BEFORE THE WASHINGTON

UTILITIES & TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,

Complainant,

v.

AVISTA CORPORATION d/b/a AVISTA UTILITIES,

Respondent.

DOCKETS UE-170485 & UG-170486 (*Consolidated*)

RESPONSE TESTIMONY OF DAVID J. GARRETT (DJG-1T)

ON BEHALF OF

PUBLIC COUNSEL

OCTOBER 27, 2017

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	Implications – The 2015 Edition 17 (New York University 2015)
Exhibit DJG-16	John R. Graham and Campbell R. Harvey, *The Equity Risk Premium in 2016*, at 3 (Fuqua School of Business, Duke University 2014)
Exhibit DJG-17	Pablo Fernandez, Pablo Linares & Isabel F. Acin, *Market Risk Premium used in 171 Countries in 2016: A Survey with 6,932 Answers*, at 3 (IESE Business School 2015)
Exhibit DJG-18	Myron J. Gordon and Eli Shapiro, *Capital Equipment Analysis: The Required Rate of Profit* 102-10 (Management Science Vol. 3, No. 1 Oct. 1956)
Exhibit DJG-19	Rolf W. Banz, *The Relationship Between Return and Market Value of Common Stocks* 3-18 (Journal of Financial Economics 9 (1981))
Exhibit DJG-20	Vitali Kalesnik and Noah Beck, *Busting the Myth About Size* (Research Affiliates 2014), available at https://www.researchaffiliates.com/Our%20Ideas/Insights/Fundamentals/Pages/284_Busting_the_Myth_About_Size.aspx
Exhibit DJG-21	Adrien M. Mckenzie Workpaper Excerpt - 2017 Market DCF Analysis

I. INTRODUCTION

Q: State your name and occupation.

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

Q: Summarize your educational background and professional experience.

A: I received a B.B.A., with a major in Finance, an M.B.A., and a Juris Doctor from the University of Oklahoma. I worked in private legal practice for several years before accepting a position as assistant general counsel at the Oklahoma Corporation Commission in 2011. At the Oklahoma Commission, I worked in the Office of General Counsel in regulatory proceedings. In 2012, I began working for the Public Utility Division as a regulatory analyst providing testimony in regulatory proceedings. 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. I have testified in many regulatory proceedings on cost of capital, depreciation, and other issues. A more complete description of my qualifications and regulatory experience is included in my curriculum vitae.[1]

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

A: I am testifying on behalf of the Public Counsel Unit of the Washington Office of Attorney General (Public Counsel).

[1] Exh. No. DJG-2.

Q: Describe the scope and organization of your testimony.

A: The purpose of my testimony is to present an independent analysis and opinion of the cost of equity capital and a prudent capital structure for Avista Corp. (Avista or the Company). Based on my estimates of the Company's weighted average cost of capital, I present a recommendation for the allowed rate of return for the Company. My testimony responds to the Direct Testimony of Adrien M. McKenzie.

II. OVERVIEW OF COST OF CAPITAL RECOMMENDATIONS

Q: Explain the weighted average cost of capital and how the Company's cost of equity and capital structure affect this equation.

A: The term "cost of capital" refers to the weighted average cost of all types of securities within a company's capital structure, including debt and equity. 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 cost of debt, there is no explicit "cost" of common equity. To determine the appropriate cost of equity capital, companies must estimate the return their equity investors will demand in exchange for giving up their opportunity to invest in other securities or postponing their own consumption, in light of the level of risk associated with the investment. Thus, the overall weighted average cost of capital (WACC), includes the cost of debt and the estimated cost of equity. It is a "weighted average," because it is based upon the Company's relative levels of debt and equity. Companies in the competitive market often use their WACC as the discount rate

to determine the value of various capital projects. The basic WACC equation used in regulatory proceedings is presented below:[2]

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*

Thus, the term "cost of capital" is synonymous with the "weighted average cost of capital," which includes both debt and equity components. As discussed further below, the Commission's determination of a fair awarded rate of return should be based on a reasonable estimate of the Company's weighted average cost of capital.

In this Application, the Company has proposed a cost of equity of 9.9 percent, as discussed in the direct testimony of Mr. McKenzie. The Company has also proposed a cost of debt of 5.62 percent and a debt ratio of 50 percent. These three factors equate to a proposed weighted average cost of capital of 7.7 percent for the Company. In the sections below, I discuss several significant errors upon which the Company's requested weighted average cost of capital is based.

Q: Summarize your analyses and conclusions regarding Avista's Cost of Equity.

[2] *See* Exh. DJG-3 (Roger A. Morin, *New Regulatory Finance* 449-450 (Public Utilities Reports, Inc. 2006)). 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.

A: In formulating my recommendation, I performed thorough independent analyses to calculate Avista's cost of equity. To do this, I selected a proxy group of companies that represents a relevant sample with asset and risk profiles similar to those of Avista. Based on this proxy group, I evaluated the results of two widely-accepted financial models for calculating cost of equity: (1) the Discounted Cash Flow (DCF) model; and (2) the Capital Asset Pricing Model (CAPM). I evaluated these models to ensure a balanced approach that meets the legal standards, objective market considerations, and regulatory goals for establishing an appropriate awarded return for Avista. Based on my quantitative and qualitative analyses, as discussed throughout my testimony below, I recommend an awarded return on equity of 9.0 percent, which represents the midpoint within a reasonable a range of 8.75 percent and 9.25 percent. While Avista's actual cost of capital is much lower, my recommendation represents a gradual, rather than abrupt move toward true cost of capital.

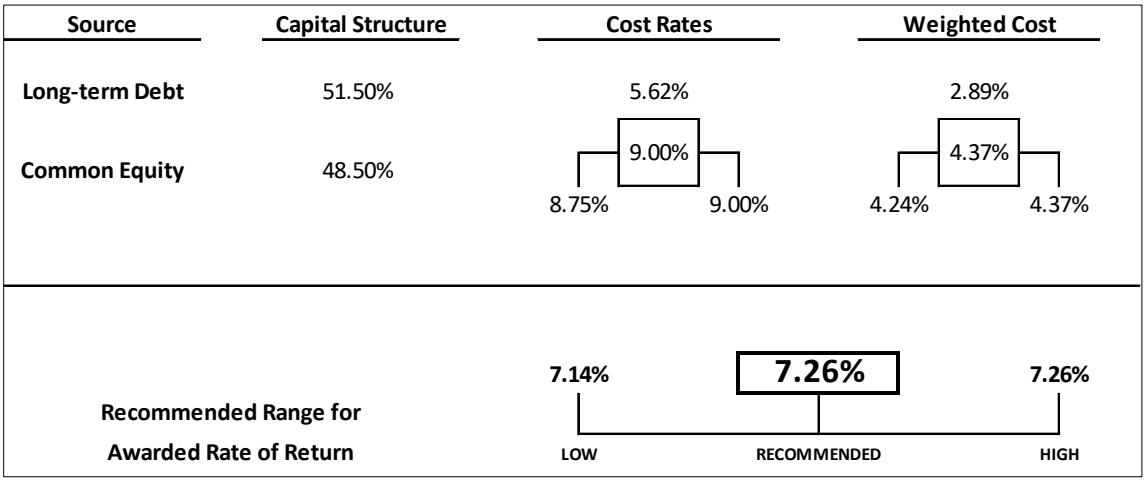
Q: Summarize your analyses and conclusions regarding Avista's capital structure.

A: The Company's capital structure includes 51.5 percent long-term debt and 48.5 percent common equity. While it is often reasonable for utilities to have higher amounts of debt in their capital structures, my analysis in this case indicates that Avista's proposed capital structure is reasonable.

Q: What is the impact of your cost of capital recommendations?

A: My cost of capital recommendations are illustrated in the following figure:

Figure 1:
Awarded Rate of Return Recommendation[3]



As shown in this figure, an awarded return on equity of nine percent with an equity ratio of 48.5 percent results in overall awarded return of 7.26 percent.

Q: Provide an overview of the problems you have identified with the Company's cost of capital estimate.

A: In this case, Mr. McKenzie recommends a very high awarded rate of return of 9.9 percent. Mr. McKenzie recommendations are based on several models, including the CAPM and DCF Model, however, several of his key assumptions and inputs to these models violate fundamental, widely-accepted tenants in finance and valuation. In the sections below, I will discuss my concerns regarding the Company's requested cost of capital in further detail. However, the key areas of concern are summarized as follows:

[3] Exh. No. DJG-4 at 1.

1. In his DCF Model, Mr. McKenzie's long-term growth rate for the proxy group is more than twice the long-term growth rate for the entire U.S. economy. It is a fundamental concept in finance that, in the long run, a company cannot grow at a faster rate than the aggregate economy in which it operates; this is especially true for a regulated utility with a defined service territory.

3. Mr. McKenzie's estimate for the Equity Risk Premium ("ERP"), the single most important factor in estimating the cost of equity, is nearly twice as high as the estimate reported by thousands of other experts evaluating companies in a myriad of industries across the country. Mr. McKenzie inappropriately bases his equity risk premium estimate in part on awarded returns in other jurisdictions – a non-market factor that bears no meaningful relationship to the market-based ERP.

4. Mr. McKenzie suggests that Company-specific risk factors have an increasing effect on its cost of equity. However, this overlooks the fundamental concept that the market does not reward diversifiable, firm-specific risk; therefore, investors do not expect a return for such risk. Mr. McKenzie also erroneously suggests that the Company's relative size should have an increasing effect on its cost of equity despite the overwhelming evidence confirming that the "size premium" phenomenon was short-lived and has not been seen for over a quarter-century.

In short, the assumptions employed by Mr. McKenzie skew the results of his financial models such that they do not reflect the economic realities of the market upon which cost of equity recommendation should be based. In the testimony below, I demonstrate how correcting the various erroneous assumptions in the DCF and CAPM financial models results in appropriate ROE recommendations which better align with today's market and Avista's risk profile.

III. LEGAL STANDARDS FOR ESTABLISHING COST OF CAPITAL

Q: Discuss the legal standards governing the allowed 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.[4] The Court found that "the amount of risk in the business is a most important factor" in determining the appropriate allowed rate of return.[5] Later, in two landmark cases, the Court set forth the standards by which public utilities are allowed to earn a return on capital investments. In *Bluefield Water Works & Improvement Co. v. Public Service Commission of West Virginia*, the Court held:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public . . . but it has no constitutional right to profits such as are realized or 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.[6]

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

> From the investor or company point of view it is important that there be enough revenue not only for operating expenses ***but also for the capital costs of the business***. These include service on the debt and dividends on the stock. By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.[7] [emphasis added]

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[4] *Wilcox v. Consolidated Gas Co. of New York*, 212 U.S. 19 (1909).
[5] *Id*. at 48.
[6] *Bluefield Water Works & Improvement Co. v. Public Service Comm'n of West Virginia*, 262 U.S. 679, 692-93 (1923).
[7] *Fed. Power Comm'n v. Hope Nat. Gas Co.*, 320 U.S. 591, 603 (1944) (emphasis added).

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

Q: Is it important that the "allowed" rate of return be based on the Company's actual cost of capital?

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

The models I have employed in this case closely estimate the Company's true cost of equity. If the Commission sets the awarded return based on my lower, and more reasonable rate of return, it will comply with the Supreme Court's standards, allow the Company to maintain its financial integrity, and satisfy the claims of its investors. On the other hand, if the Commission sets the allowed rate of return much *higher* than the true

[8] Exh. No. DJG-5 (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)).

cost of capital, it arguably results in an inappropriate transfer of wealth from ratepayers to shareholders. This point is underscored as follows:

> [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.[9]

Thus, it is important to understand that *awarded* returns and *actual* cost of capital are two separate concepts. Awarded returns are set through the regulatory process and may be influenced by a number of factors other than objective market drivers. Cost of capital, on the other hand, should be evaluated objectively and closely tie to the economic market realities. In other words, cost of capital it is driven by stock prices, dividends, growth rates, and most importantly – it is driven by risk. Cost of capital can be estimated through the use of 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. To the extent this occurs, the results are detrimental to ratepayers and the state's economy.

Q: If the Commission sets the allowed return at a level far greater than the market-based cost of capital, will this permit an excess transfer of wealth from Washington ratepayers to Company shareholders and the federal government?

A: Yes. As discussed further in the sections below, Mr. McKenzie's recommendation of a 9.9 percent awarded ROE is far higher than Avista's true cost of capital based on

[9] Exh. No. DJG-3 at 23-24.

objective market data and risk profiles of comparable firms. If the Commission were to adopt the Company's position in this case, it would be permitting an excess transfer of wealth from Washington customers to Company shareholders. In addition, it would be permitting an excess transfer of wealth from Washington citizens to the Internal Revenue Service. The detrimental impact to ratepayers and the state's economy is clear. Establishing an awarded return based on flawed assumptions which overstate the cost of capital effectively prevents the awarded returns from changing along with economic conditions. As shown in the figure below, awarded returns for public utilities have been well above the average required market return for at least ten years. Due to the fact that utility stocks are consistently far less risky than the average stock in the marketplace, the cost of equity for utility companies are *less* than the required return on the market.

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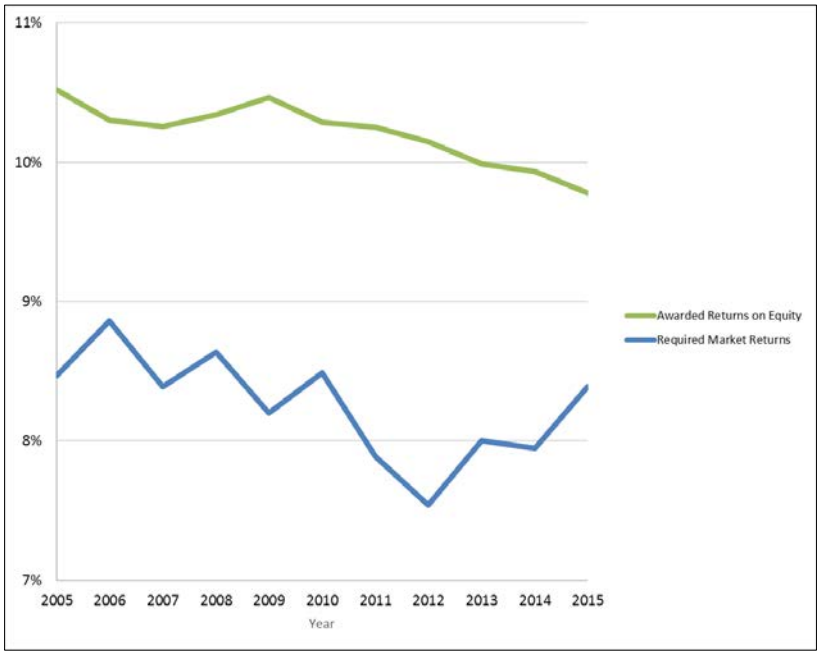
Figure 2:
Awarded Returns on Equity vs. Required Market Returns (2005 – 2015)[10]



The gap between the average awarded returns and utility cost of equity (which is below the bottom line showing required market returns), has resulted in an excess of ratepayer wealth being transferred to utility shareholders and the IRS for at least 10 years. This is likely due, in part, to the fact that many years ago (in the 1990s) interest rates were much higher, with average required market return around 12 percent. In that environment, the cost of equity for low-risk utility stocks might have been about 9 percent. Since that time, however, interest rates have dramatically declined among other economic changes, and it is clear that awarded returns have failed to keep pace with decreasing equity costs.

[10] *See* Exh. DJG-4 at 14.

It is not hard to see why this trend of inflating awarded returns has occurred in the past. Because awarded returns have at times been based in part on a comparison with other awarded returns, the average awarded returns effectively fail to adapt to true market conditions. Once utility companies 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. As such, the required returns (cost of equity) on utility stocks should be less than the average required returns on the market. However, that is often not the case. What we have seen instead is a disconnect from the market-based cost of equity. For these reasons, 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 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.

The legal standards articulated in *Hope* and *Bluefield* demonstrate that the Court understands one of the most basic, fundamental concepts in financial theory: the more (less) risk an investor assumes, the more (less) return the investor requires. Since utility stocks are very low risk, the return required by equity investors should be relatively low. I have used financial models in this case to closely estimate the Company's cost of equity, and these financial models account for risk. The public utility industry is one of the least risky industries in the entire country. This is not surprising due to the presence of stable revenues, captive customers, the consistent demand for utility service, and operations that are essentially supported by the state. This means that, in the long run,

the profits realized in riskier industries should be higher than the profits realized in the utility industry. To the extent awarded returns for utilities remain comparatively higher than the returns for companies in riskier industries, this is further evidence of the disconnect resulting from the regulatory process, rather than financial or market drivers.

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

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 in spite of management efficiencies. In fact, the transfer of wealth from ratepayers to shareholders has been so far removed from actual cost-based drivers, that even under relatively inefficient management a utility could remain financially 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. GENERAL CONCEPTS AND METHODOLOGY

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

A: While a competitive firm must estimate its own cost of capital to assess the profitability capital projects, regulators should 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 specific models that must be used to estimate the cost of equity. Over the years, however, regulatory commissions have consistently relied on several models. The models I have employed in this case have been widely used and accepted in regulatory proceedings for many years. These models include the Discounted Cash Flow Model

(DCF) and the Capital Asset Pricing Model (CAPM). The specific inputs and calculations for these models are described in more detail below.

Q: Explain why you used multiple models to estimate the cost of equity.

A: The models used to estimate the cost of equity attempt to measure the required return of equity investors by estimating a number of different inputs. It is preferable to use multiple models because the results of any one model may contain a degree of inconsistency, 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 more narrow range for the cost of equity estimate.[11]

V. THE PROXY GROUP

Q: Explain 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 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.

[11] Exh. No. DJG-3, Morin at 28.

Finally, the use of a proxy group is often a pure necessity when the target company is a subsidiary that is not publicly traded, as is the case with Avista. This is because the financial models used in this case require information from publicly-traded firms, such as stock prices and dividends.

Q: Describe the proxy group you selected.

A: In this case, each utility company within my proxy group was also used in Mr. McKenzie's proxy group. There could be reasonable arguments made for the inclusion or exclusion of particular companies in a proxy group, but for all intents and purposes, the cost of equity estimates in rate cases are influenced far more by the assumptions and inputs to the various financial models than the composition of the proxy groups. A summary of the proxy group appears in my Exhibit DJG-4 at page 2.

VI. RISK AND RETURN CONCEPTS

Q: Discuss the general relationship between risk and return.

A: As discussed above, risk is among the most important factors for the Commission to consider when determining the allowed return. In order to comply with this standard, 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 that affect equity investors: firm-specific risk and market risk. Firm-specific risk affects individual firms, while market risk affects all companies in the market to varying degrees.

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

A: Firm-specific risk affects individual companies, rather than the entire market. For example, a competitive firm might overestimate customer demand for a new product, resulting in reduced sales revenue. This is an example of project risk.[12] 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 more or 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.[13]

Q: Is it possible for investors to mitigate or eliminate firm-specific risk?

A: Yes. One of the fundamental concepts in finance is that firm-specific risk can be eliminated through diversification.[14] If someone irrationally invested all of their funds in one firm, they would be exposed to all of 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 simply adding more stocks to their portfolio through a process called "diversification." There

[12] Exh. DJG-6 (Aswath Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset* 62-63 (3rd ed., John Wiley & Sons, Inc. 2012)).

[13] Exh. DJG-7 (Zvi Bodie, Alex Kane & Alan J. Marcus, *Essentials of Investments* 149 (9th ed., McGraw-Hill/Irwin 2013)).

[14] Exh. No. DJG-8 (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)).

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.[15] For example, an investor who had his or his entire portfolio invested in Enron stock at the beginning of 2001 would have lost the entire investment by the end of the year, as a result of exposure to the firm-specific risk of Enron's imprudent management. On the other hand, a rational, diversified investor who owned every stock in the S&P 500 would have actually earned a positive return over the same period of time.

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 portfolios, the net effect of these positive and negative firm-specific risk factors will be essentially zero and will not affect the value of the overall portfolio.[16] Firm-specific risk is also called "diversifiable risk" due to the fact that it can be easily eliminated through diversification.

Q: Is the assumption of firm-specific risk rewarded by the market through higher returns?

A: No. 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

[15] Exh. No. DJG-6, Damodaran at 64.
[16] *Id*.

company. Thus, the risks associated with an individual firm's operations, as well as managerial risk and default risk 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. Market risks, such as interest rate risk and inflation risk, affect all stocks in the market to different degrees. Because market risk cannot be eliminated through diversification, investors who assume higher levels of market risk also expect higher returns. Market risk is also called "systematic risk." Scholars agree: "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)."[17]

These important concepts are illustrated in the figure below.

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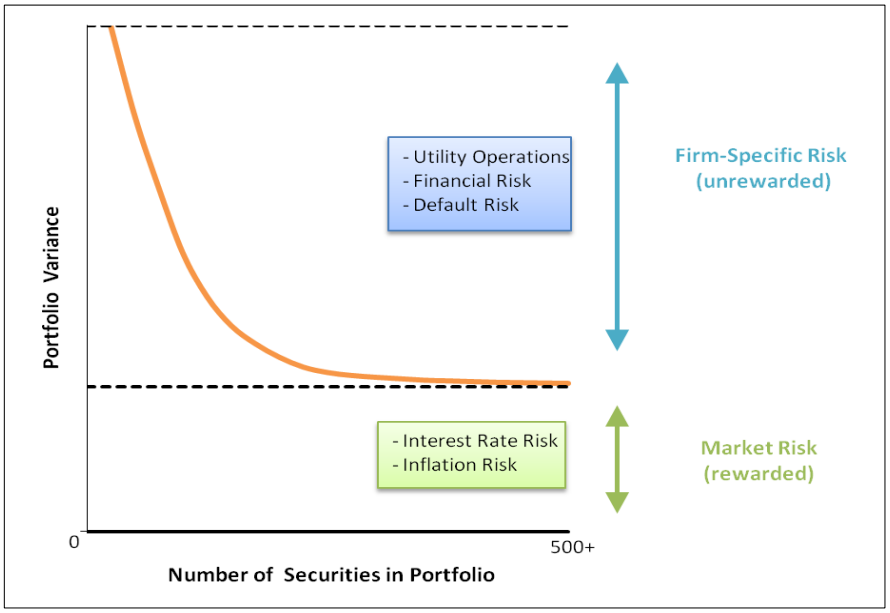
[17] Exh. DJG-8, Graham, Smart & Megginson at 180 (emphasis added).

Figure 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."[18] Beta represents the sensitivity of a given

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

security to the market as a whole. The market portfolio of all stocks has a beta equal to one. Stocks with betas greater than one are relatively more sensitive to market risk than the average stock. For example, if the market increases (decreases) by 1.0 percent, a stock with a beta of 1.5 will, on average, increase (decrease) by 1.5 percent. In contrast, stocks with betas of less than one are less sensitive to market risk. For example, if the market increases (decreases) by 1.0 percent, a stock with a beta of 0.5 will, on average, only increase (decrease) by 0.5 percent. Thus, stocks with low betas are relatively insulated from market conditions. The beta term is used in the Capital Asset Pricing Model to estimate the required return on equity, which is discussed in more detail later.

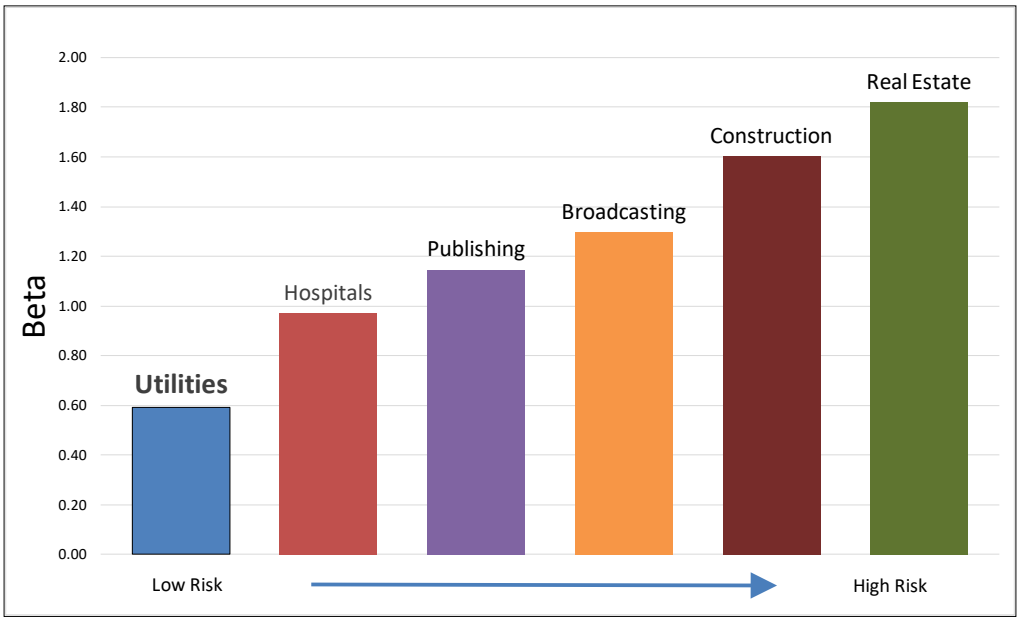
Q: Please describe the level of risk typically associated with of public utilities.

A: Recall that 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."[19] Thus, cyclical firms are exposed to a greater level of market risk. Securities with betas less than one, other the other hand, are known as "defensive stocks." Companies in defensive industries, such as public utility companies, "will have low betas and performance that is comparatively unaffected by overall market conditions."[20] The figure below compares the betas of several industries and illustrates that the utility industry is one of the least

[19] Exh. DJG-7, Bodie, Kane & Marcus at 382.
[20] *Id*. at 383.

risky industries in the U.S. market.[21]

Figure 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 that their utility companies will be able to maintain normal business operations, and utility investors can be confident that utility stock prices will not widely fluctuate. Thus, because utilities are defensive firms that experience little market risk and are relatively insulated from market conditions, this fact should also be appropriately reflected in the Commission's awarded rate of return.

Q: Does this generally mean that investors in firms with low betas require a smaller return than the average required return on the market?

[21] Exh. DJG-9, 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.

A: Yes. This is the basic concept of the risk and return doctrine: The more (less) risk an investor assumes, the larger (smaller) return the investor will demand. So, if a particular stock is less risky than the market average, then an investor in that stock will require a smaller return than the average return on the market. Since utilities are low-risk companies with low betas, the required return (i.e., cost of capital) for utilities should be lower than the required return on the overall market.

Q: Are there other reasons Commission-awarded returns on equity have exceeded the required market returns for at least the last ten years?

A: Although it is indisputable that the true required return on utility stocks is less than the required return on the overall market, commission-awarded returns on equity have often exceeded market returns over the past ten years.[22] In addition to other factors discussed above, many awarded returns arise as the result of settlements. Settled returns are generally higher than market-based cost of capital because utilities may make concessions with other issues in a rate case in exchange for obtaining a higher awarded return. When awarded returns exceed the cost of equity, it results in an inappropriate transfer of wealth from ratepayers to shareholders and the federal government. Moving the allowed return closer to the Company's cost of equity in this case will comply with the requisite legal standards, track more closely with market conditions, allow the Company to remain financially healthy, and reduce the burden on ratepayers.

[22] *See* Exh. DJG-4 at 14.

VII. DISCOUNTED CASH FLOW ANALYSIS

Q: Describe the Discounted Cash Flow model.

A: The Discounted Cash Flow ("DCF") Model is based on a fundamental financial model called the "dividend discount model," which maintains that the value of a security is equal to the present value of the future cash flows it generates. Cash flows from common stock are paid to investors in the form of dividends. There are several variations of the DCF Model. In its most general form, the DCF Model is expressed as follows:[23]

Equation 2:
General Discounted Cash Flow

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

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. Since this would be impractical, analysts use more feasible variations of the General DCF Model, which are discussed further below.

Q: Describe the assumptions underlying all DCF Models.

A: Yes. The DCF Models rely on the following four assumptions:[24]

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

[23] Exh. DJG-7, Bodie, Kane & Marcus at 410.
[24] Exh. DJG-3, Morin at 252.

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

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.

Q: Describe the Constant Growth DCF Model.

A: 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:

Equation 3:
Constant Growth Discounted Cash Flow

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

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 directly for the required return (K). In addition, by assuming that dividends grow at a constant rate, the dividend stream from the General DCF Model may be essentially 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.

Q: Does utilization of the Constant Growth DCF Model require additional assumptions?

A: Yes. In addition to the four assumptions listed above, the Constant Growth DCF Model relies on four additional assumptions as follows:[25]

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

Since the growth rate 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.

Q: Describe the Quarterly Approximation DCF Model.

A: 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.[26]

[25] Exh. DJG-3, Morin at 254-56.
[26] Exh. DJG-3, Morin at 348.

Equation 4:
Quarterly Approximation Discounted Cash Flow

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

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 actually 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. For this case, I have chosen to use the Quarterly Approximation DCF Model described above.

Q: Describe the inputs to the DCF Model.

A: There are three primary inputs in the DCF Model: (1) stock price (P_0); (2) dividend (d_0); and (3) growth rate (g). The stock prices and dividends are known inputs based on recorded data, while the growth rate projection must be estimated. I will discuss each of these inputs in turn.

A. Stock Price

$$\left[K = \frac{D_1}{\boldsymbol{P_0}} + g\right]$$

Q: Describe how you determined 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.[27] 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.[28] Past stock prices, in essence, reflect outdated information. The DCF Model used in utility rate cases is a derivation of the dividend discount model, which is used to determine the current value of an asset. Thus, according to the dividend discount model and the efficient market hypothesis, the value for the "P_0" term in the DCF Model should technically be the current stock price, rather than an average.

Q: Explain why you used 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 which 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 responsive testimony is due.

[27] *See* Exh. DJG-4 at 3.

[28] Exh. DJG-10 (Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, Vol. 25, No. 2 The Journal of Finance 383 (1970)); Exh. DJG-8, Graham, Smart & Megginson at 357. The efficient market hypothesis was formally presented by Eugene Fama in 1970, and is a cornerstone of modern financial theory and practice.

Choosing a current stock price for one particular day during that time 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 concepts of market efficiency while avoiding any irregularities 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.[29]

B. Dividend

$$\left[K = \frac{\mathbf{D_1}}{P_0} + g\right]$$

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. I obtained the quarterly dividend paid in the fourth quarter of 2016 for each proxy company.[30] 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

[29] Exh. DJG-4 at 3. Adjusted closing prices, rather than actual closing prices, are ideal for analyzing historical stock prices. The adjusted price provides an accurate representation of the firm's equity value beyond the mere market price because it accounts for stock splits and dividends.

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

could be describe 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 relative to other DCF Models, all else held constant?

A: Yes. The 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.

C. Growth Rate

$$\left[K = \frac{D_1}{P_0} + \boldsymbol{g}\right]$$

Q: Explain the importance of 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 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. As stated above, one of the inherent assumptions of this model is that 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. For mature, low-growth firms such as utilities, however, estimating the terminal growth rate is more straightforward, as discussed further below.

Q: Is it widely accepted 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.[31] 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 usually have defined service territories beyond which they cannot grow. As stated by Dr. Damodaran: "If 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."[32] 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, public utilities 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 4.1 percent, which includes an inflation rate of two percent.[33] For mature companies in mature industries, such as utility companies, the terminal growth rate will likely fall between the

[31] Exh. DJG-6, Damodaran at 306.
[32] *Id*.
[33] Exh. DJG-11 (Congressional Budget Office Long-Term Budget Outlook, https://www.cbo.gov/publication/51580).

expected rate of inflation and the expected rate of nominal GDP growth. Thus, Avista's terminal growth rate is between two percent and 4.1 percent.

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 often use the risk-free rate for the terminal growth rate value in the DCF model.[34] I discuss the risk-free rate in further detail later in this testimony.

Q: Why it is important when analyzing utility growth rates to consider the qualitative aspects of growth in addition to the quantitative aspects?

A: When analyzing growth rates for any firm, there are several quantitative methods and various growth determinants that can be used in the analysis. These can include both historical and projected analyses of revenue, operating income, net income, earnings, dividends, and other determinants.[35] While it may be important to consider one or more of these quantitative growth determinants, it may be even more important to consider qualitative aspects of growth when analyzing a regulated utility. This is because a utility's growth in dividends or earnings is going to be primarily driven by the return on equity awarded by the regulator. This creates a circular reference problem. In other words, if a regulator awards a higher ROE than the market anticipated, this could lead to higher growth rate estimates from analysts; if those same estimates are used in the DCF

[34] Exh. DJG-6, Damodaran at 307.
[35] Exh. DJG-6, Damodaran at 271-302.

Model in the next rate case, it could lead to a higher awarded ROE; and the cycle continues. Therefore, it is important to begin the analysis with this simple qualitative question: How is this utility going to grow in the future? If this question were asked of a competitive firm, there could be a number of answers depending on the line of business, such as launching a new product line, engaging in mergers and acquisitions, franchising, rebranding to target a new demographic, expanding into developing markets, etc. Regulated utilities, however, cannot engage in these potential growth opportunities.

Q: Summarize the various terminal growth rate estimates you discussed.

A: For Avista, there are four different growth forecasts that could be used for the terminal growth rate in the DCF model: 1) nominal GDP; 2) inflation; and 3) the risk-free rate.

Figure 5:
Terminal Growth Rates

Growth Determinant	Rate
Nominal GDP	4.10%
Inflation	2.00%
Risk Free Rate	2.80%
Average	**2.97%**

It would not be unreasonable to use any of these rates by itself for Avista's terminal growth rate. For the long-term growth rate in my DCF model I selected the highest growth rate from this list, which is the forecasted nominal GDP growth of 4.1 percent. This growth rate estimate is likely high because it assumes that the growth rate of a mature, low-growth utility company with a defined service territory will match the

growth rate of the entire U.S. economy over the long run. As a result, my final DCF cost of equity estimate is toward the higher end of the reasonable range.

Q: Describe the final results of your DCF Model.

A: I used the Quarterly Approximation DCF Model discussed above to estimate Avista's cost of equity capital. I obtained an average of reported dividends and stock prices from the proxy group, and I used a very reasonable terminal growth rate estimate for Avista. My DCF cost of equity estimate for Avista is 7.7 percent, as expressed in the following equation:[36]

Equation 5:
DCF Results

$$\mathbf{7.2}\% = \left[\frac{\$0.48(1+4.1\%)^{1/4}}{\$64.84} + (1+4.1\%)^{1/4}\right]^{4} - 1$$

As noted above, this estimate is likely at the higher end of the appropriate range due to the fact that my growth rate estimate exceeds the Company's own load growth forecast.

Q: Mr. McKenzie's DCF Model yielded much higher results. Did you find specific problems with his analysis regarding the DCF Models?

A: Yes. Mr. McKenzie's DCF Model produced cost of equity results as high as 10.3 percent. The results of Mr. McKenzie's DCF Model are unreasonably high primarily due to his extremely inflated growth rate estimates. Mr. McKenzie incorporates long-term growth rates as high as 10.4 percent in his DCF estimate. Mr. McKenzie's growth rate assumptions are patently unreasonable. For example, Mr. McKenzie's relies on a long-

[36] Exh. DJG-4 at 4, 5, and 6.

term growth rate for Black Hills Corp. of 10.4 percent. This means that Mr. McKenzie assumes that Black Hills Corp. will grow at a rate of 10.4 percent per year, every year going forward. However, the real, qualitative growth rate of any public utility is primarily limited by the population and load growth in its defined service territory. Yet, Mr. McKenzie assumes that Black Hills Corp. is going to grow at a rate nearly three times the projected long-term growth rate of the entire U.S. economy, which has access to markets across the planet. Because of this unreasonable assumption, Mr. McKenzie's DCF cost of equity estimates are far overstated.

Q: Are there any other problems with Mr. McKenzie's growth rate estimates?

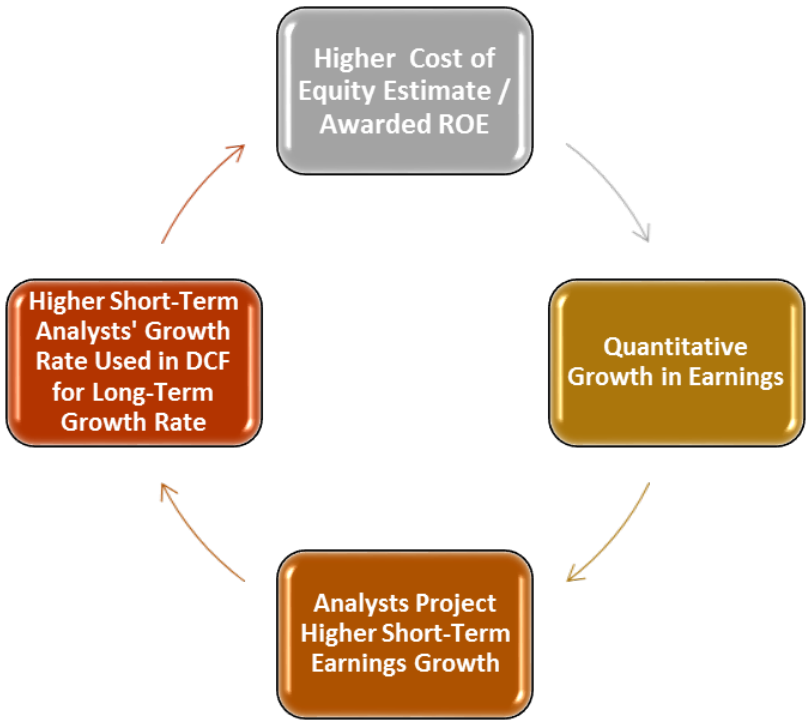
A: Yes. Mr. McKenzie, like most utility ROE witnesses, relies on the projected growth rates published by Zack's, Value Line, and other commercial services. However, these growth rate estimates are short-term estimates, whereas the growth rate input in the DCF model requires a long-term growth rate estimate.

Q: Please discuss the other way in which analysts' earnings growth projections do not provide indications of fair, qualitative growth for regulated utilities.

A: The fact that growth rate projections published by commercial analysts, such as Value Line, are merely short-term growth projections invalidates them for use in any constant growth DCF Model by definition. However, there is another problem with relying on these growth rate projections for the DCF Model in determining a fair rate of return for a regulated utility. If we give undue weight to commercial 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 of this analysis is supposed to help us estimate: the awarded return on equity. This

creates a circular reference problem. In other words, if a regulator awards an ROE that is above market-based cost of capital (which is the case here), this could lead to higher growth rate projections from analysts. If these same inflated growth estimates are used in the DCF Model (and they often are by utility witnesses), it could lead to a higher awarded ROEs; and the cycle continues, as illustrated in the following figure:

Figure 6:
The "Circular Reference" Problem



Therefore, it is not advisable to simply consider a quantitative historical or projected growth rate in utility earnings, as this practice will not provide a reliable or accurate indication of real utility growth. Since the growth input in the DCF Model is a long-term growth rate, it should be bound by the U.S. economic growth rate as measured by GDP.

Q: Did Mr. McKenzie consistently apply the results of his own DCF Model?

A: No. Mr. McKenzie simply eliminated many of the lower DCF results produced by his own methodology.[37] This appears to be nothing more than an arbitrary tactic to skew the results of his DCF average to a higher number. If Mr. McKenzie had simply accepted the results of his own methodology (even with the unreasonably high growth rates) his average DCF results from Exhibit AMM-6 would be as follows:

Value Line:	8.4%
IBES:	8.6%
Zacks:	9.0%
S&P:	8.8%
Average:	**8.7%**

While a cost of equity of estimate of 8.7 percent for the Company is high, it is much more reasonable than the skewed results presented by Mr. McKenzie.

VIII. CAPITAL ASSET PRICING MODEL ANALYSIS

Q: Describe the Capital Asset Pricing Model.

A: The Capital Asset Pricing Model (CAPM) is a market-based model founded on the principle that investors demand higher returns for incurring additional risk.[38] The CAPM estimates this required return.

Q: What assumptions are inherent in the CAPM?

A: The CAPM relies on the following assumptions:

[37] *See* McKenzie, Exh. AMM-6.

[38] Exh. DJG-12 (William F. Sharpe, *A Simplified Model for Portfolio Analysis* 277-93 (Management Science IX 1963)); Exh. DJG-8, Graham, Smart & Megginson at 208.

1. Investors are rational, risk-averse, and strive to maximize profit and terminal wealth;

2. Investors make choices on the basis of 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.[39]

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.

Q: Is the CAPM approach consistent with the legal standards set forth by the U.S. Supreme Court?

A: Yes. Our courts have recognized that "the amount of risk in the business is a most important factor" in determining the allowed rate of return,[40] and that "the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks."[41] The CAPM is a useful model because it directly considers

[39] *See id*.
[40] *Wilcox*, 212 U.S. at 48 (emphasis added).
[41] *Hope Nat. Gas Co*., 320 U.S. at 603 (emphasis added).

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 CAPM equation.

A: The basic CAPM equation is expressed as follows:

Equation 6:
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. Each term is discussed in more detail below, along with the inputs I used for each term.

A. The Risk-Free Rate

$$\left[K = \boldsymbol{R_F} + \beta_i(R_M - R_F)\right]$$

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 can thus lead to unreliable estimates. Instead, long-term Treasury bonds are usually used to represent the risk-free rate in the CAPM.[42] 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 2.81 percent.[43]

B. The Beta Coefficient

$$\left[K = R_F + \boldsymbol{\beta_i}(R_M - R_F)\right]$$

Q: Describe the beta coefficient.

[42] Exh. DJG-3, Morin at 150.
[43] Exh. DJG-4 at 7.

A: As discussed above, beta represents the sensitivity of a given security to movements in the overall market. The CAPM states that in efficient capital markets, the expected risk premium on each investment is proportional to its beta. Recall that a security with a beta greater (less) than one is more (less) risky than the market portfolio. 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:[44]

Equation 7:
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*

Typically, an index such as the S&P 500 Index is used as proxy for the market portfolio. The historical betas for publicly traded firms are published by several commercial sources.[45] 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. Also, as discussed above, beta represents the sensitivity of a given security to the market as a whole. The market portfolio of all stocks has a beta equal to one. Stocks with betas greater than one are relatively more sensitive to market risk than the average stock. For example, if the market increases (decreases) by 1.0 percent, a stock with a beta of 1.5 will, on average, increase (decrease) by 1.5 percent. In

[44] Exh. DJG-8, Graham, Smart & Megginson at 180-81.
[45] E.g., Value Line, Bloomberg, and Merrill Lynch.

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

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

A: I used betas recently published by Value Line Investment Survey.[46] The beta for each proxy company was less than 1.0, and the average beta for the proxy group is 0.71. 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, which has a beta of 1.0.

C. The Equity Risk Premium

$$\left[K = R_F + \beta_i\left(\boldsymbol{R_M} - \boldsymbol{R_F}\right)\right]$$

Q: Describe the equity risk premium.

A: The final term of the CAPM is the equity risk premium ("ERP"), which is the required return on the market portfolio less the risk-free rate ($R_M - R_F$). In other words, the ERP is the level of return investors expect above the risk-free rate in exchange for investing in risky securities. Many experts would agree that "the single most important variable for making investment decisions is the equity risk premium."[47] Likewise, the ERP is arguably the single most important factor in estimating the cost of capital in this matter. There are three basic methods to estimate the ERP: (1) calculating a historical average; (2) taking a survey of experts; and (3) calculating the implied equity risk premium. I

[46] Exh. DJG-4 at 8.

[47] Exh. DJG-13 (Elroy Dimson, Paul Marsh & Mike Staunton, *Triumph of the Optimists: 101 Years of Global Investment Returns* 4 (Princeton University Press 2002)).

incorporated each one of these methods in determining the ERP used in my CAPM analysis. I will discuss each method in turn.

1. Historical Average

Q: Describe the historical equity risk premium.

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. Ibbotson, one of the most widely cited source for the historical ERP in the U.S.,[48] reports both the geometric mean and arithmetic mean for the returns of stocks and government bonds in its annual yearbooks.[49] 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 as an indication of the current 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.[50] Some investors may think that a historic ERP provides some indication of what the prospective risk premium is, but 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,

[48] *Id*. at 173.
[49] Exh. DJG-14 (2015 Ibbotson Stocks, Bonds, Bills, and Inflation Classic Yearbook 91 (Morningstar 2015)).
[50] Exh. DJG-8, Graham, Smart & Megginson at 330.

Triumph of the Optimists, the authors suggest through extensive empirical research that the prospective ERP is lower than the historical ERP.[51] 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.[52] From their extensive analysis, the authors make the following conclusion regarding the prospective ERP: "The result is a forward-looking, geometric mean risk premium for the United States . . . of around 2½ to 4 percent and an arithmetic mean risk premium . . . that falls within a range from a little below 4 to a little above 5 percent."[53] 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%.[54]

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."[55]

2. Expert Surveys

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

[51] Exh. DJG-13, Dimson, Marsh & Staunton 53.
[52] *Id*. at 34.
[53] *Id*. at 194.
[54] Exh. DJG-15 (Aswath Damodaran, *Equity Risk Premiums: Determinants, Estimation and Implications – The 2015 Edition* 17 (New York University 2015)).
[55] Exh. DJG-8, Graham, Smart & Megginson at 330.

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 Harvey have performed such a survey every year since 1996. In their 2016 survey, they found that experts around the country believe that the current risk premium is only 4.0 percent.[56] The IESE Business School conducts a similar expert survey, and recently reported an average ERP of 5.7 percent.[57] It should be noted that ERP values assumed by Mr. McKenzie are as high as 8.7 percent, which is a substantial departure from these survey results.

3. Implied Equity Risk Premium

Q: Describe the implied equity risk premium.

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:[58]

Equation 8:
Gordon Growth Model

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

[56] Exh. DJG-16 (John R. Graham and Campbell R. Harvey, *The Equity Risk Premium in 2016*, at 3 (Fuqua School of Business, Duke University 2014)), copy available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2816603.

[57] Exh. DJG-17 (Pablo Fernandez, Vitaly Pershin & Isabel F. Acin, *Market Risk Premium used in 171 Countries in 2016: A Survey with 6,932 Answers*, at 3 (IESE Business School 2015)), copy available at **https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2954142**

[58] Exh. DJG-18 (Myron J. Gordon and Eli Shapiro, *Capital Equipment Analysis: The Required Rate of Profit* 102-10 (Management Science Vol. 3, No. 1 Oct. 1956)).

where: P_0 = *current value of stock*
D_1 = *value of next year's dividend*
K = *cost of equity capital / discount rate*
g = *constant growth rate in perpetuity for dividends*

This model is similar to the Constant Growth DCF Model presented in Equation 3 above ($K=D_1/P_0+g$). In fact, the underlying concept in both models is the same: The current value of an asset is equal to the present value of its future cash flows. Instead of using this model to determine the discount rate of one company, we can use it to determine the discount rate for the entire market by substituting the inputs of the model. Specifically, instead of using the current stock price (P_0), we will use the current value of the S&P 500 (V_{500}). Instead of using the dividends of a single firm, we will consider the dividends paid by the entire market. Additionally, we should consider potential dividends. In other words, stock buybacks should be considered in addition to paid dividends, as stock buybacks represent another way for the firm to transfer free cash flow to shareholders. Focusing on dividends alone without considering stock buybacks could understate the cash flow component of the model, and ultimately understate the implied ERP. The market dividend yield plus the market buyback yield gives us the gross cash yield to use as our cash flow in the numerator of the discount model. This gross cash yield is increased each year over the next five years by the growth rate. These cash flows must be discounted to determine their present value. The discount rate in each denominator is the risk-free rate (R_F) plus the discount rate (K). The following formula shows how the implied return is calculated. Since the current value of the S&P is known, we can solve for K: The implied market return.[59]

[59] *See* Exh. DJG-4 at 9.

Equation 9:
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. After solving for the implied market return (K), we simply subtract the risk-free rate from it to arrive at the implied ERP.

Equation 10:
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 8.09 percent. I subtracted the risk-free rate to arrive at the implied equity risk premium of 4.9 percent. 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 October 2017 was 5.2 percent.[60]

Q: Discuss the results of your final ERP estimate.

A: For the final ERP estimate I used in my CAPM analysis, I averaged the results of the ERP surveys along with Dr. Damodaran's published ERP and my implied ERP calculation.[61] The results are presented in the following figure:

Figure 7:
Equity Risk Premium Results

IESE Business School Survey	5.7%
Graham & Harvey Survey	4.0%
Duff & Phelps Report	5.0%
Damodaran	5.2%
Garrett	4.9%
Highest	**5.7%**

While it would be reasonable to select any one of these ERP estimates, or the average of these estimates, I selected the highest ERP estimate of 5.7 percent for my CAPM in the interest of conservatism. The survey results published in the IESE report are markedly higher than the other sources I reviewed for the ERP, and in my opinion, an ERP estimate

[60] *Implied Equity Risk Premium Update*, Damodaran Online, (last visited Oct. 27, 2017) http://pages.stern.nyu.edu/~adamodar/.

[61] Exh. DJG-4 at 10.

of 5.7 percent is likely overestimated given current market conditions. All else held constant, a higher ERP will result in a higher CAPM cost of equity estimate.

Q: Explain the final results of your CAPM analysis.

A: Using the inputs for the risk-free rate, beta coefficient, and equity risk premium discussed above, I calculated the CAPM cost of equity for each proxy company. Using the same CAPM equation presented above, the results of my CAPM analysis are expressed as follows:[62]

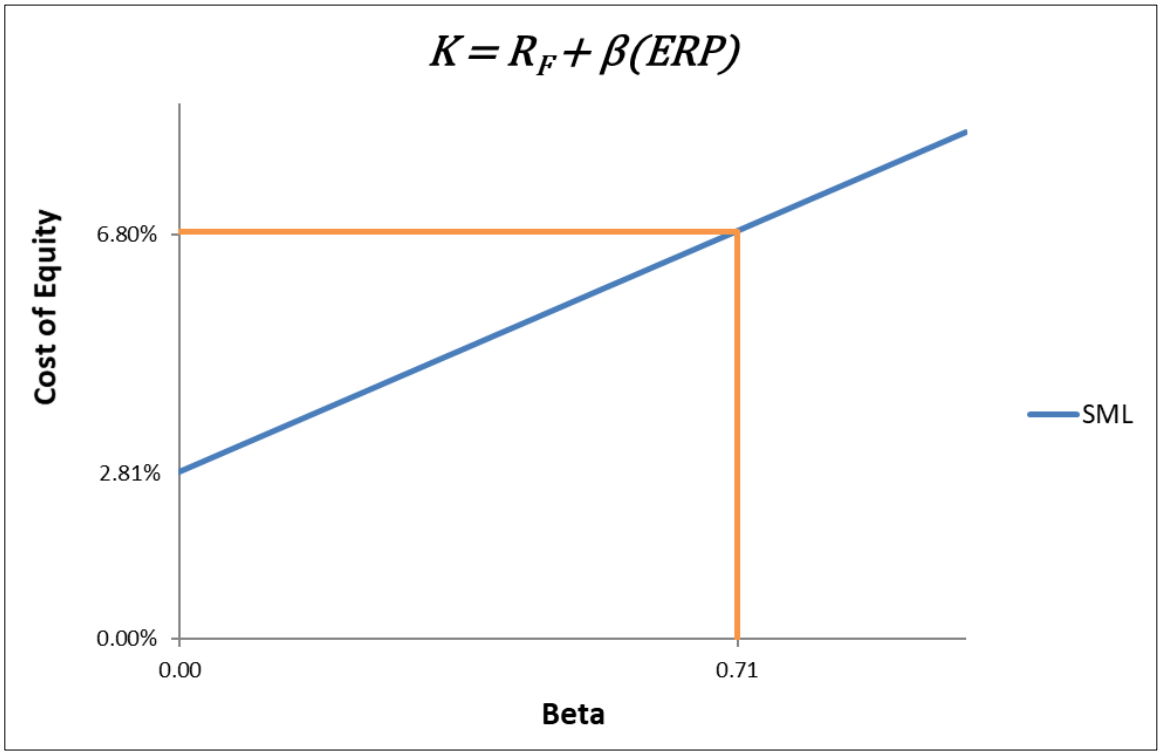
Equation 11:
CAPM Results

$$\mathbf{6.8}\% = 2.81\% + 0.71(5.7\%)$$

The CAPM suggests that Avista's cost of equity capital is about 6.8%. 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.

[62] Exh. DJG-4 at 11.

Figure 8:
CAPM Graph



The SML provides the required rate of return that will compensate investors for the beta risk of that investment. Thus, at an average beta of 0.71 for the proxy group, the estimated cost of equity for Avista is 6.8 percent.

Q: Mr. McKenzie's CAPM analysis yields considerably higher results. Did you find specific problems with Mr. McKenzie's CAPM assumptions and inputs?

A: Yes. Mr. McKenzie's cost of equity estimates through his CAPM analysis are as high as 11.85 percent. This is primarily due to overestimation of the equity risk premium.

Q: Did Mr. McKenzie rely on a realistic measure for the equity risk premium?

A: No. The ERP is one of three inputs in the CAPM equation, and it is one of the most single important factors for estimating the cost of equity in this case. As discussed above, I used two widely-accepted methods for estimating the ERP, including consulting

expert surveys and calculating the implied ERP based on aggregate market data. In contrast, Mr. McKenzie essentially conducted a DCF analysis on nearly every company in the S&P 500. This means that Mr. McKenzie made 500 separate growth rate inputs for each company in his market portfolio. If his growth inputs were reasonable, then the model could theoretically produce reasonable results. Instead, however, many of Mr. McKenzie's growth rate inputs were not realistic. For example, Mr. McKenzie relied on a long-term annual growth input for American International Group of 46.7 percent.[63] This means that Mr. McKenzie is indicating he believes that American International Group could grows its earnings / dividends by 46.7 percent per year, every year, over the long run. Recall that, as a general rule, the long-term growth rate for any U.S. company cannot exceed long-term growth in GDP, which is projected at about four percent. This means that Mr. McKenzie's long-term growth estimate for this company is over 10 times anything that could be considered realistic. Many of Mr. McKenzie's other growth rate estimates are similarly overstated. This causes his estimates for the ERP and CAPM cost of equity to be overstated as well.

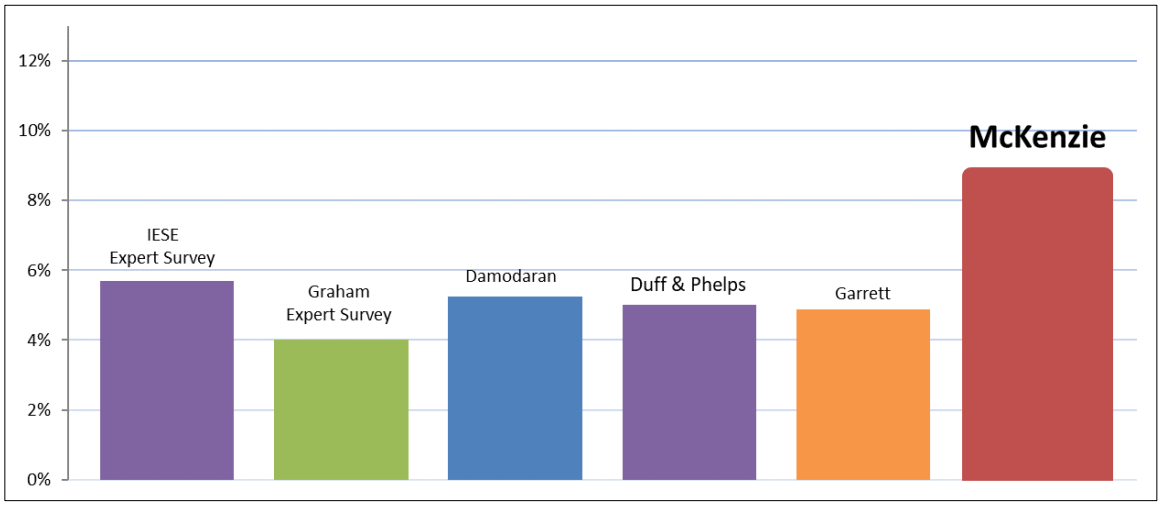
Q: What is the impact of Mr. McKenzie's flawed ERP estimate?

A: Mr. McKenzie's overestimated ERP is considerably higher than the range of ERPs utilized by firms and analysts across the country. Because the ERP is not firm-specific, there are fairly standardized ERP levels that are widely recognized by several prominent national expert surveys. For example, the IESE Business School expert survey reports an average ERP of 5.7 percent, which is markedly higher than other objective sources, yet

[63] Exh. DJG-21, Workpaper of Adrian M. McKenzie, WP-59.xlsm, Tab 2017 04 Market DCF.

still significantly lower than Mr. McKenzie's estimate. The following chart illustrates that Mr. McKenzie's ERP estimate is far out of line with objective sources and estimates:

Figure 9:
Equity Risk Premium Comparison



When compared with these well-established ERP benchmarks, it is clear that Mr. McKenzie's ERP estimate is not within the range of reasonableness. As a result, his CAPM cost of equity estimates are overstated.

Q: Did you also review Mr. McKenzie's Risk Premium Model?

A: Yes. Before I discuss Mr. McKenzie's risk premium model, I will reiterate that the CAPM itself is a "risk premium" model. In short, it takes the bare minimum return any investor would require for buying a stock (the risk-free rate), then adds a premium to compensate the investor for the extra risk he or he 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. When reasonable inputs are used in the CAPM, this model tends to produce cost

of equity results for utility companies that are much lower than the excessive returns demanded by shareholders. Thus, utility witnesses often downplay the Nobel-Prize-winning CAPM and instead promote their own various risk-premium models.

In stark contrast to the 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 typically only found in texts written by other utility witnesses. 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. In this case, Mr. McKenzie's risk premium model is no different.

Mr. McKenzie's risk premium model considers a comparison between awarded ROEs and bond yields, even though these two factors are not remotely connected. The legal standards governing this issue indicate that the awarded return on equity should be based on the cost of equity.[64] In turn, the cost of equity, as estimated through the CAPM, is driven by interest rates. Thus, the idea that the awarded ROE should be based on interest rates is already built into the CAPM, but only if regulators base the awarded ROE on the true cost of equity, which is about 7.0 percent in this case. Unfortunately, it is clear that for many years, awarded returns for utilities have escalated far above market-based cost of equity computations. Giving undue consideration to Mr. McKenzie's "risk

[64] *Fed. Power Comm'n v. Hope Nat. Gas Co*., 320 U.S. 591, 603 (1944) (emphasis added).

premium" model would only serve to perpetuate this trend, which has resulted in a significant wealth shift from ratepayers to shareholders for many years.

Q: Is it necessary to pursue modeling beyond the CAPM in order to assess risk premiums when determining an appropriately set cost of equity in this case?

A: No. Mr. McKenzie's risk premium model is not only inappropriate as presented, but it is also unnecessary. The CAPM already has a built-in risk premium factor known as the equity risk premium (ERP). Not only is the ERP a crucial factor in the CAPM, but many would agree that the ERP is "the single most important variable for making investment decisions. . . ."[65] Specifically, the ERP is the expected return on the market less the risk-free rate. In other words, the ERP is a function of market-driven forces. Unlike the risk premium presented in Mr. McKenzie's testimony, the ERP cannot be influenced by the decisions of a public utility commission. For that matter, it cannot be materially influenced by the decisions of any single company. Thus, the ERP has no material connection with the returns awarded to public utility companies in rate cases. This point is further strengthened by the expert surveys. Recall that the expert surveys ask thousands of experts across the country about the current ERP. When these experts are asked about the sources they relied on in giving their ERP estimate, it is not surprising that they make no mention of commission-awarded returns.[66] Moreover, many awarded returns arise out of settlements, which means that in complete contrast to the ERP, they

[65] Exh. DJG-13, Dimson, Marsh & Staunton at 4.

[66] In the IESE Business School's 2014 survey, some of the respondents indicated which books, papers, and other sources they used as a reference to justify the equity risk premium that they used. The most cited references were Dr. Damodaran, Ibbotson, Duff & Phelps, Graham-Harvey, Bloomberg, Grabowski, Siegel, and other sources. Of course, there was no mention of commission-awarded returns.

are not reflective of market-driven forces. For all of these reasons, it is completely inappropriate to consider commission-awarded returns in any risk premium analysis. Thus, the Commission should disregard Mr. McKenzie's risk premium analysis.

IX. OTHER COST OF EQUITY ISSUES

Q: Are there any other issues raised in Mr. McKenzie's testimony to which you would like to respond?

A: Yes, in his direct testimony Mr. McKenzie raises several other issues in his testimony: (1) firm-specific risks; (2) size premium; (3) flotation costs; and (4) non-utility DCF Model. I will discuss each issue in turn.

A. Firm-Specific Risks

Q: Do you agree that the Company's firm-specific risk factors cited by Mr. McKenzie materially influence its cost of equity?

A: No. Recall that there are two primary types of risk: market risk, which affects all firms to varying degrees, and firm-specific risk, which affects individual firms. Mr. McKenzie suggests that certain firm-specific factors should have an increasing effect on the cost of equity, such as operating risks.[67] As discussed above, however, it is a well-known concept in finance that firm-specific risks are unrewarded by the market. This is because investors can easily eliminate firm-specific risks through portfolio diversification. Therefore, the Company's few and relatively small firm-specific business risks, while perhaps relevant to other issues in the rate case, have no meaningful effect on the cost of

[67] *See generally* Direct Testimony of Adrien M. McKenzie, Exh. AMM-1T at 9-12.

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. Size Premium

Q: Does a Company's relative size warrant a premium addition to the cost of equity estimate?

A: No. Mr. McKenzie suggests that Avista's cost of equity should be further inflated due to its relatively small size. Specifically, the average increase to Mr. McKenzie's CAPM due to his size adjustments is 70 basis points.[68] Utility cost of capital witnesses often refer to this as a "size premium." The size premium refers to the idea that the additional risk associated with smaller firms is not fully accounted for in their betas. The "size effect" phenomenon arose from a 1981 study conducted by Banz, which found that "in the 1936 – 1975 period, the common stock of small firms had, on average, higher risk-adjusted returns than the common stock of large firms."[69] According to Ibbotson, Banz's size effect study was "[o]ne of the most remarkable discoveries of modern finance."[70] Perhaps there was some merit to this idea at the time, but the size effect phenomenon was short lived. Banz's 1981 publication generated much interest in the size effect, and

[68] *See* McKenzie, Exh. AMM-9.

[69] Exh. DJG-19 (Rolf W. Banz, *The Relationship Between Return and Market Value of Common Stocks* 3-18 (Journal of Financial Economics 9 (1981)).

[70] Exh. DJG-14 (2015 Ibbotson Stocks, Bonds, Bills, and Inflation Classic Yearbook 99 (Morningstar 2015)).

spurred the launch of significant new small-cap[71] investment funds. However, this "honeymoon period lasted for approximately two years." [72]

After 1983, U.S. small-cap stocks actually underperformed relative to large cap stocks. In other words, the size effect essentially reversed. In *Triumph of the Optimists*, the authors conducted an extensive empirical study of the size effect phenomenon around the world. They found that after the size effect phenomenon was discovered in 1981, it disappeared within a few years:

> It is clear . . . that there was a global reversal of the size effect in virtually every country, with the size premium not just disappearing but going into reverse. Researchers around the world universally fell victim to Murphy's Law, with the very effect they were documenting – and inventing explanations for – promptly reversing itself shortly after their studies were published.[73]

In other words, the authors assert that the very discovery of the size effect phenomenon likely caused its own demise. The authors ultimately concluded that it is "inappropriate to use the term 'size effect' to imply that we should automatically expect there to be a small-cap premium," Yet this is exactly what utility witnesses often do in attempting to artificially inflate the cost of equity with a size premium.

Other prominent sources have agreed that the size premium is no longer a relevant phenomenon. According to Ibbotson:

[71] The term "small cap" refers to companies with an overall value of outstanding shares that is small relative to the rest of the market.

[72] Exh. DJG-13, Dimson, Marsh & Staunton at 131

[73] *Id*. at 133.

> The unpredictability of small-cap returns has given rise to another argument against the existence of a size premium: that markets have changed so that the size premium no longer exists. As evidence, one might observe the last 20 years of market data to see that the performance of large-cap stocks was basically equal to that of small cap stocks. In fact, large-cap stocks have outperformed small-cap stocks in five of the last 10 years.[74]

In addition to the studies discussed above, other scholars have concluded similar results. According to Kalesnik and Beck:

> Today, more than 30 years after the initial publication of Banz's paper, the empirical evidence is extremely weak even before adjusting for possible biases. . . . The U.S. long-term size premium is driven by the extreme outliers, which occurred three-quarters of a century ago. . . . Finally, adjusting for biases . . . makes the size premium vanish. If the size premium were discovered today, rather than in the 1980s, it would be challenging to even publish a paper documenting that small stocks outperform large ones.[75]

For all of these reasons, the Commission should reject the arbitrary size premium proposed by the Company.

C. Flotation Costs

Q: Please define "flotation costs," as referenced in Mr. McKenzie's testimony.

A: "Flotation costs" generally refer to the underwriter's compensation for the services it provides in connection with the securities offering.

Q: Describe Mr. McKenzie's opinion on this issue.

[74] Exh. DJG-14, Ibbotson at 112.

[75] Exh. DJG-20, Vitali Kalesnik and Noah Beck, *Busting the Myth About Size* (Research Affiliates 2014), available at https://www.researchaffiliates.com/Our%20Ideas/Insights/Fundamentals/Pages/284_Busting_the_Myth_About_Size.aspx.

A: Mr. McKenzie suggests that flotation costs should have an increasing effect on the cost of equity of 10 basis points.[76]

Q: Do you agree with Mr. McKenzie's theory?

A: No. When companies issue equity securities, they typically hire at least one investment bank as an underwriter for the securities. The Commission should not allow recovery of flotation costs for the following reasons:

1. Flotation costs are not actual "out-of-pocket" costs.

Unlike the Company's other operating expenses, Avista does not actually pay for flotation costs. Instead, the underwriters used to facilitate the equity issuance are compensated through an "underwriting spread." An underwriting spread is the difference between the price at which the underwriter purchases the shares from the firm, and the price at which the underwriter sells the shares to investors.[77] Thus, Avista has not experienced any out-of-pocket flotation costs, and if it has, those costs should be included in the Company's expense schedules.

2. The market already accounts for flotation costs.

When an underwriter markets a firm's securities to investors, the investors are well aware of the underwriter's fees. In other words, the investors know that a portion of the price they are paying for the shares does not go directly to the company, but instead goes to compensate the underwriter for its services. In fact, federal law requires that the

[76] *See* McKenzie, Exh. AMM-1T at 45:14-18.
[77] Exh. DJG-8, Graham, Smart & Megginson at 509.

underwriter's compensation be disclosed on the front page of the prospectus.[78] Thus, investors have already considered and accounted for flotation costs when making their decision to purchase shares at the quoted price. There is no need for the Company's shareholders to receive additional compensation to account for costs they have already considered and agreed to.

We see similar compensation structures in other kinds of business transactions. For example, a homeowner may hire a realtor and sell a home for $100,000. After the realtor takes a six percent commission, the seller nets $94,000. The buyer and seller agreed to the transaction notwithstanding the realtor's commission. Obviously, it would be unreasonable for the buyer or seller to demand additional funds from anyone after the deal is done to reimburse them for the realtor's fees. Likewise, investors of competitive firms do not expect additional compensation for flotation costs. Thus, it would not be appropriate for a commission standing in the place of competition to award a utility's investors with this additional compensation.

3. <u>It is inappropriate to add any additional basis points to a cost of equity proposal that is already far above the true required return</u>.

For the reasons discussed above, flotation costs should be disallowed from a technical standpoint; they should also be disallowed from a practical standpoint. Avista is asking this Commission to award it a cost of equity that is well over 200 basis points

[78] *See* Regulation S-K, 17 C.F.R. § 229.501(b)(3) (requiring that the underwriter's discounts and commissions be disclosed on the outside cover page of the prospectus). A prospectus is a legal document that provides details about an investment offering.

above its true cost of equity. Under these circumstances, it is especially inappropriate to suggest that the effect of flotation costs should be considered in any way.

D. Non-Utility DCF Model

Q: Do you agree with the results of Mr. McKenzie's non-utility DCF Model?

A: No. Mr. McKenzie also conducted a DCF analysis on a group of non-utility firms. Cost of capital witnesses routinely conduct their analyses on a group of "proxy" companies that include regulated utilities. This practice likely stems from "corresponding risk" standard set forth by the *Hope* Court. That is, the risk inherent in the equity of competitive firms is simply not comparable to the risk inherent in the equity of regulated utilities. This is because the regulated utility industry is essentially the least risky industry in the entire country, as shown in Figure 4, discussed above. The beta term is used in the CAPM as an objective way to determine the impacts of market risk on an individual firm. Beta is calculated through linear regression analysis that considers the correlation between the returns on an individual stock with the returns on the market portfolio (i.e., all stocks). The betas for regulated utilities are decisively and consistently lower than the betas of competitive firms, which means that the stocks of regulated utilities are less risky than the stocks of competitive firms.

This is why cost of capital witnesses routinely conduct their DCF, CAPM, and comparable earnings analyses on a "proxy" group of <u>regulated utilities</u>, not unregulated, competitive firms – because competitive firms are simply not comparable to regulated utilities in terms of their risk profiles. Thus, Mr. McKenzie's analysis is based on a

faulty premise and provides no accurate, fair, or reasonable indication of Avista's cost of equity in this case.

X. COST OF EQUITY SUMMARY

Q: Mr. Garrett, please summarize the results of the DCF and CAPM cost of equity models you presented in testimony.

A: The following table shows the cost of equity results from each of the models I employed in this case.

Figure 10:
Cost of Equity Summary[79]

Model	Cost of Equity
Discounted Cash Flow Model	7.2%
Capital Asset Pricing Model	6.8%
Average	**7.0%**

The average cost of equity of the DCF Model and the CAPM is 7.0 percent. Furthermore, it is noteworthy that these two models produced comparable results, especially considering the fact that the inputs for the two modes are completely different. Again, 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. These inputs

[79] Exh. DJG-4 at 12.

are relatively unrelated to each other, and yet the models produced similar results.[80] This fact further highlights the validity of these two models, which have been relied upon by executives, analysts, academics, and regulators for decades to value companies and estimate cost of equity.

Q: What do you recommend for the awarded return on equity?

A: The Commission should strive to award a return on equity that reflects the market-based cost of equity. However, the awarded return must also consider broader ratemaking principles and be reasonable under the circumstances. The results of the financial models presented in this case indicate a cost of equity estimate of 7.0 percent. In the interest of achieving a gradual movement toward the appropriate market-based cost of equity, I recommend the Commission in this case adopt an awarded return on equity of nine percent, which is the midpoint in a range of reasonableness of 8.75 percent to 9.25 percent.

XI. CAPITAL STRUCTURE

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

A: "Capital structure" refers to the way a firm finances its overall operations through external sources. 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 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

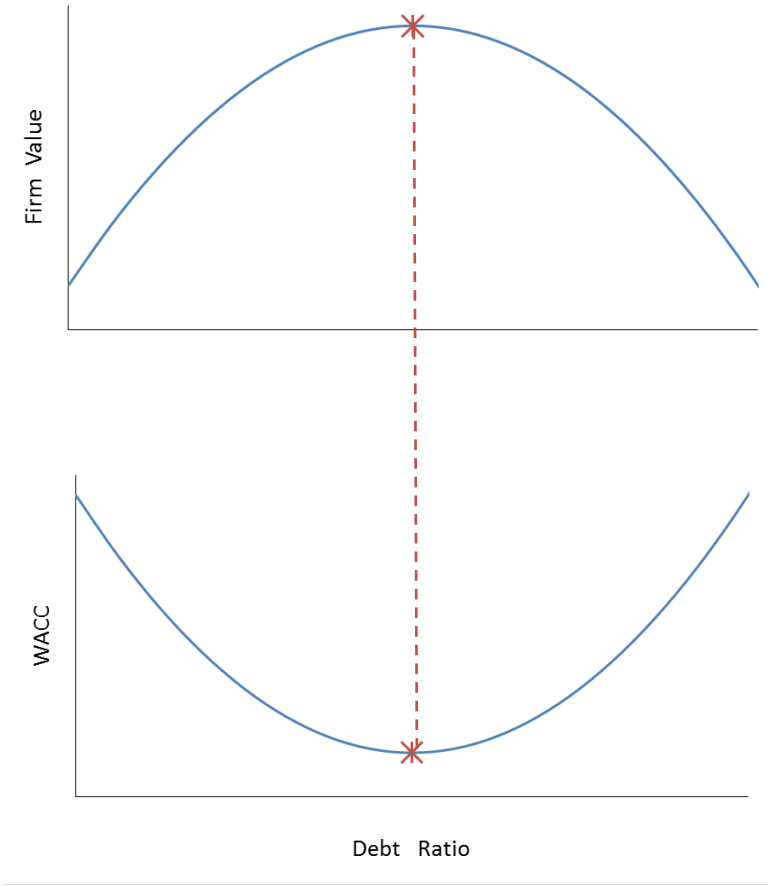
[80] These results also highlight the fact that the growth rate used in my DCF Model, nominal U.S. GDP growth, is a relatively high growth rate estimate for a utility company. Using a growth rate closer to the risk-free rate or Avista's projected load growth would have made the results of the DCF Model even closer to the CAPM.

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 required return relative to bondholders. Thus, equity capital has a higher cost than debt capital. Firms can reduce their weighted average cost of capital (WACC) by recapitalizing and increasing their debt financing. In addition, because interest expense is tax 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. 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 increases the risk of recovery for both bondholders and shareholders, causing both groups of investors to demand a greater return on their investment. Thus, if debt financing is too high, the firm's WACC will increase instead of decrease. The following figure illustrates these concepts.

Figure 11: Optimal Debt Ratio



As shown in this figure, a competitive firm's value is maximized when the WACC is minimized. In both of these graphs, the debt ratio [D/(D+E)] 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.[81]

[81] Exh. DJG-8, Graham, Smart & Megginson at 440-41.

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 12:
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 this equation, utilities can increase their revenue requirement by <u>increasing</u> 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.

Q: Do you believe that, generally speaking, utilities can 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 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.[82]

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

Q: Is it appropriate to solely consider the capital structures of the proxy group in assessing a prudent capital structure?

A: No. Utility witnesses often argue that regulators should consider only the capital structures of other regulated utilities in assessing the proper capital structure. This type of analysis is oversimplified and insufficient for three important reasons:

1. Utilities do not have a financial incentive to operate at the optimal capital structure.

Under the rate base rate of return model, utilities do not have a natural financial incentive to minimize their cost of capital; in fact, they have a financial incentive to do the opposite. Competitive firms, in contrast, can 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. Simply comparing the debt ratios of other regulated utilities will not indicate an appropriate capital structure for the Company.

[82] Exh. DJG-6, Damodaran at 196 (emphasis added).

Rather, it is likely to justify debt ratios that are far too low. It is the Commission's role to act as a surrogate for competition and thereby ensure that the capital structure of a regulated monopoly is similar to what would be appropriate in a competitive environment, not a regulated environment. This cannot be accomplished by simply looking at the capital structures of other regulated utilities or the target utility's test-year capital structure.

2. The optimal capital structure is unique to each firm.

As discussed further below, the optimal capital structure for a firm is dependent on several unique financial metrics for that firm. The other companies in the proxy group have different financial metrics than the target utility, and thus have different optimal capital structures. An objective analysis should be performed using the financial metrics of the target utility in order to estimate its unique optimal capital structure.

3. The capital structures of the proxy group may not have been approved by their regulatory commissions.

The actual capital structure of any utility falls within the realm of managerial discretion. Regulatory commissions, however, have a duty to impute a proper capital structure if the company's actual capital structure is inappropriate. Thus, the actual capital structures of other utilities may have been deemed inappropriate by their own commission. For all of the foregoing reasons, simply comparing the capital structures of other regulated utilities has no place in a proper capital structure analysis.

Q: Describe an objective approach to estimating a firm's optimal capital structure.

A: My analysis of the optimal capital structure includes objective methods to measure the effects of increasing debt on both the cost of debt and cost of equity. I will discuss the effects of increasing the debt ratio on each type of security separately.

Cost of Debt

As discussed above, increasing the debt ratio will increase 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 shows increasing interest rates for debt based on different bond rating levels.

Figure 12:
Bond Rating Spreads

Ratings Table			
Coverage Ratio	Bond Rating	Spread	Interest Rate
> 8.5	Aaa/AAA	0.75%	3.52%
6.5 - 8.49	Aa2/AA	1.00%	3.77%
5.5 - 6.49	A1/A+	1.10%	3.87%
4.25 - 5.49	A2/A	1.25%	4.02%
3.0 - 4.24	A3/A-	1.75%	4.52%
2.5 - 2.99	Baa2/BBB	2.25%	5.02%
2.25 - 2.49	Ba1/BB+	3.25%	6.02%
2.0 - 2.249	Ba2/BB	4.25%	7.02%
1.75 - 1.99	B1/B+	5.50%	8.27%
1.5 - 1.74	B2/B	6.50%	9.27%
1.25 - 1.49	B3/B-	7.50%	10.27%
0.8 - 1.249	Caa/CCC	9.00%	11.77%

As shown in this table, the spreads over the risk-free rate gradually increase as bond ratings fall.[83] 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 earnings before interest and taxes (EBIT). (Likewise, the mortgage lender would consider the borrower's personal income-debt ratio). The formula for the interest coverage ratio is as follows:

Equation 13:
Interest Coverage Ratio

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

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

[83] 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.

Cost of Equity

As with the cost of debt, increasing the debt ratio also increases the cost of equity. To objectively measure how much the cost of equity increases, I first calculated the Company's unlevered beta. The unlevered beta is determined by the assets owned by the firm, and removes the effects of financial leverage. As leverage increases, equity investors bear increasing amounts of risk, leading to higher betas. Before the effects of financial leverage can be accounted for, however, the effects of leverage must first be removed, which is accomplished through the unlevered beta equation:[84]

Equation 14:
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*

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

Q: Describe Avista's optimal capital structure.

[84] Exh. DJG-6, Damodaran at 197. This formula was originally developed by Hamada in 1972.

A: The Company proposes a debt ratio of 50 percent in this case. I analyzed the Company's optimal capital structure based on the approach discussed above. The following table presents different levels of Avista's weighted average cost of capital (WACC) based on increasing debt ratios.

Figure 13:
Avista's WACC at Various Debt Ratios

Debt Ratio	Levered Beta	True Cost of Equity	Awarded ROE	Coverage Ratio	After-tax Debt Cost	Optimal WACC	WACC at 9.9% ROE
0%	0.426	5.24%	9.90%	∞	2.22%	5.24%	9.90%
20%	0.495	5.63%	9.90%	7.74	2.35%	4.97%	8.39%
30%	0.545	5.91%	9.90%	5.16	2.54%	4.90%	7.69%
40%	0.611	6.29%	9.90%	3.87	2.64%	4.83%	7.00%
50%	0.703	6.82%	9.90%	3.10	2.64%	4.73%	6.27%
60%	0.842	7.61%	9.90%	2.58	2.87%	4.76%	5.68%
70%	1.073	8.92%	9.90%	2.21	3.45%	5.09%	5.39%

In the figure above, the column on the far left shows increasing levels of debt ratios. At a debt ratio of zero percent, the utility's beta is completely unlevered. As the debt ratio in the far left column increases, both the cost of equity and the cost of debt increase; however, the weighted average cost of capital decreases. This table indicates that if we rely on the true cost of equity (about seven percent), the Company's proposed debt ratio of only 50 percent appears reasonable. However, the Company is requesting a 9.9 percent awarded return. If this request is factored into the equation (in the fourth column from the left), then the weighted average cost of equity is minimized at a much higher debt ratio – near 70 percent. I am not suggesting that the Commission should impute a capital structure consisting of 70 percent debt. However, as with its other costs, the Company has a duty to seek the lowest reasonable capital costs, which includes the weighted average cost of capital. In that regard, the Company's request of a 9.9 percent

awarded ROE and a debt ratio of only 50 percent is patently unreasonable. Even at an awarded ROE of nine percent (my recommendation), the Company's optimal debt ratio is likely around 60 percent.

Q: Is your opinion based in part on the fact that hundreds of competitive firms around the country utilize high debt ratios in order to maximize profits?

A: Yes. In fact, there are currently more than 1,000 firms across the country with debt ratios of 60 percent or greater, with an average debt ratio of 68 percent, as shown in the following figure:[85]

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[85] Exh. DJG-4 at 16.

Figure 14:
Industries with Debt Ratios of 60% or Greater

Industry	Number of Fimrs	Debt Ratio
Advertising	44	73%
Air Transport	20	57%
Auto & Truck	19	74%
Bank (Money Center)	9	67%
Beverage (Soft)	43	64%
Broadcasting	29	68%
Brokerage & Investment Banking	42	77%
Cable TV	19	69%
Coal & Related Energy	38	69%
Hospitals/Healthcare Facilities	58	66%
Hotel/Gaming	73	61%
Office Equipment & Services	24	67%
Packaging & Container	25	63%
Paper/Forest Products	20	74%
R.E.I.T.	221	64%
Restaurant/Dining	83	61%
Retail (Automotive)	26	70%
Retail (Building Supply)	5	67%
Retail (Distributors)	83	60%
Telecom (Wireless)	19	61%
Telecom. Services	65	65%
Tobacco	20	85%
Trucking	26	74%
Total / Average	**1011**	**68%**

Many of the industries shown here, like public utilities, are generally well-established industries with large amounts of capital assets. These shareholders of these industries demand higher debt ratios in order to maximize their profits. There are several notable industries that are relatively comparable to public utilities in some ways. For example, the Cable TV industry has an average debt ratio of about 69 percent. Likewise, the telecommunication services industry has a debt ratio of 65 percent.

Q. What is your recommendation regarding the Company's capital structure?

A. Despite evidence presented above indicating that the Company's most prudent debt ratio could be as high as 60%, I recommend the Commission adopt the Company's test year debt ratio of 51.5%. Avista has requested a hypothetical debt ratio of only 50% debt. The Company's request is primarily based on the debt ratios of other regulated utilities. As discussed above, it is not appropriate to base the analysis of a prudent capital structure on the actual capital structures of other utilities because (1) utilities do not have an incentive to operate with capital structures that result in minimized capital costs; (2) the optimal capital structure is unique to each firm; and (3) the capital structures of the proxy group many not have been approved by their respective commissions. Finally, my analysis presented above reveals that a debt ratio as low as 50% would require a much lower corresponding ROE than is being proposed in this case. For all of these reasons, the only hypothetical capital structure in this case that would be appropriate is one that consists of more debt, not less debt. Therefore, the Commission should accept the Company's test year capital structure consisting of 51.5% debt and 48.5% equity.

XII. CONCLUSION AND RECOMMENDATION

Q: Summarize the key points of your testimony.

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 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. The models I used in this case indicate the Company's cost of equity is about 7.0%. However, under prudent ratemaking principles, the Commission should award Avista's shareholders with a return on equity of 9.0%, which is within a reasonable range of 8.75% - 9.25%. Although we must move awarded returns

toward true cost of equity, we should do so gradually rather than abruptly to avoid volatility within the industry.

Q: Does this conclude your testimony?

A: Yes, including any exhibits, appendices, and other items attached hereto.