BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

IN THE MATTER OF THE APPLICATION	)	
OF ATMOS ENERGY CORPORATION	)	Docket No.
FOR REVIEW AND ADJUSTMENT OF ITS	)	19-ATMG-525-RTS
NATURAL GAS RATES	)	

DIRECT TESTIMONY OF DYLAN W. D'ASCENDIS, CRRA, CVA

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I. INTRODUCTION

A. Witness Identification

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Dylan W. D'Ascendis. My business address is 3000 Atrium Way, Suite 241, Mount Laurel, NJ 08054.

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

A. I am a Director at ScottMadden, Inc.

B. Background and Qualifications

Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE AND EDUCATIONAL BACKGROUND.

A. I offer expert testimony on behalf of investor-owned utilities on rate of return issues and class cost of service issues. I also assist in preparing rate filings, including, but not limited to, revenue requirements and original cost and lead/lag studies. I am a graduate of the University of Pennsylvania, where I received a Bachelor of Arts degree in Economic History. I also hold a Masters of Business Administration from Rutgers University with a concentration in Finance and International Business, which was conferred with high honors. I am a Certified Rate of Return Analyst ("CRRA") and a Certified Valuation Analyst ("CVA"). My full professional qualifications are provided in Appendix A.

II. PURPOSE OF TESTIMONY

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

A. The purpose of my testimony is to present evidence on behalf of Atmos Energy Corporation ("Atmos Energy" or the "Company") and recommend an allowed weighted average cost of capital ("WACC") for its Kansas jurisdictional rate base.

Q. HAVE YOU PREPARED AN EXHIBIT IN SUPPORT OF YOUR RECOMMENDATION?

A. Yes. I have prepared Exhibit No. DWD-1, which consists of Schedules DWD-1 through DWD-9.

Q. WHAT IS YOUR RECOMMENDED WACC FOR ATMOS ENERGY?

A. I recommend that the Kansas Corporation Commission (the "Commission") authorize Atmos Energy the opportunity to earn a WACC of 7.98% on its jurisdictional rate base. My recommended WACC is calculated using Atmos Energy's actual capital structure at March 31, 2019, which consisted of 39.88% long-term debt at an embedded long-term debt cost rate of 4.57% and 60.12% common equity at my recommended return on common equity ("ROE") of 10.25% as shown on page 1 of Schedule DWD-1 and in Table 1, below.

Table 1: Summary of Recommended Weighted Average Cost of Capital

Type of Capital	Ratios	Cost Rate	Weighted Cost Rate
Long-Term Debt	39.88%	4.57%	1.82%
Common Equity	60.12%	10.25%	6.16%
Total	100.00%		7.98%

III. SUMMARY

Q. PLEASE SUMMARIZE YOUR RECOMMENDED COMMON EQUITY COST RATE.

A. My recommended common equity cost rate of 10.25% is summarized on page 2 of Schedule DWD-1. I have assessed the market-based common equity cost rates of companies of relatively similar, but not necessarily identical, risk to Atmos Energy. Using companies of relatively comparable risk as proxies is consistent with the principles of fair rate of return established in the *Hope*[1] and *Bluefield*[2] decisions. No proxy group can be identical in risk to any single company. Consequently, there must be an evaluation of relative risk between the company and the proxy group to determine if it is appropriate to adjust the proxy group's indicated rate of return.

My recommendation results from applying several cost of common equity models, specifically the Discounted Cash Flow ("DCF") model, the Risk Premium Model ("RPM"), and the Capital Asset Pricing Model ("CAPM"), to the market data of a proxy group of six natural gas distribution utilities ("Utility Proxy Group") whose selection criteria will be discussed below. In addition, I applied the DCF model, RPM, and CAPM to a proxy group of sixteen domestic, non-price regulated companies comparable in total risk to the Utility Proxy Group ("Non-Price Regulated Proxy Group"). The results derived from each are as follows:

[1] *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).
[2] *Bluefield Water Works Improvement Co. v. Public Serv. Comm'n*, 262 U.S. 679 (1922).

Table 2: Summary of Common Equity Cost Rates

Discounted Cash Flow Model	8.92%
Risk Premium Model	9.94%
Capital Asset Pricing Model	9.67%
Cost of Equity Models Applied to Comparable Risk, Non-Price Regulated Companies	10.59%
Indicated Cost of Common Equity Before Adjustments	9.80%
Size Adjustment	0.40%
Flotation Cost Adjustment	0.04%
Indicated Cost of Common Equity after Adjustment	10.24%
Recommended Cost of Common Equity	10.25%

The indicated common equity cost rate across these models was 9.80% before any company-specific adjustments. I then adjusted the indicated common equity cost rate upward by 0.40% to reflect the Company's Kansas operation's smaller relative size, as compared to the Utility Proxy Group companies, and by 0.04% for flotation costs. These adjustments resulted in a Company-specific indicated common equity cost rate of 10.24%, when rounded to 10.25% is my recommendation.

IV. GENERAL PRINCIPLES

Q. WHAT GENERAL PRINCIPLES HAVE YOU CONSIDERED IN ARRIVING AT YOUR RECOMMENDED COMMON EQUITY COST RATE OF 10.25%?

A. In unregulated industries, marketplace competition is the principal determinant of the price of products or services. For regulated public utilities, regulation must act

as a substitute for marketplace competition. Assuring that the utility can fulfill its obligations to the public, while providing safe and reliable service at all times, requires a level of earnings sufficient to maintain the integrity of presently invested capital. Sufficient earnings also permit the attraction of needed new capital at a reasonable cost, for which the utility must compete with other firms of comparable risk, consistent with the fair rate of return standards established by the U.S. Supreme Court in the previously cited *Hope* and *Bluefield* cases. Consequently, marketplace data must be relied on in assessing a common equity cost rate appropriate for ratemaking purposes. Just as the use of the market data for the Utility Proxy Group adds reliability to the necessary informed expert judgment used in arriving at a recommended common equity cost rate, the use of multiple generally accepted common equity cost rate models also adds reliability and accuracy when arriving at a recommended common equity cost rate.

A. Business Risk

Q. PLEASE DEFINE BUSINESS RISK AND EXPLAIN WHY IT IS IMPORTANT FOR DETERMINING A FAIR RATE OF RETURN.

A. The investor-required return on common equity reflects investors' assessment of the total investment risk of the subject firm. Total investment risk is often discussed in the context of business and financial risk.

Business risk reflects the uncertainty associated with owning a company's common stock without the company's use of debt and/or preferred stock financing. One way of considering the distinction between business and financial risk is to

view the former as the uncertainty of the expected earned return on common equity, assuming the firm is financed with no debt.

Examples of business risks generally faced by utilities include, but are not limited to, the regulatory environment, mandatory environmental compliance requirements, customer mix and concentration of customers, service territory economic growth, market demand, risks and uncertainties of supply, operations, capital intensity, size, the degree of operating leverage, and the like, all of which have a direct bearing on earnings. Although analysts, including rating agencies, may categorize business risks individually, as a practical matter, such risks are interrelated and not wholly distinct from one another. Therefore, it is difficult to specifically and numerically quantify the effect of any individual risk on investors' required return, *i.e.*, the cost of capital. For determining an appropriate return on common equity, the relevant issue is where investors see the subject company as falling within a spectrum of risk. To the extent investors view a company as being exposed to high risk, the required return will increase, and vice versa.

For regulated utilities, business risks are both long-term and near-term in nature. Whereas near-term business risks are reflected in year-to-year variability in earnings and cash flow brought about by economic or regulatory factors, long-term business risks reflect the prospect of an impaired ability of investors to obtain both a fair rate of return on, and return of, their capital. Moreover, because utilities accept the obligation to provide safe, adequate and reliable service at all times (in exchange for a reasonable opportunity to earn a fair return on their investment), they generally do not have the option to delay, defer, or reject capital investments.

Because those investments are capital-intensive, utilities generally do not have the option to avoid raising external funds during periods of capital market distress, if necessary.

Because utilities invest in long-lived assets, long-term business risks are of paramount concern to equity investors. That is, the risk of not recovering the return on their investment extends far into the future. The timing and nature of events that may lead to losses, however, also are uncertain and, consequently, those risks and their implications for the required return on equity tend to be difficult to quantify. Regulatory commissions (like investors who commit their capital) must review a variety of quantitative and qualitative data and apply their reasoned judgment to determine how long-term risks weigh in their assessment of the market-required return on common equity.

B. Financial Risk

Q. PLEASE DEFINE FINANCIAL RISK AND EXPLAIN WHY IT IS IMPORTANT IN DETERMINING A FAIR RATE OF RETURN.

A. Financial risk is the additional risk created by the introduction of debt and preferred stock into the capital structure. The higher the proportion of debt and preferred stock in the capital structure, the higher the financial risk to common equity owners (*i.e.,* failure to receive dividends due to default or other covenants). Therefore, consistent with the basic financial principle of risk and return, common equity investors demand higher returns as compensation for bearing higher financial risk.

Q. CAN BOND AND CREDIT RATINGS BE A PROXY FOR A FIRM'S COMBINED BUSINESS AND FINANCIAL RISKS TO EQUITY OWNERS (*I.E.*, INVESTMENT RISK)?

A. Yes, similar bond ratings/issuer credit ratings reflect, and are representative of, similar combined business and financial risks (*i.e.*, total risk) faced by bond investors.[3] Although specific business or financial risks may differ between companies, the same bond/credit rating indicates that the combined risks are roughly similar from a debtholder perspective. The caveat is that these debtholder risk measures do not translate directly to risks for common equity.

Q. DO RATING AGENCIES ACCOUNT FOR COMPANY SIZE IN THEIR BOND RATINGS?

A. No. Neither Standard & Poor's ("S&P") nor Moody's have minimum company size requirements for any given rating level. This means, all else equal, a relative size analysis must be conducted for equity investments in companies with similar bond ratings.

V. ATMOS ENERGY'S KANSAS OPERATIONS AND THE UTILITY PROXY GROUP

Q. ARE YOU FAMILIAR WITH THE KANSAS OPERATIONS OF ATMOS ENERGY?

A. Yes. Atmos Energy's Kansas operations serve approximately 135,820 customer meters in Kansas.[4] Atmos Energy's Kansas operations are not publicly-traded as

[3] Risk distinctions within S&P's bond rating categories are recognized by a plus or minus, e.g., within the A category, an S&P rating can by at A+, A, or A-. Similarly, risk distinction for Moody's ratings are distinguished by numerical rating gradations, e.g., within the A category, a Moody's rating can be A1, A2 and A3.

[4] Atmos Energy Corporation, 2018 SEC Form 10-K, at 5.

they comprise an operating division of Atmos Energy, which operates in eight states[5] and serves 3,256,336 customer meters[6] and is publicly-traded under symbol ATO.

Q. PLEASE EXPLAIN HOW YOU CHOSE THE COMPANIES IN THE UTILITY PROXY GROUP.

A. The companies selected for the Utility Proxy Group met the following criteria:

(i) They were included in the Natural Gas Utility Group of *Value Line's Standard Edition* (March 1, 2019);

(ii) They have 60% or greater of fiscal year 2018 total operating income derived from, and 60% or greater of fiscal year 2018 total assets attributable to, regulated gas distribution operations;

(iii) At the time of preparation of this testimony, they had not publicly announced that they were involved in any major merger or acquisition activity (*i.e.*, one publicly-traded utility merging with or acquiring another);

(iv) They have not cut or omitted their common dividends during the five years ended 2018 or through the time of preparation of this testimony;

(v) They have *Value Line* and Bloomberg Professional Services ("Bloomberg") adjusted betas;

(vi) They have positive *Value Line* five-year dividends per share ("DPS") growth rate projections; and

(vii) They have *Value Line*, Zacks, or Yahoo! Finance consensus five-year earnings per share ("EPS") growth rate projections.

The following six companies met these criteria: Atmos Energy Corporation, Northwest Natural Gas Company, One Gas, Inc., South Jersey Industries, Inc., Southwest Gas Holdings, Inc., and Spire, Inc.

[5] *Ibid.,* In addition to Kansas, Atmos Energy also serves customers in Colorado, Kentucky, Louisiana, Mississippi, Tennessee, Texas, and Virginia.
[6] *Ibid.*

Q. PLEASE DESCRIBE SCHEDULE DWD-2, PAGE 1.

A. Page 1 of Schedule DWD-2 contains comparative capitalization and financial statistics for the Utility Proxy Group identified above for the years 2014 to 2018.

During the five-year period ending 2018, the historically achieved average earnings rate on book common equity for the group averaged 8.05%. Total debt to earnings before interest, taxes, depreciation, and amortization ("EBITDA") for the years 2014 to 2018 ranged between 3.85 and 5.98, with an average of 4.68. Funds from operations to total debt ranged from 16.60% to 25.43%, with an average of 21.13%.

VI. CAPITAL STRUCTURE AND LONG-TERM DEBT COST RATE

Q. WHAT CAPITAL STRUCTURE RATIOS DO YOU RECOMMEND BE EMPLOYED IN DEVELOPING AN OVERALL FAIR RATE OF RETURN APPROPRIATE FOR THE COMPANY?

A. In this instance, I recommend the use of the Company's actual capital structure consisting of 39.88% long-term debt and 60.12% common equity as of March 31, 2019.

Q. WHAT ARE THE TYPICAL SOURCES OF CAPITAL COMMONLY CONSIDERED IN ESTABLISHING A UTILITY'S CAPITAL STRUCTURE?

A. Common equity and long-term debt are commonly considered in establishing a utility's capital structure because they are the typical sources of capital financing a utility's rate base.

Q. PLEASE EXPLAIN.

A. Long-lived assets are typically financed with long-lived securities, so that the overall term structure of the utility's long-term liabilities (both debt and equity) closely match the life of the assets being financed. As stated by Brigham and Houston:

> In practice, firms don't finance each specific asset with a type of capital that has a maturity equal to the asset's life. However, academic studies do show that most firms tend to finance short-term assets from short-term sources and long-term assets from long-term sources.[7]

Whereas short-term debt has a maturity of one year or less, long-term debt may have maturities of 30 years or longer. Although there are practical financing constraints, such as the need to "stagger" long-term debt maturities, the general objective is to extend the average life of long-term debt. Still, long-term debt has a finite life, which is likely to be less than the life of the assets included in rate base. Common equity, on the other hand, is outstanding into perpetuity. Thus, common equity more accurately matches the life of the going concern of the utility, which is also assumed to operate in perpetuity. Consequently, it is both typical and important for utilities to have significant proportions of common equity in their capital structures.

[7] Brigham, Eugene F. and Joel F. Houston, Fundamentals of Financial Management, Concise 4th Ed., Thomson South-Western, 2004, at 574.

Q. WHY IS IT IMPORTANT THAT ATMOS ENERGY'S ACTUAL CAPITAL STRUCTURE, CONSISTING OF 39.88% LONG-TERM DEBT AND 60.12% COMMON EQUITY, BE AUTHORIZED IN THIS PROCEEDING?

A. In order to provide safe, reliable, and affordable service to its customers, Atmos Energy must meet the needs and serve the interests of its various stakeholders, including customers, shareholders, and bondholders. The interests of these stakeholder groups are aligned with maintaining a healthy balance sheet, strong credit ratings, and a supportive regulatory environment, so that the Company has access to capital on reasonable terms in order to make necessary investments.

Safe and reliable service cannot be maintained at a reasonable cost if utilities do not have the financial flexibility and strength to access competitive financing markets on reasonable terms. The authorization of a capital structure that understates the Company's actual common equity will weaken the financial condition of the Kansas operations and adversely impact the Company's ability to address expenses and investment, to the detriment of customers and shareholders. Safe and reliable service for customers cannot be sustained over the long term if the interests of shareholders and bondholders are minimized such that the public interest is not optimized.

Q. ARE THERE EXAMPLES OF WHY STRONG CREDIT METRICS ARE BENEFICIAL FOR UTILITIES?

A. Yes. On January 19, 2018, Moody's Investors Service ("Moody's") revised downward its outlooks of 25 US regulated utilities due to the passage of the Tax Cuts and Jobs Act ("TCJA"). Atmos Energy was not one of those 25 utilities,

primarily due to the Company's strong credit metrics. Moody's states the following regarding utilities' reaction to tax reform:

> Moody's expects that most utilities will attempt to manage any negative financial implications of tax reform through regulatory channels. Corporate financial policies could also change. The actions taken by utilities will be incorporated into the credit analysis on a prospective basis. As a result, it is conceivable that some companies will sufficiently defend their credit profiles. For these companies, it is possible for the outlook to return to stable.
>
> Potential regulatory offsets to tax-related cash leakage could include: accelerated cost recovery of certain regulatory assets or future investment; changes to the equity layer or allowed ROEs in rates, and other actions. Changes to corporate financial policies could include changes to capitalization, the financing of future investments, dividend growth, or others. Some of these corporate measures could have a more immediate boost to projected metrics than certain regulatory provisions, which may take time to approve and implement.[8]

Q. HAS THE TCJA AFFECTED THE WAY UTILITIES ACCESS CAPITAL?

A. Yes, it has. A recent article by Joshua Franklin[9] describes that utilities are selling new stock to cover the short fall in cash flow caused by the TCJA. The article goes on below:

> The need to issue equity highlights how tax reform, viewed by many as a giveaway to corporate America, has come at a price for certain utility companies, diluting the holdings of some shareholders and delivering a hit to credit positions.
>
> ***
>
> The tax bill, enacted in December, tightened the pace at which some firms can write down past investments. State governments meanwhile responded to the bill by ordering utilities to pass on the tax cuts to customers.
>
> ***

[8] Moody's Investors Service, Rating Action: Moody's changes outlooks on 25 US regulated utilities primarily impacted by tax reform, Global Credit Research, January 19, 2018.

[9] Joshua Franklin, "Tax Reform Reenergizes Equity Markets for Utility Companies", Reuters, 6/12/2018.

> Both resulted in less cash on hand for some companies to pay for new projects to replace aging infrastructure, industry experts said.[10]

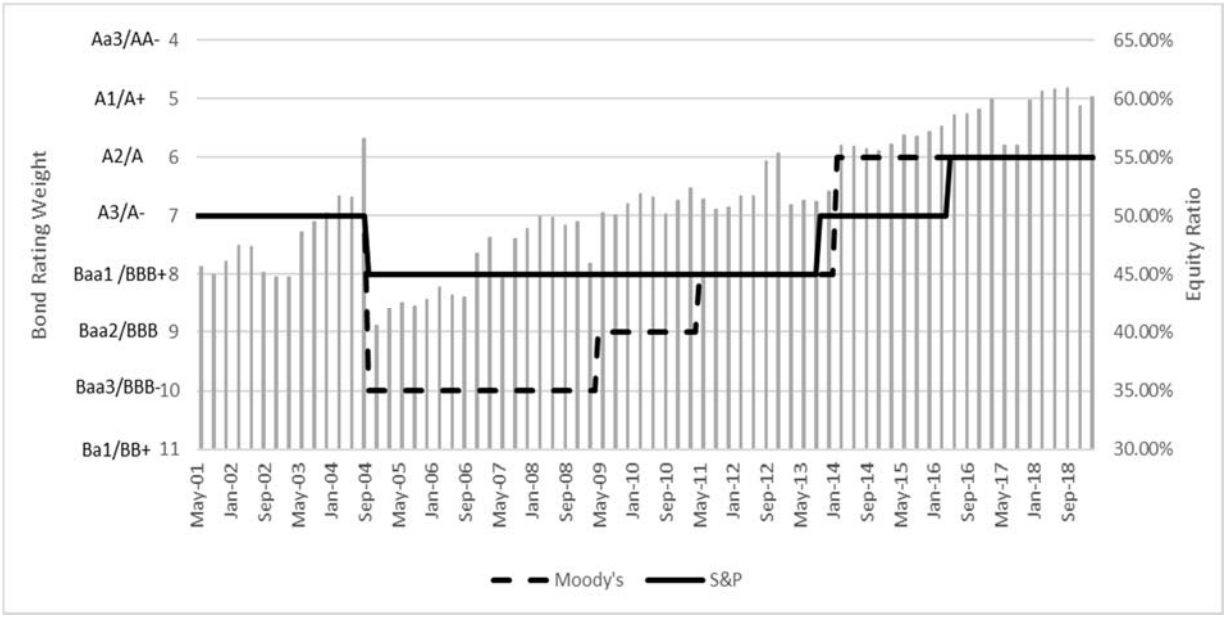
In Moody's latest credit opinion on Atmos Energy, it cited cash flow weakness in 2019 from the impacts of the TCJA as one of the Company's major credit challenges.[11]

Q. CAN YOU SHOW HOW CHANGES IN THE COMPANY'S EQUITY RATIO OVER TIME HAS AFFECTED ATMOS ENERGY'S BOND RATING?

A. Yes. As shown in Chart 1, below, changes in Atmos Energy's bond ratings generally appear to follow changes in the Company's equity ratio. For example, credit rating downgrades from both Moody's Investors Services ("Moody's") and Standard & Poor's ("S&P") in September 2004 corresponded to a drop in the Company's equity ratio from 56.57% to 40.50% in the following quarter. Since the downgrade in 2004, Atmos Energy has continued to improve its equity ratio, which corresponds to several credit rating upgrades.[12] While equity thickness is not the only factor considered by bond rating agencies in their analyses, the relationship shown below is persuasive.

[10] *Ibid.*
[11] Moody's Investors Service, Credit Opinion: Atmos Energy Corporation, December 18, 2018.
[12] Moody's upgraded Atmos Energy on 5/18/2009 (Baa3 to Baa2), 5/11/2011 (Baa2 to Baa1), and 1/30/2014 (Baa1 to A2). S&P upgraded Atmos Energy on 10/8/2013 (BBB+ to A-) and 5/13/2016 (A- to A).

Chart 1: Atmos Energy's Bond Ratings and Corresponding Equity Ratios Over Time[13]



Q. DOES A BETTER CREDIT RATING THEORETICALLY BENEFIT THE CUSTOMER?

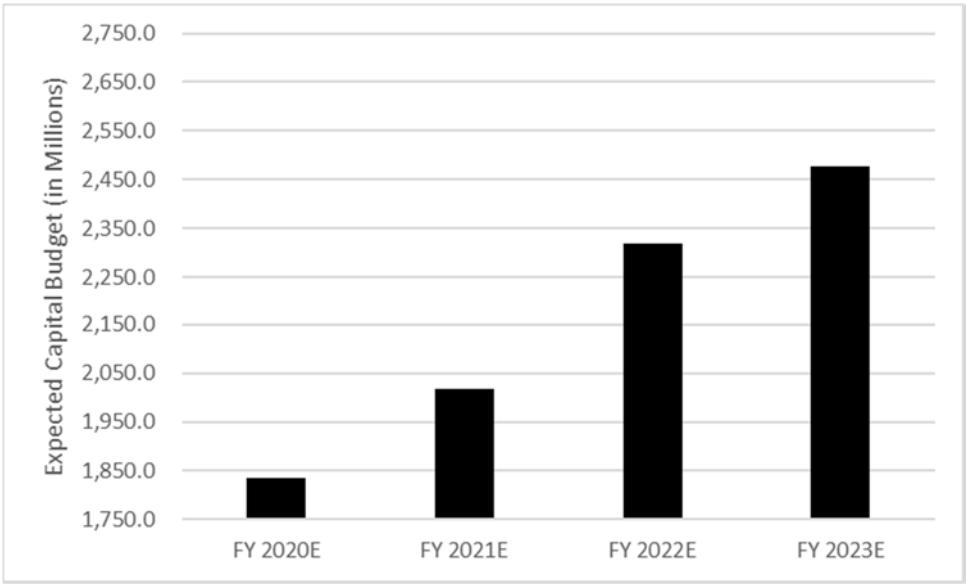
A. Yes. All else equal, a utility with a higher credit rating is better able to access debt markets at a lower cost than a utility with a lower credit rating. These cost savings are directly passed on to customers through ratemaking.

Q. DOES ATMOS ENERGY HAVE A ROBUST INFRASTRUCTURE INVESTMENT PLAN IN PLACE WHICH WILL IMPROVE THE SAFETY AND RELIABILITY OF SERVICE TO ITS CUSTOMERS?

A. Yes, it does. As shown in Chart 2, below, over the next four years, Atmos Energy is projected to increase investment in its infrastructure in each year:

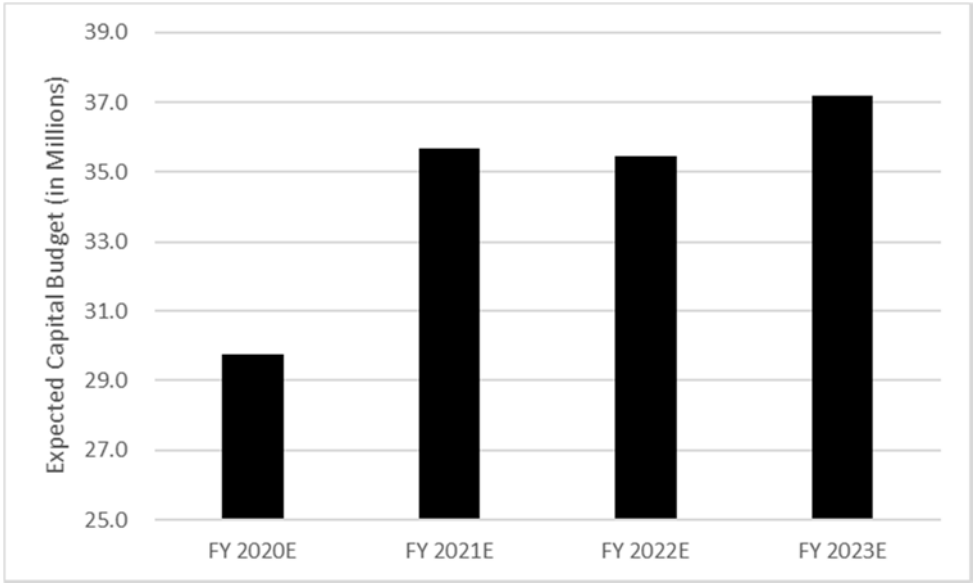
[13] Source of Information: S&P Ratings Database, Moody's Investment Services, Company SEC filings.

Chart 2: Projected Capital Spend for Atmos Energy 2020-2023[14]



Similarly, as shown in Chart 3, below, Atmos Energy's Kansas operations' infrastructure investment is expected to follow a similar increasing trend:

Chart 3: Projected Capital Spend for Atmos Energy Kansas 2020-2023[15]



[14] Company provided.
[15] Company provided.

As discussed above, Atmos Energy's current and projected capital structure is based on sound business practices in the best interest of all its stakeholders in this time of escalating capital expansion, which Atmos Energy believes it to be consistent with sound ratemaking practices.

Q. WILL THIS INFRASTRUCTURE INVESTMENT PLAN REQUIRE ATMOS ENERGY TO ACCESS THE CAPITAL MARKETS OVER THE NEXT FOUR YEARS?

A. Yes. While some of the investment will be funded by cash flows from operations, Atmos Energy will need to access the capital markets during the next four years. It is important for regulatory agencies to support an environment that insures the Company, as well as all utilities, can maintain a strong balance sheet to maintain its credit quality.

Q. HOW DOES THE REGULATORY ENVIRONMENT IN WHICH A UTILITY OPERATES AFFECT ITS ACCESS TO, AND COST OF, CAPITAL?

A. The regulatory environment can significantly affect both access to, and the cost of, capital in several ways. The proportion and cost of debt capital available to utility companies are both influenced, in large part, by the rating agencies' assessment of the regulatory environment. In other words, the Company's credit rating and outlook depend substantially on the extent to which rating agencies view the regulatory environment as credit supportive, or not. In fact, Moody's finds the regulatory environment to be so important that 50.00% of the factors that weigh in

the Company's ratings determination are dependent on the nature of regulation.[16] Similarly, S&P's has noted that:

> The assessment of regulatory risk is perhaps the most important factor in Standard & Poor's Ratings Services' analysis of a U.S. regulated, investor-owned utility's business risk. Each of the other four factors we examine--markets, operations, competitiveness, and management--can affect the quality of the regulation a utility experiences, but we believe the fundamental regulatory environment in the jurisdictions in which a utility operates often influences credit quality the most.[17] (emphasis added)

Thus, the regulatory environment is one of the most important factors considered by both debt and equity investors in assessing the risks and prospects of utility companies. From the perspective of debt investors, the authorized return should enable the Company to generate the cash flow necessary to meet its near-term financial obligations, make the capital investments needed to maintain and expand its system, and maintain sufficient levels of liquidity to fund unexpected events.

Moreover, because fixed income investors have many investment alternatives, even within a given market sector, the Company's financial profile must be strong enough, on a relative basis, to ensure its ability to attract capital under a variety of economic and financial market conditions. From the perspective of equity investors, the authorized return must be sufficient to provide a risk-comparable return on the equity portion financing the Company's capital investments.

[16] Moody's Investors Service, *Rating Methodology; Regulated Gas and Electric Utilities*, December 23, 2013, at 6.
[17] Standard & Poor's, *Utilities: Assessing U.S. Utility Regulatory Environments*, November 15, 2011, at 1.

Q. IS KANSAS GENERALLY CONSIDERED A CONSTRUCTIVE REGULATORY ENVIRONMENT FOR GAS UTILITIES BY REGULATORY RESEARCH ASSOCIATES ("RRA")?

A. No. RRA provides an assessment of the extent to which regulatory jurisdictions are constructive, or not, from the perspective of investors. As RRA explains, less constructive environments are associated with higher levels of risk:

> RRA maintains three principal rating categories, Above Average, Average, and Below Average, with Above Average indicating a relatively more constructive, lower-risk regulatory environment from an investor viewpoint, and Below Average indicating a less constructive, higher-risk regulatory climate. Within the three principal rating categories, the numbers 1, 2, and 3 indicate relative position. The designation 1 indicates a stronger (more constructive) rating; 2, a mid range rating; and, 3, a weaker (less constructive) rating within each higher-level category. Hence, if you were to assign numeric values to each of the nine resulting categories, with a "1" being the most constructive from an investor viewpoint and a "9" being the least constructive from an investor viewpoint, then Above Average/1 would be a "1" and Below Average/3 would be a "9."[18]

The RRA ranks this Commission as Below Average / 1, the third least constructive ranking.[19] If this Commission authorizes a capital structure in this proceeding that is <u>not</u> representative of the Company's operations, a signal would be sent to the investment community that Kansas' regulatory risk may further increase, leading to additional downgrades to the constructiveness of the Commission.

[18] *Source:* Regulatory Research Associates.
[19] *Ibid.*

Q. HOW DOES YOUR PROPOSED RATEMAKING COMMON EQUITY RATIO OF 60.12% FOR ATMOS ENERGY COMPARE WITH THE TOTAL EQUITY RATIOS MAINTAINED BY THE UTILITY PROXY GROUP?

A. My proposed ratemaking common equity ratio of 60.12% for Atmos Energy is reasonable and consistent with the range of common equity ratios maintained, on average, by the utilities used in the derivation of ROE. As shown in Table 3, below, the five-quarter average common equity ratios of the utilities range from 36.54% to 62.27% ending March 31, 2019.

Table 3: Five-Quarter Average Common Equity Ratios of Utility Proxy Group[20]

Company Name	Common Equity Ratio
Atmos Energy Corporation	60.35%
Northwest Natural Gas Company	50.14%
ONE Gas, Inc.	62.27%
South Jersey Industries, Inc.	36.54%
Southwest Gas Holdings, Inc.	49.35%
Spire, Inc.	51.22%

I also considered *Value Line Investment Survey's ("Value Line")* projected capital structures for the utilities for 2022-2024. As shown in Table 4 below, that analysis shows a range of projected common equity ratios between 50.50% and 65.00%.

[20] Source: SNL Financial.

Table 4: *Value Line* Projected Equity Ratios of the Utility Proxy Group[21]

Company Name	Common Equity Ratio
Atmos Energy Corporation	65.00%
Northwest Natural Gas Company	53.50%
ONE Gas, Inc.	62.00%
South Jersey Industries, Inc.	50.50%
Southwest Gas Holdings, Inc.	52.50%
Spire, Inc.	57.00%

Q. IS ATMOS ENERGY'S EQUITY RATIO OF 60.12% APPROPRIATE FOR RATEMAKING PURPOSES GIVEN THE RANGE OF THE UTILITY PROXY GROUP?

A. Yes, it is. An equity ratio of 60.12% is appropriate for ratemaking purposes for Atmos Energy in the current proceeding because it is within the range of the common equity ratios currently maintained, and expected to be maintained, by the Utility Proxy Group. Since the market data of the comparable companies are reflected in Atmos Energy's authorized ROE, any point within the range of common equity ratios maintained by those comparable companies would be considered reasonable for ratemaking purposes.

Q. IS THE APPROVAL OF A HYPOTHETICAL CAPITAL STRUCTURE APPROPRIATE IN THIS CASE?

A. No. Reliance on a hypothetical capital structure, when a utility's actual capital structure is reasonable, violates the basic financial principle that it is the use of the funds invested which gives rise to the risk of the investment. Atmos Energy's

[21] Source: *Value Line Investment Survey,* March 1, 2019.

capital structure represents the actual capital financing of its Kansas operations, to which the overall rate of return will be applied.

Q. DOES THE FINANCIAL LITERATURE SUPPORT THIS?

A. Yes. As Brealey and Myers state:

> *But the company cost of capital rule can also get a firm into trouble if the new projects are more or less risky than its existing business. Each project should be evaluated at its own opportunity cost of capital*. This is a clear implication of the value-additivity principle introduced in Chapter 7. For a firm composed of assets A and B, the firm value is
>
> Firm Value = PV (AB) = PV (A) + PV (B) = sum of separate asset values
>
> Here PV(A) and PV(B) are valued just as if they were mini-firms in which stockholders could invest directly …If the firm considers investing in a third project C, it should also value C as if C were a mini-firm. *That is*, the firm should discount the cash flows of C at the expected rate of return that investors would demand to make a separate investment in C. *The true cost of capital depends on the use to which the capital is put.* (italics in original)[22]

In addition, Levy and Sarnat state:

> The cost of capital and the discount rate are two concepts which are used throughout the book interchangeably. However, there is a distinction between the *firm's* cost of capital and specific *project's* cost of capital. (italics in original)
>
> In any case where the risk profile of the individual projects differ from that of the firm, an adjustment should be made in the required discount rate, to reflect this deviation in the risk profile.[23]

It is fundamental that individual investors expect a return commensurate with the risk associated with where their capital is invested. In this proceeding, that

[22] Richard A. Brealey and Stewart C. Myers, Principles of Corporate Finance (McGraw-Hill Book Company, 1996), at 204-205 (emphasis added in first paragraph).

[23] Haim Levy and Marshall Sarnat, Capital Investments and Decisions, 5th Ed. (Prentice/Hall International, 1986) at 464-465.

capital is provided by Atmos Energy and invested in Atmos Energy's Kansas rate base. Hence, the Kansas operations must be viewed on its own merits, including the actual capital structure financing its Kansas rate base. As *Bluefield* so clearly states:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; . . .

In other words, it is the "risks and uncertainties" surrounding the property employed for the "convenience of the public" which determines the appropriate level of rates. In this proceeding, the property employed "for the convenience of the public" is the rate base of Atmos Energy's Kansas operations. Therefore, it is the total investment risk inherent in Atmos Energy's capital structure, which is presumed to proportionately finance the entirety of those Kansas operations, and relevant to the appropriate rate of return for Atmos Energy's Kansas rate base.

Q. WHAT FACTORS SHOULD TYPICALLY BE CONSIDERED WHEN DETERMINING WHETHER TO USE AN ACTUAL OR HYPOTHETICAL CAPITAL STRUCTURE FOR RATEMAKING PURPOSES?

A. The factors typically considered relative to the use of a regulated subsidiary's actual capital structure, or a hypothetical capital structure, are provided by David C. Parcell in The Cost of Capital – A Practitioner's Guide ("CRRA Guide") prepared for the Society of Utility and Regulatory Financial Analysts ("SURFA") and provided as the study guide to candidates for SURFA's Certified Rate of Return Certification Examination. The CRRA Guide notes that there are circumstances

where a hypothetical capital structure is used in favor of an actual capital structure. They are:

(i) The utility's capital structure is deemed to be substantially different from the typical or "proper" capital structure; or

(ii) The utility's capital structure is funded as part of a diversified organization whose overall capital structure reflects its diversified nature rather than its utility operations only.[24]

Phillips echoes the CRRA Guide when he states:

> Debt ratios began to rise in the late 1960s and early 1970s, and the financial condition of the public utility sector began to deteriorate. It became the common practice to use actual or expected capitalizations; actual where a historic test year is used, expected when a projected or future test year is used.[83] (footnote omitted)
>
> The objective, in short, shifted from minimization of the short-term cost of capital to protection of a utility's ability "to raise capital at all times." This objective requires that a public utility make every effort to keep indebtedness at a prudent and conservative level."[84] (footnote omitted)
>
> *A hypothetical capital structure is used only where a utility's actual capitalization is clearly out of line with those of other utilities in its industry or where a utility is diversified.*[85] (footnote omitted) (italics added)[25]

Q. HOW DID YOU CONSIDER THESE FACTORS WHEN DETERMINING THE APPROPRIATENESS OF ATMOS ENERGY'S ACTUAL CAPITAL STRUCTURE?

A. First, as a division of Atmos Energy, the Kansas operations do not maintain an independent capital structure. All financing of the Kansas rate base is provided by Atmos Energy. As demonstrated above, Atmos Energy's proposed actual capital

[24] David C. Parcell, The Cost of Capital – A Practitioner's Guide, Prepared for the Society of Utility and Regulatory Financial Analysts, 2010 Edition, p. 47.

[25] Charles F. Phillips, Jr., The Regulation of Public Utilities – Theory and Practice, 1993, Public Utility Reports, Inc., Arlington, VA, at 391.

structure falls within the range of both the actual and expected capital structures of the Utility Proxy Group.

Second, the gas distribution operations of Atmos Energy contributed 71.42% of the Company's net operating income and represented 78.94% of the Company's assets in 2018.[26] This demonstrates that Atmos Energy is indeed primarily a gas distribution company, whose capital structure reflects the risk of its gas distribution operations.

Based on the criteria set forth in the CRRA Guide, authored by Parcell and reinforced by Phillips' reasoning, imposing a hypothetical capital structure would be inappropriate. Atmos Energy's proposed actual capital structure is reasonable and should be approved by the Commission.

Q. WHAT IS YOUR RECOMMENDED EMBEDDED LONG-TERM DEBT COST RATE FOR ATMOS ENERGY?

A. I recommend the actual embedded long-term debt cost rate of Atmos Energy at March 31, 2019, which is 4.57%.

VII. COMMON EQUITY COST RATE MODELS

Q. IS IT IMPORTANT THAT COST OF COMMON EQUITY MODELS BE MARKET BASED?

A. Yes. While public utilities such as Atmos Energy holds regulated businesses within the states in which they operate, they still must compete for equity in capital markets along with all other companies of comparable risk. The cost of common equity is thus determined based on equity market expectations for the returns of

[26] Source: Atmos Energy Corporation 2018 SEC Form 10-K.

those companies. If an individual investor is choosing to invest his or her capital among companies of comparable risk, they will choose a company providing a higher return over a company providing a lower return.

Q. ARE YOUR COST OF COMMON EQUITY MODELS MARKET BASED?

A. Yes. The DCF model uses market prices in developing the model's dividend yield component. The RPM uses bond ratings and expected bond yields that reflect the market's assessment of bond/credit risk. In addition, beta coefficients ("β"), which reflect the market/systematic risk component of equity risk premium, are derived from regression analyses of market prices. The Predictive Risk Premium Model ("PRPM") uses monthly market returns in addition to expectations of the risk-free rate. The CAPM is market based for many of the same reasons that the RPM is market based (*i.e.*, the use of expected bond yields and betas). Selection criteria for comparable risk non-price regulated companies are based on regression analyses of market prices and reflect the market's assessment of total risk.

A. <u>Discounted Cash Flow Model</u>

Q. WHAT IS THE THEORETICAL BASIS OF THE DCF MODEL?

A. The theory underlying the DCF model is that the present value of an expected future stream of net cash flows during the investment holding period can be determined by discounting those cash flows at the cost of capital, or the investors' capitalization rate. DCF theory indicates that an investor buys a stock for an expected total return rate, which is derived from the cash flows received from dividends and market price appreciation. Mathematically, the dividend yield on market price plus a growth rate

equals the capitalization rate; *i.e.*, the total common equity return rate expected by investors.

Q. WHICH VERSION OF THE DCF MODEL DO YOU USE?

A. I use the single-stage constant growth DCF model in my analyses.

Q. PLEASE DESCRIBE THE DIVIDEND YIELD YOU USED IN APPLYING THE CONSTANT GROWTH DCF MODEL.

A. The unadjusted dividend yields are based on the proxy companies' dividends as of May 17, 2019, divided by the average closing market price for the 60 trading days ended May 17, 2019.[27]

Q. PLEASE EXPLAIN YOUR ADJUSTMENT TO THE DIVIDEND YIELD.

A. Because dividends are paid periodically (*e.g.* quarterly), as opposed to continuously (daily), an adjustment must be made to the dividend yield. This is often referred to as the discrete, or the Gordon Periodic, version of the DCF model.

DCF theory calls for using the full growth rate, or D_1, in calculating the model's dividend yield component. Since the companies in the Utility Proxy Group increase their quarterly dividends at various times during the year, a reasonable assumption is to reflect one-half the annual dividend growth rate in the dividend yield component, or $D_{1/2}$. Because the dividend should be representative of the next twelve-month period, this adjustment is a conservative approach that does not overstate the dividend yield. Therefore, the actual average dividend yields in Column 1, page 1 of Schedule DWD-3 have been adjusted upward to reflect one-half the average projected growth rate shown in Column 6.

[27] *See*, column 1, page 1 of Schedule DWD-3.

Q. PLEASE EXPLAIN THE BASIS FOR THE GROWTH RATES YOU APPLY TO THE UTILITY PROXY GROUP IN YOUR CONSTANT GROWTH DCF MODEL.

A. Investors with more limited resources than institutional investors are likely to rely on widely available financial information services, such as *Value Line*, Zacks, and Yahoo! Finance. Investors realize that analysts have significant insight into the dynamics of the industries and individual companies they analyze, as well as companies' abilities to effectively manage the effects of changing laws and regulations, and ever-changing economic and market conditions. For these reasons, I used analysts' five-year forecasts of EPS growth in my DCF analysis.

Over the long run, there can be no growth in DPS without growth in EPS. Security analysts' earnings expectations have a more significant influence on market prices than dividend expectations. Thus, using earnings growth rates in a DCF analysis provides a better match between investors' market price appreciation expectations and the growth rate component of the DCF.

Q. PLEASE SUMMARIZE THE CONSTANT GROWTH DCF MODEL RESULTS.

A. As shown on page 1 of Schedule DWD-3, for the Utility Proxy Group, the mean result of applying the single-stage DCF model is 8.86%, the median result is 8.98%, and the average of the two is 8.92%. In arriving at a conclusion for the constant growth DCF-indicated common equity cost rate for the Utility Proxy Group, I relied on an average of the mean and the median results of the DCF. This approach

considers all the proxy utilities' results, while mitigating the high and low outliers of those individual results.

B. The Risk Premium Model

Q. PLEASE DESCRIBE THE THEORETICAL BASIS OF THE RPM.

A. The RPM is based on the fundamental financial principle of risk and return; namely, that investors require greater returns for bearing greater risk. The RPM recognizes that common equity capital has greater investment risk than debt capital, as common equity shareholders are behind debt holders in any claim on a company's assets and earnings. As a result, investors require higher returns from common stocks than from bonds to compensate them for bearing the additional risk.

While it is possible to directly observe bond returns and yields, investors' required common equity returns cannot be directly determined or observed. According to RPM theory, one can estimate a common equity risk premium over bonds (either historically or prospectively), and use that premium to derive a cost rate of common equity. The cost of common equity equals the expected cost rate for long-term debt capital, plus a risk premium over that cost rate, to compensate common shareholders for the added risk of being unsecured and last-in-line for any claim on the corporation's assets and earnings upon liquidation.

Q. PLEASE EXPLAIN HOW YOU DERIVED YOUR INDICATED COST OF COMMON EQUITY BASED ON THE RPM.

A. To derive my indicated cost of common equity under the RPM, I used two risk premium methods. The first method was the PRPM and the second method was a risk premium model using a total market approach. The PRPM estimates the risk-

return relationship directly, while the total market approach indirectly derives a risk premium by using known metrics as a proxy for risk.

Q. PLEASE EXPLAIN THE PRPM.

A. The PRPM, published in the *Journal of Regulatory Economics,*[28] was developed from the work of Robert F. Engle, who shared the Nobel Prize in Economics in 2003 "for methods of analyzing economic time series with time-varying volatility ("ARCH")".[29] Engle found that volatility changes over time and is related from one period to the next, especially in financial markets. Engle discovered that volatility of prices and returns clusters over time and is therefore highly predictable and can be used to predict future levels of risk and risk premiums.

The PRPM estimates the risk-return relationship directly, as the predicted equity risk premium is generated by predicting volatility or risk. The PRPM is not based on an estimate of investor behavior, but rather on an evaluation of the results of that behavior (*i.e.*, the variance of historical equity risk premiums).

The inputs to the model are the historical returns on the common shares of each Utility Proxy Group company minus the historical monthly yield on long-term U.S. Treasury securities through April 2019. Using a generalized form of ARCH, known as GARCH, I calculated each Utility Proxy Group company's projected equity risk premium using Eviews© statistical software. When the GARCH model is applied to the historical return data, it produces a predicted GARCH variance

[28] Autoregressive conditional heteroscedasticity. See "A New Approach for Estimating the Equity Risk Premium for Public Utilities", Pauline M. Ahern, Frank J. Hanley and Richard A. Michelfelder, Ph.D. The Journal of Regulatory Economics (December 2011), 40:261-278.

[29] www.nobelprize.org.

series[30] and a GARCH coefficient[31]. Multiplying the predicted monthly variance by the GARCH coefficient and then annualizing it[32] produces the predicted annual equity risk premium. I then added the forecasted 30-year U.S. Treasury bond yield of 3.33%[33] to each company's PRPM-derived equity risk premium to arrive at an indicated cost of common equity. The 30-year U.S. Treasury bond yield is a consensus forecast derived from *Blue Chip*[34]. The mean PRPM indicated common equity cost rate for the Utility Proxy Group is 10.36%, the median is 9.80%, and the average of the two is 10.08%. Consistent with my reliance on the average of the median and mean results of the DCF models, I relied on the average of the mean and median results of the Utility Proxy Group PRPM to calculate a cost of common equity rate of 10.08%.

Q. PLEASE EXPLAIN THE TOTAL MARKET APPROACH RPM.

A. The total market approach RPM adds a prospective public utility bond yield to an average of: 1) an equity risk premium that is derived from a beta-adjusted total market equity risk premium, 2) an equity risk premium based on the S&P Utilities Index, and 3) an equity risk premium based on authorized ROEs for gas distribution utilities.

[30] Illustrated on Columns 1 and 2, page 2 of Schedule DWD-4.
[31] Illustrated on Column 4, page 2 of Schedule DWD-4.
[32] Annualized Return = (1 + Monthly Return) ^12 - 1
[33] See Column 6, page 2 of Schedule DWD-4.
[34] *Blue Chip Financial Forecasts*, December 1, 2018 at page 14 and May 1, 2019 at page 2.

Q. PLEASE EXPLAIN THE BASIS OF THE EXPECTED BOND YIELD OF 4.66% APPLICABLE TO THE UTILITY PROXY GROUP.

A. The first step in the total market approach RPM analysis is to determine the expected bond yield. Because both ratemaking and the cost of capital, including common equity cost rate, are prospective in nature, a prospective yield on similarly-rated long-term debt is essential. I relied on a consensus forecast of about 50 economists of the expected yield on Aaa-rated corporate bonds for the six calendar quarters ending with the third calendar quarter of 2020, and *Blue Chip's* long-term projections for 2020 to 2024, and 2025 to 2029. As shown on line 1, page 3 of Schedule DWD-4, the average expected yield on Moody's Aaa-rated corporate bonds is 4.25%. To derive an expected yield on Moody's A2-rated public utility bonds, I made an upward adjustment of 0.41%, which represents a recent spread between Aaa-rated corporate bonds and A2-rated public utility bonds, in order to adjust the expected Aaa-rated corporate bond yield to an equivalent A2-rated public utility bond yield.[35] Adding that recent 0.41% spread to the expected Aaa-rated corporate bond yield of 4.25% results in an expected A2-rated public utility bond yield of 4.66%.

Q. PLEASE EXPLAIN HOW THE BETA-DERIVED EQUITY RISK PREMIUM IS DETERMINED.

A. The components of the beta-derived risk premium model are: 1) an expected market equity risk premium over corporate bonds, and 2) the beta coefficient. The derivation of the beta-derived equity risk premium that I applied to the Utility Proxy

[35] As shown on line 2 and explained in note 2, page 3 of Schedule DWD-4.

Group is shown on lines 1 through 9, page 8 of Schedule DWD-4. The total beta-derived equity risk premium I applied is based on an average of three historical market data-based equity risk premiums, two *Value Line*-based equity risk premiums and one Bloomberg-based equity risk premium. Each of these is described below.

Q. HOW DID YOU DERIVE A MARKET EQUITY RISK PREMIUM BASED ON LONG-TERM HISTORICAL DATA?

A. To derive a historical market equity risk premium, I used the most recent holding period returns for the large company common stocks from the Stocks, Bonds, Bills, and Inflation ("SBBI") Yearbook 2019 ("SBBI - 2019")[36] less the average historical yield on Moody's Aaa/Aa-rated corporate bonds for the period 1928 to 2018. Using holding period returns over a very long time is appropriate because it is consistent with the long-term investment horizon presumed by investing in a going concern, *i.e.*, a company expected to operate in perpetuity.

SBBI's long-term arithmetic mean monthly total return rate on large company common stocks was 11.62% and the long-term arithmetic mean monthly yield on Moody's Aaa/Aa-rated corporate bonds was 6.08%.[37] As shown on line 1, page 8 of Schedule DWD-4, subtracting the mean monthly bond yield from the total return on large company stocks results in a long-term historical equity risk premium of 5.54%.

[36] SBBI Appendix A Tables: Morningstar Stocks, Bonds, Bills, & Inflation 1926-2018.
[37] As explained in note 1, page 9 of Schedule DWD-4.

I used the arithmetic mean monthly total return rates for the large company stocks and yields (income returns) for the Moody's Aaa/Aa corporate bonds, because they are appropriate for the purpose of estimating the cost of capital as noted in SBBI - 2019.[38] Using the arithmetic mean return rates and yields is appropriate because historical total returns and equity risk premiums provide insight into the variance and standard deviation of returns needed by investors in estimating future risk when making a current investment. If investors relied on the geometric mean of historical equity risk premiums, they would have no insight into the potential variance of future returns, because the geometric mean relates the change over many periods to a constant rate of change, thereby obviating the year-to-year fluctuations, or variance, which is critical to risk analysis.

Q. PLEASE EXPLAIN THE DERIVATION OF THE REGRESSION-BASED MARKET EQUITY RISK PREMIUM.

A. To derive the regression-based market equity risk premium of 7.93% shown on line 2, page 8 of Schedule DWD-4, I used the same monthly annualized total returns on large company common stocks relative to the monthly annualized yields on Moody's Aaa/Aa-rated corporate bonds as mentioned above. I modeled the relationship between interest rates and the market equity risk premium using the observed monthly market equity risk premium as the dependent variable, and the monthly yield on Moody's Aaa/Aa-rated corporate bonds as the independent variable. I then used a linear Ordinary Least Squares ("OLS") regression, in which

[38] SBBI - 2019, at page 10-22.

the market equity risk premium is expressed as a function of the Moody's Aaa/Aa-rated corporate bonds yield:

$$RP = \alpha + \beta\ (R_{Aaa/Aa})$$

Q. PLEASE EXPLAIN THE DERIVATION OF THE PRPM EQUITY RISK PREMIUM.

A. I used the same PRPM approach described above to the PRPM equity risk premium. The inputs to the model are the historical monthly returns on large company common stocks minus the monthly yields on Moody's Aaa/Aa-rated corporate bonds during the period from January 1928 through April 2019.[39] Using the previously discussed generalized form of ARCH, known as GARCH, the projected equity risk premium is determined using Eviews© statistical software. The resulting PRPM predicted a market equity risk premium of 8.32%.[40]

Q. PLEASE EXPLAIN THE DERIVATION OF A PROJECTED EQUITY RISK PREMIUM BASED ON *VALUE LINE* DATA FOR YOUR RPM ANALYSIS.

A. As noted above, because both ratemaking and the cost of capital are prospective, a prospective market equity risk premium is needed. The derivation of the forecasted or prospective market equity risk premium can be found in note 4, page 8 of Schedule DWD-4. Consistent with my calculation of the dividend yield component in my DCF analysis, this prospective market equity risk premium is derived from an average of the three- to five-year median market price appreciation potential by *Value Line* for the thirteen weeks ended May 17, 2019, plus an average of the

[39] Data from January 1926 to December 2017 is from SBBI - 2019. Data from January 2019 to April 2019 is from Bloomberg.
[40] Shown on line 3, page 8 of Schedule DWD-4.

median estimated dividend yield for the common stocks of the 1,700 firms covered in *Value Line*'s Standard Edition.[41]

The average median expected price appreciation is 55%, which translates to an 11.58% annual appreciation, and, when added to the average of *Value Line's* median expected dividend yields of 2.23%, equates to a forecasted annual total return rate on the market of 13.81%. The forecasted Moody's Aaa-rated corporate bond yield of 4.25% is deducted from the total market return of 13.81%, resulting in an equity risk premium of 9.56%, as shown on line 4, page 8 of Schedule DWD-4.

Q. PLEASE EXPLAIN THE DERIVATION OF AN EQUITY RISK PREMIUM BASED ON THE S&P 500 COMPANIES.

A. Using data from *Value Line*, I calculated an expected total return on the S&P 500 companies using expected dividend yields and long-term growth estimates as a proxy for capital appreciation. The expected total return for the S&P 500 is 14.93%. Subtracting the prospective yield on Moody's Aaa-rated corporate bonds of 4.25% results in a 10.68% projected equity risk premium.

Q. PLEASE EXPLAIN THE DERIVATION OF AN EQUITY RISK PREMIUM BASED ON BLOOMBERG DATA.

A. Using data from Bloomberg, I calculated an expected total return on the S&P 500 using expected dividend yields and long-term growth estimates as a proxy for capital appreciation, identical to the method described above. The expected total return for the S&P 500 is 13.42%. Subtracting the prospective yield on Moody's

[41] As explained in detail in note 1, page 2 of Schedule DWD-5.

Aaa-rated corporate bonds of 4.25% results in a 9.17% projected equity risk premium.

Q. WHAT IS YOUR CONCLUSION OF A BETA-DERIVED EQUITY RISK PREMIUM FOR USE IN YOUR RPM ANALYSIS?

A. I gave equal weight to all six equity risk premiums based on each source - historical, *Value Line*, and Bloomberg in arriving at an 8.54% equity risk premium.

After calculating the average market equity risk premium of 8.54%, I adjusted it by the beta coefficient to account for the risk of the Utility Proxy Group. As discussed below, the beta coefficient is a meaningful measure of prospective relative risk to the market as a whole, and is a logical way to allocate a company's, or proxy group's, share of the market's total equity risk premium relative to corporate bond yields. As shown on page 1 of Schedule DWD-5, the average of the mean and median beta coefficient for the Utility Proxy Group is 0.62. Multiplying the 0.62 average by the market equity risk premium of 8.54% results in a beta-adjusted equity risk premium for the Utility Proxy Group of 5.29%.

Q. HOW DID YOU DERIVE THE EQUITY RISK PREMIUM BASED ON THE S&P UTILITY INDEX AND MOODY'S A-RATED PUBLIC UTILITY BONDS?

A. I estimated three equity risk premiums based on S&P Utility Index holding period returns, and two equity risk premiums based on the expected returns of the S&P Utilities Index, using *Value Line* and Bloomberg data, respectively. Turning first to the S&P Utility Index holding period returns, I derived a long-term monthly arithmetic mean equity risk premium between the S&P Utility Index total returns

of 10.56% and monthly Moody's A-rated public utility bond yields of 6.56% from 1928 to 2018 to arrive at an equity risk premium of 4.00%.[42] I then used the same historical data to derive an equity risk premium of 5.72% based on a regression of the monthly equity risk premiums. The final S&P Utility Index holding period equity risk premium involved applying the PRPM using the historical monthly equity risk premiums from January 1928 to April 2019 to arrive at a PRPM-derived equity risk premium of 3.93% for the S&P Utility Index.

I then derived expected total returns on the S&P Utilities Index of 10.85% and 9.15% using data from *Value Line* and Bloomberg, respectively, and subtracted the prospective Moody's A2-rated public utility bond yield of 4.66%[43], which resulted in equity risk premiums of 6.19% and 4.49%, respectively. As with the market equity risk premiums, I averaged each risk premium based on each source (*i.e.*, historical, *Value Line*, and Bloomberg) to arrive at my utility-specific equity risk premium of 4.87%.

Q. HOW DO YOU DERIVE AN EQUITY RISK PREMIUM OF 5.26% BASED ON AUTHORIZED ROEs FOR GAS DISTRIBUTION UTILITIES?

A. The equity risk premium of 5.26% shown on line 3, page 7 of Schedule DWD-4 is the result of a regression analysis based on regulatory awarded ROEs related to the yields on Moody's A-rated public utility bonds. That analysis is shown on page 13 of Schedule DWD-4. Page 13 of Schedule DWD-4 contains the graphical results of a regression analysis of 775 rate cases for gas distribution utilities which were

[42] As shown on line 1, page 12 of Schedule DWD-4.
[43] Derived on line 3, page 3 of Schedule DWD-4.

fully litigated during the period from January 1, 1980 through May 17, 2019. It shows the implicit equity risk premium relative to the yields on A-rated public utility bonds immediately prior to the issuance of each regulatory decision. It is readily discernible that there is an inverse relationship between the yield on A-rated public utility bonds and equity risk premiums. In other words, as interest rates decline, the equity risk premium rises and vice versa, a result consistent with financial literature on the subject.[44] I used the regression results to estimate the equity risk premium applicable to the projected yield on Moody's A2-rated public utility bonds of 4.66%. Given the expected A-rated utility bond yield of 4.66%, it can be calculated that the indicated equity risk premium applicable to that bond yield is 5.26%, which is shown on line 3, page 7 of Schedule DWD-4.

Q. WHAT IS YOUR CONCLUSION OF AN EQUITY RISK PREMIUM FOR USE IN YOUR TOTAL MARKET APPROACH RPM ANALYSIS?

A. The equity risk premium I apply to the Utility Proxy Group is 5.14%, which is the average of the beta-adjusted equity risk premium for the Utility Proxy Group, the S&P Utilities Index, and the authorized return utility equity risk premiums of 5.29%, 4.87%, and 5.26%, respectively.[45]

[44] *See*, *e.g.*, Robert S. Harris and Felicia C. Marston, *The Market Risk Premium: Expectational Estimates Using Analysts' Forecasts*, Journal of Applied Finance, Vol. 11, No. 1, 2001, at pages 11 to 12; Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility's Cost of Equity*, Financial Management, Spring 1985, at pages 33 to 45.

[45] As shown on page 7 of Schedule DWD-4.

Q. WHAT IS THE INDICATED RPM COMMON EQUITY COST RATE BASED ON THE TOTAL MARKET APPROACH?

A. As shown on line 5, page 3 of Schedule DWD-4, I calculated a common equity cost rate of 9.80% for the Utility Proxy Group based on the total market approach RPM.

Q. WHAT ARE THE RESULTS OF YOUR APPLICATION OF THE PRPM AND THE TOTAL MARKET APPROACH RPM?

A. As shown on page 1 of Schedule DWD-4, the indicated RPM-derived common equity cost rate is 9.94%, which gives equal weight to the PRPM (10.08%) and the adjusted-market approach results (9.80%).

C. The Capital Asset Pricing Model

Q. PLEASE EXPLAIN THE THEORETICAL BASIS OF THE CAPM.

A. CAPM theory defines risk as the co-variability of a security's returns with the market's returns as measured by the beta coefficient (β). A beta coefficient less than 1.0 indicates lower variability than the market as a whole, while a beta coefficient greater than 1.0 indicates greater variability than the market.

The CAPM assumes that all non-market or unsystematic risk can be eliminated through diversification. The risk that cannot be eliminated through diversification is called market, or systematic, risk. In addition, the CAPM presumes that investors only require compensation for systematic risk, which is the result of macroeconomic and other events that affect the returns on all assets. The model is applied by adding a risk-free rate of return to a market risk premium, which is adjusted proportionately to reflect the systematic risk of the individual security

relative to the total market as measured by the beta coefficient. The traditional CAPM model is expressed as:

$$R_s = R_f + \beta (R_m - R_f)$$

Where:
R_s = Return rate on the common stock
R_f = Risk-free rate of return
R_m = Return rate on the market as a whole
β = Adjusted beta coefficient (volatility of the security relative to the market as a whole)

Numerous tests of the CAPM have measured the extent to which security returns and beta coefficients are related as predicted by the CAPM, confirming its validity. The empirical CAPM ("ECAPM") reflects the reality that while the results of these tests support the notion that the beta coefficient is related to security returns, the empirical Security Market Line ("SML") described by the CAPM formula is not as steeply sloped as the predicted SML.[46] In view of theory and practical research, I have applied both the traditional CAPM and the ECAPM to the Utility Proxy Group companies and averaged the results.

Q. WHAT BETA COEFFICIENTS DID YOU USE IN YOUR CAPM ANALYSIS?

A. For the beta coefficients in my CAPM analysis, I considered two sources: *Value Line* and Bloomberg Professional Services. While both of those services adjust their calculated (or "raw") beta coefficients to reflect the tendency of the beta coefficient to regress to the market mean of 1.00, *Value Line* calculates the beta

[46] Roger A. Morin, New Regulatory Finance (Public Utility Reports, Inc., 2006), at page 175.

coefficient over a five-year period, while Bloomberg calculates it over a two-year period.

Q. PLEASE DESCRIBE YOUR SELECTION OF A RISK-FREE RATE OF RETURN.

A. As shown in Column 5, page 1 of Schedule DWD-5, the risk-free rate adopted for both applications of the CAPM is 3.33%. This risk-free rate is based on the average of the *Blue Chip* consensus forecast of the expected yields on 30-year U.S. Treasury bonds for the six quarters ending with the third calendar quarter of 2020, and long-term projections for the years 2020 to 2024 and 2025 to 2029.

Q. WHY IS THE YIELD ON LONG-TERM U.S. TREASURY BONDS APPROPRIATE FOR USE AS THE RISK-FREE RATE?

A. The yield on long-term U.S. Treasury bonds is almost risk-free and its term is consistent with the long-term cost of capital to public utilities measured by the yields on Moody's A-rated public utility bonds; the long-term investment horizon inherent in utilities' common stocks; and the long-term life of the jurisdictional rate base to which the allowed fair rate of return (*i.e.*, cost of capital) will be applied. In contrast, short-term U.S. Treasury yields are more volatile and largely a function of Federal Reserve monetary policy.

Q. PLEASE EXPLAIN THE ESTIMATION OF THE EXPECTED RISK PREMIUM FOR THE MARKET USED IN YOUR CAPM ANALYSES.

A. The basis of the market risk premium is explained in detail in note 1 on Schedule DWD-5. As discussed above, the market risk premium is derived from an average

of three historical data-based market risk premiums, two *Value Line* data-based market risk premiums, and one Bloomberg data-based market risk premium.

The long-term income return on U.S. Government securities of 5.12% was deducted from the SBBI - 2019 monthly historical total market return of 11.89%, which results in an historical market equity risk premium of 6.77%.[47] I applied a linear OLS regression to the monthly annualized historical returns on the S&P 500 relative to historical yields on long-term U.S. Government securities from SBBI - 2019. That regression analysis yielded a market equity risk premium of 9.00%. The PRPM market equity risk premium is 9.40%, and is derived using the PRPM relative to the yields on long-term U.S. Treasury securities from January 1926 through April 2019.

The *Value Line*-derived forecasted total market equity risk premium is derived by deducting the forecasted risk-free rate of 3.33%, discussed above, from the *Value Line* projected total annual market return of 13.81%, resulting in a forecasted total market equity risk premium of 10.48%. The S&P 500 projected market equity risk premium using *Value Line* data is derived by subtracting the projected risk-free rate of 3.33% from the projected total return of the S&P 500 of 14.93%. The resulting market equity risk premium is 11.60%.

The S&P 500 projected market equity risk premium using Bloomberg data is derived by subtracting the projected risk-free rate of 3.33% from the projected total return of the S&P 500 of 13.42%. The resulting market equity risk premium is 10.09%.

[47] SBBI - 2019, at Appendix A-1 (1) through .A-1 (3) and Appendix A-7 (19) through A-7 (21).

These six measures, when averaged, result in an average total market equity risk premium of 9.56%.

Q. WHAT ARE THE RESULTS OF YOUR APPLICATION OF THE TRADITIONAL AND EMPIRICAL CAPM TO THE UTILITY PROXY GROUP?

A. As shown on page 1 of Schedule DWD-4, the mean result of my CAPM/ECAPM analyses is 9.74%, the median is 9.59%, and the average of the two is 9.67%. Consistent with my reliance on the average of mean and median DCF results discussed above, the indicated common equity cost rate using the CAPM/ECAPM is 9.67%.

D. Common Equity Cost Rates for a Proxy Group of Domestic, Non-Price Regulated Companies Based on the DCF, RPM, and CAPM

Q. WHY DO YOU ALSO CONSIDER A PROXY GROUP OF DOMESTIC, NON-PRICE REGULATED COMPANIES?

A. In the *Hope* and *Bluefield* cases, the U.S. Supreme Court did not specify that comparable risk companies had to be utilities. Since the purpose of rate regulation is to be a substitute for marketplace competition, non-price regulated firms operating in the competitive marketplace make an excellent proxy if they are comparable in total risk to the Utility Proxy Group being used to estimate the cost of common equity. The selection of such domestic, non-price regulated competitive firms theoretically and empirically results in a proxy group which is comparable in total risk to the Utility Proxy Group, since all of these companies compete for capital in the exact same markets.

Q. HOW DID YOU SELECT NON-PRICE REGULATED COMPANIES THAT ARE COMPARABLE IN TOTAL RISK TO THE REGULATED PUBLIC UTILITY PROXY GROUP?

A. In order to select a proxy group of domestic, non-price regulated companies similar in total risk to the Utility Proxy Group, I relied on the beta coefficients and related statistics derived from *Value Line* regression analyses of weekly market prices over the most recent 260 weeks (*i.e.*, five years). These selection criteria resulted in a proxy group of sixteen domestic, non-price regulated firms comparable in total risk to the Utility Proxy Group. Total risk is the sum of non-diversifiable market risk and diversifiable company-specific risks. The criteria used in selecting the domestic, non-price regulated firms was:

(i) They must be covered by *Value Line Investment Survey* (Standard Edition);

(ii) They must be domestic, non-price regulated companies, *i.e.*, not utilities;

(iii) Their beta coefficients must lie within plus or minus two standard deviations of the average unadjusted beta coefficients of the Utility Proxy Group; and

(iv) The residual standard errors of the *Value Line* regressions which gave rise to the unadjusted beta coefficients must lie within plus or minus two standard deviations of the average residual standard error of the Utility Proxy Group.

Beta coefficients measure market, or systematic, risk, which is not diversifiable. The residual standard errors of the regressions measure each firm's company-specific, diversifiable risk. Companies that have similar beta coefficients and similar residual standard errors resulting from the same regression analyses have similar total investment risk.

Q. HAVE YOU PREPARED A STATEMENT WHICH SHOWS THE DATA FROM WHICH YOU SELECTED THE SIXTEEN DOMESTIC, NON-PRICE REGULATED COMPANIES THAT ARE COMPARABLE IN TOTAL RISK TO THE UTILITY PROXY GROUP?

A. Yes, the basis of my selection and both proxy groups' regression statistics are shown in Schedule DWD-6.

Q. DID YOU CALCULATE COMMON EQUITY COST RATES USING THE DCF MODEL, RPM, AND CAPM FOR THE NON-PRICE REGULATED PROXY GROUP?

A. Yes. Because the DCF model, RPM, and CAPM have been applied in an identical manner as described above, I will not repeat the details of the rationale and application of each model. One exception is in the application of the RPM, where I did not use public utility-specific equity risk premiums, nor did I apply the PRPM to the individual non-price regulated companies.

Page 2 of Schedule DWD-7 derives the constant growth DCF model common equity cost rate. As shown, the indicated common equity cost rate, using the constant growth DCF for the Non-Price Regulated Proxy Group comparable in total risk to the Utility Proxy Group, is 9.92%.

Pages 3 through 5 of Schedule DWD-7 contain the data and calculations that support the 11.22% RPM common equity cost rate. As shown on line 1, page 3 of Schedule DWD-7, the consensus prospective yield on Moody's Baa-rated corporate bonds for the six quarters ending in the third quarter of 2020, and for the

years 2020 to 2024 and 2025 to 2029, is 5.21%.[48] Since the Non-Price Regulated Proxy Group has an average Moody's long-term issuer rating of Baa1, a downward adjustment of 0.22% to the projected Baa-rated corporate bond yield is necessary to reflect the difference in ratings,[49] which results in a projected Baa1-rated corporate bond yield of 4.99%.

When the beta-adjusted risk premium of 6.23%[50] relative to the Non-Price Regulated Proxy Group is added to the prospective Baa1-rated corporate bond yield of 4.99%, the indicated RPM common equity cost rate is 11.22%.

Page 6 of Schedule DWD-7 contains the inputs and calculations that support my indicated CAPM/ECAPM common equity cost rate of 10.60%.

Q. HOW IS THE COST RATE OF COMMON EQUITY BASED ON THE NON-PRICE REGULATED PROXY GROUP COMPARABLE IN TOTAL RISK TO THE UTILITY PROXY GROUP?

A. As shown on page 1 of Schedule DWD-7, the results of the common equity models applied to the Non-Price Regulated Proxy Group -- which group is comparable in total risk to the Utility Proxy Group -- are as follows: 9.92% (DCF), 11.22% (RPM), and 10.60% (CAPM). The average of the mean and median of these models is 10.59%, which I used as the indicated common equity cost rates for the Non-Price Regulated Proxy Group.

[48] *Blue Chip Financial Forecasts*, December 1, 2018, at page 14 and May 1, 2019, at page 2.
[49] As demonstrated in line 2 and described in note 2, page 2 of Schedule DWD-7.
[50] Derived on page 4 of Schedule DWD-7.

VIII. CONCLUSION OF COMMON EQUITY COST RATE BEFORE ADJUSTMENTS

Q. WHAT IS THE INDICATED COMMON EQUITY COST RATE BEFORE ADJUSTMENTS?

A. By applying multiple cost of common equity models to the Utility Proxy Group and the Non-Price Regulated Proxy Group, the indicated cost of common equity before any relative risk adjustments is 9.80%. I used multiple cost of common equity models as primary tools in arriving at my recommended range of common equity cost rates, because no single model is so inherently precise that it can be relied on to the exclusion of other theoretically sound models. Using multiple models adds reliability to the estimated common equity cost rate, with the prudence of using multiple cost of common equity models supported in both the financial literature and regulatory precedent.

Based on these common equity cost rate results, I conclude that a common equity cost rate of 9.80% is reasonable and appropriate before any adjustments for relative risk differences between Atmos Energy and the Utility Proxy Group are made. The 9.80% indicated ROE is the approximate average of the mean and median results produced by the application of the models as explained above.

IX. ADJUSTMENTS TO THE COMMON EQUITY COST RATE

A. Size Adjustment

Q. DOES ATMOS ENERGY'S KANSAS OPERATIONS' SMALLER SIZE RELATIVE TO THE UTILITY PROXY GROUP COMPANIES INCREASE ITS BUSINESS RISK?

A. Yes. The Company's Kansas operations' smaller size relative to the Utility Proxy Group companies indicates greater relative business risk for the Company because, all else being equal, size has a material bearing on risk.

Size affects business risk because smaller companies generally are less able to cope with significant events that affect sales, revenues and earnings. For example, smaller companies face more risk exposure to business cycles and economic conditions, both nationally and locally. Additionally, the loss of revenues from a few larger customers would have a greater effect on a small company than on a bigger company with a larger, more diverse, customer base.

As further evidence that smaller firms are riskier, investors generally demand greater returns from smaller firms to compensate for less marketability and liquidity of their securities. Duff & Phelps 2019 Valuation Handbook Guide to Cost of Capital - Market Results through 2018 ("D&P - 2019") discusses the nature of the small-size phenomenon, providing an indication of the magnitude of the size premium based on several measures of size. In discussing "Size as a Predictor of Equity Premiums," D&P - 2019 states:

> The size effect is based on the empirical observation that companies of smaller size are associated with greater risk and, therefore, have greater cost of capital [sic]. The "size" of a company is one of the most important risk elements to consider when developing cost of

> equity capital estimates for use in valuing a business simply because size has been shown to be a *predictor* of equity returns. In other words, there is a significant (negative) relationship between size and historical equity returns - as size *decreases*, returns tend to *increase*, and vice versa. (footnote omitted) (emphasis in original)[51]

Furthermore, in "The Capital Asset Pricing Model: Theory and Evidence," Fama and French note size is indeed a risk factor which must be reflected when estimating the cost of common equity. On page 14, they note:

> . . . the higher average returns on small stocks and high book-to-market stocks reflect unidentified state variables that produce undiversifiable risks (covariances) in returns not captured in the market return and are priced separately from market betas.[52]

Based on this evidence, Fama and French proposed their three-factor model which includes a size variable in recognition of the effect size has on the cost of common equity.

Also, it is a basic financial principle that the use of funds invested, and not the source of funds, is what gives rise to the risk of any investment.[53] Eugene Brigham, a well-known authority, states:

> A number of researchers have observed that portfolios of small-firms (sic) have earned consistently higher average returns than those of large-firm stocks; this is called the "small-firm effect." On the surface, it would seem to be advantageous to the small firms to provide average returns in a stock market that are higher than those of larger firms. In reality, it is bad news for the small firm; **what the small-firm effect means is that the capital market demands higher returns on stocks of small firms than on otherwise similar stocks of the large firms**. (emphasis added)[54]

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[51] Duff & Phelps 2018 Valuation Handbook Guide to Cost of Capital - Market Results through 2017, Wiley 2018, at 4-1.

[52] Eugene F. Fama and Kenneth R. French, "The Capital Asset Pricing Model: Theory and Evidence," *Journal of Economic Perspectives*, Volume 18, Number 3, Summer 2004, at 25-43.

[53] Brealey, Richard A. and Myers, Stewart C., Principles of Corporate Finance (McGraw-Hill Book Company, 1996), at 204-205, 229.

[54] Brigham, Eugene F., Fundamentals of Financial Management, Fifth Edition (The Dryden Press, 1989), at 623.

Consistent with the financial principle of risk and return discussed above, increased relative risk due to small size must be considered in the allowed rate of return on common equity. Therefore, the Commission's authorization of a cost rate of common equity in this proceeding must appropriately reflect the Kansas jurisdictional operations of Atmos Energy's unique risks, including its small size, which is justified and supported above by evidence in the financial literature.

Q. IS THERE A WAY TO QUANTIFY A RELATIVE RISK ADJUSTMENT DUE TO ATMOS ENERGY'S SMALL SIZE RELATIVE TO THE UTILITY PROXY GROUP?

A. Yes. The Kansas operations of Atmos Energy have greater relative risk than the average utility in the Utility Proxy Group because of its smaller size compared with the utilities in that group, as measured by an estimated market capitalization of common equity for the Kansas jurisdictional operations of Atmos Energy.

Table 5: Size as Measured by Market Capitalization for Atmos Energy's Kansas Operation and the Utility Proxy Group

	Market Capitalization* ($ Millions)	Times Greater than The Company
Atmos Energy KS Operations	$336.579	
Utility Proxy Group	$4,968.374	14.8x

*From page 1 of Schedule DWD-8.

Atmos Energy's Kansas operations' estimated market capitalization was $336. 579 million as of May 17, 2019, compared with the market capitalization of the average company in the Utility Proxy Group of $5.0 billion as of May 17, 2019. The average company in the Utility Proxy Group has a market capitalization 14.8

times the size of Atmos Energy's Kansas operations' estimated market capitalization.

As a result, it is necessary to upwardly adjust the indicated common equity cost rate of 9.80% to reflect the Kansas operations' greater risk due to their smaller relative size. The determination is based on the size premiums for portfolios of New York Stock Exchange, American Stock Exchange, and NASDAQ listed companies ranked by deciles for the 1926 to 2018 period. The average size premium for the Utility Proxy Group with a market capitalization of $5.0 billion falls in the 4th decile, while the Company's estimated market capitalization of $336.579 million places it in the 9th decile. The size premium spread between the 4th decile and the 9th decile is 1.61%. Even though a 1.61% upward size adjustment is indicated, I applied a size premium of 0.40% to the Company's indicated common equity cost rate.

Q. SINCE ATMOS ENERGY'S KANSAS OPERATIONS ARE PART OF A LARGER COMPANY, WHY IS THE SIZE OF THE TOTAL COMPANY NOT MORE APPROPRIATE TO USE WHEN DETERMINING THE SIZE ADJUSTMENT?

A. The return derived in this proceeding will not apply to Atmos Energy as a whole, but only its Kansas operation. Atmos Energy is the sum of its constituent parts, including those constituent parts' ROEs. Potential investors in the Company are aware that it is a combination of operations in each state, and that each state's operations experience the operating risks specific to their jurisdiction. The market's

expectation of Atmos Energy's return is commensurate with the realities of the Company's composite operations in each of the states in which it operates.

B. Flotation Cost Adjustment

Q. WHAT ARE FLOTATION COSTS?

A. Flotation costs are those costs associated with the sale of new issuances of common stock. They include market pressure and the mandatory unavoidable costs of issuance (*e.g.*, underwriting fees and out-of-pocket costs for printing, legal, registration, etc.). For every dollar raised through debt or equity offerings, the Company receives less than one full dollar in financing.

Q. WHY IS IT IMPORTANT TO RECOGNIZE FLOTATION COSTS IN THE ALLOWED COMMON EQUITY COST RATE?

A. It is important because there is no other mechanism in the ratemaking paradigm through which such costs can be recognized and recovered. Because these costs are real, necessary, and legitimate, recovery of these costs should be permitted. As noted by Dr. Roger Morin:

> The costs of issuing these securities are just as real as operating and maintenance expenses or costs incurred to build utility plants, and fair regulatory treatment must permit recovery of these costs….
>
> The simple fact of the matter is that common equity capital is not free….[Flotation costs] must be recovered through a rate of return adjustment.[55]

[55] Morin, at p. 321.

Q. SHOULD FLOTATION COSTS BE RECOGNIZED ONLY IF THERE WAS AN ISSUANCE DURING THE TEST YEAR OR THERE IS AN IMMINENT POST-TEST YEAR ISSUANCE OF ADDITIONAL COMMON STOCK?

A. No. As noted above, there is no mechanism to recapture such costs in the ratemaking paradigm other than an adjustment to the allowed common equity cost rate. Flotation costs are charged to capital accounts and are not expensed on a utility's income statement. As such, flotation costs are analogous to capital investments, albeit negative, reflected on the balance sheet. Recovery of capital investments relates to the expected useful lives of the investment. Since common equity has a very long and indefinite life (assumed to be infinity in the standard regulatory DCF model), flotation costs should be recovered through an adjustment to common equity cost rate, even when there has not been an issuance during the test year, or in the absence of an expected imminent issuance of additional shares of common stock.

Historical flotation costs are a permanent loss of investment to the utility and should be accounted for. When any company, including a utility, issues common stock, flotation costs are incurred for legal, accounting, printing fees and the like. For each dollar of issuing market price, a small percentage is expensed and is permanently unavailable for investment in utility rate base. Since these expenses are charged to capital accounts and not expensed on the income statement, the only way to restore the full value of that dollar of issuing price with an assumed investor required return of 10% is for the net investment, $0.95, to earn more than 10% to net back to the investor a fair return on that dollar. In other words, if a

company issues stock at $1.00 with 5% in flotation costs, it will net $0.95 in investment. Assuming the investor in that stock requires a 10% return on his or her invested $1.00 (*i.e.*, a return of $0.10), the company needs to earn approximately 10.5% on its invested $0.95 to receive a $0.10 return.

Q. DO THE COMMON EQUITY COST RATE MODELS YOU HAVE USED ALREADY REFLECT INVESTORS' ANTICIPATION OF FLOTATION COSTS?

A. No. All of these models assume no transaction costs. The literature is quite clear that these costs are not reflected in the market prices paid for common stocks. For example, Brigham and Daves confirm this and provide the methodology utilized to calculate the flotation adjustment.[56] In addition, Morin confirms the need for such an adjustment even when no new equity issuance is imminent.[57] Consequently, it is proper to include a flotation cost adjustment when using cost of common equity models to estimate the common equity cost rate.

Q. HOW DID YOU CALCULATE THE FLOTATION COST ALLOWANCE?

A. I modified the DCF calculation to provide a dividend yield that would reimburse investors for issuance costs in accordance with the method cited in literature by Brigham and Daves, as well as by Morin. The flotation cost adjustment recognizes the actual costs of issuing equity that were incurred by Atmos Energy in its equity issuances during fiscal years 2016, 2017, and 2018. Based on the issuance costs

[56] Eugene F. Brigham and Phillip R. Daves, Intermediate Financial Management, 9th Edition, Thomson/Southwestern, at p. 342.
[57] Morin, at pp. 327-30.

shown on page 1 of Schedule DWD-9, an adjustment of 0.04% is required to reflect the flotation costs applicable to the Utility Proxy Group.

Q. WHAT IS THE INDICATED COST OF COMMON EQUITY AFTER YOUR COMPANY-SPECIFIC ADJUSTMENTS?

A. Applying the 0.40% size adjustment and the 0.04% flotation cost adjustment to the indicated cost of common equity of 9.80% results in a Company-specific cost of common equity rate of 10.24%, which rounded to 10.25%, is my recommended common equity cost rate for Atmos Energy.

X. CONCLUSION

Q. WHAT IS YOUR RECOMMENDED OVERALL WACC FOR ATMOS ENERGY?

A. Given the Company's actual capital structure at March 31, 2019 consisting of 39.88% long-term debt at an embedded long-term debt cost rate of 4.57% and 60.12% common equity at my recommended cost of common equity of 10.25%, I conclude that an appropriate WACC for the Company is 7.98%.

Q. IN YOUR OPINION, IS YOUR PROPOSED WACC OF 7.98% FAIR AND REASONABLE TO ATMOS ENERGY AND ITS CUSTOMERS?

A. Yes, it is.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

VERIFICATION

STATE OF NEW JERSEY §
§
COUNTY OF BURLINGTON §

Dylan W. D'Ascendis, being duly sworn upon his oath, deposes and states that he is Director at ScottMadden, Inc.; that he has read and is familiar with the foregoing Direct Testimony filed herewith; and that the statements made therein are true to the best of his knowledge, information and belief.

Dylan W. D'Ascendis

Subscribed and sworn before me this 14th day of June, 2019.

Notary Public

My appointment expires: Oct. 24, 2022

MARISOL SANTIAGO
NOTARY PUBLIC OF NEW JERSEY
MY COMMISSION EXPIRES OCT. 24, 2022

Appendix A
Professional Qualifications of
Dylan W. D'Ascendis, CRRA, CVA

Summary

Dylan is an experienced consultant and a Certified Rate of Return Analyst (CRRA) and Certified Valuation Analyst (CVA). He has served as a consultant for investor-owned and municipal utilities and authorities for 10 years. Dylan has extensive experience in rate of return analyses, class cost of service, rate design, and valuation for regulated public utilities. He has testified as an expert witness in the subjects of rate of return, cost of service, rate design, and valuation before 17 regulatory commissions in the U.S. and an American Arbitration Association panel.

He also maintains the benchmark index against which the Hennessy Gas Utility Mutual Fund performance is measured.

Areas of Specialization

- Regulation and Rates
- Utilities
- Mutual Fund Benchmarking
- Capital Market Risk
- Capital Market Risk
- Financial Modeling
- Valuation
- Regulatory Strategy and Rate Case Support
- Rate of Return
- Cost of Service
- Rate Design

Recent Expert Testimony Submission/Appearances

Jurisdiction	***Topic***
Illinois Commerce Commission	Cost of Service, Rate Design
New Jersey Board of Public Utilities	Cost of Service, Rate Design
Hawaii Public Utilities Commission	Cost of Service, Rate Design
South Carolina Public Service Commission	Return on Common Equity
American Arbitration Association	Valuation

Recent Assignments

- Provided expert testimony on the cost of capital for ratemaking purposes before numerous state utility regulatory agencies
- Maintains the benchmark index against which the Hennessy Gas Utility Mutual Fund performance is measured
- Sponsored valuation testimony for a large municipal water company in front of an American Arbitration Association Board to justify the reasonability of their lease payments to the City
- Co-authored a valuation report on behalf of a large investor-owned utility company in response to a new state regulation which allowed the appraised value of acquired assets into rate base

Recent Publications and Speeches

- Co-Author of: "The Impact of Decoupling on the Cost of Capital of Public Utilities", co-authored with Richard A. Michelfelder, Ph.D., Rutgers University and Pauline M. Ahern. (Forthcoming)
- "Establishing Alternative Proxy Groups", before the Society of Utility and Regulatory Financial Analysts: 51st Financial Forum, April 4, 2019, New Orleans, LA.
- "Past is Prologue: Future Test Year", Presentation before the National Association of Water Companies 2017 Southeast Water Infrastructure Summit, May 2, 2017, Savannah, GA.
- Co-author of: "Comparative Evaluation of the Predictive Risk Premium Model™, the Discounted Cash Flow Model and the Capital Asset Pricing Model", co-authored with Richard A. Michelfelder, Ph.D., Rutgers University, Pauline M. Ahern, and Frank J. Hanley, The Electricity Journal, May, 2013.
- "Decoupling: Impact on the Risk and Cost of Common Equity of Public Utility Stocks", before the Society of Utility and Regulatory Financial Analysts: 45th Financial Forum, April 17-18, 2013, Indianapolis, IN.

scottmadden
MANAGEMENT CONSULTANTS

Appendix A
Professional Qualifications of
Dylan W. D'Ascendis, CRRA, CVA

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Regulatory Commission of Alaska				
Alaska Power Company	07/16	Alaska Power Company	Docket No. TA857-2	Rate of Return
Arizona Corporation Commission				
Arizona Water Company	08/18	Arizona Water Company	Docket No. W01445A-18-0164	Rate of Return
Colorado Public Utilities Commission				
Summit Utilities, Inc.	04/18	Colorado Natural Gas Company	Docket No. 18AL-0305G	Return on Equity
Atmos Energy Corporation	06/17	Atmos Energy Corporation	Docket No. 17AL-0429G	Return on Equity
Delaware Public Service Commission				
Tidewater Utilities, Inc.	11/13	Tidewater Utilities, Inc.	Docket No. 13-466	Capital Structure
Hawaii Public Utilities Commission				
Kaupulehu Water Company	02/18	Kaupulehu Water Company	Docket No. 2016-0363	Rate of Return
Aqua Engineers, LLC	05/17	Puhi Sewer & Water Company	Docket No. 2017-0118	Cost of Service / Rate Design
Hawaii Resources, Inc.	09/16	Laie Water Company	Docket No. 2016-0229	Cost of Service / Rate Design
Illinois Commerce Commission				
Utility Services of Illinois, Inc.	11/17	Utility Services of Illinois, Inc.	Docket No. 17-1106	Cost of Service / Rate Design
Aqua Illinois, Inc.	04/17	Aqua Illinois, Inc.	Docket No. 17-0259	Rate of Return
Utility Services of Illinois, Inc.	04/15	Utility Services of Illinois, Inc.	Docket No. 14-0741	Rate of Return
Indiana Utility Regulatory Commission				
Aqua Indiana, Inc.	03/16	Aqua Indiana, Inc. Aboite Wastewater Division	Docket No. 44752	Rate of Return
Twin Lakes, Utilities, Inc.	08/13	Twin Lakes, Utilities, Inc.	Docket No. 44388	Rate of Return
Louisiana Public Service Commission				
Louisiana Water Service, Inc.	06/13	Louisiana Water Service, Inc.	Docket No. U-32848	Rate of Return
Maryland Public Service Commission				
FirstEnergy, Inc.	08/18	Potomac Edison Company	Case No. 9490	Rate of Return
Massachusetts Department of Public Utilities				
Liberty Utilities	07/15	Liberty Utilities d/b/a New England Natural Gas Company	Docket No. 15-75	Rate of Return
Mississippi Public Service Commission				
Atmos Energy	03/19	Atmos Energy	Docket No. 2015-UN-049	Capital Structure
Atmos Energy	07/18	Atmos Energy	Docket No. 2015-UN-049	Capital Structure
Missouri Public Service Commission				
Indian Hills Utility Operating Company, Inc.	10/17	Indian Hills Utility Operating Company, Inc.	Case No. SR-2017-0259	Rate of Return
Raccoon Creek Utility Operating Company, Inc.	09/16	Raccoon Creek Utility Operating Company, Inc.	Docket No. SR-2016-0202	Rate of Return
New Jersey Board of Public Utilities				
Aqua New Jersey, Inc.	12/18	Aqua New Jersey, Inc.	Docket No. WR18121351	Rate of Return
Middlesex Water Company	10/17	Middlesex Water Company	Docket No. WR17101049	Rate of Return

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MANAGEMENT CONSULTANTS

Appendix A
Professional Qualifications of
Dylan W. D'Ascendis, CRRA, CVA

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Middlesex Water Company	03/15	Middlesex Water Company	Docket No. WR15030391	Rate of Return
The Atlantic City Sewerage Company	10/14	The Atlantic City Sewerage Company	Docket No. WR14101263	Cost of Service / Rate Design
Middlesex Water Company	11/13	Middlesex Water Company	Docket No. WR1311059	Capital Structure
North Carolina Utilities Commission				
Carolina Water Service, Inc.	09/18	Carolina Water Service, Inc.	Docket No. W-354 Sub 360	Rate of Return
Aqua North Carolina, Inc.	07/18	Aqua North Carolina, Inc.	Docket No. W-218 Sub 497	Rate of Return
Public Utilities Commission of Ohio				
Aqua Ohio, Inc.	05/16	Aqua Ohio, Inc.	Docket No. 16-0907-WW-AIR	Rate of Return
Pennsylvania Public Utility Commission				
SUEZ Water Pennsylvania Inc.	04/18	SUEZ Water Pennsylvania Inc.	Docket No. R-2018-000834	Rate of Return
Columbia Water Company	09/17	Columbia Water Company	Docket No. R-2017-2598203	Rate of Return
Veolia Energy Philadelphia, Inc.	06/17	Veolia Energy Philadelphia, Inc.	Docket No. R-2017-2593142	Rate of Return
Emporium Water Company	07/14	Emporium Water Company	Docket No. R-2014-2402324	Rate of Return
Columbia Water Company	07/13	Columbia Water Company	Docket No. R-2013-2360798	Rate of Return
Penn Estates Utilities, Inc.	12/11	Penn Estates, Utilities, Inc.	Docket No. R-2011-2255159	Capital Structure / Long-Term Debt Cost Rate
South Carolina Public Service Commission				
Carolina Water Service, Inc.	02/18	Carolina Water Service, Inc.	Docket No. 2017-292-WS	Rate of Return
Carolina Water Service, Inc.	06/15	Carolina Water Service, Inc.	Docket No. 2015-199-WS	Rate of Return
Carolina Water Service, Inc.	11/13	Carolina Water Service, Inc.	Docket No. 2013-275-WS	Rate of Return
United Utility Companies, Inc.	09/13	United Utility Companies, Inc.	Docket No. 2013-199-WS	Rate of Return
Utility Services of South Carolina, Inc.	09/13	Utility Services of South Carolina, Inc.	Docket No. 2013-201-WS	Rate of Return
Tega Cay Water Services, Inc.	11/12	Tega Cay Water Services, Inc.	Docket No. 2012-177-WS	Capital Structure
Virginia State Corporation Commission				
WGL Holdings, Inc.	7/18	Washington Gas Light Company	PUR-2018-00080	Rate of Return
Atmos Energy Corporation	5/18	Atmos Energy Corporation	PUR-2018-00014	Rate of Return
Aqua Virginia, Inc.	7/17	Aqua Virginia, Inc.	PUR-2017-00082	Rate of Return
Massanutten Public Service Corp.	08/14	Massanutten Public Service Corp.	PUE-2014-00035	Rate of Return / Rate Design

Atmos Energy Corporation
Table of Contents
to Exhibit No. DWD-1

Atmos Energy Corporation
Recommended Capital Structure and Cost Rates
for Ratemaking Purposes
at March 30, 2019

Type Of Capital	Ratios (1)	Cost Rate		Weighted Cost Rate
Long-Term Debt	39.88%	4.57%	(2)	1.82%
Common Equity	60.12%	10.25%	(3)	6.16%
Total	100.00%			7.98%

Notes:

(1) From Section 7 of the Company's Minimum Filing Requirements ("MFRs").
(2) From Workpaper 7A of Section 7 of the Company's MFRs.
(3) From page 2 of this Schedule.

Atmos Energy Corporation
Brief Summary of Common Equity Cost Rate

Line No.	Principal Methods	Proxy Group of Six Natural Gas Distribution Companies
1.	Discounted Cash Flow Model (DCF) (1)	8.92%
2.	Risk Premium Model (RPM) (2)	9.94%
3.	Capital Asset Pricing Model (CAPM) (3)	9.67%
4.	Market Models Applied to Comparable Risk, Non-Price Regulated Companies (4)	10.59%
5.	Indicated Common Equity Cost Rate before Adjustment for Company-Specific Risk	9.80%
6.	Size Risk Adjustment (5)	0.40%
7.	Flotation Cost Adjustment (6)	0.04%
8.	Indicated Common Equity Cost Rate	10.24%
9.	Recommended Common Equity Cost Rate	10.25%

Notes:
(1) From Schedule DWD-3.
(2) From page 1 of Schedule DWD-4.
(3) From page 1 of Schedule DWD-5.
(4) From page 1 of Schedule DWD-7.
(5) From Schedule DWD-8.
(6) From Schedule DWD-9.

Proxy Group of Six Natural Gas Distribution Companies
CAPITALIZATION AND FINANCIAL STATISTICS (1)
2014 - 2018, Inclusive

	2018	2017	2016	2015	2014	5 YEAR AVERAGE
			(MILLIONS OF DOLLARS)			
CAPITALIZATION STATISTICS						
AMOUNT OF CAPITAL EMPLOYED						
TOTAL PERMANENT CAPITAL	$4,223.055	$3,615.498	$3,332.467	$3,123.216	$3,068.855	
SHORT-TERM DEBT	$344.833	$316.227	$287.152	$254.694	$168.533	
TOTAL CAPITAL EMPLOYED	$4,567.888	$3,931.725	$3,619.619	$3,377.910	$3,237.388	
INDICATED AVERAGE CAPITAL COST RATES (2)						
TOTAL DEBT	3.80 %	3.86 %	3.68 %	3.80 %	3.87 %	
CAPITAL STRUCTURE RATIOS						
BASED ON TOTAL PERMANENT CAPITAL:						
LONG-TERM DEBT	48.45 %	47.28 %	45.61 %	46.68 %	48.41 %	47.29 %
PREFERRED STOCK	-	-	-	-	-	-
COMMON EQUITY	51.55	52.72	54.39	53.32	51.59	52.71
TOTAL	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
BASED ON TOTAL CAPITAL:						
TOTAL DEBT, INCLUDING SHORT-TERM	52.73 %	51.57 %	49.33 %	51.14 %	51.63 %	51.28 %
PREFERRED STOCK	-	-	-	-	-	-
COMMON EQUITY	47.27	48.43	50.67	48.86	48.37	48.72
TOTAL	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
FINANCIAL STATISTICS						
FINANCIAL RATIOS - MARKET BASED						
EARNINGS / PRICE RATIO	4.32 %	2.63 %	4.76 %	5.35 %	6.33 %	4.68 %
MARKET / AVERAGE BOOK RATIO	201.66	209.36	186.72	151.29	150.42	179.89
DIVIDEND YIELD	2.89	2.76	2.95	3.32	3.37	3.06
DIVIDEND PAYOUT RATIO	56.76	52.38	62.14	62.24	64.35	59.57
RATE OF RETURN ON AVERAGE BOOK COMMON EQUITY	8.60 %	5.29 %	8.91 %	8.67 %	8.76 %	8.05 %
TOTAL DEBT / EBITDA (3)	5.98 x	4.83 x	3.85 x	4.05 x	4.71 x	4.68 x
FUNDS FROM OPERATIONS / TOTAL DEBT (4)	19.59 %	16.60 %	25.43 %	23.60 %	20.43 %	21.13 %
TOTAL DEBT / TOTAL CAPITAL	52.73 %	51.57 %	49.33 %	51.14 %	51.63 %	51.28 %

Notes:

(1) All capitalization and financial statistics for the group are the arithmetic average of the achieved results for each individual company in the group, and are based upon financial statements as originally reported in each year.

(2) Computed by relating actual total debt interest or preferred stock dividends booked to average of beginning and ending total debt or preferred stock reported to be outstanding.

(3) Total debt relative to EBITDA (Earnings before Interest, Income Taxes, Depreciation and Amortization).

(4) Funds from operations (sum of net income, depreciation, amortization, net deferred income tax and investment tax credits, less total AFUDC) plus interest charges as a percentage of total debt.

Source of Information: Company Annual Forms 10-K

Capital Structure Based upon Total Permanent Capital for the
Proxy Group of Six Natural Gas Distribution Companies
2014 - 2018, Inclusive

	2018	2017	2016	2015	2014	5 YEAR AVERAGE
Atmos Energy Corporation						
Long-Term Debt	39.15 %	44.03 %	41.32 %	43.46 %	44.31 %	42.45 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	60.85	55.97	58.68	56.54	55.69	57.55
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
NW Natural Holdings						
Long-Term Debt	49.12 %	51.22 %	45.82 %	43.52 %	46.30 %	47.20 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	50.88	48.78	54.18	56.48	53.70	52.80
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
ONE Gas, Inc.						
Long-Term Debt	38.62 %	37.84 %	38.71 %	39.48 %	40.11 %	38.95 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	61.38	62.16	61.29	60.52	59.89	61.05
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
South Jersey Industries, Inc.						
Long-Term Debt	69.16 %	49.88 %	44.65 %	49.96 %	51.98 %	53.13 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	30.84	50.12	55.35	50.04	48.02	46.87
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Southwest Gas Holdings, Inc.						
Long-Term Debt	48.73 %	49.45 %	49.06 %	49.63 %	52.67 %	49.91 %
Preferred Stock	0.00	0.00	0.01	0.00	0.00	0.00
Common Equity	51.27	50.55	50.94	50.37	47.33	50.09
Total Capital	100.00 %	100.00 %	100.01 %	100.00 %	100.00 %	100.00 %
Spire, Inc.						
Long-Term Debt	45.95 %	51.27 %	54.10 %	54.06 %	55.10 %	52.10 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	54.05	48.73	45.90	45.94	44.90	47.90
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Proxy Group of Six Natural Gas Distribution Companies						
Long-Term Debt	48.45 %	47.28 %	45.61 %	46.69 %	48.41 %	47.29 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	51.55	52.72	54.39	53.32	51.59	52.71
Total Capital	100.00 %	100.00 %	100.00 %	100.01 %	100.00 %	100.00 %

Source of Information
Annual Forms 10-K

Atmos Energy Corporation
Indicated Common Equity Cost Rate Using the Discounted Cash Flow Model for
Proxy Group of Six Natural Gas Distribution Companies

Proxy Group of Six Natural Gas Distribution Companies	[1] Average Dividend Yield (1)	[2] Value Line Projected Five Year Growth in EPS (2)	[3] Zack's Five Year Projected Growth Rate in EPS	[4] Yahoo! Finance Projected Five Year Growth in EPS	[5] Average Projected Five Year Growth in EPS (3)	[6] Adjusted Dividend Yield (4)	[7] Indicated Common Equity Cost Rate (5)
Atmos Energy Corporation	2.08 %	7.50 %	6.50 %	6.45 %	6.82 %	2.15 %	8.97 %
NW Natural Holdings	2.88	NMF	4.50	4.00	4.25	2.94	7.19
ONE Gas, Inc.	2.28	9.00	5.90	5.00	6.63	2.36	8.99
South Jersey Industries, Inc.	3.64	9.50	7.20	5.90	7.53	3.78	11.31
Southwest Gas Holdings, Inc.	2.63	8.50	6.20	6.30	7.00	2.72	9.72
Spire, Inc.	2.89	5.50	3.80	2.82	4.04	2.95	6.99
						Average	8.86 %
						Median	8.98 %
						Average of Mean and Median	8.92 %

NA= Not Available

Notes:

(1) Indicated dividend at 05/17/2019 divided by the average closing price of the last 60 trading days ending 05/17/2019 for each company.

(2) From pages 2 through 7 of this Schedule.

(3) Average of columns 2 through 4 excluding negative growth rates.

(4) This reflects a growth rate component equal to one-half the conclusion of growth rate (from column 5) x column 1 to reflect the periodic payment of dividends (Gordon Model) as opposed to the continuous payment. Thus, for Atmos Energy Corporation, 2.08% x (1+(1/2 x 6.82%)) = 2.15%

(5) Column 5 + column 6.

Source of Information:

Value Line Investment Survey
www.zacks.com Downloaded on 05/17/2019
www.yahoo.com Downloaded on 05/17/2019

ATMOS ENERGY CORP. NYSE-ATO

RECENT PRICE 97.30 | P/E RATIO 23.2 (Trailing: 24.3 Median: 16.0) | RELATIVE P/E RATIO 1.34 | DIV'D YLD 2.2% | VALUE LINE

TIMELINESS 3 Lowered 11/30/18
SAFETY 1 Raised 6/6/14
TECHNICAL 2 Lowered 2/1/19
BETA .60 (1.00 = Market)

2022-24 PROJECTIONS

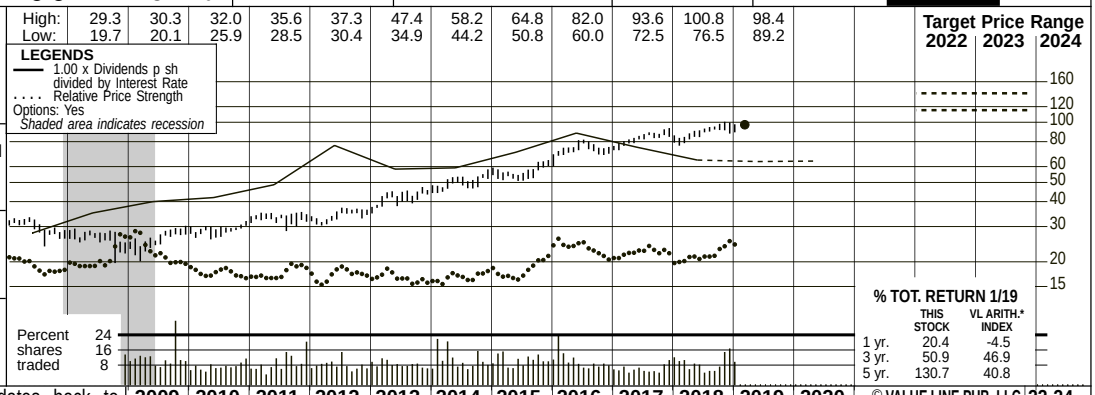
	Price	Gain	Ann'l Total Return
High	140	(+45%)	*11%*
Low	115	(+20%)	*7%*

Insider Decisions

	A	M	J	J	A	S	O	N	D
to Buy	0	0	0	0	0	0	0	0	0
Options	2	7	1	2	1	0	2	8	0
to Sell	0	0	0	0	1	0	0	0	0

Institutional Decisions

	1Q2018	2Q2018	3Q2018
to Buy	181	201	185
to Sell	192	162	175
Hld's(000)	81917	83010	82454



% TOT. RETURN 1/19

	THIS STOCK	VL ARITH.* INDEX
1 yr.	20.4	-4.5
3 yr.	50.9	46.9
5 yr.	130.7	40.8

Atmos Energy's history dates back to 1906 in the Texas Panhandle. Over the years, through various mergers, it became part of Pioneer Corporation, and, in 1981, Pioneer named its gas distribution division Energas. In 1983, Pioneer organized Energas as a separate subsidiary and distributed the outstanding shares of Energas to Pioneer shareholders. Energas changed its name to Atmos in 1988. Atmos acquired Trans Louisiana Gas in 1986, Western Kentucky Gas Utility in 1987, Greeley Gas in 1993, United Cities Gas in 1997, and others.

CAPITAL STRUCTURE as of 12/31/18
Total Debt $3659.8 mill. **Due in 5 Yrs** $1150.0 mill.
LT Debt $3084.8 mill. **LT Interest** $180.0 mill.
(LT interest earned: 6.7x; total interest coverage: 6.7x)
Leases, Uncapitalized Annual rentals $17.7 mill.
Pfd Stock None
Pension Assets-9/18 $531.7 mill.
Oblig. $504.7 mill.
Common Stock 116,897,373 shs.
as of 1/30/19
MARKET CAP: $11.4 billion (Large Cap)

CURRENT POSITION ($MILL.)	2017	2018	12/31/18
Cash Assets	26.4	13.8	218.2
Other	513.2	465.1	694.5
Current Assets	539.6	478.9	912.7
Accts Payable	233.0	217.3	301.7
Debt Due	447.7	1150.8	575.0
Other	332.7	547.0	578.8
Current Liab.	1013.4	1915.1	1455.5
Fix. Chg. Cov.	805%	926%	920%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '16-'18 to '22-'24
Revenues	-9.0%	-8.0%	*5.0%*
"Cash Flow"	5.0%	6.5%	*5.5%*
Earnings	6.5%	10.0%	*7.5%*
Dividends	3.5%	5.5%	*7.0%*
Book Value	5.5%	7.0%	*7.0%*

Fiscal Year Ends	QUARTERLY REVENUES ($ mill.) A Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2016	906.2	1132.3	632.9	678.5	3349.9
2017	780.2	988.2	526.5	464.8	2759.7
2018	889.2	1219.4	562.2	444.7	3115.5
2019	877.8	***1260***	***605***	***457.2***	***3200***
2020	***930***	***1285***	***625***	***500***	***3340***

Fiscal Year Ends	EARNINGS PER SHARE A B E Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2016	1.00	1.38	.69	.33	3.38
2017	1.08	1.52	.67	.34	3.60
2018	1.40	1.57	.64	.41	4.00
2019	1.38	***1.64***	***.71***	***.47***	***4.20***
2020	***1.48***	***1.70***	***.77***	***.50***	***4.45***

Cal-endar	QUARTERLY DIVIDENDS PAID C■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	.39	.39	.39	.42	1.59
2016	.42	.42	.42	.45	1.71
2017	.45	.45	.45	.485	1.84
2018	.485	.485	.485	.525	1.98
2019	.525				

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	© VALUE LINE PUB. LLC	22-24
	53.69	53.12	48.15	38.10	42.88	49.22	40.82	32.23	26.01	28.00	***26.65***	***26.70***	Revenues per sh A	***37.95***
	4.29	4.64	4.72	4.76	5.14	5.42	5.81	6.19	6.62	7.24	***7.35***	***7.70***	"Cash Flow" per sh	***9.20***
	1.97	2.16	2.26	2.10	2.50	2.96	3.09	3.38	3.60	4.00	***4.20***	***4.45***	Earnings per sh AB	***5.60***
	1.32	1.34	1.36	1.38	1.40	1.48	1.56	1.68	1.80	1.94	***2.10***	***2.24***	Div'ds Decl'd per sh C■	***2.70***
	5.51	6.02	6.90	8.12	9.32	8.32	9.61	10.46	10.72	13.19	***14.15***	***14.40***	Cap'l Spending per sh	***13.80***
	23.52	24.16	24.98	26.14	28.47	30.74	31.48	33.32	36.74	42.87	***46.55***	***46.35***	Book Value per sh	***56.05***
	92.55	90.16	90.30	90.24	90.64	100.39	101.48	103.93	106.10	111.27	***120.00***	***125.00***	Common Shs Outst'g D	***145.00***
	12.5	13.2	14.4	15.9	15.9	16.1	17.5	20.8	22.0	21.7	*Bold figures are*		Avg Ann'l P/E Ratio	***23.0***
	.83	.84	.90	1.01	.89	.85	.88	1.09	1.11	1.17	*Value Line*		Relative P/E Ratio	***1.30***
	5.3%	4.7%	4.2%	4.1%	3.5%	3.1%	2.9%	2.4%	2.3%	2.2%	*estimates*		Avg Ann'l Div'd Yield	***2.1%***
	4969.1	4789.7	4347.6	3438.5	3886.3	4940.9	4142.1	3349.9	2759.7	3115.5	***3200***	***3340***	Revenues ($mill) A	***5500***
	179.7	201.2	199.3	192.2	230.7	289.8	315.1	350.1	382.7	444.3	***490***	***545***	Net Profit ($mill)	***815***
	34.4%	38.5%	36.4%	33.8%	38.2%	39.2%	38.3%	36.4%	36.6%	27.0%	***22.5%***	***22.5%***	Income Tax Rate	***24.0%***
	3.6%	4.2%	4.6%	5.6%	5.9%	5.9%	7.6%	10.5%	13.9%	14.3%	***15.3%***	***16.3%***	Net Profit Margin	***14.8%***
	49.9%	45.4%	49.4%	45.3%	48.8%	44.3%	43.5%	38.7%	44.0%	34.3%	***36.5%***	***37.0%***	Long-Term Debt Ratio	***35.0%***
	50.1%	54.6%	50.6%	54.7%	51.2%	55.7%	56.5%	61.3%	56.0%	65.7%	***63.5%***	***63.0%***	Common Equity Ratio	***65.0%***
	4346.2	3987.9	4461.5	4315.5	5036.1	5542.2	5650.2	5651.8	6965.7	7263.6	***8800***	***9200***	Total Capital ($mill)	***12500***
	4439.1	4793.1	5147.9	5475.6	6030.7	6725.9	7430.6	8280.5	9259.2	10371	***11300***	***12400***	Net Plant ($mill)	***15800***
	5.9%	6.9%	6.1%	6.1%	5.9%	6.4%	6.6%	7.2%	6.4%	6.9%	***6.5%***	***7.0%***	Return on Total Cap'l	***7.5%***
	8.3%	9.2%	8.8%	8.1%	8.9%	9.4%	9.9%	10.1%	9.8%	9.3%	***9.0%***	***9.5%***	Return on Shr. Equity	***10.0%***
	8.3%	9.2%	8.8%	8.1%	8.9%	9.4%	9.9%	10.1%	9.8%	9.3%	***9.0%***	***9.5%***	Return on Com Equity	***10.0%***
	2.7%	3.5%	3.3%	2.8%	4.0%	4.7%	4.9%	5.1%	4.9%	4.8%	***4.5%***	***4.5%***	Retained to Com Eq	***5.0%***
	68%	62%	62%	65%	56%	50%	51%	50%	50%	48%	***51%***	***51%***	All Div'ds to Net Prof	***48%***

BUSINESS: Atmos Energy Corporation is engaged primarily in the distribution and sale of natural gas to over three million customers through six regulated natural gas utility operations: Louisiana Division, West Texas Division, Mid-Tex Division, Mississippi Division, Colorado-Kansas Division, and Kentucky/Mid-States Division. Gas sales breakdown for fiscal 2018: 66%, residential; 28%, commercial; 5%, industrial; and 1% other. The company sold Atmos Energy Marketing, 1/17. Officers and directors own approximately 1.4% of common stock (12/18 Proxy). President and Chief Executive Officer: Michael E. Haefner. Inc.: Texas. Address: Three Lincoln Centre, Suite 1800, 5430 LBJ Freeway, Dallas, Texas 75240. Telephone: 972-934-9227. Internet: www.atmosenergy.com.

Despite the slow start, Atmos Energy stands to post higher share net for fiscal 2019 as a whole. (The year ends on September 30th.) This should be brought about largely by the natural gas distribution unit, assuming that the weather helps, which ought to boost consumption levels. (The first two quarters tend to be the strongest for the company because they include the key heating season months of October through March.) Furthermore, results of the pipeline & storage division should benefit partly from increased rates from the Gas Reliability Infrastructure Program filings approved in December, 2017 and May, 2018. At this juncture, it seems that the bottom line will advance around 5%, to $4.20 a share, relative to the previous year's tally of $4.00. Turning to fiscal 2020, we believe that share net will rise at a similar percentage rate, to $4.45, as operating margins widen further.

The Financial Strength rating is healthy, at A+. When the first quarter concluded, cash and equivalents were approximately $218 million. Furthermore, long-term debt sat at a manageable 36% of total capital, and short-term obligations did not appear to present a major stumbling block. Too, $1.8 billion of common stock and/or debt securities remained available for issuance under a shelf registration statement. Finally, Atmos can access a $1.5 billion commercial paper program plus three revolving credit facilities aggregating $1.5 billion. All told, it seems capable of satisfying working capital, capital spending, and other cash requirements for quite a while. What's more, acquisitions are plausible, although they are not incorporated into our figures because of many factors.

The stock has some good characteristics. Among them is the 1 (Highest) Safety rank. Consider, too, the top score for Price Stability and lower-than-market Beta coefficient.

But the dividend yield is not exciting, stacked against those of other equities in *Value Line's* Natural Gas Utility universe. Still, we anticipate further steady hikes in the well-covered payout over the 3- to 5-year period. Right now, the Timeliness rank resides at 3 (Average).

Frederick L. Harris, III *March 1, 2019*

(A) Fiscal year ends Sept. 30th. **(B)** Diluted shrs. Excl. nonrec. items: '09, 12¢; '10, 5¢; '11, (1¢); '18, $1.43. Excludes discontinued operations: '11, 10¢; '12, 27¢; '13, 14¢; '17, 13¢. Next egs. rpt. due early May. **(C)** Dividends historically paid in early March, June, Sept., and Dec. ■ Div. reinvestment plan. Direct stock purchase plan avail. **(D)** In millions. **(E)** Qtrs may not add due to change in shrs outstanding.

Company's Financial Strength	A+
Stock's Price Stability	100
Price Growth Persistence	80
Earnings Predictability	100

N.W. NATURAL NYSE-NWN

RECENT PRICE **64.18** | P/E RATIO **26.1** (Trailing: NMF, Median: 20.0) | RELATIVE P/E RATIO **1.51** | DIV'D YLD **3.0%** | **VALUE LINE**

TIMELINESS 3 Raised 11/9/18
SAFETY 1 Raised 3/18/05
TECHNICAL 3 Lowered 3/1/19
BETA .65 (1.00 = Market)

2022-24 PROJECTIONS

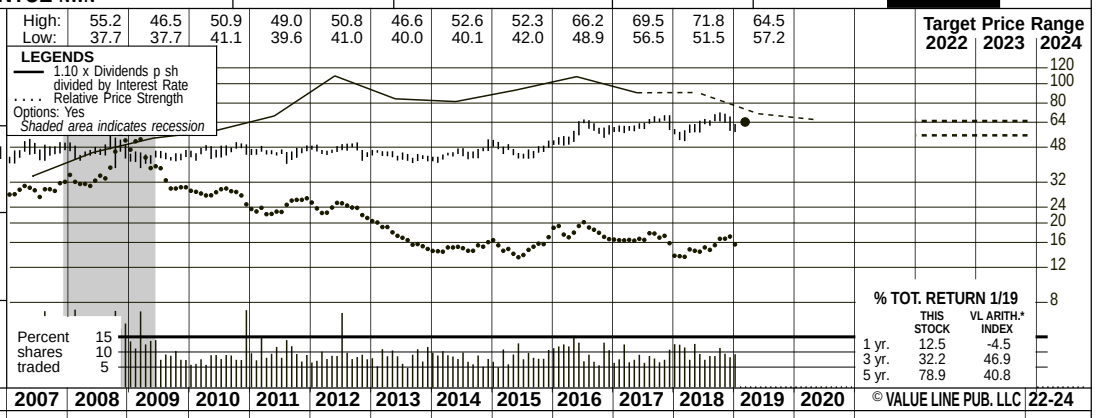
	Price	Gain	Ann'l Total Return
High	65	(Nil)	*4%*
Low	55	(-15%)	*Nil*

Insider Decisions

	A	M	J	J	A	S	O	N	D
to Buy	0	0	0	0	0	0	0	0	0
Options	0	4	0	0	4	0	0	0	1
to Sell	0	0	0	0	5	0	0	0	1

Institutional Decisions

	1Q2018	2Q2018	3Q2018
to Buy	94	89	78
to Sell	106	79	95
Hld's(000)	19492	19840	19034



2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	© VALUE LINE PUB. LLC	22-24
23.57	25.69	33.01	37.20	39.13	39.16	38.17	30.56	31.72	27.14	28.02	27.64	26.39	23.61	26.52	*25.40*	*27.65*	*28.50*	Revenues per sh	*28.45*
3.85	3.92	4.34	4.76	5.41	5.31	5.20	5.18	5.00	4.94	5.04	5.05	4.91	4.93	1.04	*4.75*	*5.25*	*5.45*	"Cash Flow" per sh	*6.35*
1.76	1.86	2.11	2.35	2.76	2.57	2.83	2.73	2.39	2.22	2.24	2.16	1.96	2.12	d1.94	*2.20*	*2.45*	*2.60*	Earnings per sh A	*3.50*
1.27	1.30	1.32	1.39	1.44	1.52	1.60	1.68	1.75	1.79	1.83	1.85	1.86	1.87	1.88	1.89	*1.93*	*1.97*	Div'ds Decl'd per sh B■	*2.20*
4.90	5.52	3.48	3.56	4.48	3.92	5.09	9.35	3.76	4.91	5.13	4.40	4.37	4.87	7.43	*6.80*	*6.65*	*6.65*	Cap'l Spending per sh	*6.25*
19.52	20.64	21.28	22.01	22.52	23.71	24.88	26.08	26.70	27.23	27.77	28.12	28.47	29.71	25.85	*26.30*	*27.30*	*28.20*	Book Value per sh D	*29.40*
25.94	27.55	27.58	27.24	26.41	26.50	26.53	26.58	26.76	26.92	27.08	27.28	27.43	28.63	28.74	*29.50*	*30.00*	*30.50*	Common Shs Outst'g C	*32.00*
15.8	16.7	17.0	15.9	16.7	18.1	15.2	17.0	19.0	21.1	19.4	20.7	23.7	26.9	26.9	*28.2*	*Bold figures are*		Avg Ann'l P/E Ratio	*17.0*
.90	.88	.91	.86	.89	1.09	1.01	1.08	1.19	1.34	1.09	1.09	1.19	1.41	1.41	*1.51*	*Value Line estimates*		Relative P/E Ratio	*.95*
4.6%	4.2%	3.7%	3.7%	3.1%	3.3%	3.7%	3.6%	3.9%	3.8%	4.2%	4.1%	4.0%	3.3%	3.0%	3.0%			Avg Ann'l Div'd Yield	*3.7%*
1012.7	812.1	848.8	730.6	758.5	754.0	723.8	676.0	762.2	*750*	*830*	*870*	Revenues ($mill)	*910*
75.1	72.7	63.9	59.9	60.5	58.7	53.7	58.9	d55.6	*65.0*	*80.0*	*85.0*	Net Profit ($mill)	*90.0*
38.3%	40.5%	40.4%	42.4%	40.8%	41.5%	40.0%	40.9%	40.9%	*21.0%*	*21.0%*	*21.0%*	Income Tax Rate	*21.0%*
7.4%	8.9%	7.5%	8.2%	8.0%	7.8%	7.4%	8.7%	NMF	*8.6%*	*8.8%*	*9.1%*	Net Profit Margin	*12.3%*
47.7%	46.1%	47.3%	48.5%	47.6%	44.8%	42.5%	44.4%	47.9%	*47.5%*	*47.0%*	*47.0%*	Long-Term Debt Ratio	*46.5%*
52.3%	53.9%	52.7%	51.5%	52.4%	55.2%	57.5%	55.6%	52.1%	*52.5%*	*53.0%*	*53.0%*	Common Equity Ratio	*53.5%*
1261.8	1284.8	1356.2	1424.7	1433.6	1389.0	1357.7	1529.8	1426.0	*1485*	*1550*	*1615*	Total Capital ($mill)	*1750*
1670.1	1854.2	1893.9	1973.6	2062.9	2121.6	2182.7	2260.9	2255.0	*2345*	*2440*	*2640*	Net Plant ($mill)	*2745*
7.3%	7.0%	6.2%	5.7%	5.8%	5.8%	5.5%	5.1%	NMF	*5.5%*	*6.0%*	*6.0%*	Return on Total Cap'l	*7.5%*
11.4%	10.5%	8.9%	8.2%	8.1%	7.6%	6.9%	6.9%	NMF	*8.5%*	*9.0%*	*9.0%*	Return on Shr. Equity	*12.0%*
11.4%	10.5%	8.9%	8.2%	8.1%	7.6%	6.9%	6.9%	NMF	*8.5%*	*9.0%*	*9.0%*	Return on Com Equity	*12.0%*
5.0%	4.0%	2.4%	1.6%	1.5%	1.1%	.6%	.9%	NMF	*1.0%*	*2.0%*	*2.0%*	Retained to Com Eq	*4.5%*
56%	61%	73%	80%	81%	85%	92%	87%	NMF	*86%*	*79%*	*76%*	All Div'ds to Net Prof	*63%*

CAPITAL STRUCTURE as of 9/30/18
Total Debt $910.1 mill. **Due in 5 Yrs** $360.0 mill.
LT Debt $724.7 mill. **LT Interest** $40.0 mill.

(Total interest coverage: 3.2x)

Pension Assets-12/17 $287.9 mill.
Oblig. $486.3 mill.

Pfd Stock None

Common Stock 28,844,682 shares
as of 10/26/18

MARKET CAP $1.9 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2016	2017	9/30/18
Cash Assets	3.5	3.5	30.0
Other	284.6	266.4	188.2
Current Assets	288.1	269.9	218.2
Accts Payable	85.7	112.3	80.1
Debt Due	93.3	150.9	185.4
Other	95.5	118.7	117.4
Current Liab.	274.5	381.9	382.9
Fix. Chg. Cov.	390%	362%	320%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '15-'17 to '22-'24
Revenues	-3.5%	-3.0%	*1.5%*
"Cash Flow"	-3.0%	-6.5%	*8.5%*
Earnings	-11.5%	-22.0%	*25.5%*
Dividends	3.0%	1.5%	*2.5%*
Book Value	2.5%	1.0%	*.5%*

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2016	255.6	99.2	87.7	233.5	676.0
2017	297.3	136.3	88.2	240.4	762.2
2018	264.7	124.6	91.2	***269.5***	*750*
2019	*300*	*130*	*120*	*280*	*830*
2020	*310*	*140*	*130*	*290*	*870*

Calendar	EARNINGS PER SHARE A Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2016	1.33	.07	d.29	1.01	2.12
2017	1.40	.10	d.30	d3.14	d1.94
2018	1.44	d.01	d.39	***1.16***	***2.20***
2019	***1.50***	***.10***	***d.30***	***1.15***	***2.45***
2020	***1.55***	***.10***	***d.25***	***1.20***	***2.60***

Calendar	QUARTERLY DIVIDENDS PAID B ■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	.465	.465	.465	.4675	1.86
2016	.4675	.4675	.4675	.470	1.87
2017	.470	.470	.470	.4725	1.88
2018	.4725	.4725	.4725	.475	1.89
2019	.475				

BUSINESS: Northwest Natural Holding Co. distributes natural gas to 1000 communities, 735,000 customers, in Oregon (89% of customers) and in southwest Washington state. Principal cities served: Portland and Eugene, OR; Vancouver, WA. Service area population: 3.7 mill. (77% in OR). Company buys gas supply from Canadian and U.S. producers; has transportation rights on Northwest Pipeline system. Owns local underground storage. Rev. breakdown: residential, 38%; commercial, 22%; industrial, gas transportation, 40%. Employs 1,146. BlackRock Inc. owns 13.1% of shares; officers and directors, 1.2% (4/18 proxy). CEO: David H. Anderson. Inc.: Oregon. Address: 220 NW 2nd Ave., Portland, OR 97209. Tel.: 503-226-4211. Int.: www.nwnatural.com.

Northwest Natural Holding likely had decent fourth-quarter results. The top line benefited from the addition of several water utility operations, while seasonably cooler weather probably caused much higher natural gas throughput. However, maintenance expense was likely greater, and interest costs probably rose alongside the debt load. Still, a much-lower tax rate year over year was likely, especially considering the large one-time liability last year associated with U.S. tax reform. Overall, we think earnings rose to $1.16 per share in the quarter.

The construction of the North Mist Storage facility should be completed by the end of the quarter. Though this was originally expected to be in service by the end of the winter, management now thinks operations will start by March 31st. This project will provide no-notice natural gas delivery to Portland General Electric and will help to boost earnings.

The company has filed for a new rate case in the Washington coverage area. It asked for a 12.6% rate hike in its first filing in over a decade. An outcome will be decided by the Washington Utilities and Transport Commission, and is slated to occur by December of this year. Though the company will probably receive a rate hike, we think it will not receive the full 12.6% for which it is asking. All told, earnings will likely reach $2.45 per share in 2019, $2.60 in 2020, and $3.50 by the 2022-2024 period.

The dividend is a priority. The yield is not that exciting for a utility, although the distribution is well covered by earnings. However, the payout will probably grow at a much slower pace than others in the industry over the coming years. There is a chance the pace will accelerate thanks to the Mist capital project.

Shares of Northwest Natural Holding are neutrally ranked for Timeliness. NWN holds our highest Safety rank (1) and a good score for Price Stability, but the shares appear to be fully valued on a price-to-earnings basis. In addition, the equity is trading above the high end of our long-term Target Price Range. Though this equity may hold some appeal to income-seekers, we think waiting for a price dip is prudent.

John E. Seibert III *March 1, 2019*

(A) Diluted earnings per share. Excludes nonrecurring items: '06, ($0.06); '08, ($0.03); '09, 6¢; May not sum due to rounding. Next earnings report due in early May.
(B) Dividends historically paid in mid-February, May, August, and November.
■ Dividend reinvestment plan available.
(C) In millions.
(D) Includes intangibles. In 2017: $356.6 million, $12.40/share.

Company's Financial Strength	A
Stock's Price Stability	95
Price Growth Persistence	20
Earnings Predictability	10

ONE GAS, INC. NYSE-OGS

RECENT PRICE **84.14** | P/E RATIO **24.7** (Trailing: 25.1 Median: NMF) | RELATIVE P/E RATIO **1.43** | DIV'D YLD **2.4%** | **VALUE LINE**

TIMELINESS 3 Lowered 8/31/18
SAFETY 2 New 6/2/17
TECHNICAL 1 Raised 1/18/19
BETA .65 (1.00 = Market)

2022-24 PROJECTIONS

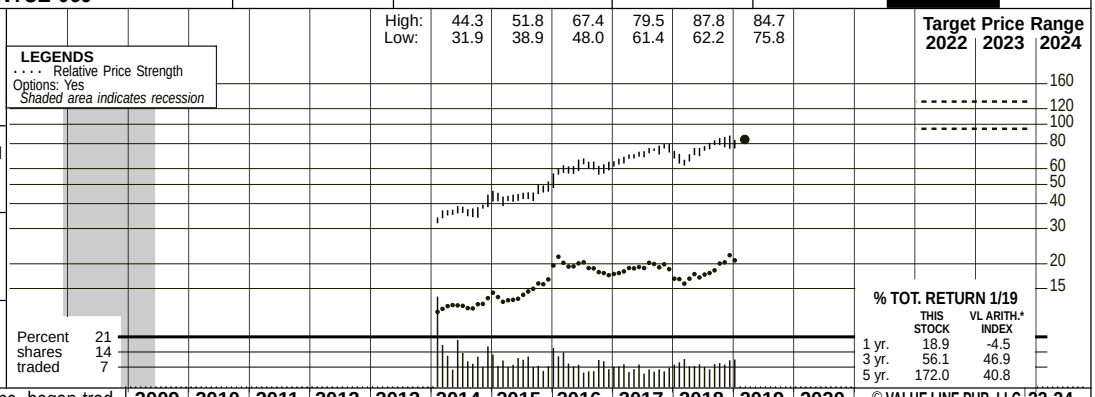
	Price	Gain	Ann'l Total Return
High	130	(+55%)	*13%*
Low	95	(+15%)	*6%*

Insider Decisions

	A	M	J	J	A	S	O	N	D
to Buy	0	1	0	0	0	1	0	0	0
Options	0	3	0	0	2	0	0	0	0
to Sell	0	0	0	0	0	0	0	0	0

Institutional Decisions

	1Q2018	2Q2018	3Q2018
to Buy	115	133	129
to Sell	160	123	134
Hld's(000)	38929	39130	39573



The shares of ONE Gas, Inc. began trading "regular-way" on the New York Stock Exchange on February 3, 2014. That happened as a result of the separation of ONEOK's natural gas distribution operation. Regarding the details of the spinoff, on January 31, 2014, ONEOK distributed one share of OGS common stock for every four shares of ONEOK common stock held by ONEOK shareholders of record as of the close of business on January 21. It should be mentioned that ONEOK did not retain any ownership interest in the new company.

CAPITAL STRUCTURE as of 9/30/18
Total Debt $1469.9 mill. **Due in 5 Yrs** $655.0 mill.
LT Debt $893.9 mill. **LT Interest** $70.0 mill.
(LT interest earned: 6.5x; total interest coverage: 6.5x)
Leases, Uncapitalized Annual rentals $4.7 mill.
Pfd Stock None
Pension Assets-12/17 $884.8 mill.
Oblig. $993.9 mill.
Common Stock 52,526,346 shs.
as of 10/23/18
MARKET CAP: $4.4 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2016	2017	9/30/18
Cash Assets	14.7	14.4	12.4
Other	554.2	574.6	362.1
Current Assets	568.9	589.0	374.5
Accts Payable	132.0	143.7	68.3
Debt Due	145.0	357.2	576.0
Other	166.9	172.4	191.7
Current Liab.	443.9	673.3	836.0
Fix. Chg. Cov.	685%	774%	700%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '15-'17 to '22-'24
Revenues	--	--	*5.0%*
"Cash Flow"	--	--	*7.5%*
Earnings	--	--	*9.0%*
Dividends	--	--	*9.5%*
Book Value	--	--	*4.0%*

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2016	508.4	245.9	232.2	440.7	1427.2
2017	550.4	279.7	247.1	462.4	1539.6
2018	638.5	292.5	238.3	464.4	1633.7
2019	*670*	*310*	*265*	*470*	*1715*
2020	*700*	*330*	*290*	*485*	*1805*

Calendar	EARNINGS PER SHARE [A] Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2016	1.22	.38	.25	.80	2.65
2017	1.34	.39	.36	.93	3.02
2018	1.72	.39	.31	.84	3.25
2019	*1.78*	*.43*	*.36*	*.88*	*3.45*
2020	*1.87*	*.48*	*.42*	*.93*	*3.70*

Calendar	QUARTERLY DIVIDENDS PAID [B] Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	.30	.30	.30	.30	1.20
2016	.35	.35	.35	.35	1.40
2017	.42	.42	.42	.42	1.68
2018	.46	.46	.46	.46	1.84
2019	.50				

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	© VALUE LINE PUB. LLC	22-24
	--	--	--	--	--	34.92	29.62	27.30	29.43	*31.10*	*32.35*	*33.75*	Revenues per sh	*40.00*
	--	--	--	--	--	4.52	4.82	5.43	5.96	*6.35*	*6.90*	*7.30*	"Cash Flow" per sh	*9.00*
	--	--	--	--	--	2.07	2.24	2.65	3.02	3.25	*3.45*	*3.70*	Earnings per sh [A]	*4.75*
	--	--	--	--	--	.84	1.20	1.40	1.68	1.84	*2.00*	*2.16*	Div'ds Decl'd per sh [B] ■	*2.65*
	--	--	--	--	--	5.70	5.63	5.91	6.81	*7.50*	*8.50*	*8.70*	Cap'l Spending per sh	*8.90*
	--	--	--	--	--	34.45	35.24	36.12	37.47	*38.85*	*41.05*	*42.75*	Book Value per sh	*47.90*
	--	--	--	--	--	52.08	52.26	52.28	52.31	*52.50*	*53.00*	*53.50*	Common Shs Outst'g [C]	*55.00*
	--	--	--	--	--	17.8	19.8	22.7	23.5	23.1	*Bold figures are*		Avg Ann'l P/E Ratio	*24.0*
	--	--	--	--	--	.94	1.00	1.19	1.18	1.25	*Value Line*		Relative P/E Ratio	*1.35*
	--	--	--	--	--	2.3%	2.7%	2.3%	2.4%	2.5%	*estimates*		Avg Ann'l Div'd Yield	*2.4%*
	--	--	--	--	--	1818.9	1547.7	1427.2	1539.6	1633.7	*1715*	*1805*	Revenues ($mill)	*2200*
	--	--	--	--	--	109.8	119.0	140.1	159.9	172.2	*185*	*200*	Net Profit ($mill)	*260*
	--	--	--	--	--	38.4%	38.0%	37.8%	36.4%	23.7%	*23.5%*	*23.5%*	Income Tax Rate	*23.5%*
	--	--	--	--	--	6.0%	7.7%	9.8%	10.4%	10.5%	*10.8%*	*11.1%*	Net Profit Margin	*11.8%*
	--	--	--	--	--	40.1%	39.5%	38.7%	37.8%	*38.5%*	*38.0%*	*38.0%*	Long-Term Debt Ratio	*38.0%*
	--	--	--	--	--	59.9%	60.5%	61.3%	62.2%	*61.5%*	*62.0%*	*62.0%*	Common Equity Ratio	*62.0%*
	--	--	--	--	--	2995.3	3042.9	3080.7	3153.5	*3330*	*3510*	*3690*	Total Capital ($mill)	*4250*
	--	--	--	--	--	3293.7	3511.9	3731.6	4007.6	*4285*	*4500*	*4700*	Net Plant ($mill)	*5400*
	--	--	--	--	--	4.4%	4.7%	5.2%	5.8%	*6.5%*	*6.5%*	*6.5%*	Return on Total Cap'l	*7.5%*
	--	--	--	--	--	6.1%	6.5%	7.4%	8.2%	*8.5%*	*8.5%*	*8.5%*	Return on Shr. Equity	*10.0%*
	--	--	--	--	--	6.1%	6.5%	7.4%	8.2%	*8.5%*	*8.5%*	*8.5%*	Return on Com Equity	*10.0%*
	--	--	--	--	--	3.7%	3.1%	3.5%	3.7%	*3.5%*	*3.5%*	*3.5%*	Retained to Com Eq	*4.5%*
	--	--	--	--	--	40%	53%	52%	55%	*56%*	*57%*	*58%*	All Div'ds to Net Prof	*56%*

BUSINESS: ONE Gas, Inc. provides natural gas distribution services to over two million customers. It has three divisions: Oklahoma Natural Gas, Kansas Gas Service, and Texas Gas Service. The company purchased 137 Bcf of natural gas supply in 2017, compared to 134 Bcf in 2016. Total volumes delivered by customer (fiscal 2017): transportation, 61%; residential, 29%; commercial & industrial, 9%; wholesale & public authority, 1%. BlackRock owns approximately 10.9% of common stock; The Vanguard Group, 9.3%; T. Rowe Price Associates, 8.7%; officers and directors, less than 1% (4/18 Proxy). CEO: Pierce H. Norton II. Incorporated: Oklahoma. Address: 15 East Fifth Street, Tulsa, Oklahoma 74103. Telephone: 918-947-7000. Internet: www.onegas.com.

Higher earnings appear plausible for ONE Gas in 2019. This should stem partially from the benefit of new rates. Another positive is a relatively low income tax rate. Weather-normalization mechanisms ought to help, as well. Depreciation & amortization expense stands to climb some, although that ought to reflect necessary capital investments. Right now, we believe that the bottom line will increase around 6%, to $3.45 a share, compared to the 2018 figure of $3.25. Assuming additional expansion of operating margins, 2020 share net may advance 7% or so, to $3.70.

This year's capital spending budget is anticipated to be around $450 million. That would be roughly 14% above the 2018 level of approximately $394.5 million. Around 70% of the expenditures are slated for system integrity and pipeline replacement projects. The company's balance sheet seems quite adequate to make those initiatives possible. Notably, management looks for that figure to lie between $450 million and $500 million annually during the 2019-2023 period, with about the same percentage of funds allocated to where they are currently.

The quarterly common stock dividend was just raised 8.7%, to $0.50 a share. That was made possible, no doubt, by ONE Gas' solid financial position. Furthermore, our 3- to 5-year projections indicate that additional steady increases in the distribution will take place. The payout ratio during that span ought to be in the neighborhood of 55%, which is reasonable. Nevertheless, the dividend yield is not spectacular, when stacked against those of other companies in our Natural Gas Utility category.

These shares have enjoyed a good runup in price since they started trading on the NYSE in 2014. That's in tandem with the healthy profit growth ONE Gas has experienced over that time frame. Note, also, the 2 (Above Average) Safety rank and relatively high score for Price Stability.

For now, though, long-term capital appreciation potential is subpar, versus the *Value Line* median. The stock is only an Average (3) selection for Timeliness, too.

Frederick L. Harris, III *March 1, 2019*

(A) Diluted EPS. Excludes nonrecurring gain: 2017, $0.06. Next earnings report due early May. Quarterly EPS for 2018 don't add up due to rounding.
(B) Dividends historically paid in early March, June, Sept., and Dec. ■ Dividend reinvestment plan. Direct stock purchase plan.
(C) In millions.

Company's Financial Strength	A
Stock's Price Stability	90
Price Growth Persistence	100
Earnings Predictability	NMF

SOUTH JERSEY INDS. NYSE-SJI

RECENT PRICE **31.29** | P/E RATIO **20.9** (Trailing: 18.2 Median: 18.0) | RELATIVE P/E RATIO **1.21** | DIV'D YLD **3.8%** | **VALUE LINE**

TIMELINESS 3 Lowered 7/20/18
SAFETY 2 Lowered 1/4/91
TECHNICAL 3 Raised 2/15/19
BETA .85 (1.00 = Market)

2022-24 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	45	(+45%)	*13%*
Low	35	(+10%)	*7%*

Insider Decisions

	A	M	J	J	A	S	O	N	D
to Buy	0	1	0	0	1	0	0	1	2
Options	0	0	4	0	0	0	0	0	0
to Sell	0	0	0	0	0	0	0	0	0

Institutional Decisions

	1Q2018	2Q2018	3Q2018
to Buy	113	147	99
to Sell	95	79	124
Hld's(000)	59747	72803	71247

	High:	20.3	20.4	27.1	29.0	29.0	31.1	30.6	30.4	34.8	38.4	36.7	31.4	26.6
	Low:	12.6	16.0	18.6	21.4	22.9	25.3	25.9	21.2	22.1	30.8	26.0	26.6	

LEGENDS
0.90 x Dividends p sh divided by Interest Rate
. . . . Relative Price Strength
2-for-1 split 5/15
Options: Yes
Shaded area indicates recession

Target Price Range 2022 | 2023 | 2024

% TOT. RETURN 1/19

	THIS STOCK	VL ARITH.* INDEX
1 yr.	4.9	-4.5
3 yr.	32.9	46.9
5 yr.	33.6	40.8

2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	© VALUE LINE PUB. LLC	22-24
13.17	14.75	15.89	15.88	16.15	16.18	14.19	15.48	13.71	11.16	11.18	12.98	13.52	13.04	15.63	*16.65*	*17.50*	*18.50*	Revenues per sh	*21.45*
1.12	1.22	1.25	1.75	1.60	1.74	1.86	2.10	2.23	2.34	2.48	2.67	2.42	2.67	2.79	*2.60*	*2.70*	*3.00*	"Cash Flow" per sh	*3.85*
.68	.79	.86	1.23	1.05	1.14	1.19	1.35	1.45	1.52	1.52	1.57	1.44	1.34	1.23	*1.62*	*1.70*	*1.90*	Earnings per sh A	*2.50*
.39	.41	.43	.46	.51	.56	.61	.68	.75	.83	.90	.96	1.02	1.06	1.10	1.13	*1.20*	*1.25*	Div'ds Decl'd per sh B ■	*1.40*
1.18	1.34	1.60	1.26	.94	1.04	1.83	2.79	3.20	4.01	4.84	5.01	4.87	3.50	3.43	*2.85*	*3.10*	*3.35*	Cap'l Spending per sh	*4.90*
5.63	6.20	6.75	7.55	8.12	8.67	9.12	9.54	10.33	11.63	12.64	13.65	14.62	16.22	14.99	*15.15*	*16.40*	*17.40*	Book Value per sh C	*20.40*
52.92	55.52	57.96	58.65	59.22	59.46	59.59	59.75	60.43	63.31	65.43	68.33	70.97	79.48	79.55	*87.00*	*90.00*	*92.00*	Common Shs Outst'g D	*98.00*
13.3	14.1	16.6	11.9	17.2	15.9	15.0	16.8	18.4	16.9	18.9	18.0	17.9	21.7	27.9	*19.3*	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*16.0*
.76	.74	.88	.64	.91	.96	1.00	1.07	1.15	1.08	1.06	.95	.90	1.14	1.40	*1.04*			Relative P/E Ratio	*.90*
4.3%	3.7%	3.0%	3.2%	2.8%	3.1%	3.4%	3.0%	2.8%	3.2%	3.1%	3.4%	3.9%	3.6%	3.2%	3.6%			Avg Ann'l Div'd Yield	*3.5%*
845.4	925.1	828.6	706.3	731.4	887.0	959.6	1036.5	1243.1	*1450*	*1575*	*1700*	Revenues ($mill)	*2100*
71.3	81.0	87.0	93.3	97.1	104.0	99.0	102.8	98.1	*140*	*150*	*170*	Net Profit ($mill)	*240*
23.0%	15.2%	22.4%	10.8%	- -	- -	5.9%	42.0%	42.0%	*21.0%*	*21.0%*	*21.0%*	Income Tax Rate	*21.0%*
8.4%	8.8%	10.5%	13.2%	13.3%	11.7%	10.3%	9.9%	7.9%	*9.7%*	*9.5%*	*10.0%*	Net Profit Margin	*11.4%*
36.5%	37.4%	40.5%	45.0%	45.1%	48.0%	49.2%	38.5%	48.5%	*50.0%*	*49.0%*	*49.0%*	Long-Term Debt Ratio	*49.5%*
63.5%	62.6%	59.5%	55.0%	54.9%	52.0%	50.8%	61.5%	51.5%	*50.0%*	*51.0%*	*51.0%*	Common Equity Ratio	*50.5%*
856.4	910.1	1048.3	1337.6	1507.4	1791.9	2043.9	2097.2	2315.4	*2645*	*2900*	*3150*	Total Capital ($mill)	*3950*
1073.1	1193.3	1352.4	1578.0	1859.1	2134.1	2448.1	2623.8	2700.2	*3650*	*4000*	*4300*	Net Plant ($mill)	*5000*
9.0%	9.5%	8.9%	7.4%	6.8%	6.4%	5.4%	5.4%	5.1%	*6.0%*	*6.0%*	*6.0%*	Return on Total Cap'l	*7.0%*
13.1%	14.2%	13.9%	12.7%	11.7%	11.2%	9.5%	8.0%	8.2%	*10.5%*	*10.0%*	*10.5%*	Return on Shr. Equity	*12.0%*
13.1%	14.2%	13.9%	12.7%	11.7%	11.2%	9.5%	8.0%	8.2%	*10.5%*	*10.0%*	*10.5%*	Return on Com Equity	*12.0%*
6.4%	7.1%	6.7%	5.8%	4.8%	4.3%	2.8%	1.6%	.9%	*3.0%*	*3.0%*	*3.5%*	Retained to Com Eq	*5.0%*
51%	50%	52%	55%	59%	61%	71%	80%	89%	*71%*	*72%*	*68%*	All Div'ds to Net Prof	*57%*

CAPITAL STRUCTURE as of 9/30/18
Total Debt $3185.1 mill. **Due in 5 Yrs** $685 mill.
LT Debt $1281.0 mill. **LT Interest** $40.0 mill.

Leases, Uncapitalized Annual rentals $.7 mill.
Pension Assets-12/17 $216.1 mill.
Oblig. $316.3 mill.

Pfd Stock None

Common Stock 85,506,217 shs.
as of 11/1/18

MARKET CAP: $2.7 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2016	2017	9/30/18
Cash Assets	18.3	7.8	3.3
Other	455.0	431.2	734.0
Current Assets	473.3	439.0	737.3
Accts Payable	243.7	284.9	383.5
Debt Due	528.0	410.2	1904.1
Other	180.9	188.0	183.6
Current Liab.	952.6	883.1	2471.2
Fix. Chg. Cov.	602%	177%	162%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '15-'17 to '22-'24
Revenues	-1.5%	1.0%	*6.0%*
"Cash Flow"	5.5%	3.5%	*5.5%*
Earnings	2.5%	-1.5%	*9.5%*
Dividends	8.5%	7.0%	*4.0%*
Book Value	7.5%	8.0%	*4.0%*

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2016	333.0	154.4	219.1	330.0	1036.5
2017	425.8	244.4	227.1	345.8	1243.1
2018	521.9	227.3	302.5	*398.3*	*1450*
2019	*560*	*280*	*310*	*425*	*1575*
2020	*595*	*305*	*340*	*460*	*1700*

Calendar	EARNINGS PER SHARE A Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2016	.75	.12	.05	.42	1.34
2017	.72	.06	d.05	.50	1.23
2018	1.26	.07	d.11	*.40*	*1.62*
2019	*1.05*	*.10*	*d.05*	*.60*	*1.70*
2020	*1.15*	*.12*	*d.04*	*.67*	*1.90*

Calendar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	- -	.251	.251	.515	1.02
2016	- -	.264	.264	.536	1.06
2017	- -	.273	.273	.553	1.10
2018	- -	.280	.280	.567	1.13
2019					

BUSINESS: South Jersey Industries, Inc. is a holding company. Distributes natural gas to approx. 681,000 customers in New Jersey and Maryland. Gas revenue mix '17: residential, 44%; commercial, 21%; cogeneration and electric generation, 14%; industrial, 21%. Nonutility operations include: South Jersey Energy, South Jersey Resources Group, South Jersey Exploration, Marina Energy, South Jersey Energy Service Plus, and SJI Midstream. Has about 760 employees. Off./dir. own less than 1% of common; BlackRock, Inc., 12.8%; The Vanguard Group, Inc., 9.8% (3/18 proxy). Pres. & CEO: Michael J. Renna. Chairman: Walter M. Higgins III. Incorporated: NJ. Address: 1 South Jersey Plaza, Folsom, NJ 08037. Telephone: 609-561-9000. Internet: www.sjindustries.com.

Shares of South Jersey Industries have rebounded nicely in price since late December, in conjunction with a recovery in the broader equity market. The company reported a strong top-line advance for the third quarter, and healthy sales gains likely continued in the December period. However, operating expenses have also risen significantly of late, and we expect a decline in earnings for the term. Still, share net for full-year 2018 likely compared quite favorably with the prior-year level, thanks to a strong comparison in the March period. South Jersey was set to report results for the fourth quarter as this Issue went to press.

The company has completed the sale of gas assets to UGI Energy Services. South Jersey has now divested all of its retail gas assets. This move reflects the company's strategy to exit noncore and nonregulated markets and emphasize high-quality, regulated earnings growth. The company is reshaping its nonutility operations to emphasize wholesale marketing and fuel management.

Prospects appear to be relatively favorable for the years ahead. Utility South Jersey Gas will likely continue to fare well. This business ought to further benefit from customer additions and investment in regulated assets. The acquisitions of Elizabethtown Gas and Elkton Gas should also support growth here. Elizabethtown Gas has filed a proposal with the New Jersey Board of Public Utilities seeking authorization for a $518 million, five-year infrastructure replacement program to enhance the safety and reliability of its system. On the nonutility side, we expect good results from the company's wholesale marketing and fuel management activities.

This issue is ranked to track the broader market averages for the coming six to 12 months. Looking further out, this good-quality stock offers decent, but not outstanding, risk-adjusted total return potential. This is helped by the equity's healthy dividend yield, and we envision solid growth in revenues and earnings here out to early next decade. South Jersey Industries earns good marks for Safety, Financial Strength, and Price Stability. Volatility is subdued, as well.

Michael Napoli, CFA *March 1, 2019*

Company's Financial Strength	A
Stock's Price Stability	80
Price Growth Persistence	20
Earnings Predictability	65

(A) Based on economic egs. from 2007. GAAP EPS: '08, $1.29; '09, $0.97; '10, $1.11; '11, $1.49; '12, $1.49; '13, $1.28; '14, $1.46; '15, $1.52; '16, $1.56; '17, ($0.04). Excl. nonrecur. gain (loss): '08, $0.16; '09, ($0.22); '10, ($0.24); '11, $0.04; '12, ($0.03); '13, ($0.24); '14, ($0.11); '15, $0.08; '16, $0.22; '17, ($1.27). Next egs. rpt. early May. **(B)** Div'ds paid early April, July, Oct., and late Dec. ■ Div. reinvest. plan avail. **(C)** Incl. reg. assets. In 2017: $469.2 mill., $5.90 per shr. **(D)** In mill., adj. for split.

SOUTHWEST GAS NYSE-SWX

RECENT PRICE 82.16 | P/E RATIO 19.9 (Trailing: 21.1 Median: 17.0) | RELATIVE P/E RATIO 1.15 | DIV'D YLD 2.7% | VALUE LINE

TIMELINESS 3 Lowered 3/1/19
SAFETY 3 Lowered 1/4/91
TECHNICAL 1 Raised 1/25/19
BETA .70 (1.00 = Market)

2022-24 PROJECTIONS

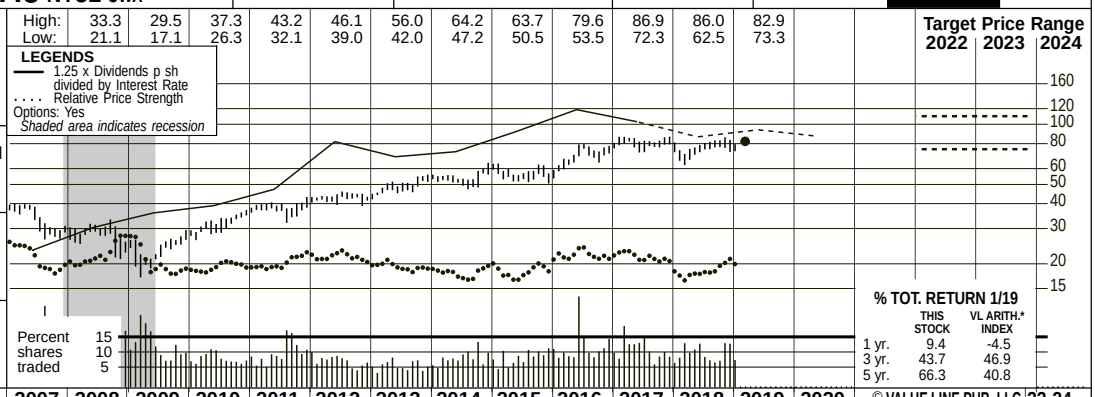
	Price	Gain	Ann'l Total Return
High	110	(+35%)	*10%*
Low	75	(-10%)	*1%*

Insider Decisions

	A	M	J	J	A	S	O	N	D
to Buy	0	1	0	0	0	0	0	0	0
Options	0	0	0	0	0	0	0	0	17
to Sell	0	2	1	0	1	2	0	0	0

Institutional Decisions

	1Q2018	2Q2018	3Q2018
to Buy	127	135	122
to Sell	116	119	126
Hld's(000)	39279	40920	40794



2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	© VALUE LINE PUB. LLC	22-24
35.96	40.14	43.59	48.47	50.28	48.53	42.00	40.18	41.07	41.77	42.08	45.61	52.00	51.82	53.00	*54.85*	*56.50*	*58.65*	Revenues per sh	*65.50*
5.11	5.57	5.20	5.97	6.21	5.76	6.16	6.46	6.81	7.73	8.24	8.47	8.62	9.29	8.83	*8.50*	*9.05*	*9.80*	"Cash Flow" per sh	*12.75*
1.13	1.66	1.25	1.98	1.95	1.39	1.94	2.27	2.43	2.86	3.11	3.01	2.92	3.18	3.62	*3.95*	*4.20*	*4.50*	Earnings per sh A	*5.75*
.82	.82	.82	.82	.86	.90	.95	1.00	1.06	1.18	1.32	1.46	1.62	1.80	1.98	2.08	*2.18*	*2.30*	Div'ds Decl'd per sh B■†	*2.60*
7.03	8.23	7.49	8.27	7.96	6.79	4.81	4.73	8.29	8.57	7.86	8.53	10.30	11.15	12.97	*13.80*	*14.35*	*15.00*	Cap'l Spending per sh	*17.25*
18.42	19.18	19.10	21.58	22.98	23.49	24.44	25.62	26.66	28.35	30.47	31.95	33.61	35.03	37.74	*42.40*	*44.90*	*47.75*	Book Value per sh	*53.90*
34.23	36.79	39.33	41.77	42.81	44.19	45.09	45.56	45.96	46.15	46.36	46.52	47.38	47.48	48.09	*52.50*	*54.00*	*55.00*	Common Shs Outst'g C	*58.00*
19.2	14.3	20.6	15.9	17.3	20.3	12.2	14.0	15.7	15.0	15.8	17.9	19.4	21.6	22.2	*19.2*	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*16.0*
1.09	.76	1.10	.86	.92	1.22	.81	.89	.98	.95	.89	.94	.98	1.13	1.12	*1.04*			Relative P/E Ratio	*.90*
3.8%	3.5%	3.2%	2.6%	2.6%	3.2%	4.0%	3.2%	2.8%	2.8%	2.7%	2.7%	2.9%	2.6%	2.5%	2.7%			Avg Ann'l Div'd Yield	*2.8%*
1893.8	1830.4	1887.2	1927.8	1950.8	2121.7	2463.6	2460.5	2548.8	*2880*	*3050*	*3225*	Revenues ($mill)	*3800*
87.5	103.9	112.3	133.3	145.3	141.1	138.3	152.0	173.8	*195*	*210*	*230*	Net Profit ($mill)	*290*
34.0%	34.7%	36.2%	36.2%	35.0%	35.7%	36.4%	33.9%	32.8%	*21.0%*	*21.0%*	*21.0%*	Income Tax Rate	*21.0%*
4.6%	5.7%	6.0%	6.9%	7.4%	6.7%	5.6%	6.2%	6.8%	*6.8%*	*6.9%*	*7.1%*	Net Profit Margin	*7.6%*
53.5%	49.1%	43.2%	49.2%	49.4%	52.4%	49.3%	48.2%	49.8%	*49.0%*	*48.5%*	*48.5%*	Long-Term Debt Ratio	*47.5%*
46.5%	50.9%	56.8%	50.8%	50.6%	47.6%	50.7%	51.8%	50.2%	*51.0%*	*51.5%*	*51.5%*	Common Equity Ratio	*52.5%*
2371.4	2291.7	2155.9	2576.9	2793.7	3123.9	3143.5	3213.5	3613.3	*4375*	*4725*	*5075*	Total Capital ($mill)	*5975*
3034.5	3072.4	3218.9	3343.8	3486.1	3658.4	3891.1	4132.0	4523.7	*4950*	*5300*	*5650*	Net Plant ($mill)	*6600*
5.4%	6.1%	6.4%	6.4%	6.3%	5.7%	5.5%	5.8%	5.8%	*5.5%*	*5.5%*	*5.5%*	Return on Total Cap'l	*6.0%*
7.9%	8.9%	9.2%	10.2%	10.3%	9.5%	8.7%	9.1%	9.6%	*9.0%*	*8.5%*	*9.0%*	Return on Shr. Equity	*9.5%*
7.9%	8.9%	9.2%	10.2%	10.3%	9.5%	8.7%	9.1%	9.6%	*9.0%*	*8.5%*	*9.0%*	Return on Com Equity	*9.5%*
4.1%	5.1%	5.3%	6.1%	6.1%	5.0%	4.0%	4.1%	4.5%	*4.0%*	*4.0%*	*4.0%*	Retained to Com Eq	*4.5%*
48%	43%	43%	40%	41%	47%	54%	55%	53%	*56%*	*56%*	*55%*	All Div'ds to Net Prof	*52%*

CAPITAL STRUCTURE as of 9/30/18
Total Debt $2188.5 mill. **Due in 5 Yrs** $850 mill.
LT Debt $2123.6 mill. **LT Interest** $88.0 mill.
(Total interest coverage: 4.0x) (52% of Cap'l)
Leases, Uncapitalized Annual rentals $9.0 mill.
Pension Assets-12/17 $926.3 mill.
Oblig. $1278.8 mill.
Pfd Stock None

Common Stock 49,431,933 shs.
as of 10/31/18

MARKET CAP: $4.1 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2016	2017	9/30/18
Cash Assets	28.1	43.6	69.2
Other	505.2	613.4	652.0
Current Assets	533.3	657.0	721.2
Accts Payable	184.7	228.3	172.2
Debt Due	50.1	239.8	64.9
Other	393.6	347.8	475.6
Current Liab.	628.4	815.9	712.7
Fix. Chg. Cov.	401%	415%	389%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '15-'17 to '22-'24
Revenues	1.0%	5.0%	*3.5%*
"Cash Flow"	4.5%	5.0%	*5.0%*
Earnings	6.5%	5.0%	*8.5%*
Dividends	8.0%	11.0%	*5.5%*
Book Value	5.5%	5.5%	*6.0%*

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2016	731.2	547.8	540.0	641.5	2460.5
2017	654.7	560.5	593.2	740.4	2548.8
2018	754.3	670.9	668.1	***786.7***	***2880***
2019	***780***	***700***	***730***	***840***	***3050***
2020	***810***	***740***	***790***	***885***	***3225***

Calendar	EARNINGS PER SHARE A D Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2016	1.58	.19	.05	1.36	3.18
2017	1.45	.37	.21	1.58	3.62
2018	1.63	.44	.25	***1.63***	***3.95***
2019	***1.70***	***.52***	***.28***	***1.70***	***4.20***
2020	***1.80***	***.58***	***.32***	***1.80***	***4.50***

Calendar	QUARTERLY DIVIDENDS PAID B■† Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	.365	.405	.405	.405	1.58
2016	.405	.450	.450	.450	1.76
2017	.450	.495	.495	.495	1.94
2018	.495	.520	.520	.520	2.06
2019					

BUSINESS: Southwest Gas Holdings, Inc. is the parent holding company of Southwest Gas and Centuri Construction Group. Southwest Gas is a regulated gas distributor serving about 2.0 million customers in sections of Arizona, Nevada, and California. Centuri provides construction services. 2017 margin mix: residential and small commercial, 85%; large commercial and industrial, 3%; transportation, 12%. Total throughput: 2.1 billion therms. Has 7,771 employees. Off. & dir. own 1.0% of common stock; BlackRock Inc., 11.4%; The Vanguard Group, Inc., 9.2% (3/18 Proxy). Chairman: Michael J. Melarkey. President & CEO: John P. Hester. Inc.: CA. Addr.: 5241 Spring Mountain Road, Las Vegas, Nevada 89193. Telephone: 702-876-7237. Internet: www.swgas.com.

Southwest Gas probably finished 2018 on a solid note. We expect a healthy top-line advance and a somewhat more modest share-net improvement for the December quarter. Performance has been particularly strong at the infrastructure services operation in recent times. Results have been mixed lately at the natural gas utility. Fairly modest top-line growth here has been more than offset by higher expenses. The company was set to announce results for the fourth quarter the week after this Issue went to press.

Subsidiary Centuri Construction Group has acquired an 80% interest in Linetec Services, LLC for $299 million. It will have the option to purchase the remaining interest in increments over the next five years. Linetec is a premier provider of recurring maintenance, refurbishment, upgrade, and installation services for electrical transmission and distribution infrastructure throughout the Gulf Coast and Mid-Atlantic regions. This move strengthens Centuri's position as a leading provider of utility infrastructure services in North America. It expands Centuri's geographic reach and enhances its electrical distribution and transmission capabilities. The addition may prove modestly accretive to earnings, but we'll wait for clear signs before raising our estimates.

The company has completed a public offering of common stock. The offering of 3,100,000 shares was priced at $75.50 per share, for gross proceeds of $234 million. The offering was intended to partly finance the aforementioned acquisition of Linetec Services.

These shares are just an average selection for year-ahead relative price performance. Subscribers with a long-time horizon can probably also find better choices elsewhere at this juncture. We do expect healthy bottom-line growth for the company over the pull to early next decade. But this appears to be largely reflected in the recent quotation, and long-term appreciation potential is nothing to write home about. Moreover, the dividend yield does not stand out for a utility. In the plus column, Southwest Gas earns good marks for Price Stability, Growth Persistence, and Earnings Predictability. Volatility is subdued, as well.

Michael Napoli, CFA *March 1, 2019*

(A) Diluted earnings. Excl. nonrec. gains (losses): '02, (10¢); '05, (11¢); '06, 7¢. Next egs. report due early May. **(B)** Dividends historically paid early March, June, September, and December. ■† Div'd reinvestment and stock purchase plan avail. **(C)** In millions. **(D)** Totals may not sum due to rounding.

Company's Financial Strength	B++
Stock's Price Stability	80
Price Growth Persistence	80
Earnings Predictability	90

SPIRE INC. NYSE-SR

RECENT PRICE **76.86** | P/E RATIO **20.5** (Trailing: 22.9 Median: 17.0) | RELATIVE P/E RATIO **1.18** | DIV'D YLD **3.1%** | **VALUE LINE**

TIMELINESS 3 Lowered 11/30/18
SAFETY 2 Raised 6/20/03
TECHNICAL 1 Raised 2/22/19
BETA .65 (1.00 = Market)

2022-24 PROJECTIONS

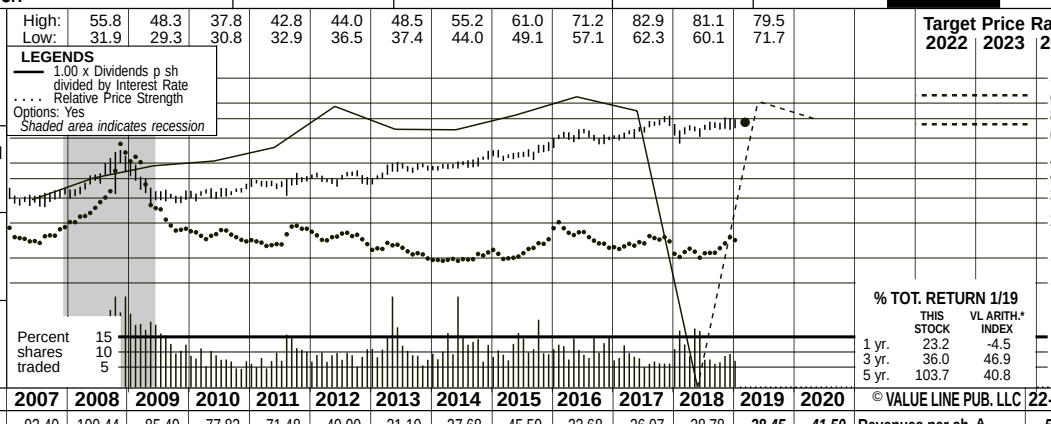
	Price	Gain	Ann'l Total Return
High	105	(+35%)	*11%*
Low	75	(Nil)	*3%*

Insider Decisions

	A	M	J	J	A	S	O	N	D
to Buy	0	0	0	0	0	0	0	0	0
Options	0	0	0	0	0	0	0	5	5
to Sell	0	0	0	0	0	0	0	0	0

Institutional Decisions

	1Q2018	2Q2018	3Q2018
to Buy	124	145	119
to Sell	112	101	124
Hld's(000)	39753	42179	42187



2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	© VALUE LINE PUB. LLC	22-24
54.95	59.59	75.43	93.51	93.40	100.44	85.49	77.83	71.48	49.90	31.10	37.68	45.59	33.68	36.07	38.78	*38.45*	*41.50*	Revenues per sh [A]	*54.55*
3.15	2.79	2.98	3.81	3.87	4.22	4.56	4.11	4.62	4.58	3.12	3.87	6.15	6.16	6.54	7.55	*7.10*	*7.35*	"Cash Flow" per sh	*9.55*
1.82	1.82	1.90	2.37	2.31	2.64	2.92	2.43	2.86	2.79	2.02	2.35	3.16	3.24	3.43	4.33	*3.75*	*3.85*	Earnings per sh [A B]	*5.00*
1.34	1.35	1.37	1.40	1.45	1.49	1.53	1.57	1.61	1.66	1.70	1.76	1.84	1.96	2.10	2.25	*2.37*	*2.46*	Div'ds Decl'd per sh [C ■]	*2.67*
2.67	2.45	2.84	2.97	2.72	2.57	2.36	2.56	3.02	4.83	4.00	3.96	6.68	6.42	9.08	9.86	*10.95*	*11.70*	Cap'l Spending per sh	*12.75*
15.65	16.96	17.31	18.85	19.79	22.12	23.32	24.02	25.56	26.67	32.00	34.93	36.30	38.73	41.26	44.51	*44.70*	*45.30*	Book Value per sh [D]	*47.80*
19.11	20.98	21.17	21.36	21.65	21.99	22.17	22.29	22.43	22.55	32.70	43.18	43.36	45.65	48.26	50.67	*52.00*	*53.00*	Common Shs Outst'g [E]	*55.00*
13.6	15.7	16.2	13.6	14.2	14.3	13.4	13.7	13.0	14.5	21.3	19.8	16.5	19.6	19.8	16.7	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*18.0*
.78	.83	.86	.73	.75	.86	.89	.87	.82	.92	1.20	1.04	.83	1.03	1.00	.89			Relative P/E Ratio	*1.00*
5.4%	4.7%	4.4%	4.3%	4.4%	3.9%	3.9%	4.7%	4.3%	4.1%	4.0%	3.8%	3.5%	3.1%	3.1%	3.1%			Avg Ann'l Div'd Yield	*3.0%*
1895.2	1735.0	1603.3	1125.5	1017.0	1627.2	1976.4	1537.3	1740.7	1965.0	*2000*	*2200*	Revenues ($mill) [A]	*3000*
64.3	54.0	63.8	62.6	52.8	84.6	136.9	144.2	161.6	214.2	*190*	*200*	Net Profit ($mill)	*275*
33.6%	33.4%	31.4%	29.6%	25.0%	27.6%	31.2%	32.5%	32.4%	32.4%	*23.5%*	*24.0%*	Income Tax Rate	*24.0%*
3.4%	3.1%	4.0%	5.6%	5.2%	5.2%	6.9%	9.4%	9.3%	10.9%	*9.5%*	*9.1%*	Net Profit Margin	*9.2%*
42.9%	40.5%	38.9%	36.1%	46.6%	55.1%	53.0%	50.9%	50.0%	45.7%	*46.0%*	*45.0%*	Long-Term Debt Ratio	*43.0%*
57.1%	59.5%	61.1%	63.9%	53.4%	44.9%	47.0%	49.1%	50.0%	54.3%	*54.0%*	*55.0%*	Common Equity Ratio	*57.0%*
906.3	899.9	937.7	941.0	1959.0	3359.4	3345.1	3601.9	3986.3	4155.5	*4310*	*4380*	Total Capital ($mill)	*4600*
855.9	884.1	928.7	1019.3	1776.6	2759.7	2941.2	3300.9	3665.2	3970.5	*4170*	*4300*	Net Plant ($mill)	*4825*
8.7%	7.4%	8.1%	7.9%	3.3%	3.1%	5.1%	4.9%	5.0%	6.3%	*5.5%*	*6.0%*	Return on Total Cap'l	*7.5%*
12.4%	10.1%	11.1%	10.4%	5.0%	5.6%	8.7%	8.2%	8.1%	9.5%	*8.0%*	*8.5%*	Return on Shr. Equity	*10.6%*
12.4%	10.1%	11.1%	10.4%	5.0%	5.6%	8.7%	8.2%	8.1%	9.5%	*8.0%*	*8.5%*	Return on Com Equity	*10.5%*
5.9%	3.6%	4.9%	4.3%	1.0%	1.5%	3.7%	3.3%	3.3%	4.7%	*3.0%*	*3.0%*	Retained to Com Eq	*5.0%*
53%	64%	56%	59%	81%	73%	58%	59%	60%	51%	*63%*	*64%*	All Div'ds to Net Prof	*53%*

CAPITAL STRUCTURE as of 9/30/18
Total Debt $2629.1 mill. **Due in 5 Yrs** $540.0 mill.
LT Debt $1900.1 mill. **LT Interest** $80.0 mill.
(Total interest coverage: 2.8x)

Leases, Uncapitalized Annual rentals $9.7 mill.
Pension Assets-9/18 $499.2 mill.
Oblig. $664.6 mill.

Pfd Stock None
Common Stock 50,676,192 shs.
as of 11/12/18

MARKET CAP: $3.9 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2016	2017	9/30/18
Cash Assets	5.2	7.4	4.4
Other	564.4	718.1	655.2
Current Assets	569.6	725.5	659.6
Accts Payable	210.9	257.1	290.1
Debt Due	648.7	577.3	729.1
Other	301.7	263.5	302.5
Current Liab.	1161.3	1097.9	1321.7
Fix. Chg. Cov.	366%	361%	284%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '16-'18 to '22-'24
Revenues	-9.5%	-6.5%	*7.0%*
"Cash Flow"	5.5%	10.5%	*6.0%*
Earnings	4.0%	7.5%	*5.5%*
Dividends	4.0%	5.0%	*4.0%*
Book Value	7.5%	8.0%	*2.5%*

Fiscal Year Ends	QUARTERLY REVENUES ($ mill.)[A] Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2016	399.4	609.3	249.3	279.3	1537.3
2017	495.1	663.4	323.5	258.7	1740.7
2018	561.8	813.4	350.6	239.2	1965.0
2019	602.0	*750*	*350*	*298*	*2000*
2020	*650*	*825*	*385*	*340*	*2200*

Fiscal Year Ends	EARNINGS PER SHARE [A B F] Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2016	1.08	2.31	.24	d.31	3.24
2017	.99	2.36	.45	d.28	3.43
2018	2.39	2.03	.52	d.51	4.33
2019	1.32	*2.50*	*.50*	*d.57*	*3.75*
2020	*1.35*	*2.55*	*.50*	*d.55*	*3.85*

Cal-endar	QUARTERLY DIVIDENDS PAID [C ■] Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2015	.46	.46	.46	.46	1.84
2016	.49	.49	.49	.49	1.96
2017	.525	.525	.525	.525	2.10
2018	.5625	.5625	.5625	.5625	2.25
2019	.5925				

BUSINESS: Spire Inc., formerly known as the Laclede Group, Inc., is a holding company for natural gas utilities, which distributes natural gas across Missouri, including the cities of St. Louis and Kansas City. Has roughly 1.7 million customers. Acquired Missouri Gas 9/13, Alabama Gas Co 9/14. Utility therms sold and transported in fiscal 2017: 3.0 bill. Revenue mix for regulated operations: residential, 29%; commercial and industrial, 15%; transportation, 49%; other, 6%. Has around 3,279 employees. Officers and directors own 3.0% of common shares (1/18 proxy). Chairman: Edward Glotzbach; CEO: Suzanne Sitherwood. Inc.: Missouri. Address: 700 Market Street, St. Louis, Missouri 63101. Telephone: 314-342-0500. Internet: www.thelacledegroup.com.

Spire Inc. started this fiscal year on a mixed note. The top line grew 7% year over year, thanks to a colder-than-expected winter and higher commodity costs. Its Gas Utility segment was up 6%, due to elevated volumes from cold weather, rate design changes, and customer increases. Meanwhile, its Gas Marketing business benefited from favorable market conditions and an increased geographic presence. The bottom line clocked in at $1.32 per share, versus $2.39 a share in the year-ago period, including a tax benefit of $1.24. On an adjusted basis, share net (or net economic earnings) rose 9% over the previous year's tally, to $1.30, owing to the aforementioned growth. However, share net was, in part, weighed on by higher corporate costs and the operating loss from its Spire Storage line.

The company appears to be on track with its growth plan. Spire is actively investing in technology and restructuring its infrastructure to improve efficiency. Its STL Pipeline received approval from FERC and is under construction. The pipeline is anticipated to go into service by the end of 2019. Meanwhile, its Storage operations remain a sore spot for the company. Nonetheless, ongoing efforts should improve the Storage line and allow it to contribute meaningfully by 2020. Still, expenses from this business, along with higher interest charges, ought to weigh on profits for this year. On the plus side, its Gas Utility and Gas Marketing operations will likely counterbalance some of the aforementioned costs. In all, we estimate the bottom line to come in at $3.75 a share, versus $4.33 per share in 2017.

We are introducing estimates for 2020. All things considered, we figure revenues and share earnings will likely rise in the neighborhood of 10% and 3%, respectively, to $2.2 billion and $3.85.

Shares of Spire, Inc. are ranked to perform in line with the broader market averages in the year ahead. At the recent quotation, this issue has uninspiring long-term capital appreciation potential. Still, SR has some noteworthy points such as an Above Average (2) rank for Safety and a decent dividend yield. Too, the payout is poised to grow at a modest rate in the near term.

Emma Jalees *March 1, 2019*

(A) Fiscal year ends Sept. 30th. **(B)** Based on diluted shares outstanding. Excludes nonrecurring loss: '06, 7¢. Excludes gain from discontinued operations: '08, 94¢. Next earnings report due late April. **(C)** Dividends historically paid in early January, April, July, and October. ■ Dividend reinvestment plan available. **(D)** Incl. deferred charges. In '17: $920.2 mill., $19.07/sh. **(E)** In millions. **(F)** Qtly. egs. may not sum due to rounding or change in shares outstanding in 2014, 2016, and 2017.

Company's Financial Strength	B++
Stock's Price Stability	95
Price Growth Persistence	45
Earnings Predictability	75

Atmos Energy Corporation
Summary of Risk Premium Models for the
Proxy Group of Six Natural Gas Distribution Companies

	Proxy Group of Six Natural Gas Distribution Companies	
Predictive Risk Premium Model (PRPM) (1)	10.08	%
Risk Premium Using an Adjusted Total Market Approach (2)	9.80	%
Average	9.94	%

Notes:
(1) From page 2 of this Schedule.
(2) From page 3 of this Schedule.

Atmos Energy Corporation
Indicated ROE
Derived by the Predictive Risk Premium Model (1)

Proxy Group of Six Natural Gas Distribution Companies	[1] LT Average Predicted Variance	[2] Spot Predicted Variance	[3] Recommended Variance (2)	[4] GARCH Coefficient	[5] Predicted Risk Premium (3)	[6] Risk-Free Rate (4)	[7] Indicated ROE (5)
Atmos Energy Corporation	0.33%	0.17%	0.25%	2.28766	7.08%	3.33%	10.41%
NW Natural Holdings	0.32%	0.24%	0.28%	1.66470	5.80%	3.33%	9.13%
ONE Gas, Inc.	0.24%	0.25%	0.25%	6.61748	21.43%	3.33%	NMF
South Jersey Industries, Inc.	0.37%	0.58%	0.48%	1.67365	10.00%	3.33%	13.33%
Southwest Gas Holdings, Inc.	0.44%	0.27%	0.35%	1.48357	6.47%	3.33%	9.80%
Spire, Inc.	0.72%	0.27%	0.49%	0.95748	5.79%	3.33%	9.12%
						Average	10.36%
						Median	9.80%
					Average of Mean and Median		10.08%

NMF = Not Meaningful Figure

Notes:

(1) The Predictive Risk Premium Model uses historical data to generate a predicted variance and a GARCH coefficient. The historical data used are the equity risk premiums for the first available trading month as reported by Bloomberg Professional Service.

(2) Average of Columns [1] and [2].

(3) (1+(Column [3] * Column [4]) ^12) - 1.

(4) From note 2 on page 2 of Schedule DWD-5.

(5) Column [5] + Column [6].

Atmos Energy Corporation
Indicated Common Equity Cost Rate
Through Use of a Risk Premium Model
Using an Adjusted Total Market Approach

Line No.		Proxy Group of Six Natural Gas Distribution Companies
1.	Prospective Yield on Aaa Rated Corporate Bonds (1)	4.25 %
2.	Adjustment to Reflect Yield Spread Between Aaa Rated Corporate Bonds and A Rated Public Utility Bonds	0.41 (2)
3.	Adjusted Prospective Yield on A Rated Public Utility Bonds	4.66 %
4.	Equity Risk Premium (3)	5.14
5.	Risk Premium Derived Common Equity Cost Rate	9.80 %

Notes:
(1) Consensus forecast of Moody's Aaa Rated Corporate bonds from Blue Chip Financial Forecasts (see pages 10-11 of this Schedule).
(2) The average yield spread of A rated public utility bonds over Aaa rated corporate bonds of 0.41% from page 4 of this Schedule.
(3) From page 7 of this Schedule.

Atmos Energy Corporation
Interest Rates and Bond Spreads for
Moody's Corporate and Public Utility Bonds

Selected Bond Yields

	[1] Aaa Rated Corporate Bond	[2] A Rated Public Utility Bond	[3] Baa Rated Public Utility Bond
Apr-2019	3.69 %	4.08 %	4.55 %
Mar-2019	3.77	4.16	4.65
Feb-2019	3.79	4.25	4.76
Average	3.75 %	4.16 %	4.65 %

Selected Bond Spreads

A Rated Public Utility Bonds Over Aaa Rated Corporate Bonds: 0.41 % (1)

Baa Rated Public Utility Bonds Over A Rated Public Utility Bonds: 0.49 % (2)

Notes:
(1) Column [2] - Column [1].
(2) Column [3] - Column [2].

Source of Information:
Bloomberg Professional Service

Atmos Energy Corporation
Comparison of Long-Term Issuer Ratings for
Proxy Group of Six Natural Gas Distribution Companies

Proxy Group of Six Natural Gas Distribution Companies	Moody's Long-Term Issuer Rating May 2019		Standard & Poor's Long-Term Issuer Rating May 2019	
	Long-Term Issuer Rating	Numerical Weighting (1)	Long-Term Issuer Rating	Numerical Weighting(1)
Atmos Energy Corporation	A2	6.0	A	6.0
NW Natural Holdings (2)	Baa1	8.0	A+	5.0
ONE Gas, Inc.	A2	6.0	A	6.0
South Jersey Industries, Inc. (3)	A2	6.0	BBB	9.0
Southwest Gas Holdings, Inc. (4)	A3	7.0	BBB+	8.0
Spire, Inc. (5)	A1/A2	5.5	A-	7.0
Average	A2	6.4	A-	6.8

Notes:

(1) From page 6 of this Schedule.
(2) Ratings that of Northwest Natural Gas Company.
(3) Ratings that of South Jersey Gas Company.
(4) Ratings that of Southwest Gas Corporation.
(5) Ratings that of Spire Alabama, Inc. and Spire Missouri, Inc.

Source Information: Moody's Investors Service
Standard & Poor's Global Utilities Rating Service

Numerical Assignment for
Moody's and Standard & Poor's Bond Ratings

Moody's Bond Rating	Numerical Bond Weighting	Standard & Poor's Bond Rating
Aaa	1	AAA
Aa1	2	AA+
Aa2	3	AA
Aa3	4	AA-
A1	5	A+
A2	6	A
A3	7	A-
Baa1	8	BBB+
Baa2	9	BBB
Baa3	10	BBB-
Ba1	11	BB+
Ba2	12	BB
Ba3	13	BB-
B1	14	B+
B2	15	B
B3	16	B-

Atmos Energy Corporation
Judgment of Equity Risk Premium for
Proxy Group of Six Natural Gas Distribution Companies

Line No.		Proxy Group of Six Natural Gas Distribution Companies
1.	Calculated equity risk premium based on the total market using the beta approach (1)	5.29 %
2.	Mean equity risk premium based on a study using the holding period returns of public utilities with A rated bonds (2)	4.87
3.	Predicted Equity Risk Premium Based on Regression Analysis of 775 Fully-Litigated Natural Gas Utility Rate Cases	5.26
4.	Average equity risk premium	5.14 %

Notes: (1) From page 8 of this Schedule.
(2) From page 12 of this Schedule.

Atmos Energy Corporation
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for the
Proxy Group of Six Natural Gas Distribution Companies

Line No.	Equity Risk Premium Measure	Proxy Group of Six Natural Gas Distribution Companies
	Ibbotson-Based Equity Risk Premiums:	
1.	Ibbotson Equity Risk Premium (1)	5.54 %
2.	Regression on Ibbotson Risk Premium Data (2)	7.93
3.	Ibbotson Equity Risk Premium based on PRPM (3)	8.32
4.	Equity Risk Premium Based on Value Line Summary and Index (4)	9.56
5.	Equity Risk Premium Based on Value Line S&P 500 Companies (5)	10.68
6.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	9.17
7.	Conclusion of Equity Risk Premium	8.54 %
8.	Adjusted Beta (7)	0.62
9.	Forecasted Equity Risk Premium	5.29 %

Notes provided on page 9 of this Schedule.

Atmos Energy Corporation
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for the
Proxy Group of Six Natural Gas Distribution Companies

Notes:

(1) Based on the arithmetic mean historical monthly returns on large company common stocks from Ibbotson® SBBI® 2019 Market Report minus the arithmetic mean monthly yield of Moody's average Aaa and Aa corporate bonds from 1926-2018.

(2) This equity risk premium is based on a regression of the monthly equity risk premiums of large company common stocks relative to Moody's average Aaa and Aa rated corporate bond yields from 1928-2018 referenced in Note 1 above.

(3) The Predictive Risk Premium Model (PRPM) is discussed in the accompanying direct testimony. The Ibbotson equity risk premium based on the PRPM is derived by applying the PRPM to the monthly risk premiums between Ibbotson large company common stock monthly returns and average Aaa and Aa corporate monthly bond yields, from January 1928 through April 2019.

(4) The equity risk premium based on the Value Line Summary and Index is derived by subtracting the average consensus forecast of Aaa corporate bonds of 4.25% (from page 3 of this Schedule) from the projected 3-5 year total annual market return of 13.81% (described fully in note 1 on page 2 of Schedule DWD-5).

(5) Using data from Value Line for the S&P 500, an expected total return of 14.93% was derived based upon expected dividend yields and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the average consensus forecast of Aaa corporate bonds of 4.25% results in an expected equity risk premium of 10.68%.

(6) Using data from the Bloomberg Professional Service for the S&P 500, an expected total return of 13.42% was derived based upon expected dividend yields and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the average consensus forecast of Aaa corporate bonds of 4.25% results in an expected equity risk premium of 9.17%.

(7) Average of mean and median beta from Schedule DWD-5.

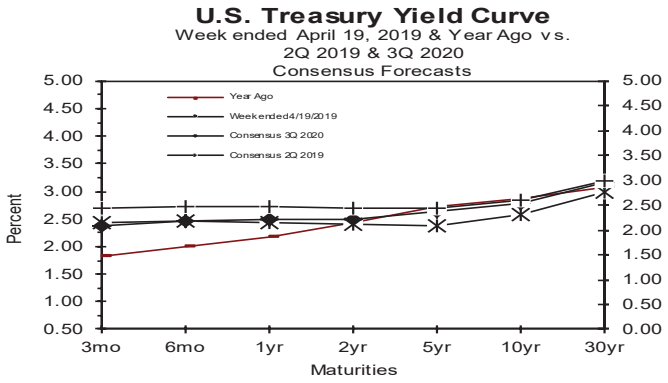
Sources of Information:

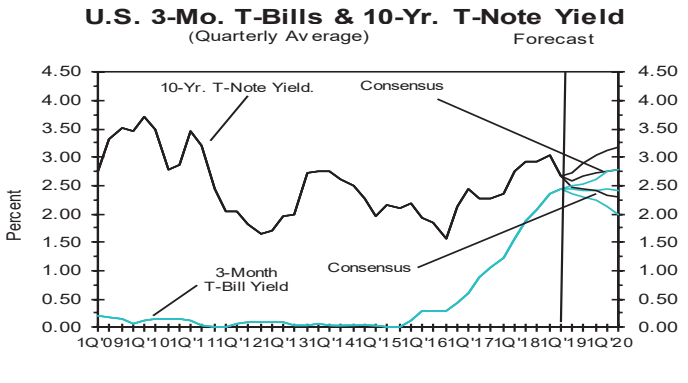
Stocks, Bonds, Bills, and Inflation - 2019 SBBI Yearbook, John Wiley & Sons, Inc.
Industrial Manual and Mergent Bond Record Monthly Update.
Value Line Summary and Index
Blue Chip Financial Forecasts, May 1, 2019 and December 1, 2018
Bloomberg Professional Service

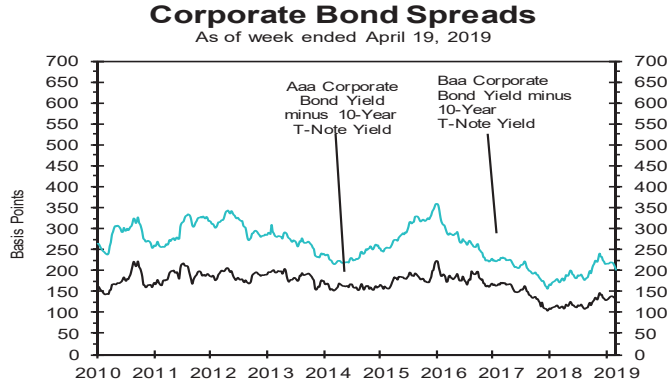
Consensus Forecasts of U.S. Interest Rates and Key Assumptions

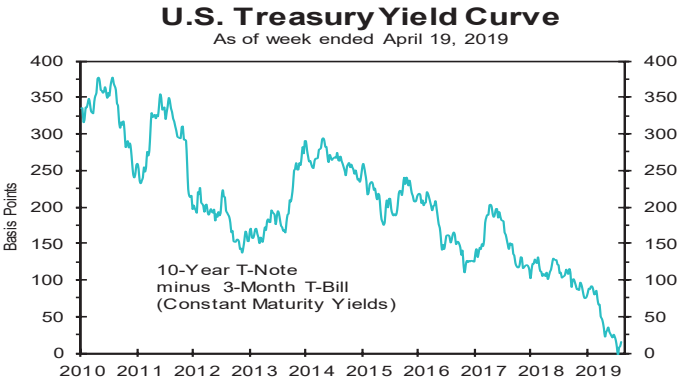
	History				History				Consensus Forecasts-Quarterly Avg.					
	Average For Week Ending				Average For Month			*Latest Qtr*	2Q	3Q	4Q	1Q	2Q	3Q
Interest Rates	Apr 19	Apr 12	Apr 5	Mar 29	Mar	Feb	Jan	Q1 2019	2019	2019	2019	2020	2020	2020
Federal Funds Rate	2.41	2.41	2.42	2.41	2.41	2.40	2.40	2.40	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**
Prime Rate	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	**5.5**	**5.5**	**5.5**	**5.5**	**5.5**	**5.5**
LIBOR, 3-mo.	2.59	2.59	2.60	2.60	2.61	2.68	2.77	2.69	**2.6**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**
Commercial Paper, 1-mo.	2.45	2.43	2.46	2.46	2.44	2.43	2.48	2.45	**2.5**	**2.4**	**2.5**	**2.5**	**2.5**	**2.5**
Treasury bill, 3-mo.	2.43	2.43	2.43	2.44	2.45	2.44	2.42	2.44	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**
Treasury bill, 6-mo.	2.47	2.47	2.46	2.46	2.51	2.50	2.51	2.51	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Treasury bill, 1 yr.	2.44	2.43	2.41	2.41	2.49	2.55	2.58	2.54	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Treasury note, 2 yr.	2.40	2.35	2.33	2.24	2.41	2.50	2.54	2.48	**2.4**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Treasury note, 5 yr.	2.39	2.32	2.31	2.20	2.37	2.49	2.54	2.47	**2.4**	**2.5**	**2.6**	**2.6**	**2.6**	**2.6**
Treasury note, 10 yr.	2.58	2.52	2.50	2.41	2.57	2.68	2.71	2.65	**2.6**	**2.7**	**2.7**	**2.8**	**2.8**	**2.8**
Treasury note, 30 yr.	2.98	2.93	2.91	2.84	2.98	3.02	3.04	3.01	**3.0**	**3.0**	**3.1**	**3.1**	**3.1**	**3.2**
Corporate Aaa bond	3.88	3.86	3.86	3.79	3.95	3.98	4.12	4.01	**3.8**	**3.9**	**4.0**	**4.0**	**4.1**	**4.1**
Corporate Baa bond	4.60	4.61	4.65	4.60	4.76	4.84	5.02	4.87	**4.8**	**4.9**	**4.9**	**5.0**	**5.1**	**5.1**
State & Local bonds	3.50	3.50	3.50	3.48	3.55	3.62	3.67	3.61	**3.6**	**3.7**	**3.8**	**3.8**	**3.9**	**3.9**
Home mortgage rate	4.17	4.12	4.08	4.06	4.27	4.37	4.46	4.37	**4.3**	**4.4**	**4.4**	**4.5**	**4.5**	**4.6**
	History								Consensus Forecasts-Quarterly					
	2Q	3Q	4Q	1Q	2Q	3Q	*4Q*	*1Q*	2Q	3Q	4Q	1Q	2Q	3Q
Key Assumptions	2017	2017	2017	2018	2018	2018	*2018*	*2019*	2019	2019	2019	2020	2020	2020
Fed's AFE $ Index	111.1	105.6	106.2	102.9	105.5	107.8	109.4	109.4	**108.7**	**108.8**	**108.8**	**108.5**	**108.2**	**107.9**
Real GDP	3.0	2.8	2.3	2.2	4.2	3.4	2.2	3.2	**2.5**	**2.1**	**2.0**	**1.7**	**1.7**	**1.7**
GDP Price Index	1.2	2.2	2.5	2.0	3.0	1.8	1.7	0.9	**2.3**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**
Consumer Price Index	0.4	2.2	3.1	3.2	2.1	2.0	1.5	0.9	**2.9**	**2.3**	**2.1**	**2.1**	**2.1**	**2.1**

Forecasts for interest rates and the Federal Reserve's Major Currency Index represent averages for the quarter. Forecasts for Real GDP, GDP Price Index and Consumer Price Index are seasonally-adjusted annual rates of change (saar). Individual panel members' forecasts are on pages 4 through 9. Historical data: Treasury rates from the Federal Reserve Board's H.15; AAA-AA and A-BBB corporate bond yields from Bank of America-Merrill Lynch and are 15+ years, yield to maturity; State and local bond yields from Bank of America-Merrill Lynch, A-rated, yield to maturity; Mortgage rates from Freddie Mac, 30-year, fixed; LIBOR quotes from Intercontinental Exchange. All interest rate data are sourced from Haver Analytics. Historical data for Fed's Major Currency Index are from FRSR H.10. Historical data for Real GDP and GDP Chained Price Index are from the Bureau of Economic Analysis (BEA). Consumer Price Index (CPI) history is from the Department of Labor's Bureau of Labor Statistics (BLS).









Long-Range Survey:

The table below contains the results of our twice-annual long-range CONSENSUS survey. There are also Top 10 and Bottom 10 averages for each variable. Shown are consensus estimates for the years 2020 through 2024 and averages for the five-year periods 2020-2024 and 2025-2029. Apply these projections cautiously. Few if any economic, demographic and political forces can be evaluated accurately over such long time spans.

		Average For The Year					Five-Year Averages	
Interest Rates		**2020**	**2021**	**2022**	**2023**	**2024**	**2020-2024**	**2025-2029**
1. Federal Funds Rate	**CONSENSUS**	**2.9**	**2.8**	**2.8**	**3.0**	**3.0**	**2.9**	**3.1**
	Top 10 Average	3.5	3.6	3.6	3.6	3.6	3.6	3.6
	Bottom 10 Average	2.1	1.9	2.0	2.3	2.5	2.2	2.6
2. Prime Rate	**CONSENSUS**	**5.9**	**5.8**	**5.9**	**6.0**	**6.1**	**5.9**	**6.1**
	Top 10 Average	6.5	6.6	6.6	6.6	6.6	6.6	6.6
	Bottom 10 Average	5.2	4.9	5.1	5.4	5.6	5.2	5.7
3. LIBOR, 3-Mo.	**CONSENSUS**	**3.3**	**3.2**	**3.2**	**3.5**	**3.5**	**3.3**	**3.5**
	Top 10 Average	3.9	4.0	4.0	4.2	4.2	4.0	4.0
	Bottom 10 Average	2.7	2.5	2.5	2.8	2.9	2.7	3.1
4. Commercial Paper, 1-Mo.	**CONSENSUS**	**3.0**	**2.9**	**3.0**	**3.1**	**3.1**	**3.0**	**3.1**
	Top 10 Average	3.5	3.6	3.6	3.6	3.6	3.6	3.6
	Bottom 10 Average	2.5	2.3	2.3	2.6	2.6	2.4	2.6
5. Treasury Bill Yield, 3-Mo.	**CONSENSUS**	**2.9**	**2.8**	**2.8**	**3.0**	**3.0**	**2.9**	**3.1**
	Top 10 Average	3.5	3.6	3.6	3.6	3.6	3.6	**3.6**
	Bottom 10 Average	2.1	1.9	2.0	2.3	2.5	2.1	**2.6**
6. Treasury Bill Yield, 6-Mo.	**CONSENSUS**	**3.0**	**2.9**	**3.0**	**3.1**	**3.2**	**3.1**	**3.2**
	Top 10 Average	3.6	3.7	3.7	3.7	3.8	3.7	**3.7**
	Bottom 10 Average	2.4	2.1	2.2	2.5	2.7	2.4	**2.8**
7. Treasury Bill Yield, 1-Yr.	**CONSENSUS**	**3.1**	**3.1**	**3.1**	**3.2**	**3.3**	**3.2**	**3.4**
	Top 10 Average	3.7	3.8	3.8	3.8	3.8	3.8	**3.9**
	Bottom 10 Average	2.5	2.3	2.3	2.6	2.8	2.5	**2.9**
8. Treasury Note Yield, 2-Yr.	**CONSENSUS**	**3.2**	**3.2**	**3.2**	**3.3**	**3.4**	**3.3**	**3.5**
	Top 10 Average	3.8	3.9	3.9	3.9	4.0	3.9	**4.0**
	Bottom 10 Average	2.5	2.4	2.4	2.7	2.8	2.6	**2.9**
10. Treasury Note Yield, 5-Yr.	**CONSENSUS**	**3.4**	**3.3**	**3.4**	**3.5**	**3.5**	**3.4**	**3.6**
	Top 10 Average	4.0	4.0	4.1	4.1	4.1	4.1	**4.2**
	Bottom 10 Average	2.7	2.7	2.6	2.8	2.9	2.7	**3.0**
11. Treasury Note Yield, 10-Yr.	**CONSENSUS**	**3.5**	**3.5**	**3.5**	**3.6**	**3.7**	**3.6**	**3.8**
	Top 10 Average	4.2	4.2	4.3	4.3	4.3	4.3	**4.4**
	Bottom 10 Average	2.9	2.9	2.8	3.0	3.0	2.9	**3.2**
12. Treasury Bond Yield, 30-Yr.	**CONSENSUS**	**3.8**	**3.8**	**3.9**	**4.0**	**4.0**	**3.9**	**4.2**
	Top 10 Average	4.5	4.5	4.6	4.7	4.7	4.6	**4.9**
	Bottom 10 Average	3.2	3.2	3.2	3.3	3.4	3.2	**3.5**
13. Corporate Aaa Bond Yield	**CONSENSUS**	**4.9**	**4.9**	**4.9**	**5.0**	**5.1**	**5.0**	**5.1**
	Top 10 Average	5.6	5.7	5.8	5.8	5.8	5.7	**5.9**
	Bottom 10 Average	4.2	4.1	4.1	4.2	4.3	4.2	**4.4**
13. Corporate Baa Bond Yield	**CONSENSUS**	**5.8**	**5.8**	**5.9**	**5.9**	**6.0**	**5.9**	**6.0**
	Top 10 Average	6.5	6.6	6.8	6.8	6.8	6.7	**6.9**
	Bottom 10 Average	5.2	5.1	5.1	5.2	5.3	5.2	**5.3**
14. State & Local Bonds Yield	**CONSENSUS**	**4.6**	**4.5**	**4.5**	**4.5**	**4.6**	**4.5**	**4.7**
	Top 10 Average	5.1	5.0	5.0	5.0	5.1	5.1	**5.2**
	Bottom 10 Average	4.2	4.0	3.9	4.0	4.0	4.0	**4.1**
15. Home Mortgage Rate	**CONSENSUS**	**5.2**	**5.2**	**5.2**	**5.3**	**5.4**	**5.3**	**5.5**
	Top 10 Average	5.8	5.8	5.9	6.0	6.0	5.9	**6.1**
	Bottom 10 Average	4.6	4.5	4.5	4.7	4.8	4.6	**4.9**
A. FRB - Major Currency Index	**CONSENSUS**	**90.1**	**89.7**	**89.4**	**90.0**	**89.8**	**89.8**	**89.9**
	Top 10 Average	94.6	94.6	94.4	94.2	94.0	94.3	93.9
	Bottom 10 Average	85.5	84.8	84.2	85.8	85.6	85.2	85.8
		Year-Over-Year, % Change					Five-Year Averages	
		2020	**2021**	**2022**	**2023**	**2024**	**2020-2024**	**2025-2029**
B. Real GDP	**CONSENSUS**	**1.8**	**1.8**	**2.1**	**2.2**	**2.1**	**2.0**	**2.1**
	Top 10 Average	2.4	2.3	2.4	2.6	2.5	2.5	2.5
	Bottom 10 Average	1.3	1.3	1.7	1.8	1.7	1.6	1.8
C. GDP Chained Price Index	**CONSENSUS**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**
	Top 10 Average	2.4	2.4	2.3	2.4	2.3	2.3	2.3
	Bottom 10 Average	1.9	1.8	1.9	1.9	1.9	1.9	1.9
D. Consumer Price Index	**CONSENSUS**	**2.1**	**2.1**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**
	Top 10 Average	2.5	2.5	2.5	2.5	2.4	2.5	2.4
	Bottom 10 Average	1.7	1.8	1.9	2.0	1.9	1.9	2.0

Atmos Energy Corporation
Derivation of Mean Equity Risk Premium Based Studies
Using Holding Period Returns and
Projected Market Appreciation of the S&P Utility Index

Line No.		Implied Equity Risk Premium
	Equity Risk Premium based on S&P Utility Index Holding Period Returns (1):	
1.	Historical Equity Risk Premium	4.00 %
2.	Regression of Historical Equity Risk Premium (2)	5.72
3.	Forecasted Equity Risk Premium Based on PRPM (3)	3.93
4.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Value Line Data) (4)	6.19
5.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Bloomberg Data) (5)	4.49
6.	Average Equity Risk Premium (6)	4.87 %

Notes:
(1) Based on S&P Public Utility Index monthly total returns and Moody's Public Utility Bond average monthly yields from 1928-2018. Holding period returns are calculated based upon income received (dividends and interest) plus the relative change in the market value of a security over a one-year holding period.

(2) This equity risk premium is based on a regression of the monthly equity risk premiums of the S&P Utility Index relative to Moody's A rated public utility bond yields from 1928 - 2018 referenced in note 1 above.

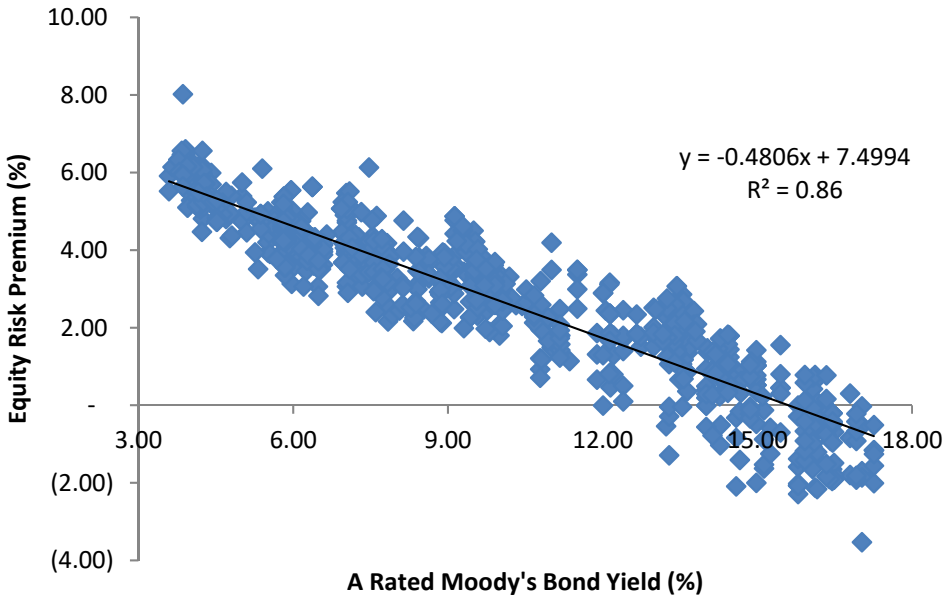
(3) The Predictive Risk Premium Model (PRPM) is applied to the risk premium of the monthly total returns of the S&P Utility Index and the monthly yields on Moody's A rated public utility bonds from January 1928 - April 2019.

(4) Using data from Value Line for the S&P Utilities Index, an expected return of 10.85% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation. Subtracting the expected A rated public utility bond yield of 4.66%, calculated on line 3 of page 3 of this Schedule results in an equity risk premium of 6.19%. (10.85% - 4.66% = 6.19%)

(5) Using data from Bloomberg Professional Service for the S&P Utilities Index, an expected return of 9.15% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation. Subtracting the expected A rated public utility bond yield of 4.66%, calculated on line 3 of page 3 of this Schedule results in an equity risk premium of 4.49%. (9.15% - 4.66% = 4.49%)

(6) Average of lines 1 through 5.

Atmos Energy Corporation
Prediction of Equity Risk Premiums Relative to
Moody's A Rated Utility Bond Yields



Constant	Slope	Prospective A Rated Utility Bond (1)	Prospective Equity Risk Premium
7.499171 %	-0.48057	4.66 %	5.26 %

Notes:
(1) From line 3 of page 3 of this Schedule.

Source of Information: Regulatory Research Associates

Atmos Energy Corporation
Indicated Common Equity Cost Rate Through Use
of the Traditional Capital Asset Pricing Model (CAPM) and Empirical Capital Asset Pricing Model (ECAPM)

Proxy Group of Six Natural Gas Distribution Companies	[1] Value Line Adjusted Beta	[2] Bloomberg Adjusted Beta	[3] Average Beta	[4] Market Risk Premium (1)	[5] Risk-Free Rate (2)	[6] Traditional CAPM Cost Rate	[7] ECAPM Cost Rate	[8] Indicated Common Equity Cost
Atmos Energy Corporation	0.60	0.50	0.55	9.56 %	3.33 %	8.59 %	9.66 %	9.12 %
NW Natural Holdings	0.65	0.58	0.62	9.56	3.33	9.26	10.16	9.71
ONE Gas, Inc.	0.65	0.53	0.59	9.56	3.33	8.97	9.95	9.46
South Jersey Industries, Inc.	0.85	0.71	0.78	9.56	3.33	10.78	11.31	11.05
Southwest Gas Holdings, Inc.	0.70	0.58	0.64	9.56	3.33	9.45	10.31	9.88
Spire, Inc.	0.65	0.47	0.56	9.56	3.33	8.68	9.73	9.21
Mean			0.62			9.29 %	10.19 %	9.74 %
Median			0.61			9.11 %	10.06 %	9.59 %
Average of Mean and Median			0.62			9.20	10.13	9.67 %

Notes on page 2 of this Schedule.

Exhibit No. DWD-1
Schedule DWD-5
Page 1 of 2

Atmos Energy Corporation
Notes to Accompany the Application of the CAPM and ECAPM

Notes:

(1) The market risk premium (MRP) is derived by using six different measures from three sources: Ibbotson, Value Line, and Bloomberg as illustrated below:

Historical Data MRP Estimates:

Measure 1: Ibbotson Arithmetic Mean MRP (1926-2018)

Arithmetic Mean Monthly Returns for Large Stocks 1926-2018:	11.89 %
Arithmetic Mean Income Returns on Long-Term Government Bonds:	5.12
MRP based on Ibbotson Historical Data:	6.77 %

Measure 2: Application of a Regression Analysis to Ibbotson Historical Data
(1926-2017) 9.00 %

Measure 3: Application of the PRPM to Ibbotson Historical Data:
(January 1926 - April 2019) 9.40 %

Value Line MRP Estimates:

Measure 4: Value Line Projected MRP (Thirteen weeks ending May 17, 2019)

Total projected return on the market 3-5 years hence*:	13.81 %
Projected Risk-Free Rate (see note 2):	3.33
MRP based on Value Line Summary & Index:	10.48 %

*Forcasted 3-5 year capital appreciation plus expected dividend yield

Measure 5: Value Line Projected Return on the Market based on the S&P 500

Total return on the Market based on the S&P 500:	14.93 %
Projected Risk-Free Rate (see note 2):	3.33
MRP based on Value Line data	11.60 %

Measure 6: Bloomberg Projected MRP

Total return on the Market based on the S&P 500:	13.42 %
Projected Risk-Free Rate (see note 2):	3.33
MRP based on Bloomberg data	10.09 %

Average of Value Line, Ibbotson, and Bloomberg MRP: 9.56 %

(2) For reasons explained in the direct testimony, the appropriate risk-free rate for cost of capital purposes is the average forecast of 30 year Treasury Bonds per the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts. (See pages 10-11 of Schedule DWD-4.) The projection of the risk-free rate is illustrated below:

Second Quarter 2019	3.00 %
Third Quarter 2019	3.00
Fourth Quarter 2019	3.10
First Quarter 2020	3.10
Second Quarter 2020	3.10
Third Quarter 2020	3.20
2020-2024	3.90
2025-2029	4.20
	3.33 %

(3) Average of Column 6 and Column 7.

Sources of Information:
Value Line Summary and Index
Blue Chip Financial Forecasts, May 1, 2019 and December 1, 2018
Stocks, Bonds, Bills, and Inflation - 2019 SBBI Yearbook, John Wiley & Sons, Inc.
Bloomberg Professional Services

Atmos Energy Corporation
Basis of Selection of the Group of Non-Price Regulated Companies
Comparable in Total Risk to the Utility Proxy Group

The criteria for selection of the proxy group of sixteen non-price regulated companies was that the non-price regulated companies be domestic and reported in Value Line Investment Survey (Standard Edition).

The proxy group of sixteen non-price regulated companies were then selected based on the unadjusted beta range of 0.30 – 0.66 and residual standard error of the regression range of 2.2685 – 2.7057 of the Utility Proxy Group.

These ranges are based upon plus or minus two standard deviations of the unadjusted beta and standard error of the regression. Plus or minus two standard deviations captures 95.50% of the distribution of unadjusted betas and residual standard errors of the regression.

The standard deviation of the Gas Utility Proxy Group's residual standard error of the regression is 0.1093. The standard deviation of the standard error of the regression is calculated as follows:

$$\text{Standard Deviation of the Std. Err. of the Regr.} = \frac{\text{Standard Error of the Regression}}{\sqrt{2N}}$$

where: N = number of observations. Since Value Line betas are derived from weekly price change observations over a period of five years, N = 259

$$\text{Thus, } 0.1093 = \frac{2.4871}{\sqrt{518}} = \frac{2.4871}{22.7596}$$

Source of Information: Value Line, Inc., March 2019
Value Line Investment Survey (Standard Edition)

Atmos Energy Corporation
Basis of Selection of Comparable Risk
Domestic Non-Price Regulated Companies

Proxy Group of Six Natural Gas Distribution Companies	[1] Value Line Adjusted Beta	[2] Unadjusted Beta	[3] Residual Standard Error of the Regression	[4] Standard Deviation of Beta
Atmos Energy Corporation	0.60	0.38	2.1244	0.0761
NW Natural Holdings	0.65	0.39	2.4219	0.0868
ONE Gas, Inc.	0.65	0.45	2.4973	0.0895
South Jersey Industries, Inc.	0.85	0.70	2.8043	0.1005
Southwest Gas Holdings, Inc.	0.70	0.52	2.7864	0.0999
Spire, Inc.	0.65	0.46	2.2881	0.0820
Average	0.68	0.48	2.4871	0.0891
Beta Range (+/- 2 std. Devs. of Beta)	0.30	0.66		
2 std. Devs. of Beta	0.18			
Residual Std. Err. Range (+/- 2 std. Devs. of the Residual Std. Err.)	2.2685	2.7057		
Std. dev. of the Res. Std. Err.	0.1093			
2 std. devs. of the Res. Std. Err.	0.2186			

Source of Information: Valueline Proprietary Database, March 2019

Atmos Energy Corporation
Proxy Group of Non-Price Regulated Companies
Comparable in Total Risk to the
Proxy Group of Six Natural Gas Distribution Companies

Proxy Group of Sixteen Non-Price Regulated Companies	[1] VL Adjusted Beta	[2] Unadjusted Beta	[3] Residual Standard Error of the Regression	[4] Standard Deviation of Beta
CME Group	0.75	0.58	2.3769	0.0852
Compass Diversified	0.80	0.66	2.5218	0.0904
Forrester Research	0.75	0.55	2.6972	0.0967
Cedar Fair L.P.	0.80	0.65	2.6066	0.0934
Genpact Limited	0.75	0.62	2.3796	0.0853
Gen'l Mills	0.75	0.59	2.3595	0.0846
Hormel Foods	0.70	0.48	2.5909	0.0929
Hershey Co.	0.70	0.53	2.3285	0.0835
J&J Snack Foods	0.75	0.59	2.3491	0.0842
Kellogg	0.65	0.46	2.2770	0.0816
Lancaster Colony	0.75	0.55	2.5078	0.0899
Lilly (Eli)	0.75	0.59	2.5377	0.0910
Altria Group	0.70	0.48	2.4716	0.0886
Smucker (J.M.)	0.70	0.53	2.4794	0.0889
Tootsie Roll	0.70	0.54	2.3823	0.0854
WD-40 Co.	0.75	0.60	2.4422	0.0875
Average	0.73	0.56	2.4600	0.0900
Proxy Group of Six Natural Gas Distribution Companies	0.68	0.48	2.4871	0.0891

Source of Information: Valueline Proprietary Database, March 2019

Atmos Energy Corporation
Summary of Cost of Equity Models Applied to
Proxy Group of Sixteen Non-Price Regulated Companies
Comparable in Total Risk to the
Proxy Group of Six Natural Gas Distribution Companies

Principal Methods		Proxy Group of Sixteen Non-Price Regulated Companies	
Discounted Cash Flow Model (DCF) (1)		9.92	%
Risk Premium Model (RPM) (2)		11.22	
Capital Asset Pricing Model (CAPM) (3)		10.60	
	Mean	10.58	%
	Median	10.60	%
	Average of Mean and Median	10.59	%

Notes:
(1) From page 2 of this Schedule.
(2) From page 3 of this Schedule.
(3) From page 6 of this Schedule.

Atmos Energy Corporation
DCF Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the
Proxy Group of Six Natural Gas Distribution Companies

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Proxy Group of Sixteen Non-Price Regulated Companies	Average Dividend Yield	Value Line Projected Five Year Growth in EPS	Zack's Five Year Projected Growth Rate in EPS	Yahoo! Finance Projected Five Year Growth in EPS	Average Projected Five Year Growth Rate in EPS	Adjusted Dividend Yield	Indicated Common Equity Cost Rate (1)
CME Group	1.73 %	3.00 %	6.60 %	4.60 %	4.73 %	1.77 %	6.50 %
Compass Diversified	8.87	NA	NA	7.00	7.00	9.18	16.18
Forrester Research	-	8.50	12.00	12.00	10.83	-	NA
Cedar Fair L.P.	6.93	10.50	6.00	6.00	7.50	7.19	14.69
Genpact Limited	0.97	13.00	10.70	11.33	11.68	1.03	12.71
Gen'l Mills	3.92	4.00	7.00	5.36	5.45	4.03	9.48
Hormel Foods	2.02	9.00	7.50	5.00	7.17	2.09	9.26
Hershey Co.	2.48	6.00	8.00	7.74	7.25	2.57	9.82
J&J Snack Foods	1.28	7.50	NA	6.00	6.75	1.32	8.07
Kellogg	3.95	4.50	4.50	0.75	3.25	4.01	7.26
Lancaster Colony	1.70	7.50	NA	3.00	5.25	1.74	6.99
Lilly (Eli)	2.10	11.50	10.00	10.74	10.75	2.21	12.96
Altria Group	5.87	10.50	7.60	7.18	8.43	6.12	14.55
Smucker (J.M.)	2.95	5.50	5.10	3.39	4.66	3.02	7.68
Tootsie Roll	0.92	5.50	NA	9.00	7.25	0.95	8.20
WD-40 Co.	1.43	8.50	10.00	10.00	9.50	1.50	11.00
						Mean	10.36 %
						Median	9.48 %
						Average of Mean and Median	9.92 %

NA= Not Available
NMF= Not Meaningful Figure

(1) The application of the DCF model to the domestic, non-price regluated comparable risk companies is identical to the application of the DCF to the utility proxy group. The dividend yield is derived by using the 60 day average price and the spot indicated dividend as of May 17, 2019. The dividend yield is then adjusted by 1/2 the average projected growth rate in EPS, which is calculated by averaging the 5 year projected growth in EPS provided by Value Line, www.zacks.com, and www.yahoo.com (excluding any negative growth rates) and then adding that growth rate to the adjusted dividend yield.

Source of Information: Value Line Investment Survey
www.zacks.com Downloaded on 05/17/2019
www.yahoo.com Downloaded on 05/17/2019

Atmos Energy Corporation
Indicated Common Equity Cost Rate
Through Use of a Risk Premium Model
Using an Adjusted Total Market Approach

Line No.		Proxy Group of Sixteen Non-Price Regulated Companies
1.	Prospective Yield on Baa Rated Corporate Bonds (1)	5.21 %
2.	Adjustment to Reflect Bond rating Difference of Non-Price Regulated Companies	(0.22) (2)
3.	Adjusted Prospective Bond Yield	4.99
4.	Equity Risk Premium (3)	6.23
5.	Risk Premium Derived Common Equity Cost Rate	11.22 %

Notes: (1) Average forecast of Baa corporate bonds based upon the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts dated May 1, 2019 and December 1, 2018 (see pages 10 and 11 of Schedule DWD-4). The estimates are detailed below.

Second Quarter 2019	4.80 %
Third Quarter 2019	4.90
Fourth Quarter 2019	4.90
First Quarter 2020	5.00
Second Quarter 2020	5.10
Third Quarter 2020	5.10
2020-2024	5.90
2025-2029	6.00
Average	5.21 %

(2) To reflect the Baa1 average rating of the non-utility proxy group, the prosepctive yield on Baa corporate bonds must be adjusted downward by 1/3 of the spread between A and Baa corporate bond yields as shown below:

	A Corp. Bond Yield	Baa Corp. Bond Yield	Spread
Apr-2019	4.08 %	4.70 %	0.62 %
Mar-2019	4.17	4.84	0.67
Feb-2019	4.23	4.95	0.72
		Average yield spread	0.67 %
		1/3 of spread	0.22 %

(23) From page 5 of this Schedule.

Atmos Energy Corporation
Comparison of Long-Term Issuer Ratings for the
Proxy Group of Sixteen Non-Price Regulated Companies of Comparable risk to the
Proxy Group of Six Natural Gas Distribution Companies

	Moody's Long-Term Issuer Rating May 2019		Standard & Poor's Long-Term Issuer Rating May 2019	
Proxy Group of Sixteen Non-Price Regulated Companies	Long-Term Issuer Rating	Numerical Weighting (1)	Long-Term Issuer Rating	Numerical Weighting (1)
CME Group	Aa3	4.0	AA-	4.0
Compass Diversified	NR	--	NR	--
Forrester Research	NR	--	NR	--
Cedar Fair L.P.	B1	14.0	BB	12.0
Genpact Limited	NR	--	BBB-	10.0
Gen'l Mills	Baa2	9.0	BBB	9.0
Hormel Foods	A1	5.0	A	6.0
Hershey Co.	A1	5.0	A	6.0
J&J Snack Foods	NR	--	NR	--
Kellogg	Baa2	9.0	BBB	9.0
Lancaster Colony	NR	--	NR	--
Lilly (Eli)	A2	6.0	A+	5.0
Altria Group	A3	7.0	BBB	9.0
Smucker (J.M.)	Baa2	9.0	BBB	9.0
Tootsie Roll	NR	--	NR	--
WD-40 Co.	NR	--	NR	--
Average	Baa1	7.6	BBB+	7.9

Notes:
(1) From page 6 of Schedule DWD-4.

Source of Information:
Bloomberg Professional Services

Atmos Energy Corporation
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for
Proxy Group of Sixteen Non-Price Regulated Companies of Comparable risk to the
Proxy Group of Six Natural Gas Distribution Companies

Line No.	Equity Risk Premium Measure	Proxy Group of Sixteen Non-Price Regulated Companies
	Ibbotson-Based Equity Risk Premiums:	
1.	Ibbotson Equity Risk Premium (1)	5.54 %
2.	Regression on Ibbotson Risk Premium Data (2)	7.93
3.	Ibbotson Equity Risk Premium based on PRPM (3)	8.32
5.	Equity Risk Premium Based on Value Line Summary and Index (4)	9.56
6.	Equity Risk Premium Based on Value Line S&P 500 Companies (5)	10.68
8.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	9.17
9.	Conclusion of Equity Risk Premium	8.54 %
10.	Adjusted Beta (7)	0.73
11.	Forecasted Equity Risk Premium	6.23 %

Notes:
(1) From note 1 of page 9 of Schedule DWD-4.
(2) From note 2 of page 9 of Schedule DWD-4.
(3) From note 3 of page 9 of Schedule DWD-4.
(4) From note 4 of page 9 of Schedule DWD-4.
(5) From note 5 of page 9 of Schedule DWD-4.
(6) From note 6 of page 9 of Schedule DWD-4.
(7) Average of mean and median beta from page 6 of this Schedule.

Sources of Information:
Stocks, Bonds, Bills, and Inflation - 2019 SBBI Yearbook, John Wiley & Sons, Inc.
Value Line Summary and Index
Blue Chip Financial Forecasts, May 1, 2019 and December 1, 2018
Bloomberg Professional Services

Atmos Energy Corporation
Traditional CAPM and ECAPM Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the
Proxy Group of Six Natural Gas Distribution Companies

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Sixteen Non-Price Regulated Companies	Value Line Adjusted Beta	Bloomberg Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (3)
CME Group	0.75	0.62	0.69	9.56 %	3.33 %	9.92 %	10.66 %	10.29 %
Compass Diversified	0.80	0.77	0.78	9.56	3.33	10.78	11.31	11.05
Forrester Research	0.75	1.03	0.89	9.56	3.33	11.84	12.10	11.97
Cedar Fair L.P.	0.80	0.74	0.77	9.56	3.33	10.69	11.24	10.96
Genpact Limited	0.75	0.96	0.86	9.56	3.33	11.55	11.88	11.72
Gen'l Mills	0.75	0.73	0.74	9.56	3.33	10.40	11.02	10.71
Hormel Foods	0.70	0.54	0.62	9.56	3.33	9.26	10.16	9.71
Hershey Co.	0.70	0.62	0.66	9.56	3.33	9.64	10.45	10.04
J&J Snack Foods	0.75	0.68	0.72	9.56	3.33	10.21	10.88	10.55
Kellogg	0.65	0.62	0.64	9.56	3.33	9.45	10.31	9.88
Lancaster Colony	0.75	0.50	0.62	9.56	3.33	9.26	10.16	9.71
Lilly (Eli)	0.75	0.90	0.82	9.56	3.33	11.17	11.60	11.38
Altria Group	0.70	0.80	0.75	9.56	3.33	10.50	11.09	10.80
Smucker (J.M.)	0.70	0.65	0.67	9.56	3.33	9.73	10.52	10.13
Tootsie Roll	0.70	0.45	0.57	9.56	3.33	8.78	9.80	9.29
WD-40 Co.	0.75	0.74	0.75	9.56	3.33	10.50	11.09	10.80
Mean			0.72			10.23 %	10.89 %	10.56 %
Median			0.73			10.31 %	10.95 %	10.63 %
Average of Mean and Median			0.73			10.27 %	10.92 %	10.60 %

Notes:
(1) From Schedule DWD-5, note 1.
(2) From Schedule DWD-5, note 2.
(3) Average of CAPM and ECAPM cost rates.

Atmos Energy Corporation
Derivation of Investment Risk Adjustment Based upon
Ibbotson Associates' Size Premia for the Decile Portfolios of the NYSE/AMEX/NASDAQ

Line No.		[1] Market Capitalization on April 30, 2019 (1) (millions)		[2] Applicable Decile of the NYSE/AMEX/ NASDAQ (2)	[3] Applicable Size Premium (3)	[4] Spread from Applicable Size Premium (4)
1.	Atmos Energy Corporation	$ 336.579		9	2.46%	
2.	Proxy Group of Six Natural Gas Distribution Companies	$ 4,968.374	14.8 x	4	0.85%	1.61%
			[A]	[B]	[C]	[D]

	Decile	Market Capitalization of Smallest Company (millions)	Market Capitalization of Largest Company (millions)	Size Premium (Return in Excess of CAPM)*
Largest	1	$ 29,428.909	$ 1,073,390.566	-0.30%
	2	13,512.960	29,022.867	0.52%
	3	7,275.967	13,455.802	0.81%
	4	4,504.066	7,524.230	0.85%
	5	2,996.003	4,503.549	1.28%
	6	1,961.831	2,992.251	1.50%
	7	1,292.791	1,960.201	1.58%
	8	730.047	1,292.224	1.80%
	9	325.360	727.843	2.46%
Smallest	10	2.455	321.578	5.22%

*From 2019 Duff & Phelps Cost of Capital Navigator

Notes:

(1) From page 2 of this Schedule.
(2) Gleaned from Columns [B] and [C] on the bottom of this page. The appropriate decile (Column [A]) corresponds to the market capitalization of the proxy group, which is found in Column [1].
(3) Corresponding risk premium to the decile is provided in Column [D] on the bottom of this page.
(4) Line No. 1 Column [3] – Line No. 2 Column [3]. For example, the 1.61% in Column [4], Line No. 2 is derived as follows 1.61% = 2.46% - 0.85%.

Citizens' Electric Company / Wellsboro Electric Company / Valley Energy, Inc.
Market Capitalization of Citizens' Electric Company / Wellsboro Electric Company / Valley Energy, Inc. and the
Proxy Group of Nineteen Electric Companies and Proxy Group of Seven Natural Gas Distribution Companies

Company	Exchange	[1] Common Stock Shares Outstanding at Fiscal Year End 2017 (millions)	[2] Book Value per Share at Fiscal Year End 2017 (1)	[3] Total Common Equity at Fiscal Year End 2017 (millions)	[4] Closing Stock Market Price on March 29, 2019	[5] Market-to-Book Ratio on March 29, 2019 (2)	[6] Market Capitalization on March 29, 2019 (3) (millions)
Citizens' Electric Company		NA	NA	12.836 (4)	NA		
Wellsboro Electric Company		NA	NA	3.041 (4)	NA		
Valley Energy, Inc.		NA	NA	8.260 (4)	NA		
Based on the Proxy Group of Nineteen Electric Companies						209.1 (5)	$ 26.840 (6)
Based on the Proxy Group of Nineteen Electric Companies						209.1 (5)	$ 6.358 (6)
Based on the Proxy Group of Seven Natural Gas Distribution Companies						233.0 (5)	$ 19.245 (6)
Proxy Group of Nineteen Electric Companies							
ALLETE, Inc.	NYSE	51.117	$ 40.460	$ 2,068.200	$ 82.230	203.2 %	$ 4,203.351
Alliant Energy Corporation	NYSE	231.349	18.942	4,382.200	47.130	248.8	10,903.462
Ameren Corporation	NYSE	242.600	30.198	7,326.000	73.550	243.6	17,843.230
American Electric Power Co., Inc.	NYSE	492.006	37.222	18,313.600	83.750	225.0	41,205.469
AVANGRID, Inc.	NYSE	309.005	48.792	15,077.000	50.350	103.2	15,558.415
Avista Corporation	NYSE	65.494	26.412	1,729.828	40.620	153.8	2,660.380
Dominion Energy, Inc.	NYSE	645.000	26.577	17,142.000	76.660	288.4	49,445.700
Duke Energy Corporation	NYSE	700.000	59.624	41,737.000	90.000	150.9	63,000.000
Edison International	NYSE	325.811	42.558	13,866.000	61.920	145.5	20,174.230
El Paso Electric Company	NYSE	40.317	28.330	1,142.165	58.820	207.6	2,371.424
Eversource Energy	NYSE	317.411	34.927	11,086.242	70.950	203.1	22,520.317
IDACORP, Inc.	NYSE	50.392	44.677	2,251.385	99.540	222.8	5,016.056
NorthWestern Corporation	NYSE	52.981	33.954	1,798.915	70.410	207.4	3,730.410
OGE Energy Corporation	NYSE	199.700	19.284	3,851.100	43.120	223.6	8,611.064
Otter Tail Corporation	NYSE	39.557	17.617	696.892	49.820	282.8	1,970.754
Pinnacle West Capital Corp.	NYSE	111.816	45.930	5,135.730	95.580	208.1	10,687.390
PNM Resources, Inc.	NYSE	79.654	22.114	1,761.448	47.340	214.1	3,770.803
Portland General Electric Co.	NYSE	89.114	27.111	2,416.000	51.840	191.2	4,619.683
Xcel Energy, Inc.	NYSE	507.763	22.560	11,455.000	56.210	249.2	28,541.352
Average		239.531	$ 33.015	$ 8,591.406	$ 65.781	209.1 %	$ 16,675.447
Proxy Group of Seven Natural Gas Distribution Companies							
Atmos Energy Corporation	NYSE	106.105	$ 36.744	$ 3,898.666	$ 102.930	280.1 %	$ 10,921.350
New Jersey Resources Corp.	NYSE	86.556	14.287	1,236.643	49.790	348.5	4,309.599
Northwest Natural Holding Co.	NYSE	28.736	25.848	742.776	65.630	253.9	1,885.944
ONE Gas, Inc.	NYSE	52.313	37.471	1,960.209	89.030	237.6	4,657.383
South Jersey Industries, Inc.	NYSE	79.549	14.990	1,192.409	32.070	213.9	2,551.139
Southwest Gas Holdings, Inc.	NYSE	47.482	38.170	1,812.403	82.260	215.5	3,905.875
Spire, Inc.	NYSE	48.263	41.259	1,991.300	82.290	199.4	3,971.582
Average		64.143	$ 29.824	$ 1,833.487	$ 72.000	233.0 %	$ 4,600.410

NA= Not Available

Notes: (1) Column 3 / Column 1.
(2) Column 4 / Column 2.
(3) Column 1 * Column 4.
(4) Fiscal year 2017 common equity balance as reported to the PA PUC.
(5) The market-to-book ratio of Citizens' Electric Company / Wellsboro Electric Company / Valley Energy, Inc. on March 29, 2019 is assumed to be equal to the market-to-book ratio of Proxy Group of Nineteen Electric Companies and Proxy Group of Seven Natural Gas Distribution Companies on March 29, 2019 as appropriate.
(6) Column [3] multiplied by Column [5].

Source of Information: 2017 Annual Forms 10K
yahoo.finance.com

Atmos Energy Corporation
Derivation of the Flotation Cost Adjustment to the Cost of Common Equity

Equity Issuances and Flotation Costs for FY 2018, 2017, and 2016

Fiscal Year	Transaction (1)	[Column 1] Shares Issued	[Column 2] Average Offering Price per Share	[Column 3] Net Proceeds per Share (2)	[Column 4] Gross Equity Issue before Costs	[Column 5] Total Net Proceeds	[Column 6] Total Flotation Costs (3)	[Column 7] Flotation Cost Percentage (4)
2018	At the Market Equity Offering	4,558,404	$ 87.7500	$ 86.6751	$ 400,000,000	$ 395,100,000	$ 4,900,000	1.23%
2017	At the Market Equity Offering	1,303,494	$ 76.7169	$ 75.7963	$ 100,000,000	$ 98,800,000	$ 1,200,000	1.20%
2016	At the Market Equity Offering	1,360,756	$ 73.4886	$ 72.4597	$ 100,000,000	$ 98,600,000	$ 1,400,000	1.40%
					$ 600,000,000	$ 592,500,000	$ 7,500,000	1.25%

Flotation Cost Adjustment

	Average Dividend Yield	Average Projected EPS Growth Rate	Adjusted Dividend Yield	Average DCF Cost Rate Unadjusted for Flotation (5)	DCF Cost Rate Adjusted for Flotation (6)	Flotation Cost Adjustment (7)
Proxy Group of Six Natural Gas Distribution Companies	2.73 %	6.05 %	2.81 %	8.86 %	8.90 %	0.04 %

See page 2 of this Schedule for notes.

Source of Information: Atmos Energy Corporation 2018 SEC Form 10-K

Atmos Energy Corporation
Notes to Accompany the
Derivation of the Flotation Cost Adjustment to the Cost of Common Equity

(1) Company-provided.

(2) Column 5 / Column 1.

(3) Column 4 - Column 5.

(4) Column 6 / Column 4.

(5) Using the average growth rate from Schedule DWD-3.

(6) Adjustment for flotation costs based on adjusting the average DCF constant growth cost rate in accordance with the following:

$$K = \frac{D(1+0.5g)}{P(1-F)} + g,$$

where g is the growth factor and F is the percentage of flotation costs.

(7) Flotation cost adjustment of 0.04% equals the difference between the flotation adjusted average DCF cost rate of 8.90% and the unadjusted average DCF cost rate of 8.86% of the Utility Proxy Group.

Source of Information:

Company 2017 and 2018 SEC Form 10-K