

BEFORE THE CORPORATION COMMISSION OF OKLAHOMA

APPLICATION OF PUBLIC SERVICE COMPANY
OF OKLAHOMA, AN OKLAHOMA
CORPORATION, FOR AN ADJUSTMENT IN ITS
RATES AND CHARGES AND THE ELECTRIC
SERVICE RULES, REGULATIONS AND
CONDITIONS OF SERVICE FOR ELECTRIC
SERVICE IN THE STATE OF OKLAHOMA

CAUSE NO. PUD 201700151

RESPONSIVE TESTIMONY OF

DAVID J. GARRETT

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CORPORATION COMMISSION
OF OKLAHOMA

PART I – RISK AND RETURN

ON BEHALF OF
**OKLAHOMA INDUSTRIAL ENERGY CONSUMERS,
WAL-MART STORES EAST, LP, AND
SAM'S EAST, INC.**

IN RESPONSE TO THE DIRECT TESTIMONY OF
PAULINE M. AHERN

SEPTEMBER 21, 2017

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I. INTRODUCTION

1 **Q. State your name and occupation.**

2 A. My name is David J. Garrett. I am a consultant specializing in public utility regulation. I
3 am the managing member of Resolve Utility Consulting, PLLC. I focus my practice on
4 the primary capital recovery mechanisms for public utility companies: cost of capital and
5 depreciation.

6 **Q. Summarize your educational background and professional experience.**

7 A. I received a B.B.A. degree with a major in Finance, an M.B.A. degree, and a Juris Doctor
8 degree from the University of Oklahoma. I worked in private legal practice for several
9 years before accepting a position as assistant general counsel at the Oklahoma Corporation
10 Commission in 2011. At the Oklahoma Commission, I worked in the Office of General
11 Counsel in regulatory proceedings. In 2012, I began working for the Public Utility
12 Division as a regulatory analyst providing testimony in regulatory proceedings. After
13 leaving the Oklahoma Commission, I formed Resolve Utility Consulting, PLLC, where I
14 have represented various consumer groups and state agencies in utility regulatory
15 proceedings, primarily in the areas of cost of capital and depreciation. I am a Certified
16 Depreciation Professional through the Society of Depreciation Professionals. I am also a
17 Certified Rate of Return Analyst through the Society of Utility and Regulatory Financial

1 Analysts. A more complete description of my qualifications and regulatory experience is
2 included in my curriculum vitae.¹

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

4 A. I am testifying on behalf of Oklahoma Industrial Energy Consumers (“OIEC”) and Wal-
5 Mart Stores East, LP, and Sam’s East, Inc. (collectively, “Wal-Mart”).

6 **Q. Describe the purpose and scope of your testimony in this proceeding.**

7 A. In this case I am testifying in response to the direct testimonies of four witnesses of Public
8 Service Company of Oklahoma (“PSO” or the Company). Part I of my responsive
9 testimony (this document) addresses the direct testimony of Pauline M. Ahern regarding
10 risk and return concepts and cost recovery of early-retired plant. Part II of my responsive
11 testimony (a separate document) addresses the direct testimonies of John J. Spanos and
12 Steven L. Fate regarding PSO’s proposed depreciation rates, and it also addresses the direct
13 testimony of Thomas J. Meehan regarding PSO’s proposed decommissioning costs, which
14 directly affects the Company’s production net salvage and depreciation rates.

¹ Direct Exhibit DJG-1-1.

II. EXECUTIVE SUMMARY

1 **Q. Explain the Weighted Average Cost of Capital, and how the Company's ROE and its**
2 **capital structure affect this equation.**

3 A. The term "cost of capital" refers to the weighted average cost of all types of securities
4 within a company's capital structure, including debt and equity. Determining the cost of
5 debt is relatively straight-forward. Interest payments on bonds are contractual, "embedded
6 costs" that are generally calculated by dividing total interest payments by the book value
7 of outstanding debt. Determining the cost of equity, on the other hand, is more complex.
8 Unlike the known, contractual cost of debt, there is no explicit "cost" of equity; the cost of
9 equity must be estimated through various financial models. Thus, the overall weighted
10 average cost of capital ("WACC"), includes the cost of debt and the estimated cost of
11 equity. It is a "weighted average," because it is based upon the Company's relative levels
12 of debt and equity, or "capital structure." Companies in the competitive market often use
13 their WACC as the discount rate to determine the value of capital projects, so it is important
14 that this figure be closely estimated. The basic WACC equation used in regulatory
15 proceedings is presented as follows:²

² See Roger A. Morin, *New Regulatory Finance* 449-450 (Public Utilities Reports, Inc. 2006) (1994). The traditional practice uses current market returns and market values of the company's outstanding securities to compute the WACC, but in the ratemaking context, analysts usually employ a hybrid computation consisting of embedded costs of debt from the utilities books, and a market-based cost of equity. Additionally, the traditional WACC equation usually accounts for the tax shield provided by debt, but taxes are accounted for separately in the ratemaking revenue requirement.

**Equation 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*

1 Thus, the three components of the weighted average cost of capital are as follows:

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

2 The term “cost of capital” is necessarily synonymous with the “weighted average cost of
3 capital,” and the terms are used interchangeably throughout this testimony.

4 **Q. Describe the relationship between the cost of equity, required return on equity,
5 earned return on equity, and awarded return on equity.**

6 A. While “cost of equity,” “earned return on equity,” and “awarded return on equity” are
7 interrelated factors and concepts, they are all technically different. The financial models
8 presented in this case were created as tools for estimating the “cost” of equity, which is
9 synonymous to the “required return” that investors expect in exchange for giving up their
10 opportunity to invest in other securities, or postponing their own consumption, given the
11 level of risk inherent in the equity investment. In other words, the *cost* of equity from the
12 company’s perspective equals the “required return” from the investor’s perspective.

1 The “earned” ROE is a historical return that is measured from a company’s
2 accounting statements, and it is used to measure how much shareholders earned for
3 investing in a company. A company’s earned ROE is not the same as the company’s cost
4 of equity or an investor’s required return. For example, an investor who invests in a risky
5 firm may *require* a return on investment of 10%. If the company has used the same
6 estimates as the investor, then the company will estimate that its *cost* of equity is also 10%.
7 If the company performs poorly and the investor *earns* a return only 3%, this does not mean
8 that the investor required only 3%, or that the investor will not still require a 10% return
9 the following period. Thus, the cost of equity is not the same as the earned ROE. If by
10 chance the company in this example achieves a 10% return on equity, then it will have
11 exactly satisfied the return required by its shareholders.

12 Finally, the “awarded” return on equity is unique to the regulatory environment; it
13 is the return authorized by a regulatory commission pursuant to legal guidelines. As
14 discussed later in this testimony, the awarded ROE should be based on the utility’s cost of
15 equity. The relationship between the terms and concepts discussed thus far may be
16 summarized as follows: If the awarded ROE reflects a utility’s cost of equity it should
17 allow the utility to achieve an earned ROE that is sufficient to satisfy the required ROE of
18 its equity investors; in addition, the regulator must consider the cost of debt and determine
19 a prudent capital structure in order to ensure the utility’s weighted average cost of capital
20 is fair and reasonable.

1 **Q. Are you providing a specific cost of capital or awarded rate of return**
2 **recommendation in this testimony?**

3 A. No. OIEC and Wal-Mart's recommendation regarding PSO's cost of capital and awarded
4 rate of return is presented in the direct testimony of David C. Parcell. In PSO's prior rate
5 case, however, I offered evidence indicating that PSO's current authorized return on equity
6 is significantly greater than its actual cost of equity. Since the cost of equity for utility
7 companies rarely changes substantially from year to year, it is unlikely PSO's cost of equity
8 has changed much since its 2015 rate case. Thus, it is highly likely that PSO's current
9 authorized return on equity of 9.5% is significantly higher than the Company's actual cost
10 of equity. To the extent the cost of capital witnesses in this case, including Mr. Parcell,
11 recommend authorized returns on equity that are more reflective of PSO's actual cost of
12 equity, I would generally support such recommendations because, as discussed further
13 below, those recommendations would promote the standards set forth in the Supreme Court
14 opinions governing this issue.

III. LEGAL STANDARDS AND THE AWARDED RETURN

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

17 A. In *Wilcox v. Consolidated Gas Co. of New York*, the U.S. Supreme Court first addressed
18 the meaning of a fair rate of return for public utilities.³ The Court found that "the amount
19 of risk in the business is a most important factor" in determining the appropriate allowed

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

1 rate of return.⁴ Later in two landmark cases, the Court set forth the standards by which
2 public utilities are allowed to earn a return on capital investments. In *Bluefield Water*
3 *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.⁵

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

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

6 This means that the Company's awarded return on equity should be based on its actual cost
7 of equity. PSO's specific cost of equity and fair rate of return are addressed and
8 recommended in the direct testimony of Mr. Parcell.

⁴ *Id.* at 48.

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

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

1 **Q. Is it important that the awarded rate of return be based on the Company's actual cost**
2 **of capital?**

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

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

10 If the Commission sets the awarded return at a rate higher than the cost of equity
11 recommended by Mr. Parcell, it runs the risk of facilitating an inappropriate transfer of
12 wealth from ratepayers to shareholders.

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

[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.⁸

1 Thus, it is important to understand that the *awarded* return and the *cost* of capital are
2 different but related concepts. The two concepts are related in that the legal and technical
3 standards encompassing this issue maintain the awarded return should reflect the true cost
4 of capital. On the other hand, the two concepts are different in that the legal standards do
5 not mandate that awarded returns exactly match the cost of capital. Awarded returns are
6 set through the regulatory process and may be influenced by a number of factors other than
7 objective market drivers. The cost of capital, on the other hand, should be evaluated
8 objectively and closely tie to economic market realities. In other words, the cost of capital
9 is driven by stock prices, dividends, growth rates, and most importantly – it is driven by
10 risk. The cost of capital can be estimated through the use of financial models used by firms,
11 investors, and academics around the world for decades. The problem is, with respect to
12 regulated utilities, there has been a trend in which awarded returns fail to closely track with
13 actual market-based cost of capital as further discussed below. To the extent this occurs,
14 the results are detrimental to ratepayers and the state's economy.

⁸ Morin *supra* n. 2, at 23-24.

1 **Q. Describe the economic impact that occurs when the awarded return strays too far**
2 **from the Supreme Court's cost of equity standard.**

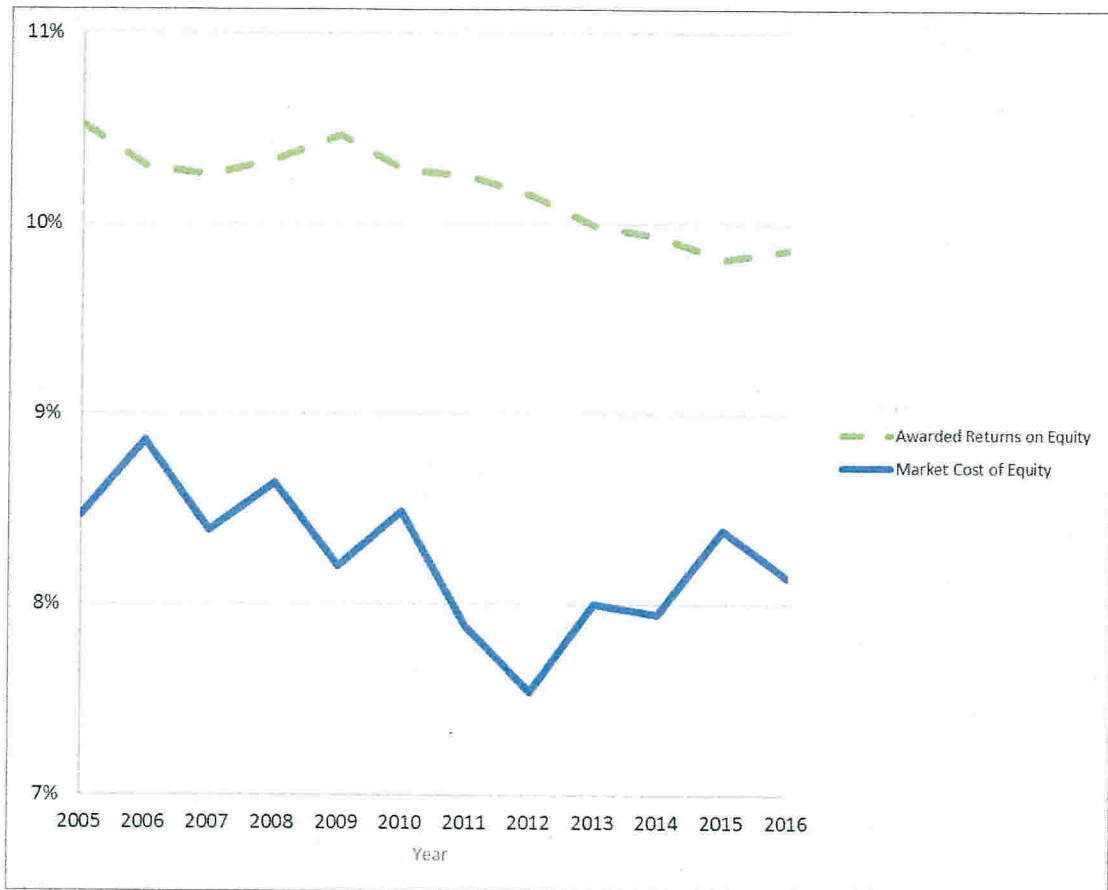
3 A. When the awarded ROE is set far above true cost of equity, it runs the risk of violating the
4 Supreme Court's standards directing that the awarded return should be *based on the cost*
5 *of capital*. In addition, an excessive ROE award would result in harmful impacts to the
6 state's economy because it would permit an excess wealth transfer from Oklahoma
7 ratepayers to PSO's out-of-state shareholders and the Internal Revenue Service. This
8 outflow of funds from Oklahoma's economy would not benefit its businesses or citizens.
9 Instead, Oklahoma businesses, such as OIEC member companies and Wal-Mart, would be
10 less competitive with businesses in surrounding states, and individual ratepayers will
11 receive inflated costs for basic goods and services, along with higher utility bills.

12 Moreover, establishing an awarded return that far exceeds true cost of capital
13 effectively prevents the awarded returns from changing along with economic conditions.
14 This is especially true given the fact that regulators tend to be influenced by the awarded
15 returns in other jurisdictions, regardless of the various unknown factors influencing those
16 awarded returns. This is yet another reason why it is crucial for regulators to focus on the
17 actual *cost* of equity, rather than awarded returns from other jurisdictions. Awarded returns
18 may be influenced by settlements and other political factors not based on true market
19 conditions. In contrast, the true cost of equity as estimated through objective models is not
20 influenced by these factors, but is instead driven by market-based factors. If regulators
21 rely too heavily on the awarded returns from other jurisdictions, it can create a cycle over
22 time that bears little relation to the market-based cost of equity. In fact, this is exactly what
23 we have observed over the past 10 years, at least. As shown in the figure below, awarded

1 returns for public utilities have been well above the average required market return for at
2 least ten years. Due to the fact that utility stocks are consistently far less risky than the
3 average stock in the marketplace, the cost of equity for utility companies are *less* than the
4 required return on the market.

5 The graph below shows two lines. The top line is the average annual awarded
6 returns over the past 10 years. The bottom line is the required market return over the same
7 period. As discussed in more detail later in the testimony, the required market return is
8 essentially the return that investors would require if they invested in the entire market. In
9 other words, the required market return is essentially the cost of equity of the entire market.
10 Since it is undisputed (even by utility witnesses) that utility stocks are less risky than the
11 average stock in the market, then the utility cost of equity must be less than the market cost
12 of equity. Thus, awarded returns should be much closer to, if not below the market cost of
13 equity, on average, since awarded returns are supposed to be based on actual cost of equity.

Figure 1:
Awarded Returns on Equity vs. Market Cost of Equity (2005 – 2016)



1 The gap between awarded returns and utility cost of equity has resulted in an excess
2 of ratepayer wealth being transferred to utility shareholders and the IRS for at least 10
3 years. This is likely due, in part, to the fact that many years ago (in the 1990s) interest
4 rates were much higher, with average required market return around 12%. In that
5 environment, the cost of equity for low-risk utility stocks may have been about 9%. Since
6 that time, however, interest rates have dramatically declined among other economic

1 changes, and it is clear that awarded returns have failed to keep pace with decreasing equity
2 costs.

3 It is not hard to see why this trend of inflating awarded returns has occurred in the
4 past. Because awarded returns have at times been based in part on a comparison with other
5 awarded returns, the average awarded returns effectively fail to adapt to true market
6 conditions. Once utility companies and regulatory commissions become accustomed to
7 awarding rates of return higher than market conditions actually require, this trend becomes
8 difficult to reverse. The fact is, utility stocks are *less risky* than the average stock in the
9 market. As such, the required returns (cost of equity) on utility stocks should be less than
10 the average required returns on the market. However, that is often not the case. What we
11 have seen instead is a disconnect from the market-based cost of equity. For these reasons,
12 the Commission should strive to move the awarded return to a level more closely aligned
13 with the Company's actual, market-derived cost of capital while keeping in mind the
14 following legal principles:

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

15 The legal standards articulated in *Hope* and *Bluefield* demonstrate that the Court
16 understands one of the most basic, fundamental concepts in financial theory: the more
17 (less) risk an investor assumes, the more (less) return the investor requires. Since utility
18 stocks are very low risk, the return required by equity investors should be relatively low.
19 The financial models presented in Mr. Parcell's testimony account for this risk. The public
20 utility industry is one of the least risky industries in the entire country. In turn, the awarded

1 ROE in this case should reflect the fact that PSO is a low-risk firm, as discussed in detail
2 in the direct testimony of Mr. Parcell.

3 **2. The awarded return should be sufficient to assure financial soundness under
4 efficient management.**

5 Because awarded returns in the regulatory environment have not closely tracked market-
6 based trends and commensurate risk, utility companies have been able to remain more than
7 financially sound, perhaps in spite of management efficiencies. In fact, the transfer of
8 wealth from ratepayers to shareholders has been so far removed from actual cost-based
9 drivers, that even under relatively inefficient management a utility could remain financially
10 sound. Therefore, regulatory commissions should strive to set the awarded return to a
regulated utility at a level based on accurate market conditions to promote prudent and
efficient management and minimize economic waste.

IV. RISK AND RETURN RELATIONSHIP

A. General Concepts

11 **Q. Discuss the general relationship between risk and return.**

12 A. Risk is among the most important factors for the Commission to consider when
13 determining the allowed return. In order to comply with this standard, it is necessary to
14 understand the relationship between risk and return. There is a direct relationship between
15 risk and return: the more (or less) risk an investor assumes, the larger (or smaller) return
16 the investor will demand. There are two primary types of risk: firm-specific risk and

1 market risk. Firm-specific risk affects individual companies, while market risk affects all
2 companies in the market to varying degrees.

B. Firm-specific “Business” Risk vs. Market Risk

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

4 A. Firm-specific risk affects individual companies, rather than the entire market. For example,
5 a competitive firm might overestimate customer demand for a new product, resulting in
6 reduced sales revenue. This is an example of project risk.⁹ There are several other types
7 of firm-specific risks, including: (1) financial risk – the risk that equity investors of
8 leveraged firms face as residual claimants on earnings; (2) default risk – the risk that a firm
9 will default on its debt securities; and (3) business risk – which encompasses all other
10 operating and managerial factors that may result in investors realizing less than their
11 expected return in that particular company. While firm-specific risk affects individual
12 companies, market risk affects all companies in the market to varying degrees. Examples
13 of market risk include interest rate risk, inflation risk, and the risk of major socio-economic
14 events. When there are changes in these risk factors, they affect all firms in the market to
15 some extent.¹⁰

16 Analysis of the U.S. market in 2001 provides a good example for contrasting firm-
17 specific risk and market risk. During that year, Enron Corp.’s stock fell from about \$80

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

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

1 per share to about \$0.60 per share and the company filed bankruptcy at the end of the year.
2 If an investor had invested his entire portfolio in Enron stock at the beginning of 2001, this
3 irrational investor would have lost the entire investment by the end of the year due to
4 assuming the full exposure of Enron's firm-specific risk – in that case, imprudent
5 management. On the other hand, a rational, diversified investor who owned every stock in
6 the S&P 500 would have had a much different result that year. The rational investor would
7 have been relatively unaffected by the fall of Enron, because his portfolio included 499
8 other stocks. Each of those stocks, however, would have been affected by various market
9 risk factors that occurred that year, including the terrorist attacks on September 11th. Thus,
10 the rational investor would have incurred a relatively minor loss due to market risk factors,
11 while the irrational investor would have lost everything due to firm-specific risk factors.

12 **Q. Do you agree with Ms. Ahern's testimony to the extent it suggests that equity investors**
13 **expect a return for assuming firm-specific "business risk."**

14 **A.** No. In her direct testimony, Ms. Ahern states that utilities face a variety of "business risks"
15 including the allowed return on common equity, depreciation expense, customer mix, and
16 other firm-specific risks. While it might be accurate to describe these factors as "risks,"
17 Ms. Ahern's testimony on this issue is misleading because rational investors do not expect
18 a return for assuming such firm-specific business risks, as further discussed below.

1 **Q. Can investors easily eliminate firm-specific business risk?**

2 A. Yes. A fundamental concept in finance is that firm-specific risk can be eliminated through
3 diversification.¹¹ If someone irrationally invested all of their funds in one firm, they would
4 be exposed to all of the firm-specific risk and the market risk inherent in that single firm.
5 Rational investors, however, are risk-averse and seek to eliminate risk they can control.
6 Investors can eliminate firm-specific risk by simply adding more stocks to their portfolio
7 through a process called “diversification.” There are two reasons why diversification
8 eliminates firm-specific risk. First, each stock in a diversified portfolio represents a much
9 smaller percentage of the overall portfolio than it would in a portfolio of just one or a few
10 stocks. Thus, any firm-specific action that changes the stock price of one stock in the
11 diversified portfolio will have only a small impact on the entire portfolio.¹²

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

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

¹² See Damodaran *supra* n. 9, at 64.

¹³ *Id.*

1 **Q. Is it well-known and accepted that because firm-specific risk can be easily eliminated**
2 **through diversification, it is not rewarded by the market through higher returns?**

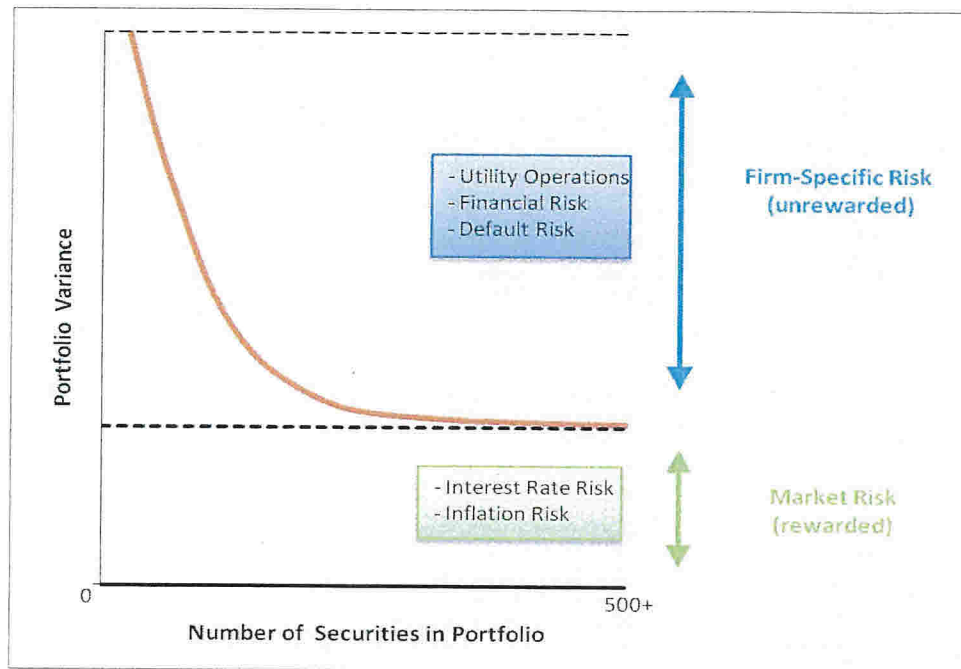
3 A. Yes. Because investors eliminate firm-specific risk through diversification, they know they
4 cannot expect a higher return for assuming the firm-specific risk in any one company.
5 Thus, the risks associated with an individual firm's operations are not rewarded by the
6 market. In fact, firm-specific risk is also called "unrewarded" risk for this reason. Market
7 risk, on the other hand, cannot be eliminated through diversification. Because market risk
8 cannot be eliminated through diversification, investors expect a return for assuming this
9 type of risk. Market risk is also called "systematic risk." Scholars recognize the fact that
10 market risk, which is also called "systematic risk," is the only type of risk for which
11 investors expect a return for bearing:

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

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

¹⁴ See Graham, Smart & Megginson *supra* n. 11, at 180 (emphasis added).

**Figure 2:
Effects of Portfolio Diversification**



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

7 **Q. Describe how market risk is measured.**

8 A. Investors who want to eliminate firm-specific risk must hold a fully diversified portfolio.
 9 To determine the amount of risk that a single stock adds to the overall market portfolio,
 10 investors measure the covariance between a single stock and the market portfolio. The

1 result of this calculation is called “beta.”¹⁵ Beta represents the sensitivity of a given
2 security to the market as a whole. The market portfolio of all stocks has a beta equal to
3 one. Stocks with betas greater than one are relatively more sensitive to market risk than
4 the average stock. For example, if the market increases (decreases) by 1.0%, a stock with
5 a beta of 1.5 will, on average, increase (decrease) by 1.5%. In contrast, stocks with betas
6 of less than one are less sensitive to market risk, such that if the market increases
7 (decreases) by 1.0%, a stock with a beta of 0.5 will, on average, only increase (decrease)
8 by 0.5%. Thus, stocks with low betas are relatively insulated from market conditions. The
9 beta term is used in the Capital Asset Pricing Model to estimate the cost of equity, which
10 is discussed in detail in Mr. Parcell’s testimony. This means that Mr. Parcell has already
11 accounted for any necessary risks that PSO’s investors require a return for assuming, and
12 thus there is no need to make a separate adjustment or add any premium to PSO’s
13 authorized return on equity to account for such risks, as implied by Ms. Ahern.

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

16 **A.** Yes. Although market risk affects all firms in the market, it affects different firms to
17 varying degrees. Firms with high betas are affected more than firms with low betas, which
18 is why firms with high betas are riskier. Stocks with betas greater than one are generally
19 known as “cyclical stocks.” Firms in cyclical industries are sensitive to recurring patterns

¹⁵ *Id.* at 180-81.

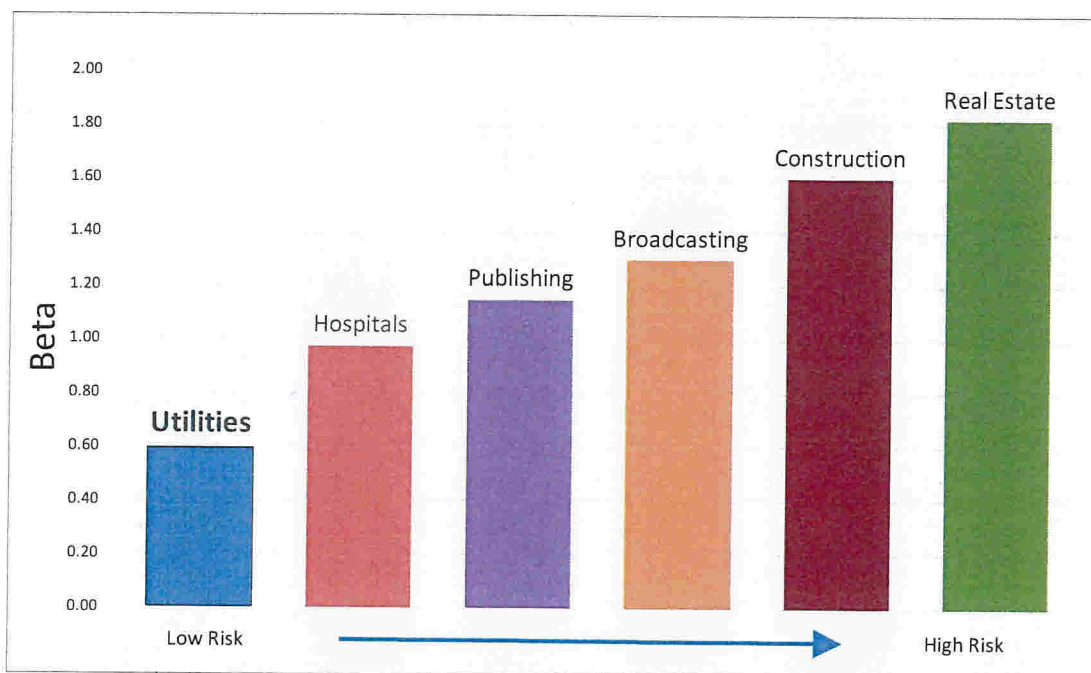
1 of recession and recovery known as the “business cycle.”¹⁶ Thus, cyclical firms are
2 exposed to a greater level of market risk. Securities with betas less than one, other the
3 other hand, are known as “defensive stocks.” Companies in defensive industries, such as
4 public utility companies, “will have low betas and performance that is comparatively
5 unaffected by overall market conditions.”¹⁷ In fact, financial textbooks often use utility
6 companies as prime examples of low-risk, defensive firms. The figure below compares the
7 betas of several industries and illustrates that the utility industry is one of the least risky
8 industries in the U.S. market.¹⁸

¹⁶ See Bodie, Kane & Marcus *supra* n. 10, at 382.

¹⁷ *Id.* at 383.

¹⁸ See Betas by Sector (US) at <http://pages.stern.nyu.edu/~adamodar/>. The exact beta calculations are not as important as illustrating the well-known fact that utilities are very low-risk companies. The fact that the utility industry is one of the lowest risk industries in the country should not change from year to year.

**Figure 3:
Beta by Industry**



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

1 **Q. Do you have any other comments on Ms. Ahern's testimony regarding the risk-return**
2 **relationship?**

3 A. Yes. Ms. Ahern testifies that "the greater the perceived risk of an investment, such as a
4 stock or debt investment in an investor-owned public utility, the greater investor-required
5 return."¹⁹ While this statement is technically correct, it is misleading to the extent it is
6 designed to persuade the Commission to award PSO with a return on equity that is higher
7 than its actual cost of equity, or higher than its currently-authorized return on equity. While
8 it is generally true that greater perceived or estimated risk will equate to higher required
9 returns by investors, Ms. Ahern's statement ignores the basic concept that utility stocks are
10 among the least risky equity investments in the entire market. Thus, the required return /
11 cost of equity for utility stocks are the lowest in the entire market.

C. Financial Risk

12 **Q. Describe Ms. Ahern's position regarding financial risk.**

13 A. Ms. Ahern testifies that adding debt to a firm's capital structure increases its financial risk,
14 which should be factored into the cost of equity estimate.

15 **Q. Do you agree with Ms. Ahern's position?**

16 A. While I agree that that increasing a company's debt ratio from zero to some positive amount
17 will have an increasing effect on both its cost of equity and cost of debt, Ms. Ahern's
18 testimony again is misleading here. The primary cost the Commission should be concerned

¹⁹ Direct Testimony of Pauline M. Ahern, p. 9:3-5.

1 with is the overall weighted average cost of capital, which should be the primary driver of
2 the awarded rate of return in this case. It is misleading to simply suggest that increasing
3 PSO's debt ratio will increase its cost of equity, when in reality, raising PSO's debt level
4 would actually decrease its weighted average cost of capital. As with all of its costs, PSO
5 has a duty to operate at the lowest reasonable weighted average cost of capital. This means
6 that not only should PSO's cost of equity and awarded ROE reflect the Company's very
7 low risk, but also PSO's debt ratio should be high enough to minimize is weighted average
8 cost of capital.

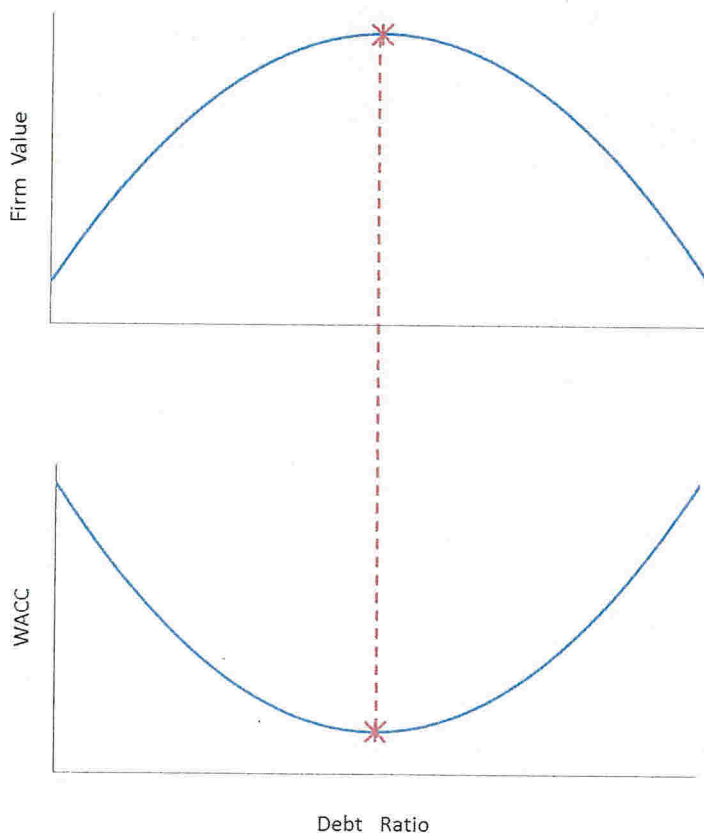
9 **Q. Describe in general the concept of a company's "capital structure."**

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

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

3 **A.** Yes. A competitive firm can add value by increasing debt. After a certain point, however,
4 the marginal cost of additional debt outweighs its marginal benefit. This is because the
5 more debt the firm uses, the higher interest expense it must pay, and the likelihood of loss
6 increases. This increases the risk of recovery for both bondholders and shareholders,
7 causing both groups of investors to demand a greater return on their investment. Thus, if
8 debt financing is too high, the firm's WACC will increase instead of decrease. The
9 following figure illustrates these concepts.

**Figure 4:
Optimal Debt Ratio**



1 As shown in this figure, a competitive firm's value is maximized when the WACC is
2 minimized. In both of these graphs, the debt ratio $[D/(D+E)]$ is shown on the x-axis. By
3 increasing its debt ratio, a competitive firm can minimize its WACC and maximize its
4 value. At a certain point, however, the benefits of increasing debt do not outweigh the
5 costs of the additional risks to both bondholders and shareholders, as each type of investor
6 will demand higher returns for the additional risk they have assumed.²⁰

²⁰ See Graham, Smart & Megginson *supra* n. 11, at 440-41.

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

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

**Equation 2:
Revenue Requirement for Regulated Utilities**

$$RR = O + d + T + r(A - D)$$

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

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

1 **Q. Do you believe that, generally speaking, utilities can afford to have higher debt levels**
2 **than other industries?**

3 A. Yes. Because regulated utilities have large amounts of fixed assets, stable earnings, and
4 low risk relative to other industries, they can afford to have relatively higher debt ratios (or
5 “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.²¹

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

11 **Q. Provide an example showing the effects of an increasing debt ratio on a company’s**
12 **cost of equity, cost of debt, and weighted average cost of capital.**

13 A. The example presented below is intended to support a recommendation regarding PSO’s
14 debt ratio or cost of capital, but rather is intended to show how increasing the debt ratio
15 affects the cost of debt, cost of equity. I will discuss the effects of increasing the debt ratio
16 on the cost of debt and cost of equity separately.

²¹ Damodaran *supra* n. 9, at 196 (emphasis added).

Cost of Debt

1 As discussed above, increasing the debt ratio will increase the cost of debt. To
2 objectively measure how much the cost of debt increases, I considered the spreads above
3 the risk-free rate for various levels of bond ratings and interest coverage ratios. The
4 following table shows increasing interest rates for debt based on different bond rating
5 levels.

**Figure 5:
Bond Rating Spreads**

Ratings Table			
Coverage Ratio	Bond Rating	Spread	Interest Rate
> 8.5	Aaa/AAA	0.75%	3.54%
6.5 - 8.49	Aa2/AA	1.00%	3.79%
5.5 - 6.49	A1/A+	1.10%	3.89%
4.25 - 5.49	A2/A	1.25%	4.04%
3.0 - 4.24	A3/A-	1.75%	4.54%
2.5 - 2.99	Baa2/BBB	2.25%	5.04%
2.25 - 2.49	Ba1/BB+	3.25%	6.04%
2.0 - 2.249	Ba2/BB	4.25%	7.04%
1.75 - 1.99	B1/B+	5.50%	8.29%
1.5 - 1.74	B2/B	6.50%	9.29%
1.25 - 1.49	B3/B-	7.50%	10.29%
0.8 - 1.249	Caa/CCC	9.00%	11.79%

6 As shown in this table, the spreads over the risk-free rate gradually increase as bond ratings
7 fall.²² The spread is added to the risk-free rate to obtain the interest rates shown in the far-

²² 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.

1 right column. This concept is somewhat comparable to the interest rate a mortgage lender
2 would charge a borrower. The mortgage lender's advertised rate is usually the lowest rate,
3 or the "prime" rate, which is available to borrowers with stellar credit scores. As credit
4 scores decrease, however, the offered interest rate will increase. The bond ratings in this
5 figure are based on various levels of interest coverage ratios shown in the far-left column.
6 The interest coverage ratio, as its name implies, is a metric used by financial analysts to
7 gauge a firm's ability to pay its interest expense from its available earnings before interest
8 and taxes ("EBIT"). (Likewise, the mortgage lender would consider the borrower's
9 personal income-debt ratio). The formula for the interest coverage ratio is as follows:

**Equation 3:
Interest Coverage Ratio**

$$\frac{\text{Earnings before Interest and Taxes}}{\text{Interest Expense}}$$

10 As the debt ratio rises, the interest coverage ratio falls, the bond ratings increase, and the
11 cost of debt increases. Now that we have an objective way of measuring how increasing
12 the debt ratio affects the cost of debt, we need to measure how increasing the debt ratio
13 affects the cost of equity.

Cost of Equity

14 As with the cost of debt, increasing the debt ratio also increases the cost of equity.
15 To objectively measure how much the cost of equity increases, we first can estimate a
16 firm's unlevered beta. The unlevered beta is determined by the assets owned by the firm,
17 and removes the effects of financial leverage. As leverage increases, equity investors bear
18 increasing amounts of risk, leading to higher betas. Before the effects of financial leverage

1 can be accounted for, however, the effects of leverage must first be removed, which is
2 accomplished through the unlevered beta equation:²³

**Equation 4:
Unlevered Beta**

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

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

3 Using this equation, the beta for the firm can be unlevered, and then "re-levered" based on
4 various debt ratios (by rearranging this equation to solve for β_L). So, by using the Bond
5 Rating Spreads table and the unlevered beta equation, the costs of both debt and equity can
6 be increased in correspondence with increasing the debt ratio, until the ideal capital
7 structure is found: where the weighted average cost of capital is minimized.

8 The following table presents an example of a firm's weighted average cost of capital
9 ("WACC") based on increasing debt ratios.

²³ Damodaran *supra* n. 9, at 197. This formula was originally developed by Hamada in 1972.

**Figure 6:
Effects of Increasing Debt Ratio on Weighted Average Cost of Capital**

Debt Ratio	Levered Beta	Cost of Equity	Debt Level	Coverage Ratio	After-tax Debt Cost	WACC (9% ROE)
0%	0.440	5.10%	0	∞	2.30%	9.00%
40%	0.631	6.10%	2,459,617	3.72	2.95%	6.58%
50%	0.726	6.60%	3,074,522	2.98	3.28%	6.14%
60%	0.869	7.35%	3,689,426	2.48	3.93%	5.96%
70%	1.107	8.60%	4,304,330	2.13	4.58%	5.90%
80%	1.584	11.11%	4,919,235	1.86	5.39%	6.11%
90%	3.014	18.61%	5,534,139	1.65	6.04%	6.33%

1 **Q. Describe how this example contradicts the suggestions made by Ms. Ahern's**
 2 **testimony regarding financial risk.**

3 **A.** Utility witness often suggest, as Ms. Ahern is here, that higher debt ratios will increase the
 4 Company's risk, which will increase the costs of debt and equity. While this statement is
 5 technically true when considered in a vacuum, it is very misleading for one important
 6 reason: It fails to acknowledge that the primary cost that matters here is the weighted
 7 average cost of capital ("WACC"), not the cost of individual components of capital. In the
 8 figure above, the far-left column shows increasing levels of debt ratios. At a debt ratio of
 9 0%, the utility's beta is completely unlevered, its cost of equity is only 5.1%, its cost of
 10 debt is only 2.3%. At a 9% awarded ROE, the utility's WACC is the same amount – 9% -
 11 because it has no debt. Now assume that the debt ratio is increased to 40%. This represents
 12 a substantial increase from a completely unlevered (no debt) position. As the debt ratio is
 13 increased to 40% in the far-left column, notice that both the cost of equity and the cost of
 14 debt increase (6.10% and 2.95% respectively). This is the scenario that Ms. Ahern and
 15 other utility witnesses describe to regulators: the costs of debt and equity will increase if

1 you increase the debt ratio. However, notice that the weighted average cost of capital (the
2 far-right column) actually decreases from 9.0% to 6.58%. Why does this occur? It occurs
3 as a result of the basic math inherent in the weighted average cost of capital formula, along
4 with the fact that the cost of debt is consistently less than the cost of equity. Note the basic
5 weighted average cost of capital formula:

$$\text{Weighted Average Cost of Capital} = (\text{Debt Ratio} \times \text{Cost of Debt}) + (\text{Equity Ratio} \times \text{Cost of Equity})$$

6 As the debt ratio increases, both the cost of debt and the cost of equity increase, however,
7 the equity ratio also falls. This means the firm is replacing the higher-cost equity with the
8 lower-cost debt, which lowers its overall WACC. As shown in the basic example above,
9 the utility's weighted average cost of capital is minimized at a debt ratio of 70%. However,
10 as the debt ratio increases beyond 70%, the marginal costs of additional debt outweigh the
11 marginal benefits, and the weighted average cost of capital begins to rise above its
12 minimized level.

13 **Q. Ms. Ahern also attempts to show how increasing the debt ratio could affect the**
14 **Company's cost of capital. Do you have any comments on her analysis?**

15 **A.** Yes. In Exhibit PMA-4, Ms. Ahern is attempting to show how an increase in the debt ratio
16 could affect the cost of capital. Her assumptions in this model, however, are simply not
17 realistic. For example, in "Scenario #1" of Ms. Ahern's capital structure analysis, she
18 assumes a cost of equity of 11%. To the extent this model is supposed to reflect a
19 hypothetical investor-owned public utility, a cost of equity of 11% is far too high to be
20 considered reasonable. Furthermore, when assuming a debt ratio of only 60% under
21 "Scenario 2," Ms. Ahern assumes that the cost of equity would rise to 12.83%. These

1 assumptions are simply not reasonable when applied to public utilities. The model I have
2 presented above objectively calculates the effects of an increasing debt ratio on the costs
3 of debt and equity through objective national benchmarks for bond rating spreads and re-
4 levered betas based on low utility risk.

V. RATINGS AGENCIES AND REGULATORY POLICY

5 **Q. How does the example presented above relate to Ms. Ahern's testimony regarding**
6 **rating agencies and regulatory policy?**

7 **A.** In Section VI of Ms. Ahern's testimony, "Rating Agencies and Regulatory Policy," Ms.
8 Ahern essentially offers the same arguments as those related to financial risk. That is, Ms.
9 Ahern is suggesting that if rating agencies downgrade PSO's debt, it could increase its cost
10 of debt, as well as its cost of equity. There are several problems with these arguments.
11 First, many utility witnesses are quick to offer the "key rating" factors considered by
12 Moody's and other rating agencies in trying to justify above-market awarded returns and
13 below-market debt ratios. The problem with this argument is that it has almost nothing to
14 do with determining a fair awarded ROE in this case. As thoroughly discussed above, the
15 awarded ROE should be based on the Company's cost of equity, which has been estimated
16 through the models presented in the testimony of Mr. Parcell. Another problem with Ms.
17 Ahern's suggesting that these factors could increase PSO's cost of equity is that it is based
18 on the assumption that PSO's current awarded ROE is reflective of its actual equity cost.
19 I conducted a thorough cost of equity analysis in PSO's last rate case, and the evidence I
20 found clearly shows that PSO's current awarded ROE is far above its actual equity costs.

1 Thus, while I do not necessarily agree with Ms. Ahern that if PSO does not recover all of
2 its “prudently-incurred” expenses its equity costs will increase, the main point is this: even
3 if PSO’s cost of equity increased, it would still be far below the Company’s awarded ROE.

4 **Q. Ms. Ahern indicates that if PSO does not recover its prudently-incurred operating**
5 **expenses it could have a negative impact on earnings and cash flows. Do you agree?**

6 A. Yes. I agree that PSO, like any regulated utility, should be allowed to recover its prudently
7 incurred operating expenses. OIEC and Wal-Mart offer testimony and analysis regarding
8 PSO’s prudently incurred operating expenses in this case.²⁴

VI. COST RECOVERY OF NORTHEASTERN UNIT 4

9 **Q. Describe Ms. Ahern’s position regarding the cost recovery of Northeastern Unit 4.**

10 A. Ms. Ahern argues that the remaining balance for Northeastern Unit 4 should be recovered
11 through rates and that PSO’s cost of common equity does not currently account for the
12 increased regulatory risk associated with a change in the recovery of these costs.

13 **Q. Do you agree with Ms. Ahern’s position?**

14 A. No. First, the “regulatory risk” Ms. Ahern refers to is a firm-specific business risk, which
15 is not rewarded by the market as discussed above. To the extent such risk affects the
16 volatility of PSO’s stock price, it should be reflected in the beta term incorporated in Mr.
17 Parcell’s Capital Asset Pricing Model. Thus, Mr. Parcell has already adequately accounted

²⁴ See Responsive Testimony of Mark E. Garrett.

1 for these risks in his cost of equity models, and there is no need to make a separate
2 adjustment for these risks.

VII. COMPARISON OF REGULATED AND COMPETITIVE RETURNS

3 **Q. Describe Ms. Ahern's comparison of the returns on equity of regulated utilities and**
4 **non-regulated (competitive) firms.**

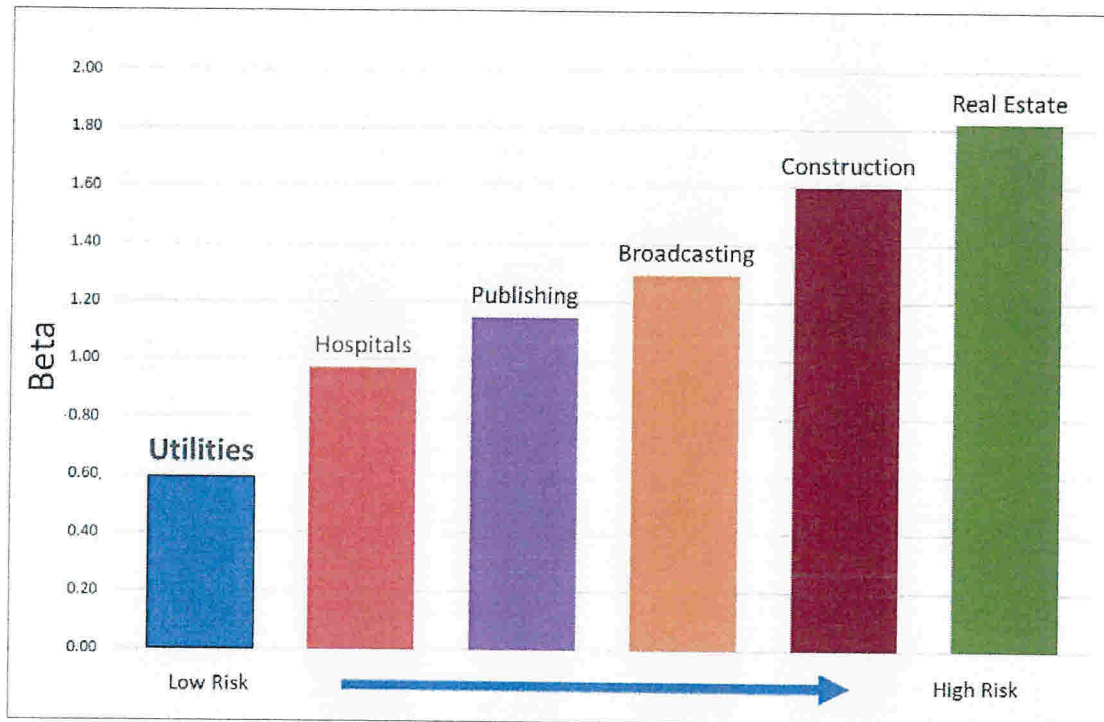
5 A. Ms. Ahern claims that since the return on common equity set in this proceeding will be
6 applied to the book value of PSO's rate base, it is reasonable to look at the projected returns
7 on book equity of non-regulated firms.²⁵

8 **Q. Do you agree with Ms. Ahern's premise regarding this issue?**

9 A. No. Ms. Ahern's premise makes no sense and is illogical. Cost of capital witnesses
10 routinely conduct their analyses on a group of "proxy" companies that include regulated
11 utilities. This practice likely stems from "corresponding risk" standard set forth by the
12 *Hope* Court. Even Ms. Ahern correctly acknowledges this standard, but then proceeds to
13 conduct an analysis in complete contradiction with this standard. That is, the risk inherent
14 in the equity of competitive firms is simply not comparable to the risk inherent in the equity
15 of regulated utilities. This is because the regulated utility industry is essentially the least
16 risky industry in the entire country. This statement is closer to one of fact than opinion.
17 Recall the beta term discussed above. The beta term is used in the CAPM as an objective
18 way to determine the impacts of market risk on an individual firm. Beta is calculated

²⁵ Direct Testimony of Pauline M. Ahern, p. 20:22-27.

1 through linear regression analysis that considers the correlation between the returns on an
2 individual stock with the returns on the market portfolio (i.e., all stocks). The betas for
3 regulated utilities are decisively and consistently lower than the betas of competitive firms,
4 which means that the stocks of regulated utilities are less risky than the stocks of
5 competitive firms, as shown again in the graph below.²⁶



6 This is why cost of capital witnesses routinely conduct their DCF, CAPM, and comparable
7 earnings analyses on a “proxy” group of regulated utilities, not unregulated, competitive
8 firms – because competitive firms are simply not comparable to regulated utilities in terms
9 of their risk profiles. Thus, Ms. Ahern’s analysis is based on a faulty premise and provides

²⁶ See also Betas by Sector (US) at <http://pages.stern.nyu.edu/~adamodar/>.

1 no accurate, fair, or reasonable indication of PSO's cost of equity or authorized return on
2 equity in this case.

VIII. CONCLUSION AND RECOMMENDATION

3 **Q. Summarize the key points of your testimony.**

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

1. The legal standards governing this issue are clear that the awarded rate of return should be based on the Company's actual cost of capital.
2. When the awarded rate of return exceeds the actual cost of capital, it results in an inappropriate transfer of excess wealth from customers to shareholders.
3. When assessing the effects of increasing debt of the level of financial risk, it is not appropriate to merely consider the individual components of debt and equity, but rather the overall weighted average cost of capital. The Company has a duty to operate at the lowest reasonable cost of capital.

5 **Q. Does this conclude your testimony?**

6 **A.** Yes, including any exhibits, appendices, and other items attached hereto. I reserve the right
7 to supplement this testimony as needed with any additional information that has been
8 requested from the Company but not yet provided.

Respectfully Submitted,




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AFFIDAVIT OF DAVID J. GARRETT

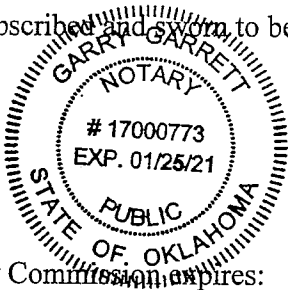
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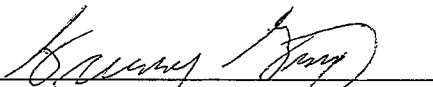
On the 21st day of September, 2017, before me appeared David J. Garrett, to me personally known, who, being by me first duly sworn, states that he is the managing member of Resolve Utility Consulting, PLLC, and acknowledges that he has read the above and foregoing document and believes that the statements therein are true and correct to the best of his information, knowledge and belief.



David J. Garrett

Subscribed and sworn to before me this 21st day of September, 2017.





Notary Public

My Commission expires:

1/25/21

1900 NW Expy., Ste. 410
Oklahoma City, OK 73118

DAVID J. GARRETT

405.249.1050
dgarrett@resolveuc.com

EDUCATION

University of Oklahoma Master of Business Administration Areas of Concentration: Finance, Energy	Norman, OK 2014
University of Oklahoma College of Law Juris Doctor Member, American Indian Law Review	Norman, OK 2007
University of Oklahoma Bachelor of Business Administration Major: Finance	Norman, OK 2003

PROFESSIONAL DESIGNATIONS

Society of Depreciation Professionals
Certified Depreciation Professional (CDP)

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

The Mediation Institute
Certified Civil / Commercial & Employment Mediator

WORK EXPERIENCE

Resolve Utility Consulting PLLC Managing Member Provide expert analysis and testimony specializing in depreciation and cost of capital issues for clients in utility regulatory proceedings.	Oklahoma City, OK 2016 – Present
Oklahoma Corporation Commission Public Utility Regulatory Analyst Assistant General Counsel 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.	Oklahoma City, OK 2012 – 2016 2011 – 2012

Perebus Counsel, PLLC

Managing Member

Represented clients in the areas of family law, estate planning, debt negotiations, business organization, and utility regulation.

Oklahoma City, OK
2009 – 2011

Moricoli & Schovanec, P.C.

Associate Attorney

Represented clients in the areas of contracts, oil and gas, business structures and estate administration.

Oklahoma City, OK
2007 – 2009

TEACHING EXPERIENCE

University of Oklahoma

Adjunct Instructor – “Conflict Resolution”
Adjunct Instructor – “Ethics in Leadership”

Norman, OK
2014 – Present

Rose State College

Adjunct Instructor – “Legal Research”
Adjunct Instructor – “Oil & Gas Law”

Midwest City, OK
2013 – 2015

PUBLICATIONS

American Indian Law Review

“Vine of the Dead: Reviving Equal Protection Rites for Religious Drug Use”
(31 Am. Indian L. Rev. 143)

Norman, OK
2006

VOLUNTEER EXPERIENCE

Calm Waters

Board Member

Participate in management of operations, attend meetings, review performance, compensation, and financial records. Assist in fundraising events.

Oklahoma City, OK
2015 – Present

Group Facilitator & Fundraiser

Facilitate group meetings designed to help children and families cope with divorce and tragic events. Assist in fundraising events.

2014 – Present

St. Jude Children’s Research Hospital

Oklahoma Fundraising Committee

Raised money for charity by organizing local fundraising events.

Oklahoma City, OK
2008 – 2010

PROFESSIONAL ASSOCIATIONS

Oklahoma Bar Association	2007 – Present
Society of Depreciation Professionals <u>Board Member – President</u> Participate in management of operations, attend meetings, review performance, organize presentation agenda.	2014 – Present 2017
Society of Utility Regulatory Financial Analysts	2014 – Present

SELECTED CONTINUING PROFESSIONAL EDUCATION

Society of Depreciation Professionals “Life and Net Salvage Analysis” Extensive instruction on utility depreciation, including actuarial and simulation life analysis modes, gross salvage, cost of removal, life cycle analysis, and technology forecasting.	Austin, TX 2015
Society of Depreciation Professionals “Introduction to Depreciation” and “Extended Training” Extensive instruction on utility depreciation, including average lives and net salvage.	New Orleans, LA 2014
Society of Utility and Regulatory Financial Analysts 46th Financial Forum. “The Regulatory Compact: Is it Still Relevant?” Forum discussions on current issues.	Indianapolis, IN 2014
New Mexico State University, Center for Public Utilities Current Issues 2012, “The Santa Fe Conference” Forum discussions on various current issues in utility regulation.	Santa Fe, NM 2012
Michigan State University, Institute of Public Utilities “39th Eastern NARUC Utility Rate School” One-week, hands-on training emphasizing the fundamentals of the utility ratemaking process.	Clearwater, FL 2011
New Mexico State University, Center for Public Utilities “The Basics: Practical Regulatory Training for the Changing Electric Industries” One-week, hands-on training designed to provide a solid foundation in core areas of utility ratemaking.	Albuquerque, NM 2010
The Mediation Institute “Civil / Commercial & Employment Mediation Training” Extensive instruction and mock mediations designed to build foundations in conducting mediations in civil matters.	Oklahoma City, OK 2009

Utility Regulatory Proceedings

State	Regulatory Agency / Company-Applicant	Docket Number	Issues	Testimony / Analysis Type	Date
TX	Railroad Commission of Texas Atmos Pipeline - Texas	GUD 10580	Depreciation rates, depreciation grouping procedure	Prefiled	3/22/2017
TX	Public Utility Commission of Texas Sharyland Utility Co.	PUC 45414	Depreciation rates, simulated and actuarial analysis	Prefiled	2/28/2017
OK	Oklahoma Corporation Commission Empire District Electric Co.	PUD 201600468	Cost of capital, depreciation rates, terminal salvage, lifespans	Prefiled	3/13/2017
TX	Railroad Commission of Texas CenterPoint Energy Texas Gas	GUD 10567	Depreciation rates, simulated and actuarial analysis	Prefiled	2/21/2017
AR	Arkansas Public Service Commission Oklahoma Gas & Electric Co.	160-159-GU	Cost of capital, depreciation rates, terminal salvage, lifespans	Prefiled	1/31/2017
FL	Florida Public Service Commission Peoples Gas	160-159-GU	Depreciation rates	Report	11/4/2016
AZ	Arizona Corporation Commission Arizona Public Service Co.	E-01345A-16-0036	Cost of capital, depreciation rates, terminal salvage, lifespans	Pre-filed	12/28/2016
NV	Nevada Public Utilities Commission Sierra Pacific Power Co.	16-06008	Depreciation rates, terminal salvage, lifespans, theoretical reserve	Pre-filed	9/23/2016
OK	Oklahoma Corporation Commission Oklahoma Gas & Electric Co.	PUD 201500273	Cost of capital, depreciation rates, terminal salvage, lifespans	Pre-filed Live	3/21/2016 5/3/2016
OK	Oklahoma Corporation Commission Public Service Co. of Oklahoma	PUD 201500208	Cost of capital, depreciation rates, terminal salvage, lifespans	Pre-filed Live	10/14/2015 12/8/2015
OK	Oklahoma Corporation Commission Oklahoma Natural Gas Co.	PUD 201500213	Cost of capital and depreciation rates	Pre-filed	10/19/2015

Utility Regulatory Proceedings

State	Regulatory Agency / Company-Applicant	Docket Number	Testimony / Analysis		Date
			Issues	Type	
OK	Oklahoma Corporation Commission Oak Hills Water System	PUD 201500123	Cost of capital and depreciation rates	Pre-filed Live	7/8/2015 8/14/2015
OK	Oklahoma Corporation Commission CenterPoint Energy Oklahoma Gas	PUD 201400227	Fuel prudence review and fuel adjustment clause	Pre-filed Live	11/3/2014 2/10/2015
OK	Oklahoma Corporation Commission Public Service Co. of Oklahoma	PUD 201400233	Certificate of authority to issue new debt securities	Pre-filed Live	9/12/2014 9/25/2014
OK	Oklahoma Corporation Commission Empire District Electric Co.	PUD 201400226	Fuel prudence review and fuel adjustment clause	Pre-filed Live	12/9/2014 1/22/2015
OK	Oklahoma Corporation Commission Fort Cobb Fuel Authority	PUD 201400219	Fuel prudence review and fuel adjustment clause	Pre-filed Live	1/29/2015
OK	Oklahoma Corporation Commission Fort Cobb Fuel Authority	PUD 201400140	Outside services, legislative advocacy, payroll expense, and insurance expense	Pre-filed	12/16/2014
OK	Oklahoma Corporation Commission Public Service Co. of Oklahoma	PUD 201300201	Authorization of standby and supplemental tariff	Pre-filed Live	12/9/2013 12/19/2013
OK	Oklahoma Corporation Commission Fort Cobb Fuel Authority	PUD 201300134	Fuel prudence review and fuel adjustment clause	Pre-filed Live	10/23/2013 1/30/2014
OK	Oklahoma Corporation Commission Empire District Electric Co.	PUD 201300131	Fuel prudence review and fuel adjustment clause	Pre-filed Live	11/21/2013 12/19/2013
OK	Oklahoma Corporation Commission CenterPoint Energy Oklahoma Gas	PUD 201300127	Fuel prudence review and fuel adjustment clause	Pre-filed Live	10/21/2013 1/23/2014
OK	Oklahoma Corporation Commission	PUD 201200185	Gas transportation contract extension	Pre-filed	9/20/2012

Utility Regulatory Proceedings

State	Regulatory Agency / Company-Applicant	Docket Number	Issues	Testimony / Analysis	Type	Date
	Oklahoma Gas & Electric Co.				Live	10/9/2012
OK	Oklahoma Corporation Commission Empire District Electric Co.	PUD 201200170	Fuel prudence review and fuel adjustment clause		Pre-filed Live	10/31/2012 12/13/2012
OK	Oklahoma Corporation Commission Oklahoma Gas & Electric Co.	PUD 201200169	Fuel prudence review and fuel adjustment clause		Pre-filed Live	12/19/2012 4/4/2013

Awarded Returns vs. Market Cost of Equity (2005 - 2016)

Exhibit DJG-1-2

	[1]	[2]		[3]	
Quarter	Cases Filed	Average Awarded ROE	Year	Annual Market Return	
2005.1	4	10.55%	2005	4.83%	
2005.2	12	10.13%	2006	15.61%	
2005.3	8	10.84%	2007	5.48%	
2005.4	10	10.57%	2008	-36.55%	
2006.1	11	10.38%	2009	25.94%	
2006.2	18	10.39%	2010	14.82%	
2006.3	7	10.06%	2011	2.10%	
2006.4	12	10.38%	2012	15.89%	
2007.1	11	10.30%	2013	32.15%	
2007.2	16	10.27%	2014	13.25%	
2007.3	8	10.02%	2015	1.38%	
2007.4	11	10.44%	2016	11.74%	
2008.1	7	10.15%			
2008.2	8	10.41%			
2008.3	21	10.42%	Average		
2008.4	6	10.38%	Arithmetic	8.89%	[4]
2009.1	13	10.31%	Geometric	7.39%	[5]
2009.2	22	10.55%			
2009.3	17	10.46%	Average Return on All Stocks	8.1%	[6]
2009.4	14	10.54%			
2010.1	16	10.45%	Average Utility Awarded ROE	10.2%	[7]
2010.2	19	10.12%			
2010.3	12	10.27%			
2010.4	8	10.30%			
2011.1	8	10.35%			
2011.2	15	10.24%			
2011.3	17	10.13%			
2011.4	10	10.29%			[8]
2012.1	17	10.84%			
2012.2	16	9.92%	Year	Market Cost of Equity	
2012.3	8	9.78%	2005	8.47%	
2012.4	12	10.05%	2006	8.86%	
2013.1	19	10.23%	2007	8.39%	
2013.2	16	9.77%	2008	8.64%	
2013.3	4	10.06%	2009	8.20%	
2013.4	7	9.90%	2010	8.49%	
2014.1	9	10.23%	2011	7.89%	
2014.2	25	9.83%	2012	7.54%	
2014.3	8	9.89%	2013	8.00%	
2014.4	16	9.78%	2014	7.95%	
2015.1	10	10.37%	2015	8.39%	
2015.2	21	9.73%	2016	8.14%	
2015.3	6	9.40%			
2015.4	11	9.62%	Average	8.25%	
2016.1	14	10.26%			
2016.2	27	9.57%			
2016.3	11	9.76%			
2016.4					

[1] Edison Electric Institute Financial Update. Number of cases filed in each quarter.

[2] Edison Electric Institute Financial Update. Average awarded utility ROE each quarter.

[3] Historical stock returns. NYU Stern School of Business. <http://pages.stern.nyu.edu/~adamodar/>.

[4] = Average of [3]

[5] = Geometric mean of [3]

[6] = Average ([4],[5])

[7] = Average of [2]

[8] Annual required market returns. NYU Stern School of Business. <http://pages.stern.nyu.edu/~adamodar/> (adding risk-free rate to implied ERP)

Optimal Capital Example

Exhibit DJG-1-3

Inputs			[14]	[15]	[16]	[17]																																																								
EBIT	500,400	[1]	<table border="1"> <thead> <tr> <th colspan="4">Ratings Table</th> </tr> <tr> <th>Coverage Ratio</th> <th>Bond Rating</th> <th>Spread</th> <th>Interest Rate</th> </tr> </thead> <tbody> <tr> <td>> 8.5</td> <td>Aaa/AAA</td> <td>0.75%</td> <td>3.54%</td> </tr> <tr> <td>6.5 - 8.49</td> <td>Aa2/AA</td> <td>1.00%</td> <td>3.79%</td> </tr> <tr> <td>5.5 - 6.49</td> <td>A1/A+</td> <td>1.10%</td> <td>3.89%</td> </tr> <tr> <td>4.25 - 5.49</td> <td>A2/A</td> <td>1.25%</td> <td>4.04%</td> </tr> <tr> <td>3.0 - 4.24</td> <td>A3/A-</td> <td>1.75%</td> <td>4.54%</td> </tr> <tr> <td>2.5 - 2.99</td> <td>Baa2/BBB</td> <td>2.25%</td> <td>5.04%</td> </tr> <tr> <td>2.25 - 2.49</td> <td>Ba1/BB+</td> <td>3.25%</td> <td>6.04%</td> </tr> <tr> <td>2.0 - 2.249</td> <td>Ba2/BB</td> <td>4.25%</td> <td>7.04%</td> </tr> <tr> <td>1.75 - 1.99</td> <td>B1/B+</td> <td>5.50%</td> <td>8.29%</td> </tr> <tr> <td>1.5 - 1.74</td> <td>B2/B</td> <td>6.50%</td> <td>9.29%</td> </tr> <tr> <td>1.25 - 1.49</td> <td>B3/B-</td> <td>7.50%</td> <td>10.29%</td> </tr> <tr> <td>0.8 - 1.249</td> <td>Caa/CCC</td> <td>9.00%</td> <td>11.79%</td> </tr> </tbody> </table>				Ratings Table				Coverage Ratio	Bond Rating	Spread	Interest Rate	> 8.5	Aaa/AAA	0.75%	3.54%	6.5 - 8.49	Aa2/AA	1.00%	3.79%	5.5 - 6.49	A1/A+	1.10%	3.89%	4.25 - 5.49	A2/A	1.25%	4.04%	3.0 - 4.24	A3/A-	1.75%	4.54%	2.5 - 2.99	Baa2/BBB	2.25%	5.04%	2.25 - 2.49	Ba1/BB+	3.25%	6.04%	2.0 - 2.249	Ba2/BB	4.25%	7.04%	1.75 - 1.99	B1/B+	5.50%	8.29%	1.5 - 1.74	B2/B	6.50%	9.29%	1.25 - 1.49	B3/B-	7.50%	10.29%	0.8 - 1.249	Caa/CCC	9.00%	11.79%
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Interest Expense	146,700	[2]																																																												
Book Debt	2,883,270	[3]																																																												
Book Equity	3,265,774	[4]																																																												
Debt / Capital	46.89%	[5]																																																												
Debt / Equity	88%	[6]																																																												
Debt Cost	5.47%	[7]																																																												
Tax Rate	35%	[8]																																																												
Unlevered Beta	0.44	[9]																																																												
Risk-free Rate	2.79%	[10]																																																												
Equity Risk Premium	5.25%	[11]																																																												
Coverage Ratio	3.41	[12]																																																												
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[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]
Optimal Capital Structure Calculation											
Debt Ratio	D/E Ratio	Levered Beta	True Cost of Equity	Awarded ROE	Debt Level	Interest Expense	Coverage Ratio	Pre-tax Debt Cost	After-tax Debt Cost	Optimal WACC	WACC at 9% ROE
0%	0%	0.440	5.10%	9.00%	0	0	∞	3.54%	2.30%	5.10%	9.00%
40%	67%	0.631	6.10%	9.00%	2,459,617	134,541	3.72	4.54%	2.95%	4.84%	6.58%
50%	100%	0.726	6.60%	9.00%	3,074,522	168,176	2.98	5.04%	3.28%	4.94%	6.14%
60%	150%	0.869	7.35%	9.00%	3,689,426	201,812	2.48	6.04%	3.93%	5.30%	5.96%
70%	233%	1.107	8.60%	9.00%	4,304,330	235,447	2.13	7.04%	4.58%	5.78%	5.90%
80%	400%	1.584	11.11%	9.00%	4,919,235	269,082	1.86	8.29%	5.39%	6.53%	6.11%
90%	900%	3.014	18.61%	9.00%	5,534,139	302,717	1.65	9.29%	6.04%	7.30%	6.33%

[1], [2] OGE 10-K (000's)

[3], [4] Company Schedule D-1.3 (000's)

[5] = [3] / ([3] + [4])

[6] = [3] / [4]

[7] Company schedules

[8] Estimated corporate tax rate

[9] Average beta / (1+(1 - [8])*[6])

[10] From risk-free rate exhibit

[11] From ERP exhibit

[12] = [1] / [2]

[13] Company bond rating

[14] Ranges of coverage ratios

[15] Moody's / S&P bond ratings

[16] NYU spread over risk-free rate

[17] = [16] + [10] = est. debt cost

[18] = debt / total capital

[19] = [18] / (1 - [8])

[20] = [9] * (1 + (1 - [8]) * [6])

[21] = [10] + [20] * [11]

[22] Recommended awarded ROE

[23] = [18] * ([3] + [4]); (000's)

[24] = [22] * [7]; (000's)

[25] = [1] / [23]

[26] Debt cost given coverage ratio per Ratings Table

[27] = [25] * (1 - [8])

[28] = ([18] * [26]) + ((1 - [18]) * [21])

[29] = ([18] * [26]) + ((1 - [18]) * [22])