BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF NEW MEXICO GAS COMPANY, INC. FOR REVISIONS TO ITS RATES, RULES, AND CHARGES PURSUANT TO ADVICE NOTICE NOS. 70 AND 71	)	**Case No. 18-_____-UT**
NEW MEXICO GAS COMPANY, INC.	)	
Applicant.	)	

DIRECT TESTIMONY

OF

ADRIEN M. MCKENZIE, CFA

February 26, 2018

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

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

Q. IN WHAT CAPACITY ARE YOU EMPLOYED?

A. I am President of Financial Concepts and Applications, Inc. ("FINCAP"), Inc., a firm providing financial, economic, and policy consulting services to business and government.

A. Qualifications

Q. PLEASE DESCRIBE YOUR QUALIFICATIONS AND PROFESSIONAL EXPERIENCE.

A. 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 in over eighty-five proceedings filed with the Federal Energy Regulatory Commission ("FERC"), the Regulatory Commission of Alaska, the

Colorado Public Utilities Commission, the Hawaii Public Utilities Commission, the Idaho Public Utilities Commission, the Indiana Utility Regulatory Commission, the Iowa Utilities Board, the Kansas State Corporation Commission, the Kentucky Public Service Commission, the Maryland Public Service Commission, the Montana Public Service Commission, the Nebraska Public Service Commission, the Ohio Public Utilities 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.[1] 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 rate of return on equity for regulated electric, gas, and water utility operations. In connection with these assignments, my responsibilities have included critically evaluating the positions of other parties and preparation of rebuttal testimony, representing clients in settlement negotiations and hearings, and assisting in the preparation of legal briefs.

FINCAP was formed in 1979 as an economic and financial consulting firm serving clients in both the regulated and competitive sectors. FINCAP conducts assignments ranging from broad qualitative analyses and policy consulting to technical analyses and

[1] Over the course of my career, I have supported the preparation of prefiled direct and rebuttal testimony in over 250 regulatory proceedings before FERC, the Canadian Radio-Television and Telecommunications Commission, and regulatory agencies in over 30 states. This testimony was sponsored by Dr. William Avera, who was formerly President of FINCAP, Inc.

research. The firm's experience is in the areas of public utilities, valuation of closely-held businesses, and economic evaluations (e.g., damage and cost/benefit analyses). Prior to joining FINCAP, I was employed by an oil and gas firm and was responsible for operations and accounting. I am a member of the CFA Institute and the CFA Society of Austin. A resume containing the details of my experience is attached as NMGC Exhibit AMM-1.

Q. FOR WHOM ARE YOU TESTIFYING IN THIS CASE?

A. I am testifying on behalf of New Mexico Gas Company, Inc. ("NMGC" or "the Company").

B. Overview

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?

A. The purpose of my testimony is to present to the New Mexico Public Regulation Commission ("Commission") my independent evaluation of the fair and reasonable rate of return on equity ("ROE") for the jurisdictional gas utility operations of the Company. In addition, I also examine the reasonableness of the Company's requested capital structure, considering both the specific risks faced by NMGC and other industry guidelines.

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

A. To prepare my testimony, I used information from a variety of sources that would normally be relied upon by a person in my capacity. In connection with the present filing, I considered and relied upon discussions with corporate management, publicly available financial reports, and prior regulatory filings relating to NMGC. I also reviewed information relating generally to current capital market conditions and specifically to investor perceptions, requirements, and expectations for NMGC's gas utility operations. 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 NMGC, and they form the basis of my analyses and conclusions.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. I first briefly review NMGC's operations and finances, develop a relevant proxy group of natural gas utilities, and discuss current conditions in the capital markets and their implications in evaluating a fair return for the Company. With this as a background, I discuss well-accepted quantitative analyses to estimate the current cost of equity for my proxy group. These include the discounted cash flow ("DCF") model, the Capital Asset Pricing Model ("CAPM"), the empirical form of the CAPM ("ECAPM"), an equity risk premium approach based on allowed equity returns, and reference to expected earned rates of return for gas utilities, which are all methods that are commonly relied on in regulatory proceedings. In addition, I discuss the issue of stock flotation expenses and the implications of these legitimate costs on the estimation of a reasonable ROE for the Company.

Based on the cost of equity estimates indicated by my analyses described above, I determined a fair and reasonable ROE for NMGC. My ROE evaluation takes into account the specific risks for the Company's utility operations in New Mexico and the Company's requirements for financial strength. Finally, consistent with the fact that utilities must compete for capital with firms outside their own industry, I corroborate my utility quantitative analyses by applying the DCF model to a group of low risk non-utility firms.

C. Summary and Conclusions

Q. WHAT IS YOUR RECOMMENDED ROE FOR NMGC?

A. As summarized on NMGC Exhibit AMM-3, in conjunction with the approval of NMGC's proposed weather normalization adjustment mechanism ("Weather Mechanism") and Integrity Management Program Cost Recovery Mechanism ("IMP Mechanism"), I recommend an ROE for the Company of 10.2%. Absent approval of the Weather and IMP Mechanisms, NMGC would be exposed to greater risks than the other natural gas utilities used in my analyses, and the resulting cost of equity estimates would not be directly applicable to the Company. Accordingly, in the event the Commission fails to approve NMGC's requested Weather and IMP Mechanisms, I recommend a separate upward adjustment to NMGC's ROE in the range of 20 to 40 basis points to account for the Company's greater relative risks.

In arriving at this adjustment, I referenced the observable yield spreads between bonds rated Baa and A, which currently imply a risk premium of approximately 35 basis points.

As explained subsequently in my testimony, prior to the widespread approval of regulatory mechanisms, ROE adjustments associated with early implementation of revenue decoupling ranging from 10 to 50 basis points. The corollary would hold that NMGC's lack of comparable regulatory mechanisms relative to my proxy group would warrant a similar upward adjustment to the ROE. Considering these factors, and the need to recognize the Company's past inability to actually earn its allowed ROE, I recommend an adjustment of 30 basis points be added to the 10.2% midpoint for my proxy group. Accordingly, should the Commission elect not to approve the Weather and IMP Mechanisms, I recommend an ROE for NMGC of 10.50%.

II. FUNDAMENTAL ANALYSES

Q. WHAT IS THE PURPOSE OF THIS SECTION?

A. My objective is to evaluate and opine as to a fair and reasonable ROE for NMGC. Much of my work is predicated on a comparison of NMGC within the utility industry as a whole, and more specifically to a proxy group of publicly traded natural gas utilities. As a foundation for my opinions and subsequent quantitative analyses, this section briefly reviews the operations and finances of NMGC. In addition, I explain the basis for my proxy group used to estimate the cost of equity and examine alternative objective indicators of investment risk applicable to these firms. I also evaluate the investment risks of NMGC against those of my reference group, as well as examining specific conditions impacting todays' capital markets. An understanding of the fundamental factors driving the risks and prospects of gas utilities is essential in developing an

informed opinion of investors' expectations and requirements that are the basis of a fair rate of return.

A. New Mexico Gas Company, Inc.

Q. BRIEFLY DESCRIBE NMGC AND ITS GAS UTILITY OPERATIONS.

A. Based in Albuquerque, New Mexico, NMGC is a natural gas local distribution company engaged in the sale, distribution, transportation, and storage of natural gas and serves more than 524,000 residential, commercial, and transportation customers. The Company's service area comprises approximately 6,500 square miles and includes 27 of the 33 counties in New Mexico and encompasses 60% of the state's population. NMGC's largest concentration of customers (approximately 365,000) is located in the region known as the Central Rio Grande Corridor, which includes the communities of Albuquerque, Belen, Rio Rancho, and Santa Fe.

NMGC's gas utility system includes approximately 1,647 miles of intrastate gas pipelines and 10,362 miles of distribution mains, with annual throughput amounting to approximately 775 million therms. According to its Financial Statements for calendar year ended December 31, 2017, the Company had total assets of $868 million with total operating revenues of approximately $315.2 million. Of its total gas revenues in 2017, 72.4% were from residential customers, 19.5% from commercial customers, 0.1% from industrial customers, 5.9% from transportation for others, and 2.1% from other sources. The Company employs approximately 715 individuals in New Mexico.

Q. WHERE DOES NMGC OBTAIN THE CAPITAL USED TO FINANCE ITS INVESTMENT IN UTILITY PLANT?

A. NMGC is a subsidiary of TECO Energy, Inc., which, in turn, is a wholly owned subsidiary of Emera, Inc. ("Emera"). The Company obtains its equity capital solely from Emera, whose common stock is publicly traded on the Toronto Stock Exchange. NMGC issues long-term debt in its own name and has been assigned a corporate credit rating of BBB+ by S&P Global Ratings ("S&P").[2]

Q. DOES NMGC ANTICIPATE THE NEED FOR CAPITAL GOING FORWARD?

A. Yes. Based on my conversations with management, the Company must undertake investments to meet customer growth and to provide for necessary maintenance and replacements of its natural gas utility system as it continues to provide safe and reliable service to its customers. As explained in the direct testimony of NMGC Witness Kacer, the Company is undertaking a multi-year effort to accelerate the replacement and modernization of its existing utility system. It proposes an IMP Mechanism to facilitate this effort. Additionally, the Company expects system-wide capital additions to total approximately $350 million from 2018 through 2022. These planned capital additions are far from routine, given that NMGC's total rate base amounted to $565 million. Continued support for NMGC's financial integrity and flexibility will be instrumental in attracting the capital necessary to fund these projects in an effective manner.

[2] NMGC is not rated by Moody's or Fitch Ratings Inc..

B. Determination of a Proxy Group

Q. HOW DID YOU IMPLEMENT QUANTITATIVE METHODS TO ESTIMATE THE COST OF COMMON EQUITY FOR NMGC?

A. Application of quantitative methods to estimate the cost of common equity requires observable capital market data, such as stock prices and beta values. Moreover, even for a firm with publicly traded stock, the cost of common equity can only be estimated. As a result, applying quantitative models using observable market data only produces an estimate that inherently includes some degree of observation error. Thus, the accepted approach to increase confidence in the results is to apply quantitative methods to a proxy group of publicly traded companies that investors regard as risk-comparable. The results of the analysis on the sample of companies are relied upon to establish a range of reasonableness for the cost of equity for the specific company at issue.

Q. HOW DID YOU IDENTIFY THE SPECIFIC UTILITIES THAT WERE INCLUDED IN THE PROXY GROUP RELIED ON FOR YOUR ANALYSES?

A. In order to reflect the risks and prospects associated with natural gas utility operations, I examined quantitative estimates of investors' required ROE for a group of nine natural gas utilities. To identify this group, I began with those companies included in the Natural Gas Utility industry group compiled by The Value Line Investment Survey ("Value Line"). Value Line is one of the most widely available source of investment advisory information, and its industry groups provide an objective source to identify publicly traded firms that investors would regard to be similar in operations.

Q. WHAT OTHER FACTORS DID YOU CONSIDER IN EVALUATING YOUR PROXY GROUP?

A. From the list of gas utilities compiled by Value Line, I excluded UGI Corporation because it is primarily engaged in propane sales and marketing, which are not directly comparable to NMGC's gas distribution operations. In addition, WGL Holdings, Inc. ("WGL") is scheduled to be acquired by AltaGas Ltd. in the second quarter of 2018 and will cease to be an independent company. Because a major merger or acquisition can lead to distortion in the inputs used to apply the quantitative approaches outlined in my testimony, I eliminated WGL from the proxy group. Further, I confirmed that all of the proxy group firms had investment-grade credit ratings from S&P and Moody's Investors Service ("Moody's).[3] Finally, I verified that the remaining firms had not cut dividend payments during the past six months and had not announced a dividend cut since that time. Application of these criteria resulted in a proxy group composed of nine companies, which I refer to as the "Gas Group."

C. Relative Risks of the Gas Group and NMGC

Q. HOW DID YOU EVALUATE THE INVESTMENT RISKS OF THE GAS GROUP?

A. My evaluation of relative risk considered four objective, published benchmarks that are widely relied on in the investment community. Credit ratings are assigned by

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

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 (in default). 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 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. In my experience, Value Line is the most widely referenced source for beta in regulatory proceedings. As noted in *New Regulatory Finance*:

> Value Line is the largest and most widely circulated independent investment advisory service, and influences the expectations of a large number of institutional and individual investors. … Value Line betas are computed on a theoretically sound basis using a broadly based market index, and they are adjusted for the regression tendency of betas to converge to 1.00.[4]

Q. WHAT DO THESE MEASURES INDICATE WITH RESPECT TO THE OVERALL RISKS OF THE GAS GROUP?

A. The average risk indicators for the Gas Group are shown in Table 1, below:

[4] Roger A. Morin, "New Regulatory Finance," *Public Utilities Reports* (2006) at 71.

TABLE 1
COMPARISON OF RISK INDICATORS

	Credit Ratings		Value Line		
			Safety	Financial	
Proxy Group	S&P	Moody's	Rank	Strength	Beta
Gas Group	A-	A3	2	A	0.73

The average single-A minus ratings corresponding to the Gas Group place their credit risks solidly within the investment grade range. Similarly, the average Value Line risk indicators for the Gas Group, which incorporate a broad spectrum of risks, including financial and business position and exposure to company specific factors, are generally indicative of a company with a conservative risk profile.

i. Implications of Regulatory Mechanisms

Q. DID YOU CONSIDER THE IMPLICATIONS OF REGULATORY MECHANISMS IN EVALUATING A FAIR ROE FOR NMGC?

A. Yes. Adjustment mechanisms and cost trackers have been increasingly prevalent in the utility industry in recent years. In response to the increasing risk sensitivity of investors to uncertainty over fluctuations in costs and the importance of advancing other public interest goals such as reliability, energy conservation, and safety, utilities and their regulators have sought to mitigate some of the cost recovery uncertainty and align the interest of utilities and their customers through a variety of adjustment mechanisms. Based largely on the expanded use of ratemaking mechanisms to address operational risks and investment recovery, Moody's upgraded most regulated utilities in January

2014.[5] This is consistent with the view that investors perceive the impact of regulatory mechanisms to be an industry-wide factor. Just as a rising tide lifts all boats, ratemaking mechanisms have had an across-the-board impact on risk perceptions for virtually all utilities.

Reflective of this trend, companies in the gas utility industry operate under a wide variety of cost adjustment mechanisms, in addition to the standard gas cost recovery clauses that they all have. These enhanced mechanisms range from riders to recover bad debt expense and post-retirement employee benefit costs to revenue decoupling and adjustment clauses designed to address rising capital investment outside of a traditional rate case and the impact of conservation programs. The majority of gas utilities benefit from revenue decoupling, along with a variety of other provisions that enhance their ability to recover operating and capital costs on a timely basis.[6] Similarly, Regulatory Research Associates concluded in its most recent review of adjustment clauses that, "some form of decoupling is in place in the vast majority of the jurisdictions."[7]

Q. HAVE YOU SUMMARIZED THE VARIOUS REGULATORY MECHANISMS AVAILABLE TO THE GAS GROUP?

A. Yes. As summarized on NMGC Exhibit AMM-2, these mechanisms are ubiquitous and wide ranging. For example, seven of the nine firms in the Gas Group have utilities that

[5] Moody's Investors Service, "US utility sector upgrades driven by stable and transparent regulatory frameworks," *Sector Comment* (Feb. 3, 2014).
[6] *See, e.g.,* American Gas Association, *Innovative Rates, Non-Volumetric Rates, and Tracking Mechanisms: Current List* (Dec. 2016).
[7] S&P Global, "Adjustment Clauses," *RRA Regulatory Focus* (Sep. 12, 2017).

operate under some form of decoupling mechanism that accounts for the impact of various factors affecting sales volumes and revenues, with Atmos Energy Corporation operating under formula rate provisions in four of its jurisdictions, which have a similar impact. In addition, a Weather Mechanism has been approved for almost two-thirds of these utilities, while 24 of the 28 operating gas utilities benefit from trackers designed to address rising capital investment in utility infrastructure outside of a traditional rate case. As discussed in in the direct testimony of NMGC Witness Yardly, the availability of regulatory mechanisms for the firms in the Gas Group is consistent with trends in the broader gas utility industry generally.

Q. DO THE COMPANY'S REGULATORY MECHANISMS SET NMGC APART FROM OTHER FIRMS OPERATING IN THE GAS UTILITY INDUSTRY?

A. Yes. Currently, the only regulatory mechanism approved for NMGC is a gas cost adjustment mechanism (the "PGAC"). However, as documented in NMGC Exhibit AMM-2, a far broader array of adjustment mechanisms to the utilities in the Gas Group.

For example, unlike many gas utilities, NMGC does not have a Weather Mechanism in place to account for the impacts of abnormal weather on its New Mexico gas utility operations. A Weather Mechanism moderates the impact of extreme weather on customers and, at the same time, dampens the volatility of a gas utility's revenues. Indeed, all of the nine gas utilities in the Gas Group used to estimate the cost of equity have some form of weather mitigant, including decoupling mechanisms, adjustment

clauses, insurance, and/or rate design features that make revenues less susceptible to variations in gas consumption due to weather. As Value Line noted:

> Weather is a factor that affects the demand for natural gas, especially from small commercial businesses and consumers. Not surprisingly, earnings for utilities are susceptible to seasonal temperature patterns, with consumption normally at its peak during the winter heating months. Unseasonably warm or cold weather can cause substantial volatility in quarterly operating results. But some companies strive to counteract this exposure through temperature-adjusted rate mechanisms, which are available in many states. Therefore, investors interested in utilities with more-stable profits from one year to the next are advised to look for companies that are able to hedge this risk.[8]

As a result, while the Company has been exposed to the risks associated with abnormal weather, the reduced uncertainties associated with weather mitigants are accounted-for by investors and reflected in my cost of equity estimates.

Q. ARE THERE OTHER FACTORS THAT DISTINGUISH THE RISKS OF NMGC FROM OTHER GAS UTILITIES?

A. Yes. In evaluating a reasonable rate of return on equity, it is also important to note that, unlike many gas utilities, NMGC does not benefit from a decoupling mechanism that insulates utility margins from declining usage.[9] In addition, like other gas utilities, NMGC is committed to upgrading the reliability and safety of its gas utility system through increased investment. Unlike others in the industry, however, NMGC does not currently have the benefit of an infrastructure investment cost tracker or other regulatory mechanism that would allow for recovery of these costs outside a traditional rate case.

[8] Value Line Investment Survey (Jun. 3, 2016) at 541.
[9] NMGC's 2017 gas loads continue the decline that has been characteristic of prior years.

Q. HOW IS NMGC PROPOSING TO REMEDY THESE DISPARITIES?

A. As discussed in the direct testimonies of NMGC Witnesses Shell and Yardley, the Company is requesting approval of a Weather Mechanism in this proceeding to address the impacts of abnormal weather. As explained in the direct testimonies of NMGC Witnesses Kacer and Yardley, the Company is engaged in a multi-year integrity management program and is proposing an IMP Mechanism to recover these costs. Similar to mechanisms approved throughout the gas utility industry, the IMP Mechanism would allow for cost recovery associated with specified main replacements outside of a traditional rate proceeding.

Q. IF THE COMMISSION WERE TO APPROVE THE WEATHER AND IMP MECHANISMS PROPOSED BY THE COMPANY, WHAT WOULD THIS IMPLY WITH RESPECT TO NMGC'S RISKS RELATIVE TO THE GAS GROUP?

A. Approval of these two mechanisms would bring NMGC into line with the majority of the members of the Gas Group and make it competitive for investment in the industry. On the other hand, if the proposed Weather and IMP Mechanisms were rejected by the Commission, because the gas utilities in the Gas Group have the wide variety of regulatory mechanisms documented in NMGC Exhibit AMM-2, and NMGC's gas operations currently do not, the ROE determined from the Gas Group analyses would not be directly applicable to NMGC. For example, as the Washington Utilities and Transportation Commission recognized:

> Circumstances in the industry today and modern regulatory practice . . . have led to a proliferation of risk reducing mechanisms being in place for utilities throughout the United States. . . **The effects of these risk mitigating factors was by 2013, and is today, built into the data experts draw from the samples of companies they select as proxies.**[10]

The Staff of the Kansas State Corporation Commission also concluded that no ROE adjustment was justified when approving certain tariff riders because the impact of similar mechanisms is already accounted for through the use of a proxy group:

> Those mechanisms differ from company to company and jurisdiction to jurisdiction. Regardless of their nuances, the intent is the same; reduce cash-flow volatility year to year and place recent capital expenditures in rates as quickly as possible. Investors are aware of these mechanisms and their benefits are a factor when investors value those stocks. Thus, any risk reduction associated with these mechanisms is captured in the market data (stock prices) used in Staff's analysis.[11]

Similarly, the Maryland Public Service Commission has also recognized that a downward adjustment to the ROE is not warranted because of decoupling, noting that, "as the parties testified, decoupling provisions are common among natural gas distribution companies."[12]

Thus, while investors would consider approval of the proposed Weather and IMP Mechanisms to be supportive of NMGC's financial integrity, this leveling of the playing field only serves to address factors that could otherwise impair the Company's opportunity to earn its authorized return, as required by established regulatory standards.

[10] *Wash. Utils. & Transp. Comm'n v. Puget Sound Energy, Inc.*, Dockets UE-130130 and UG-130138 consolidated) et al., Order 15.14 at 69, ¶ 155 (June 29, 2015). Internal citations omitted (Emphasis added).
[11] *Direct Testimony Prepared by Adam H. Gatewood*, State Corporation Commission of the State of Kansas, Docket No. 12-ATMG-564-RTS, pp. 8-9 (June 8, 2012). This proceeding was ultimately resolved through a stipulated settlement.
[12] Maryland Public Service Commission, Order No. 85374 (Feb. 22, 2013) at 78.

Continued exposure to the uncertainties associated with the impact of weather, other fluctuations in customer usage, and regulatory lag attributable to increased capital investment would imply a greater level of risk than is faced by other utilities, including the firms in the Gas Group. In other words, the increased mitigation of risks associated with the greater ability to adjust revenues and attenuate the risk of cost recovery under the proposed Weather and IMP Mechanisms is already reflected in the cost of equity results determined from the Gas Group analyses. Accordingly, a separate upward adjustment to NMGC's ROE would be necessary to account for the Company's higher level of risk, in the event the Commission fails to approve NMGC's requested Weather and IMP Mechanisms.

ii. Implications of Attrition

Q. WHAT IS ATTRITION AND WHAT CAUSES IT?

A. Attrition is when a company's actual return is below the allowed return. It occurs when revenues, costs, and rate base used to establish rates do not reflect the actual costs incurred to serve customers during the period that rates are in effect. For example, if external factors are driving costs to increase more than revenues, then the rate of return will fall short of the allowed return even if the utility is operating efficiently. Similarly, when growth in the utility's investment outstrips the rate base used for ratemaking, the earned rate of return will fall below the allowed return through no fault of the utility's management. These imbalances are exacerbated as time elapses between the period during which the data used to establish rates is measured and the date when the rates go into effect.

Q. HAS THE COMPANY EXPERIENCED ATTRITION AND REGULATORY LAG?

A. Yes. As discussed in the testimony of NMGC Witness Hastings, attrition has been an issue for NMGC. For example, in the base period the Company's earned ROE was 6.75%, which is below the Company's ROE, as agreed to in its last proceeding. This is consistent with NMGC's experience over the last five years. In its last rate case, the Company utilized an illustrative ROE of 10% to design its rates. Table 2 below shows the Company's actual earned ROE attributable to its jurisdictional gas utility operations over the 2012-2017 period:

TABLE 2
ACTUAL ROE

NMGC Actual ROEs by Year

	2012	2013	2014	2015	2016	2017
ROE	7.3%	9.3%	7.9%	8.8%	8.0%	6.9%

Q. WHY IS IT NECESSARY TO ADDRESS THE IMPACT OF ATTRITION?

A. Investors are concerned with what they can expect in the future, not what they might expect in theory if a historical test year were to repeat. To be fair to investors and to benefit customers, a regulated utility must have an opportunity to actually earn a reasonable return that will maintain its financial integrity, facilitate capital attraction, and compensate for risk. In other words, it is the end result in the future that determines whether or not the *Hope* and *Bluefield* standards are met.[13] S&P observed that its risk analysis focuses on the utility's ability to consistently earn a reasonable return:

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

> Notably, the analysis does not revolve around "authorized" returns, but rather on actual earned returns. We note the many examples of utilities with healthy authorized returns that, we believe, have no meaningful expectation of actually earning that return because of rate case lag, expense disallowances, etc.[14]

Similarly, Moody's concluded, "we evaluate the framework and mechanisms that allow a utility to recover its costs and investments and earn allowed returns. We are less concerned with the official allowed return on equity, instead focusing on the earned returns and cash flows."[15] Absent other changes to the regulatory paradigm that allow the utility to better match its revenues with its costs, attrition warrants a higher authorized ROE in order to satisfy the end-result test of *Hope* and *Bluefield.*

Q. IS IT REASONABLE TO CONSIDER THE IMPACT OF NMGC'S EXPOSURE TO ATTRITION?

A. Yes. If the equity capital that is dedicated to utility public service does not have an opportunity to earn a return commensurate with that available from alternatives of equivalent risk in the capital markets, investors are not being adequately compensated for the use of their money and bearing risk. Setting rates at a level that considers the impact of attrition and allows the utility an opportunity to actually earn its authorized ROE is consistent with fundamental regulatory principles. Central to the determination of reasonable rates for utility service is the notion that owners of public utility properties

Co. v. Pub. Serv. Comm'n, 262 U.S. 679 (1923). As discussed later in this testimony, these cases established the standards for the determination of a fair and reasonable ROE, as set forth by the U.S. Supreme Court.

[14] Standard & Poor's Corporation, "Assessing U.S. Utility Regulatory Environments," RatingsDirect (Nov. 7, 2008).

[15] Moody's Investors Service, "Electric Utilities Face Challenges Beyond Near-Term," *Industry Outlook* (Jan. 2010).

are protected from confiscation. The Supreme Court standards dictate that the end result test must be applied to the actual returns that investors expect if they put their money at risk to finance utilities.

This end result can only be achieved for NMGC if the allowed return is sufficient to offset the impact of attrition. That end result would maintain the utility's financial integrity, ability to attract capital and offer investors fair compensation for the risk they bear. Attrition will result in under-earning the allowed ROE if the impact of regulatory lag and rising capital requirements are ignored. Thus, whatever the Commission ultimately determines to be investors' required return, the only way to achieve that end result is to set the ROE at a higher level that is sufficient to give the Company an opportunity to actually earn investors' required rate of return in the future. The Weather and IMP Mechanisms proposed by NMGC seek to address the Company's chronic inability to earn its authorized ROE by addressing two principle causes of ongoing attrition. The systemic shortfall between NMGC's actual earned returns and its authorized ROE further supports an upward adjustment to NMGC's ROE in the event the Commission fails to approve the proposed Weather and IMP Mechanisms.

iii. Relative Size

Q. WOULD INVESTORS CONSIDER NMGC'S RELATIVE SIZE IN THEIR ASSESSMENT OF THE COMPANY'S RISKS AND PROSPECTS?

A. Yes. A firm's relative size has important implications for investors in their evaluation of alternative investments, and it is well established that smaller firms are more risky

than larger firms. With total rate base of approximately $565 million, NMGC is significantly smaller than the publicly traded firms in the Gas Group used to estimate the cost of equity, which have an average market capitalization of $4.3 billion.

While NMGC has enhanced its back-office capabilities through adoption of the shared services model with its integration into TECO and Emera, the remaining magnitude of the size disparity between NMGC as an operating entity and the other operating units of the companies in the utility industry has important practical implications with respect to the risks faced by investors. All else being equal, it is well accepted that smaller and more isolated operating utilities are more risky than their larger operating counterparts, due in part to their relative lack of diversification. In the case of a smaller utility, its earnings are typically dependent on the economic, social, regulatory, and other factors affecting a more limited service area. This is true of NMGC. This can result in significant exposure, especially where a key customer or customer class dominates the economy. In NMGC's case, this would be residential and small commercial customers relying on gas as a heating load only. Meanwhile, larger utilities generally serve customers in numerous geographic locales, and across classes, and in many cases across multiple states. Thus, where major gas utilities are able to mitigate risks through geographic diversification, small operating utilities such as NMGC are wholly exposed to the uncertainties associated with economic conditions, demographics, and other factors that may impact a more limited service area – including weather.

Q. IS THERE EMPIRICAL EVIDENCE IN THE FINANCIAL LITERATURE THAT A COMPANY'S SIZE AFFECTS ITS RELATIVE RISKS?

A. Yes. It is well established in the financial literature that smaller firms are more risky than larger firms.[16] For example, Eugene F. Fama and Kenneth R. French concluded in their widely cited study that a firm's relative size is a proxy for risk:

> Whatever the underlying economic causes, our main result is straightforward. Two easily measured variables, size (ME) and book-to-market equity (BE/ME), provide a simple and powerful characterization of the cross-section of average stock returns for the 1963-1990 period.[17]
>
> The appendix shows that NYSE returns for 1941-1990 behave like the NYSE, AMEX, and NASDAQ returns for 1963-1990; there is a reliable size effect over the full 50-year period…[18]

Similarly, a classic University of Kansas study demonstrated that large firms are assigned higher bond ratings than small firms with similar characteristics,[19] and there is ample empirical evidence that investors in smaller firms realize higher rates of return than in larger firms.[20] Common sense and accepted financial doctrine hold that these greater risks mean that investors require higher returns from smaller companies, and unless that compensation is provided in the rate of return allowed for a utility, the legal tests embodied in the *Hope* and *Bluefield* cases cannot be met. Considering NMGC's relative size, this data implies that ROE estimates for the Gas Group would understate investors' required rate of return for NMGC's gas utility operations.

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[16] See, *e.g.*, Eugene F. Fama and Kenneth R. French, "The Cross-Section of Expected Stock Returns", *The Journal of Finance* (June 1992).
[17] *Id.* at p. 429.
[18] *Id.* at 440.
[19] George E. Pinches, J. Clay Singleton, and Ali Jahankhani, "Fixed Coverage as a Determinant of Electric Utility Bond Ratings", *Financial Management* (Summer 1978).
[20] See for example Rolf W. Banz, "The Relationship Between Return and Market Value of Common Stocks", *Journal of Financial Economics* (September 1981) at 16.

III. CAPITAL MARKET ESTIMATES AND ANALYSES

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. This section presents capital market estimates of the cost of equity. First, I address the concept of the cost of common equity, along with the risk-return tradeoff principle fundamental to capital markets. Next, I describe various quantitative analyses conducted to estimate the cost of common equity for the proxy group of comparable risk utilities. Finally, I examine flotation costs, which are properly considered in evaluating a fair and reasonable rate of return on equity.

A. Implications of Federal Reserve Policies

Q. WHAT ARE THE IMPLICATIONS OF CURRENT CAPITAL MARKET CONDITIONS IN ESTIMATING A FAIR ROE FOR NMGC?

A. Current capital market conditions continue to be affected by the Federal Reserve's unprecedented monetary policy actions, which were designed to push interest rates to historically and artificially low levels in an effort to stimulate the economy and bolster employment. Since the Great Recession, investors have also had to contend with a heightened level of economic uncertainty. The ongoing potential for renewed turmoil in the capital markets has been seen repeatedly and investors have reacted to such periods of "risk off" behavior by seeking 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 the aftermath of escalating tensions between the U.S. and North Korea during 2017, for example, Morningstar reported that, "U.S. Treasury prices rose on Tuesday, driving yields to their

lowest levels since late 2016 as renewed market fears following a North Korean missile test stoked a flight into assets perceived as havens."[21]

Q. HAS THERE BEEN A FUNDAMENTAL SHIFT IN FEDERAL RESERVE MONETARY POLICIES?

A. No. The Federal Reserve continues to exert considerable influence over capital market conditions through its massive holdings of Treasuries and mortgage-backed securities. Prior to the initiation of the stimulus program in 2009, the Federal Reserve's holdings of U.S. Treasury bonds and notes amounted to approximately $400-$500 billion. With the implementation of its asset purchase program, balances of Treasury securities and mortgage backed instruments climbed steadily, and their effect on capital market conditions became more pronounced. Table 3 below charts the course of the Federal Reserve's asset purchase program:

[21] Mark DeCambre and Anora Mahmudova, "Bond Report: 10-year Treasury Yields Fall Toward Post-election Lows As North Korea Tensions Rise," *MarketWatch*, Morningstar (Aug. 29, 2017).

TABLE 3
FEDERAL RESERVE BALANCES OF
TREASURY BONDS AND MORTGAGE-BACKED SECURITIES
(BILLION $)

2008	$ 458
2009	$ 1,668
2010	$ 1,993
2011	$ 2,501
2012	$ 2,598
2013	$ 3,702
2014	$ 4,211
2015	$ 4,215
2016	$ 4,233
2017*	$ 4,228

* at Dec. 13, 2017.

Source: Factors Affecting Reserve Balances, H.4.1
http://www.federalreserve.gov/releases/h41/

Far from representing a return to normal, the Federal Reserve's holdings of Treasury bonds and mortgage-backed securities continue to exceed $4.2 trillion.

Q. DO THE FEDERAL RESERVE'S RECENT MONETARY POLICY ACTIONS MARK A RETURN TO "NORMAL" IN THE CAPITAL MARKETS?

A. No. The Federal Reserve's long-anticipated moves to increase the federal funds rate represent a modest step towards implementing the process of monetary policy normalization outlined in its September 17, 2014 press release.[22] While the Federal Reserve's actions continue the normalization process that began with its initial 25 basis point rate rise in the federal funds rate in December 2015, these modest and gradual

[22] Press Release, Fed. Reserve, Policy Normalization Principles and Plans (Sept. 17, 2014), http://www.federalreserve.gov/newsevents/press/monetary/20140917c.htm.

moves do not result in a fundamental alteration its accommodative monetary policy. Nor have they removed uncertainty over the trajectory of further interest rate increases or the overhanging implications of the Federal Reserve's enormous holdings of long-term securities.

While affirming its existing policy of reinvesting principal payments from its securities holdings, the Federal Reserve recently announced the initiation of a gradual balance sheet normalization program, subject to caps and an economic outlook in line with current expectations.[23] Considering the unprecedented magnitude of the Federal Reserve's holdings of Treasury bonds and mortgage-backed securities, changes to the Federal Reserve's policy of reinvestment have significant, but unknown implications for investors. A 2015 report from the global investment management firm BlackRock concluded that, "We are in uncharted territory," when it comes to the implications of unwinding the Federal Reserve's balance sheet holdings.[24] The Wall Street Journal observed the potential for "considerable upward pressure on long-term interest rates" if the need to finance higher deficits associated with stimulative fiscal policies coincides with a higher supply of Treasury securities as the Federal Reserve unwinds its balance sheet holdings.[25] More recently, Zacks noted that "the rising interest rate environment could add to the woes of utility operators, as it will increase the cost of capital,

[23] Press Release, Fed. Reserve, Decisions Regarding Monetary Policy Implementation (Sep. 20, 2017), https://www.federalreserve.gov/newsevents/pressreleases/monetary20170920a.htm.
[24] BlackRock, "When the Fed Yields," *BlackRock Investment Institute* (May 2015).
[25] Josh Zumbrun, "Trump's Fiscal Plans, Fed's Asset Unwinding Could Fuel Rate Rise," *The Outlook*, The Wall Street Journal (May 7, 2017).

restraining their ability to pay consistent dividends. . . . The Fed has increased the interest rate three times in the last three quarters, which will raise the cost of capital for the utilities."[26] The Wall Street Journal reported that:

> [M]arket moves suggest that investors are taking the prospect of a more hawkish Fed seriously, and that could affect investors across the market. Long-term yields may push higher as short-term rates rise and the Fed trims the size of its balance sheet. . . . Utilities stocks tend to get hurt by rising interest rates because they pay out high dividends that look less attractive relative to bonds when yields rise. S&P utilities stocks fell 0.9% over two sessions.[27]

Uncertainties over just how the process of normalizing the Federal Reserve's unprecedented monetary policies will affect capital markets further support the consideration of alternatives to DCF analyses and other ROE benchmarks when evaluating a just and reasonable ROE for NMGC.

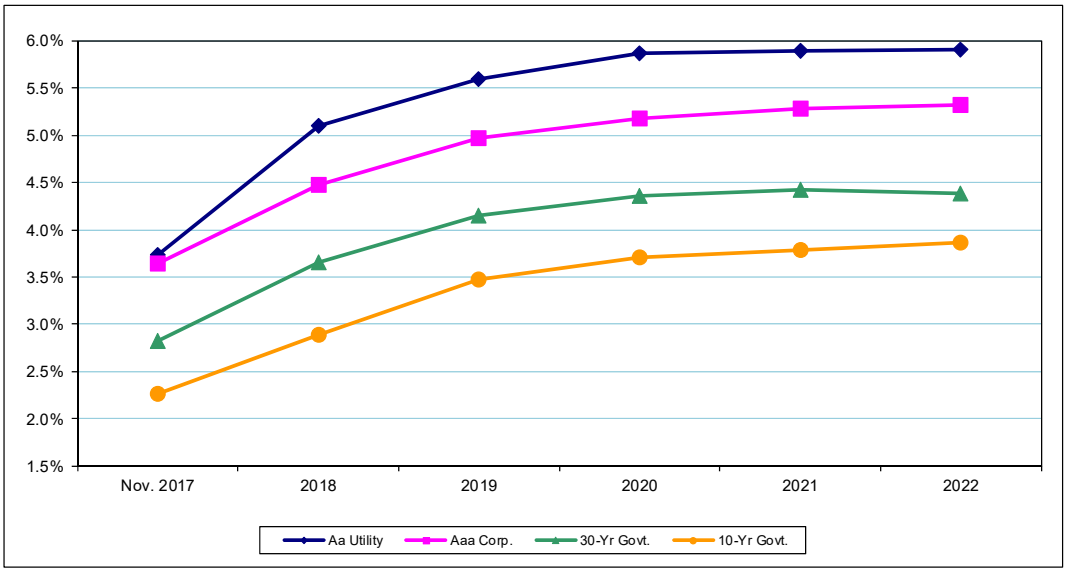
Q. IS THERE EVIDENCE THAT INVESTORS ANTICIPATE SIGNIFICANTLY HIGHER INTEREST RATES IN THE FORESEEABLE FUTURE?

A. Yes. Investors continue to anticipate that interest rates will increase significantly from present levels. With apprehension surrounding future Federal Reserve actions, uncertainties regarding the impact of the Tax Cuts and Jobs Act of 2017 ("TCJA"), future deficits, and world-wide geopolitical exposures, the potential for significant volatility and higher capital costs is clearly evident to investors.

[26] Mark Vickery, "Rising Interest Rates Make Life Tough for Utilities," Zacks Investment Research (Sep. 8, 2017).
[27] Ben Eisen, "Investors Appear Ready to Heed More Hawkish Fed," Wall Street Journal (Sep. 22, 2017).

For example, the December 1, 2017 long-term consensus forecast of economists published in the Blue Chip Financial Forecast ("Blue Chip") anticipates that corporate bond yields will increase approximately 150 basis points between the third quarter of 2017 and 2022.[28] Figure 1 below compares six-month average interest rates on 10-year and 30-year Treasury bonds, triple-A rated corporate bonds, and double-A rated utility bonds as of November 2017 with the respective near-term projections from Value Line, IHS Global Insight, Blue Chip, and the Energy Information Administration ("EIA"), which are sources that are highly regarded and widely referenced:

FIGURE 1
INTEREST RATE TRENDS



Source:

Value Line Investment Survey, Forecast for the U.S. Economy (Dec. 1, 2017)
IHS Global Insight (Aug. 24, 2017)
Energy Information Administration, Annual Energy Outlook 2017 (Jan. 5, 2017)
Wolters Kluwer, Blue Chip Financial Forecasts, Vol. 36, No. 12 (Dec. 1, 2017)

[28] Wolters Kluwer, *Blue Chip Financial Forecast*, Vol. 36, No. 12 (Dec. 1, 2017).

As evidenced above, projections by investment advisors, forecasting services, and government agencies support the general consensus in the investment community that the present artificial low level of long-term interest rates will not be sustained.

Q. APART FROM ITS POTENTIAL TO RESULT IN HIGHER INTEREST RATES THROUGH FISCAL STIMULUS, DOES THE TCJA HAVE A DIRECT IMPACT ON INVESTORS' REQUIRED RETURN ON EQUITY FOR UTILITIES?

A. Income taxes, like other expenses necessary to provide utility service, are one component of the cost of service. The reduction in the corporate tax rate implemented through the TCJA, which is reflected in the revenue requirements requested by NMGC is this case, serves to reduce rates for customers, but it would not be expected to significantly impact the risks and required returns to equity investors. On the other hand, Moody's recently revised its ratings outlook for 25 utilities from "stable" to "negative," due to the potential impact of the TCJA on cash flows and financial integrity.[29] Moody's noted that supportive regulatory actions, in the form of timely cost recovery and constructive determinations regarding capital structure and ROE, would be important to stave off deterioration in credit metrics and potential ratings downgrades.[30] Similarly, S&P Global Ratings ("S&P") observed that "the effect [of the TCJA] on creditworthiness of regulated utilities and their holding companies could be negative."[31] Fitch Ratings Inc. ("Fitch") also highlighted its expectation that the TCJA

[29] Moody's Investors Service, "Moody's changes outlooks on 25 US regulated utilities primarily impacted by tax reform." *Ratings Action* (Jan. 19, 2018).
[30] *Id.*
[31] S&P Global Ratings, "U.S. Tax Reform: For Utilities' Credit Quality, Challenges Abound," *RatingsDirect* (Jan. 24, 2018).

"has negative credit implications for regulated utilities and utility holding companies over the short to medium term," and concluded, "Absent mitigating strategies on the regulatory front, this is expected to lead to weaker credit metrics and negative ratings actions . . .[32]

Q. WHAT DO THESE EVENTS IMPLY WITH RESPECT TO THE ROE FOR NMGC MORE GENERALLY?

A. Current capital market conditions continue to reflect the impact of unprecedented policy measures taken in response to dislocations in the economy and financial markets. As a result, current capital costs are not representative of what is likely to prevail over the near-term future as the Federal Reserve moves to normalize its monetary policies. As a result, the DCF results for utilities may be affected by potentially unrepresentative financial inputs. As FERC concluded:

> [W]e also understand that any DCF analysis may be affected by potentially unrepresentative financial inputs to the DCF formula, including those produced by historically anomalous capital market conditions. Therefore, while the DCF model remains the Commission's preferred approach to determining allowed rate of return, the Commission may consider the extent to which economic anomalies may have affected the reliability of DCF analyses …[33]

This conclusion continues to be supported by comparisons of current conditions to the historical record and independent forecasts. As demonstrated above, recognized

[32] Fitch Ratings Inc., "Tax Reform Impact on the U.S. Utilities, Power & Gas Sector," *Special Report* (Jan. 24, 2018).
[33] Opinion No. 531, 147 FERC ¶ 61,234 at P 41 (2014).

economic forecasting services project that long-term capital costs will increase from present levels.

Thus, while the DCF model is a recognized approach to estimating the ROE, it is not without shortcomings and does not otherwise eliminate the need to ensure that the "end result" is fair. The Indiana Utility Regulatory Commission has recognized this principle:

> There are three principal reasons for our unwillingness to place a great deal of weight on the results of any DCF analysis. One is . . . the failure of the DCF model to conform to reality. The second is the undeniable fact that rarely if ever do two expert witnesses agree on the terms of a DCF equation for the same utility – for example, as we shall see in more detail below, projections of future dividend cash flow and anticipated price appreciation of the stock can vary widely. And, the third reason is that the unadjusted DCF result is almost always well below what any informed financial analysis would regard as defensible, and therefore require an upward adjustment based largely on the expert witness's judgment. In these circumstances, we find it difficult to regard the results of a DCF computation as any more than suggestive.[34]

In this light, it is important to consider investors' expectations for rising interest rates and capital costs, as well as alternatives to the DCF model, in evaluating the ROE for NMGC.

B. Economic Standards

Q. WHAT FUNDAMENTAL ECONOMIC PRINCIPLE UNDERLIES THE COST OF EQUITY CONCEPT?

[34] *Ind. Michigan Power Co.*, Cause No. 38728, 116 PUR4th, 1, 17-18 (IURC 8/24/1990).

A. 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. Because 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 invest and 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) the asset's relative risk, with investors demanding correspondingly larger risk premiums for bearing greater risk.

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

A. Yes. The risk-return tradeoff can be readily documented in segments of the capital markets where required rates of return can be directly inferred 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. Comparing the observed yields on government securities, which are considered free of default risk, to the yields on bonds of various rating categories demonstrates that the risk-return tradeoff does, in fact, exist.

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

A. It is widely 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 directly observed. 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.

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

A. 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. As noted earlier, long-term debt is senior among all capital in its claim on a utility's net revenues and is, therefore, the least risky. The last investors in line are common shareholders: they receive only the net revenues, if any, remaining after all other claimants have been paid. As a result, the rate of return that investors require from a

utility's common stock, the most junior and riskiest of its securities, must be considerably higher than the yield offered by the utility's senior, long-term debt.

Q. DOES THE FACT THAT NMGC IS ULTIMATELY A SUBSIDIARY OF EMERA IN ANY WAY ALTER THESE FUNDAMENTAL STANDARDS UNDERLYING A FAIR AND REASONABLE ROE?

A. No. While the Company has no publicly traded common stock and Emera is NMGC's only shareholder, this does not change the standards governing the determination of a fair ROE for the Company. Ultimately, the common equity that is required to support the utility operations of NMGC must be raised in the capital markets, where investors consider the Company's ability to offer a rate of return that is competitive with other risk-comparable alternatives. NMGC must compete with other investment 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, the Company's financial integrity will be weakened, and investors will demand an even higher rate of return. NMGC's ability to offer a reasonable return on investment is a necessary ingredient in ensuring that customers continue to enjoy economical rates and reliable service.

Q. WHAT DOES THE ABOVE DISCUSSION IMPLY WITH RESPECT TO ESTIMATING THE ROE FOR A UTILITY?

A. Although the ROE 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 not readily observable, the ROE for a particular utility 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.

C. Discounted Cash Flow Analyses

Q. HOW IS THE DCF MODEL USED TO ESTIMATE THE COST OF COMMON EQUITY?

A. DCF models are based on the assumption that the price of a share of common stock is equal to the present value of the expected cash flows (i.e., future dividends and stock price) that will be received while holding the stock, discounted at investors' required rate of return. Rather than developing annual estimates of cash flows into perpetuity, the DCF model can be simplified to a "constant growth" form:[35]

[35] The constant growth DCF model is dependent on a number of strict assumptions, which in practice are never met. These include a constant growth rate for both dividends and earnings; a stable dividend payout ratio; the discount rate exceeds the growth rate; a constant growth rate for book value and price; a constant earned rate of return on book value; no sales of stock at a price above or below book value; a constant price-earnings ratio; a constant discount rate (*i.e.*, no changes in risk or interest rate levels and a flat yield curve); and all of the above extend to infinity. Nevertheless, the DCF method provides a workable and practical approach to estimate investors' required return that is widely referenced in utility ratemaking.

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

where: P_0 = Current price per share;
D_1 = Expected dividend per share in the coming year;
k_e = Cost of equity; and,
g = Investors' long-term growth expectations.

The cost of common equity (k_e) can be isolated by rearranging terms within the equation:

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

This constant growth form of the DCF model recognizes that the rate of return to stockholders consists of two parts: 1) dividend yield (D_1/P_0); and, 2) growth (g). In other words, investors expect to receive a portion of their total return in the form of current dividends and the remainder through price appreciation.

Q. WHAT STEPS ARE REQUIRED TO APPLY THE CONSTANT GROWTH DCF MODEL?

A. The first step in implementing the constant growth DCF model is to determine the expected dividend yield (D_1/P_0) for the firm in question. This is usually calculated based on an estimate of dividends to be paid in the coming year divided by the current price of the stock. The second, and more controversial, step is to estimate investors' long-term growth expectations (g) for the firm. The final step is to add the firm's dividend yield and estimated growth rate to arrive at an estimate of its cost of common equity.

Q. HOW DID YOU DETERMINE THE DIVIDEND YIELD FOR THE GAS GROUP?

A. Estimates of dividends to be paid by each of these utilities over the next twelve months, obtained from Value Line, served as D_1. This annual dividend was then divided by a 30-day average stock price for each utility to arrive at the expected dividend yield. The expected dividends, stock prices, and resulting dividend yields for the firms in the Gas Group are presented on NMGC Exhibit AMM-4. As shown on page 1, dividend yields for the firms in the Gas Group ranged from 1.6% to 3.4% and averaged 2.5%.

Q. WHAT IS THE NEXT STEP IN APPLYING THE CONSTANT GROWTH DCF MODEL?

A. The next step is to evaluate long-term growth expectations, or "*g*", for the firm in question. In constant growth DCF theory, earnings, dividends, book value, and market price are all assumed to grow in lockstep, and the growth horizon of the DCF model is infinite. But implementation of the DCF model is more than just a theoretical exercise; it is an attempt to replicate the mechanism investors used to arrive at observable stock prices. A wide variety of techniques can be used to derive growth rates, but the only "*g*" that matters in applying the DCF model is the value that investors expect.

Q. WHAT ARE INVESTORS MOST LIKELY TO CONSIDER IN DEVELOPING THEIR LONG-TERM GROWTH EXPECTATIONS?

A. Implementation of the DCF model is solely concerned with replicating the forward-looking evaluation of real-world investors. In the case of utilities, dividend growth rates

are not likely to provide a meaningful guide to investors' current growth expectations. This is because utilities have significantly altered their dividend policies in response to more accentuated business risks and capital requirements in the industry, with the payout ratios falling significantly from historical levels. As a result, dividend growth in the utility industry has lagged growth in earnings as utilities conserve financial resources.

A measure that plays a pivotal role in determining investors' long-term growth expectations is future trends in earnings per share ("EPS"), which provide the source for future dividends and ultimately support share prices. The importance of earnings in evaluating investors' expectations and requirements is well accepted in the investment community, and surveys of analytical techniques relied on by professional analysts indicate that growth in earnings is far more influential than trends in dividends per share ("DPS").

The availability of projected EPS growth rates also is key to investors relying on this measure as compared to future trends in DPS. Apart from Value Line, investment advisory services do not generally publish comprehensive DPS growth projections, and this scarcity of dividend growth rates relative to the abundance of earnings forecasts attests to their relative influence. The fact that securities analysts focus on EPS growth, and that DPS growth rates are not routinely published, indicates that projected EPS growth rates are likely to provide a superior indicator of the future long-term growth expected by investors.

Q. DO THE GROWTH RATE PROJECTIONS OF SECURITY ANALYSTS CONSIDER HISTORICAL TRENDS?

A. Yes. Professional security analysts study historical trends extensively in developing their projections of future earnings. Hence, to the extent there is any useful information in historical patterns, that information is incorporated into analysts' growth forecasts.

Q. DID PROFESSOR MYRON J. GORDON, WHO ORIGINATED THE DCF APPROACH, RECOGNIZE THE PIVOTAL ROLE THAT EARNINGS PLAY IN FORMING INVESTORS' EXPECTATIONS?

A. Yes. Dr. Gordon specifically recognized that "it is the growth that investors expect that should be used" in applying the DCF model and he concluded:

> A number of considerations suggest that investors may, in fact, use earnings growth as a measure of expected future growth.[36]

Q. ARE ANALYSTS' ASSESSMENTS OF GROWTH RATES APPROPRIATE FOR ESTIMATING INVESTORS' REQUIRED RETURN USING THE DCF MODEL?

A. Yes. In applying the DCF model to estimate the cost of common equity, the only relevant growth rate is the forward-looking expectations of investors that are captured in current stock prices. Investors, just like securities analysts and others in the investment community, do not know how the future will actually turn out. They can only make investment decisions based on their best estimate of what the future holds in

[36] Myron J. Gordon, "The Cost of Capital to a Public Utility," *MSU Public Utilities Studies* (1974) at 89.

the way of long-term growth for a particular stock, and securities prices are constantly adjusting to reflect their assessment of available information.

Any claims that analysts' estimates are not relied upon by investors are illogical given the reality of a competitive market for investment advice. If financial analysts' forecasts do not add value to investors' decision making, then it is irrational for investors to pay for these estimates. Similarly, those financial analysts who fail to provide reliable forecasts will lose out in competitive markets relative to those analysts whose forecasts investors find more credible. The reality that analyst estimates are routinely referenced in the financial media and in investment advisory publications (*e.g.,* Value Line) implies that investors use them as a basis for their expectations.

While the projections of securities analysts may be proven optimistic or pessimistic in hindsight, this is irrelevant in assessing the expected growth that investors have incorporated into current stock prices, and any bias in analysts' forecasts – whether pessimistic or optimistic – is irrelevant if investors share analysts' views. Earnings growth projections of security analysts provide the most frequently referenced guide to investors' views and are widely accepted in applying the DCF model. As explained in *New Regulatory Finance*:

> Because of the dominance of institutional investors and their influence on individual investors, analysts' forecasts of long-run growth rates provide a sound basis for estimating required returns. Financial analysts exert a strong influence on the expectations of many investors who do not possess the resources to make their own forecasts, that is, they are a cause of g [growth]. <u>The accuracy of these forecasts in the sense of</u>

> whether they turn out to be correct is not an issue here, as long as they reflect widely held expectations.[37]

Q. HAVE REGULATORS ALSO RECOGNIZED THAT ANALYSTS' GROWTH RATE ESTIMATES ARE AN IMPORTANT AND MEANINGFUL GUIDE TO INVESTORS' EXPECTATIONS?

A. Yes. The Kentucky Public Service Commission has indicated its preference for relying on analysts' projections in establishing investors' expectations:

> KU's argument concerning the appropriateness of using investors' expectations in performing a DCF analysis is more persuasive than the AG's argument that analysts' projections should be rejected in favor of historical results. The Commission agrees that analysts' projections of growth will be relatively more compelling in forming investors' forward-looking expectations than relying on historical performance, especially given the current state of the economy.[38]

Similarly, FERC has expressed a clear preference for projected EPS growth rates in applying the DCF model to estimate the cost of equity for both electric and natural gas pipeline utilities:

> Opinion No. 414-A held that the IBES five-year growth forecasts for each company in the proxy group are the best available evidence of the short-term growth rates expected by the investment community. It cited evidence that (1) those forecasts are provided to IBES by professional security analysts, (2) IBES reports the forecast for each firm as a service to investors, and (3) the IBES reports are well known in the investment community and used by investors. The Commission has also rejected the suggestion that the IBES analysts are biased and stated that "in fact the analysts have a significant incentive to make their analyses as accurate as possible to meet the needs of their clients since those investors will not utilize brokerage firms whose analysts repeatedly overstate the growth potential of companies."[39]

[37] Roger A. Morin, "New Regulatory Finance," *Public Utilities Reports, Inc.* (2006) at 298 (emphasis added).
[38] *Kentucky Utilities Co.*, Case No. 2009-00548 (Ky PSC Jul. 30, 2010) at 30-31.
[39] *Kern River Gas Transmission Co.*, 126 FERC ¶ 61,034 at P 121 (2009) (footnote omitted).

The Public Utility Regulatory Authority of Connecticut has also noted that "there is not growth in DPS without growth in EPS," and concluded that securities analysts' growth projections have a greater influence over investors' expectations and stock prices.[40]

Q. WHAT ARE SECURITY ANALYSTS CURRENTLY PROJECTING IN THE WAY OF GROWTH FOR THE FIRMS IN THE GAS GROUP?

A. The earnings growth projections for each of the firms in the Gas Group reported by Value Line, Thomson Reuters ("IBES"), and Zacks Investment Research ("Zacks") are displayed on page 2 of NMGC Exhibit AMM-4.[41]

Q. HOW ELSE ARE INVESTORS' EXPECTATIONS OF FUTURE LONG-TERM GROWTH PROSPECTS OFTEN ESTIMATED WHEN APPLYING THE CONSTANT GROWTH DCF MODEL?

A. In constant growth theory, growth in book equity will be equal to the product of the earnings retention ratio (one minus the dividend payout ratio) and the earned rate of return on book equity. Furthermore, if the earned rate of return and the payout ratio are constant over time, growth in earnings and dividends will be equal to growth in book value. Despite the fact that these conditions are never met in practice, this "sustainable growth" approach may provide a rough guide for evaluating a firm's growth prospects and is frequently proposed in regulatory proceedings.

[40] *Decision*, Docket No. 13-02-20 (Sept. 24, 2013).
[41] Formerly I/B/E/S International, Inc., IBES growth rates are now compiled and published by Thomson Reuters.

The sustainable growth rate is calculated by the formula, g = br+sv, where "b" is the expected retention ratio, "r" is the expected earned return on equity, "s" is the percent of common equity expected to be issued annually as new common stock, and "v" is the equity accretion rate. Under DCF theory, the "sv" factor is a component of the growth rate designed to capture the impact of issuing new common stock at a price above, or below, book value. The sustainable, "br+sv" growth rates for each firm in the Gas Group are summarized on page 2 of NMGC Exhibit AMM-4, with the underlying details being presented in NMGC Exhibit AMM-5.

Q. ARE THERE SIGNIFICANT SHORTCOMINGS ASSOCIATED WITH THE "BR+SV" GROWTH RATE?

A. Yes. First, in order to calculate the sustainable growth rate, it is necessary to develop estimates of investors' expectations for four separate variables; namely, "b", "r", "s", and "v." Given the inherent difficulty in forecasting each parameter and the difficulty of estimating the expectations of investors, the potential for measurement error is significantly increased when using four variables, as opposed to referencing a direct projection for EPS growth. Second, empirical research in the finance literature indicates that sustainable growth rates are not as significantly correlated to measures of value, such as share prices, as are analysts' EPS growth forecasts.[42] The "sustainable growth" approach was included for completeness, but evidence indicates that analysts' forecasts provide a superior and more direct guide to investors' growth expectations.

[42] Roger A. Morin, "New Regulatory Finance," *Public Utilities Reports, Inc.* (2006) at 307.

Accordingly, I give less weight to cost of equity estimates based on br+sv growth rates in evaluating the results of the DCF model.

Q. WHAT COST OF COMMON EQUITY ESTIMATES WERE IMPLIED FOR THE GAS GROUP USING THE DCF MODEL?

A. After combining the dividend yields and respective growth projections for each utility, the resulting cost of common equity estimates are shown on page 3 of NMGC Exhibit AMM-4.

Q. IN EVALUATING THE RESULTS OF THE CONSTANT GROWTH DCF MODEL, IS IT APPROPRIATE TO ELIMINATE ESTIMATES THAT ARE EXTREME LOW OR HIGH OUTLIERS?

A. Yes. In applying quantitative methods to estimate the cost of equity, it is essential that the resulting values pass fundamental tests of reasonableness and economic logic. Accordingly, DCF estimates that are implausibly low or high should be eliminated when evaluating the results of this method.

Q. HOW DID YOU EVALUATE DCF ESTIMATES AT THE LOW END OF THE RANGE?

A. I based my evaluation of DCF estimates at the low end of the range on the fundamental risk-return tradeoff, which holds that investors will only take on more risk if they expect to earn a higher rate of return to compensate them for the greater uncertainly. Because common stocks lack the protections associated with an investment in long-term bonds,

a utility's common stock imposes far greater risks on investors. As a result, the rate of return that investors require from a utility's common stock is considerably higher than the yield offered by senior, long-term debt. Consistent with this principle, DCF results that are not sufficiently higher than the yield available on less risky utility bonds must be eliminated.

Q. HAVE SIMILAR TESTS BEEN APPLIED BY REGULATORS?

A. Yes. FERC has noted that adjustments are justified where applications of the DCF approach produce illogical results. FERC evaluates DCF results against observable yields on long-term public utility debt and has recognized that it is appropriate to eliminate estimates that do not sufficiently exceed this threshold.[43] FERC affirmed that:

> The purpose of the low-end outlier test is to exclude from the proxy group those companies whose ROE estimates are below the average bond yield or are above the average bond yield but are sufficiently low that an investor would consider the stock to yield essentially the same return as debt. In public utility ROE cases, the Commission has used 100 basis points above the cost of debt as an approximation of this threshold, but has also considered the distribution of proxy group companies to inform its decision on which companies are outliers. As the Presiding Judge explained, this is a flexible test.[44]

Q. WHAT INTEREST RATE BENCHMARK DID YOU CONSIDER IN EVALUATING THE DCF RESULTS FOR NMGC?

A. Utility bonds rated "Baa" represent the lowest ratings grade for which Moody's publishes index values, and the closest available approximation for the risks of common

[43] *See, e.g., Southern California Edison Co.,* 131 FERC ¶ 61,020 at P 55 (2010).
[44] Opinion No. 531, 147 FERC ¶ 61,234 at P 122 (2014).

stock, which are significantly greater than those of long-term debt. Monthly yields on Baa utility bonds reported by Moody's averaged approximately 4.26% over the six months ended November 2017.[45]

Q. WHAT ELSE SHOULD BE CONSIDERED IN EVALUATING DCF ESTIMATES AT THE LOW END OF THE RANGE?

A. As indicated earlier, it is generally expected that long-term interest rates will rise as the Federal Reserve normalizes monetary policies. As shown in Table 4 below, forecasts of IHS Global Insight and the EIA imply an average triple-B bond yield of 6.20% over the period 2018-2022:

TABLE 4
IMPLIED TRIPLE-B BOND YIELD

	Baa Yield 2018-22
Projected Aa Utility Yield	
IHS Global Insight (a)	5.79%
EIA (b)	5.56%
Average	5.67%
Current Baa - Aa Yield Spread (c)	0.53%
Implied Baa Utility Yield	**6.20%**

(a) IHS Global Insight (Aug. 24, 2017).
(b) Energy Information Administration, Annual Energy Outlook 2017 (Jan. 5, 2017).
(c) Based on monthly average bond yields from Moody's Investors Service for the six-month period Jun. - Nov. 2017.

[45] Moody's Investors Service, *CreditTrends.*

Q. WHAT DOES THIS TEST OF LOGIC IMPLY WITH RESPECT TO THE DCF RESULTS FOR THE GAS GROUP?

A. Adding a 100 basis-point premium to the historical and projected average utility bond yields implies a threshold to evaluate the reasonableness of low-end values on the order of 5.3% to 7.2%. As highlighted on page 3 of NMGC Exhibit AMM-4, after considering this test and the distribution of individual estimates, I eliminated low-end DCF estimates ranging from 4.5% to 6.8%. Based on my professional experience and the risk-return tradeoff principle that is fundamental to finance, it is inconceivable that investors are not requiring a substantially higher rate of return for holding common stock. As a result, consistent with the threshold established by historical and projected utility bond yields, the values below the threshold provide little guidance as to the returns investors require from utility common stocks and should be excluded.

Q. WHAT ELSE SHOULD BE CONSIDERED IN EVALUATING DCF ESTIMATES AT THE LOW END OF THE RANGE?

A. While FERC has historically relied on a 100 basis point spread over public utility bond yields as a starting place in evaluating low-end values, reference to a static test ignores the implications of current low bond yields. Specifically, the premium that investors demand to bear the higher risks of common stock is not constant. As I demonstrate later in my testimony, equity risk premiums expand when interest rates fall, and vice versa. Given that bond yields have remained uncharacteristically low, this inverse relationship implies a significant increase in the equity risk premium that investors require to accept the higher uncertainties associated with an investment in utility common stocks versus

bonds. As a result, using a fixed premium of 100 basis points over public utility bond yields will vastly understate the threshold for investors' minimum required return on utility stocks.

Q. DO YOU ALSO RECOMMEND EXCLUDING ESTIMATES AT THE HIGH END OF THE RANGE OF DCF RESULTS?

A. While it is just as important to evaluate DCF estimates at the upper end of the range, there is no objective benchmark analogous to the bond yield averages used to eliminate illogical low-end values. In response, FERC has consistently applied a two-pronged test for high-end values based on the magnitude of the cost of equity estimate and its underlying growth rate. As FERC observed:

> The Presiding Judge found that the [utilities'] criteria for screening high-end outliers substantially complies with Commission precedent. . . The Presiding Judge further stated that the Commission's high-end outlier test since 2004 has been to exclude from the proxy group any company whose cost of equity estimate is at or above 17.7 percent and whose growth rate is at or above 13.3 percent.[46]

Based on these principles, I reviewed the DCF results and determined that the ROE estimate for Chesapeake Utilities at 17.9% (including a growth rate of 16.3%) was unreasonably high and should be removed. Beyond this, the upper end of the DCF results for the Gas Group is set by a cost of equity estimate of 13.4%. This cost of equity estimate, and the underlying growth rate, falls well below the threshold tests employed by FERC. Moreover, while a 13.4% cost of equity estimate may exceed the majority of the remaining values, remaining low-end estimates in the 7.0% range are assuredly far

[46] Opinion No. 531, 147 FERC ¶ 61,234 at P 115 (2014) (footnotes omitted).

below investors' required rate of return. Taken together and considered along with the balance of the results, the remaining values provide a reasonable basis on which to frame the range of plausible DCF estimates and evaluate investors' required rate of return.

Q. WHAT ROE ESTIMATES ARE IMPLIED BY YOUR DCF RESULTS FOR THE GAS GROUP?

A. As shown on page 3 of NMGC Exhibit AMM-4 and summarized in Table 5, below, after eliminating illogical values, application of the constant growth DCF model resulted in the following ROE estimates:

TABLE 5
DCF RESULTS – GAS GROUP

	Cost of Equity	
Growth Rate	**Average**	**Midpoint**
Value Line	9.7%	10.0%
IBES	8.9%	8.8%
Zacks	8.8%	10.4%
br + sv	8.6%	10.1%

D. Capital Asset Pricing Model

Q. PLEASE DESCRIBE THE CAPM.

A. The CAPM is a theory of market equilibrium that measures risk using the beta coefficient. Assuming investors are fully diversified, the relevant risk of an individual asset (*e.g.*, common stock) is its volatility relative to the market as a whole, with beta reflecting 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. The CAPM is mathematically expressed as:

$$R_j = R_f + \beta_j(R_m - R_f)$$

where: R_j = required rate of return for stock j;
R_f = risk-free rate;
R_m = expected return on the market portfolio; and,
β_j = beta, or systematic risk, for stock j.

Under the CAPM formula above, a stock's required return is a function of the risk-free rate (R_f), plus a risk premium that is scaled to reflect the relative volatility of a firm's stock price, as measured by beta (β). Like the DCF model, the CAPM is an *ex-ante,* or forward-looking model based on expectations of the future. As a result, in order to produce a meaningful estimate of investors' required rate of return, the CAPM must be applied using estimates that reflect the expectations of actual investors in the market, not with backward-looking, historical data.

Q. WHY IS THE CAPM APPROACH A RELEVANT COMPONENT WHEN EVALUATING THE COST OF EQUITY FOR NMGC?

A. The CAPM approach (which also forms the foundation of the ECAPM) generally is considered to be the most widely referenced method for estimating the cost of equity among academicians and professional practitioners, with the pioneering researchers of this method receiving the Nobel Prize in 1990. Because this is the dominant model for estimating the cost of equity outside the regulatory sphere, the CAPM (and ECAPM) provides important insight into investors' required rate of return for utility stocks, including the Company.

Q. HOW DID YOU APPLY THE CAPM TO ESTIMATE THE ROE?

A. Application of the CAPM to the Gas Group is based on a forward-looking estimate for investors' required rate of return from common stocks presented in NMGC Exhibit AMM-6. In order to capture the expectations of today's investors in current capital markets, the expected market rate of return was estimated by conducting a DCF analysis on the dividend paying firms in the S&P 500.

The dividend yield for each firm was obtained from Zacks, and the growth rate was equal to the average of the earnings growth projections for each firm published by IBES, Zacks, and Value Line, with each firm's dividend yield and growth rate being weighted by its proportionate share of total market value. Based on the weighted average of the projections for the individual firms, current estimates imply an average growth rate over the next five years of 10.2%. Combining this average growth rate with a year-ahead dividend yield of 2.3% results in a current cost of common equity estimate for the market as a whole (R_m) of 12.5%. Subtracting a 2.8% risk-free rate based on the average yield on 30-year Treasury bonds for the six-months ending November 2017 produced a market equity risk premium of 9.7%.

Q. WHAT WAS THE SOURCE OF THE BETA VALUES YOU USED TO APPLY THE CAPM?

A. As indicated earlier in my discussion of risk measures for the Gas Group, I relied on the beta values reported by Value Line, which in my experience is the most widely referenced source for beta in regulatory proceedings.

Q. WHAT ELSE SHOULD BE CONSIDERED IN APPLYING THE CAPM?

A. Financial research indicates that the CAPM does not fully account for observed differences in rates of return attributable to firm size. Accordingly, a modification is required to account for this size effect. As explained by *Morningstar*:

> One of the most remarkable discoveries of modern finance is the finding of a relationship between firm size and return. On average, small companies have higher returns than large ones. . . . The relationship between firm size and return cuts across the entire size spectrum; it is not restricted to the smallest stocks.[47]

According to the CAPM, the expected return on a security should consist of the riskless rate, plus a premium to compensate for the systematic risk of the particular security. The degree of systematic risk is represented by the beta coefficient. The need for the size adjustment arises because differences in investors' required rates of return that are related to firm size are not fully captured by beta. To account for this, researchers have developed size premiums that need to be added to account for the level of a firm's market capitalization in determining the CAPM cost of equity.[48] Accordingly, my CAPM analyses also incorporated an adjustment to recognize the impact of size distinctions, as measured by the market capitalization for the firms in the Gas Group.

[47] Morningstar, *2015 Ibbotson SBBI Classic Yearbook*, at 99.
[48] Originally compiled by Ibbotson Associates and published in their annual yearbook entitled, "Stocks, Bonds, Bills and Inflation," these size premia are now developed by Duff & Phelps and presented in its "Valuation Handbook – Guide to Cost of Capital."

Q. IS THIS SIZE ADJUSTMENT RELATED TO THE RELATIVE SIZE OF NMGC AS COMPARED WITH THE PROXY GROUP?

A. No. This size adjustment is specific to the CAPM and merely corrects for an observed inability of the beta measure to fully reflect the risks perceived by investors for the firms in the Gas Group. As FERC has recognized, "This type of size adjustment is a generally accepted approach to CAPM analyses."[49]

Q. WHAT IS THE IMPLIED ROE FOR THE GAS GROUP USING THE CAPM APPROACH?

A. As shown on page 1 of NMGC Exhibit AMM-6, after adjusting for the impact of firm size, the CAPM approach implied an average ROE of 11.3% and midpoint ROE of 11.0% for the Gas Group.

Q. DID YOU ALSO APPLY THE CAPM USING FORECASTED BOND YIELDS?

A. Yes. As discussed earlier, there is general consensus that interest rates will increase materially as the Federal Reserve normalizes its monetary policies going forward. Accordingly, in addition to the use of current bond yields, I applied the CAPM based on the forecasted long-term Treasury bond yields developed based on projections published by Value Line, IHS Global Insight, and Blue Chip. As shown on page 2 of NMGC Exhibit AMM-6, incorporating a forecasted Treasury bond yield for 2018-2022 implied

[49] Opinion No. 531-B, 150 FERC ¶ 61,165 at P 117 (2015).

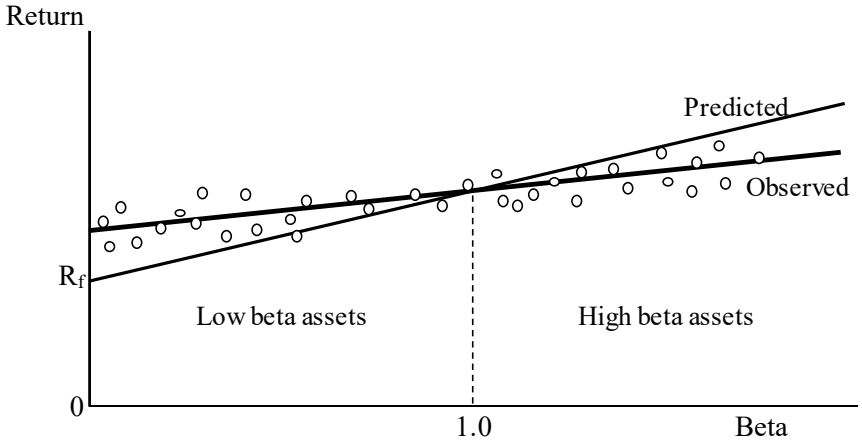
an average and midpoint cost of equity estimate of 11.7% for the Gas Group after adjusting for the impact of relative size.

E. Empirical Capital Asset Pricing Model

Q. HOW DOES THE ECAPM APPROACH DIFFER FROM TRADITIONAL APPLICATIONS OF THE CAPM?

A. Empirical tests of the CAPM have shown that low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn less than predicted. In other words, the CAPM tends to overstate the actual sensitivity of the cost of capital to beta, with low-beta stocks tending to have higher returns and high-beta stocks tending to have lower risk returns than predicted by the CAPM. This is illustrated graphically in the figure below:

FIGURE 2
CAPM – PREDICTED VS. OBSERVED RETURNS



Because the betas of utility stocks, including those in the Gas Group, are generally less than 1.0, this implies that cost of equity estimates based on the traditional CAPM would

understate the cost of equity. This empirical finding is widely reported in the finance literature, as summarized in *New Regulatory Finance*:

> As discussed in the previous section, several finance scholars have developed refined and expanded versions of the standard CAPM by relaxing the constraints imposed on the CAPM, such as dividend yield, size, and skewness effects. These enhanced CAPMs typically produce a risk-return relationship that is flatter than the CAPM prediction in keeping with the actual observed risk-return relationship. The ECAPM makes use of these empirical relationships.[50]

As discussed in *New Regulatory Finance*, based on a review of the empirical evidence, the expected return on a security is related to its risk by the ECAPM, which is represented by the following formula:

$$Rj = Rf + 0.25(Rm - Rf) + 0.75[\beta j(Rm - Rf)]$$

Like the CAPM formula presented earlier, the ECAPM represents a stock's required return as a function of the risk-free rate (R_f), plus a risk premium. In the formula above, this risk premium is composed of two parts: (1) the market risk premium (R_m - R_f) weighted by a factor of 25%, and (2) a company-specific risk premium based on the stocks relative volatility [(β)(R_m - R_f)] weighted by 75%. This ECAPM equation, and its associated weighting factors, recognizes the observed relationship between standard CAPM estimates and the cost of capital documented in the financial research, and corrects for the understated returns that would otherwise be produced for low beta stocks.

[50] Roger A. Morin, "New Regulatory Finance," *Public Utilities Reports* (2006) at 189.

Q. IS THE USE OF THE ECAPM CONSISTENT WITH THE USE OF VALUE LINE BETAS?

A. Yes. Value Line beta values are adjusted for the observed tendency of beta to converge toward the mean value of 1.00 over time.[51] The purpose of this adjustment is to refine beta values determined using historical data to better match forward-looking estimates of beta, which are the relevant parameter in applying the CAPM or ECAPM models. Meanwhile, the ECAPM does not involve any adjustment to beta whatsoever. Rather, it represents a formal recognition of findings in the financial literature that the observed risk-return tradeoff illustrated in Figure 2 is flatter than predicted by the CAPM. In other words, even if a firm's beta value were estimated with perfect precision, the CAPM would still understate the return for low-beta stocks and overstate the return for high-beta stocks. The ECAPM and the use of adjusted betas represent two separate and distinct issues in estimating returns.

Q. HAVE OTHER REGULATORS RELIED ON THE ECAPM?

A. Yes. The ECAPM approach has been relied on by the Staff of the Maryland Public Service Commission. For example, Staff Witness Julie McKenna noted that "the ECAPM model adjusts for the tendency of the CAPM model to underestimate returns for low Beta stocks," and concluded that, "I believe under current economic conditions that the ECAPM gives a more realistic measure of the ROE than the CAPM model

[51] *See, e.g.,* Marshall E. Blume, "Betas and Their Regression Tendencies," *Journal of Finance*, Vo. 30, No. 3 (Jun. 1975), pp. 785-795.

does."[52] The Regulatory Commission of Alaska has also relied on the ECAPM approach, noting that:

> Tesoro averaged the results it obtained from CAPM and ECAPM while at the same time providing empirical testimony that the ECAPM results are more accurate then [sic] traditional CAPM results. The reasonable investor would be aware of these empirical results. Therefore, we adjust Tesoro's recommendation to reflect only the ECAPM result.[53]

The staff of the Colorado Public Utilities Commission has also recognized that, "The ECAPM is an empirical method that attempts to enhance the CAPM analysis by flattening the risk-return relationship,"[54] and relied on the exact same standard ECAPM equation presented above.[55]

Q. WHAT COST OF EQUITY ESTIMATES WERE INDICATED BY THE ECAPM?

A. My applications of the ECAPM were based on the same forward-looking market rate of return, risk-free rates, and beta values discussed earlier in connections with the CAPM. As shown on page 1 of NMGC Exhibit AMM-7, applying the forward-looking ECAPM approach to the firms in the Gas Group results in an average cost of equity estimate of 11.9% after incorporating the size adjustment corresponding to the market capitalization of the individual utilities, with a midpoint of 11.7%. As shown on page 2 of NMGC Exhibit AMM-7, incorporating a forecasted Treasury bond yield for 2018-2022 implied an average ROE of 12.2% for the Gas Group after adjusting for the impact of relative size, with a midpoint of 12.0%.

[52] *Direct Testimony and Exhibits of Julie McKenna*, Maryland PSC Case No. 9299 (Oct. 12, 2012) at 9.
[53] Regulatory Commission of Alaska, Order No. P-97-004(151) (Nov. 27, 2002) at 145.
[54] Proceeding No. 13AL-0067G, *Answer Testimony and Exhibits of Scott England* (July 31, 2013) at 47.
[55] *Id.* at 48.

F. Utility Risk Premium

Q. BRIEFLY DESCRIBE THE RISK PREMIUM METHOD.

A. 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 the DCF model, the risk premium method is capital market oriented. However, unlike DCF models, 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.

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

A. 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 estimating a fair ROE for NMGC.

Q. HOW DID YOU IMPLEMENT THE RISK PREMIUM METHOD?

A. Estimates of equity risk premiums for utilities were based on surveys of previously authorized returns. Authorized returns presumably reflect regulatory commissions' best estimates of the cost of equity, however determined, at the time they issued their final

order. Such commission-allowed equity returns 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, these data provide a logical and frequently referenced basis for estimating equity risk premiums for regulated utilities.

Q. IS IT CIRCULAR TO CONSIDER RISK PREMIUMS BASED ON AUTHORIZED RETURNS IN ASSESSING A FAIR ROE FOR NMGC?

A. No. In establishing authorized returns, regulators typically consider the results of alternative market-based approaches, including the DCF model. Because allowed risk premiums 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.

Q. HOW DID YOU CALCULATE THE EQUITY RISK PREMIUMS BASED ON ALLOWED RETURNS?

A. The equity returns authorized for gas utilities by regulatory commissions across the U.S. are compiled by Regulatory Research Associates and published in its *Regulatory Focus* report. In NMGC Exhibit AMM-8, the average yield on single-A public utility bonds is subtracted from the average allowed return for gas utilities to calculate equity risk premiums for each quarter between 1980 and the third quarter of 2017. As shown on

page 3 of NMGC Exhibit AMM-8, over this period, these equity risk premiums for gas utilities averaged 3.51%, and the yield on single-A public utility bonds averaged 8.16%.

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

A. Yes. The magnitude of equity risk premiums is not constant and 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. The implication of this inverse relationship is that the cost of equity does not move as much as, or in lockstep with, interest rates. Accordingly, for a 1% increase or decrease in interest rates, the cost of equity may only rise or fall some fraction of 1%. Therefore, when implementing the risk premium method, adjustments may be required to incorporate this inverse relationship if current interest rate levels have diverged from the average interest rate level represented in the data set.

Q. HAS THIS INVERSE RELATIONSHIP BEEN DOCUMENTED IN THE FINANCIAL RESEARCH?

A. Yes. There is considerable empirical evidence that when interest rates are relatively high, equity risk premiums narrow, and when interest rates are relatively low, equity risk premiums are greater. This inverse relationship between equity risk premiums and

interest rates has been widely reported in the financial literature.[56] As summarized by *New Regulatory Finance*:

> 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.[57]

Other regulators have also recognized that the cost of equity does not move in tandem with interest rates.[58] This relationship is illustrated in the figure on page 4 of NMGC Exhibit AMM-8.

Q. WHAT ROE IS IMPLIED BY THE RISK PREMIUM METHOD USING SURVEYS OF ALLOWED RETURNS?

A. Based on the regression output between the interest rates and equity risk premiums displayed on page 4 of NMGC Exhibit AMM-8, the equity risk premium for gas utilities increased approximately 47 basis points for each percentage point drop in the yield on average public utility bonds. As illustrated on page 1 of NMGC Exhibit AMM-8, with an average yield on single-A public utility bonds for the six-months ending November 2017 of 3.90%, this implied a current equity risk premium of 5.50% for gas utilities.

[56] *See, e.g.,* E. F. Brigham, D.K. Shome, and S.R. Vinson, "The Risk Premium Approach to Measuring a Utility's Cost of Equity," *Financial Management* (Spring 1985); R.S. Harris, and F.C. Marston, "Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts," *Financial Management* (Summer 1992).
[57] Roger A. Morin, "New Regulatory Finance," Public Utilities Reports, at 128 (2006).
[58] *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).

Adding this equity risk premium to the average yield on triple-B utility bonds implies a current ROE of 9.76%.

Q. WHAT IS THE RESULT OF THE RISK PREMIUM APPROACH AFTER INCORPORATING FORECASTED BOND YIELDS?

A. As shown on page 2 of NMGC Exhibit AMM-8, incorporating a forecasted yield for 2018-2022 and adjusting for changes in interest rates since the study period implied an equity risk premium of 4.60% for gas utilities, which is less than the current equity risk premium. This lower equity risk premium is consistent with the inverse relationship I described above. Adding this equity risk premium to the implied average yield on triple-B public utility bonds for 2018-2022 of 6.20% resulted in an implied cost of equity of 10.80%.

G. Expected Earnings Approach

Q. WHAT OTHER ANALYSES DID YOU CONDUCT TO ESTIMATE THE ROE?

A. As I noted earlier, I also evaluated the ROE using the expected earnings method. 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.

Q. WHAT ECONOMIC PREMISE UNDERLIES THE EXPECTED EARNINGS APPROACH?

A. The simple, but powerful concept underlying the expected earnings approach is that investors compare each investment alternative with the next best opportunity. If the utility 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 utility an opportunity to earn what is available from other similar risk alternatives prevents them from earning their opportunity cost of capital. Such an outcome would violate the *Hope* and *Bluefield* standards and undermine the utility's access to capital on reasonable terms.

Q. HOW IS THE EXPECTED EARNINGS APPROACH TYPICALLY IMPLEMENTED?

A. 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 of the utility. 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 allowed 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 allowed 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, market-to-book ratios, debates over DCF growth rates, or the limitations inherent in any theoretical model of investor behavior.

Q. WHAT RATES OF ROE ARE INDICATED FOR NMGC BASED ON THE EXPECTED EARNINGS APPROACH?

A. For the firms in the Gas Group, the year-end returns on common equity projected by Value Line over its forecast horizon are shown on NMGC Exhibit AMM-9. As I explained earlier in my discussion of the br+sv growth rates used in applying the DCF model, Value Line's returns on common equity are calculated using year-end equity

balances, which understates the average return earned over the year.[59] Accordingly, these year-end values were converted to average returns using the same adjustment factor discussed earlier and developed on NMGC Exhibit AMM-5. As shown on NMGC Exhibit AMM-9, Value Line's projections for the Gas Group suggest an average ROE of 11.0%, with a midpoint value of 11.6%.

H. Flotation Costs

Q. WHAT OTHER CONSIDERATIONS ARE RELEVANT IN SETTING THE ROE FOR A UTILITY?

A. The common equity used to finance the investment in utility 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 utility nets when it issues common equity. While NMGC has no publicly traded stock and does not incur flotation costs directly, equity capital is provided by investors through Emera's sale of common shares. Thus,

[59] For example, to compute the annual return on a passbook savings account with a beginning balance of $1,000 and an ending balance of $5,000, the interest income would be divided by the average balance of $3,000. Using the $5,000 balance at the end of the year would understate the actual return.

these expenses are also relevant when evaluating the fair and reasonable ROE for a wholly-owned subsidiary, such as the Company.

Q. IS THERE AN ESTABLISHED MECHANISM FOR A UTILITY TO RECOGNIZE EQUITY ISSUANCE COSTS?

A. No. While debt flotation costs are recorded on the books of the utility, 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 utility's rate base 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. Unless some provision is made to recognize these issuance costs, a utility's revenue requirements will not fully reflect all of the costs incurred for the use of investors' funds. 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.

Q. IS THERE ACADEMIC EVIDENCE THAT SUPPORTS A FLOTATION COST ADJUSTMENT?

A. The financial literature and evidence in this case provides a sound theoretical and practical basis to include consideration of flotation costs for NMGC. An adjustment for

flotation costs associated with past equity issues is appropriate, even when the utility is not contemplating any new sales of common stock. The need for a flotation cost adjustment to compensate for past equity issues has been recognized in the financial literature. In a Public Utilities Fortnightly article, for example, Brigham, Aberwald, and Gapenski demonstrated that even if no further stock issues are contemplated, a flotation cost adjustment in all future years is required to keep shareholders whole, and that the flotation cost adjustment must consider total equity, including retained earnings.[60] Similarly, New Regulatory Finance contains the following discussion:

> Another controversy is whether the flotation cost allowance should still be applied when the utility is not contemplating an imminent common stock issue. Some argue that flotation costs are real and should be recognized in calculating the fair rate of return on equity, but only at the time when the expenses are incurred. In other words, the flotation cost allowance should not continue indefinitely, but should be made in the year in which the sale of securities occurs, with no need for continuing compensation in future years. This argument implies that the company has already been compensated for these costs and/or the initial contributed capital was obtained freely, devoid of any flotation costs, which is an unlikely assumption, and certainly not applicable to most utilities. … The flotation cost adjustment cannot be strictly forward-looking unless all past flotation costs associated with past issues have been recovered.[61]

[60] E. F. Brigham, D. A. Aberwald, and L. C. Gapenski, "Common Equity Flotation Costs and Rate Making," *Public Utilities Fortnightly,* May, 2, 1985.
[61] Roger A. Morin, "New Regulatory Finance," *Public Utilities Reports, Inc.* (2006) at 335.

Q. CAN YOU ILLUSTRATE WHY INVESTORS WILL NOT HAVE THE OPPORTUNITY TO EARN THEIR REQUIRED ROE UNLESS A FLOTATION COST ADJUSTMENT IS INCLUDED?

A. Yes. Assume a utility sells $10 worth of common stock at the beginning of year 1. If the utility incurs flotation costs of $0.48 (5% of the net proceeds), then only $9.52 is available to invest in rate base. Assume that common shareholders' required rate of return is 10.5%, the expected dividend in year 1 is $0.50 (i.e., a dividend yield of 5%), and that growth is expected to be 5.5% annually. As developed in Table 6 below, if the allowed rate of return on common equity is only equal to the utility's 10.5% "bare bones" cost of equity, common stockholders will not earn their required rate of return on their $10 investment, since growth will really only be 5.25%, instead of 5.5%:

TABLE 6
NO FLOTATION COST ADJUSTMENT

Year	Common Stock	Retained Earnings	Total Equity	Market Price	M/B Ratio	Allowed ROE	EPS	DPS	Payout Ratio
1	$ 9.52	$ -	$ 9.52	$10.00	1.050	10.50%	$ 1.00	$ 0.50	50.0%
2	$ 9.52	$ 0.50	$ 10.02	$10.52	1.050	10.50%	$ 1.05	$ 0.53	50.0%
3	$ 9.52	$ 0.53	$ 10.55	$11.08	1.050	10.50%	$ 1.11	$ 0.55	50.0%
Growth			**5.25%**	**5.25%**			**5.25%**	**5.25%**	

The reason that investors never really earn 10.5% on their investment in the above example is that the $0.48 in flotation costs initially incurred to raise the common stock is not treated like debt issuance costs (*i.e.*, amortized into interest expense and therefore increasing the embedded cost of debt), nor is it included as an asset in rate base.

Including a flotation cost adjustment allows investors to be fully compensated for the impact of these costs. One commonly referenced method for calculating the flotation cost adjustment is to multiply the dividend yield by a flotation cost percentage. Thus, with a 5% dividend yield and a 5% flotation cost percentage, the flotation cost adjustment in the above example would be approximately 25 basis points. As shown in Table 7 below, by allowing a rate of return on common equity of 10.75% (an 10.5% cost of equity plus a 25 basis point flotation cost adjustment), investors earn their 10.5% required rate of return, since actual growth is now equal to 5.5%:

TABLE 7
INCLUDING FLOTATION COST ADJUSTMENT

Year	Common Stock	Retained Earnings	Total Equity	Market Price	M/B Ratio	Allowed ROE	EPS	DPS	Payout Ratio
1	$ 9.52	$ -	$ 9.52	$10.00	1.050	10.75%	$ 1.02	$ 0.50	48.9%
2	$ 9.52	$ 0.52	$ 10.04	$10.55	1.050	10.75%	$ 1.08	$ 0.53	48.9%
3	$ 9.52	$ 0.55	$ 10.60	$11.13	1.050	10.75%	$ 1.14	$ 0.56	48.9%
Growth			**5.50%**	**5.50%**			**5.50%**	**5.50%**	

The only way for investors to be fully compensated for issuance costs is to include an ongoing adjustment to account for past flotation costs when setting the return on common equity. This is the case regardless of whether or not the utility is expected to issue additional shares of common stock in the future.

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

A. 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.[62]

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%.[63] Applying a 3.6% expense percentage to the Gas Group dividend yield of 2.5% implies a minimum flotation cost adjustment on the order of 0.1%. I thus recommend the Commission increase the cost of equity by 10 basis points in arriving at a fair and reasonable ROE for NMGC.

Q. HAVE OTHER REGULATORS RECOGNIZED FLOTATION COSTS IN EVALUATING A FAIR AND REASONABLE ROE?

A. Yes. For example, in Docket No. UE-991606 the Washington Utilities and Transportation Commission concluded that a flotation cost adjustment of 25 basis points should be included in the allowed return on equity:

> The Commission also agrees with both Dr. Avera and Dr. Lurito that a 25 basis point markup for flotation costs should be made. This amount compensates the Company for costs incurred from past issues of common stock. Flotation costs incurred in connection with a sale of common stock are not included in a utility's rate base because the portion of gross proceeds that is used to pay these costs is not available to invest in plant and equipment.[64]

[62] *Id.* at 323.
[63] *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%.
[64] *Third Supplemental Order*, WUTC Docket No. UE-991606, *et al.*, p. 95 (September 2000).

More recently, in Case No. INT-G-16-02 the staff of the Idaho Public Utilities Commission supported the use of the same flotation cost methodology that I recommend above, concluding:

> [I]s the standard equation for flotation cost adjustments and is referred to as the "conventional" approach. Its use in regulatory proceedings is widespread, and the formula is outlined in several corporate finance textbooks.[65]

Similarly, the South Dakota Public Utilities Commission has recognized the impact of issuance costs, concluding that, "recovery of reasonable flotation costs is appropriate."[66] Another example of a regulator that approves common stock issuance costs is the Mississippi Public Service Commission, which routinely includes a flotation cost adjustment in its Rate Stabilization Adjustment Rider formula.[67] The Public Utilities Regulatory Authority of Connecticut[68] and the Minnesota Public Utilities Commission[69] have also recognized that flotation costs are a legitimate expense worthy of consideration in setting a fair and reasonable ROE.

IV. NON-UTILITY BENCHMARK

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. This section presents the results of my DCF analysis applied to a group of low-risk firms in the competitive sector, which I refer to as the "Non-Utility Group." This analysis was not directly considered in arriving at my recommended ROE range of

[65] Case No. INT-G-16-02, *Direct Testimony of Mark Rogers* (Dec. 16, 2016) at 18.
[66] *Northern States Power Co*, EL11-019, Final Decision and Order at P 22 (2012).
[67] *See*, *e.g.*, Entergy Mississippi, Inc., Formula Rate Plan Rider (Apr. 15, 2015), http://www.entergy-mississippi.com/content/price/tariffs/emi_frp.pdf (last visited Mar. 16, 2017).
[68] *See, e.g.*, Docket No. 14-05-06, Decision (Dec. 17, 2014) at 133-134.
[69] *See, e.g.*, Docket No. E001/GR-10-276, Findings of Fact, Conclusions, and Order at 9.

reasonableness; however, it is my opinion that this is a relevant consideration in evaluating a fair and reasonable ROE for the Company.

Q. DO UTILITIES HAVE TO COMPETE WITH NON-REGULATED FIRMS FOR CAPITAL?

A. Yes. The cost of capital is an opportunity cost based on the returns that investors could realize by putting their money in other alternatives. Clearly, the total capital invested in utility stocks is only the tip of the iceberg of total common stock investment, and there are a plethora of other enterprises available to investors beyond those in the utility industry. Utilities must compete for capital, not just against firms in their own industry, but with other investment opportunities of comparable risk. Indeed, modern portfolio theory is built on the assumption that rational investors will hold a diverse portfolio of stocks, not just companies in a single industry.

Q. IS IT CONSISTENT WITH THE *BLUEFIELD* AND *HOPE* CASES TO CONSIDER INVESTORS' REQUIRED ROE FOR NON-UTILITY COMPANIES?

A. Yes. The cost of equity capital in the competitive sector of the economy form the very underpinning for utility ROEs because regulation purports to serve as a substitute for the actions of competitive markets. The Supreme Court has recognized that it is the degree of risk, not the nature of the business, which is relevant in evaluating an allowed ROE for a utility. The *Bluefield* case refers to "business undertakings attended with

comparable risks and uncertainties." It does not restrict consideration to other utilities. Similarly, the *Hope* case states:

> By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks.[70]

As in the *Bluefield* decision, there is nothing to restrict "other enterprises" solely to the utility industry.

Q. DOES CONSIDERATION OF THE RESULTS FOR THE NON-UTILITY GROUP IMPROVE THE RELIABILITY OF DCF RESULTS?

A. Yes. The estimates of growth from the DCF model depend on analysts' forecasts. It is possible for utility growth rates to be distorted by short-term trends in the industry, or by the industry falling into favor or disfavor by analysts. Such distortions could result in biased DCF estimates for utilities. Because the Non-Utility Group includes low risk companies from more than one industry, it helps to insulate against any possible distortion that may be present in results for a particular sector.

Q. WHAT CRITERIA DID YOU APPLY TO DEVELOP THE NON-UTILITY GROUP?

A. My comparable risk proxy group was composed of those United States companies followed by Value Line that:

1) pay common dividends;
2) have a Safety Rank of "1";
3) have a Financial Strength Rating of "A" or greater;

[70] *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 391 (1944).

4) have a beta of 0.75 or less; and
5) have investment grade credit ratings from S&P and Moody's.

Q. HOW DO THE OVERALL RISKS OF THIS NON-UTILITY GROUP COMPARE WITH THE GAS GROUP?

A. Table 8 compares the Non-Utility Group with the Gas Group across the measures of investment risk discussed earlier:

TABLE 8
COMPARISON OF RISK INDICATORS

	Credit Ratings		Value Line		
			Safety	Financial	
Proxy Group	S&P	Moody's	Rank	Strength	Beta
Non-Utility Group	A	A2	1	A+	0.73
Gas Group	A-	A3	2	A	0.73

As shown above, the risk indicators for the Non-Utility Group generally suggest comparable or less risk than for the Gas Group.

The companies that make up the Non-Utility Group are representative of the pinnacle of corporate America. These firms, which include household names such as Coca-Cola, Kellogg, Proctor & Gamble, and Wal-Mart, have long corporate histories, well-established track records, and exceedingly conservative risk profiles. Many of these companies pay dividends on a par with utilities, with the average dividend yield for the group exceeding 3%. Moreover, because of their significance and name recognition, these companies receive intense scrutiny by the investment community, which increases

confidence that published growth estimates are representative of the consensus expectations reflected in common stock prices.

Q. WHAT WERE THE RESULTS OF YOUR DCF ANALYSIS FOR THE NON-UTILITY GROUP?

A. I applied the DCF model to the Non-Utility Group using the same analysts' EPS growth projections described earlier for the Gas Group, The results of my DCF analysis for the Non-Utility Group are presented in NMGC Exhibit AMM-10. As summarized in Table 9, below, after eliminating illogical low-end values, application of the constant growth DCF model resulted in the following cost of equity estimates:

TABLE 9
DCF RESULTS – NON-UTILITY GROUP

	Cost of Equity	
Growth Rate	**Average**	**Midpoint**
Value Line	11.2%	10.9%
IBES	10.5%	11.3%
Zacks	10.2%	11.0%

As discussed earlier, reference to the Non-Utility Group is consistent with established regulatory principles. Required returns for utilities should be in line with those of non-utility firms of comparable risk operating under the constraints of free competition. Because the actual cost of equity is unobservable, and DCF results inherently incorporate a degree of error, cost of equity estimates for the Non-Utility Group provide an important benchmark in evaluating a fair and reasonable ROE for NMGC.

V. RETURN ON EQUITY FOR NMGC

Q. WHAT IS THE PURPOSE OF THIS SECTION?

A. This section presents my conclusions regarding the fair and reasonable ROE applicable to NMGC's gas utility operations, and presents an overview of the relationship between ROE and preservation of a utility's financial integrity and the ability to attract capital under reasonable terms. Finally, I discuss the reasonableness of the Company's capital structure request in this case.

A. Importance of Financial Strength

Q. WHAT IS THE ROLE OF THE ROE IN SETTING A UTILITY'S RATES?

A. Determining the correct ROE for a company is not merely a mechanical, arithmetic exercise; rather, the reasonableness of the end-result is critical to a utility's operations and viability. By definition, the ROE is the cost of attracting and retaining common equity investment in the utility's physical plant and assets. In operation, establishing the proper ROE is one of the key regulatory signals which draws the investment necessary to finance the asset base needed to provide utility service to the customers of the utility. Investors commit capital only if they expect to earn a return on their investment commensurate with returns available from alternative investments with comparable risks. Moreover, a fair and reasonable ROE is integral in meeting sound regulatory economics and the standards set forth by the U.S. Supreme Court in the *Bluefield* and *Hope* cases. A utility's allowed ROE should be sufficient to: 1) fairly compensate the utility's investors, 2) enable the utility to offer a return adequate to attract new capital on reasonable terms, and 3) maintain the utility's financial integrity.

These standards should allow the utility to fulfill its obligation to provide reliable service while meeting the needs of customers through necessary system replacement and expansion, but the Supreme Court's requirements can only be met if the utility has a reasonable opportunity to actually earn its allowed ROE.

While the *Hope* and *Bluefield* decisions did not establish a particular method to be followed in fixing rates, these and subsequent cases enshrined the importance of an end result that meets the opportunity cost standard of finance. Under this doctrine, the required return is established by investors in the capital markets based on expected returns available from comparable risk investments. Coupled with modern financial theory, which has led to the development of formal risk-return models (*e.g.,* DCF and CAPM), practical application of the *Bluefield* and *Hope* standards involves the independent, case-by-case consideration of capital market data in order to evaluate an ROE that will produce a balanced and fair end result for investors and customers.

Q. WHAT PART DOES REGULATION PLAY IN ENSURING THAT NMGC HAS ACCESS TO CAPITAL UNDER REASONABLE TERMS AND ON A SUSTAINABLE BASIS?

A. Regulatory signals are a major driver of investors' risk assessment for utilities. Investors recognize that constructive regulation is a key ingredient in supporting utility credit ratings and financial integrity. Security analysts study commission orders and regulatory policy statements to advise investors about where to put their money. As Moody's noted, "the regulatory environment is the most important driver of our outlook

because it sets the pace for cost recovery."[71] Similarly, S&P observed that, "Regulatory advantage is the most heavily weighted factor when S&P Global Ratings analyzes a regulated utility's business risk profile."[72] Value Line summarizes these sentiments:

> As we often point out, the most important factor in any utility's success, whether it provides electricity, gas, or water, is the regulatory climate in which it operates. Harsh regulatory conditions can make it nearly impossible for the best run utilities to earn a reasonable return on their investment.[73]

Furthermore, the ROE set by state regulatory agencies impacts investor confidence in not only the jurisdictional utility, but also in the ultimate parent company that is the entity that actually issues common stock.

B. Conclusions and Recommendations

Q. WHAT ARE YOUR FINDINGS REGARDING THE FAIR ROE FOR NMGC?

A. Based on the results of my analyses and the economic requirements necessary to support continuous access to capital under reasonable terms, I recommend an ROE of 10.2% for NMGC's gas utility operations. The bases for my conclusion are summarized below:

- In order to reflect the risks and prospects associated with NMGC's gas utility business, my analyses focused on the of nine gas utility firms in the Gas Group.

[71] Moody's Investors Service, "Regulation Will Keep Cash Flow Stable As Major Tax Break Ends," *Industry Outlook* (Feb. 19, 2014).
[72] S&P Global Ratings, "Assessing U.S. Investors-Owned Utility Regulatory Environments," *RatingsExpress* (Aug. 10, 2016).
[73] Value Line Investment Survey, Water Utility Industry (January 13, 2017) at p. 1780.

- Because investors' required return on equity is unobservable and no single method should be viewed in isolation, I applied the DCF, CAPM, ECAPM, and risk premium methods to estimate a fair and reasonable ROE for NMGC, as well as referencing the expected earnings approach.
- As summarized on NMGC Exhibit AMM-2, based on the results of these analyses, and giving less weight to extremes at the high and low ends of the range, I concluded that the cost of equity for a regulated gas utility is in the 9.4% to 10.7% range.
- My evaluation of a fair ROE also incorporated an upward adjustment of 10 basis points to account for flotation costs, which are a legitimate cost incurred to raise equity capital supporting NMGC's investment in utility infrastructure.
- Incorporating this flotation cost adjustment resulted in my recommended ROE range of 9.5% to 10.8%, with a midpoint of 10.2%.

Q. WOULD AN UPWARD ADJUSTMENT TO YOUR RECOMMENDED ROE FOR NMGC BE WARRANTED IF THE COMMISSION ELECTED NOT TO APPROVE THE PROPOSED WEATHER AND IMP MECHANISMS?

A. Yes. In evaluating a fair ROE for the Company's gas utility operations, the Commission should consider the economic reality that NMGC's actual returns have fallen

systematically short of the allowed ROE and that, unlike most gas utilities, NMGC does not currently benefit from regulatory mechanisms that provide for timely recovery of fixed costs as customer usage changes. I conclude that:

- Setting rates at a level that considers the impact of attrition and allows the utility an opportunity to actually earn its authorized ROE is consistent with fundamental regulatory principles.
- To be fair to investors and to benefit customers, a regulated utility must have an opportunity to actually earn a return that will maintain financial integrity, facilitate capital attraction, and compensate for risk.
- The opportunity to actually earn a fair ROE and mitigate exposure to attrition is an important objective, and NMGC's gas utility operations in New Mexico have been chronically unable to earn the authorized rate of return.
- The Company currently operates with a considerably narrower range of regulatory adjustment mechanisms than exist for the utilities in the proxy group, which makes NMGC's gas operations relatively more risky.
- Considering NMGC's greater risks relative to the proxy group, its relative lack of regulatory adjustment mechanisms, and to address the impact of attrition and regulatory lag, an upward adjustment to the cost of equity would be warranted.

Q. IF NMGC'S PROPOSED WEATHER AND IMP MECHANISMS ARE NOT APPROVED, WHAT ADJUSTMENT DO YOU RECOMMEND TO ACCOUNT FOR THESE FACTORS?

A. In order to account for NMGC's greater relative risks, its lack of comparable regulatory mechanisms, and the Company's ongoing exposure to attrition and regulatory lag, I recommend an upward adjustment of 20 basis points to the Gas Group results. In arriving at this adjustment, I referenced the observable risk premiums implied by utility bond yields, with yield spreads between bonds rated Baa and A currently amounting to approximately 35 basis points. In addition, prior to the widespread approval of decoupling mechanisms, some regulators concluded that implementing decoupling translated into reduced risk and warranted a lower ROE, with adjustments ranging from 10 to 50 basis points.[74] The corollary would hold that NMGC's lack of comparable regulatory mechanisms relative to the Gas Group would warrant a similar upward adjustment to the ROE. Considering these factors, and the need to recognize the Company's past inability to actually earn its allowed ROE, I recommend a conservative adjustment of 30 basis points be added to the 10.2% midpoint for the Gas Group. Accordingly, should the Commission elect not to approve the Weather and IMP Mechanisms, I recommend an ROE for NMGC of 10.50%.

Q. WHAT ELSE SHOULD BE CONSIDERED IN WEIGHING YOUR QUANTITATIVE RESULTS?

[74] Pamela Morgan, "A Decade of Decoupling for US Energy Utilities: Rate Impacts, Designs, and Observations," *Graceful Systems, LLC* (March 2013) at 14.

A. As noted earlier, current capital market conditions continue to reflect the impact of the Federal Reserve's unprecedented monetary policy measures taken in response to dislocations in the economy and financial markets stemming from the Great Recession, and are not representative of what is likely to prevail over the near-term future. As a result, the DCF results for utilities may be affected by potentially unrepresentative financial inputs. In this light, it is important to consider alternatives to the DCF model. As shown in NMGC Exhibit AMM-2, alternative risk premium models (*i.e.,* the CAPM, ECAPM and utility risk premium approaches) produce ROE estimates that generally exceed the DCF results. My expected earnings approach corroborated these outcomes.[75]

Q. ARE THERE OTHER FACTORS THAT SHOULD BE CONSIDERED IN ASSESSING THE REASONABLENESS OF YOUR RECOMMENDED ROE FOR NMGC?

A. Yes. Apart from the results of the quantitative methods summarized above, it is crucial to recognize the importance of supporting NMGC's financial position so that the Company can attract necessary capital for system investment and can respond to unforeseen events that may materialize in the future. In addition, widespread expectations for higher interest rates emphasize the need to consider the impact of projected bond yields in evaluating the results of quantitative methods.

[75] In Opinion No. 551, issued September 28, 2016, FERC reiterated its support for several of the very same methodologies relied on in my testimony because of concerns that the DCF model was producing results that were insufficient to meet the *Hope* and *Bluefield* requirements. Opinion No. 551, 156 FERC ¶ 61,234 at P 119 (2016).

Q. WHAT DID THE DCF RESULTS FOR YOUR SELECT GROUP OF NON-UTILITY FIRMS INDICATE WITH RESPECT TO YOUR EVALUATION?

A. As shown on NMGC Exhibit AMM-10, page 3, average DCF estimates for a low-risk group of firms in the competitive sector of the economy ranged from 10.2% to 11.2%, and averaged 10.6% before consideration of flotation costs. While I did not base my recommendation directly on these results, they confirm that ROEs of 10.2% and 10.4% fall in a reasonable range to maintain NMGC's financial integrity, provide a return commensurate with investments of comparable risk, and support the Company's ability to attract capital.

C. Capital Structure

Q. WHAT IS THE ROLE OF CAPITAL STRUCTURE IN SETTING A UTILITY'S RATE OF RETURN?

A. Capital structure reflects the mix of capital – debt, preferred securities, and common equity – used to finance a utility's assets. The proportions of the total capitalization attributable to each source of capital are typically used to weight the costs of investor-supplied capital in calculating an overall rate of return.

Q. WHY DOES THIS WEIGHTING MATTER?

A. The capital structure ratios determine how much weight is given to a particular source of capital. Because the costs of debt and preferred securities and the rate of return on common equity are not the same, this affects the weighted average cost, or overall rate of return, of all sources of capital.

Q. HOW DO COMPANIES DETERMINE AN APPROPRIATE CAPITAL STRUCTURE FOR THEIR OPERATIONS?

A. There are many considerations in the capital structure decision. In general, the goal is to employ the mix of capital that minimizes the weighted average cost of capital. Given the interplay between costs of debt and equity, the impact of taxes, bankruptcy costs, and the level of business risks, determining a firm's optimal capital structure is an imprecise exercise. In practice, capital structure decisions must be made by combining managements' judgment, numerical analysis, and considering investors' risk perceptions.

It is generally accepted that the norms established by comparable firms provide a valid benchmark to evaluate a reasonable capital structure for a utility. The capital structure maintained by other utilities 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.

Q. WHAT COMMON EQUITY RATIO IS IMPLICIT IN NMGC'S CAPITAL STRUCTURE?

A. NMGC's capital structure is presented in the testimony of NMGC Witness Hastings. As summarized in his testimony, the proposed common equity ratio used to compute the Company's overall rate of return is 54.0% in this filing.

Q. WHAT CAPITAL STRUCTURE RATIOS ARE MAINTAINED BY OTHER GAS UTILITIES?

A. Page 1 of NMGC Exhibit AMM-11 presents the sources of long-term capital (long-term debt and common equity) used by the publicly traded firms in the group of natural gas utilities used to estimate the cost of equity. As shown there, over the last four quarters the average common equity ratios for the Gas Group ranged from 52.7% to 55.8%, with the average being 54.3%.

Q. HOW DO THESE HISTORICAL CAPITALIZATION RATIOS COMPARE WITH INVESTORS' FORWARD-LOOKING EXPECTATIONS?

A. As shown on page 2 of NMGC Exhibit AMM-11, Value Line expects an average common equity ratio of 55.1% for the Gas Group over its three-to-five year forecast horizon.

Q. WHAT OTHER FACTORS DO INVESTORS CONSIDER IN THEIR ASSESSMENT OF A COMPANY'S CAPITAL STRUCTURE?

A. Utilities, including NMGC, are facing significant capital investment plans. Coupled with the potential for turmoil in capital markets, this warrants a stronger balance sheet to deal with an uncertain environment. A conservative financial profile, in the form of a reasonable common equity ratio, is consistent with the need to accommodate these uncertainties and maintain the continuous access to capital under reasonable terms that is required to fund operations and necessary system investment, even during times of adverse capital market conditions.

Q. WHAT DOES THIS EVIDENCE SUGGEST WITH RESPECT TO NMGC'S PROPOSED CAPITAL STRUCTURE?

A. NMGC's ratemaking capital structure is consistent with the range of industry benchmarks reflected in the average capital structure ratios maintained by the Gas Group over the last four quarters. The 54.0% common equity ratio employed by the Company reflects the need to address the funding of ongoing capital expenditures, and support NMGC's financial integrity and access to capital on reasonable terms, and on a sustainable basis. This mix of external financing is conservative in light of investors' future expectations for the Gas Group and represents a reasonable mix of capital sources from which to calculate the NMGC's overall rate of return.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

NMGCO#3632375

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF NEW MEXICO GAS COMPANY, INC. FOR APPROVAL OF REVISIONS TO ITS RATES, RULES, AND CHARGES PURSUANT TO ADVICE NOTICE NOS. 70 AND 71	)	**Case No. 18-_____-UT**
NEW MEXICO GAS COMPANY, INC.	)	
Applicant.	)	

AFFIDAVIT OF ADRIEN M. McKENZIE, CFA

STATE OF TEXAS)
) ss.
COUNTY OF TRAVIS)

ADRIEN M. McKENZIE, CFA, Consultant for New Mexico Gas Company, Inc., upon being duly sworn according to law, under oath, deposes and states: I have read the foregoing Direct Testimony and Exhibits and they are true and accurate based on my own personal knowledge and belief.

SIGNED this 7th day of February, 2018.

ADRIEN M. McKENZIE, CFA

SUBSCRIBED AND SWORN to before me this 7th day of February, 2018.

Notary Public

My commission expires:

09/04/2020

AJAY KUMAR GUPTA
NOTARY PUBLIC
STATE OF TEXAS
MY COMM. EXP. 09/04/2020
NOTARY ID 12911294-9