BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

In the Matter of the Application of Black Hills/Kansas Gas Utility Company, LLC, d/b/a Black Hills Energy, for Approval of its Long Term Physical Gas Hedge Contract With Black Hills Utility Holdings, Inc.	))))	Docket No. 16-BHCG-_____-CON

DIRECT TESTIMONY
OF
ADRIEN M. MCKENZIE

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EXHIBITS

I. INTRODUCTION

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A1. Adrien M. McKenzie, 3907 Red River, Austin, Texas, 78751.

Q2. IN WHAT CAPACITY ARE YOU EMPLOYED?

A2. I am a Vice President of FINCAP, Inc., a firm providing financial, economic, and policy consulting services to business and government.

Q3. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A3. A description of my background and qualifications, including a resume containing the details of my experience, is attached as Exhibit AMM-1.

Q4. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A4. The purpose of my testimony is to present to the Commission my evaluation of the fair rate of return on common equity ("Allowed ROE") and capital structure provided for by the Cost of Service Gas Program ("COSG Program").

Q5. PLEASE SUMMARIZE THE INFORMATION AND MATERIALS YOU RELIED ON TO SUPPORT THE OPINIONS AND CONCLUSIONS CONTAINED IN YOUR TESTIMONY.

A5. I am familiar with the organization, finances, and operations of Black Hills/Kansas Gas Utility Company, LLC d/b/a Black Hills Energy ("the Utility" or "the Company"), Black Hills Utility Holdings, Inc. ("BHUH"), and Black Hills Corporation ("BHC") from my firm's participation in prior proceedings before regulators in Colorado, Kansas, Iowa, Nebraska, South Dakota, Wyoming, and the Federal Energy Regulatory Commission ("FERC"). In connection with the present filing, I considered and relied upon corporate disclosures, publicly available financial reports and filings, and other published information relating to BHC, BHUH, the Utility and the COSG Program. I also reviewed information relating

generally to capital market conditions and specifically to investor perceptions, requirements, and expectations for utilities and firms in the petroleum exploration and production ("E&P") sector. These sources, coupled with my experience in the fields of finance and utility regulation, have given me a working knowledge of the issues relevant to investors' required return for the COSG Program, and they form the basis of my analyses and conclusions.

Q6. HOW IS YOUR TESTIMONY ORGANIZED?

A6. After first summarizing my conclusions and recommendations, I briefly review BHUH and the COSG Program. With this as a background, I then evaluate the reasonableness of the ROE benchmark under the COSG Program. I present the results of alternative methods that confirm the reasonableness of the Allowed ROE provided for under the COSG Program, including a review of current conditions in the capital markets and their implications in evaluating a fair ROE for the COSG Program. Finally, I also examine the reasonableness of the capital structure established under the terms of the COSG Program, considering both its specific risks and other industry guidelines.

Q7. PLEASE SUMMARIZE YOUR FINDINGS AND CONCLUSIONS REGARDING THE ROE PROVIDED FOR UNDER THE COSG PROGRAM.

A7. Based on my evaluation, I concluded that the Allowed ROE established under the COSG Program is reasonable and results in a conservative estimate of investors' required rate of return:

- The benchmark specified for the Allowed ROE is predicated on authorized returns reported by a well-recognized, independent research organization, which provides the most comprehensive and objective source of authorized returns available in the industry;

- Authorized returns presumably reflect regulatory commissions' best estimates of the market cost of equity and consider the need to maintain financial integrity and the ability to attract capital;
- The ROE benchmark under the COSG Program provides an objective reference point that is straightforward, based on readily available historical data, insulated from abrupt or extreme changes, and offers administrative advantages by avoiding unneeded controversy, which can be protracted and costly to all stakeholders;
- The reasonableness of the Allowed ROE provided for in the COSG Program is reinforced by the fact that, due to broad-based expectations for higher bond yields, historical allowed returns are likely to understate investors' current required return and lag behind the cost of equity;
- Application of the utility risk premium approach based on authorized returns for electric and gas utilities implies an ROE estimate on the order of 10.3% to 11.4%, excluding any adjustment for flotation costs;
- Expected returns for gas and combination utilities suggested an ROE range of 10.8% to 11.0%, excluding any adjustment for flotation costs;
- These results exceed the 9.86% ROE currently implied by the benchmark mechanism and, considered along with the implications of flotation costs, confirm the reasonableness of the Allowed ROE provided for under the COSG Program; and
- Widespread expectations for higher interest rates emphasize the implication of considering the impact of projected bond yields in evaluating the ROE used in the COSG Program.

Q8. WOULD AN ALLOWED ROE BELOW THE CURRENT 9.86% VALUE UNDER THE TERMS OF THE COSG PROGRAM BE SUFFICIENT TO SATISFY REGULATORY STANDARDS?

A8. No. Implementation of the COSG Program will require significant new investment, and the competition for capital is intense. While the details underlying a determination of the cost of equity are significant to a rate of return analyst, there is one fundamental requirement that any ROE must satisfy before it can be considered reasonable. The ROE must provide the opportunity to earn a return comparable to contemporaneous returns available from alternative investments of comparable risk

if it is to maintain its financial flexibility and ability to attract and justify capital investment in the COSG Program.

Q9. WHAT ARE THE IMPLICATIONS OF SETTING AN ALLOWED ROE BELOW THE RETURNS AVAILABLE FROM OTHER INVESTMENTS OF COMPARABLE RISK?

A9. Denying the opportunity to earn a return comparable to what is available from other similar risk alternatives prevents investors from earning their cost of capital. If the COSG Program is unable to offer a return similar to the returns available from other opportunities of comparable risk, investors will be unwilling to supply capital on reasonable terms. Both of these outcomes violate economic and regulatory standards and would deny customers the benefits of the COSG Program.

Q10. WHAT IS YOUR CONCLUSION AS TO THE REASONABLENESS OF THE CAPITAL STRUCTURE ASSOCIATED WITH THE COSG PROGRAM?

A10. Based on my evaluation, I concluded that a common equity ratio of 60.0% represents a reasonable capitalization for purposes of the COSG Program. This conclusion was based on the following findings:

- The common equity ratio specified under the proposed COSG Program falls within the range of capitalizations indicated by industry benchmarks for the gas utility and E&P industries;
- The capital structure is consistent with the need to maintain credit standing and financial flexibility in order to support access to the significant additional capital necessary to realize the benefits of the COSG program; and
- Risk distinctions between the gas utility industry and those of the COSG Program warrant a more conservative financial posture, especially in light of the fact that the ROE benchmark mechanism is likely to understate investors' cost of equity going forward.

II. FUNDAMENTAL ANALYSES

Q11. WHAT IS THE PURPOSE OF THIS SECTION?

A11. As a predicate to subsequent quantitative analyses, this section briefly reviews BHUH and the COSG Program. In addition, it examines conditions in the capital markets and the general economy. An understanding of these fundamental factors is essential in developing an informed opinion of investors' expectations and requirements that are the basis of a fair ROE.

A. Black Hills Utility Holdings, Inc.

Q12. BRIEFLY DESCRIBE BHUH.

A12. A wholly owned subsidiary of BHC, BHUH was organized in July 2008 when BHC purchased certain gas and electric utility operating companies from Aquila, Inc. BHUH is the parent corporation of those operating companies, which include: Black Hills/Colorado Electric Utility Company, LP, Black Hills/Colorado Gas Utility Company, LP, Black Hills/Iowa Gas Utility Company, LLC, Black Hills/Kansas Gas Utility Company, LLC, and Black Hills/Nebraska Gas Utility Company, LLC. BHUH also provides services and support to three additional affiliated utility companies, Black Hills Power, Inc., Cheyenne Light, Fuel and Power Company, and Black Hills Northwest Wyoming Gas Utility Company, LLC. COSGCO, the entity that would acquire the gas reserve interests under the COSG Program, would be a wholly owned subsidiary of BHUH.

Q13. DOES BHUH ALREADY PLAY A ROLE IN THE COMPANY'S GAS PURCHASES?

A13. Yes. As discussed in more detail in the direct testimony of Ivan Vancas, BHUH assists the Utility in obtaining the gas supply necessary to meet its customers' gas needs. The gas is acquired from producers and marketers under various types of contracts.

Q14. WILL ADDITIONAL CAPITAL BE REQUIRED TO IMPLEMENT THE COSG PROGRAM?

A14. Yes. Common equity and long-term debt capital will be allocated to COSGCO from BHC, whose stock is publicly traded on the New York Stock Exchange. As described in the testimony of the Utility's witnesses, implementation of the COSG Program will involve significant investment and extended commitments to acquire, drill, and produce gas from the necessary gas reserves. Support for BHC's financial integrity and flexibility remains instrumental in attracting the capital required to meet these needs, as well as fund ongoing investment in utility infrastructure, in an effective manner.

Q15. IS IT WIDELY ACCEPTED THAT THE ABILITY TO ATTRACT CAPITAL AT REASONABLE RATES MUST BE CONSIDERED IN EVALUATING A FAIR RATE OF RETURN?

A15. Yes. This is a fundamental standard underlying the regulation of public utilities. The United States Supreme Court's *Bluefield* and *Hope* decisions established that a regulated utility's authorized returns on capital must be sufficient to assure investors' confidence and that, if the utility is efficient and prudent on a prospective basis, it will be able to maintain and support its credit and have the opportunity to raise necessary capital.[1]

Q16. WHAT CREDIT RATINGS HAVE BEEN ASSIGNED TO BHC?

A16. BHC has been assigned a corporate credit rating of "BBB" by Standard & Poor's Corporation ("S&P"). Moody's Investor Services, Inc. ("Moody's") has established an issuer credit rating of "Baa1" for BHC, while Fitch Ratings Ltd. ("Fitch") has assigned an issuer default rating of "BBB+".

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[1] *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n*, 262 U.S. 679 (1923) ("*Bluefield*"); *FPC v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) ("*Hope*").

B. Cost of Service Gas Program

Q17. BRIEFLY DESCRIBE THE COSG PROGRAM.

A17. As described in detail in the testimony of the Utility's witnesses, the COSG Program is designed to provide a long-term, physical hedge against gas price volatility and long-term price increases through the acquisition of gas reserves. The COSG Program will allow the Utility to hedge against the risk of rising and volatile energy commodity prices on a long-term basis by having the cost of a portion of its gas supply pegged to more stable production costs.

Under the COSG Program, BHUH would be responsible for overseeing COSGCO, administering the COSG Program, and ensuring that costs and credits are properly allocated to each participating utility. As indicated above, COSGCO would acquire gas reserves without reliance on financing from the Utility. Each utility's participation in the COSG Program would be subject to regulatory oversight, including through reviews of all proposed reserve acquisitions, as well as drilling plans at five-year intervals. In addition, regulators would receive regular reports from independent monitors retained to review aspects of the COSG Program.

Q18. HOW WOULD THE COSTS AND BENEFITS OF THE COSG PROGRAM BE REFLECTED IN THE UTILITY'S GAS COSTS?

A18. As explained in more detail in the direct testimony of Chris Kilpatrick, the financial impact of the COSG Program for customers will be reflected in the cost of gas through "Hedge Credits" or "Hedge Costs," based on six-month forecast values with provisions for an annual true-up for differences between actual results and forecasted values over the prior calendar year.

In calculating Hedge Credits or Hedge Costs, BHUH would first compute COSGCO's "Net Income" by subtracting operating expenses, interest expense, and

income taxes from the revenue it receives from the sale of gas and other hydrocarbon products. Next, BHUH would compute "Invested Equity" as the product of the equity ratio specified under the COSG Agreement and COSGCO's "Investment Base," which is equal to the net capital invested in the acquisition and development of the gas reserves. Net Income would then be divided by Invested Equity to compute the "Actual ROE."

Under the terms of the COSG Agreement, if the Actual ROE is more than 100 basis points greater than the Allowed ROE, the Utility will receive a Hedge Credit from BHUH, which would effectively reduce the cost of gas being paid by customers. On the other hand, if the Allowed ROE exceeds the Actual ROE by more than 100 basis points, BHUH will assess a Hedge Cost to the Utility.

Q19. WHAT ALLOWED ROE AND CAPITAL STRUCTURE ARE SPECIFIED IN THE COSG AGREEMENT?

A19. The COSG Agreement specifies that the Allowed ROE will be the average of the annual return on equity in all gas and electric utility rate cases for each calendar year, as subsequently reported by Regulatory Research Associates ("RRA") in its *Regulatory Focus* report entitled, "Major Rate Case Decisions,"[2] provided that if less than twenty (20) gas and electric utility rate cases are reported for a calendar year,[3] then the Allowed ROE for that calendar year shall equal the average of (i) the average of the annual return on equity in all gas and electric utility rate cases for that calendar year, and (ii) the average of the annual return on equity in all gas and electric utility rate cases for the prior calendar year, all as reported by Regulatory Research Associates.

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[2] Data for the preceding calendar year is published in the January edition, which is typically published mid-month.

[3] *See* COSG Agreement at 2. RRA reports that the number of cases for gas and electric utilities has met or exceeded this benchmark in each year since 1990. *See* Exhibit AMM-2.

With respect to capital structure, the COSG Agreement adopts a capitalization consisting of 40% debt and 60% common equity for purposes of computing the Actual ROE.

III. RETURN ON EQUITY FOR THE COSG PROGRAM

Q20. WHAT IS THE PURPOSE OF THIS SECTION?

A20. This section presents my conclusions regarding the reasonableness of the ROE under the COSG Agreement. First, I address the concept of the cost of common equity, along with the risk-return tradeoff principle fundamental to capital markets. Next, I present my evaluation of the Allowed ROE, including alternative analyses to corroborate the reasonableness of the benchmark specified under the COSG Agreement given the facts and circumstances that apply to the COSG Program.

A. Economic Standards

Q21. WHAT IS THE ROLE OF THE ROE?

A21. The ROE is the cost of inducing and retaining investment in physical plant and assets. This investment is necessary to finance the asset base needed to provide utility service, or in the case of the COSG Program, the Invested Equity associated with the capital investment in gas reserves and drilling programs that make up the Investment Base under the COSG Program. Competition for investor funds is intense and investors are free to invest their funds wherever they choose. They will commit money to a particular investment only if they expect it to produce a return commensurate with those from other investments with comparable risks.

Q22. WHAT FUNDAMENTAL ECONOMIC PRINCIPLE UNDERLIES THIS COST OF EQUITY CONCEPT?

A22. The fundamental economic principle underlying the cost of equity concept is the notion that investors are risk averse. In capital markets where relatively risk-free

assets are available (e.g., U.S. Treasury securities), investors can be induced to hold riskier assets only if they are offered a premium, or additional return, above the rate of return on a risk-free asset. Since all assets compete with each other for investor funds, riskier assets must yield a higher expected rate of return than safer assets to induce investors to hold them.

Given this risk-return tradeoff, the required rate of return (k) from an asset (i) can generally be expressed as:

$$k_i = R_f + RP_i$$

where: R_f = Risk-free rate of return, and
RP_i = Risk premium required to hold riskier asset i.

Thus, the required rate of return for a particular asset at any time is a function of: (1) the yield on risk-free assets; and (2) its relative risk, with investors demanding correspondingly larger risk premiums for assets bearing greater risk.

Q23. IS THERE EVIDENCE THAT THE RISK-RETURN TRADEOFF PRINCIPLE ACTUALLY OPERATES IN THE CAPITAL MARKETS?

A23. Yes. The risk-return tradeoff can be documented readily in segments of the capital markets where required rates of return can be inferred directly from market data and where generally accepted measures of risk exist. Bond yields, for example, reflect investors' expected rates of return, and bond ratings measure the risk of individual bond issues. The observed yields on government securities, which are considered free of default risk, and bonds of the various ratings categories demonstrate that the risk-return tradeoff does, in fact, exist in the capital markets.

Q24. DOES THE RISK-RETURN TRADEOFF OBSERVED WITH FIXED INCOME SECURITIES EXTEND TO COMMON STOCKS AND OTHER ASSETS?

A24. It is generally accepted that the risk-return tradeoff evidenced with long-term debt extends to all assets. Documenting the risk-return tradeoff for assets other than

fixed income securities, however, is complicated by two factors. First, there is no standard measure of risk applicable to all assets. Second, for most assets—including common stock—required rates of return cannot be observed directly. Yet, there is every reason to believe that investors exhibit risk aversion in deciding whether or not to hold common stocks and other assets, just as when choosing among fixed-income securities.

Q25. IS THIS RISK-RETURN TRADEOFF LIMITED TO DIFFERENCES BETWEEN FIRMS?

A25. No. The risk-return tradeoff principle applies not only to investments in different firms, but also to different securities issued by the same firm. The securities issued by a utility vary considerably in risk because they have different characteristics and priorities. Long-term debt secured by a mortgage on property is senior among all capital in its claim on a company's net revenues and is, therefore, the least risky. Following first mortgage bonds are other debt instruments also holding contractual claims on the company's net revenues, such as subordinated debentures. The last investors in line are common shareholders. They receive only the net revenues, if any, that remain after all other claimants have been paid. As a result, the rate of return that investors require from a company's common stock, the most junior and riskiest of its securities, must be considerably higher than the yield offered by the company's senior, long-term debt.

Q26. WHAT DOES THE ABOVE DISCUSSION IMPLY WITH RESPECT TO ESTIMATING THE COST OF EQUITY?

A26. Although the cost of equity cannot be observed directly, it is a function of the returns available from other investment alternatives and the risks to which the equity capital is exposed. Because it is unobservable, the cost of equity must be estimated by analyzing information about capital market conditions generally, assessing the relative risks of the company specifically, and employing various quantitative

methods that focus on investors' required rates of return. These various quantitative methods typically attempt to infer investors' required rates of return from stock prices, interest rates, or other capital market data.

B. Return on Equity and the COSG Program

Q27. DOES THE FACT THAT THE COSG PROGRAM WILL BE ADMINISTERED BY A SUBSIDIARY OF BHC IN ANY WAY ALTER THE FUNDAMENTAL STANDARDS UNDERLYING A FAIR ROE?

A27. No. While COSGCO has no publicly traded common stock and BHC (through its ownership of BHUH) is COSGCO's only shareholder, this does not change the standards governing the evaluation of a fair ROE for the COSG Program. Ultimately, the common equity that is required to support the capital investment necessary to effect the COSG Program must be raised in the capital markets, where investors consider the ability to earn a rate of return that is competitive with other risk-comparable alternatives. Investment in the COSG Program must compete with other opportunities and unless there is a reasonable expectation that investors will have the opportunity to earn returns commensurate with the underlying risks, capital will be allocated elsewhere. Ensuring that the Allowed ROE offers a reasonable return on investment is a necessary ingredient in ensuring that the Utility's customers will achieve the benefits of the COSG Program.

Q28. PURCHASED GAS COSTS ARE TYPICALLY RECOVERED AS A "PASS-THROUGH" OF ACTUAL EXPENSES, WITHOUT ANY OPPORTUNITY FOR THE UTILITY TO EARN A RETURN ON CAPITAL. DOES THE COSG PROGRAM ALTER THIS FUNDAMENTAL PREMISE?

A28. No. As indicated earlier, the COSG Program is not supported by any capital investment from the Utility, and the Utility will not earn a return on capital – either debt or equity – associated with the proposed COSG hedging strategy. Moreover, as

discussed in the testimony of Mr. Vancas, the Utility's gas costs will continue to be predicated on its own gas supply and transportation costs that are managed by BHUH.

At present, the Utility buys the gas required to provide utility service at market prices and, unless the Utility acts imprudently in making those purchases, these costs are recovered in full from customers through its gas cost recovery mechanism. In that sense, the Utility and its customers already pay a return on equity capital through existing gas supply costs. Barring the opportunity to earn their cost of equity capital, producers would be unwilling to provide the Utility with the gas that is required to provide customers utility service. In effect, the Utility is simply asking to replace one type of cost (commodity purchase costs) with another (production costs), with respect to a portion of the gas it requires to provide utility service.

Similarly, customers are already bearing the price risk associated with the potential for volatility in the market for natural gas, which is felt directly by customers through the functioning of cost recovery mechanisms that pass through gas costs directly to customers. The drillers and producers of natural gas are not constrained by regulation and are not concerned about the prices paid by customers. In fact, it is in their best economic interest to have prices as high as possible and it is only natural and expected that drillers and producers will seek to maximize their returns. In contrast, the Utility is proposing to make an investment to mitigate this risk by making the output of gas reserves available exclusively to benefit its customers under an independently monitored program that limits the ROE to a reasonable level, which is predicated on an objective benchmark for regulated utilities. In short, the COSG Program mitigates and manages costs and risks that customers already bear. The COSG Program represents a natural extension of the

Utility's obligation as a regulated utility to provide service reliably and cost-effectively and to mitigate risks where reasonably possible.

Q29. IS IT REASONABLE TO INCLUDE A FAIR ROE AS ONE COMPONENT OF THE COSTS NECESSARY TO IMPLEMENT THE COSG PROGRAM?

A29. Yes. While the Utility earns no return associated with gas costs that are passed through to customers, it is certainly appropriate to consider an ROE on the substantial capital investment that will be required to develop the interests in gas reserves under the COSG Program when calculating Hedge Credits or Hedge Costs. As Mr. Kilpatrick explains, COSGCO's revenues will be a function of the market prices received from third-party sales of gas and other hydrocarbons. While the revenues used by BHUH to calculate Hedge Credits or Hedge Costs will not be based on a revenue requirement formula analogous to traditional ratemaking, it is entirely appropriate to consider the opportunity cost associated with the equity investment supporting this revenue stream. Just as the Supreme Court recognized in the *Bluefield* and *Hope* cases with respect to utilities,[4] equity investors in the COSG Program must be provided a reasonable opportunity to earn a return commensurate with those available from opportunities of comparable risk. Otherwise, they would be unwilling to supply the capital investment necessary to obtain the required gas reserves.

Under the competitive market paradigm that serves as the foundation for investment choices, investors' expected ROE is the key economic signal that allocates scarce capital among competing opportunities. In the case of regulated industries, the allowed ROE is the primary lynchpin in determining the flow of investment capital to new facilities. Apart from the impact that economic and

[4] *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n*, 262 U.S. 679 (1923); *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).

capital market conditions can have on the availability of capital, investment in gas supply infrastructure must compete with alternative uses, and the additional funding necessary to achieve the benefits of the COSG Program will only be allocated if investors anticipate an opportunity to earn a return that is sufficient to compensate for the associated risks. Supporting BHUH's ability to implement the proposed hedging program through a reasonable ROE will provide the benefits of greater insurance against market instability, long-term price stability, reduced short-term volatility, and enhanced reliability, as documented in the testimony of the Utility's witnesses.

Q30. DOES THE BENCHMARK SPECIFIED FOR THE ALLOWED ROE REPRESENT A REASONABLE BASIS ON WHICH TO ESTABLISH A FAIR RETURN FOR THE COSG PROGRAM?

A30. Yes. As noted earlier, the COSG Agreement specifies that the Allowed ROE will be equal to the average annual authorized ROE for gas and electric utilities for the corresponding calendar year, as reported by RRA.[5] RRA, which is owned by SNL Financial LP, is a well-recognized, independent research organization providing a broad range of data concerning the finances and operations of regulated utilities. RRA's *Regulatory Focus* report is perhaps the most widely-cited and respected source for allowed ROEs resulting from major rate cases for gas and electric companies across the U.S. In my experience, the survey published by RRA in its "Major Rate Case Decisions" report is the most comprehensive and objective source of allowed ROEs available in the industry, and the one most frequently referenced in utility rate proceedings. Accordingly, this source represents a reliable and reasonable basis on which to establish the Allowed ROE under the COSG Program.

[5] In the event that either of these annual averages for gas or electric utilities reflects the results of less than 20 individual rate proceedings, the COSG Agreement specifies that the average shall be based on the most recent 20 cases.

Q31. DO THE AUTHORIZED ROES REPORTED BY RRA PROVIDE A REPRESENTATIVE ROE BENCHMARK FOR PURPOSES OF IMPLEMENTING THE COSG PROGRAM?

A31. Yes. Authorized ROEs presumably reflect regulatory commissions' best estimates of the cost of equity, however determined, at the time they issued their final orders. Such ROEs should represent a balanced and impartial outcome that considers the need to maintain a utility's financial integrity and ability to attract capital. Moreover, allowed returns are an important consideration for investors and have the potential to influence other observable investment parameters, including credit ratings and borrowing costs. Thus, the data from RRA provide a logical and frequently referenced benchmark in evaluating allowed ROEs for regulated utilities.

Investors are clearly aware of the returns authorized by state regulatory commissions, and the COSG Program must compete for capital in the marketplace against other types of utility investments as well as against the entire range of opportunities in the capital markets. Thus, the information provided by an analysis of recently authorized ROEs by a wide sample of state public service commissions is a relevant and objective benchmark for purposes of the COSG Program. Reference to authorized ROEs provides an effective means to ensure that the Allowed ROE tracks changes in capital market conditions over the long-term.

Q32. IS IT CIRCULAR TO CONSIDER AUTHORIZED RETURNS IN ASSESSING A FAIR ROE FOR THE COSG PROGRAM?

A32. No. In establishing authorized ROEs, regulators typically consider the results of alternative market-based approaches, such as the discounted cash flow ("DCF") model, Capital Asset Pricing Model ("CAPM"), and risk premium studies. Because allowed ROEs consider objective market data (*e.g.*, stock prices, dividends, beta, and interest rates), and are not based strictly on past actions of other regulators, this mitigates concerns over any potential for circularity.

Q33. HAVE OTHER REGULATORS RELIED ON ALLOWED RETURNS REPORTED BY RRA TO EVALUATE A FAIR ROE?

A33. Yes. In its June 2014 decision establishing a new framework for evaluating ROE for electric transmission companies under its jurisdiction, FERC specifically recognized and relied on average allowed ROEs reported by RRA as a key benchmark in evaluating a fair return that meets the requirements of the *Bluefield* and *Hope* standards.[6] As FERC explained, its rate determinations are guided by the Supreme Court's decisions in the *Hope* and *Bluefield* cases to allow returns on invested capital that are comparable to returns available to investors in other businesses of similar risk. Hence, evidence from state-authorized returns for companies in a related industry group was considered an important source of information referenced by FERC when setting the ROE.

Q34. WHAT OTHER ADVANTAGES ARE ASSOCIATED WITH THE RRA BENCHMARK USED TO ESTABLISH THE ALLOWED ROE UNDER THE COSG PROGRAM?

A34. Establishing the Allowed ROE based on the average authorized ROE for electric and gas utilities reported by RRA provides an objective reference point that avoids unneeded controversy. The ROE benchmark incorporated in the COSG Agreement is straightforward and utilizes readily available historical data reported by a recognized and reliable source that is easily verified by all stakeholders. Adopting the independent and objective benchmark provided by RRA's allowed ROEs also offers administrative advantages by avoiding the protracted, costly, and contentious process that routinely accompanies an evaluation of a just and reasonable return on common equity. Moreover, by referencing annual average ROEs for both electric and gas utilities authorized by multiple jurisdictions, the Allowed ROE will be

[6] Opinion No. 531, 147 FERC ¶ 61,234 at P 145, 148 (2014).

insulated from abrupt or extreme changes and thus provides a degree of stability to both customers and investors.

Q35. WHAT ALLOWED ROE IS CURRENTLY INDICATED BY THE TERMS OF THE COSG AGREEMENT?

A35. As shown on Exhibit AMM-2, the average authorized ROE for electric and gas utilities reported by RRA for 2014 would result in a current Allowed ROE under the COSG Agreement of 9.86%.[7]

C. Implications of Expected Trends in Capital Costs

Q36. DO CURRENT CAPITAL MARKET CONDITIONS PROVIDE A REPRESENTATIVE BASIS ON WHICH TO EVALUATE A REASONABLE ROE FOR THE COSG PROGRAM?

A36. No. Current capital market conditions continue to reflect the Federal Reserve's unprecedented monetary policy actions in the aftermath of the financial crisis and recession that began in 2008, and are not representative of what investors expect in the future. Investors have had to contend with a level of economic uncertainty and capital market volatility that has been unprecedented in recent history. The ongoing potential for renewed turmoil in the capital markets has been seen repeatedly, with common stock prices exhibiting the dramatic volatility that is indicative of heightened sensitivity to risk. In response to heightened uncertainties in recent years, investors have repeatedly sought a safe haven in U.S. government bonds. As a result of this "flight to safety," Treasury bond yields have been pushed significantly lower in the face of political, economic, and capital market risks. In addition, the Federal Reserve has implemented unprecedented measures designed to

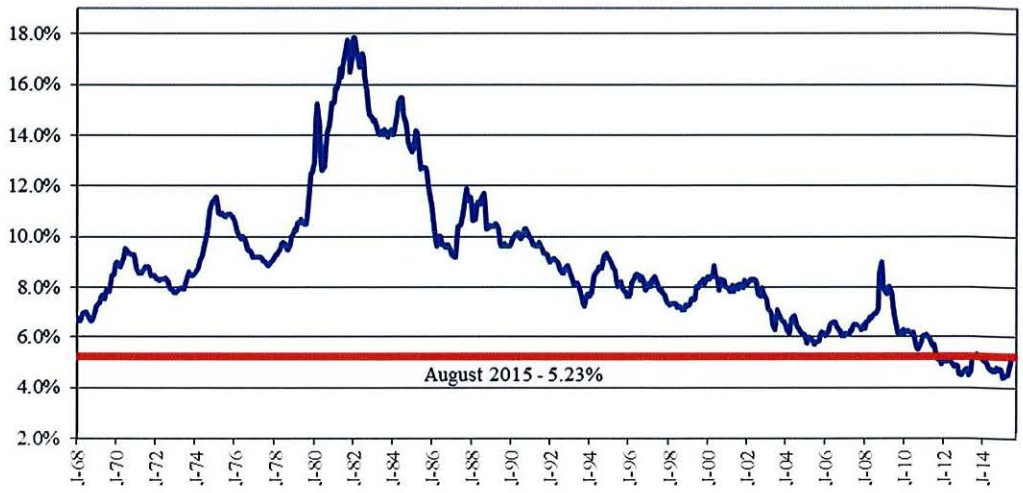
[7] Regulatory Research Associates, "Major Rate Case Decisions," *Regulatory Focus* (Jan. 15, 2015). RRA reported that this average was based on results for 63 cases.

push interest rates to historically low levels in an effort to stimulate the economy and bolster employment.

Q37. HOW DO CURRENT YIELDS ON PUBLIC UTILITY BONDS COMPARE WITH WHAT INVESTORS HAVE EXPERIENCED IN THE PAST?

A37. The yields on utility bonds remain near their lowest levels in modern history. Figure 2, below, compares the August 2015 average yield on long-term, triple-B rated utility bonds with those prevailing since 1968:

FIGURE 2
BBB UTILITY BOND YIELDS – CURRENT VS. HISTORICAL



As illustrated above, prevailing capital market conditions, as reflected in the yields on utility bonds, are an anomaly when compared with historical experience over recent decades. Similarly, while 10-year Treasury bond yields may reflect a modest increase from all-time lows of less than 2.0 percent, they are hardly comparable to historical levels.[8] Former Federal Reserve President Charles Plosser

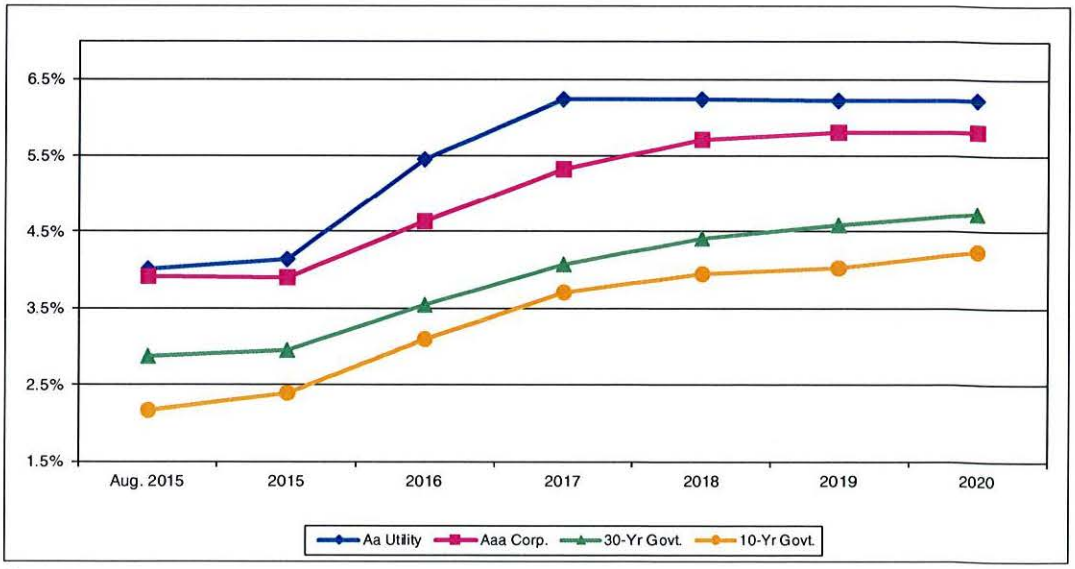
[8] The average yield on 10-year Treasury bonds for the six-months ended August 2015 was 2.17%. Over the 1968-2015 period illustrated on Figure 2, 10-year Treasury bond yields averaged 6.68%.

observed that U.S. interest rates are unprecedentedly low, and "outside historical norms."[9]

Q38. ARE THESE VERY LOW INTEREST RATES EXPECTED TO CONTINUE?

A38. No. Investors continue to anticipate that interest rates will increase significantly from present levels. Figure 3 below compares current interest rates on 30-year Treasury bonds, triple-A rated corporate bonds, and double-A rated utility bonds with near-term projections from the Value Line Investment Survey ("Value Line"), IHS Global Insight, Blue Chip Financial Forecasts ("Blue Chip"), and the Energy Information Administration ("EIA"):

FIGURE 3
INTEREST RATE TRENDS



Source:

Value Line Investment Survey, Forecast for the U.S. Economy (Sep. 4, 2015)
IHS Global Insight, The U.S. Economy: The 30-Year Focus (Second-Quarter 2015)
Energy Information Administration, Annual Energy Outlook 2015 (April 2015)
Blue Chip Financial Forecasts, Vol. 34, No. 6 (Jun. 1, 2015)

These forecasting services are highly regarded and widely referenced, with FERC incorporating forecasts from IHS Global Insight and the EIA in its preferred

[9] Barnato, Katy, "Fed's Plosser: Low rates 'should make us nervous'," CNBC (Nov. 11, 2014).

DCF model. As evidenced above, there is a clear consensus in the investment community that the present low level of interest rates is an anomaly and will not be sustained, with the cost of long-term capital expected to be significantly higher over 2016-2020 than it is currently.

Q39. HAS THE FEDERAL RESERVE ANNOUNCED ITS INTENTION TO ALTER ITS UNPRECEDENTED POLICY GOING FORWARD?

A39. Yes. The Federal Reserve continues to exert considerable influence over capital market conditions through its massive holdings of Treasuries and mortgage-backed securities, but has stated its commitment to "normalize" its monetary policy stance, including its guiding policies and actions during the normalization process. These include taking steps to raise the federal funds rate and other short-term interest rates to more normal levels and to reduce the Federal Reserve's securities holdings by ending its policy of reinvesting principal payments on Treasury and agency-backed debt securities. As the Federal Open Market Committee made clear:

> The Committee intends that the Federal Reserve will, in the longer run, hold no more securities than necessary to implement monetary policy efficiently and effectively, and that it will hold primarily Treasury securities, thereby minimizing the effect of Federal Reserve holdings on the allocation of credit across sectors of the economy.[10]

Of course, the corollary to these observations is that ending this policy of reinvestment is likely to place significant upward pressure on bond yields, especially considering the unprecedented magnitude of the Federal Reserve's holdings of Treasury bonds and mortgage-backed securities. Apart from higher rates, normalization also implies significant uncertainties. As a Financial Analysts Journal article noted:

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[10] Federal Open Market Committee, "Policy Normalization Principles and Plans," *Press Release* (Sep. 17, 2014).

> Because no precedent exists for the massive monetary easing that has been practiced over the past five years in the United States and Europe, the uncertainty surrounding the outcome of central bank policy is so vast. . . . Total assets on the balance sheets of most developed nations' central banks have grown massively since 2008, and the timing of when the banks will unwind those positions is uncertain.[11]

The New York Times recently noted that "an increase in rates, whenever it comes, could still roil markets, make it harder for many firms to raise money and expose new frailties in the system that postcrisis regulations have not properly addressed."[12] Federal Reserve Chair Janet Yellen highlighted the potential disruption associated with a spike in long-term interest rates as monetary policy is normalized, noting that "When the Fed decides it's time to begin raising rates, these term premiums could move up and we could see a sharp jump in long-term rates."[13]

Q40. WHAT DO THESE EVENTS IMPLY WITH RESPECT TO THE ALLOWED ROE UNDER THE COSG PROGRAM?

A40. Current capital market conditions continue to reflect the impact of unprecedented policy measures taken in response to recent dislocations in the economy and financial markets and ongoing economic and political risks. As a result, current capital costs are not representative of what is likely to prevail over the near-term future.

While the historical authorized returns that form the basis for the Allowed ROE have evidenced a gradual downward trend in recent years, investors' cost of equity is based on forward-looking expectations, not backward-looking data. Given investors' expectations for rising interest rates and capital costs, the Allowed ROE

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[11] William Poole, "Prospects for and Ramifications of the Great Central Banking Unwind," *Financial Analysts Journal* (Nov./Dec. 2013).
[12] Peter Eavis, "Poised for Rate Increase, Investors Hope for Small Ripples," *New York Times* (Sep. 15, 2015).
[13] Michael Flaherty and Anna Yukhananov, "Yellen cites 'potential dangers' in U.S. stock valuations," *Reuters* (May 6, 2015).

is likely to understate investors' current required return. Moreover, considering near-term forecasts for higher bond yields and the historical focus of the RRA benchmark suggests that the Allowed ROE will continue to lag behind the cost of equity.

D. Utility Risk Premium

Q41. HOW ELSE CAN AUTHORIZED ROES BE USED TO EVALUATE A FAIR ROE?

A41. Authorized ROEs reported by RRA are frequently used as the basis of risk premium analyses in estimating the cost of equity for regulated utilities. Accordingly, I applied this approach in order to confirm the reasonableness of the mechanism to determine the Allowed ROE by reference to the result for 2014 under the provisions of the COSG Program.

Q42. BRIEFLY DESCRIBE THE RISK PREMIUM METHOD.

A42. The risk premium method extends the risk-return tradeoff observed with bonds to estimate investors' required rate of return on common stocks. The cost of equity is estimated by first determining the additional return investors require to forgo the relative safety of bonds and to bear the greater risks associated with common stock, and by then adding this equity risk premium to the current yield on bonds. Like other quantitative approach, such as the DCF model and CAPM, the risk premium method is capital market oriented. However, unlike DCF models and the CAPM, which indirectly impute the cost of equity, risk premium methods directly estimate investors' required rate of return by adding an equity risk premium to observable bond yields.

Q43. IS THE RISK PREMIUM APPROACH A WIDELY ACCEPTED METHOD FOR ESTIMATING THE COST OF EQUITY?

A43. Yes. The risk premium approach is based on the fundamental risk-return principle that is central to finance, which holds that investors will require a premium in the form of a higher return in order to assume additional risk. This method is routinely referenced by the investment community and in academia and regulatory proceedings, and provides an important tool in evaluating the Allowed ROE.

Q44. HOW DID YOU IMPLEMENT THE RISK PREMIUM METHOD?

A44. My equity risk premium study was based on the same source of previously authorized ROEs referenced under the COSG Agreement. Specifically, in Exhibit AMM-3, the average yield on public utility bonds is subtracted from the average allowed ROE for electric utilities reported by RRA to calculate equity risk premiums for each year between 1974 and 2014.[14] As shown on page 3 of Exhibit AMM-3, over this period, these equity risk premiums for electric utilities averaged 3.57%, and the yield on public utility bonds averaged 8.58%.

Q45. IS THERE ANY CAPITAL MARKET RELATIONSHIP THAT MUST BE CONSIDERED WHEN IMPLEMENTING THE RISK PREMIUM METHOD?

A45. Yes. There is considerable evidence that the magnitude of equity risk premiums is not constant and that equity risk premiums tend to move inversely with interest rates. In other words, when interest rate levels are relatively high, equity risk premiums narrow, and when interest rates are relatively low, equity risk premiums widen. This inverse relationship between equity risk premiums and interest rates

[14] My analysis encompasses the entire period for which published data is available.

has been widely reported in the financial literature.[15] For example, *New Regulatory Finance* documented this inverse relationship:

> Published studies by Brigham, Shome, and Vinson (1985), Harris (1986), Harris and Marston (1992, 1993), Carelton, Chambers, and Lakonishok (1983), Morin (2005), and McShane (2005), and others demonstrate that, beginning in 1980, risk premiums varied inversely with the level of interest rates – rising when rates fell and declining when rates rose.[16]

Other regulators have also recognized that the cost of equity does not move in tandem with interest rates.[17]

Q46. WHAT ARE THE IMPLICATIONS OF THIS RELATIONSHIP UNDER CURRENT CAPITAL MARKET CONDITIONS?

A46. As noted earlier, bond yields are at unprecedented lows. Given that equity risk premiums move inversely with interest rates, these uncharacteristically low bond yields also imply a sharp increase in the equity risk premium that investors require to accept the higher uncertainties associated with an investment in utility common stocks versus bonds. In other words, higher required equity risk premiums offset the impact of declining interest rates on the ROE.

Q47. WHAT COST OF EQUITY IS IMPLIED BY THE RISK PREMIUM METHOD USING SURVEYS OF AUTHORIZED ROES FOR ELECTRIC AND GAS UTILITIES?

A47. Based on the regression output between the interest rates and equity risk premiums displayed on page 4 of Exhibit AMM-3, the equity risk premium for electric utilities increased approximately 43 basis points for each percentage point drop in the yield

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[15] *See, e.g.,* Brigham, E.F., Shome, D.K., and Vinson, S.R., "The Risk Premium Approach to Measuring a Utility's Cost of Equity," *Financial Management* (Spring 1985); Harris, R.S., and Marston, F.C., "Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts," *Financial Management* (Summer 1992).

[16] Morin, Roger A., "New Regulatory Finance," Public Utilities Reports, at 128 (2006).

[17] *See, e.g.*, California Public Utilities Commission, Decision 08-05-035 (May 29, 2008); Entergy Mississippi Formula Rate Plan FRP-5, http://www.entergy-mississippi.com/content/price/tariffs/emi_frp.pdf; *Martha Coakley et al.*, 147 FERC ¶ 61,234 at P 147 (2014).

on average public utility bonds. As illustrated on page 1 of Exhibit AMM-3, with an average yield on public utility bonds for the six-months ending August 2015 of 4.35%, this implied a current equity risk premium of 5.37% for electric utilities. Adding this equity risk premium to the average yield on triple-B utility bonds of 4.92% implies a current cost of equity of 10.29%.

Application of the risk premium approach to gas utilities is shown in Exhibit AMM-4 based on the average authorized ROE for gas utilities in each quarter between 1980 and June 2015.[18] As shown on page 1 of Exhibit AMM-4, after adjusting for changes in bond yields since the study period, application of the risk premium approach resulted in an implied cost of equity of approximately 10.28%.

Q48. WHAT RISK PREMIUM COST OF EQUITY ESTIMATES WERE PRODUCED AFTER INCORPORATING FORECASTED BOND YIELDS?

A48. As shown on page 2 of Exhibit AMM-3, incorporating a forecasted yield for 2016-2020 and adjusting for changes in interest rates since the study period implied an equity risk premium of 4.49% for electric utilities. Adding this equity risk premium to the implied average yield on triple-B public utility bonds for 2016-2020 of 6.99% resulted in an implied cost of equity of 11.48%. Considering projected bond yields in applying the risk premium approach to gas utilities suggested a cost of equity of approximately 11.40% (page 2 of Exhibit AMM-4).

E. Expected Earnings Approach

Q49. WHAT OTHER BENCHMARK INDICATES THAT THE ALLOWED ROE IS CONSERVATIVE?

A49. Expected earned rates of return for other utilities provide another useful benchmark to gauge the reasonableness of the Allowed ROE specified for the COSG Program.

[18] My analysis for electric utilities used annual data because quarterly information was not available for the entire 1974-2014 period.

Reference to rates of return available from alternative investments of comparable risk can provide an important benchmark in assessing the return necessary to assure confidence in the financial integrity of a firm and its ability to attract capital. This expected earnings approach is consistent with the economic underpinnings for a fair rate of return established by the U.S. Supreme Court in *Bluefield* and *Hope*. Moreover, it avoids the complexities and limitations of capital market methods and instead focuses on the returns earned on book equity, which are readily available to investors.

Q50. WHAT ECONOMIC PREMISE UNDERLIES THE EXPECTED EARNINGS APPROACH?

A50. The simple, but powerful concept underlying the expected earnings approach is that investors compare each investment alternative with the next best opportunity. If the firm is unable to offer a return similar to that available from other opportunities of comparable risk, investors will become unwilling to supply the capital on reasonable terms. For existing investors, denying the opportunity to earn what is available from other similar risk alternatives prevents them from earning their opportunity cost of capital. In this situation the government is effectively taking the value of investors' capital without adequate compensation.

Q51. HOW IS THE EXPECTED EARNINGS APPROACH TYPICALLY IMPLEMENTED?

A51. The traditional comparable earnings test identifies a group of companies that are believed to be comparable in risk to the utility. The actual earnings of those companies on the book value of their investment are then compared to the allowed return under regulation. While the traditional comparable earnings test is implemented using historical data taken from the accounting records, it is also common to use projections of returns on book investment, such as those published by recognized investment advisory publications (*e.g.*, Value Line). Because these

returns on book value equity are analogous to the allowed return on a utility's rate base, this measure of opportunity costs results in a direct, "apples to apples" comparison.

Moreover, regulators do not set the returns that investors earn in the capital markets, which are a function of dividend payments and fluctuations in common stock prices – both of which are outside their control. Regulators can only establish the authorized ROE, which is applied to the book value of a utility's investment in rate base, as determined from its accounting records. This is directly analogous to the expected earnings approach, which measures the return that investors expect the utility to earn on book value. As a result, the expected earnings approach provides a meaningful guide to ensure that the authorized ROE is similar to what other utilities of comparable risk will earn on invested capital. This expected earnings test does not require theoretical models to indirectly infer investors' perceptions from stock prices or other market data. As long as the proxy companies are similar in risk, their expected earned returns on invested capital provide a direct benchmark for investors' opportunity costs that is independent of fluctuating stock prices, debates over data inputs, or the limitations inherent in any theoretical model of investor behavior. As noted in *New Regulatory Finance*, "because the investment base for ratemaking purposes is expressed in book value terms, a rate of return on book value, as is the case with Comparable Earnings, is highly meaningful."[19] Similarly, FERC recently concluded that:

> [T]he . . . expected earnings analysis, given its close relationship to the comparable earnings standard that originated in *Hope*, and the fact that it is used by investors to estimate the ROE that a utility will earn in the future can be useful in validating our ROE recommendation.[20]

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[19] Roger A. Morin, "New Regulatory Finance," *Public Utilities Reports, Inc.,* at 395 (2006).
[20] Opinion No. 531, 147 FERC ¶ 61,234 at P 147 (2014).

Q52. WHAT SPECIFIC GROUPS OF UTILITIES DID YOU RELY ON TO APPLY THE EXPECTED EARNINGS ANALYSIS?

A52. I considered the 20 utilities followed by Value Line with both electric and gas utility operations,[21] which I refer to as the "Combination Group." In addition, I applied the expected earnings approach to a proxy group of natural gas utilities, consisting of 10 publicly traded local distribution companies ("LDCs") included in Value Line's Natural Gas (Distribution) industry.[22] I refer to these companies as the "Gas Group."

Q53. WHAT RATES OF RETURN ON EQUITY ARE INDICATED FOR UTILITIES BASED ON THE EXPECTED EARNINGS APPROACH?

A53. For the firms in the Combination Group, the year-end returns on common equity projected by Value Line over its forecast horizon are shown on Exhibit AMM-5. Because Value Line bases its rate of return on end-of-year book values, I made an adjustment to compute an average rate of return.[23] As shown on Exhibit AMM-5, after excluding one high-end value, Value Line's projections for the Combination Group suggest an average ROE of approximately 10.8%. As shown on Exhibit AMM-6, Value Line's projections for the Gas Group suggested an average ROE of 11.0%.

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[21] I excluded seven firms because of current involvement in a major merger or acquisition that could distort projected values.

[22] I excluded one firm due to a major merger transaction, as well as one company that is primarily involved in propane distribution.

[23] Use of an average return in developing the rate of return is well supported. *See, e.g.*, Roger A. Morin, "New Regulatory Finance," *Public Utilities Reports, Inc.*, at 305-306 (2006), which discusses the need to adjust Value Line's end-of-year data.

F. Flotation Costs

Q54. WHAT OTHER CONSIDERATIONS ARE RELEVANT IN EVALUATING THE ALLOWED ROE FOR THE COSG PROGRAM?

A54. The common equity used to finance the investment in a company's assets is provided from either the sale of stock in the capital markets or from retained earnings not paid out as dividends. When equity is raised through the sale of common stock, there are costs associated with "floating" the new equity securities. These flotation costs include services such as legal, accounting, and printing, as well as the fees and discounts paid to compensate brokers for selling the stock to the public. Also, some argue that the "market pressure" from the additional supply of common stock and other market factors may further reduce the amount of funds a company nets when it issues common equity.

Q55. IS THERE AN ESTABLISHED MECHANISM TO RECOGNIZE EQUITY ISSUANCE COSTS?

A55. No. While debt flotation costs are recorded on the books of the company, amortized over the life of the issue, and thus increase the effective cost of debt capital, there is no similar accounting treatment to ensure that equity flotation costs are recorded and ultimately recognized. No rate of return is authorized on flotation costs necessarily incurred to obtain a portion of the equity capital used to finance plant. In other words, equity flotation costs are not included in a company's assets because neither that portion of the gross proceeds from the sale of common stock used to pay flotation costs is available to invest in plant and equipment, nor are flotation costs capitalized as an intangible asset. Because there is no accounting convention to accumulate the flotation costs associated with equity issues, they must be accounted for indirectly, with an upward adjustment to the cost of equity being the most appropriate mechanism.

Q56. WHAT IS THE MAGNITUDE OF THE ADJUSTMENT TO THE "BARE BONES" COST OF EQUITY TO ACCOUNT FOR ISSUANCE COSTS?

A56. There are a number of ways in which a flotation cost adjustment can be calculated, but the most common method used to account for flotation costs in regulatory proceedings is to apply an average flotation-cost percentage to a utility's dividend yield. Based on a review of the finance literature, *Regulatory Finance: Utilities' Cost of Capital* concluded:

> The flotation cost allowance requires an estimated adjustment to the return on equity of approximately 5% to 10%, depending on the size and risk of the issue.[24]

Alternatively, a study of data from Morgan Stanley regarding issuance costs associated with utility common stock issuances suggests an average flotation cost percentage of 3.6%.[25] Applying a 3.6% expense percentage to a representative dividend yield of 3.5% implies a minimum flotation cost adjustment on the order of 13 basis points. Adding this adjustment to the results of the risk premium and expected earnings approaches described earlier reinforces my conclusion that the benchmark mechanism used to determine the Allowed ROE under the COSG Program is reasonable.

IV. CAPITAL STRUCTURE

Q57. WHAT IS THE PURPOSE OF THIS SECTION?

A57. This section discusses the implications of the capital structure on risk and rate of return, and compares the capital structure established under the COSG Agreement,

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[24] Roger A. Morin, "Regulatory Finance: Utilities' Cost of Capital," *Public Utilities Reports, Inc. at 166* (1994).

[25] *Application of Yankee Gas Services Company for a Rate Increase*, DPUC Docket No. 04-06-01, Direct Testimony of George J. Eckenroth (Jul. 2, 2004) at Exhibit GJE-11.1. Updating the results presented by Mr. Eckenroth through April 2005 also resulted in an average flotation cost percentage of 3.6%.

consisting of 40% debt and 60% common equity, with those maintained by other utilities and against other benchmarks.

Q58. WHAT IS THE ROLE OF CAPITAL STRUCTURE IN SETTING AN OVERALL RATE OF RETURN?

A58. A company's capital structure reflects the mix of permanent capital (e.g., long-term debt and common equity) used to finance its assets. Under the traditional ratemaking paradigm that underlies BHUH's calculation of Hedge Credits and Hedge Costs, the proportions of a company's total capitalization attributable to each source of capital are typically used to weight the cost of debt and ROE to calculate an overall rate of return.

Q59. WHY DOES THIS WEIGHTING MATTER?

A59. The capital structure ratios determine how much weight is given to a particular source of capital. Because the cost of debt and the ROE are not the same, this affects the weighted average cost, or overall rate of return, of all sources of capital.

Q60. HOW DOES THE USE OF GREATER AMOUNTS OF DEBT AFFECT THE RATES OF RETURN REQUIRED BY INVESTORS?

A60. A higher debt ratio, or lower common equity ratio, translates into increased financial risk for all investors. A greater amount of debt means more investors have a senior claim on available cash flow, thereby reducing the certainty that each will receive his contractual payments. This, in turn, increases the risks to which lenders are exposed, and they require a correspondingly higher rate of interest for their risk bearing. From common shareholders' perspective, a higher debt ratio means that there are proportionately more investors ahead of them, thereby increasing the uncertainty as to the amount of any cash flow that may remain. For investors to be willing to bear this additional risk, they require a higher rate of return than lenders who have more certain, senior claims on the cash flows of the utility.

Q61. HOW CAN THE CAPITAL STRUCTURE SPECIFIED FOR THE COSG PROGRAM BE EVALUATED?

A61. The investment community and regulators generally accept that the norms established by comparable firms provide one valid benchmark against which to evaluate a reasonable capital structure. The capital structure maintained by companies in a given industry should reflect their collective efforts to finance themselves so as to minimize capital costs while preserving their financial integrity and ability to attract capital. Moreover, these industry capital structures should also incorporate the requirements of investors (both debt and equity), as well as the influence of regulators.

Q62. WHAT CAPITALIZATION IS ASSOCIATED WITH THE RRA BENCHMARKS THAT SERVE AS THE BASIS FOR THE ALLOWED ROE UNDER THE COSG AGREEMENT?

A62. RRA reported that the average common equity ratio approved in conjunction with authorized ROEs for electric utilities in 2014 was 50.67%, with the individual equity ratios ranging from 45.77% to 58.96%.[26] With respect to the approved capitalization for gas utilities, RRA reported an average common equity ratio of 51.25% for 2014, while the individual equity ratios ranged from to 45.89% to 58.96%.[27]

Q63. WHAT CAPITALIZATION RATIOS ARE MAINTAINED BY OTHER UTILITIES?

A63. Exhibit AMM-7 presents capital structure ratios for the Combination Group discussed earlier in my testimony. As shown on page 1, common equity ratios at fiscal year-end 2014 ranged between 30.2% and 62.3% and averaged 48.3% of

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[26] Regulatory Research Associates, "Major Rate Case Decisions," *Regulatory Focus* (Jan. 15, 2015).
[27] *Id.* Excluding capitalizations based on cost-free items or tax credit balances.

long-term capital. Meanwhile, Value Line projects an average common equity ratio for the Combination Group of 49.1% over its three-to-five year forecast horizon, with the individual equity ratios ranging from 34.5% to 65.0%.

Q64. WHAT CAPITALIZATION RATIOS ARE MAINTAINED BY OTHER UTILITY OPERATING COMPANIES?

A64. Page 2 of Exhibit AMM-7 displays capital structure data at year-end 2014 for the group of electric utility operating companies owned by the firms in the Combination Group. As shown there, common equity ratios for these utilities ranged from 37.6% to 72.9% and averaged 51.3%.

Q65. HOW DOES THE CAPITAL STRUCTURE ESTABLISHED FOR THE COSG PROGRAM COMPARE TO THE CAPITALIZATIONS MAINTAINED BY THE GAS GROUP?

A65. As shown on Exhibit AMM-8, for the firms in the Gas Group, common equity ratios at December 31, 2014 averaged 52.8% of long-term capital, with the individual equity ratios ranging from 42.3% to 64.2%. Meanwhile, Value Line expects an average common equity ratio of 58.4% for these gas utilities over its three-to-five year forecast horizon, with the individual common equity ratios ranging from 43.5% to 74.7%.

Q66. WHAT ARE THE IMPLICATIONS OF THE SPECIFIC RISKS FOR THE COSG PROGRAM IN EVALUATING A REASONABLE CAPITAL STRUCTURE?

A66. Investors would generally view the risks associated with investment in natural gas reserves as exceeding those of regulated electric and gas utility operations. While these risks are undoubtedly attenuated in the case of the COSG Program, given its focus on established fields with proven reserves, as well as the oversight and other provisions of the COSG Agreement, these considerations nonetheless distinguish the COSG Program from traditional utility infrastructure investment and warrant a

stronger balance sheet to recognize additional uncertainties. In addition, under the provisions of the COSG Agreement, BHUH would not assess Hedge Credits or Hedge costs so long as the Actual ROE falls within a band of 100 basis points higher or lower than the Allowed ROE. Thus, while investors recognize the potential to earn a return that exceeds the Allowed ROE, they also are aware that actual returns may fall up to 100 basis points below the ROE benchmark. Coupled with the fact that the Allowed ROE is a conservative benchmark that is likely to understate the cost of equity as capital costs increase, this downside exposure implies additional uncertainties. A company's capital structure is one of the major considerations in achieving and maintaining a strong credit profile and investment grade credit ratings. A more conservative financial profile, in the form of a higher common equity ratio, is consistent with the hybrid risk profile of the COSG Program and the need to maintain continuous access to capital at reasonable cost.

Q67. HOW DO THE RISKS OF E&P COMPANIES COMPARE WITH UTILITIES?

A67. In order to evaluate the relative risks of E&P companies, I reviewed risk indicators for the twelve companies included by Value Line in its Petroleum (Producing) industry group,[28] along with the Combination and Gas Groups described earlier. I considered four objective, published benchmarks that are widely relied on in the investment community. Credit ratings are assigned by independent rating agencies for the purpose of providing investors with a broad assessment of the creditworthiness of a firm. Ratings generally extend from triple-A (the highest) to D

[28] I refer to these twelve companies as the "E&P Group."

(in default).[29] Other symbols (*e.g.*, "+" or "-") are used to show relative standing within a category. Because the rating agencies' evaluation includes virtually all of the factors normally considered important in assessing a firm's relative credit standing, corporate credit ratings provide a broad, objective measure of overall investment risk that is readily available to investors. Widely cited in the investment community and referenced by investors, credit ratings are also frequently used as a primary risk indicator in establishing proxy groups to estimate the cost of common equity.

While credit ratings provide the most widely referenced benchmark for investment risks, other quality rankings published by investment advisory services also provide relative assessments of risks that are considered by investors in forming their expectations for common stocks. Value Line's primary risk indicator is its Safety Rank, which ranges from "1" (Safest) to "5" (Riskiest). This overall risk measure is intended to capture the total risk of a stock, and incorporates elements of stock price stability and financial strength. Given that Value Line is perhaps the most widely available source of investment advisory information, its Safety Rank provides useful guidance regarding the risk perceptions of investors.

The Financial Strength Rating is designed as a guide to overall financial strength and creditworthiness, with the key inputs including financial leverage, business volatility measures, and company size. Value Line's Financial Strength Ratings range from "A++" (strongest) down to "C" (weakest) in nine steps. These objective, published indicators incorporate consideration of a broad spectrum of

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[29] Credit rating firms, such as S&P, use designations consisting of upper- and lower-case letters 'A' and 'B' to identify a bond's credit quality rating. 'AAA', 'AA', 'A', and 'BBB' ratings are considered investment grade. Credit ratings for bonds below these designations ('BB', 'B', 'CCC', etc.) are considered speculative grade, and are commonly referred to as "junk bonds". The term "investment grade" refers to bonds with ratings in the 'BBB' category and above.

risks, including financial and business position, relative size, and exposure to firm-specific factors.

Finally, beta measures a utility's stock price volatility relative to the market as a whole, and reflects the tendency of a stock's price to follow changes in the market. A stock that tends to respond less to market movements has a beta less than 1.00, while stocks that tend to move more than the market have betas greater than 1.00. Beta is the only relevant measure of investment risk under modern capital market theory, and is widely cited in academics and in the investment industry as a guide to investors' risk perceptions.

Q68. WHAT DO THESE MEASURES INDICATE WITH RESPECT TO THE OVERALL RISKS OF E&P COMPANIES, VERSUS THE COMBINATION AND GAS GROUPS?

A68. The average risk indicators for the alternative proxy groups are shown in Table 1, below:

TABLE 1
COMPARISON OF RISK INDICATORS

			Value Line		
Proxy Group	**S&P**	**Moody's**	**Safety Rank**	**Financial Strength**	**Beta**
E&P	BBB-	Baa3	3	B+	1.38
Combination	BBB+	Baa1	2	A	0.73
Gas	A-	A3	2	B++	0.78

As shown above, the average credit ratings, Safety Rank, Financial Strength Rating, and beta for the E&P Group suggest greater risk than for the proxy groups of combination and gas utilities.

Q69. ARE THE GREATER RISKS OF E&P ACTIVITIES REFLECTED IN THE CAPITAL STRUCTURE RATIOS FOR THE E&P GROUP?

A69. Yes. Book value capital structure ratios for the firms in the E&P Group are presented on page 1 of Exhibit AMM-9. As shown there, after removing one outlier value, the average book value common equity ratio at year-end 2014 was 60.7%, with the individual values ranging from 40.9% to 76.7%. Meanwhile, Value Line projects that these firms will maintain common equity balances equal to approximately 64.8% of book value capital over its 2018-2020 forecast horizon, with the individual ratios ranging from 45.6% to 83.8%.

To be able to raise capital, firms in the non-regulated sector must pay returns that are competitive at the current market prices of their securities, not the embedded book value of the mix of stocks and bonds. As a result, the market value capitalizations for the firms in the E&P Group also serve as a benchmark in evaluating the specified capital structure for the COSG Program. As shown on page 2 of Exhibit AMM-9, the current market value capitalizations for the firms in the E&P Group implied an average common equity ratio of 63.4%, or 72.0% for Value Line's 2018-2020 forecast horizon. The individual market value common equity ratios ranged from 33.5% to 89.3% at 2014 year-end, or 50.8% to 87.5% based on Value Line's near-term projections.

Q70. WHAT DOES THIS EVIDENCE SUGGEST WITH RESPECT TO THE CAPITAL STRUCTURE UNDER THE COSG PROGRAM?

A70. Based on my evaluation, I concluded that a capitalization consisting of 40% long-term debt and 60% common equity represents a reasonable mix of capital sources from which to calculate Hedge Credits and Hedge Costs under the COSG Program. The capital structure specified for the COSG Program is consistent with the range of industry benchmarks and reflects the requirement of addressing the burden of significant capital expenditures, maintaining credit standing, and supporting access

to capital on reasonable terms, and on a sustainable basis. While industry averages provide one benchmark for comparison, each firm must select its capitalization based on the risks and prospects it faces, as well as its specific needs to access the capital markets. The reasonableness of the capital structure is also reinforced by the need to accommodate the specific risk exposures of the COSG Program. Based on my evaluation, I concluded that the capital structure established for the COSG Program represents a reasonable mix of capital sources from which to calculate the Actual ROE.

Q71. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A71. Yes, it does.

VERIFICATION

STATE OF TEXAS)
)ss:
COUNTY OF TRAVIS)

I, Adrien M. McKenzie, being first duly sworn on oath, depose and state that I am the witness identified in the foregoing Direct Testimony of Adrien M. McKenzie; that I have read the testimony and am familiar with its contents; and that the facts set forth therein are true and correct.

Adrien M. McKenzie

SUBSCRIBED AND SWORN to before me this 29 day of September, 2015.

Notary Public

Commission/Appointment Expires:
13019391-2 / 04/17/2019

ROBERT LEE MARTINEZ
NOTARY PUBLIC
STATE OF TEXAS
MY COMM. EXP. 04/17/19

EXHIBIT AMM-1

QUALIFICATIONS OF ADRIEN M. MCKENZIE

Q1. WHAT IS THE PURPOSE OF THIS EXHIBIT?

A1. This exhibit describes my background and experience and contains the details of my qualifications.

Q2. PLEASE DESCRIBE YOUR QUALIFICATIONS AND EXPERIENCE.

A2. I received B.A. and M.B.A. degrees with a major in finance from The University of Texas at Austin, and hold the Chartered Financial Analyst (CFA®) designation. Since joining FINCAP in 1984, I have participated in consulting assignments involving a broad range of economic and financial issues, including cost of capital, cost of service, rate design, economic damages, and business valuation. I have extensive experience in economic and financial analysis for regulated industries, and in preparing and supporting expert witness testimony before courts, regulatory agencies, and legislative committees throughout the U.S. and Canada. I have personally sponsored direct and rebuttal testimony concerning the rate of return on equity ("ROE") in proceedings filed with the Federal Energy Regulatory Commission ("FERC" or "the Commission"), the Hawaii Public Utilities Commission, the Idaho Public Utilities Commission, the Kansas State Corporation Commission, the Kentucky Public Service Commission, the Montana Public Service Commission, the Oregon Public Utilities Commission, the South Dakota Public Utilities Commission, the Virginia State Corporation Commission, the Washington Utilities and Transportation Commission, the West Virginia Public Service Commission, and the Wyoming Public Service Commission. My testimony addressed the establishment of risk-comparable proxy groups, the application of alternative quantitative methods, and the consideration of regulatory standards and policy objectives in establishing a fair ROE for regulated electric and gas utility operations.

In addition, over the course of my career I have worked with Dr. William Avera to prepare prefiled direct and rebuttal testimony in over 250 regulatory proceedings before

FERC (including Docket No. EL11-66-001, which established FERC's current policies with respect to ROE for electric utilities, adopted in Opinion No. 531), the Canadian Radio-Television and Telecommunications Commission, and regulatory agencies in over 30 states.[1] In connection with these assignments, my responsibilities have included performing analyses to estimate investors' required rate of return, critically evaluating the results of alternative approaches, evaluating the positions of other parties, representing clients in settlement negotiations and hearings, and assisting in the preparation of legal briefs. Prior to joining FINCAP, I was employed by an oil and gas firm and was responsible for operations and accounting. A resume containing the details of my qualifications and experience is attached below.

[1] This testimony was sponsored by Dr. William Avera, who is President of FINCAP, Inc.

ADRIEN M. McKENZIE

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Summary of Qualifications

Adrien McKenzie has an MBA in finance from the University of Texas at Austin and holds the Chartered Financial Analyst (CFA) designation. He has over 25 years experience in economic and financial analysis for regulated industries, and in preparing and supporting expert witness testimony before courts, regulatory agencies, and legislative committees throughout the U.S. and Canada. Assignments have included a broad range of economic and financial issues, including cost of capital, cost of service, rate design, economic damages, and business valuation.

Employment

Consultant, FINCAP, Inc. (June 1984 to June 1987) (April 1988 to present)	Economic consulting firm specializing in regulated industries and valuation of closely-held businesses. Assignments have involved electric, gas, telecommunication, and water/sewer utilities, with clients including utilities, consumer groups, municipalities, regulatory agencies, and cogenerators. Areas of participation have included rate of return, revenue requirements, rate design, tariff analysis, avoided cost, forecasting, and negotiations. Develop cost of capital analyses using alternative market models for electric, gas, and telephone utilities. Prepare pre-filed direct and rebuttal testimony, participate in settlement negotiations, respond to interrogatories, evaluate opposition testimony, and assist in the areas of cross-examination and the preparations of legal briefs. Other assignments have involved preparation of technical reports, valuations, estimation of damages, industry studies, and various economic analyses in support of litigation.
Manager, McKenzie Energy Company (Jan. 1981 to May. 1984)	Responsible for operations and accounting for firm engaged in the management of working interests in oil and gas properties.

Education

M.B.A., Finance, University of Texas at Austin (Sep. 1982 to May. 1984)	Program included coursework in corporate finance, accounting, financial modeling, and statistics. Received Dean's Award for Academic Excellence and Good Neighbor Scholarship. Professional Report: *The Impact of Construction Expenditures on Investor-Owned Electric Utilities*
B.B.A., Finance, University of Texas at Austin (Jan. 1981 to May 1982)	Electives included capital market theory, portfolio management, and international economics and finance. Elected to Beta Gamma Sigma business honor society. Dean's List 1981-1982.
Simon Fraser University, Vancouver, Canada and University of Hawaii at Manoa, Honolulu, Hawaii (Jan. 1979 to Dec 1980)	Coursework in accounting, finance, economics, and liberal arts.

Professional Associations

Received Chartered Financial Analyst (CFA) designation in 1990.

Member – CFA Institute.

Bibliography

"A Profile of State Regulatory Commissions," A Special Report by the Electricity Consumers Resource Council (ELCON), Summer 1991.

"The Impact of Regulatory Climate on Utility Capital Costs: An Alternative Test," with Bruce H. Fairchild, *Public Utilities Fortnightly* (May 25, 1989).

Presentations

"ROE at FERC: Issues and Methods," *Expert Briefing on Parallels in ROE Issues between AER, ERA, and FERC*, Jones Day (Sydney, Melbourne, and Perth, Australia) (April 15, 2014).

Cost of Capital Working Group eforum, Edison Electric Institute (April 24, 2012).

"Cost-of-Service Studies and Rate Design," General Management of Electric Utilities (A Training Program for Electric Utility Managers from Developing Countries), Austin, Texas (October 1989 and November 1990 and 1991).

Representative Assignments

Mr. McKenzie has prepared and supported prefiled testimony submitted in over 250 regulatory proceedings. In addition to filings before regulators in 33 states, Mr. McKenzie has considerable expertise in preparing expert analyses and testimony before the Federal Energy Regulatory Commission ("FERC") on the issue of ROE. Many of these proceedings have been influential in addressing key aspects of FERC's policies with respect to ROE determinations. Broad experience in applying and evaluating the results of quantitative methods to estimate a fair ROE, including discounted cash flow approaches, the Capital Asset Pricing Model, risk premium methods, and other quantitative benchmarks. Other representative assignments have included the application of econometric models to analyze the impact of anti-competitive behavior and estimate lost profits; development of explanatory models for nuclear plant capital costs in connection with prudency reviews; and the analysis of avoided cost pricing for cogenerated power.

REGULATORY RESEARCH ASSOCIATES

The table below tracks the average equity return authorized for all electric and gas rate cases combined, by year, for the last 25 years. As the table indicates, since 1990 the authorized ROEs have generally trended downward, reflecting the significant decline in interest rates and capital costs that has occurred over this time frame. The combined average equity returns authorized for electric and gas utilities in each of the years 1990 through 2014, and the number of observations for each year are as follows:

1990	12.69%	(75)	2003	10.98%	(47)
1991	12.51	(80)	2004	10.67	(39)
1992	12.06	(77)	2005	10.50	(55)
1993	11.37	(77)	2006	10.39	(42)
1994	11.34	(59)	2007	10.30	(76)
1995	11.51	(49)	2008	10.42	(67)
1996	11.29	(42)	2009	10.36	(68)
1997	11.34	(24)	2010	10.24	(96)
1998	11.59	(20)	2011	10.21	(59)
1999	10.74	(29)	2012	10.08	(93)
2000	11.41	(24)	2013	9.92	(71)
2001	11.05	(25)	2014	9.86	(63)
2002	11.10	(43)			

Source: Regulatory Research Associates, Inc., "Major Rate Case Decisions -- Calendar 2014," *Regulatory Focus* (Jan. 15, 2015).

HISTORICAL BOND YIELDS

Current Equity Risk Premium

(a)	Avg. Yield over Study Period	8.58%
(b)	Average Utility Bond Yield - Historical	4.35%
	Change in Bond Yield	-4.23%
(c)	Risk Premium/Interest Rate Relationship	-0.4266
	Adjustment to Average Risk Premium	1.80%
(a)	Average Risk Premium over Study Period	3.57%
	Adjusted Risk Premium	**5.37%**

Implied Cost of Equity

(b)	Baa Utility Bond Yield - Historical	4.92%
	Adjusted Equity Risk Premium	5.37%
	Risk Premium Cost of Equity	**10.29%**

(a) Exhibit AMM-3, page 3.
(b) Six-month average yield for Mar. 2015 - Aug. 2015 based on data from Moody's Investors Service, www.moodys.credittrends.com.
(c) Exhibit AMM-3, page 4.

PROJECTED BOND YIELDS

Current Equity Risk Premium

(a)	Avg. Yield over Study Period	8.58%
(b)	Average Utility Bond Yield 2016-20	6.42%
	Change in Bond Yield	-2.16%
(c)	Risk Premium/Interest Rate Relationship	-0.4266
	Adjustment to Average Risk Premium	0.92%
(a)	Average Risk Premium over Study Period	3.57%
	Adjusted Risk Premium	**4.49%**

Implied Cost of Equity

(b)	Baa Utility Bond Yield 2016-20	6.99%
	Adjusted Equity Risk Premium	4.49%
	Risk Premium Cost of Equity	**11.48%**

(a) Exhibit AMM-3, page 3.

(b) Based on data from IHS Global Insight, The U.S. Economy: The 30-Year Focus (Second-Quarter 2015); Energy Information Administration, Annual Energy Outlook 2015 (April 2015); & Moody's Investors Service at www.credittrends.com.

(c) Exhibit AMM-3, page 4.

IMPLIED RISK PREMIUM

Year	(a) Allowed ROE	(b) Average Utility Bond Yield	Risk Premium
1974	13.10%	9.27%	3.83%
1975	13.20%	9.88%	3.32%
1976	13.10%	9.17%	3.93%
1977	13.30%	8.58%	4.72%
1978	13.20%	9.22%	3.98%
1979	13.50%	10.39%	3.11%
1980	14.23%	13.15%	1.08%
1981	15.22%	15.62%	-0.40%
1982	15.78%	15.33%	0.45%
1983	15.36%	13.31%	2.05%
1984	15.32%	14.03%	1.29%
1985	15.20%	12.29%	2.91%
1986	13.93%	9.46%	4.47%
1987	12.99%	9.98%	3.01%
1988	12.79%	10.45%	2.34%
1989	12.97%	9.66%	3.31%
1990	12.70%	9.76%	2.94%
1991	12.55%	9.21%	3.34%
1992	12.09%	8.57%	3.52%
1993	11.41%	7.56%	3.85%
1994	11.34%	8.30%	3.04%
1995	11.55%	7.91%	3.64%
1996	11.39%	7.74%	3.65%
1997	11.40%	7.63%	3.77%
1998	11.66%	7.00%	4.66%
1999	10.77%	7.55%	3.22%
2000	11.43%	8.09%	3.34%
2001	11.09%	7.72%	3.37%
2002	11.16%	7.53%	3.63%
2003	10.97%	6.61%	4.36%
2004	10.75%	6.20%	4.55%
2005	10.54%	5.67%	4.87%
2006	10.36%	6.08%	4.28%
2007	10.36%	6.11%	4.25%
2008	10.46%	6.65%	3.81%
2009	10.48%	6.28%	4.20%
2010	10.34%	5.56%	4.78%
2011	10.29%	5.13%	5.16%
2012	10.17%	4.26%	5.91%
2013	10.02%	4.55%	5.47%
2014	9.91%	4.42%	5.49%
Average	12.16%	8.58%	3.57%

(a) Major Rate Case Decisions, Regulatory Focus, Regulatory Research Associates; *UtilityScope*

Regulatory Service , Argus.

(b) Moody's Investors Service.

REGRESSION RESULTS

Regression Statistics	
Multiple R	0.92317
R Square	0.85224
Adjusted R Square	0.84845
Standard Error	0.00508
Observations	41

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.005798	0.005798237	224.9453642	8.76517E-18
Residual	39	0.001005	2.57762E-05		
Total	40	0.006804			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.07234	0.00257	28.18692101	1.5191E-27	0.06715	0.07753	0.06715	0.07753
X Variable 1	-0.42656	0.02844	-14.99817869	8.76517E-18	-0.48409	-0.36904	-0.48409	-0.36904

CURRENT BOND YIELDS

Current Equity Risk Premium		
(a)	Avg. Yield over Study Period	8.43%
(b)	Single-A Utility Bond Yield	4.13%
	Change in Bond Yield	-4.30%
(c)	Risk Premium/Interest Rate Relationship	-0.4622
	Adjustment to Average Risk Premium	1.99%
(a)	Average Risk Premium over Study Period	3.37%
	Adjusted Risk Premium	**5.36%**
Implied Cost of Equity		
(b)	Baa Utility Bond Yield	4.92%
	Adjusted Equity Risk Premium	5.36%
	Risk Premium Cost of Equity	**10.28%**

(a) Exhibit AMM-4, page 3.
(b) Average bond yield for six-months ending July 2015 based on data from Moody's Investors Service at www.credittrends.com.
(c) Exhibit AMM-4, page 4.

PROJECTED BOND YIELDS

Current Equity Risk Premium		
(a)	Avg. Yield over Study Period	8.43%
(b)	Single-A Utility Bond Yield 2016-20	6.20%
	Change in Bond Yield	-2.24%
(c)	Risk Premium/Interest Rate Relationship	-0.4622
	Adjustment to Average Risk Premium	1.03%
(a)	Average Risk Premium over Study Period	3.37%
	Adjusted Risk Premium	**4.41%**
Implied Cost of Equity		
(b)	Baa Utility Bond Yield 2016-20	6.99%
	Adjusted Equity Risk Premium	4.41%
	Risk Premium Cost of Equity	**11.40%**

(a) Exhibit AMM-4, page 3.

(b) Based on data from IHS Global Insight, The U.S. Economy: The 30-Year Focus (Second-Quarter 2015); Energy Information Administration, Annual Energy Outlook 2015 (April 2015); & Moody's Investors Service at www.credittrends.com.

(c) Exhibit AMM-4, page 4.

AUTHORIZED RETURNS

Year	Qtr.		(a) Allowed ROE	(b) Single-A Utility Bond Yield	Risk Premium
1980	1		13.45%	13.49%	-0.04%
	2		14.38%	12.87%	1.51%
	3		13.87%	12.88%	0.99%
	4		14.35%	14.11%	0.24%
1981	1		14.69%	14.77%	-0.08%
	2		14.61%	15.82%	-1.21%
	3		14.86%	16.65%	-1.79%
	4		15.70%	16.57%	-0.87%
1982	1		15.55%	16.72%	-1.17%
	2		15.62%	16.26%	-0.64%
	3		15.72%	15.88%	-0.16%
	4		15.62%	14.56%	1.06%
1983	1		15.41%	14.15%	1.26%
	2		14.84%	13.58%	1.26%
	3		15.24%	13.52%	1.72%
	4		15.41%	13.38%	2.03%
1984	1		15.39%	13.56%	1.83%
	2		15.07%	14.72%	0.35%
	3		15.37%	14.47%	0.90%
	4		15.33%	13.38%	1.95%
1985	1		15.03%	13.31%	1.72%
	2		15.44%	12.95%	2.49%
	3		14.64%	12.11%	2.53%
	4		14.44%	11.49%	2.95%
1986	1		14.05%	10.18%	3.87%
	2		13.28%	9.41%	3.87%
	3		13.09%	9.39%	3.70%
	4		13.62%	9.31%	4.31%
1987	1		12.61%	8.96%	3.65%
	2		13.13%	9.77%	3.36%
	3		12.56%	10.61%	1.95%
	4		12.73%	11.05%	1.68%
1988	1		12.94%	10.32%	2.62%
	2		12.48%	10.71%	1.77%
	3		12.79%	10.94%	1.85%
	4		12.98%	9.98%	3.00%
1989	1		12.99%	10.13%	2.86%
	2		13.25%	9.94%	3.31%
	3		12.56%	9.53%	3.03%
	4		12.94%	9.50%	3.44%
1990	1		12.60%	9.72%	2.88%
	2		12.81%	9.91%	2.90%
	3		12.34%	9.93%	2.41%
	4		12.77%	9.89%	2.88%
1991	1		12.69%	9.58%	3.11%
	2		12.53%	9.50%	3.03%
	3		12.43%	9.33%	3.10%
	4		12.38%	9.02%	3.36%
1992	1		12.42%	8.91%	3.51%
	2		11.98%	8.86%	3.12%
	3		11.87%	8.47%	3.40%
	4		11.94%	8.53%	3.41%
1993	1		11.75%	8.07%	3.68%
	2		11.71%	7.81%	3.90%
	3		11.39%	7.28%	4.11%
	4		11.15%	7.22%	3.93%
1994	1		11.12%	7.55%	3.57%
	2		10.81%	8.29%	2.52%
	3		10.95%	8.51%	2.44%
	4	(c)	11.64%	8.87%	2.77%
1995	2		11.00%	7.93%	3.07%
	3		11.07%	7.72%	3.35%
	4		11.56%	7.37%	4.19%
1996	1		11.45%	7.44%	4.01%
	2		10.88%	7.98%	2.90%
	3		11.25%	7.96%	3.29%
	4		11.32%	7.62%	3.70%
1997	1		11.31%	7.76%	3.55%
	2		11.70%	7.88%	3.82%
	3		12.00%	7.49%	4.51%
	4	(c)	11.01%	7.25%	3.76%
1998	2		11.37%	7.12%	4.25%
	3		11.41%	6.99%	4.42%
	4		11.69%	6.97%	4.72%
1999	1		10.82%	7.11%	3.71%
	2	(c)	10.82%	7.48%	3.34%
	4		10.33%	8.05%	2.28%
2000	1		10.71%	8.29%	2.42%
	2		11.08%	8.45%	2.63%
	3		11.33%	8.25%	3.08%
	4		12.50%	8.03%	4.47%
2001	1		11.16%	7.74%	3.42%
	2	(c)	10.75%	7.93%	2.82%
	4		10.65%	7.68%	2.97%
2002	1		10.67%	7.65%	3.02%
	2		11.64%	7.50%	4.14%
	3		11.50%	7.19%	4.31%
	4		10.78%	7.15%	3.63%
2003	1		11.38%	6.93%	4.45%
	2		11.36%	6.40%	4.96%
	3		10.61%	6.64%	3.97%
	4		10.84%	6.35%	4.49%
2004	1		11.10%	6.09%	5.01%
	2		10.25%	6.48%	3.77%
	3		10.37%	6.13%	4.24%
	4		10.66%	5.94%	4.72%
2005	1		10.65%	5.74%	4.91%
	2		10.52%	5.52%	5.00%
	3		10.47%	5.51%	4.96%
	4		10.40%	5.82%	4.58%
2006	1		10.63%	5.85%	4.78%
	2		10.50%	6.37%	4.13%
	3		10.45%	6.19%	4.26%
	4		10.14%	5.86%	4.28%
2007	1		10.44%	5.90%	4.54%
	2		10.12%	6.09%	4.03%
	3		10.03%	6.22%	3.81%
	4		10.27%	6.08%	4.19%
2008	1		10.38%	6.15%	4.23%
	2		10.17%	6.32%	3.85%
	3		10.49%	6.42%	4.07%
	4		10.34%	7.23%	3.11%
2009	1		10.24%	6.37%	3.87%
	2		10.11%	6.39%	3.72%
	3		9.88%	5.74%	4.14%
	4		10.27%	5.66%	4.61%
2010	1		10.24%	5.83%	4.41%
	2		9.99%	5.61%	4.38%
	3		9.93%	5.09%	4.84%
	4		10.09%	5.34%	4.75%
2011	1		10.10%	5.60%	4.50%
	2		9.85%	5.38%	4.47%
	3		9.65%	4.81%	4.84%
	4		9.88%	4.37%	5.51%
2012	1		9.63%	4.39%	5.24%
	2		9.83%	4.23%	5.60%
	3		9.75%	3.98%	5.77%
	4		10.07%	3.93%	6.14%
2013	1		9.57%	4.18%	5.39%
	2		9.47%	4.23%	5.24%
	3		9.60%	4.74%	4.86%
	4		9.83%	4.76%	5.07%
2014	1		9.54%	4.56%	4.98%
	2		9.84%	4.32%	5.52%
	3		9.45%	4.20%	5.25%
	4		10.28%	4.03%	6.25%
2015	1		9.47%	3.66%	5.81%
	2		9.43%	4.13%	5.30%
Average			**11.81%**	**8.43%**	**3.37%**

(a) Regulatory Research Associates, Inc., Major Rate Case Decisions, (Jul. 16, 2015, Jan. 24, 2002, Jan. 18, 1995, and Jan. 16, 1990).

(b) Moody's Investors Service.

(c) No decisions reported for following quarter.

REGRESSION RESULTS

Regression Statistics	
Multiple R	0.9426118
R Square	0.888517
Adjusted R Square	0.8876973
Standard Error	0.0052788
Observations	138

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.030204322	0.030204	1083.917	1.17443E-66
Residual	136	0.003789762	2.79E-05		
Total	137	0.033994084			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.0727274	0.001266393	57.42875	3.08E-97	0.070223005	0.07523174	0.070223005	0.075231741
X Variable 1	-0.462169	0.01403792	-32.9229	1.17E-66	-0.489929833	-0.43440818	-0.48992983	-0.43440818

COMBINATION GROUP

	Company	(a) Expected Return on Common Equity	(b) Adjustment Factor	(c) Adjusted Return on Common Equity
1	Alliant Energy	11.5%	1.0113	11.6%
2	Ameren Corp.	10.0%	1.0237	10.2%
3	Avista Corp.	8.5%	1.0152	8.6%
4	CenterPoint Energy	12.0%	1.0156	12.2%
5	CMS Energy Corp.	13.5%	1.0316	13.9%
6	Consolidated Edison	9.0%	1.0161	9.1%
7	Dominion Resources	17.5%	1.0421	18.2%
8	DTE Energy Co.	10.0%	1.0306	10.3%
9	Duke Energy Corp.	8.5%	1.0086	8.6%
10	Empire District Elec	8.5%	1.0205	8.7%
11	Entergy Corp.	9.0%	1.0155	9.1%
12	Eversource Energy	10.0%	1.0210	10.2%
13	MGE Energy	13.0%	1.0312	13.4%
14	NorthWestern Corp.	10.0%	1.0212	10.2%
15	PG&E Corp.	10.0%	1.0341	10.3%
16	Pub Sv Enterprise Grp	10.5%	1.0252	10.8%
17	SCANA Corp.	9.5%	1.0306	9.8%
18	Sempra Energy	12.5%	1.0265	12.8%
19	Vectren Corp.	14.5%	1.0167	14.7%
20	Xcel Energy Inc.	10.5%	1.0219	10.7%
	Average (d)			**10.8%**
	Midpoint (d)			**11.7%**

(a) The Value Line Investment Survey (June 19, July 31 & August 21, 2015).
(b) Computed using the formula 2*(1+5-Yr. Change in Equity)/(2+5 Yr. Change in Equity).
(c) (a) x (b).
(d) Eliminates highlighted values.

EXPECTED EARNINGS APPROACH **Exhibit AMM-6**

GAS GROUP

	Company	(a) Expected Return on Common Equity	(b) Adjustment Factor	(c) Adjusted Return on Common Equity
1	Atmos Energy Corp.	10.5%	1.0354	10.9%
2	Chesapeake Utilities	11.5%	1.0771	12.4%
3	Laclede Group	8.5%	1.0357	8.8%
4	New Jersey Resources	12.5%	1.0592	13.2%
5	NiSource, Inc.	5.5%	1.0270	5.6%
6	Northwest Natural Gas	10.0%	1.0208	10.2%
7	Piedmont Natural Gas	10.5%	1.0216	10.7%
8	South Jersey Industries	13.0%	1.0410	13.5%
9	Southwest Gas Corp.	11.5%	1.0320	11.9%
10	WGL Holdings, Inc.	12.0%	1.0181	12.2%
	Average			**11.0%**
	Midpoint (d)			**9.6%**

(a) The Value Line Investment Survey (Sep. 4, 2015).

(b) Adjustment to convert year-end return to an average rate of return using the formula 2*(1+5-Yr. Change in Equity)/(2+5-Yr. Change in Equity).

(c) (a) x (b).

(d) Average of low and high values.

COMBINATION GROUP

		At Fiscal Year-End 2014 (a)			Value Line Projected (b)		
	Company	**Debt**	**Preferred**	**Common Equity**	**Debt**	**Other**	**Common Equity**
1	Alliant Energy	51.0%	2.7%	46.3%	47.5%	3.0%	49.5%
2	Ameren Corp.	47.7%	1.1%	51.3%	45.5%	1.0%	53.5%
3	Avista Corp.	50.3%	0.0%	49.7%	53.0%	0.0%	47.0%
4	CenterPoint Energy	55.2%	0.0%	44.8%	58.5%	0.0%	41.5%
5	CMS Energy Corp.	69.8%	0.0%	30.2%	65.0%	0.5%	34.5%
6	Consolidated Edison	49.2%	0.0%	50.8%	48.5%	0.0%	51.5%
7	Dominion Resources	62.3%	0.0%	37.7%	58.5%	0.0%	41.5%
8	DTE Energy Co.	50.8%	0.0%	49.2%	51.0%	0.0%	49.0%
9	Duke Energy Corp.	49.5%	0.0%	50.5%	52.5%	0.0%	47.5%
10	Empire District Elec	50.6%	0.0%	49.4%	50.0%	0.0%	50.0%
11	Entergy Corp.	57.0%	0.4%	42.6%	53.0%	1.0%	46.0%
12	Eversource Energy	46.6%	0.0%	53.4%	46.5%	0.5%	53.0%
13	MGE Energy	37.7%	0.0%	62.3%	35.0%	0.0%	65.0%
14	NorthWestern Corp.	53.0%	0.0%	47.0%	51.0%	0.0%	49.0%
15	PG&E Corp.	48.5%	0.8%	50.7%	47.5%	0.5%	52.0%
16	Pub Sv Enterprise Grp	42.2%	0.0%	57.8%	44.0%	0.0%	56.0%
17	SCANA Corp.	53.3%	0.0%	46.7%	53.0%	0.0%	47.0%
18	Sempra Energy	51.1%	0.1%	48.8%	52.0%	0.5%	47.5%
19	Vectren Corp.	49.5%	0.0%	50.5%	48.0%	0.0%	52.0%
20	Xcel Energy Inc.	53.5%	0.0%	46.5%	51.5%	0.0%	48.5%
	Average	**51.4%**	**0.3%**	**48.3%**	**50.6%**	**0.3%**	**49.1%**

(a) Company Form 10-K and Annual Reports.
(b) The Value Line Investment Survey (June 19, July 31 & August 21, 2015).

OPERATING COS.

		At Fiscal Year-End 2014 (a)		
	Company	**Debt**	**Preferred**	**Common Equity**
1	Ameren Illinois Co.	45.7%	1.3%	53.0%
2	CenterPoint Energy Houston Electric, LLC	55.8%	0.0%	44.2%
3	Connecticut Light & Power	48.2%	2.0%	49.8%
4	Consolidated Edison of NY	50.1%	0.0%	49.9%
5	Consumers Energy Co.	50.1%	0.3%	49.5%
6	DTE Electric Co.	50.3%	0.0%	49.7%
7	Duke Energy Carolinas	43.4%	0.0%	56.6%
8	Duke Energy Florida	48.1%	0.0%	51.9%
9	Duke Energy Indiana	49.6%	0.0%	50.4%
10	Duke Energy Ohio	27.1%	0.0%	72.9%
11	Duke Energy Progress	51.4%	0.0%	48.6%
12	Entergy Arkansas Inc.	59.4%	0.0%	40.6%
13	Entergy Gulf States Louisiana LLC	53.1%	0.3%	46.5%
14	Entergy Louisiana LLC	53.5%	1.6%	44.9%
15	Entergy Mississippi Inc.	51.1%	2.4%	46.5%
16	Entergy New Orleans Inc.	49.8%	0.0%	50.2%
17	Entergy Texas Inc.	62.4%	0.0%	37.6%
18	Interstate Power & Light	46.8%	5.3%	48.0%
19	Madison Gas & Electric Co.	39.5%	0.0%	60.5%
20	Northern States Power Co. (MN)	47.1%	0.0%	52.9%
21	Northern States Power Co. (WI)	44.9%	0.0%	55.1%
22	NSTAR Electric Co.	41.8%	1.0%	57.2%
23	Orange & Rockland	48.1%	0.0%	51.9%
24	Pacific Gas & Electric Co.	47.5%	0.8%	51.6%
25	Progress Energy Inc.	56.9%	0.0%	43.1%
26	Pub Service Electric & Gas Co.	48.2%	0.0%	51.8%
27	Public Service Co. of Colorado	44.3%	0.0%	55.7%
28	Public Service Co. of New Hampshire	46.7%	0.0%	53.3%
29	San Diego Gas & Electric	48.4%	0.0%	51.6%
30	South Carolina Electric & Gas	47.5%	0.0%	52.5%
31	Southern California Gas Co.	40.7%	0.5%	58.9%
32	Southern Indiana Gas & Electric Co.	43.8%	0.0%	56.2%
33	Southwestern Public Service Co.	46.4%	0.0%	53.6%
34	Union Electric Co.	49.7%	1.0%	49.3%
35	Virginia Electric Power	47.1%	0.0%	52.9%
36	Western Massachussetts Electric Co.	52.1%	0.0%	47.9%
37	Wisconsin Power & Light	47.9%	0.0%	52.1%
	Average	**48.2%**	**0.4%**	**51.3%**

(a) Company Form 10-K, Annual Reports, and FERC Form 1 Reports.

GAS GROUP

		At Fiscal Year-End 2014 (a)			Value Line Projected (b)		
	Company	**Debt**	**Preferred**	**Common Equity**	**Debt**	**Other**	**Common Equity**
1	Atmos Energy Corp.	44.3%	0.0%	55.7%	45.0%	0.0%	55.0%
2	Chesapeake Utilities	35.8%	0.0%	64.2%	25.3%	0.0%	74.7%
3	Laclede Group	55.1%	0.0%	44.9%	51.0%	0.0%	49.0%
4	New Jersey Resources	39.6%	0.0%	60.4%	26.5%	0.0%	73.5%
5	NiSource, Inc.	57.7%	0.0%	42.3%	56.5%	0.0%	43.5%
6	Northwest Natural Gas	46.3%	0.0%	53.7%	44.0%	0.0%	56.0%
7	Piedmont Natural Gas	52.1%	0.0%	47.9%	43.5%	0.0%	56.5%
8	South Jersey Industries	52.0%	0.0%	48.0%	47.0%	0.0%	53.0%
9	Southwest Gas Corp.	52.7%	0.0%	47.3%	47.5%	0.0%	52.5%
10	WGL Holdings, Inc.	35.4%	1.4%	63.2%	28.5%	1.0%	70.5%
	Average	**47.1%**	**0.1%**	**52.8%**	**41.5%**	**0.1%**	**58.4%**

(a) Company Form 10-K and Annual Reports.
(b) The Value Line Investment Survey (Sep. 4, 2015).

BOOK VALUE

		2014 (a)		Value Line Projected (b)	
	Company	**Debt**	**Common Equity**	**Debt**	**Common Equity**
1	Anadarko Petroleum	40.3%	59.7%	39.2%	60.8%
2	Apache Corp.	28.6%	71.4%	28.6%	71.4%
3	ConocoPhillips	30.0%	70.0%	22.8%	77.2%
4	Continental Resources	54.7%	45.3%	54.1%	45.9%
5	Denbury Resources	38.5%	61.5%	36.3%	63.7%
6	Marathon Oil Corp.	23.3%	76.7%	16.2%	83.8%
7	Noble Energy, Inc.	37.1%	62.9%	33.4%	66.6%
8	Oasis Petroleum Inc.	59.1%	40.9%	54.4%	45.6%
9	Pioneer Natural Resources	23.7%	76.3%	26.1%	73.9%
10	Range Resources Corp.	47.1%	52.9%	41.5%	58.5%
11	Ultra Petroleum Corp.	94.1%	5.9%	72.6%	27.4%
12	Whiting Petroleum Corp.	49.7%	50.3%	34.7%	65.3%
	Average	**43.8%**	**56.2%**	**38.3%**	**61.7%**
	Average - Ex. Ultra Petroleum	**39.3%**	**60.7%**	**35.2%**	**64.8%**

(a) Company Form 10-K and Annual Reports.
(b) The Value Line Investment Survey (Aug. 7, 2015).

MARKET VALUE

		2014		Value Line Projected	
	Company	**Debt**	**Common Equity**	**Debt**	**Common Equity**
1	Anadarko Petroleum	26.5%	73.5%	23.1%	76.9%
2	Apache Corp.	32.3%	67.7%	26.4%	73.6%
3	ConocoPhillips	20.8%	79.2%	25.6%	74.4%
4	Continental Resources	29.6%	70.4%	21.8%	78.2%
5	Denbury Resources	55.4%	44.6%	44.4%	55.6%
6	Marathon Oil Corp.	25.1%	74.9%	18.7%	81.3%
7	Noble Energy, Inc.	26.2%	73.8%	24.0%	76.0%
8	Oasis Petroleum Inc.	66.5%	33.5%	49.2%	50.8%
9	Pioneer Natural Resources	10.7%	89.3%	12.5%	87.5%
10	Range Resources Corp.	25.4%	74.6%	19.8%	80.2%
11	Ultra Petroleum Corp.	62.7%	37.3%	37.3%	62.7%
12	Whiting Petroleum Corp.	58.2%	41.8%	33.3%	66.7%
	Average	**36.6%**	**63.4%**	**28.0%**	**72.0%**

Source: The Value Line Investment Survey (Aug. 7, 2015).