITY ("ROE"), EARNED ROE, AND AWARDED ROE.

A. While these terms are all interrelated factors and concepts, they are all technically distinct from one another. The financial models presented in this case were created as tools for estimating the "cost of equity," which is synonymous to the "required ROE" that investors expect based on the amount of risk inherent in the equity investment. The cost of equity is driven by market forces. When corporate managers, investors, and analysts attempt to estimate the cost of equity for any competitive, non-regulated company, they do not consult utility commissioners' decisions. As some experts note, "the market determines the cost

of capital. Regulators don't."[4] That said, the cost of equity from a company's perspective equals the required ROE from the investor's perspective. The "required" or "expected" return from an investor's standpoint is not simply what the investor wishes he or she could get. Likewise, the expected return of a utility investor has nothing to do with what he or she "expects" a regulatory commission will order regarding an awarded ROE. Rather, the expected return / cost of equity is estimated through objective, mathematical financial modeling based on risk.

By contrast, "earned ROE" is a historical return measured from a company's accounting statements, and it is used to measure how much shareholders earned for investing in a company. A company's earned ROE is distinct from a company's cost of equity. For example, an investor who invests in a risky firm may require a return on investment of 10%. If the firm used the same estimates as the investor, then the company will similarly estimate that its cost of equity is also 10%. However, if under this example, the company performs poorly and the investor ultimately earns a return of only 7%, this does not mean that the investor required only 7%, or that the investor will not still require a 10% return the following period. Alternatively, if the company in this example earned a 13% ROE, then it will have outperformed its investors' required ROE.

Finally, the "awarded" ROE is unique to the regulatory environment; it is the return authorized by a regulatory commission pursuant to legal guidelines to provide an

[4] Leonard Hyman & William Tilles, "Don't Cry for Utility Shareholders, America," Public Utilities Fortnightly (Oct. 2016).

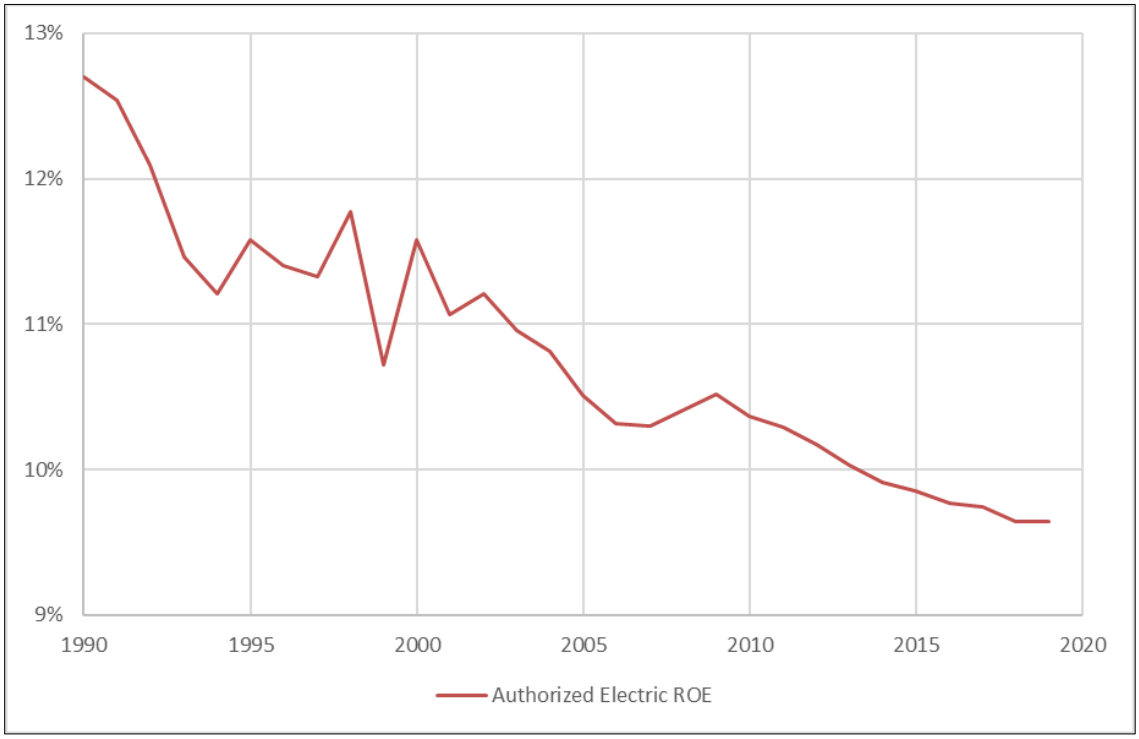
opportunity (not a guarantee) to earn that return. As discussed later in this testimony, the awarded ROE should be based on the utility's cost of equity.

To summarize the relationship among the terms and concepts discussed thus far: if the awarded ROE reflects a utility's cost of equity, then it should allow the utility to achieve an earned ROE that is sufficient to satisfy the required return of its equity investors.

Q. WHAT DO HISTORIC TRENDS IN AWARDED ROEs FOR ELECTRIC UTILITIES REVEAL?

A. Over the past thirty years, capital costs for all companies have generally declined. This is due in large part to generally declining interest rates over the same period. Likewise, awarded ROEs for electric utilities have also decreased since 1990. The graph below shows a trend in the annual awarded returns for electric utilities from 1990 to 2019.

Figure DJG-1:
Historic Awarded ROEs for Electric Utilities[5]



In 1990, the average awarded ROE for electric utilities was 12.7%; in 2019, it was only 9.6%.[6] Although I do not support using average utility awarded ROEs as the loadstar in ratemaking, RMP's proposed ROE in this case is far higher than the average awarded ROEs from other jurisdictions, and out of step with the downward trend spanning nearly 30 years.

Q. HOW DO EXPERTS AND REGULATORS TYPICALLY ASSESS THE ROES AWARDED TO UTILITIES AND THE CORRESPONDING OPPORTUNITY FOR SHAREHOLDERS?

A. Investors, company managers, and academics around the world have used models, such as the CAPM and DCF to closely estimate cost of equity for many years, and weigh the results

[5] WIEC Exhibit No. 301.16.
[6] *Id.*

achieved against the results from proxy groups. Each of these concepts will be discussed in more detail later in my testimony.

B. Recommendation

Q. PLEASE SUMMARIZE YOUR ROE RECOMMENDATION TO THE COMMISSION.

A. Pursuant to the legal and technical standards guiding this issue, the awarded ROE should be based on, or reflective of, the utility's cost of equity. RMP's estimated cost of equity is about 6.5%, when using reasonable inputs. However, legal standards do not mandate the awarded ROE be set exactly equal to the cost of equity. Rather, in *Federal Power Commission v. Hope Natural Gas Co.*, the U.S. Supreme Court found that, although the awarded return should be based on a utility's cost of capital, the "end result" should be just and reasonable.[7] Therefore, I recommend the Commission award RMP an ROE of 9.0%, which is the highest ROE within a reasonable range of 7.5% - 9.0%. The bottom end of this range (7.5%) is equal to my estimate of the required return (cost of equity) of the entire, publicly traded market. The high point of the range (9.0%) represents a gradual move towards the market cost of equity. An awarded ROE of 9.0%, while clearly higher than the Company's cost of equity, would be an end result that is fair, just, and reasonable to ratepayers, under the circumstances. Likewise, shareholders would be eligible for an awarded return that is so far above their actual required return (cost of equity) that the end

[7] *See Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591, 603 (1944). Here, the Court states that it is not mandating the various permissible ways in which the rate of return may be determined, but instead indicates that the end result should be just and reasonable. This is sometimes called the "end result" doctrine.

result is also attractive to them. To be clear, if the Commission were to award RMP with an ROE of 9.0%, it would be still be authorizing an excess transfer of wealth from ratepayers to shareholders beyond that which is contemplated or required by *Hope* and *Bluefield*.[8]

Q. IF 9.0% EXCEEDS RMP'S ACTUAL COST OF EQUITY AND STILL, IN YOUR OPINION, RESULTS IN AN EXCESSIVE WEALTH TRANSFER FROM SHAREHOLDERS TO RATEPAYERS, HOW CAN IT BE CONSIDERED A JUST AND REASONABLE END RESULT?

A. The ratemaking concept of "gradualism," though usually applied from ratepayers' standpoint to minimize rate shock, could also be applied illustratively to shareholders. An awarded return as low as 6.5% in any current rate proceeding would represent a stark and substantial movement away from the "status quo," which as I prove later in the testimony, involves awarded ROEs that clearly exceed market-based cost of equity for utilities. However, while generally reducing awarded ROEs for utilities would move awarded returns closer to market-based costs and reduce the excess transfer of wealth from ratepayers to shareholders, I believe it is advisable to do so gradually. One of the primary reasons RMP's actual cost of equity is so low is because RMP is a low-risk asset. In general, utility stocks are low-risk investments because movements in their stock prices are not volatile. If the Commission were to make a significant, sudden change in the awarded ROE anticipated by regulatory stakeholders, it could have the undesirable effect of notably increasing the Company's risk profile, which could be in contravention to the *Hope* Court's

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

"end result" doctrine. An awarded ROE of 9.0% represents a good balance between the Supreme Court's indications that awarded ROEs should be based on cost, while also recognizing that the end result must be just and reasonable under the circumstances. An awarded ROE of 9.0% represents a relatively gradual, yet decisive move toward RMP's market-based cost of equity, while still providing RMP's shareholders with the opportunity to earn a return 250 basis points above RMP's market-based cost of equity (9.0% vs. 6.5%).

Q. PLEASE SUMMARIZE YOUR RECOMMENDATION REGARDING CAPITAL STRUCTURE.

A. The Company proposes an equity-rich capital structure consisting of 46.47% debt, 53.52% common equity, and 0.01% preferred equity.[9] In my testimony, I demonstrate that RMP is capitalized with insufficient amounts of debt. By choosing to have greater amounts of high-cost equity instead of low-cost debt in its capital structure, the Company is not minimizing its WACC to its lowest reasonable level. Based on the capital structures of the proxy group and the capital structures of similar competitive industries, I instead recommend the Commission approve a capital structure consisting of 50% debt, 49.99% common equity, and 0.01% preferred equity. Given the fact that there is evidence suggesting RMP's capital costs could be further reduced with an even higher debt ratio, my recommendation remains conservative.

[9] Direct Testimony of Ann E. Bulkley, p. 81, line 3 through p. 82, line 1.

C. Response to the Company's Testimony

Q. PLEASE PROVIDE AN OVERVIEW OF THE PROBLEMS YOU HAVE IDENTIFIED WITH THE COMPANY'S TESTIMONY REGARDING COST OF EQUITY, CAPITAL STRUCTURE, AND THE RESULTING AWARDED ROE.

A. Ms. Bulkley proposes a return on equity of 10.2%.[10] Ms. Bulkley's recommendation is based on the CAPM, DCF Model, and other risk premium models. However, several of her key assumptions and inputs to these models violate fundamental, widely accepted tenets in finance and valuation, while other assumptions and inputs are simply unrealistic. Additionally, Ms. Kobliha makes recommendations regarding RMP's capital structure and credit ratings. The key areas of concern are summarized further below, although I elaborate on my concerns regarding the Company's proposals in further detail later in my testimony.

Q. PLEASE SUMMARIZE THE PROBLEMS YOU FOUND IN MS. BULKLEY'S TESTIMONY.

A. As described in greater detail later in my testimony, I find several aspects of Ms. Bulkley's approach and resulting recommendations to be problematic, including the growth rates used in her DCF models; her inflated estimate for the ERP which in turn disrupts the results from her DCF, CAPM, and Empirical CAPM ("ECAPM") models; her use of backward-cast instead of forward-looking assumptions in her Risk Premium model, which ignores current market conditions; and her application of firm-specific risk factors rather than market risk to inform the resulting ROE recommendations. With respect to capital structure, I take issue with Ms. Bulkley's adherence to an equity-rich capital structure that

[10] *Id.* at p. 5, lines 2–3.

includes more debt in the capital structure than is reasonable compared to industry averages and even in Ms. Bulkley's selected proxy group.

Q. DO YOU HAVE SIMILAR CONCERNS WITH MS. KOBLIHA'S TESTIMONY?

A. Yes. Ms. Kobliha also supports RMP's proposed capital structure. Ms. Kobliha argues that the Commission must approve the Company's proposed capital structure for the Company to maintain its credit ratings.[11] This premise is flawed for several reasons. First, there is no direct link between the Commission's imputed capital structure and the Company's credit ratings. The financial metrics used by ratings agencies to assign credit ratings are influenced by all the factors that affect the Company's earnings and cash flow, most of which are outside the Commission's control. Even the Company's actual capital structure is not controlled by the Commission. Taken at face value, Ms. Kobliha's arguments simultaneously overstate the Commission's role in or influence on Wall Street's credit ratings and understate the duty of Company management to operate in an efficient and prudent manner.

Q. WHAT DO YOU MEAN WHEN YOU SAY MS. KOBLIHA OVERSTATES THE COMMISSION'S INFLUENCE ON WALL STREET?

A. If the Commission approves an increase to the Company's revenue requirement, and adopts the Company's requested capital structure, it will effectively be authorizing an additional transfer of wealth from ratepayers to shareholders through an increased revenue requirement. How credit ratings agencies ultimately respond to that regulatory treatment

[11] *See generally* Direct Testimony of Nikki L. Kobliha, pp. 8–14.

really depends more on how Company management directs the use of those additional revenues.

Q. WHAT DO YOU MEAN WHEN YOU SAY MS. KOBLIHA UNDERSTATES THE ROLE OF THE COMPANY IN SHAPING ITS CREDIT RATINGS?

A. To the extent the Company elects to increase dividends, increase executive bonuses, or incur other expenses not required to provide service, those decisions make it more difficult for the Company to increase or maintain its credit ratings. Alternatively, if utility shareholders needed to secure Cadillac credit ratings, that could be achieved by reducing dividends or other expenses to pay down debt. Shareholders' primary concerns tend to be about maximizing profits, not maximizing credit ratings. If the opposite were true, we would see the vast majority of publicly traded companies operating with top-grade credit scores. In reality, however, investors would rather see the companies in which they invest issue as much debt as required to maximize profit, even if it means accepting slightly higher debt costs and lower credit ratings. To illustrate, individual investors employ this strategy when investing in rental properties. An investor could achieve an optimal credit rating by paying cash for a rental property, but profits are maximized by leveraging the property with a mortgage (often in excess of 75% of the property's value). Unlike competitive firms and individual investors, utilities are not naturally incentivized to operate with sufficient amounts of debt in their capital structures. Utilities can increase revenues by increasing their equity ratios, particularly when, as with RMP, they currently enjoy awarded returns on equity that far exceed market-based costs of equity.

Q. DO YOU HAVE ANY RECOMMENDATIONS FOR THE COMMISSION, CONSIDERING THESE CONCERNS?

A. A Commission applying artificial competitive pressure on the granted monopoly should ensure two things: (1) the awarded ROE is reflective of market-based cost of equity; and (2) the Company's imputed capital structure is reflective of one that would exist in a competitive environment. Other financial factors discussed in Ms. Kobliha's testimony, including credit ratings, fall under the realm of managerial discretion.

Q. DESCRIBE THE POTENTIALLY HARMFUL IMPACT TO RATEPAYERS AND WYOMING'S ECONOMY IF THE COMMISSION WERE TO ADOPT RMP'S INFLATED ROE RECOMMENDATION.

A. Setting awarded returns significantly above the true cost of equity results in an inappropriate and excess transfer of wealth from ratepayers to shareholders beyond that which is required by law. This excess outflow of funds from Wyoming's economy to Wall Street would not benefit Wyoming's businesses or citizens, nor would it result in better utility service. Instead, Wyoming businesses within RMP's service territory would be less competitive with businesses in surrounding states, and individual ratepayers would receive inflated costs for basic goods and services, along with higher utility bills.

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 first addressed the meaning of a fair rate of return for public utilities.[12] The Court found that "the amount of risk in the business is a most important factor" in determining the appropriate allowed rate of return.[13] As referenced earlier, in two subsequent landmark cases, the Court set forth the standards by which public utilities are allowed to earn a return on capital investments. First, 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 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.[14]

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

[12] *Wilcox v. Consolidated Gas Co. of New York*, 212 U.S. 19 (1909).
[13] *Id.* at 48.
[14] *Bluefield Water Works & Improvement Co*, 262 U.S. at 692–93.

> 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.[15]

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

Q. IS IT IMPORTANT THAT THE AWARDED RATE OF RETURN BE BASED ON THE COMPANY'S ACTUAL COST OF CAPITAL?

A. Yes. The U.S. Supreme Court in *Hope* 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. As stated in the beginning of my testimony, 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:

[15] *Hope Natural Gas Co.*, 320 U.S. at 603 (emphasis added) (internal citations omitted).

> 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.[16]

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 better comply with the U.S. Supreme Court's standards, allow the Company to maintain its financial integrity, and achieve reasonable returns for its investors. On the other hand, if the Commission sets the allowed rate of return much higher than the true cost of capital, as requested by RMP, it arguably results in an inappropriate transfer of wealth from ratepayers to shareholders.[17]

Q. WHAT DOES THIS LEGAL STANDARD MEAN FOR DETERMINING THE AWARDED RETURN AND THE COST OF CAPITAL?

A. The awarded return and the cost of capital are different but related concepts. On the one hand, the legal and technical standards encompassing this issue require that the awarded return must reflect the true cost of capital. Yet on the other hand, the two concepts differ in that the legal standards do not mandate that awarded returns exactly match the cost of capital. Instead, awarded returns are set through the regulatory process and may be influenced by various factors other than objective market drivers. By contrast, the cost of

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

[17] Roger A. Morin, "*New Regulatory Finance: Utilities' Cost of Capital*," Public Utilities Reports, Inc., p. 23–24 (2006) ("[I]f the allowed rate of return is greater than the cost of capital, capital investments are undertaken and investors' opportunity costs are more than achieved. Any excess earnings over and above those required to service debt capital accrue to the equity holders, and the stock price increases. In this case, the wealth transfer occurs from ratepayers to shareholders.").

capital should be evaluated objectively and be closely tied to economic realities, such as stock prices, dividends, growth rates, and, most importantly, 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 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.

Q. DESCRIBE THE ECONOMIC IMPACT THAT OCCURS WHEN THE AWARDED RETURN STRAYS TOO FAR FROM THE TIME-HONORED U.S. SUPREME COURT'S COST OF EQUITY STANDARDS.

A. When the awarded ROE is set far above the cost of equity, it runs the risk of violating the U.S. Supreme Court's standards directing that the awarded return should be based on the utility's cost of capital. This has the effect of diverting dollars from ratepayers for their internal or business uses that would otherwise support the local or state economy to the utility's shareholders at large. Moreover, establishing an awarded return that far exceeds true cost of capital effectively prevents the awarded returns from changing along with economic conditions. This is especially true given the fact that regulators tend to be influenced by the awarded returns in other jurisdictions, regardless of the various unknown factors influencing those awarded returns. If regulators rely too heavily on the awarded returns from other jurisdictions, they can create a cycle over time that bears little relation to the market-based cost of equity. In fact, this is exactly what we have observed since 1990. This is yet another reason why it is crucial for regulators to focus on the target utility's actual cost of equity, rather than awarded returns from other jurisdictions.

Awarded returns may be influenced by settlements and other political factors not based on true market conditions. In contrast, the true cost of equity as estimated through objective models is not influenced by these factors but is instead driven by market-based factors.

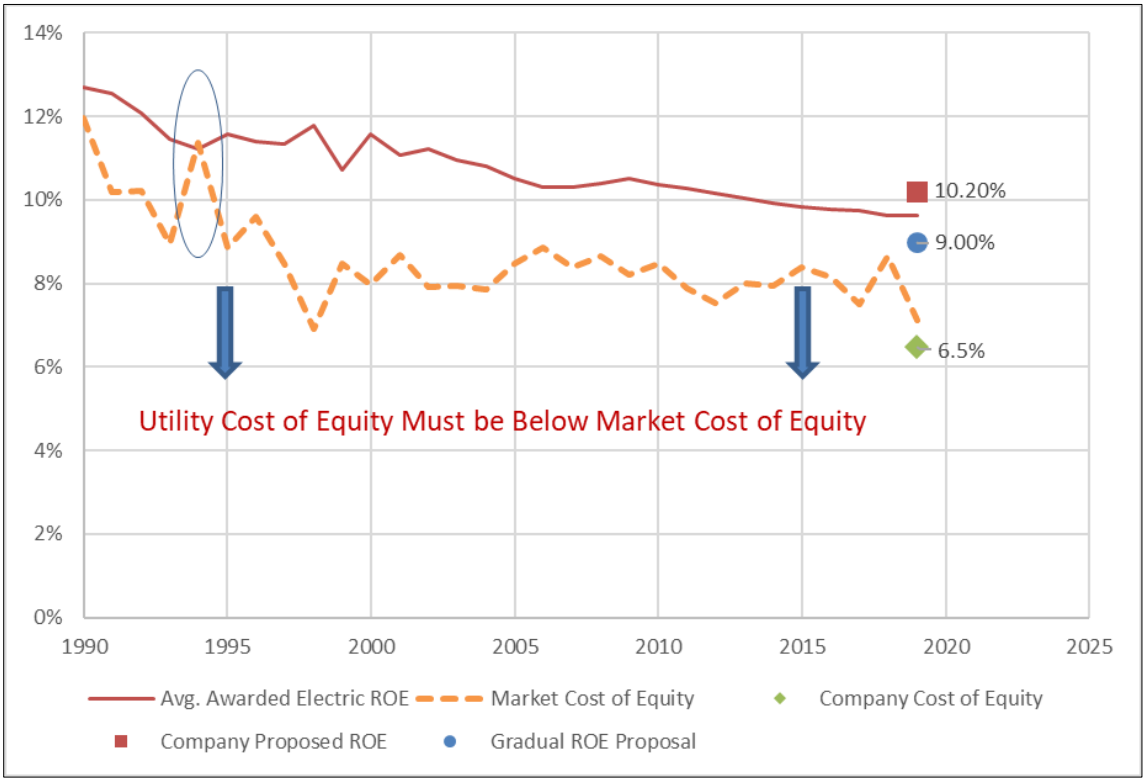
Q. CAN YOU ILLUSTRATE AND PROVIDE A COMPARISON OF THE RELATIONSHIP BETWEEN AWARDED UTILITY RETURNS AND MARKET COST OF EQUITY SINCE 1990?

A. Yes. As shown in Figure DJG-2 below, awarded returns for public utilities have been above the average required market return since 1990.[18] Because utility stocks are consistently far less risky than the average stock in the marketplace, the cost of equity for utility companies is less than the market cost of equity.

To illustrate this fact, the graph below in Figure DJG-2 shows two trend lines. The top line is the average annual awarded returns since 1990 for U.S. regulated utilities. The bottom line is the required market return over the same period. As discussed in more detail later in my testimony, the required market return is essentially the return that investors would require if they invested in the entire market and, as such, the required market return is essentially the cost of equity of the entire market. Since it is undisputed that utility stocks are less risky than the average stock in the market, then the utilities' cost of equity must be less than the market cost of equity.[19] Thus, awarded returns (the solid line) should generally be below the market cost of equity (the dotted line), since awarded returns are supposed to be based on true cost of equity.

[18] WIEC Exhibit No. 301.16.
[19] This fact can be objectively measured through a term called "beta," as discussed later in the testimony. Utility betas are less than one, which means utility stocks are less risky than the "average" stock in the market.

Figure DJG-2:
Awarded ROEs vs. Market Cost of Equity



Notwithstanding the data in Figure DJG-2, awarded ROEs have been consistently above the market cost of equity for many years. Also as shown in Figure DJG-2, since 1990, there was only one year in which the average awarded ROE was below the market cost of equity. In 1994, regulators awarded ROEs that were the closest to utilities' market-based cost of equity. In my opinion, when awarded ROEs for utilities are below the market cost of equity, regulators more closely conform to the standards set forth by *Hope* and *Bluefield* and minimize the excess wealth transfer from ratepayers to shareholders. Figure DJG-2 also shows on the far right how my recommended ROE and Ms. Bulkley's recommendation compare to those trend lines in 2019.

Q. HAVE OTHER ANALYSTS COMMENTED ON THIS NATIONAL PHENOMENON OF AWARDED ROEs EXCEEDING MARKET-BASED COST EQUITY FOR UTILITIES?

A. Yes. In his article published in Public Utilities Fortnightly in 2016, Steve Huntoon observed that even though utility stocks are less risky than the stocks of competitive industries, utility stocks have nonetheless outperformed the broader market.[20] Specifically, Mr. Huntoon notes the following three points which lead to a problematic conclusion:

1) Jack Bogle, the founder of Vanguard Group and a Wall Street legend, provides rigorous analysis that the long-term total return for the broader market will be around 7 percent going forward. Another Wall Street legend, Professor Burton Malkiel, corroborates that 7 percent in the latest edition of his seminal work, A Random Walk Down Wall Street.

2) Institutions like pension funds are validating the first point by piling on risky investments to try and get to a 7.5 percent total return, as reported by the Wall Street Journal.

3) Utilities are being granted returns on equity around 10 percent.[21]

In a follow-up article analyzing and agreeing with Mr. Huntoon's findings, Leonard Hyman and William Tilles found that utility equity investors expect about a 7.5% annual return.[22] This finding is particularly remarkable given the results of my CAPM and DCF Model in this case, which average a cost of equity estimate almost identical to the authors' findings.

[20] Steve Huntoon, "Nice Work If you can Get It," Public Utilities Fortnightly (Aug. 2016).
[21] *Id.*
[22] Leonard Hyman & William Tilles, "Don't Cry for Utility Shareholders, America," Public Utilities Fortnightly (Oct. 2016).

Other scholars have also observed that awarded ROEs have not appropriately tracked with declining interest rates over the years, and that excessive awarded ROEs have negative economic impacts. In a white paper issued in 2017, Charles S. Griffey stated:

> The "risk premium" being granted to utility shareholders is now higher than it has ever been over the last 35 years. Excessive utility ROEs are detrimental to utility customers and the economy as a whole. From a societal standpoint, granting ROEs that are higher than necessary to attract investment creates an inefficient allocation of capital, diverting available funds away from more efficient investments. From the utility customer perspective, if a utility's awarded and/or achieved ROE is higher than necessary to attract capital, customers pay higher rates without receiving any corresponding benefit.[23]

It is interesting that both Mr. Huntoon and Mr. Griffey use the word "sticky" in their articles to describe the fact that awarded ROEs have declined at a much slower rate than interest rates and other economic factors resulting in a decline in capital costs and expected returns on the market. It is not hard to see why this phenomenon of "sticky" ROEs has occurred. Because awarded ROEs are often based primarily on a comparison with other awarded ROEs around the country, the average awarded returns effectively fail to adapt to true market conditions, and regulators seem reluctant to deviate from the average. Once utilities and regulatory commissions become accustomed to awarding rates of return higher than market conditions actually require, this trend becomes difficult to reverse. The fact is, utility stocks are less risky than the average stock in the market, and thus, awarded ROEs should be less than the expected return on the market. However, that is rarely the case.

[23] Charles S. Griffey, "When 'What Goes Up' Does Not Come Down: Recent Trends in Utility Returns," White Paper (Feb. 2017).

My proposal assists the Commission in "see[ing] the gap between allowed returns and cost of capital,"[24] and reconciling this issue in an equitable manner.

Q. SUMMARIZE THE LEGAL STANDARDS GOVERNING THE AWARDED ROE ISSUE.

A. The Commission should strive to move the awarded return to a level more closely aligned with the Company's actual, market-derived cost of capital while keeping in mind the following two legal principles outlined below.

1) Risk is the most important factor when determining the awarded return. The awarded return should be commensurate with those returns on investments of corresponding risk.

The legal standards articulated in *Hope* and *Bluefield* demonstrate that the U.S. Supreme Court understands one of the most basic, fundamental concepts in financial theory: the more (or less) risk an investor assumes, the more (or less) return the investor requires. Since utility stocks are low risk, the return required by equity investors should be relatively low. I have used financial models to closely estimate the Company's cost of equity, and these financial models account for risk. The cost of equity models confirm the industry experiences relatively low levels of risk by producing relatively low cost of equity results. In turn, the awarded ROE in this case should reflect RMP's relatively low market risk.

2) The awarded return should be sufficient to assure financial soundness and integrity under efficient management.

[24] "Don't Cry for Utility Shareholders, America," (Oct. 2016).

Because awarded returns in the regulatory environment have not closely tracked market-based trends and commensurate risk, utility companies have been able to remain more than financially sound, perhaps despite management inefficiencies. In fact, the transfer of wealth from ratepayers to shareholders has been so far removed from actual cost-based drivers that a utility could remain financially sound even under relatively inefficient management. Therefore, regulatory commissions should strive to set utilities' returns based on actual market conditions to promote prudent and efficient management and minimize economic waste.

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 for utilities. 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 DCF Model and the CAPM, both of which, and others, are used by RMP. 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. These models 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 group.[25] By using the same proxy group, we can remove a relatively insignificant variable from the equation and focus on the primary factors driving RMP's cost of equity estimate.

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

[25] WIEC Exhibit No. 301.4.

reduced sales revenue. This is an example of a firm-specific risk called "project risk."[26] 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 risk of major socio-economic events. When there are changes in these risk factors, they affect all firms in the market to some extent.[27]

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 to its low when 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 his or her portfolio included about 499 other stocks. Each of those stocks, however, would have been

[26] Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, 3rd ed., John Wiley & Sons, Inc., pp. 62–63 (2012).
[27] *See* Zvi Bodie, Alex Kane & Alan J. Marcus, *Essentials of Investments*, 9th ed., McGraw-Hill/Irwin, p. 149 (2013).

affected by various market risk factors that occurred that year. 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.[28] If someone irrationally invested all his or her funds in one firm, he or she would be exposed to all the firm-specific risk and the market risk inherent in that single firm. 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.[29]

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

[28] *See* John R. Graham, Scott B. Smart & William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do*, 3rd ed., South Western Cengage Learning, pp. 179–80 (2010).
[29] *See Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, at p. 64.

portfolio.[30] 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?

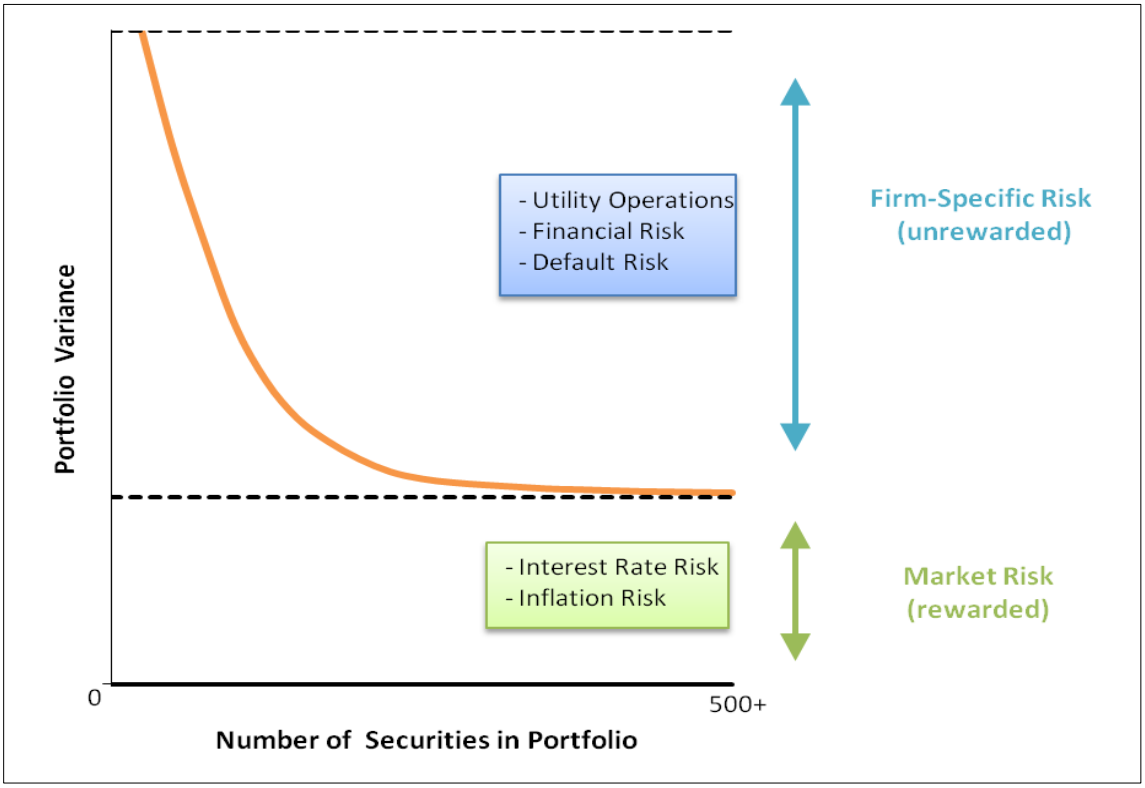
A. Yes. Because investors eliminate firm-specific risk through diversification, they know they cannot expect a higher return for assuming the firm-specific risk in any one company. Thus, the risks associated with an individual firm's operations are not rewarded by the market. In fact, firm-specific risk is also called "unrewarded" risk for this reason. Market risk, on the other hand, cannot be eliminated through diversification. Because market risk 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).[31]

These important concepts are illustrated in Figure DJG-3 below. Some form of this figure is found in many financial textbooks.

[30] *See id.*
[31] *See Corporate Finance: Linking Theory to What Companies Do*, at p. 180 (emphasis added).

Figure DJG-3:
Effects of Portfolio Diversification



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."[32] 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 1.0 are relatively more sensitive to market risk than the average stock. For example, if the market increases (or decreases) by 1.0%, a stock with a beta of 1.5 will, on average, increase (or decrease) by 1.5%. In contrast, stocks with betas of less than 1.0 are less sensitive to market risk, such that if the market increases (or decreases) by 1.0%, a stock with a beta of 0.5 will, on average, only increase (or decrease) by 0.5%. Thus, stocks with low betas are relatively insulated from market conditions. The beta term is used in the CAPM to estimate the cost of equity, which is discussed in more detail later.[33]

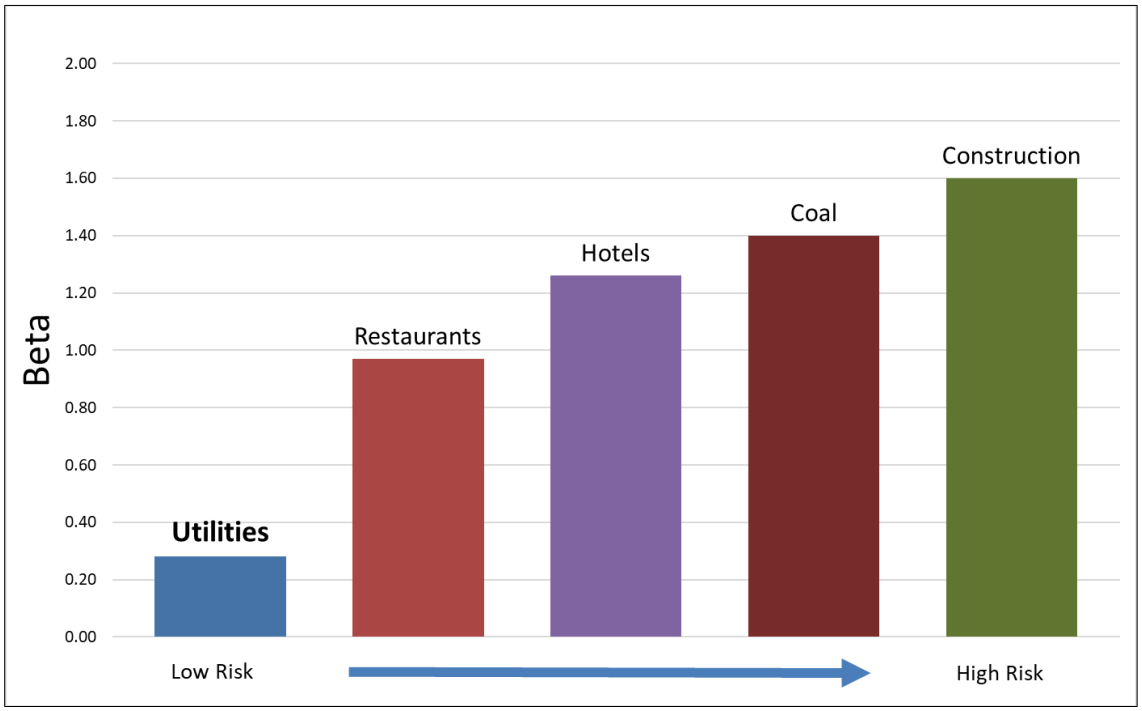
Q. ARE PUBLIC UTILITIES CHARACTERIZED AS DEFENSIVE FIRMS THAT HAVE LOW BETAS, LOW MARKET RISK, AND ARE RELATIVELY INSULATED FROM OVERALL MARKET CONDITIONS?

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."[34] Thus, cyclical firms are exposed to a greater level of market risk. Securities with betas less than one, on the other hand, are known as "defensive stocks." Companies in defensive industries, such as public

[32] *See id.* at pp. 180-81.
[33] Though it will be discussed in more detail later, WIEC Exhibit No. 301.10 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.
[34] *See Essentials of Investments*, at p. 382.

utility companies, "will have low betas and performance that is comparatively unaffected by overall market conditions."[35] In fact, financial textbooks often use utility companies as prime examples of low-risk, defensive firms.[36] Figure DJG-4 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.[37]

Figure DJG-4:
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

[35] *Id.* at p. 383.
[36] *See, e.g., id.* at p. 382.; *see also Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, at p. 196.
[37] *See* Betas by Sector (US), http://pages.stern.nyu.edu/~adamodar/. The exact beta calculations are not as important as illustrating the well-known fact that utilities are 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.

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 fluctuate widely. So, while it is preferable for utilities to be defensive firms that experience little market risk and relatively insulated from market conditions, this should also be appropriately reflected in RMP's awarded return.

VI. DCF ANALYSIS

Q. DESCRIBE THE DCF MODEL.

A. The 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 WIEC Exhibit No. 301.1.[38] For this case, I chose to use the Quarterly Approximation DCF Model because it accounts for the quarterly growth of dividends (as opposed to annual growth). I also used this variation of the DCF Model in the interest of reasonableness, as it produces the highest cost of equity estimates compared with the other DCF Model variations.

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

[38] WIEC Exhibit No. 301.1.

data, while the growth rate projection must be estimated. The formula is presented as follows:

Equation DJG-2:

Quarterly Approximation Discounted Cash Flow Model

$$K = \left[\frac{d_0(1+g)^{1/4}}{P_0} + (1+g)^{1/4}\right]^4 - 1$$

where: K = *discount rate / required return*
d_0 = *current quarterly dividend per share*
P_0 = *stock price*
g = *expected growth rate of future dividends*

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.[39] 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.[40] 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,

[39] WIEC Exhibit No. 301.5.
[40] *See* Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, Vol. 25, No. 2 The Journal of Finance, p. 383 (1970).

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.

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.[41]

[41] WIEC Exhibit No. 301.5. 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.

B. Dividend

Q. DESCRIBE HOW YOU DETERMINED THE DIVIDEND INPUT OF THE DCF MODEL.

A. The dividend term in the Quarterly Approximation DCF Model is the current quarterly dividend per share (d_0). I obtained the most recent quarterly dividend paid for each proxy company.[42] The Quarterly Approximation DCF Model assumes that the company increases its dividend payments each quarter. Thus, the model assumes that each quarterly dividend is greater than the previous one by $(1 + g)^{0.25}$. This expression could be described as the dividend quarterly growth rate, where the term "g" is the growth rate and the exponential term "0.25" signifies one quarter of the year.

Q. DOES THE QUARTERLY APPROXIMATION DCF MODEL RESULT IN THE HIGHEST COST OF EQUITY IN THIS CASE RELATIVE TO OTHER DCF MODELS, ALL ELSE HELD CONSTANT?

A. Yes. The Quarterly Approximation DCF Model I employed in this case results in a higher DCF cost of equity estimate than the annual or semi-annual DCF Models due to the quarterly compounding of dividends inherent in the model. In essence, the Quarterly Approximation DCF Model I used results in the highest cost of equity estimate, all else held constant.

[42] Nasdaq Dividend History, http://www.nasdaq.com/quotes/dividend-history.aspx.

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 that cost of capital models such as the CAPM and the DCF Model are well-suited to be used for 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 DCF input in utility rate cases. The DCF model used in this case is based on the constant 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 long-term growth rate. As stated above, one of the inherent assumptions of this model is that these cash flows in the form of dividends grow at a constant rate forever. Thus, the growth rate term in the constant growth DCF model is often called the "constant," "stable," or "terminal" growth rate. 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 terminal

growth rate is more transparent. The growth term of the DCF Model is one of the most important, yet apparently most misunderstood, aspects of cost of equity estimations in utility regulatory proceedings. Therefore, I have devoted a more detailed explanation of this issue in the following sections, which are organized as follows:

1) The Various Determinants of Growth
2) Reasonable Estimates for Long-Term Growth
3) Quantitative vs. Qualitative Determinants of Utility Growth: Circular References, "Flatworm" Growth, and the Problem with Analysts' Growth Rates
4) Growth Rate Recommendation

1. The various determinants of growth

Q. DESCRIBE THE VARIOUS DETERMINANTS OF GROWTH.

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 long-term growth rates, which are discussed in the following section. That is not to say that these growth determinants cannot be considered when estimating long-term growth; however, as discussed below, long-term 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 source of confusion in this area.

a. Historical growth

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. In general, however, revenue growth tends to be more consistent and predictable than earnings growth because it is less likely to be influenced by accounting adjustments.[43]

b. Analyst growth rates

Analyst growth rates refer short-term projections of earnings growth published by institutional research analysts such as Value Line and Bloomberg. A more detailed discussion of analyst growth rates, including the problems with using them in the DCF Model to estimate utility cost of equity, is provided in a later section.

c. Fundamental determinants of growth

Fundamental growth determinants refer to firm-specific financial metrics that arguably provide better indications of near-term sustainable growth. One such metric for fundamental growth considers the return on equity and the retention ratio. The idea behind this metric is that firms with high ROEs and retention ratios should have greater opportunities for growth.[44]

[43] *See Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, at p. 279.
[44] *Id.*

Q. DID YOU USE ANY OF THESE GROWTH DETERMINANTS IN YOUR DCF MODEL?

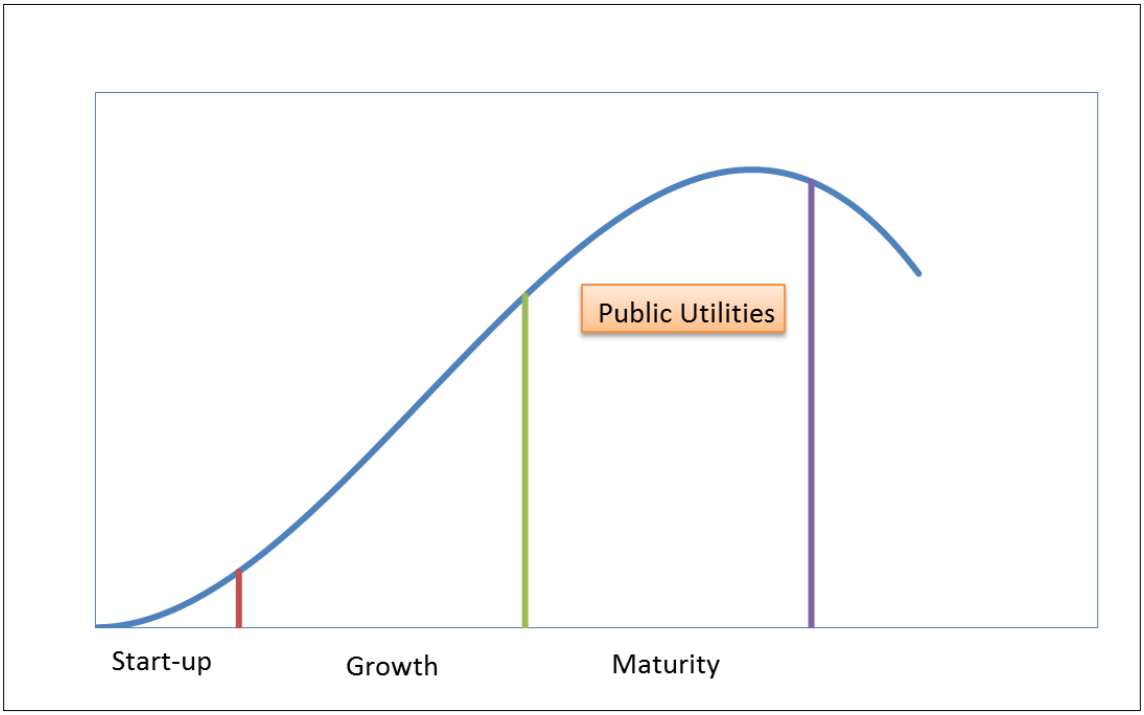
A. No. Primarily, these growth determinants discussed above would provide better indications of short- to mid-term growth for firms with average to high growth opportunities. Utilities, however, are mature, low-growth firms. While it may not be unreasonable on its face to use any of these growth determinants for the growth input in the DCF Model, we must keep in mind that the stable growth DCF Model considers only long-term growth rates, which are constrained by certain economic factors, as discussed further below.

2. Reasonable estimates for long-term growth

Q. DESCRIBE WHAT IS MEANT BY LONG-TERM GROWTH.

A. 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 constant. 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 "terminal," 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. Figure DJG-5 below illustrates the well-known business / industry life-cycle pattern.

Figure DJG-5:
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 terminal, long-term growth rate. Because utilities are in their maturity stage, their real growth opportunities are primarily limited to the population growth within their defined service territories, which is usually less than 2%.

Q. IS IT TRUE THAT THE TERMINAL GROWTH RATE CANNOT EXCEED THE GROWTH RATE OF THE ECONOMY, ESPECIALLY FOR A REGULATED UTILITY COMPANY?

A. Yes. 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.[45] Thus, the terminal 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."[46]

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 Budget Outlook, the long-term forecast for nominal U.S. GDP growth is about 4%, which includes an inflation rate of 2%.[47] For mature companies in mature industries, such as utility companies, the terminal growth rate

[45] *See id.* at p. 306.
[46] *Id.*
[47] Congressional Budget Office Long-Term Budget Outlook, https://www.cbo.gov/publication/51580.

will likely fall between the expected rate of inflation and the expected rate of nominal GDP growth. Thus, RMP's terminal growth rate is between 2% and 4%.

Q. IS IT REASONABLE TO ASSUME THAT THE TERMINAL GROWTH RATE WILL NOT EXCEED THE RISK-FREE RATE?

A. Yes. In the long term, the risk-free rate will converge on the growth rate of the economy. For this reason, financial analysts sometimes use the risk-free rate for the terminal growth rate value in the DCF model.[48] I discuss the risk-free rate in further detail later in this testimony.

Q. PLEASE SUMMARIZE THE VARIOUS LONG-TERM GROWTH RATE ESTIMATES THAT CAN BE USED AS THE TERMINAL GROWTH RATE IN THE DCF MODEL.

A. The reasonable long-term growth rate determinants are summarized as follows:

1) Inflation
2) Real GDP Growth
3) Current Risk-Free Rate
4) Nominal GDP Growth

Any of the foregoing growth determinants could provide a basis for a reasonable input for the terminal growth rate in the DCF Model for a utility company, including RMP. In general, we should expect that utilities will, at the very least, grow at the rate of projected inflation. However, the long-term growth rate of any U.S. company, especially utilities, will be constrained by nominal U.S. GDP growth.

[48] *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, at p. 307.

3. Qualitative growth: the problem with analysts' growth rates

Q. DESCRIBE THE DIFFERENCES BETWEEN "QUANTITATIVE" AND "QUALITATIVE" GROWTH DETERMINANTS.

A. Assessing "quantitative" growth simply involves mathematically calculating a historic metric for growth (such as revenues or earnings) or calculating various fundamental growth determinants using certain figures from a firm's financial statements (such as ROE and the retention ratio). However, any thorough assessment of company growth should be based upon a "qualitative" analysis. Such an analysis would consider specific strategies that company management will implement to achieve real sustainable growth in earnings. Therefore, it is important to begin the analysis of RMP's growth rate with this simple, qualitative question: how is this regulated utility going to achieve a real sustained growth in earnings? If this question were asked of a competitive firm, there could be several answers depending on the type of business model, such as launching a new product line, franchising, rebranding to target a new demographic, or expanding into a developing market. Regulated utilities, however, cannot engage in these potential growth opportunities. That is why it is not surprising to see low load growth, ratepayer growth, and related projections in utilities' integrated resource plans.

Q. WHY IS IT ESPECIALLY IMPORTANT TO EMPHASIZE REAL, QUALITATIVE GROWTH DETERMINANTS WHEN ANALYZING WHETHER A GROWTH RATE IS FAIR FOR A REGULATED UTILITY?

A. While qualitative growth analysis is important regardless of the entity being analyzed, it is especially important in the context of utility ratemaking. This is because the rate base rate of return model inherently possesses two factors that can contribute to distorted views of

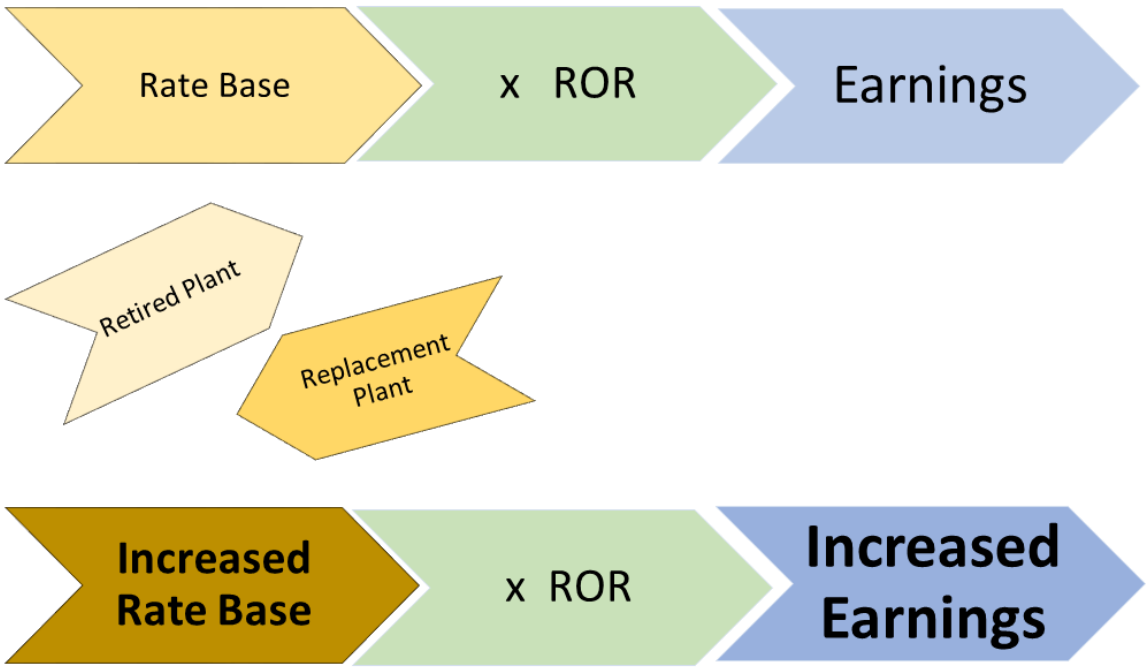
utility growth when considered exclusively from a quantitative perspective. These two factors are: (1) rate base and (2) the awarded ROE. I will discuss each factor further below. It is important to keep in mind that the ultimate objective of this analysis is to provide a foundation upon which to base the fair rate of return for the utility. Thus, we should strive to ensure that each individual component of the financial models used to estimate the cost of equity are also fair. If we consider only quantitative growth determinants, it may lead to projected growth rates that are overstated and ultimately unfair, because they result in inflated cost of equity estimates.

Q. HOW DOES RATE BASE RELATE TO GROWTH DETERMINANTS FOR UTILITIES?

A. Under the rate base rate of return model, a utility's rate base is multiplied by its awarded rate of return to produce the required level of operating income. Therefore, increases to rate base generally result in increased earnings. Thus, utilities have a natural financial incentive to increase rate base. In short, utilities have a financial incentive to increase rate base regardless of whether such increases are driven by a corresponding increase in demand. A good, relevant example of this is seen in the early retirement of old, but otherwise functional coal plants in response to environmental regulations and replacing them with new generation assets. Under these circumstances, utilities have been able to increase their rate bases by a far greater extent than what any concurrent increase in demand would have required. In other words, utilities grew their earnings by simply retiring old assets and replacing them with new assets. This is not "real" or "sustainable" growth. If the tail of a flatworm is removed and regenerated, it does not mean the flatworm actually grew. Likewise, if a competitive, unregulated firm announced plans to close production

plants and replace them with new plants, it would not be considered a real determinant of growth unless analysts believed this decision would directly result in increased market share for the company and a real opportunity for sustained increases in revenues and earnings. In the case of utilities, the mere replacement of "old plant" with "new plant" does not increase market share, attract new ratepayers, create franchising opportunities, or allow utilities to penetrate developing markets, but may result in short-term, quantitative earnings growth. However, this "flatworm growth" in earnings was merely the quantitative byproduct of the rate base rate of return model, and not an indication of real or qualitative growth and, therefore, using that data alone to estimate a growth rate is not fair. The following diagram in Figure DJG-6 illustrates this concept.

Figure DJG-6:
Analysts' Earnings Growth Projections: The "Flatworm Growth" Problem

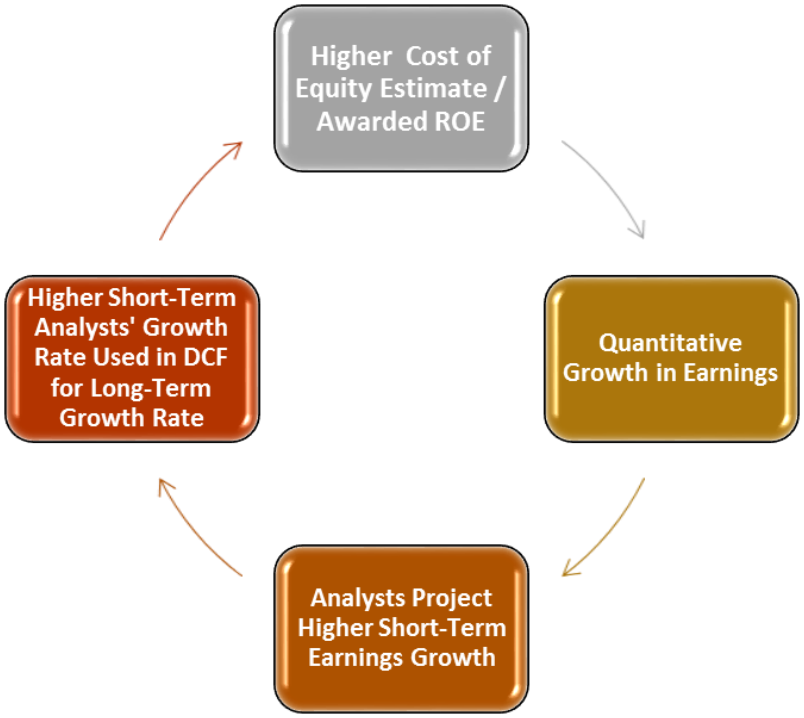


Of course, utilities might sometimes add "new plant" to meet a modest growth in ratepayer demand. However, as the foregoing discussion demonstrates, it would be more appropriate to consider load growth projections and other qualitative indicators, rather than mere increases to rate base or earnings, to attain a fair assessment of growth.

Q. PLEASE DISCUSS THE OTHER WAY IN WHICH ANALYSTS' EARNINGS GROWTH PROJECTIONS DO NOT PROVIDE INDICATIONS OF REAL, QUALITATIVE GROWTH FOR REGULATED UTILITIES.

A. If we give undue weight to analysts' projections for utilities' earnings growth, it will not provide an accurate reflection of real, qualitative growth because a utility's earnings are heavily influenced by the ultimate figure that all this analysis is supposed to help us estimate: the awarded return on equity. This creates a circular reference problem or feedback loop. In other words, if a regulator awards an ROE that is above market-based cost of capital (which is often the case, as discussed above), this could lead to higher short-term growth rate projections from analysts. If these same inflated, short-term growth rate estimates are used in the DCF Model (as they often are by utility witnesses), it could lead to higher awarded ROEs; and the cycle continues, as illustrated in Figure DJG-7, below.

Figure DJG-7:
Analysts' Earnings Growth Projections: The "Circular Reference" Problem



Therefore, it is not advisable to simply consider the quantitative growth projections published by analysts, as this practice will not necessarily provide fair indications of real, sustainable utility growth.

Q. ARE THERE ANY OTHER PROBLEMS WITH RELYING ON ANALYSTS' GROWTH PROJECTIONS?

A. Yes. While the foregoing discussion shows two reasons why we cannot rely on analysts' growth rate projections to provide fair, qualitative indicators of utility growth in a stable growth DCF Model, the third reason is perhaps the most obvious and undisputable. Various institutional analysts—such as Zacks, Value Line, and Bloomberg—publish estimated projections of earnings growth for utilities. These estimates are short-term growth rate projections, ranging from 3 to 10 years. However, many utility ROE analysts

inappropriately insert these short-term growth projections into the DCF Model as if they were long-term growth rate projections. For example, assume that an analyst at Bloomberg estimates that a utility's earnings will grow by 7% per year over the next 3 years. This analyst may have based this short-term forecast on a utility's plans to replace depreciated rate base (*i.e.*, "flatworm" growth) or on an anticipated awarded return that is above market-based cost of equity (*i.e.*, the "circular reference" problem). When a utility witness uses this figure in a DCF Model, however, it is the witness, not the Bloomberg analyst, that is testifying to the regulator that the utility's earnings will qualitatively grow by 7% per year over the long-term, which is an unrealistic assumption and a fundamentally different conclusion than that of the Bloomberg analyst.

4. Long-term growth rate recommendation

Q. DESCRIBE THE GROWTH RATE INPUT USED IN YOUR DCF MODEL.

A. I considered various qualitative determinants of growth for RMP, along with the maximum allowed growth rate under basic principles of finance and economics. The following chart in Figure DJG-8 shows three of the long-term growth determinants discussed in this section.[49]

[49] WIEC Exhibit No. 301.7.

Figure DJG-8:
Terminal Growth Rate Determinants

Growth Determinants	Rate
Nominal GDP	3.9%
Inflation	2.0%
Risk Free Rate	1.4%
Highest	**3.9%**

For the long-term growth rate in my DCF model, I selected the maximum, reasonable long-term growth rate of 3.9%, which means my model assumes that RMP's qualitative growth in earnings will qualitatively match the nominal growth rate of the entire U.S. economy over the long run – a charitable assumption. As the following discussion will show, there are several qualitative growth determinants specific to RMP that indicate the Company's real growth over the long run will be less than 4%.

Q. PLEASE COMPARE THE MARKET-BASED GROWTH DETERMINANTS YOU HAVE DISCUSSED, AS WELL OTHER SPECIFIC GROWTH DETERMINANTS PROVIDED BY THE COMPANY.

A. As discussed above, there are several reasonable long-term growth rate determinants that could be used in the DCF Model to estimate RMP's cost of equity, including nominal GDP, inflation, and the risk-free rate. In addition, there are several other factors we could consider to assess the qualitative long-term growth rate for RMP. These factors include RMP's own historical and projected growth rates for total load, total ratepayers, energy sales, and population within the Company's service territory. These factors have analytical value because they provide better indications of "real" qualitative growth for RMP and

avoid the circular reference problem created by using analysts' short-term, quantitative growth rates. Figure DJG-9 below summarizes two of RMP's key growth determinant projections.[50]

Figure DJG-9:
Other Qualitative Growth Determinants for RMP

RMP Growth Determinants	Rate
Total Retail Load Growth (2020 - 2039)	0.1%
Total Customers (2020 - 2039)	0.6%
Average	**0.4%**

As shown in Figure DJG-9, RMP's own projections for these growth determinants are all less than 1%. Even if we rounded up our qualitative growth estimate to 1% and added inflation of 2%, it would result in a reasonable, qualitative long-term growth rate of only 3%. In my experience, many other regulated utilities project similarly low growth rates for the same type of company-specific growth determinants such as load growth and ratepayer growth. Thus, my use of a 3.9% long-term growth rate for the proxy group is conservative and reasonable.

Q. PLEASE DESCRIBE THE FINAL RESULTS OF YOUR DCF MODEL.

A. I used the Quarterly Approximation DCF Model discussed above to estimate RMP's cost of equity capital. I obtained an average of reported dividends and stock prices from the proxy group, and I used a reasonable terminal growth rate estimate for RMP. My DCF

[50] *Id.*

Model cost of equity estimate for RMP is 7.7%.[51] As noted above, this estimate is likely at the higher end of a reasonable range due to my relatively high estimate for the long-term growth rate. That is, my long-term growth rate input of 3.9% far exceeds any of RMP's qualitative growth factors discussed above, and it assumes RMP will grow at the same rate as the U.S. economy over the long run, which is a generous assumption.

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. Ms. Bulkley's DCF Model produced cost of equity results as high as 12.71%.[52] As mentioned earlier, the results of Ms. Bulkley's DCF Model are overstated because of a fundamental error regarding her growth rate inputs.

Q. DESCRIBE THE PROBLEMS WITH MS. BULKLEY'S ASSUMED LONG-TERM GROWTH INPUT.

A. Ms. Bulkley assumes long-term growth rates in her proxy group as high as 10.5%,[53] which is more than two and a half 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 relies on short-term, quantitative growth estimates published by analysts to

[51] WIEC Exhibit No. 301.8.
[52] Exhibit RMP__(AEB-3).
[53] *Id.*

support her assumptions. 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 assumes a long-term growth rate estimate of 10.5% for CenterPoint Energy, Inc.[54] This means that an analyst at Value Line apparently thinks that Exelon's earnings will quantitatively increase by 10.5% each year over the next several years (*i.e.*, the short-term). However, it is Ms. Bulkley, not the Value Line analyst, who is suggesting to the Commission that Exelon's earnings will grow by more than twice the amount of U.S. GDP every year for many decades into the future (*i.e.*, long-term growth).[55] Again, Ms. Bulkley is extrapolating the analyst's conclusions well beyond what the analyst actually said. Furthermore, this assumption is simply not realistic, and it contradicts fundamental concepts of long-term growth. Many of Ms. Bulkley's other short-term growth rate estimates also exceed projected U.S. GDP growth.[56]

Q. DO MS. BULKLEY'S LONG-TERM GROWTH RATE ESTIMATES CONTRADICT REAL GROWTH INDICATORS FOR RMP?

A. Yes. Ms. Bulkley's long-term growth estimates do not reflect RMP's own projections and historical experience for several real-growth indicators. As discussed above, when we look at RMP's own projected growth for total retail load and total ratepayers, which are both less than 1%, we see that RMP will be unlikely to experience any real growth beyond inflation over the long run, or the short run for that matter.[57] Thus, the results of Ms.

[54] *Id.*
[55] *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.
[56] *Id.*
[57] WIEC Exhibit No. 301.7.

Bulkley's DCF Model are upwardly biased and are not reflective of current market conditions.

Q. NOTWITHSTANDING YOUR STATED CONCERNS, DID THE RESULTS OF ANY OF MS. BULKLEY'S DCF MODEL VARIATIONS FALL WITHIN YOUR RECOMMENDED RANGE FOR THE AWARDED ROE?

A. Yes. Ms. Bulkley lists several DCF Model results using various assumptions in her exhibits.[58] For her constant growth DCF model, she calculates nine different results.[59] These results range from 7.47% to 9.49%, and include six results that fall within my recommended range of 7.5% to 9.0% for the Company's awarded ROE.[60] To be clear, it would be reasonable for the Commission to award the Company with an ROE that is equal to any of these six results from Ms. Bulkley's constant growth DCF model, which also fall within my recommended range for the awarded ROE. Specifically, these DCF results are 7.47%, 7.53%, 7.59%, 8.38%, 8.43%, and 8.5%.[61] Although I do not believe that any of these results represent reasonable estimates of the Company's cost of equity, and I do not necessarily agree with Ms. Bulkley's assumptions or inputs to her DCF models (particularly the growth rate), I would agree that any of these results would represent a reasonable awarded ROE for RMP in this case.

[58] Exhibit RMP___(AEB-3).
[59] *Id.* Using the total proxy group, including low ROE, Mean ROE, and high ROE results.
[60] *Id.* With the result of 7.47% rounded up to 7.5%.
[61] *Id.*

VII. CAPM ANALYSIS

Q. DESCRIBE THE CAPM.

A. The CAPM is a market-based model founded on the principle that investors expect higher returns for incurring additional risk.[62] The CAPM estimates this expected return. The various assumptions, theories, and equations involved in the CAPM are discussed further in WIEC Exhibit No. 301.2.[63] 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,[64] and that "the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks."[65] The CAPM is a useful model because it directly considers the amount of risk inherent in a business. It is arguably the strongest of the models usually presented in rate cases because, unlike the DCF Model, 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. Here is the CAPM formula:

[62] William F. Sharpe, *A Simplified Model for Portfolio Analysis*, Management Science IX, pp. 277–93 (1963).
[63] WIEC Exhibit No. 301.2.
[64] *Wilcox*, 212 U.S. at 48.
[65] *Hope Natural Gas Co.*, 320 U.S. at 603.

Equation DJG-3:
Cost of Equity = Risk-free Rate + (Beta × Equity Risk Premium)

Each input is discussed separately below.

A. <u>The Risk-Free Rate</u>

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 1.45%.[66]

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 (or less) than one is more (or 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 1.0 are relatively more sensitive to market risk than the average stock. For example, if the market increases (or decreases) by 1.0%, a stock with a beta of 1.5 will, on average, increase (or decrease) by 1.5%. In contrast, stocks with betas of less than 1.0 are less sensitive to market risk. For example, if the market increases (or decreases) by 1.0%, a stock with a beta of 0.5 will, on average, only increase (or decrease) by 0.5%.

[66] WIEC Exhibit No. 301.9.

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 used in Ms. Bulkley's proxy group 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 to be conservative.[67]

C. The ERP

Q. DESCRIBE THE ERP.

A. The final term of the CAPM is the 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."[68] Likewise, the ERP is arguably the single most important factor in estimating the cost of capital in this matter. There are three basic methods that can be used to estimate the ERP: (1) calculating a historical average; (2) taking a survey of experts; and (3) calculating the implied ERP. I will discuss each method in turn, noting advantages and disadvantages of these methods.

[67] WIEC Exhibit No. 301.10; *see also* WIEC Exhibit No. 301.2 for a more detailed discussion of raw beta calculations and adjustments.
[68] Elroy Dimson, Paul Marsh & Mike Staunton, *Triumph of the Optimists: 101 Years of Global Investment Returns*, Princeton University Press, p. 4 (2002).

1. Historical average

Q. DESCRIBE THE HISTORICAL ERP.

A. The historical ERP may be calculated by simply taking the difference between returns on stocks and returns on government bonds over a certain period of time. Many practitioners rely on the historical ERP as an estimate for the forward-looking ERP because it is easy to obtain. However, there are disadvantages to relying on the historical ERP.

Q. WHAT ARE THE LIMITATIONS OF RELYING SOLELY ON A HISTORICAL AVERAGE TO ESTIMATE THE CURRENT OR FORWARD-LOOKING ERP?

A. Many investors use the historic ERP because it is convenient and easy to calculate. What matters in the CAPM model, however, is not the actual risk premium from the past, but rather the current and forward-looking risk premium.[69] Some investors may think that a historic ERP provides some indication of the prospective risk premium; however, there is empirical evidence to suggest the prospective, forward-looking ERP is actually lower than the historical ERP. In a landmark publication on risk premiums around the world, *Triumph of the Optimists*, the authors suggest through extensive empirical research that the prospective ERP is lower than the historical ERP.[70] This is due in large part to what is known as "survivorship bias" or "success bias" – a tendency for failed companies to be excluded from historical indices.[71] From their extensive analysis, the authors make the following conclusion regarding the prospective ERP: "[t]he result is a forward-looking, geometric mean risk premium for the United States . . . of around 2½ to 4 percent and an

[69] *See Corporate Finance: Linking Theory to What Companies Do*, at p. 330.
[70] *See id.* at p.194.
[71] *Triumph of the Optimists: 101 Years of Global Investment Returns*, at p. 34.

arithmetic mean risk premium . . . that falls within a range from a little below 4 to a little above 5 percent."[72] Indeed, these results are lower than many reported historical risk premiums. Other noted experts agree:

> The historical risk premium obtained by looking at U.S. data is biased upwards because of survivor bias. . . . The true premium, it is argued, is much lower. This view is backed up by a study of large equity markets over the twentieth century (*Triumph of the Optimists*), which concluded that the historical risk premium is closer to 4%.[73]

Regardless of the variations in historic ERP estimates, many scholars and practitioners agree that simply relying on a historic ERP to estimate the risk premium going forward is not ideal. Fortunately, "a naïve reliance on long-run historical averages is not the only approach for estimating the expected risk premium."[74]

Q. DID YOU RELY ON THE HISTORICAL ERP AS PART OF YOUR CAPM ANALYSIS IN THIS CASE?

A. No. Due to the limitations of this approach, I relied on the ERP reported in expert surveys and the implied ERP method discussed below.

2. <u>Expert surveys</u>

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. Graham and

[72] *Id.* at p. 194.
[73] Aswath Damodaran, *Equity Risk Premiums: Determinants, Estimation and Implications – The 2015 Edition*, New York University, p. 17 (2015).
[74] *See Corporate Finance: Linking Theory to What Companies Do*, at p. 330.

Harvey have performed such a survey regularly since 1996. In their 2018 survey, they found that experts around the country believe the current ERP is only 4.4%.[75] The IESE Business School conducts a similar expert survey. Their 2020 expert survey reported an average ERP of 5.6%.[76]

3. Implied ERP

Q. DESCRIBE THE IMPLIED ERP 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.[77] 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}). Similarly, 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

[75] *Id.* at p. 3.
[76] Pablo Fernandez, Pablo Linares & Isabel F. Acin, *Market Risk Premium used in 171 Countries in 2016: A Survey with 6,932 Answers*, IESE Business School, p. 3 (2015), 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 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.
[77] Myron J. Gordon and Eli Shapiro, *Capital Equipment Analysis: The Required Rate of Profit*, Management Science Vol. 3, No. 1, p. 102–10 (Oct. 1956).

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 implied return is calculated. Since the current value of the S&P is known, we can solve for K: the implied market return.[78]

Equation DJG-4:
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

[78] *See* WIEC Exhibit No. 301.11 for detailed calculation.

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 DJG-5:
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 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 7.4%. I subtracted the risk-free rate to arrive at the implied equity risk premium of 6.0%.[79] 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 July 2020 using several implied ERP variations was 5.3%.[80]

Q. DID DR. DAMODARAN ALSO POST A "COVID ADJUSTED" ERP ESTIMATE?

A. Yes. In addition to the several standard ERPs reported by Dr. Damodaran, he has been posting monthly "COVID Adjusted" ERPs. For July 2020, the COVID Adjusted ERP was only 5.23%, which is notably less than the ERP I used in my analysis. All else held

[79] *Id.*
[80] Damodaran Online, New York University, http://pages.stern.nyu.edu/~adamodar/. Dr. Damodaran conducts several variations of the implied ERP analysis using various assumptions. The figure I incorporated into my analysis is based on an average of the results of his several implied ERP variations.

constant, a lower ERP will produce a lower CAPM cost of equity estimate.[81] So, again, my recommendations are reasonable if not on the high end, under the current circumstances.

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 Duff & Phelps.[82] The results are presented in the following figure:

Figure DJG-10:
Equity Risk Premium Results

IESE Business School Survey	5.6%
Graham & Harvey Survey	4.4%
Duff & Phelps Report	6.0%
Damodaran	5.7%
Damodaran (COVID Adjusted)	5.2%
Garrett	6.0%
Average	**5.5%**
Highest	**6.0%**

While it would be reasonable to select any one of these ERP estimates to use in the CAPM, to be conservative, I selected the highest ERP estimate of 6.0% to use in my CAPM

[81] *Id.* The "COVID Adjusted" EPR assumes a 25% earnings drop in 2020, plus 80% recovery by 2025 with a lower percent returned in cash flows.
[82] WIEC Exhibit No. 301.12.

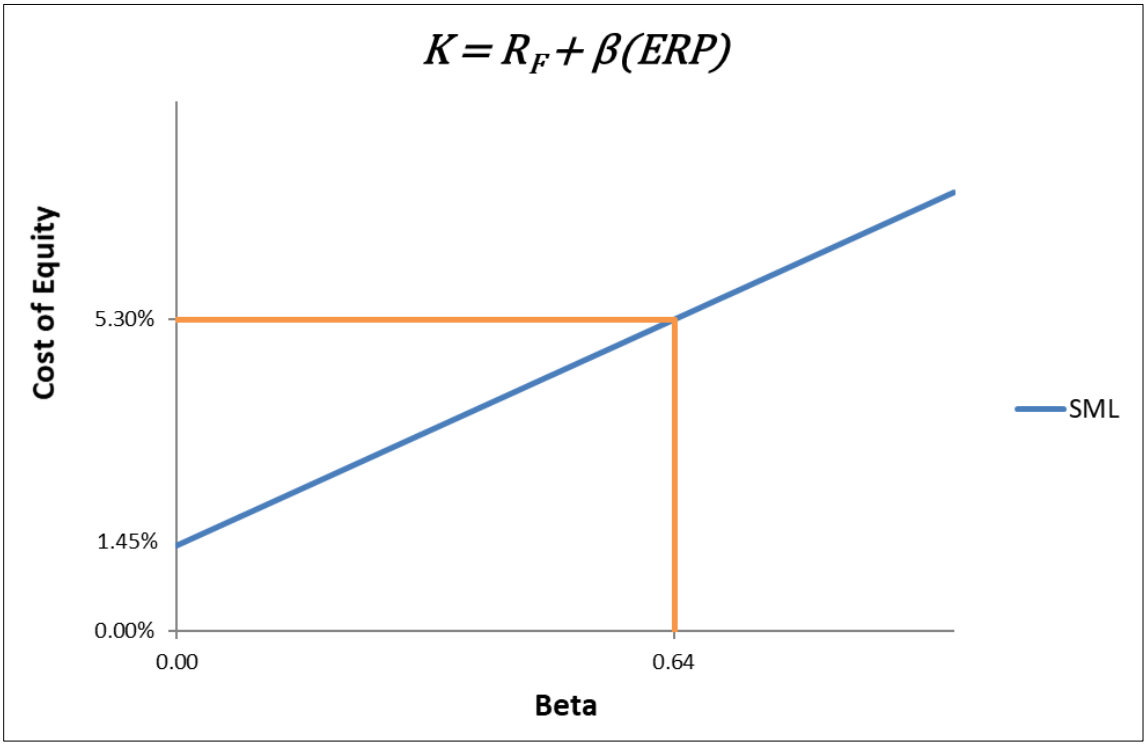
analysis. All else held constant, a higher ERP used in the CAPM will result in a higher cost of equity estimate.

Q. PLEASE EXPLAIN THE FINAL RESULTS OF YOUR CAPM ANALYSIS.

A. Using the inputs for the risk-free rate, beta coefficient, and ERP discussed above, I estimate that RMP's CAPM cost of equity is 5.3%.[83] 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.

[83] WIEC Exhibit No. 301.13.

Figure DJG-11:
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 0.64 for the proxy group, the estimated CAPM cost of equity for RMP is 5.3%.

D. Response to Ms. Bulkley's CAPM Analysis

Q. MS. BULKLEY'S CAPM ANALYSIS YIELDS CONSIDERABLY HIGHER RESULTS. DID YOU FIND SPECIFIC PROBLEMS WITH MS. BULKLEY'S CAPM ASSUMPTIONS AND INPUTS?

A. Yes, I did. Ms. Bulkley's CAPM cost of equity results are as high as 10.32%,[84] which is considerably higher than my estimate. Again, the primary problems with Ms. Bulkley's CAPM cost of equity result stems from her estimates for the risk-free rate and the ERP. These issues are discussed further below.

1. Risk-free rate

Q. DESCRIBE MS. BULKLEY'S ESTIMATE FOR THE RISK-FREE RATE.

A. Ms. Bulkley considered several estimates of the risk-free rate, including current (at the time she conducted the analysis) yields on 30-year U.S. Treasury bonds and several forecasted bond yields.[85] Her risk-free rate estimates include 2.25%, 2.48%, and 3.2%.[86]

Q. DO YOU AGREE WITH ANY OF MS. BULKLEY'S ESTIMATES FOR THE RISK-FREE RATE?

A. No. The risk-free rate is best estimated by considering the current yields on 30-year Treasury Bonds. Out of several of Ms. Bulkley's risk-free rate estimates, one of those was based on the current yields on Treasury Bonds at the time Ms. Bulkley conducted her analysis (2.25%).[87] Since that time, however, the yields on Treasury Bonds have declined.

[84] Exhibit RMP___(AEB-5).
[85] Direct Testimony of Ann E. Bulkley, p. 49, lines 5–9.
[86] Exhibit RMP___(AEB-5).
[87] *Id.*

A more recent, 30-day average yield on Treasury Bonds provides a risk-free rate of only 1.45%.[88] Moreover, I disagree with Ms. Bulkley's reliance on projected bond yields. I have reviewed dozens of cost of capital testimonies filed by utility witnesses dating back many years. I cannot recall a single instance in which a utility ROE witness relied on a forward-looking projection that, all else held constant, did not have an increasing effect on his or her ROE recommendation relative to then-current market conditions. After observing this tactic numerous times, I cannot help but view Ms. Bulkley's projected bond yield estimates as upwardly biased. More pertinently, we could look at Ms. Bulkley's bond yield projections from prior cases to see if her predictions were accurate. In Southwestern Public Service Company's 2019 rate case in New Mexico, Ms. Bulkley projected that the 30-year U.S. Treasury bond yield for 2019-2020 would be 3.06%.[89] In reality, the current yield is less than half of her projection. This is a significant discrepancy, and it calls into question the accuracy of Ms. Bulkley's predictions in this case.

2. Equity risk premium

Q. DID MS. BULKLEY RELY ON A REASONABLE MEASURE FOR THE ERP?

A. No, she did not. Ms. Bulkley used an input as high as 11.77% for the ERP, which is not realistic.[90] 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

[88] WIEC Exhibit No. 301.9.
[89] *In the Matter of Southwestern Public Service Company's Application for: (1) Revision of its Retail Rates Under Advice Notice No. 252; (2) Authorization and Approval to Shorten the Service Life of and Abandon its Tolk Generating Station Units; and (3) Other Related Relief*, New Mexico Pub. Regulation Comm'n Case No. 19-00170-UT, Direct Testimony of Ann E. Bulkley, p. 68, lines 11–12.
[90] Exhibit RMP___(AEB-5).

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 highest ERP found from my research and analysis is only 6.0%. This means that Ms. Bulkley's ERP is nearly two times greater than the highest reasonable ERP that I could find or calculate, and more than twice as high as the average ERP reported by thousands of other experts across the country.[91]

Q. WHY IS MS. BULKLEY'S ERP SO MUCH HIGHER THAN THE ERPS ESTIMATED AND REPORTED BY THOUSANDS OF SURVEY RESPONDENTS AND OTHER EXPERTS AROUND THE COUNTRY?

A. Instead of relying on one of the three reasonable approaches for estimating the ERP discussed above, Ms. Bulkley instead chose to essentially conduct a DCF analysis on every company in the S&P 500. This means that Ms. Bulkley made 505 separate growth rate inputs for each company in her market portfolio. If her growth inputs for each company were reasonable, then Ms. Bulkley's model could theoretically produce reasonable results for the ERP. But many of Ms. Bulkley's growth rate inputs were not realistic. For example, Ms. Bulkley estimated a long-term growth rate of 80% for Arconic, Inc.[92] In 2019, Arconic reported earnings of $225 million.[93] If we apply Ms. Bulkley's 80% annual growth rate to Arconic's 2019 earnings, in only 25 years Arconic's earnings would be $542 trillion, which would dwarf the GDP of the entire planet. In reality, it is virtually impossible for any company to grow by 80% per year over the long run. That level of

[91] WIEC Exhibit No. 301.12.
[92] Exhibit RMP___(AEB-5).
[93] Arconic Corporation (ARNC), Yahoo Finance (retrieved July 21, 2020), https://finance.yahoo.com/quote/ARNC/financials?p=ARNC.

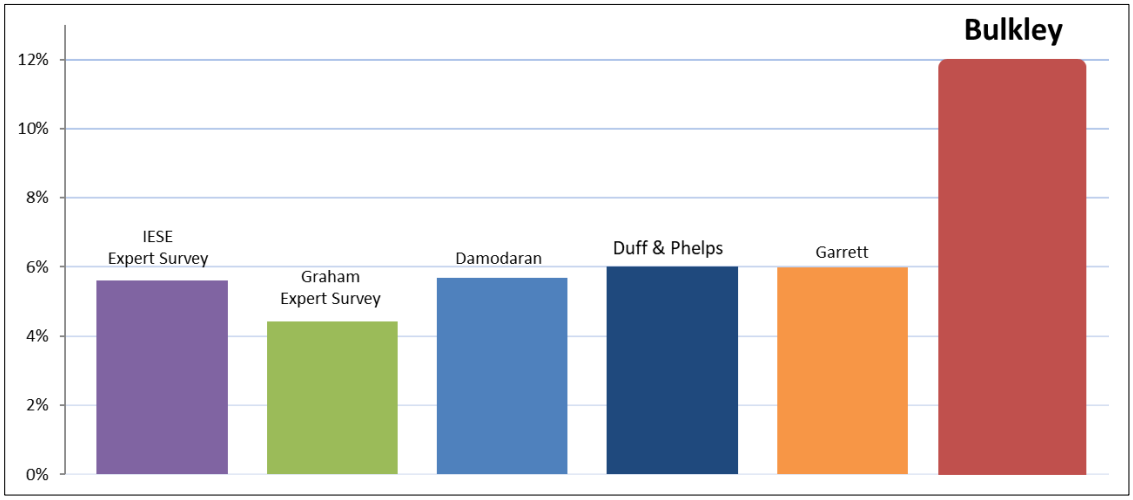
annual growth is simply not possible to sustain for any company. Many of Ms. Bulkley's other long-term growth estimates are similarly too high to be considered realistic, and thus, the Commission should discount her ERP estimate and resulting CAPM results. This example also highlights why it is important not to overestimate long-term growth rates in any financial model.

Q. PLEASE DISCUSS AND ILLUSTRATE HOW MS. BULKLEY'S ERP COMPARES WITH OTHER ESTIMATES FOR THE ERP.

A. As discussed above, Graham and Harvey's 2018 expert survey reports an average ERP of 4.4%. The 2020 IESE Business School expert survey reports an average ERP of 5.6%. Similarly, Duff & Phelps recently estimated an ERP of 6.0%. Dr. Damodaran, one of the leading experts on the ERP, recently estimated an average ERP of only 5.7%.[94] The following chart in Figure DJG-12 illustrates that Ms. Bulkley's ERP estimate is far out of line with other reasonable, objective estimates for the ERP.[95]

[94] Damodaran Online, http://pages.stern.nyu.edu/~adamodar/. Dr. Damodaran estimates several ERPs using various assumptions.
[95] The ERP estimated by Dr. Damodaran is the average of several ERP estimates under slightly differing assumptions.

Figure DJG-12:
Equity Risk Premium Comparison



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

Q. DOES MS. BULKLEY'S ECAPM ANALYSIS SUFFER FROM THE SAME UNREALISTIC ERP?

A. Yes. Ms. Bulkley's ECAPM is based on the theory that the beta coefficient tends to underestimate low-beta stocks.[96] First, there is evidence that contradicts this claim.[97] Moreover, however, slight adjustments in the beta term have a relatively insignificant impact when compared with an ERP estimate that is more than twice as high as other objective estimates. Since Ms. Bulkley uses the same ERP for her CAPM and ECAPM analyses, the Commission should discount her ECAPM analysis for the same reason it should reject her CAPM analysis.

[96] Direct Testimony of Ann E. Bulkley, p. 54, lines 14–16.
[97] WIEC Exhibit No. 301.2.

3. Bond yield plus risk premium analysis

Q. DID YOU REVIEW MS. BULKLEY'S BOND YIELD PLUS RISK PREMIUM ANALYSIS?

A. Yes. Many utility ROE witnesses, including Ms. Bulkley in this case, conduct what they call a "bond yield plus risk premium analysis." In short, this analysis simply compares the difference between awarded ROEs in the past with bond yields.

Q. DO YOU AGREE WITH THE RESULTS OF MS. BULKLEY'S BOND YIELD PLUS RISK PREMIUM ANALYSIS?

A. No. Not only do I disagree with the results of Ms. Bulkley's risk premium analysis, I also disagree with the entire premise of the analysis. According to Ms. Bulkley, she "used actual authorized returns for electric utility companies as the historical measure of the cost of equity to determine the risk premium."[98] Indeed, Ms. Bulkley's risk premium model relies upon awarded ROEs dating back to 1992[99] – a time when both awarded ROEs and capital costs were much higher. Ms. Bulkley's decision to rely on decades-old data is curious in light of her acknowledgement that "[i]t is important to consider the results of a variety of ROE estimation models, using forward-looking assumptions to estimate the cost of equity."[100] Furthermore, many of the authorized ROEs that Ms. Bulkley uses in her risk premium model likely resulted from settlements and are even further detached from market-based cost of equity than litigated ROEs. Given the reality that awarded ROEs have consistently exceeded utility market-based cost of equity for decades, any model that

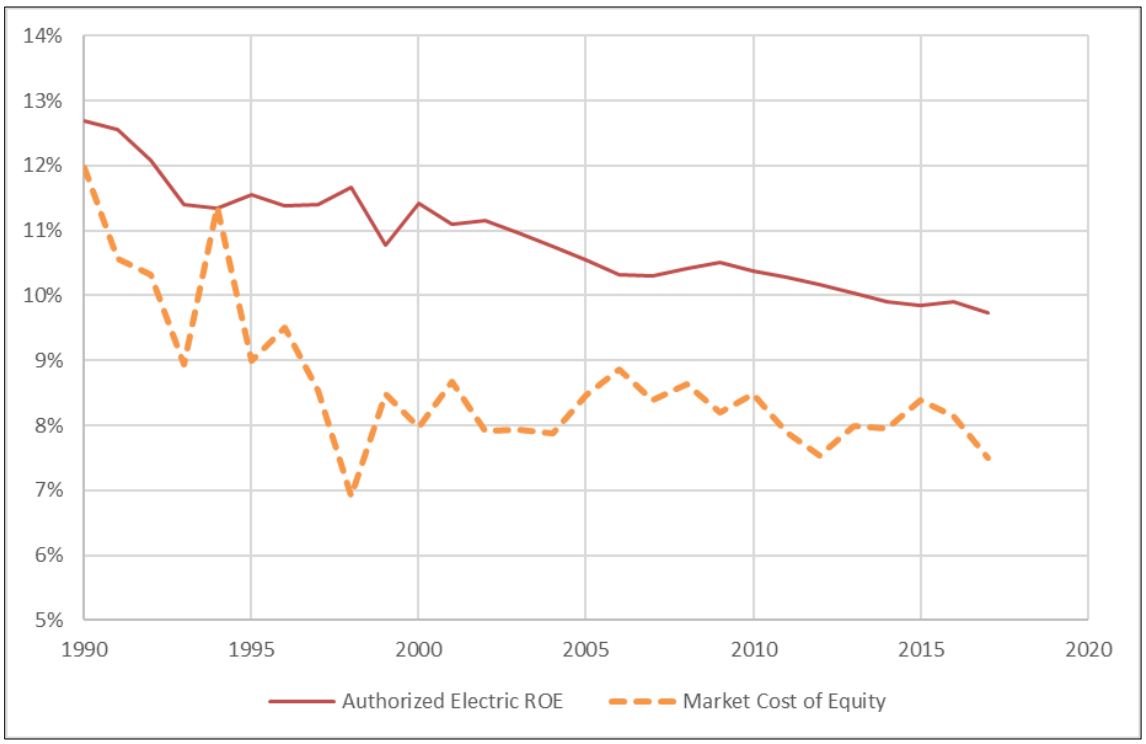
[98] Direct Testimony of Ann E. Bulkley, p. 56, lines 1–2.
[99] Exhibit RMP___(AEB-6).
[100] Direct Testimony of Ann E. Bulkley, p. 33, lines 7–8 (emphasis added).

attempts to leverage the relationship between awarded ROEs and any market-based factor (such as U.S. Treasury bonds in this case), will only serve to perpetuate the discrepancy between awarded ROEs and actual utilities' costs of equity.

Q. CAN YOU ILLUSTRATE THE DISCONNECT ISSUE BETWEEN AWARDED ROES AND THE UTILITY'S COST OF EQUITY USING THE RISK PREMIUM ANALYSIS?

A. Yes. The following graph in Figure DJG-13 shows the clear disconnect between awarded ROEs and utility cost of equity.

Figure DJG-13:
Comparison of Awarded ROEs and Utility Cost of Equity[101]



[101] WIEC Exhibit No. 301.16.

Since it is indisputable that utility stocks are less risky than average stock in the market (with a beta equal to 1.0), utility cost of equity is below the market cost of equity (the dotted line above). The gap between the market cost of equity and inflated ROEs represents an excess transfer of wealth from ratepayers to shareholders.

Furthermore, the risk premium analysis offered by Ms. Bulkley is 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 (the ERP) 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.

In stark contrast to the Nobel Prize-winning CAPM, the risk premium models relied upon by utility witnesses are not market-based, and therefore have no value in helping us estimate the market-based cost of equity. Unlike the CAPM, which is found in almost every comprehensive financial textbook, the risk premium models used by utility witnesses are almost exclusively found in the texts and testimonies of other utility representatives. Specifically, these 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. OTHER COST OF EQUITY ISSUES

Q. ARE THERE ANY OTHER ISSUES RAISED IN THE COMPANY'S TESTIMONY TO WHICH YOU WOULD LIKE TO RESPOND?

A. Yes. In her testimony, Ms. Bulkley suggests that certain firm-specific risks and other factors should have an increasing effect on the cost of equity, apparently beyond that which is indicated by the CAPM and DCF Model. These issues include capital expenditures, regulatory risk, generation ownership, and other firm-specific business risks.[102] In addition, Ms. Bulkley argues that the Tax Cuts and Jobs Act ("TCJA") should be considered in determining the cost of equity.[103] Finally, in addition to responding to the above, I will respond to Ms. Bulkley's expected earnings analysis.

A. Firm-Specific Business Risks

Q. DESCRIBE MS. BULKLEY'S TESTIMONY REGARDING BUSINESS RISKS.

A. In her Direct Testimony, Ms. Bulkley suggests that various firm-specific risk factors should have an increasing effect on RMP's cost of equity, including capital expenditures, regulatory risk, generation ownership, and other firm-specific business risks.[104] However, Ms. Bulkley does not propose a "specific adjustment" to account for these risk factors.[105]

[102] Direct Testimony of Ann E. Bulkley, pp. 60–77.
[103] *Id.* at p. 25, lines 22–23.
[104] *Id.* at pp. 60–77.
[105] *Id.* at p. 4, lines 2–4.

Q. DO YOU AGREE WITH MS. BULKLEY THAT THESE FIRM-SPECIFIC RISK FACTORS SHOULD INFLUENCE RMP'S COST OF EQUITY OR AWARDED ROE?

A. No. While I agree with Ms. Bulkley that no specific adjustment should be made to RMP's cost of equity estimate to account for business risks, I do not agree that the Commission should consider such risks when setting a fair awarded ROE. All companies face business risks, including the other utilities in the proxy group; these risks are not unique to RMP. As discussed above, it is a well-known concept in finance that firm-specific risks are unrewarded by the market. This is largely because firm-specific risk can be eliminated through portfolio diversification. Scholars widely recognize the fact that market risk, or "systematic risk," is the only type of risk for which investors expect a return for bearing.[106]

Unlike interest rate risk, inflation risk, and other market risks that affect all companies in the stock market, the risk factors discussed by Ms. Bulkley are merely business risks specific to RMP. Investors do not require an additional term for these firm-specific business risks. Another way to consider this issue is to look at the CAPM and DCF Model. Did the creators of these highly regarded cost of equity models, which have been relied upon for decades by companies and investors to make crucial business decisions, simply neglect to add an input for business risks? The DCF Model considers stock price, dividends, and a long-term growth rate. The CAPM considers the risk-free rate, beta, and the equity risk premium. Neither model includes an input for business risks due to the well-known truth that investors do not expect a return for such risks. Therefore,

[106] *See Corporate Finance: Linking Theory to What Companies Do*, at p. 180.

the Company's firm-specific business risks, while perhaps relevant to other issues in the rate case, have no meaningful effect on the cost of equity estimate. Rather, it is market risk that is rewarded by the market, and this concept is thoroughly addressed in my CAPM analysis discussed above.

B. TCJA and Cost of Equity

Q. DESCRIBE MS. BULKLEY'S TESTIMONY REGARDING THE TCJA AND ITS EFFECT ON THE COMPANY'S POSITION IN THIS CASE?

A. Ms. Bulkley argues that "[t]he effect of the [TCJA] should also be considered in the determination of the cost of equity."[107]

Q. DO YOU AGREE WITH MS. BULKLEY THAT THE TCJA SHOULD HAVE AN EFFECT ON THE COMPANY'S COST OF EQUITY?

A. No. There are several flaws with this premise. First, as discussed above, the cost of equity is primarily a function of market risk and the impact that market risks have on individual companies. Ms. Bulkley's concerns about the potential impact of the TCJA on the Company's credit ratings conflates the main financial metric affected by credit ratings, namely the Company's cost of debt, with its impact on the cost of equity. Upon a company's credit rating downgrade, the Company's cost of debt may increase. But that need not drive any corresponding change to the cost of equity.

Second, Ms. Bulkley's testimony on this issue fails to show how simply increasing the Company's awarded ROE will lead to a better credit rating. Instead, an increased

[107] Direct Testimony of Ann E. Bulkley, p. 25, lines 22–23.

awarded ROE (or increased imputed equity ratio) will simply lead to a higher revenue requirement for the Company (which is likely to exceed the revenue requirement impact from a modest increase in the cost of debt from a credit downgrade). At that point, it is entirely within the discretion of Company management on how to spend those revenues. If, for example, the Company elected to increase dividends, increase executive bonuses, or incur other expenses that are not necessary to provide service there would be no beneficial impact on its credit ratings from the revenues resulting from the higher ROE. The Commission's primary concern should be to set an awarded ROE for the Company based on market risk, and to set a capital structure that is reflective of one that would exist in a competitive environment. Doing so will give the Company an opportunity, under efficient, prudent, and economical management to earn a fair return for its investors and, if it so desires, achieve a higher credit rating. The Commission does not have control over or responsibility for the Company's credit ratings, and it should ignore the scare tactics related to credit ratings contained in the testimonies of Ms. Bulkley and Ms. Kobliha, which I discuss further in the capital structure section below.

IX. COST OF EQUITY SUMMARY

Q. PLEASE SUMMARIZE THE RESULTS OF THE CAPM AND DCF MODEL DISCUSSED ABOVE.

A. Figure DJG-14 shows the cost of equity results from each model I employed in this case.[108]

[108] WIEC Exhibit No. 301.14.

Figure DJG-14:
Cost of Equity Summary

Model	Cost of Equity
Discounted Cash Flow Model	7.7%
Capital Asset Pricing Model	5.3%
Average	**6.5%**

The average cost of equity resulting from my DCF Model and the CAPM is 6.5%. As discussed above, while 6.5% is a reasonable estimate for RMP's cost of equity, it is likely toward the higher end of the reasonable range. This is because I used the maximum reasonable growth rate in the DCF Model and the highest reasonable figure for the equity risk premium in the CAPM.

Q. IS THERE A MARKET INDICATOR THAT YOU CAN USE TO TEST THE REASONABLENESS OF YOUR COST OF EQUITY ESTIMATE?

A. Yes, there is. The CAPM is a risk premium model based on the fact that all investors will require, at a minimum, a return equal to the risk-free rate when investing in equity securities, plus a premium, much like the ERP, on top of the risk-free rate to compensate them for the risk they have assumed. This could also be called the market cost of equity. It is undisputed that the cost of equity of utility stocks must be less than the total market cost of equity, again, because utility stocks are less risky than the average stock in the market. Therefore, the market cost of equity gives us a "ceiling" below which RMP's actual cost of equity must lie.

Q. DESCRIBE HOW YOU ESTIMATED THE MARKET COST OF EQUITY.

A. In estimating the market cost of equity, I relied on the same methods discussed above to estimate the ERP: (1) consulting expert surveys; and (2) calculating the implied ERP. The results of my market cost of equity analysis are presented in the following Figure DJG-15.[109]

Figure DJG-15:
Market Cost of Equity Summary

Source	Estimate
IESE Survey	7.0%
Graham Harvey Survey	5.9%
Damodaran	7.1%
Garrett	7.4%
Average	6.9%

As shown in Figure DJG-15, the average market cost of equity from these sources is only 6.9%, and the highest estimate (my estimate), is 7.4%. Therefore, it is not surprising that the CAPM and DCF Model indicate a cost of equity for RMP of only 6.5%. In other words, any cost of equity estimates for RMP, or any regulated utility, that is above the market cost of equity should be viewed as unreasonably high. By contrast, Ms. Bulkley suggests a cost of equity for RMP in this case that is more than 300 basis points above the market cost of equity, which is simply unrealistic and excessive (6.9% vs. 10.2%).

[109] WIEC Exhibit No. 301.15.

X. CAPITAL STRUCTURE

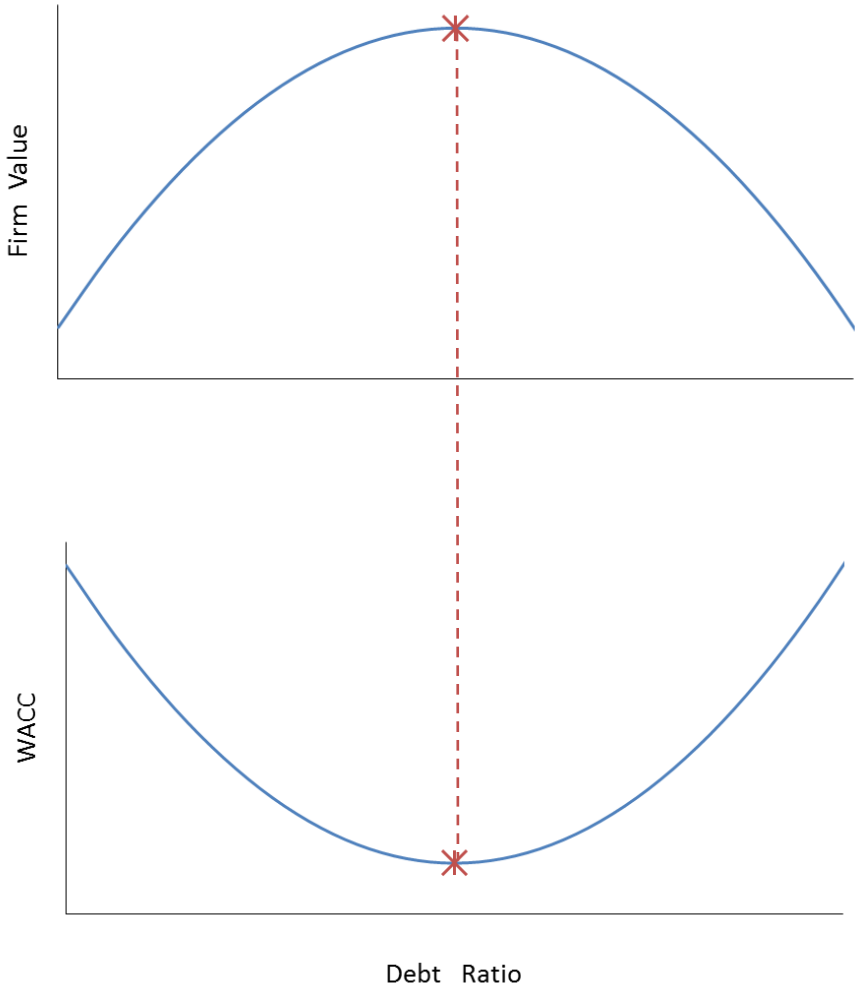
Q. DESCRIBE IN GENERAL THE CONCEPT OF A COMPANY'S CAPITAL STRUCTURE.

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 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 DJG-16 illustrates these concepts.

Figure DJG-16:
Optimal Debt Ratio



As shown in Figure DJG-16, 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.[110]

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 DJG-6:
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*
$\boldsymbol{r}$	=	***weighted average cost of capital (WACC)***
A	=	*plant investments*
D	=	*accumulated depreciation*

As shown in Equation DJG-6, 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.

[110] *See Corporate Finance: Linking Theory to What Companies Do*, at pp. 440-41.

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.[111]

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.

Q. ARE THE CAPITAL STRUCTURES OF THE PROXY GROUP ONE DATA POINT THAT CAN BE USED TO ASSESS A PRUDENT CAPITAL STRUCTURE?

A. Yes. However, while the capital structures of the proxy group might provide some indication of an appropriate capital structure for the utility being studied, it is preferable to also consider additional types of analyses. The average debt ratios of a utility proxy group will likely be lower than what would be observed in a pure competitive environment. As I explain above, this is because utilities do not have a financial incentive to operate at the optimal capital structure.

[111] *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, at p. 196.

Q. HOW CAN UTILITY REGULATORY COMMISSIONS HELP OVERCOME THE FACT THAT UTILITIES DO NOT HAVE A NATURAL FINANCIAL INCENTIVE TO MINIMIZE THEIR COST OF CAPITAL?

A. While under the rate base rate of return model utilities do not have a natural financial incentive to minimize their cost of capital, competitive firms, in contrast, can and do maximize their value by minimizing their cost of capital. Competitive firms minimize their cost of capital by including a sufficient amount of debt in their capital structures. They do not do this because it is required by a regulatory body, but rather because their shareholders demand it in order to maximize value. The Commission can provide this incentive to RMP by acting as a surrogate for competition and setting rates consistent with a capital structure that is similar to what would be appropriate in a competitive, as opposed to a regulated, environment.

A. <u>Analysis</u>

Q. WHAT IS THE COMPANY'S PROPOSED CAPITAL STRUCTURE?

A. Ms. Kobliha recommends a capital structure consisting of 47.47% Long-Term Debt, 0.01% Preferred Stock, and 53.52% Common Stock Equity.[112]

Q. WHAT IS YOUR RECOMMENDED DEBT/EQUITY RATIO?

A. I recommend that the Commission impute a capital structure consisting of 50% Long-Term Debt, 0.01% Preferred Stock, and 49.01% Common Stock Equity.

[112] Direct Testimony of Nikki L. Kobliha, p. 4, Table 1: Overall Cost of Capital.

Q. PLEASE DESCRIBE YOUR APPROACH IN ASSESSING A FAIR CAPITAL STRUCTURE FOR RMP.

A. My analysis of RMP's capital structure is done in two steps. First, I consider the debt ratios of competitive industries and the debt ratios and credit ratings of the proxy group. Based on either benchmark, the Company's proposed capital structure is unreasonably weighted to equity. Second, I analyze the relationship between credit ratings and the cost of debt to consider whether the cost to ratepayers through higher interest costs if PacifiCorp's credit rating drops would justify the equity-rich capital structure proposed by the Company. The evidence is clear it does not.

Q. YOU INDICATE THAT YOUR ANALYSIS OF A REASONABLE CAPITAL STRUCTURE BEGINS WITH A CONSIDERATION OF THE DEBT RATIOS SEEN IN COMPETITIVE INDUSTRIES. WHAT ARE THE DEBT RATIOS OBSERVED IN COMPETITIVE MARKETS?

A. I found that there are currently more than 3,500 firms in U.S. industries with higher debt ratios than that requested by RMP in this case.[113] Moreover, these firms have an average debt ratio of greater than 60%.[114] The following Figure DJG-17 shows a sample of these industries with debt ratios higher than 55%.

[113] WIEC Exhibit No. 301.17.
[114] *Id.*

Figure DJG-17:
Industries with Debt Ratios Greater than 55%[115]

Industry	# Firms	Debt Ratio
Tobacco	17	96%
Financial Svcs.	232	95%
Retail (Building Supply)	17	90%
Hospitals/Healthcare Facilities	36	88%
Advertising	47	80%
Retail (Automotive)	26	79%
Brokerage & Investment Banking	39	77%
Auto & Truck	13	75%
Food Wholesalers	17	70%
Bank (Money Center)	7	69%
Transportation	18	67%
Hotel/Gaming	65	67%
Packaging & Container	24	66%
Retail (Grocery and Food)	13	66%
Broadcasting	27	65%
R.E.I.T.	234	64%
Retail (Special Lines)	89	64%
Green & Renewable Energy	22	**64%**
Recreation	63	63%
Software (Internet)	30	63%
Air Transport	18	**63%**
Retail (Distributors)	80	62%
Computers/Peripherals	48	61%
Telecom (Wireless)	18	**61%**
Farming/Agriculture	31	61%
Cable TV	14	**60%**
Computer Services	106	60%
Beverage (Soft)	34	60%
Telecom. Services	67	**60%**
Trucking	33	59%
Power	52	**59%**
Office Equipment & Services	22	58%
Chemical (Diversified)	6	58%
Retail (Online)	70	58%
Aerospace/Defense	77	58%
Oil/Gas Distribution	24	58%
Business & Consumer Services	165	57%
Construction Supplies	44	57%
Real Estate (Operations & Services)	57	56%
Household Products	127	56%
Environmental & Waste Services	82	56%
Rubber& Tires	4	56%
Total / Average	**2,215**	**66%**

Many of the industries shown here, like public utilities, are generally well-established with large amounts of capital assets. The shareholders of these industries demand higher debt ratios to maximize their profits. There are several notable industries that are relatively comparable to public utilities (highlighted in Figure DJG-17 above). For example, Green and Renewable Energy has an average debt ratio of 64% and Telecom Services has an average debt ratio of 60%. These debt ratios are significantly higher than RMP's proposed debt ratio of only 46.47%.

Q. DID YOU ALSO LOOK AT THE DEBT RATIOS OF THE PROXY GROUP?

A. Yes. According to the most recently reported year-end data from Value Line, the average debt ratio of the proxy group made up of similarly situated utilities is 54%.[116] Again, this is much higher than RMP's requested debt ratio.

Q. DID YOU COMPARE PACIFICORP'S CREDIT RATING TO THE THOSE OF THE OTHER COMPANIES IN THE PROXY GROUP?

A. Yes. PacifiCorp's current credit rating is A3 and the average credit rating of the proxy group is one rating lower, at Baa1.[117] Below I discuss whether this fact justifies RMP's proposed higher equity ratio.

Q. WHAT IS YOUR RECOMMENDATION REGARDING RMP'S CAPITAL STRUCTURE?

A. In my opinion, RMP's proposed capital structure consists of an insufficient amount of debt, especially since RMP's awarded ROE in this case will certainly be above its market-based

[115] *Id.*
[116] WIEC Exhibit No. 301.18.
[117] WIEC Exhibit No. 301.4.

cost of equity, even if my recommendation is adopted. With an awarded ROE that is above market-based costs, RMP's overall cost of capital can be reduced by replacing higher-cost equity with lower-cost debt. I recommend the Commission apply a capital structure consisting of a 50% debt and 50% equity (with 49.99% allocated to common equity and 0.01% allocated to preferred equity) for purposes of computing the Company's awarded rate of return (*i.e.*, an "imputed" capital structure). This recommendation is conservative considering the fact that the average debt ratio of Ms. Bulkley's own proxy group is notably higher at 54%. Furthermore, there are thousands of firms across the country that operate with even higher debt ratios. Figure DJG-18 below summarizes my findings.

Figure DJG-18:
Debt Ratio Comparison

Source	Debt Ratio
Green & Renewable Energy	64%
Telecom (Wireless)	61%
Cable TV	60%
Telecom. Services	60%
Power	59%
Proxy Group of Utilities	**54%**
Garrett Proposal	**50%**
Company's Proposal	**46%**

Based on these findings, RMP's proposed debt ratio is an outlier as being far too low, and if adopted, would result in an unreasonably high WACC.

Q. IF THE COMMISSION ACCEPTS YOUR RECOMMENDATION, COULD THAT THEORETICALLY LEAD TO A CREDIT RATINGS DOWNGRADE FOR PACIFICORP?

A. There are many factors and financial metrics that effect credit ratings, and most of these factors are within the discretion and control of Company management. In other words, there is not a direct causal relationship between the Commission's authorized capital structure and the Company's credit ratings. Nonetheless, the second part of my capital structure analysis involves isolating the relationship between credit ratings and the cost of debt to assess the relative impact to the WACC that could theoretically occur under my capital structure proposal. As discussed above, increasing the debt ratio can have an increasing effect on the cost of debt. To objectively measure how much the cost of debt increases, I considered the spreads above the risk-free rate for various levels of bond ratings and interest coverage ratios. The following table in Figure DJG-19 shows increasing interest rates for debt based on different bond rating levels.[118]

[118] WIEC Exhibit No. 301.19.

Figure DJG-19:
Bond Rating Spreads

Ratings Table			
Coverage Ratio	Bond Rating	Spread	Interest Rate
8.5 - 10.00	Aaa/AAA	0.63%	2.08%
6.5 - 8.49	Aa2/AA	0.78%	2.23%
5.5 - 6.49	A1/A+	0.98%	2.43%
4.25 - 5.49	A2/A	1.08%	2.53%
3.0 - 4.24	A3/A-	1.22%	2.67%
2.5 - 2.99	Baa2/BBB	1.56%	3.01%
2.25 - 2.49	Ba1/BB+	2.00%	3.45%
2.0 - 2.24	Ba2/BB	2.40%	3.85%
1.75 - 1.99	B1/B+	3.51%	4.96%
1.5 - 1.74	B2/B	4.21%	5.66%
1.25 - 1.49	B3/B-	5.15%	6.60%
0.8 - 1.24	Caa/CCC	8.20%	9.65%

As shown in Figure DJG-19, the spreads over the risk-free rate gradually increase as bond ratings fall.[119] The spread is added to the risk-free rate to obtain the interest rates shown in the far-right column. This concept is somewhat comparable to the interest rate a mortgage lender would charge a borrower. The mortgage lender's advertised rate is usually the lowest rate, or the "prime" rate, which is available to borrowers with stellar credit scores. As credit scores decrease, however, the offered interest rate will increase. The bond ratings in this figure are based on various levels of interest coverage ratios shown in the far-left column. The interest coverage ratio, as its name implies, is a metric used by financial analysts to gauge a firm's ability to pay its interest expense from its available

[119] The link between interest coverage ratios and ratings was developed by looking at all rated companies in the U.S. The default spreads are obtained from traded bonds. The spreads are added to the risk-free rate to obtain the interest rates in the table. Ratings, Interest, Coverage Ratios and Default Spread, New York University (data used is as of Jan. 2020)http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ratings.htm.

earnings before interest and taxes ("EBIT"). Likewise, the mortgage lender would consider the borrower's personal income-debt ratio. As the debt ratio rises, the interest coverage ratio falls, the bond ratings increase, and the cost of debt increases.

Q. HOW CAN FIGURE DJG-19 BE USED TO ASSESS THE IMPACT OF A CHANGE IN CREDIT RATINGS?

A. The right column of Figure DJG-19 shows the average interest rates associated with bond ratings. Perhaps more important than the average interest rate, however, is the relative change in the interest rate between bond ratings. For example, the difference between an A3 (PacifiCorp's current rating) and Baa2 rating (one level below PacifiCorp's current rating) is only 34 basis points (or 0.34%). We can use this to evaluate the relative cost of a credit downgrade, or alternatively, of establishing a certain capital structure to preserve a credit rating. As discussed above, the average debt ratio of the proxy group is 54%.[120] In addition, the average credit rating of the proxy group is Baa1, which is one rating lower than PacifiCorp's rating.[121]

Q. WHAT WOULD HAPPEN TO PACIFICORP'S COST OF DEBT IF ITS CREDIT RATING DROPPED TO THE AVERAGE LEVEL OF THE PROXY GROUP'S CREDIT RATINGS?

A. Based on the analysis above, I would estimate that a one level drop in PacifiCorp's credit rating to the average level of the proxy group (to Baa1) could increase the cost of new debt by 34 basis points. Of course, the total actual cost of debt is made up of a combination of

[120] WIEC Exhibit No. 301.18.
[121] WIEC Exhibit No. 301.4.

existing debt instruments at various interest rates as well as new debt. Thus, it is difficult to say what the blended cost of debt might be going forward.

Q. WHAT WOULD HAPPEN TO PACIFICORP'S OVERALL COST OF CAPITAL IF THEY CONVERTED COMMON EQUITY AT A COST OF 10.2% INTO LONG-TERM DEBT AT A COST 0.34% HIGHER THAN THEIR CURRENT COST OF DEBT TO ACHIEVE A 50/50 DEBT/EQUITY RATIO?

A. Setting aside the very minor amount of preferred stock, taking 3.53% of the total capital and converting that from equity at a cost of 10.2% into debt at a cost of 5.13% (current cost of 4.79% plus 0.34%) would yield an 18 basis point reduction in the overall cost of capital.

Q. WHAT WOULD HAPPEN TO PACIFICORP'S OVERALL COST OF CAPITAL IF, OVER TIME, ALL OF ITS CURRENT DEBT BECAME 0.34% MORE EXPENSIVE DUE TO A CREDIT DOWNGRADE?

A. If you assumed all of PacifiCorp's debt were converted into debt as the existing debt instruments are retired that cost 34 basis points higher (4.79% vs. 5.13%) because of a credit downgrade tied to a move to a 50/50 debt/equity ratio, the Company's overall WACC would still fall 3.5 basis points from 7.69% under the Company's proposal to 7.66% as shown below.

Figure DJG-20:
Cost of Capital Comparison

RMP's Proposal	Component	$m	% of Total	Cost %	Weighted Avg. Cost
	Long-Term Debt	$8,433	46.47	4.79	2.23
	Preferred Stock	$2	0.01	6.75	0
	Common Stock Equity	$9,713	53.52	10.20	5.46

		$18,148	100		7.69
At 50/50	**Component**	**$m**	**% of Total**	**Cost %**	**Weighted Avg. Cost**
	Long-Term Debt	$8,433	50.00	5.13	2.57
	Preferred Stock	$2	0.01	6.75	0
	Common Stock Equity	$9,713	49.99	10.20	5.1
		$18,148	100		7.66

Q. WHAT DO YOU CONCLUDE FROM THIS ANALYSIS?

A. First, since I am recommending a debt/equity ratio of 50/50 which is substantially more equity rich than the proxy group's average which is 54/46, it is by no means certain that PacifiCorp would see a credit downgrade based on the Commission adopting my recommendations. As I discuss more below, many variables go into a utility's credit rating, and this is just one of those many factors. Second, even if PacifiCorp saw a credit downgrade to a credit level comparable to the average of the proxy group (Baa1), and even if that downgrade caused all of PacifiCorp's debt to increase in cost by 34 basis points as existing debt instruments are retired or refinanced over the years ahead, the resulting WACC would still be lower than PacifiCorp proposes. PacifiCorp's concerns of a credit downgrade notwithstanding, the Commission should establish the Company's capital structure to bring the debt ratio more in line with that observed in competitive industries and the proxy group.

B. Response to Ms. Kobliha's Testimony on Capital Structure and Credit Ratings

Q. PLEASE SUMMARIZE MS. KOBLIHA'S POSITION REGARDING THE COMPANY'S CAPITAL STRUCTURE.

A. In her Direct Testimony, Ms. Kobliha recommends the Commission accept RMP's proposed capital structure in determining the Company's weighted average return.[122] Ms. Kobliha also suggests that the Commission should adopt the Company's position in order to support RMP and its credit ratings.[123] In addition, Ms. Kobliha states that it is important for the Commission to adopt a capital structure that reflects RMP's actual capital structure.[124]

Q. DO YOU AGREE WITH MS. KOBLIHA'S ARGUMENTS?

A. No. The arguments and general narratives contained in Ms. Kobliha's testimony are misleading at best and do not provide evidence to support the Company's proposed capital structure. The problems contained in Ms. Kobliha's testimony could be generally divided into several categories, as further discussed below.

1. Credit ratings are primarily a concern of company management.

Reading Ms. Kobliha's testimony might lead one to believe that the Company's credit ratings are of the utmost importance and should be a top concern for the Commission. Corporate credit ratings are not unlike personal credit scores. They are based on the ability to pay debt. The lower the score, the higher the interest rate. People care about credit

[122] Direct Testimony of Nikki L. Kobliha, p. 2, lines 18–20.
[123] *Id.*, pp. 8–16.
[124] *Id.*

scores but not as much as they care about other financial metrics, such as income and savings. Likewise, shareholders care about credit scores, but not as much as they do about earnings. We know this because the vast majority of U.S. corporations do not have top-grade credit ratings. Generally, this is not because such companies are unable to achieve higher credit ratings, but rather because they do not want to. Debt is cheaper than equity. Thus, shareholders demand that their company managers issue as much low-cost debt as necessary in order to maximize profits, where the marginal costs of increased debt is less than or equal to the marginal benefits. Issuing more debt can lower credit ratings and increase the cost of debt; but more importantly, it can increase earnings, which is of primary importance for investors. Shareholders are much more concerned with the awarded return and capital structure than credit ratings. The Commission should be as well.

2. Maintaining the company's credit rating will not benefit ratepayers if it comes at the cost of a higher WACC.

According to Ms. Kobliha, ratepayers will benefit if the Company's credit rating is maintained by the Commission authorizing RMP's requested capital structure. Ms. Kobliha states that "[t]he lower cost of debt benefits customers through a lower overall rate of return and lower revenue requirement."[125] This statement is incorrect and misleading for several reasons. First, a lower cost of debt alone, all else held constant, would indeed result in a lower revenue requirement. However, as I demonstrated above in my discussion of capital structure, increasing the debt ratio impacts several moving parts at once. As the

[125] *Id.* at p. 11, lines 19–21.

debt ratio increases, it can indeed increase the cost of debt and the cost of equity; however, since debt costs so much less than equity (4.79% vs. 10.2% as proposed by RMP), the overall rate of return and revenue requirement is reduced by increasing the debt ratio. Additionally, as shown in the bond ratings table above,[126] the basis-point impact of a ratings downgrade (perhaps less than 50 basis points) is insignificant compared to the Company's requested ROE, which is several hundred basis points higher than its cost of equity. Thus, the entire premise of Ms. Kobliha's argument is misleading, at best.

If the Commission imputes a debt ratio of 50%, it may (or may not) slightly increase RMP's debt costs, but it will certainly decrease overall capital costs. As with all the Company's other prudent expenses, RMP should seek (and the Commission should approve) the lowest reasonable costs. This concept is especially important when it concerns the Company's most important cost – the cost of capital.

XI. CONCLUSION AND RECOMMENDATIONS

Q. SUMMARIZE THE KEY POINTS OF YOUR COST OF CAPITAL TESTIMONY AND RECOMMENDATIONS.

A. The following key points of my testimony are summarized as follows:

1) The Commission should reject the Company's proposed ROE of 10.2% as excessive and unrealistic. An objective cost of equity analysis shows that RMP's cost of equity is about 6.5%.

[126] *See also* WIEC Exhibit No. 301.19.

2) Accordingly, the Commission should award RMP an authorized ROE of 9.0%, which is within – albeit at the high end of – a more reasonable ROE range of 7.5% to 9.0%. Although 9.0% is still well above RMP's cost of equity, the recommendation is fair to ratepayers while still affording the Company the opportunity to maintain its financial integrity.

3) I recommend the Commission reject RMP's equity-rich capital structure of 46.47% long term debt, 53.52% common equity, and 0.01% preferred equity. By choosing to have greater amounts of high-cost equity instead of low-cost debt in its capital structure, the Company is not minimizing its WACC to its lowest reasonable level.

4) Based on the capital structures of the proxy group and the capital structures of similar competitive industries, I instead recommend the Commission impute a capital structure for RMP consisting of 50% debt, 49.99% common equity, and 0.01% preferred equity.

5) The Commission's decisions here should be based on sound analytics, reflected by market conditions, to result in an ROE and debt ratios that promote the lowest reasonable weighted average return, even if doing so slightly increases RMP's cost of debt.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes. To the extent I have not addressed an issue or proposal raised by the Company in this proceeding, it should not be construed that I agree with the same.

BEFORE THE PUBLIC SERVICE COMMISSION OF WYOMING

IN THE MATTER OF THE APPLICATION OF ROCKY MOUNTAIN POWER FOR AUTHORITY TO INCREASE ITS RETAIL ELECTRIC SERVICE RATES BY APPROXIMATELY $7.1 MILLION PER YEAR OR 1.1 PERCENT, TO REVISE THE ENERGY COST ADJUSTMENT MECHANISM, AND TO DISCONTINUE OPERATIONS AT CHOLLA UNIT 4	DOCKET NO. 20000-578-ER-20 (Record No. 15464)

AFFIDAVIT, OATH AND VERIFICATION

STATE OF OKLAHOMA)
) SS:
COUNTY OF OKLAHOMA)

David Garrett, being first duly sworn, on his oath states:

1. My name is David J. Garrett. I am the Managing Member of Resolve Utility Consulting, LLC. I have been retained by the Wyoming Industrial Energy Consumers to testify in this proceeding on their behalf.

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony and Exhibits, which has been prepared in written form for introduction into evidence in Docket No. 20000-578-ER-20.

3. I hereby swear and affirm that my answers contained in the testimony are true and correct.

David Garrett
Resolve Utility Consulting, LLC
101 Park Avenue, Suite 1125
Oklahoma City, OK 73102

Subscribed and sworn to before me this 5th day of August, 2020.

CHRISTINE D MUNOZ NOTARY No. 19007946 Exp. 8-7-23 PUBLIC STATE OF OKLAHOMA

Notary Public
Commission #: 19007946

My Commission Expires: 8/7/23

WIEC
Exhibit No. 301.1

Discounted Cash Flow Model Theory

WIEC Exhibit No. 301.1

DISCOUNTED CASH FLOW MODEL THEORY

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. In its most general form, the DCF Model is expressed as follows:[1]

Figure 1:

General Discounted Cash Flow Model

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \cdots + \frac{D_n}{(1+k)^n}$$

where: P_0 = *current stock price*
$D_1 \ldots D_n$ = *expected future dividends*
k = *discount rate / required return*

The General DCF Model would require an estimation of an infinite stream of dividends. Because this would be impractical, analysts use more feasible variations of the General DCF Model, which are discussed further below.

The DCF Models rely on the following four assumptions:[2]

1. Investors evaluate common stocks in the classical valuation framework; that is, they trade securities rationally at prices reflecting their perceptions of value;

2. Investors discount the expected cash flows at the same rate (K) in every future period;

[1] *See* Zvi Bodie, Alex Kane & Alan J. Marcus, *Essentials of Investments*, 9th ed., McGraw-Hill/Irwin, p. 410 (2013).
[2] *See* Roger A. Morin, *New Regulatory Finance*, Public Utilities Reports, Inc., p. 252 (2006).

3. The K obtained from the DCF equation corresponds to that specific stream of future cash flows alone; and

4. Dividends, rather than earnings, constitute the source of value.

The General DCF can be rearranged to make it more practical for estimating the cost of equity. Regulators typically rely on some variation of the Constant Growth DCF Model, which is expressed as follows:

Figure 2:

Constant Growth Discounted Cash Flow Model

$$K = \frac{D_1}{P_0} + g$$

where: K = *discount rate / required return on equity*
D_1 = *expected dividend per share one year from now*
P_0 = *current stock price*
g = *expected growth rate of future dividends*

Unlike the General DCF Model, the Constant Growth DCF Model solves for the required return (K) directly. In addition, by assuming that dividends grow at a constant rate, the dividend stream from the General DCF Model may be substituted with a term representing the expected constant growth rate of future dividends (g). The Constant Growth DCF Model may be considered in two parts. The first part is the dividend yield (D_1/P_0), and the second part is the growth rate (g). In other words, the required return in the DCF Model is equivalent to the dividend yield plus the growth rate.

In addition to the four assumptions listed above, the Constant Growth DCF Model relies on the following four additional assumptions:[3]

1. The discount rate (K) must exceed the growth rate (g);

[3] *See id.* at p. 254–56.

2. The dividend growth rate (g) is constant in every year to infinity;

3. Investors require the same return (K) in every year; and

4. There is no external financing; that is, growth is provided only by the retention of earnings.

Because the growth rate in this model is assumed to be constant, it is important not to use growth rates that are unreasonably high. In fact, the constant growth rate estimate for a regulated utility with a defined service territory should not exceed the growth rate for the economy in which it operates.

The basic form of the Constant Growth DCF Model described above is sometimes referred to as the "Annual" DCF Model. This is because the model assumes an annual dividend payment to be paid at the end of every year, as well as an increase in dividends once each year. In reality, however, most utilities pay dividends on a quarterly basis. The Constant Growth DCF equation may be modified to reflect the assumption that investors receive successive quarterly dividends and reinvest them throughout the year at the discount rate. This variation is called the Quarterly Approximation DCF Model.[4]

Figure 3:

Quarterly Approximation Discounted Cash Flow Model

$$K = \left[\frac{d_0(1+g)^{1/4}}{P_0} + (1+g)^{1/4}\right]^4 - 1$$

where: K = *discount rate / required return*
d_0 = *current quarterly dividend per share*
P_0 = *stock price*
g = *expected growth rate of future dividends*

The Quarterly Approximation DCF Model assumes that dividends are paid quarterly, and that each dividend is constant for four consecutive quarters. All else held constant, this model

[4] *See id.* at p. 348.

results in the highest cost of equity estimate for the utility in comparison to other DCF Models because it accounts for the quarterly compounding of dividends. There are several other variations of the Constant Growth (or Annual) DCF Model, including a Semi-Annual DCF Model, which is used by the Federal Energy Regulatory Commission ("FERC"). These models, along with the Quarterly Approximation DCF Model, have been accepted in regulatory proceedings as useful tools for estimating the cost of equity.

WIEC
Exhibit No. 301.2

Capital Asset Pricing Model Theory

WIEC Exhibit No. 301.2

CAPITAL ASSET PRICING MODEL THEORY

The Capital Asset Pricing Model ("CAPM") is a market-based model founded on the principle that investors demand higher returns for incurring additional risk.[1] The CAPM estimates this required return. The CAPM relies on the following assumptions:

1. Investors are rational, risk-adverse, and strive to maximize profit and terminal wealth;
2. Investors make choices based on risk and return. Return is measured by the mean returns expected from a portfolio of assets; risk is measured by the variance of these portfolio returns;
3. Investors have homogenous expectations of risk and return;
4. Investors have identical time horizons;
5. Information is freely and simultaneously available to investors;
6. There is a risk-free asset, and investors can borrow and lend unlimited amounts at the risk-free rate;
7. There are no taxes, transaction costs, restrictions on selling short, or other market imperfections; and
8. Total asset quality is fixed, and all assets are marketable and divisible.[2]

While some of these assumptions may appear to be restrictive, they do not outweigh the inherent value of the model. The CAPM has been widely used by firms, analysts, and regulators for decades to estimate the cost of equity capital.

The basic CAPM equation is expressed as follows:

[1] William F. Sharpe, *A Simplified Model for Portfolio Analysis*, Management Science IX, p. 277-93 (1963).
[2] *Id.*

Figure 1:

Capital Asset Pricing Model

$$K = R_F + \beta_i(R_M - R_F)$$

where: K = *required return*
R_F = *risk-free rate*
β = *beta coefficient of asset i*
R_M = *required return on the overall market*

There are essentially three terms within the CAPM equation that are required to calculate the required return (K): (1) the risk-free rate (R_F); (2) the beta coefficient (β); and (3) the equity risk premium ($R_M - R_F$), which is the required return on the overall market less the risk-free rate.

Raw Beta Calculations and Adjustments.

A stock's beta equals the covariance of the asset's returns with the returns on a market portfolio, divided by the portfolio's variance, as expressed in the following formula:[3]

Figure 2:

Beta

$$\beta_i = \frac{\sigma_{im}}{\sigma_m^2}$$

where: β_i = *beta of asset i*
σ_{im} = *covariance of asset i returns with market portfolio returns*
σ^2_m = *variance of market portfolio*

Betas that are published by various research firms are typically calculated through a regression analysis that considers the movements in price of an individual stock and movements in the price of the overall market portfolio. The betas produced by this regression analysis are

[3] *See* John R. Graham, Scott B. Smart & William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do*, 3rd ed., South Western Cengage Learning, pp. 180–81 (2010).

considered "raw" betas. There is empirical evidence that raw betas should be adjusted to account for beta's natural tendency to revert to an underlying mean.[4] Some analysts use an adjustment method proposed by Blume, which adjusts raw betas toward the market mean of one.[5] While the Blume adjustment method is popular due to its simplicity, it is arguably arbitrary, and some would say not useful at all. According to Dr. Damodaran: "While we agree with the notion that betas move toward 1.0 over time, the [Blume adjustment] strikes us as arbitrary and not particularly useful."[6] The Blume adjustment method is especially arbitrary when applied to industries with consistently low betas, such as the utility industry. For industries with consistently low betas, it is better to employ an adjustment method that adjusts raw betas toward an industry average, rather than the market average. Vasicek proposed such a method, which is preferable to the Blume adjustment method because it allows raw betas to be adjusted toward an industry average, and also accounts for the statistical accuracy of the raw beta calculation.[7] In other words, "[t]he Vasicek adjustment seeks to overcome one weakness of the Blume model by not applying the same adjustment to every security; rather, a security-specific adjustment is made depending on the statistical quality of the regression."[8] The Vasicek beta adjustment equation is expressed as follows:

[4] *See* Michael J. Gombola and Douglas R. Kahl, *Time-Series Processes of Utility Betas: Implications for Forecasting Systematic Risk*, Financial Management Autumn, pp. 84–92 (1990).
[5] *See* Marshall Blume, *On the Assessment of Risk*, Vol. 26, No. 1 The Journal of Finance, p. 1 (1971).
[6] *See* Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, 3rd ed., John Wiley & Sons, Inc., p. 187 (2012).
[7] Oldrich A. Vasicek, *A Note on Using Cross-Sectional Information in Bayesian Estimation of Security Betas*, Journal of Finance, Vol. 28, No. 5, p. 1233–39 (Dec. 1973).
[8] 2012 Ibbotson Stocks, Bonds, Bills, and Inflation Valuation Yearbook, Morningstar, pp. 77–78 (2012).

Figure 3:

Vasicek Beta Adjustment

$$\beta_{i1} = \frac{\sigma^2_{\beta i0}}{\sigma^2_{\beta 0} + \sigma^2_{\beta_{i0}}}\beta_0 + \frac{\sigma^2_{\beta 0}}{\sigma^2_{\beta 0} + \sigma^2_{\beta_{i0}}}\beta_{i0}$$

where: β_{i1} = *Vasicek adjusted beta for security i*
β_{i0} = *historical beta for security i*
β_0 = *beta of industry or proxy group*
$\sigma^2_{\beta 0}$ = *variance of betas in the industry or proxy group*
$\sigma^2_{\beta i0}$ = *square of standard error of the historical beta for security i*

The Vasicek beta adjustment is an improvement on the Blume model because the Vasicek model does not apply the same adjustment to every security. A higher standard error produced by the regression analysis indicates a lower statistical significance of the beta estimate. Thus, a beta with a high standard error should receive a greater adjustment than a beta with a low standard error. As stated in Ibbotson:

> While the Vasicek formula looks intimidating, it is really quite simple. The adjusted beta for a company is a weighted average of the company's historical beta and the beta of the market, industry, or peer group. How much weight is given to the company and historical beta depends on the statistical significance of the company beta statistic. If a company beta has a low standard error, then it will have a higher weighting in the Vasicek formula. If a company beta has a high standard error, then it will have lower weighting in the Vasicek formula. An advantage of this adjustment methodology is that it does not force an adjustment to the market as a whole. Instead, the adjustment can be toward an industry or some other peer group. This is most useful in looking at companies in industries that on average have high or low betas.[9]

Thus, the Vasicek adjustment method is statistically more accurate and is the preferred method to use when analyzing companies in an industry that has inherently low betas, such as the utility industry. The Vasicek method was also confirmed by Gombola, who conducted a study

[9] *Id.* at p. 78.

specifically related to utility companies. Gombola concluded that "[t]he strong evidence of auto-regressive tendencies in utility betas lends support to the application of adjustment procedures such as the . . . adjustment procedure presented by Vasicek."[10] Gombola also concluded that adjusting raw betas toward the market mean of 1.0 is too high, and that "[i]nstead, they should be adjusted toward a value that is less than one."[11] In conducting the Vasicek adjustment on betas in previous cases, it reveals that utility betas are even lower than those published by Value Line.[12] Gombola's findings are particular important here, because his study was conducted specifically on utility companies. This evidence indicates that using Value Line's betas in a CAPM cost of equity estimate for a utility company may lead to overestimated results. Regardless, adjusting betas to a level that is higher than Value Line's betas is not reasonable, and it would produce CAPM cost of equity results that are too high.

[10] *Time-Series Processes of Utility Betas: Implications for Forecasting Systematic Risk*, at p. 92 (emphasis added).
[11] *Id.* at 91–92 (emphasis added).
[12] *See e.g., 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 Triffs for Retail Electric Service in Oklahoma*, Case No. PUD 201500273, Okla. Corp. Comm'n., Responsive Testimony of David J. Garrett, pp. 56–59 (Mar. 21, 2016).

WIEC
Exhibit No. 301.3

Curriculum Vitae of David J. Garrett

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DAVID J. GARRETT

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EDUCATION

University of Oklahoma — Norman, OK
Master of Business Administration — 2014
Areas of Concentration: Finance, Energy

University of Oklahoma College of Law — Norman, OK
Juris Doctor — 2007
Member, American Indian Law Review

University of Oklahoma — Norman, OK
Bachelor of Business Administration — 2003
Major: Finance

PROFESSIONAL DESIGNATIONS

Society of Depreciation Professionals
Certified Depreciation Professional (CDP)

Society of Utility and Regulatory Financial Analysts
Certified Rate of Return Analyst (CRRA)

The Mediation Institute
Certified Civil / Commercial & Employment Mediator

WORK EXPERIENCE

Resolve Utility Consulting PLLC — Oklahoma City, OK
Managing Member — 2016 – Present
Provide expert analysis and testimony specializing in depreciation and cost of capital issues for clients in utility regulatory proceedings.

Oklahoma Corporation Commission — Oklahoma City, OK
Public Utility Regulatory Analyst — 2012 – 2016
Assistant General Counsel — 2011 – 2012
Represented commission staff in utility regulatory proceedings and provided legal opinions to commissioners. Provided expert analysis and testimony in depreciation, cost of capital, incentive compensation, payroll and other issues.

Perebus Counsel, PLLC — Oklahoma City, OK
Managing Member — 2009 – 2011
Represented clients in the areas of family law, estate planning, debt negotiations, business organization, and utility regulation.

Moricoli & Schovanec, P.C. — Oklahoma City, OK
Associate Attorney — 2007 – 2009
Represented clients in the areas of contracts, oil and gas, business structures and estate administration.

TEACHING EXPERIENCE

University of Oklahoma — Norman, OK
Adjunct Instructor – "Conflict Resolution" — 2014 – Present
Adjunct Instructor – "Ethics in Leadership"

Rose State College — Midwest City, OK
Adjunct Instructor – "Legal Research" — 2013 – 2015
Adjunct Instructor – "Oil & Gas Law"

PUBLICATIONS

American Indian Law Review — Norman, OK
"Vine of the Dead: Reviving Equal Protection Rites for Religious Drug Use" — 2006
(31 Am. Indian L. Rev. 143)

VOLUNTEER EXPERIENCE

Calm Waters — Oklahoma City, OK
Board Member — 2015 – 2018
Participate in management of operations, attend meetings, review performance, compensation, and financial records. Assist in fundraising events.

Group Facilitator & Fundraiser — 2014 – 2018
Facilitate group meetings designed to help children and families cope with divorce and tragic events. Assist in fundraising events.

St. Jude Children's Research Hospital — Oklahoma City, OK
Oklahoma Fundraising Committee — 2008 – 2010
Raised money for charity by organizing local fundraising events.

PROFESSIONAL ASSOCIATIONS

Oklahoma Bar Association 2007 – Present

Society of Depreciation Professionals 2014 – Present
Board Member – President 2017
Participate in management of operations, attend meetings, review performance, organize presentation agenda.

Society of Utility Regulatory Financial Analysts 2014 – Present

SELECTED CONTINUING PROFESSIONAL EDUCATION

Society of Depreciation Professionals Austin, TX
"Life and Net Salvage Analysis" 2015
Extensive instruction on utility depreciation, including actuarial and simulation life analysis modes, gross salvage, cost of removal, life cycle analysis, and technology forecasting.

Society of Depreciation Professionals New Orleans, LA
"Introduction to Depreciation" and "Extended Training" 2014
Extensive instruction on utility depreciation, including average lives and net salvage.

Society of Utility and Regulatory Financial Analysts Indianapolis, IN
46th Financial Forum. "The Regulatory Compact: Is it Still Relevant?" 2014
Forum discussions on current issues.

New Mexico State University, Center for Public Utilities Santa Fe, NM
Current Issues 2012, "The Santa Fe Conference" 2012
Forum discussions on various current issues in utility regulation.

Michigan State University, Institute of Public Utilities Clearwater, FL
"39th Eastern NARUC Utility Rate School" 2011
One-week, hands-on training emphasizing the fundamentals of the utility ratemaking process.

New Mexico State University, Center for Public Utilities Albuquerque, NM
"The Basics: Practical Regulatory Training for the Changing Electric Industries" 2010
One-week, hands-on training designed to provide a solid foundation in core areas of utility ratemaking.

The Mediation Institute Oklahoma City, OK
"Civil / Commercial & Employment Mediation Training" 2009
Extensive instruction and mock mediations designed to build foundations in conducting mediations in civil matters.

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Railroad Commission of Texas	Texas Gas Services Company	GUD 10928	Depreciation rates, service lives, net salvage	Gulf Coast Service Area Steering Committee
Public Utilities Commission of the State of California	Southern California Edison	A.19-08-013	Depreciation rates, service lives, net salvage	The Utility Reform Network
Massachusetts Department of Public Utilities	NSTAR Gas Company	D.P.U. 19-120	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy
Georgia Public Service Commission	Liberty Utilities (Peach State Natural Gas)	42959	Depreciation rates, service lives, net salvage	Public Interest Advocacy Staff
Florida Public Service Commission	Florida Public Utilities Company	20190155-EI 20190156-EI 20190174-EI	Depreciation rates, service lives, net salvage	Florida Office of Public Counsel
Illinois Commerce Commission	Commonwealth Edison Company	20-0393	Depreciation rates, service lives, net salvage	The Office of the Illinois Attorney General
Public Utility Commission of Texas	Southwestern Public Service Company	PUC 49831	Depreciation rates, service lives, net salvage	Alliance of Xcel Municipalities
South Carolina Public Service Commission	Blue Granite Water Company	2019-290-WS	Depreciation rates, service lives, net salvage	South Carolina Office of Regulatory Staff
Railroad Commission of Texas	CenterPoint Energy Resources	GUD 10920	Depreciation rates and grouping procedure	Alliance of CenterPoint Municipalities
Pennsylvania Public Utility Commission	Aqua Pennsylvania Wastewater	A-2019-3009052	Fair market value estimates for wastewater assets	Pennsylvania Office of Consumer Advocate
New Mexico Public Regulation Commission	Southwestern Public Service Company	19-00170-UT	Cost of capital and authorized rate of return	The New Mexico Large Customer Group; Occidental Permian
Indiana Utility Regulatory Commission	Duke Energy Indiana	45253	Cost of capital, depreciation rates, net salvage	Indiana Office of Utility Consumer Counselor
Maryland Public Service Commission	Columbia Gas of Maryland	9609	Depreciation rates, service lives, net salvage	Maryland Office of People's Counsel
Washington Utilities & Transportation Commission	Avista Corporation	UE-190334	Cost of capital, awarded rate of return, capital structure	Washington Office of Attorney General

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Indiana Utility Regulatory Commission	Indiana Michigan Power Company	45235	Cost of capital, depreciation rates, net salvage	Indiana Office of Utility Consumer Counselor
Public Utilities Commission of the State of California	Pacific Gas & Electric Company	18-12-009	Depreciation rates, service lives, net salvage	The Utility Reform Network
Oklahoma Corporation Commission	The Empire District Electric Company	PUD 201800133	Cost of capital, authorized ROE, depreciation rates	Oklahoma Industrial Energy Consumers and Oklahoma Energy Results
Arkansas Public Service Commission	Southwestern Electric Power Company	19-008-U	Cost of capital, depreciation rates, net salvage	Western Arkansas Large Energy Consumers
Public Utility Commission of Texas	CenterPoint Energy Houston Electric	PUC 49421	Depreciation rates, service lives, net salvage	Texas Coast Utilities Coalition
Massachusetts Department of Public Utilities	Massachusetts Electric Company and Nantucket Electric Company	D.P.U. 18-150	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy
Oklahoma Corporation Commission	Oklahoma Gas & Electric Company	PUD 201800140	Cost of capital, authorized ROE, depreciation rates	Oklahoma Industrial Energy Consumers and Oklahoma Energy Results
Public Service Commission of the State of Montana	Montana-Dakota Utilities Company	D2018.9.60	Depreciation rates, service lives, net salvage	Montana Consumer Counsel and Denbury Onshore
Indiana Utility Regulatory Commission	Northern Indiana Public Service Company	45159	Depreciation rates, grouping procedure, demolition costs	Indiana Office of Utility Consumer Counselor
Public Service Commission of the State of Montana	NorthWestern Energy	D2018.2.12	Depreciation rates, service lives, net salvage	Montana Consumer Counsel
Oklahoma Corporation Commission	Public Service Company of Oklahoma	PUD 201800097	Depreciation rates, service lives, net salvage	Oklahoma Industrial Energy Consumers and Wal-Mart
Nevada Public Utilities Commission	Southwest Gas Corporation	18-05031	Depreciation rates, service lives, net salvage	Nevada Bureau of Consumer Protection
Public Utility Commission of Texas	Texas-New Mexico Power Company	PUC 48401	Depreciation rates, service lives, net salvage	Alliance of Texas-New Mexico Power Municipalities
Oklahoma Corporation Commission	Oklahoma Gas & Electric Company	PUD 201700496	Depreciation rates, service lives, net salvage	Oklahoma Industrial Energy Consumers and Oklahoma Energy Results

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Maryland Public Service Commission	Washington Gas Light Company	9481	Depreciation rates, service lives, net salvage	Maryland Office of People's Counsel
Indiana Utility Regulatory Commission	Citizens Energy Group	45039	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
Public Utility Commission of Texas	Entergy Texas, Inc.	PUC 48371	Depreciation rates, decommissioning costs	Texas Municipal Group
Washington Utilities & Transportation Commission	Avista Corporation	UE-180167	Depreciation rates, service lives, net salvage	Washington Office of Attorney General
New Mexico Public Regulation Commission	Southwestern Public Service Company	17-00255-UT	Cost of capital and authorized rate of return	HollyFrontier Navajo Refining; Occidental Permian
Public Utility Commission of Texas	Southwestern Public Service Company	PUC 47527	Depreciation rates, plant service lives	Alliance of Xcel Municipalities
Public Service Commission of the State of Montana	Montana-Dakota Utilities Company	D2017.9.79	Depreciation rates, service lives, net salvage	Montana Consumer Counsel
Florida Public Service Commission	Florida City Gas	20170179-GU	Cost of capital, depreciation rates	Florida Office of Public Counsel
Washington Utilities & Transportation Commission	Avista Corporation	UE-170485	Cost of capital and authorized rate of return	Washington Office of Attorney General
Wyoming Public Service Commission	Powder River Energy Corporation	10014-182-CA-17	Credit analysis, cost of capital	Private customer
Oklahoma Corporation Commission	Public Service Co. of Oklahoma	PUD 201700151	Depreciation, terminal salvage, risk analysis	Oklahoma Industrial Energy Consumers
Public Utility Commission of Texas	Oncor Electric Delivery Company	PUC 46957	Depreciation rates, simulated analysis	Alliance of Oncor Cities
Nevada Public Utilities Commission	Nevada Power Company	17-06004	Depreciation rates, service lives, net salvage	Nevada Bureau of Consumer Protection
Public Utility Commission of Texas	El Paso Electric Company	PUC 46831	Depreciation rates, interim retirements	City of El Paso

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Idaho Public Utilities Commission	Idaho Power Company	IPC-E-16-24	Accelerated depreciation of North Valmy plant	Micron Technology, Inc.
Idaho Public Utilities Commission	Idaho Power Company	IPC-E-16-23	Depreciation rates, service lives, net salvage	Micron Technology, Inc.
Public Utility Commission of Texas	Southwestern Electric Power Company	PUC 46449	Depreciation rates, decommissioning costs	Cities Advocating Reasonable Deregulation
Massachusetts Department of Public Utilities	Eversource Energy	D.P.U. 17-05	Cost of capital, capital structure, and rate of return	Sunrun Inc.; Energy Freedom Coalition of America
Railroad Commission of Texas	Atmos Pipeline - Texas	GUD 10580	Depreciation rates, grouping procedure	City of Dallas
Public Utility Commission of Texas	Sharyland Utility Company	PUC 45414	Depreciation rates, simulated analysis	City of Mission
Oklahoma Corporation Commission	Empire District Electric Company	PUD 201600468	Cost of capital, depreciation rates	Oklahoma Industrial Energy Consumers
Railroad Commission of Texas	CenterPoint Energy Texas Gas	GUD 10567	Depreciation rates, simulated plant analysis	Texas Coast Utilities Coalition
Arkansas Public Service Commission	Oklahoma Gas & Electric Company	160-159-GU	Cost of capital, depreciation rates, terminal salvage	Arkansas River Valley Energy Consumers; Wal-Mart
Florida Public Service Commission	Peoples Gas	160-159-GU	Depreciation rates, service lives, net salvage	Florida Office of Public Counsel
Arizona Corporation Commission	Arizona Public Service Company	E-01345A-16-0036	Cost of capital, depreciation rates, terminal salvage	Energy Freedom Coalition of America
Nevada Public Utilities Commission	Sierra Pacific Power Company	16-06008	Depreciation rates, net salvage, theoretical reserve	Northern Nevada Utility Customers
Oklahoma Corporation Commission	Oklahoma Gas & Electric Co.	PUD 201500273	Cost of capital, depreciation rates, terminal salvage	Public Utility Division
Oklahoma Corporation Commission	Public Service Co. of Oklahoma	PUD 201500208	Cost of capital, depreciation rates, terminal salvage	Public Utility Division

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Oklahoma Corporation Commission	Oklahoma Natural Gas Company	PUD 201500213	Cost of capital, depreciation rates, net salvage	Public Utility Division

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Proxy Group Summary

Proxy Group Summary

Company	Ticker	[1] Market Cap. ($ millions)	[2] Market Category	[3] Moody's Ratings	[4] Value Line Safety Rank	[5] Financial Strength
ALLETE, Inc.	ALE	3,800	Mid Cap	Baa1	2	A
Alliant Energy Corporation	LNT	13,400	Large Cap	Baa2	2	A
Ameren Corporation	AEE	20,000	Large Cap	Baa1	2	A
American Electric Power Company, Inc.	AEP	47,000	Large Cap	Baa1	1	A+
Avista Corporation	AVA	2,900	Mid Cap	Baa2	2	A
CenterPoint Energy, Inc.	CNP	12,000	Large Cap	Baa2	3	B+
CMS Energy Corporation	CMS	18,000	Large Cap	Baa1	2	B++
Dominion Resources, Inc	D	64,000	Large Cap	Baa2	2	B++
DTE Energy Company	DTE	22,000	Large Cap	Baa2	2	B++
Duke Energy Corporation	DUK	61,000	Large Cap	Baa1	2	A
Entergy Corporation	ETR	24,000	Large Cap	Baa2	2	B++
Evergy, Inc.	EVRG	16,000	Large Cap	Baa2	2	B++
FirstEnergy Corporation	FE	22,000	Large Cap	Baa3	2	B++
IDACORP, Inc.	IDA	4,800	Mid Cap	Baa1	2	A
NextEra Energy, Inc.	NEE	113,000	Large Cap	Baa1	1	A+
NorthWestern Corporation	NWE	3,200	Mid Cap	Baa2	2	B++
OGE Energy Corporation	OGE	7,700	Mid Cap	Baa1	2	A
Otter Tail Corporation	OTTR	2,000	Mid Cap	A3	2	A
Pinnacle West Capital Corporation	PNW	9,000	Mid Cap	A3	1	A+
PNM Resources, Inc.	PNM	3,500	Mid Cap	Baa3	3	B+
Portland General Electric Company	POR	4,500	Mid Cap	A3	2	B++
PPL Corporation	PPL	19,000	Large Cap	Baa2	2	B++
Southern Company	SO	58,000	Large Cap	Baa2	2	A
Xcel Energy Inc.	XEL	33,000	Large Cap	Baa1	1	A+

[1], [4], [5] Value Line Investment Survey
[2] Large Cap > $10 billion; Mid Cap > $2 billion; Small Cap > $200 million
[3] Bond ratings

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Exhibit No. 301.5

DCF Stock and Index Prices

Stock and Index Prices

Ticker	^GSPC	ALE	LNT	AEE	AEP	AVA	CNP	CMS	D	DTE	DUK	ETR	EVRG	FE	IDA	NEE	NWE	OGE	OTTR	PNW	PNM	POR	PPL	SO	XEL
30-day Average	3005	56.41	48.19	71.67	81.61	38.29	17.65	57.00	81.32	104.39	84.84	98.69	59.63	41.21	90.06	240.65	57.70	31.18	41.45	75.36	39.36	44.41	26.47	55.85	62.14
Standard Deviation	117.5	4.07	1.87	2.54	3.42	1.39	0.77	2.25	3.49	5.72	3.56	3.67	3.05	1.34	3.14	13.08	2.52	1.48	1.54	2.90	1.77	2.13	1.86	2.10	2.95
05/05/20	2868	55.88	48.02	71.69	82.57	41.01	16.25	56.73	77.09	101.42	82.18	95.82	56.80	41.29	90.91	228.84	56.55	30.32	42.74	74.64	38.89	45.11	25.00	54.98	62.86
05/06/20	2848	51.61	46.17	69.39	78.12	38.88	15.84	54.25	76.89	99.54	79.15	92.67	54.46	40.00	87.07	221.44	53.61	29.25	40.87	72.01	37.20	42.94	23.95	53.01	60.82
05/07/20	2881	52.32	46.24	69.20	78.60	39.68	17.65	54.13	77.25	97.77	79.38	92.77	55.39	40.21	88.94	223.25	55.25	29.29	41.24	71.76	38.24	43.70	23.96	53.60	59.56
05/08/20	2930	55.12	47.99	70.41	79.86	39.51	18.43	54.88	77.55	100.28	80.84	95.01	57.01	40.60	91.98	228.47	57.41	31.05	43.05	73.87	39.35	44.91	25.76	54.76	59.91
05/11/20	2930	53.62	47.08	70.38	79.17	39.09	18.02	55.07	78.38	97.78	80.72	96.22	55.28	40.42	90.37	226.13	56.85	30.53	41.88	73.65	37.99	44.61	24.91	55.16	59.73
05/12/20	2870	52.05	46.40	68.53	77.91	37.59	17.63	55.14	78.09	98.30	80.94	96.00	55.62	39.60	88.19	226.68	55.41	29.94	40.19	72.48	36.81	42.47	24.51	54.87	58.40
05/13/20	2820	51.30	45.86	67.91	77.73	35.97	16.75	54.22	78.15	95.03	80.95	94.11	56.04	39.05	86.38	228.86	54.38	28.86	38.98	72.46	35.77	41.06	24.22	53.16	57.68
05/14/20	2853	50.01	45.94	68.28	78.10	35.91	17.13	54.37	78.76	97.05	82.30	94.94	56.19	39.96	86.63	230.96	54.41	29.34	38.54	72.02	36.04	40.85	24.90	54.11	57.82
05/15/20	2864	49.60	45.95	68.32	78.43	35.66	16.65	53.68	77.37	96.41	81.19	94.98	56.06	39.29	84.91	226.60	53.67	28.53	38.71	71.42	37.21	40.41	24.18	52.54	57.51
05/18/20	2954	53.49	47.74	71.77	79.88	37.89	17.34	56.09	78.98	102.24	84.92	99.42	58.41	41.11	89.57	234.16	57.10	30.79	41.24	74.86	40.00	42.84	25.78	54.42	59.73
05/19/20	2923	52.63	46.32	70.20	77.14	36.53	16.89	55.31	77.97	101.87	83.29	96.56	57.74	40.36	87.07	229.24	56.02	30.15	39.56	72.59	39.77	41.62	25.01	53.57	59.31
05/20/20	2972	54.04	46.66	69.88	77.75	37.69	16.92	55.44	77.89	102.25	83.31	97.59	59.11	40.28	87.85	231.51	57.19	31.12	40.87	72.77	39.70	42.43	25.24	54.83	59.85
05/21/20	2949	53.43	46.03	68.86	77.37	37.72	16.76	54.74	77.75	100.07	82.34	97.63	58.65	40.43	86.74	227.65	56.95	30.68	40.90	72.28	38.62	42.49	25.35	53.83	59.75
05/22/20	2955	53.49	46.38	69.37	78.78	37.67	16.92	55.59	79.63	101.13	83.23	97.96	60.00	40.64	88.10	232.57	57.23	30.80	41.41	72.66	38.52	42.57	25.30	54.58	59.97
05/26/20	2992	55.42	46.91	70.31	79.92	38.42	17.49	55.68	79.94	104.33	82.81	99.74	59.89	40.71	90.03	233.03	58.49	31.83	42.43	74.34	39.01	43.77	25.92	54.66	60.66
05/27/20	3036	58.21	47.33	70.06	81.44	38.51	17.50	55.97	80.67	105.47	83.72	99.47	60.93	41.36	90.34	239.81	59.48	31.42	42.58	75.50	39.24	44.36	26.38	55.01	61.32
05/28/20	3030	57.46	48.86	73.47	85.10	38.87	18.02	57.93	82.79	106.72	85.83	103.07	62.31	42.69	92.44	249.98	59.44	31.89	43.12	76.85	40.32	45.66	27.07	56.91	63.59
05/29/20	3044	58.73	49.36	74.25	85.25	39.17	17.78	58.58	84.09	106.53	85.63	101.82	61.69	42.26	93.23	254.16	59.48	31.32	42.91	77.90	40.82	46.69	27.56	57.07	64.60
06/01/20	3056	59.20	49.46	73.89	86.14	38.92	18.05	59.01	84.96	107.37	87.44	102.68	62.96	42.76	93.57	255.65	59.81	32.14	42.00	77.58	40.44	46.11	28.12	57.70	65.32
06/02/20	3081	59.89	50.16	74.43	85.98	39.30	18.10	59.50	85.29	109.34	87.67	103.53	63.04	43.07	94.02	256.60	59.57	32.18	42.05	78.16	40.74	47.07	28.74	58.00	65.63
06/03/20	3123	61.09	51.04	75.59	86.99	40.02	18.46	60.14	85.54	111.95	89.23	104.04	63.41	43.49	95.78	259.58	61.44	33.00	43.12	78.97	41.38	47.75	29.51	58.71	66.38
06/04/20	3112	60.57	50.10	73.52	84.40	39.95	18.05	58.79	84.96	110.06	88.44	101.23	62.41	42.36	93.89	251.89	60.11	32.66	41.84	77.83	40.64	46.58	29.60	57.95	64.60
06/05/20	3194	62.88	50.64	75.10	85.51	39.65	18.25	59.44	84.29	113.76	89.49	103.73	63.06	43.27	94.05	254.38	62.14	33.60	43.55	79.38	42.50	47.14	29.63	58.45	64.83
06/08/20	3232	63.66	52.32	76.73	87.91	39.56	19.09	60.98	86.40	116.28	91.91	105.89	65.10	43.98	95.75	260.48	62.57	34.80	44.20	82.04	43.15	47.85	30.23	60.27	66.51
06/09/20	3207	63.19	50.77	75.27	85.91	39.09	18.63	60.29	85.85	113.89	90.32	103.34	63.57	42.89	92.91	258.67	61.56	33.53	42.77	80.11	41.90	47.16	28.37	59.36	65.93
06/10/20	3190	62.12	50.72	74.86	85.37	38.59	18.39	59.90	87.00	111.85	90.19	102.19	63.43	42.25	92.38	256.79	60.06	32.73	42.86	78.13	40.74	46.28	27.86	59.20	66.49
06/11/20	3002	57.29	48.69	71.84	81.76	36.19	17.77	58.11	84.01	103.99	87.08	96.77	60.95	40.50	87.20	248.33	55.91	30.41	39.62	74.70	38.64	44.26	26.36	56.09	64.65
06/12/20	3041	57.73	48.55	71.75	81.80	36.48	18.00	58.30	83.15	105.07	86.74	96.42	60.08	40.43	86.96	246.91	55.58	30.86	39.90	75.60	38.73	44.23	26.55	56.17	63.65
06/15/20	3067	58.41	48.92	72.34	81.76	37.55	18.27	58.47	84.05	106.02	86.96	97.19	59.35	40.47	87.63	248.57	56.48	31.22	40.14	77.09	38.99	44.73	26.79	56.42	63.51
06/16/20	3125	57.95	49.00	72.55	81.60	37.48	18.39	59.13	84.92	107.98	86.95	97.92	59.97	40.51	86.91	248.17	56.82	31.29	40.12	77.23	39.30	44.67	27.18	56.22	63.74

All prices are adjusted closing prices reported by Yahoo! Finance, http://finance.yahoo.com

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Exhibit No. 301.6

DCF Dividend Yields

Dividend Yields

Company	Ticker	[1] Dividend	[2] Stock Price	[3] Dividend Yield
ALLETE, Inc.	ALE	0.618	56.41	1.10%
Alliant Energy Corporation	LNT	0.380	48.19	0.79%
Ameren Corporation	AEE	0.495	71.67	0.69%
American Electric Power Company, Inc.	AEP	0.700	81.61	0.86%
Avista Corporation	AVA	0.405	38.29	1.06%
CenterPoint Energy, Inc.	CNP	0.290	17.65	1.64%
CMS Energy Corporation	CMS	0.407	57.00	0.71%
Dominion Resources, Inc	D	0.940	81.32	1.16%
DTE Energy Company	DTE	1.013	104.39	0.97%
Duke Energy Corporation	DUK	0.945	84.84	1.11%
Entergy Corporation	ETR	0.930	98.69	0.94%
Evergy, Inc.	EVRG	0.505	59.63	0.85%
FirstEnergy Corporation	FE	0.390	41.21	0.95%
IDACORP, Inc.	IDA	0.670	90.06	0.74%
NextEra Energy, Inc.	NEE	1.400	240.65	0.58%
NorthWestern Corporation	NWE	0.600	57.70	1.04%
OGE Energy Corporation	OGE	0.387	31.18	1.24%
Otter Tail Corporation	OTTR	0.370	41.45	0.89%
Pinnacle West Capital Corporation	PNW	0.783	75.36	1.04%
PNM Resources, Inc.	PNM	0.308	39.36	0.78%
Portland General Electric Company	POR	0.385	44.41	0.87%
PPL Corporation	PPL	0.415	26.47	1.57%
Southern Company	SO	0.640	55.85	1.15%
Xcel Energy Inc.	XEL	0.430	62.14	0.69%
Average		**$0.60**	**$66.90**	**0.98%**

[1] Reported quarterly dividends per share. Nasdaq.com
[2] Average stock price from DJG stock price exhibit.
[3] = [1] / [2] ; quarterly dividend yield

WIEC
Exhibit No. 301.7

DCF Terminal Growth Rate Determinants

Terminal Growth Rate Determinants

Growth Determinants	Rate	
Nominal GDP	3.9%	[1]
Inflation	2.0%	[2]
Risk Free Rate	1.4%	[3]
Highest	**3.9%**	

[1], [2] CBO, The 2019 Long-Term Budget Outlook, p. 54, June 2019
[3] From DJG risk-free rate exhibit

RMP Growth Determinants	Rate	
Total Retail Load Growth (2020 - 2039)	0.1%	[4]
Total Customers (2020 - 2039)	0.6%	[6]
Average	**0.4%**	

[4], [5] See response to WIEC 6.9. Average annual growth rate

WIEC
Exhibit No. 301.8

DCF Final Results

Final DCF Result

[1]	[2]	[3]	[4]
Dividend (d_0)	Stock Price (P_0)	Growth Rate (g)	**DCF Result**
$0.60	$66.90	3.90%	**7.7%**

[1] Average proxy quarterly dividend from DJG dividend exhibit

[2] Average proxy stock price from DJG dividend exhibit

[3] Highest growth rate from DJG growth determinant exhibit

[4] Quarterly DCF Approximation = $[d_0(1 + g)^{0.25}/P_0 + (1 + g)^{0.25}]^4 - 1$

WIEC
Exhibit No. 301.9

CAPM Risk-Free Rate

Risk-Free Rate

Date	Rate
05/05/20	1.32%
05/06/20	1.41%
05/07/20	1.31%
05/08/20	1.39%
05/11/20	1.43%
05/12/20	1.38%
05/13/20	1.35%
05/14/20	1.30%
05/15/20	1.32%
05/18/20	1.44%
05/19/20	1.43%
05/20/20	1.40%
05/21/20	1.40%
05/22/20	1.37%
05/26/20	1.43%
05/27/20	1.44%
05/28/20	1.47%
05/29/20	1.41%
06/01/20	1.46%
06/02/20	1.48%
06/03/20	1.56%
06/04/20	1.61%
06/05/20	1.68%
06/08/20	1.65%
06/09/20	1.59%
06/10/20	1.53%
06/11/20	1.41%
06/12/20	1.45%
06/15/20	1.45%
06/16/20	1.54%
Average	**1.45%**

*Daily Treasury Yield Curve Rates on 30-year T-bonds, http://www.treasury.gov/resources-center/data-chart-center/interest-rates/.

WIEC
Exhibit No. 301.10

CAPM Beta Results

Beta Results

Company	Ticker	Beta
ALLETE, Inc.	ALE	0.60
Alliant Energy Corporation	LNT	0.55
Ameren Corporation	AEE	0.50
American Electric Power Company, Inc.	AEP	0.50
Avista Corporation	AVA	0.60
CenterPoint Energy, Inc.	CNP	0.70
CMS Energy Corporation	CMS	0.50
Dominion Resources, Inc	D	0.80
DTE Energy Company	DTE	0.50
Duke Energy Corporation	DUK	0.85
Entergy Corporation	ETR	0.60
Evergy, Inc.	EVRG *	0.62
FirstEnergy Corporation	FE	0.85
IDACORP, Inc.	IDA	0.50
NextEra Energy, Inc.	NEE	0.85
NorthWestern Corporation	NWE	0.55
OGE Energy Corporation	OGE	0.70
Otter Tail Corporation	OTTR	0.70
Pinnacle West Capital Corporation	PNW	0.45
PNM Resources, Inc.	PNM	0.50
Portland General Electric Company	POR	0.55
PPL Corporation	PPL	1.05
Southern Company	SO	0.90
Xcel Energy Inc.	XEL	0.45
Average		0.64

Betas from Value Line Investment Survey

*EVRG Beta from Bloomberg, Exhibit AEB-5

WIEC
Exhibit No. 301.11

CAPM Implied Equity
Risk Premium Calculation

Implied Equity Risk Premium

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Year	Index Value	Operating Earnings	Dividends	Buybacks	Earnings Yield	Dividend Yield	Buyback Yield	Gross Cash Yield
2014	18,245	1,004	350	553	5.50%	1.92%	3.03%	4.95%
2015	17,900	885	382	572	4.95%	2.14%	3.20%	5.33%
2016	19,268	920	397	536	4.77%	2.06%	2.78%	4.85%
2017	22,821	1,066	420	519	4.67%	1.84%	2.28%	4.12%
2018	21,027	1,282	456	806	6.10%	2.17%	3.84%	6.01%
2019	26,760	1,305	485	729	4.88%	1.81%	2.72%	4.54%

Cash Yield	4.96%	[9]
Growth Rate	5.37%	[10]
Risk-free Rate	1.45%	[11]
Current Index Value	3,005	[12]

	[13]	[14]	[15]	[16]	[17]
Year	1	2	3	4	5
Expected Dividends	157	166	175	184	194
Expected Terminal Value					3291
Present Value	146	144	141	138	2436
Intrinsic Index Value	3005	[18]			
Required Return on Market	7.4%	[19]			
Implied Equity Risk Premium	**6.0%**	[20]			

[1-4] S&P Quarterly Press Releases, data found at https://us.spindices.com/indices/equity/sp-500 (additional info tab) (all dollar figures are in $ billions)
[1] Market value of S&P 500
[5] = [2] / [1]
[6] = [3] / [1]
[7] = [4] / [1]
[8] = [6] + [7]
[9] = Average of [8]
[10] = Compund annual growth rate of [2] = (end value / beginning value)^ $^{1/4}$ -1
[11] Risk-free rate from DJG risk-free rate exhibit
[12] 30-day average of closing index prices from DJG stock price exhibit
[13-16] Expected dividends = [9]*[12]*(1+[10])^{n} ; Present value = expected dividend / (1+[11]+[19])^{n}
[17] Expected terminal value = expected dividend * (1+[11]) / [19] ; Present value = (expected dividend + expected terminal value) / (1+[11]+[19])^{n}
[18] = Sum([13-17]) present values.
[19] = [20] + [11]
[20] Internal rate of return calculation setting [18] equal to [12] and solving for the discount rate

WIEC
Exhibit No. 301.12

CAPM Equity Risk Premium Results

Equity Risk Premium Results

IESE Business School Survey	5.6%	[1]
Graham & Harvey Survey	4.4%	[2]
Duff & Phelps Report	6.0%	[3]
Damodaran	5.7%	[4]
Damodaran (COVID Adjusted)	5.2%	[5]
Garrett	6.0%	[6]
Average	**5.5%**	
Highest	**6.0%**	

[1] IESE Business School Survey 2020
[2] Graham and Harvey Survey 2018
[3] Duff & Phelps, 3-5-2020
[4], [5] http://pages.stern.nyu.edu/~adamodar/ , 7-1-20
[6] From DJG implied ERP exhibit

WIEC
Exhibit No. 301.13

CAPM Final Results

CAPM Final Results

Company	Ticker	[1] Risk-Free Rate	[2] Value Line Beta	[3] Risk Premium	[4] CAPM Results
ALLETE, Inc.	ALE	1.45%	0.600	6.00%	5.0%
Alliant Energy Corporation	LNT	1.45%	0.550	6.00%	4.7%
Ameren Corporation	AEE	1.45%	0.500	6.00%	4.4%
American Electric Power Company, Inc.	AEP	1.45%	0.500	6.00%	4.4%
Avista Corporation	AVA	1.45%	0.600	6.00%	5.0%
CenterPoint Energy, Inc.	CNP	1.45%	0.700	6.00%	5.6%
CMS Energy Corporation	CMS	1.45%	0.500	6.00%	4.4%
Dominion Resources, Inc	D	1.45%	0.800	6.00%	6.2%
DTE Energy Company	DTE	1.45%	0.500	6.00%	4.4%
Duke Energy Corporation	DUK	1.45%	0.850	6.00%	6.5%
Entergy Corporation	ETR	1.45%	0.600	6.00%	5.0%
Evergy, Inc.	EVRG	1.45%	0.620	6.00%	5.2%
FirstEnergy Corporation	FE	1.45%	0.850	6.00%	6.5%
IDACORP, Inc.	IDA	1.45%	0.500	6.00%	4.4%
NextEra Energy, Inc.	NEE	1.45%	0.850	6.00%	6.5%
NorthWestern Corporation	NWE	1.45%	0.550	6.00%	4.7%
OGE Energy Corporation	OGE	1.45%	0.700	6.00%	5.6%
Otter Tail Corporation	OTTR	1.45%	0.700	6.00%	5.6%
Pinnacle West Capital Corporation	PNW	1.45%	0.450	6.00%	4.1%
PNM Resources, Inc.	PNM	1.45%	0.500	6.00%	4.4%
Portland General Electric Company	POR	1.45%	0.550	6.00%	4.7%
PPL Corporation	PPL	1.45%	1.050	6.00%	7.7%
Southern Company	SO	1.45%	0.900	6.00%	6.8%
Xcel Energy Inc.	XEL	1.45%	0.450	6.00%	4.1%
Average			0.640		**5.3%**

[1] From DJG risk-free rate exhibit
[2] From DJG beta exhibit
[3] From DJG equity risk premium exhibit
[6] = [1] + [2] * [3]

WIEC
Exhibit No. 301.14

Cost of Equity Summary

Cost of Equity Summary

Model	Cost of Equity
Discounted Cash Flow Model	7.7%
Capital Asset Pricing Model	5.3%
Average	**6.5%**

WIEC
Exhibit No. 301.15

Market Cost of Equity

Market Cost of Equity

Source	Estimate	
IESE Survey	7.0%	[1]
Graham Harvey Survey	5.9%	[2]
Damodaran	7.1%	[3]
Garrett	7.4%	[4]
Average	6.9%	

[1] Average reported ERP + riskfree rate
[2] Average reported ERP + risk-free rate
[3] Recent highest reported ERP + risk-free rate
[4] From Implied ERP exhibit

WIEC
Exhibit No. 301.16

Market Cost of Equity vs. Awarded Returns

Market Cost of Equity vs. Awarded Returns

	[1]		[2]		[3]		[4]	[5]	[6]	[7]
	Electric Utilities		Gas Utilities		Total Utilities		S&P 500	T-Bond	Risk	Market
Year	ROE	#	ROE	#	ROE	#	Returns	Rate	Premium	COE
1990	12.70%	38	12.68%	33	12.69%	71	-3.06%	8.07%	3.89%	11.96%
1991	12.54%	42	12.45%	31	12.50%	73	30.23%	6.70%	3.48%	10.18%
1992	12.09%	45	12.02%	28	12.06%	73	7.49%	6.68%	3.55%	10.23%
1993	11.46%	28	11.37%	40	11.41%	68	9.97%	5.79%	3.17%	8.96%
1994	11.21%	28	11.24%	24	11.22%	52	1.33%	7.82%	3.55%	11.37%
1995	11.58%	28	11.44%	13	11.54%	41	37.20%	5.57%	3.29%	8.86%
1996	11.40%	18	11.12%	17	11.26%	35	22.68%	6.41%	3.20%	9.61%
1997	11.33%	10	11.30%	12	11.31%	22	33.10%	5.74%	2.73%	8.47%
1998	11.77%	10	11.51%	10	11.64%	20	28.34%	4.65%	2.26%	6.91%
1999	10.72%	6	10.74%	6	10.73%	12	20.89%	6.44%	2.05%	8.49%
2000	11.58%	9	11.34%	13	11.44%	22	-9.03%	5.11%	2.87%	7.98%
2001	11.07%	15	10.96%	5	11.04%	20	-11.85%	5.05%	3.62%	8.67%
2002	11.21%	14	11.17%	19	11.19%	33	-21.97%	3.81%	4.10%	7.91%
2003	10.96%	20	10.99%	25	10.98%	45	28.36%	4.25%	3.69%	7.94%
2004	10.81%	21	10.63%	22	10.72%	43	10.74%	4.22%	3.65%	7.87%
2005	10.51%	24	10.41%	26	10.46%	50	4.83%	4.39%	4.08%	8.47%
2006	10.32%	26	10.40%	15	10.35%	41	15.61%	4.70%	4.16%	8.86%
2007	10.30%	38	10.22%	35	10.26%	73	5.48%	4.02%	4.37%	8.39%
2008	10.41%	37	10.39%	32	10.40%	69	-36.55%	2.21%	6.43%	8.64%
2009	10.52%	40	10.22%	30	10.39%	70	25.94%	3.84%	4.36%	8.20%
2010	10.37%	61	10.15%	39	10.28%	100	14.82%	3.29%	5.20%	8.49%
2011	10.29%	42	9.92%	16	10.19%	58	2.10%	1.88%	6.01%	7.89%
2012	10.17%	58	9.94%	35	10.08%	93	15.89%	1.76%	5.78%	7.54%
2013	10.03%	49	9.68%	21	9.93%	70	32.15%	3.04%	4.96%	8.00%
2014	9.91%	38	9.78%	26	9.86%	64	13.52%	2.17%	5.78%	7.95%
2015	9.85%	30	9.60%	16	9.76%	46	1.38%	2.27%	6.12%	8.39%
2016	9.77%	42	9.54%	26	9.68%	68	11.77%	2.45%	5.69%	8.14%
2017	9.74%	53	9.72%	24	9.73%	77	21.61%	2.41%	5.08%	7.49%
2018	9.64%	37	9.62%	26	9.63%	63	-4.23%	2.68%	5.96%	8.64%
2019	9.64%	67			9.64%	67	31.22%	1.92%	5.20%	7.12%

[1], [2], [3] Average annual authorized ROE for electric and gas utilities, RRA Regulatory Focus: Major Rate Case Decisions

[3] = [1] + [2]

[4], [5], [6] Annual S&P 500 return, 10-year T-bond Rate, and equity risk premium published by NYU Stern School of Business

[7] = [5] + [6] ; Market cost of equity represents the required return for investing in all stocks in the market for a given year

WIEC
Exhibit No. 301.17

Competitive Industry Debt Ratios

Competitive Industry Debt Ratios

Industry	# Firms	Debt Ratio
Tobacco	17	96%
Financial Svcs. (Non-bank & Insurance)	232	95%
Retail (Building Supply)	17	90%
Hospitals/Healthcare Facilities	36	88%
Advertising	47	80%
Retail (Automotive)	26	79%
Brokerage & Investment Banking	39	77%
Auto & Truck	13	75%
Food Wholesalers	17	70%
Bank (Money Center)	7	69%
Transportation	18	67%
Hotel/Gaming	65	67%
Packaging & Container	24	66%
Retail (Grocery and Food)	13	66%
Broadcasting	27	65%
R.E.I.T.	234	64%
Retail (Special Lines)	89	64%
Green & Renewable Energy	22	64%
Recreation	63	63%
Software (Internet)	30	63%
Air Transport	18	63%
Retail (Distributors)	80	62%
Computers/Peripherals	48	61%
Telecom (Wireless)	18	61%
Farming/Agriculture	31	61%
Cable TV	14	60%
Computer Services	106	60%
Beverage (Soft)	34	60%
Telecom. Services	67	60%
Trucking	33	59%
Power	52	59%
Office Equipment & Services	22	58%
Chemical (Diversified)	6	58%
Retail (Online)	70	58%
Aerospace/Defense	77	58%
Oil/Gas Distribution	24	58%
Business & Consumer Services	165	57%
Construction Supplies	44	57%
Real Estate (Operations & Services)	57	56%
Household Products	127	56%
Environmental & Waste Services	82	56%
Rubber& Tires	4	56%
Transportation (Railroads)	8	55%
Retail (General)	18	54%
Chemical (Basic)	43	54%
Utility (Water)	17	54%
Building Materials	42	54%
Apparel	51	52%
Real Estate (Development)	20	51%
Healthcare Support Services	128	50%
Drugs (Biotechnology)	503	49%
Electrical Equipment	113	49%
Food Processing	88	48%
Machinery	120	48%
Furn/Home Furnishings	35	48%
Beverage (Alcoholic)	21	48%
Drugs (Pharmaceutical)	267	48%
Auto Parts	46	47%
Total / Average	**3,735**	**62%**

http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/dbtfund.htm

WIEC
Exhibit No. 301.18

Proxy Company Debt Ratios

Proxy Company Debt Ratios

Company	Ticker	Debt Ratio
ALLETE, Inc.	ALE	39%
Alliant Energy Corporation	LNT	52%
Ameren Corporation	AEE	52%
American Electric Power Company, Inc.	AEP	56%
Avista Corporation	AVA	49%
CenterPoint Energy, Inc.	CNP	63%
CMS Energy Corporation	CMS	70%
Dominion Resources, Inc	D	51%
DTE Energy Company	DTE	58%
Duke Energy Corporation	DUK	54%
Entergy Corporation	ETR	62%
Evergy, Inc.	EVRG	51%
FirstEnergy Corporation	FE	74%
IDACORP, Inc.	IDA	41%
NextEra Energy, Inc.	NEE	50%
NorthWestern Corporation	NWE	53%
OGE Energy Corporation	OGE	44%
Otter Tail Corporation	OTTR	47%
Pinnacle West Capital Corporation	PNW	47%
PNM Resources, Inc.	PNM	60%
Portland General Electric Company	POR	51%
PPL Corporation	PPL	62%
Southern Company	SO	60%
Xcel Energy Inc.	XEL	57%
Average		54%

Debt ratios from Value Line Investment Survey

WIEC
Exhibit No. 301.19

Bond Rating Spreads

Bond Rating Spreads

Ratings Table

Coverage Ratio	Bond Rating	Spread	Interest Rate
8.5 - 10.00	Aaa/AAA	0.63%	2.08%
6.5 - 8.49	Aa2/AA	0.78%	2.23%
5.5 - 6.49	A1/A+	0.98%	2.43%
4.25 - 5.49	A2/A	1.08%	2.53%
3.0 - 4.24	A3/A-	1.22%	2.67%
2.5 - 2.99	Baa2/BBB	1.56%	3.01%
2.25 - 2.49	Ba1/BB+	2.00%	3.45%
2.0 - 2.24	Ba2/BB	2.40%	3.85%
1.75 - 1.99	B1/B+	3.51%	4.96%
1.5 - 1.74	B2/B	4.21%	5.66%
1.25 - 1.49	B3/B-	5.15%	6.60%
0.8 - 1.24	Caa/CCC	8.20%	9.65%

The link between interest coverage ratios and ratings was developed by looking at all rated companies in the U.S. The default spreads are obtained from traded bonds. The spreads are added to the risk-free rate to obtain the interest rates in the table.
http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ratings.htm.

BEFORE THE PUBLIC SERVICE COMMISSION OF WYOMING

IN THE MATTER OF THE APPLICATION OF ROCKY MOUNTAIN POWER FOR AUTHORITY TO INCREASE ITS RETAIL ELECTRIC SERVICE RATES BY APPROXIMATELY $7.1 MILLION PER YEAR OR 1.1 PERCENT, TO REVISE THE ENERGY COST ADJUSTMENT MECHANISM, AND TO DISCONTINUE OPERATIONS AT CHOLLA UNIT 4	DOCKET NO. 20000-578-ER-20 (Record No. 15464)

AFFIDAVIT, OATH AND VERIFICATION

STATE OF OKLAHOMA)
) SS:
COUNTY OF OKLAHOMA)

David Garrett, being first duly sworn, on his oath states:

1. My name is David J. Garrett. I am the Managing Member of Resolve Utility Consulting, LLC. I have been retained by the Wyoming Industrial Energy Consumers to testify in this proceeding on their behalf.

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony and Exhibits, which has been prepared in written form for introduction into evidence in Docket No. 20000-578-ER-20.

3. I hereby swear and affirm that my answers contained in the testimony are true and correct.

David Garrett
Resolve Utility Consulting, LLC
101 Park Avenue, Suite 1125
Oklahoma City, OK 73102

Subscribed and sworn to before me this 5th day of August, 2020.

CHRISTINE D MUNOZ NOTARY No. 19007946 Exp. 8-7-23 PUBLIC STATE OF OKLAHOMA

Notary Public
Commission #: 19007946

My Commission Expires: 8/7/23