Schedule KM-S13

Exhibit No.:
Issue: Rate of Return/Capital Structure
Witness: Keith Magee
Type of Exhibit: Direct Testimony
Sponsoring Party: Liberty Utilities
(Midstates Natural Gas) Corp.
d/b/a Liberty Utilities
Case No.: GR-2018-0013
Date Testimony Prepared: September 28, 2017

Before the Public Service Commission
of the State of Missouri

Direct Testimony

of

Keith Magee
ScottMadden, Inc

On Behalf Of

Liberty Utilities (Midstates Natural Gas) Corp.
d/b/a Liberty Utilities

September 2017

DIRECT TESTIMONY
OF
KEITH MAGEE
LIBERTY UTILITIES
BEFORE THE
MISSOURI PUBLIC SERVICE COMMISSION
CASE NO. GR-2018-0013

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, AFFILIATION AND BUSINESS ADDRESS.

A. My name is Keith Magee. I am a Director at ScottMadden, Inc. ("ScottMadden"). My business address is 1900 West Park Drive, Suite 250, Westborough, MA 01581.

Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS TESTIMONY?

A. I am submitting this direct testimony ("Direct Testimony") before the Missouri Public Service Commission ("Commission") on behalf of Liberty Utilities (Midstates Natural Gas) Corp., d/b/a Liberty Utilities ("Liberty Midstates" or the "Company"), an indirect wholly owned subsidiary of Algonquin Power & Utilities Corp ("APUC").

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL AND PROFESSIONAL EXPERIENCE.

A. I hold a Bachelor's degree in Economics from Whitman College, and an MBA with a concentration in Finance from the F.W. Olin Graduate School of Business at Babson College. I also hold the professional designation of Chartered Financial Analyst ("CFA") awarded by the CFA Institute, and the professional designation of Certified Rate of Return Analyst ("CRRA") awarded by the Society of Utility and Regulatory Financial Analysts.

As a consultant in the utility and energy industry, I have provided consulting

services on a range of financial and economic issues including areas such as rate case activities (e.g., cost of capital, cost of service, financial reporting filing requirements and rate design) and policy and strategy issues (e.g., capital investment related activities). Many of my engagements have included developing cost of capital analyses and testimony. A summary of my professional and educational background is included in Attachment A to my Direct Testimony.

II. PURPOSE AND OVERVIEW OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. The purpose of my Direct Testimony is to present evidence and provide a recommendation regarding the Company's return on equity ("ROE" or "cost of equity") and capital structure, and to assess the reasonableness of the Company's cost of debt. My analyses and conclusions are supported by the data presented in Schedule KM-1 through Schedule KM-12, which have been prepared by me or under my direction. In addition, I sponsor WP-1 Rate of Return, setting forth the capital structure and cost of capital, as noted by Company witness Schwartz.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE APPROPRIATE COST OF EQUITY, CAPITAL STRUCTURE AND COST OF DEBT FOR THE COMPANY?

A. My analyses indicate that the Company's cost of equity currently is in the range of 9.90 percent to 10.35 percent. Based on the quantitative and qualitative analyses discussed throughout my Direct Testimony, I recommend that the Commission authorize the Company the opportunity to earn an ROE of 10.25 percent.

With respect to the Company's capital structure, I propose a capital structure

consisting of 53.00 percent common equity and 47.00 percent long-term debt. That capital structure includes an equity ratio that is below Liberty Midstates' equity ratio, but is consistent with those in place at comparable natural gas companies. In light of the importance of maintaining access to capital, and seeing that it is consistent with similarly situated utility companies, I conclude that a 53.00 percent equity ratio is reasonable and appropriate.

Lastly, I note that the Company's 4.70 percent cost of debt is consistent with, although lower than, the debt cost rates authorized for natural gas utilities during the twelve months ended August 18, 2017. As such, I conclude that the Company's cost of debt is reasonable and appropriate.

Q. PLEASE PROVIDE A BRIEF OVERVIEW OF THE ANALYSES THAT LED TO YOUR ROE RECOMMENDATION.

A. Because all models are subject to various assumptions and constraints, equity analysts and investors tend use multiple methods to develop their return requirements.[1] My ROE recommendation in this proceeding relies on the results of the quarterly growth discounted cash flow ("DCF") model, the capital asset pricing model ("CAPM"), the bond yield plus risk premium ("Risk Premium") model, and the expected earnings approach.

My recommendation also takes into consideration the Company's risk and cost profile, in particular: (1) its relatively small size; (2) the regulatory environment in which the Company operates; and (3) the direct costs associated with equity issuances.

[1] *See, e.g.,* Eugene Brigham, Louis Gapenski, Financial Management: Theory and Practice, 7th Ed., 1994, at 341, and Tom Copeland, Tim Koller and Jack Murrin, Valuation: Measuring and Managing the Value of Companies, 3rd ed., 2000, at 214.

Although I did not make explicit adjustments to my ROE estimates for those factors, I did take them into consideration in determining the range in which the Company's cost of equity likely falls.

Q. WHAT ARE THE KEY FACTORS CONSIDERED IN YOUR ANALYSES AND UPON WHICH YOU BASE YOUR RECOMMENDED ROE?

A. My analyses and recommendations considered the following:

- The United States Supreme Court's *Bluefield* and *Hope* decisions[2] that established the following standards for determining a fair and reasonable allowed ROE: (1) consistency of the allowed return with other businesses having similar risk; (2) adequacy of the return to provide access to capital and support credit quality; (3) an end result of just and reasonable rates;
- The Company's business risks relative to the proxy group of comparable companies (set forth in Table 2 below) and the implications of those risks in arriving at the appropriate ROE from within the range of results established by the DCF, CAPM, Risk Premium and Expected Earnings methods;
- The capital-intensive nature of utility operations, indicating the need to finance large, long-lived investments with internally generated and externally acquired funds, even during periods of capital market distress, both of which depend on the Company's ability to earn a reasonable return on its rate base; and
- The effect of current capital market conditions on investors' return requirements.

Q. WHAT ARE THE RESULTS OF YOUR ROE ANALYSES?

[2] *Bluefield Waterworks & Improvement Co., v. Public Service Comm'n of West Virginia*, 262 U.S. 679 (1923) ("Bluefield"); *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) ("Hope").

A. The results of my analyses are summarized in Table 1, below.

Table 1: Summary of Analytical Results

DCF Analyses	*Proxy Group*		
	Low	*Mean*	*High*
Constant Growth, 30-day Stock Prices	7.22%	8.96%	11.13%
Constant Growth, 90-day Stock Prices	7.26%	9.01%	11.17%
Constant Growth, 180-day Stock Prices	7.36%	9.10%	11.27%
Quarterly Growth, 30-day Stock Prices	7.37%	9.08%	11.37%
Quarterly Growth, 90-day Stock Prices	7.42%	9.13%	11.41%
Quarterly Growth, 180-day Stock Prices	7.52%	9.23%	11.52%
CAPM		*Bloomberg MRP*	*Value Line MRP*
Value Line Beta, Current Risk-Free Rate (2.85%)		10.53%	11.08%
Value Line Beta, Projected Risk-Free Rate (3.35%)		10.67%	11.22%
Bloomberg Beta, Current Risk-Free Rate (2.85%)		9.62%	10.11%
Bloomberg Beta, Projected Risk-Free Rate (3.35%)		9.80%	10.29%
Bond Yield Plus Risk Premium	*Low*	*Mean*	*High*
Current and Projected Baa Utility Bond Yields	9.52%	9.83%	10.41%
Expected Earnings Analysis	*Low*	*Mean*	*High*
Value Line Projected Return on Book Equity	10.74%	10.93%	11.11%

Q. ARE THERE FACTORS THAT SHOULD BE CONSIDERED IN DETERMINING THE WEIGHT GIVEN TO THE RESULTS OF THE DIFFERENT ROE MODELS?

A. Yes, there are. All of the models used to estimate the cost of equity are subject to certain assumptions, which may become more or less relevant as market conditions, and market data, change. An important consideration is the consistency of each model's underlying assumptions with current and expected market conditions, and the reasonableness of its results relative to observable benchmarks. For example, utility Price/Earnings (P/E) ratios recently have been well in excess of their historical averages. Those pricing levels, which had been associated with Federal Reserve monetary policy initiatives, weighed on

utility dividend yields and, therefore, DCF-based ROE estimates. An important analytical question is whether the increase in P/E ratios represents a fundamental shift in utility valuation, or a temporary trading position to be unwound as conditions change. That question is important because the constant growth and quarterly growth models assume that current underlying relationships will remain constant, forever; the model does not allow us to incorporate such important factors, nor does it enable us to reflect the expected risk associated with changing market conditions.

Risk premium-based methods (such as the capital asset pricing model), on the other hand, incorporate measures of risk and have the benefit of directly considering investors' expectations regarding future market returns. Other risk premium approaches (the bond yield plus risk premium approach) reflect the well-documented finding that the cost of equity does not move in lock-step with interest rates. For example, at times interest rates fall because investors are so risk averse that they would rather accept a very modest return on Treasury securities than take on the risk of equity ownership. In such circumstances, low interest rates suggest an increasing, not a decreasing cost of equity. The important analytical issue, therefore, is understanding each model's fundamental structure and assumptions, and interpreting its results in the context of current and expected market conditions.

Every model has its own strengths and weaknesses, and it is important to reflect those relative strengths in estimating the cost of equity. On balance, I believe the DCF model results in particular should be viewed with considerable caution, and should be given less weight than the other approaches in the current capital market environment. And, because risk premium-based methods provide the ability to reflect investors' views

of risk, future market returns, and the relationship between interest rates and the cost of equity, those methods should be given more weight than the DCF method.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING LIBERTY MIDSTATES' COST OF EQUITY?

A. Giving less weight to the low end of the DCF results shown in Table 1, I believe that a reasonable range of Liberty Midstates' cost of equity is from 9.90 percent to 10.35 percent. Considering the capital market environment and the Company's business risks relative to the proxy group, it is my view that an ROE of 10.25 percent is reasonable.

Q. HOW IS THE REMAINDER OF YOUR DIRECT TESTIMONY ORGANIZED?

A. The remainder of my Direct Testimony is organized as follows:

Section III – Discusses the regulatory guidelines and financial considerations pertinent to the development of the cost of capital;

Section IV – Explains my selection of the proxy group of natural gas utilities used to develop my analytical results;

Section V – Explains my analyses and the analytical bases for my ROE recommendation;

Section VI – Provides a discussion of specific business risks and other considerations that have a direct bearing on the Company's cost of equity;

Section VII – Highlights the current capital market conditions and their effect on the Company's cost of equity;

Section VIII – Explains my recommendation for the Company's capital structure;

Section IX – Briefly discusses the Company's cost of debt; and

Section X – Summarizes my conclusions and recommendations.

III. REGULATORY GUIDELINES AND FINANCIAL CONSIDERATIONS

Q. PLEASE PROVIDE A BRIEF SUMMARY OF THE GUIDELINES ESTABLISHED BY THE UNITED STATES SUPREME COURT (THE "COURT") FOR THE PURPOSE OF DETERMINING THE ROE.

A. The Court established the guiding principles for establishing a fair return for capital in two cases: (1) *Bluefield Water Works and Improvement Co. v. Public Service Comm'n of West Virginia (Bluefield)*; and (2) *Federal Power Comm'n v. Hope Natural Gas Co. (Hope)*. In those cases, the Court recognized that the fair rate of return on equity should be: (1) comparable to returns investors expect to earn on other investments of similar risk; (2) sufficient to assure confidence in the company's financial integrity; and (3) adequate to maintain and support the company's credit and to attract capital.

Q. DOES MISSOURI PRECEDENT PROVIDE SIMILAR GUIDANCE?

A. Yes, the Commission cited the *Hope* and *Bluefield* decisions in its order in the Company's last rate case and acknowledged its authority and responsibility to set "just and reasonable" rates for public utility service, stating that:

> The Commission must draw primary guidance in the evaluation of the expert testimony from the Supreme Court's *Hope* and *Bluefield* decisions. Pursuant to those decisions, returns for Liberty's shareholders must be commensurate with returns in other enterprises with corresponding risks. Just and reasonable rates must include revenue sufficient to cover operating expenses, service debt and pay a dividend commensurate with the risk involved. The language of *Hope* and *Bluefield* unmistakably requires a *comparative method*, based on a quantification of risk.
>
> […]
>
> *Hope* and *Bluefield* also expressly refer to objective measures. The allowed return must be sufficient to ensure confidence in the financial

integrity of the company in order to maintain its credit and attract necessary capital.[3]

Based on those standards, the authorized ROE should provide the Company with the opportunity to earn a fair and reasonable return on its regulated utility operations and should enable efficient access to external capital under a variety of market conditions.

Q. WHY IS IT IMPORTANT FOR A UTILITY TO BE ALLOWED THE OPPORTUNITY TO EARN A RETURN ADEQUATE TO ATTRACT EQUITY CAPITAL AND MAINTAIN FINANCIAL INTEGRITY?

A. Investors have many options available to them and will only invest in a firm if the expected return justifies the risks taken on in making that investment. Customers have an interest in safe, reliable, and efficient service, which depends on investors' willingness to commit the capital needed to maintain and improve the utility system. In that important sense, investors and customers have a common interest in a financially strong utility that is able to access capital on reasonable terms when and as needed. A return that is adequate to attract capital and maintain financial integrity enables a utility to access capital markets at reasonable terms and continue to make needed investments. To the extent Liberty Midstates is provided a reasonable opportunity to earn its market-based cost of equity, neither customers nor shareholders should be disadvantaged.

IV. PROXY GROUP SELECTION

[3] *In the Matter of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities' Tariff Revisions Designed to Implement a General Rate Increase for Natural Gas Service in the Missouri Service Areas of the Company*, Report and Order, Missouri Public Service Commission, Case No. GR-2014-0152, December 3, 2014, at 27.

Q. AS A PRELIMINARY MATTER, WHY IS IT NECESSARY TO SELECT A GROUP OF PROXY COMPANIES TO DETERMINE THE COST OF EQUITY FOR THE COMPANY?

A. Since the ROE is a market-based concept and Liberty Midstates is not a publicly traded entity, it is necessary to establish a group of comparable publicly-traded companies to serve as its "proxy."

Even if Liberty Midstates were a publicly traded entity, short-term events could bias its market data (such as market value or reported growth expectations) during a given period of time. A significant benefit of using a proxy group is that it serves to moderate the effects of anomalous, temporary events associated with any one company. In addition, the use of a proxy group is consistent with the *Bluefield* and *Hope* standards that require the allowed return to be commensurate with the returns available to other investments with comparable risks.

Q. DOES THE SELECTION OF A RISK COMPARABLE PROXY GROUP SUGGEST THAT ANALYTICAL RESULTS WILL BE TIGHTLY CLUSTERED AROUND AVERAGE (I.E., MEAN) RESULTS?

A. No. For example, the constant growth DCF approach, defines the cost of equity as the sum of the expected dividend yield and projected long-term growth. Despite the care taken to ensure risk comparability, market expectations with respect to future risks and growth opportunities will vary from company to company. Even when looking at a single company, growth projections can vary significantly. Therefore, even within a group of similarly situated companies, it is common for analytical results to reflect a seemingly wide range. Consequently, at issue is how to estimate a Company's ROE from

within that range. That determination necessarily must consider a wide range of both empirical and qualitative information.

Q. PLEASE PROVIDE A SUMMARY PROFILE OF LIBERTY MIDSTATES.

A. Liberty Midstates is a subsidiary of Liberty Utilities Co. ("LUCo"), which in turn is an indirect wholly owned subsidiary of APUC. Liberty Midstates provides natural gas distribution service to approximately 82,900 customers in Missouri, Illinois, and Iowa.[4]

Q. HOW DID YOU SELECT THE COMPANIES INCLUDED IN YOUR PROXY GROUP?

A. I began with the universe of companies that Value Line classifies as Electric or Natural Gas Utilities, which includes a group of 51 domestic U.S. utilities, and applied the following screening criteria:

- Because certain of the models used in my analyses assume that earnings and dividends grow over time, I excluded companies that do not have positive earnings growth estimates or pay consistent quarterly cash dividends;
- To ensure that my analyses are based on consensus growth expectations, I excluded companies that were not covered by at least two utility industry equity analysts;
- To select a proxy group with financial characteristics similar to Liberty Midstates, I excluded companies that have below investment grade corporate credit ratings and/or senior unsecured bond ratings from Standard & Poor's ("S&P") or Moody's;

[4] Source: Algonquin Power & Utilities Corp., Form 40-F for fiscal year ended December 31, 2016, at 43.

- To select companies with a substantial portion of their business activity directly involved in regulated natural gas distribution, I excluded companies with less than 40.00 percent of regulated operating income derived from regulated natural gas utility operations.
- To ensure the data used in my ROE analyses are not skewed by temporary corporate actions, I eliminated companies that are, or have recently have been, party to a merger or other significant transaction.

Q. WHAT COMPANIES MET THOSE SCREENING CRITERIA?

A. The criteria discussed above resulted in a proxy group of the following nine companies:

Table 2: Proxy Group Screening Results

Company	Ticker
Atmos Energy Corporation	ATO
Black Hills Corporation	BKH
Chesapeake Utilities Corporation	CPK
Northwest Natural Gas Company	NWN
ONE Gas, Inc.	OGS
Sempra Energy	SRE
Southwest Gas Holdings, Inc.	SWX
Spire Inc.	SR
Vectren Corporation	VVC

Q. DO YOU BELIEVE THAT A PROXY GROUP OF NINE COMPANIES IS SUFFICIENTLY LARGE?

A. Yes. The analyses performed in estimating the ROE are more likely to be representative of the subject utility's cost of equity to the extent that the chosen proxy companies are fundamentally comparable to the subject utility. Because all analysts use some form of screening process to arrive at a proxy group, the group, by definition, is not randomly

drawn from a larger population. Consequently, there is no reason to place more reliance on the quantitative results of a larger proxy group simply by virtue of the resulting larger number of observations. In my view, including companies whose fundamental comparability is tenuous at best simply for the purpose of expanding the number of observations does not add relevant information to the analysis.

V. COST OF EQUITY ESTIMATION

Q. PLEASE BRIEFLY DISCUSS THE ROE IN THE CONTEXT OF THE REGULATED RATE OF RETURN.

A. Regulated utilities primarily use common stock and long-term debt to finance their capital investments. The overall rate of return ("ROR") weighs the costs of the individual sources of capital by their respective book values. While the cost of debt can be directly observed, the cost of equity is market-based and, therefore, must be estimated based on observable market information.

Q. HOW IS THE REQUIRED ROE DETERMINED?

A. The required ROE is estimated using quantitative models that rely on market data to quantify investor expectations regarding the range of expected equity returns. The use of different models, and the use of varying investor assumptions within each model, produces a range of results from which the market-required ROE must be estimated. As discussed throughout my Direct Testimony, that estimation must be based on a comprehensive review of relevant data and information, and does not necessarily lend itself to a strict mathematical solution. Consequently, the key consideration in determining the ROE is to ensure that the overall analysis reasonably reflects investors' view of the financial markets in general and the subject company (in the context of the

proxy companies) in particular.

Q. WHAT METHODS DID YOU USE TO DETERMINE THE COMPANY'S ROE?

A. I have relied on DCF, CAPM, Risk Premium and expected earnings methods to determine my recommended ROE.[5] While I have performed both constant growth and quarterly DCF analyses, I have relied primarily on the latter in arriving at my ROE recommendation.

Q. HAVE OTHER REGULATORS RECOGNIZED THE IMPORTANCE OF CONSIDERING MULTIPLE METHODS GIVEN CURRENT MARKET CONDITIONS?

A. Yes. For example, in Opinion No. 531 the Federal Energy Regulatory Commission (FERC) noted the anomalous nature of prevailing capital markets make it more difficult to determine the rate of return needed to satisfy the *Hope* and *Bluefield* standards and expressed concern that economic anomalies may have affected the reliability of DCF analyses.[6] FERC therefore concluded that a mechanical application of the DCF methodology would be inappropriate and found it necessary to review alternative benchmark methods to gain insight into the effect of market conditions on the cost of equity, including the Risk Premium, CAPM and expected earnings approaches.[7] After review of the evidence in that case, including economic conditions and the results of

[5] Referring to the DCF, CAPM and Risk Premium approaches, the Commission noted in Case No. ER-2016-0285: "No one method is any more correct than any other method in all circumstances. Analysts balance their use of all three methods to reach a recommended return on equity." *See* Report and Order, *In the Matter of Kansas City Power & Light Company's Request for Authority to Implement a General Rate Increase for Electric Service*, ER-2016-0285, pp. 15-16 (May 3, 2017).

[6] *See, Martha Coakley v. Bangor Hydro-Electric Company,* Opinion No. 531, 147 FERC ¶ 61,234 (2014), at P 41 and P 145.

[7] *Ibid*., at P 142 and PP 145-146.

multiple ROE methodologies, FERC determined it would be appropriate to set the ROE at the midpoint of the upper half of the zone of reasonableness established by the DCF methodology.[8]

Commissions in other regulatory jurisdictions, such as Hawaii, Maryland, Massachusetts, and North Carolina, have also recognized that no single model is most reliable under all market conditions, and that the application of reasoned judgment is important in developing ROE estimates.[9] As discussed throughout the balance of my testimony, I have applied those principles in developing my recommendation.

CONSTANT GROWTH DCF MODEL

Q. IS THE DCF METHODOLOGY WIDELY USED IN REGULATORY PROCEEDINGS?

A. Yes. In my experience, the DCF methodology is widely recognized in regulatory proceedings, as well as in financial literature. Nonetheless, neither the DCF nor any other model should be applied without considerable judgment in the selection of data and the interpretation of results.

Q. PLEASE DESCRIBE THE DCF APPROACH.

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[8] *Ibid*., at PP 145-146 and P 152. In April 2017 the United States Court of Appeals for the District of Columbia Circuit issued an opinion in *Emera Maine (formerly known as Bangor Hydro-Electric Company), et al., v. FERC* which vacated and remanded Opinion No. 531 because "FERC did not meet the first requirement of Section 206 that it demonstrate the unlawfulness of transmission owners' base ROE" and because FERC had relied on the midpoint of the upper half of the zone of reasonableness without adequately "citing record evidence" demonstrating the resulting ROE was a just and reasonable. Importantly, the D.C. Circuit decision did not suggest FERC was wrong to consider alternative methods, nor suggest the alternative methods used or their results were inappropriate.

[9] *See*, for example: (1) Public Utilities Commission of the State of Hawaii, Order No. 13704 in Docket No. 7700, December 28, 1994 at 92; (2) Public Service Commission of Maryland, Order No. 87591 in Case No. 9406, at 153; (3) The Commonwealth of Massachusetts Department of Public Utilities, Order in Docket D.P.U. 15-155, September 30, 2016, at 376-378; and (4) State of North Carolina Utilities Commission, Order in Docket No. G-5, Sub 565, October 28, 2016, at 35-36.

A. The DCF approach is based on the theory that a stock's current price represents the present value of its expected future cash flows. A common formulation of the DCF approach, also known as the dividend discount model, can be expressed as follows:

$$P = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \cdots + \frac{D_\infty}{(1+k)^\infty} \quad \text{Equation [1]}$$

where P represents the current stock price, $D_1 \ldots D_\infty$ represent expected future dividends, and k is the discount rate, or required ROE. Under the assumption that cash flows will grow at a constant rate, Equation [1] is a standard present value calculation that can be simplified and rearranged into the familiar form:

$$k = \frac{D_0\ (1+g)}{P} + g \qquad \text{Equation [2]}$$

Equation [2] often is referred to as the "constant growth DCF" model, in which the first term is the expected dividend yield and the second term is the expected long-term annual growth rate.

In its simplest form, the DCF model expresses the cost of equity as the sum of the expected dividend yield and long-term growth rate. In essence, the DCF model assumes that the total return received by investors includes the dividend yield, and the rate of growth. As explained below, under the model's assumptions, the rate of growth equals the rate of capital appreciation. That is, the model assumes that the investor's return is the sum of the dividend yield and the increase in the stock price.

Q. WHAT ASSUMPTIONS ARE REQUIRED FOR THE CONSTANT GROWTH DCF MODEL?

A. The constant growth DCF model requires the following assumptions: (1) a constant average growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a

constant price-to-earnings multiple; and (4) a discount rate greater than the expected growth rate. In addition, the constant growth DCF model assumes that the same return will be required every year, in perpetuity (*see* Equation [1], above).

Q. WHAT MARKET DATA DID YOU USE TO CALCULATE THE DIVIDEND YIELD IN YOUR CONSTANT GROWTH DCF MODEL?

A. The dividend yield is based on the proxy companies' current annualized dividend, and average closing stock price over the 30-, 90- and 180-trading days ended August 18, 2017.

Q. WHY DID YOU USE THREE AVERAGING PERIODS TO CALCULATE AN AVERAGE STOCK PRICE?

A. I did so to ensure that the model's results are not skewed by anomalous events that may affect stock prices on any given trading day. At the same time, the averaging period should be reasonably representative of expected capital market conditions over the long term. In my view, using 30-, 90-, and 180-day averaging periods reasonably balances those concerns.

Q. DID YOU MAKE ANY ADJUSTMENTS TO THE DIVIDEND YIELD TO ACCOUNT FOR PERIODIC GROWTH IN DIVIDENDS?

A. Yes, I did. Since utility companies tend to increase their quarterly dividends at different times throughout the year, it is reasonable to assume that dividend increases will be evenly distributed over calendar quarters. Given that assumption, it is appropriate to calculate the expected dividend yield by applying one-half of the long-term growth rate

to the current dividend yield.[10] That adjustment ensures that the expected dividend yield is, on average, representative of the coming twelve-month period, and does not overstate the dividends to be paid during that time.

Q. IS IT IMPORTANT TO SELECT APPROPRIATE MEASURES OF LONG-TERM GROWTH IN APPLYING THE DCF MODEL?

A. Yes. In its constant growth form, the DCF model (*i.e.*, as presented in Equation [2] above) assumes a single growth estimate in perpetuity. In order to reduce the long-term growth rate to a single measure, one must assume a constant payout ratio, and that earnings per share, dividends per share and book value per share all grow at the same constant rate. Over the long term, however, dividend growth can only be sustained by earnings growth. Consequently, it is important to incorporate a variety of measures of long-term earnings growth into the constant growth DCF model.

Q. IS IT COMMON IN PRACTICE TO RELY ON ANALYSTS' FORECASTS AS THE BASIS OF GROWTH RATE PROJECTIONS?

A. Yes. The cost of equity is a forward-looking concept that focuses on investor expectations regarding future returns. The estimation of such returns, therefore, should be based on forward-looking or projected data. Indeed, substantial academic research has demonstrated the relationship between analysts' forecasts and investor expectations.[11] In my view, therefore, Value Line, First Call Corporation (now known as Thomson Reuters I/B/E/S) ("First Call") and Zacks Investment Research ("Zacks") (the latter two of which

[10] *See* Schedule KM-1.

[11] *See*, for example, Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 298-303; Harris and Marston, "Estimating Shareholder Risk Premia Using Analysts Growth Forecasts", Financial Management, 21 (Summer 1992); Charles F. Phillips, Jr., The Economics of Regulation, Revised Edition, 1969, Richard D. Irwin, Inc., at 285.

are consensus earnings forecast estimates) provide appropriate sources of earnings growth forecasts.

Q. PLEASE DESCRIBE THE RETENTION GROWTH ESTIMATE AS APPLIED IN YOUR CONSTANT GROWTH DCF MODEL.

A. The Retention Growth model, which is a generally recognized and widely taught method of estimating long-term growth, is an alternative approach to the use of analysts' earnings growth estimates. In essence, the model is premised on the proposition that a firm's growth is a function of its expected earnings, and the extent to which it retains earnings to invest in the enterprise. In its simplest form, the model represents long-term growth as the product of the retention ratio (*i.e.*, the percentage of earnings not paid out as dividends (referred to below as "b") and the expected return on book equity (referred to below as "r")). Thus, the simple "b x r" form of the model projects growth as a function of internally generated funds. That form of the model is limiting, however, in that it does not provide for growth funded from external equity.

The "br + sv" form of the Retention Growth estimate used in my DCF analysis is meant to reflect growth from both internally generated funds *(i.e.*, the "br" term) and from issuances of equity *(i.e.*, the "sv" term). The first term, which is the product of the retention ratio *(i.e.*, "b", or the portion of net income not paid to shareholders as dividends) and the expected Return on Equity *(i.e.*, "r") represents the portion of net income that is reinvested into the Company as a means of funding growth. The "sv" term is represented as:

$$\left(\frac{m}{b} - 1\right) \; x \; Growth\; rate\; in\; Common\; Shares \quad \text{Equation [3]}$$

where $\frac{m}{b}$ is the Market-to-Book ratio.

In this form, the "sv" term reflects an element of growth as the product of (a) the expected growth in shares outstanding, and (b) that portion of the market-to-book ratio that exceeds unity. As shown in Schedule KM-3, all of the components of the Retention Growth model can be derived from data provided by Value Line.

Q. PLEASE EXPLAIN HOW YOU APPLIED THE CONSTANT GROWTH DCF MODEL.

A. I applied the DCF model to the proxy group of natural gas utility companies using the following inputs for the price and dividend terms:

1. The average daily closing prices for the 30-, 90- and 180-trading days ended August 18, 2017, for the term P_0; and
2. The annualized dividend per share as of August 18, 2017, for the term D_0.

I then calculated my DCF results using each of the following growth terms:

1. The Zacks consensus long-term earnings growth estimates;
2. The First Call consensus long-term earnings growth estimates; and
3. The Value Line long-term earnings growth estimates;
4. An estimate of Retention Growth.

Q. HOW DID YOU CALCULATE THE HIGH AND LOW DCF RESULTS?

A. I calculated the proxy group mean high DCF result using the highest of the EPS growth estimates (*i.e.*, the Value Line, Zacks, First Call, and Retention Growth estimates) for each proxy group company. The proxy group mean high result then reflects the average of the maximum DCF results for each proxy company. I used a similar approach to calculate the proxy group mean low results, using instead the lowest of the growth estimates for each proxy group company.

Q. WHAT ARE THE RESULTS OF YOUR CONSTANT GROWTH DCF ANALYSIS?

A. My constant growth DCF results are summarized in Table 3, below (*see* also Schedule KM-1).

Table 3: Constant Growth DCF Results[12]

	Mean Low	***Mean***	***Mean High***
30-Day Average	7.22%	8.96%	11.13%
90-Day Average	7.26%	9.01%	11.17%
180-Day Average	7.36%	9.10%	11.27%

QUARTERLY GROWTH DCF MODEL

Q. PLEASE BRIEFLY DESCRIBE THE QUARTERLY GROWTH DCF MODEL.

A. As noted earlier, the constant growth DCF model is based on several limiting assumptions, one of which is that dividends are paid annually. However, most dividend-paying companies, including utilities, pay dividends on a quarterly (as opposed to an annual) basis. While the adjusted dividend yield discussed earlier is meant to address that assumption (by increasing the observed dividend yield by one-half of the expected growth rate), it does not fully reflect the quarterly receipt and reinvestment of dividends. As a consequence, the constant growth DCF model likely understates the cost of equity. The quarterly growth DCF model specifically incorporates investors' expectation of the quarterly payment of dividends, and the associated quarterly compounding of those dividends as they are reinvested at the required ROE. As noted by Dr. Roger Morin:

> Clearly, given that dividends are paid quarterly and that the observed

[12] DCF results presented in Table 3 are unadjusted (*i.e.*, prior to any adjustment for flotation costs).

> stock price reflects the quarterly nature of dividend payments, the market-required return must recognize quarterly compounding, for the investor receives dividend checks and reinvests the proceeds on a quarterly schedule ... The annual DCF model inherently understates the investors' true return because it assumes all cash flows received by investors are paid annually[13]

Q. HOW IS THE DIVIDEND YIELD PORTION OF THE QUARTERLY DCF MODEL CALCULATED?

A. To reflect the timing and compounding of quarterly dividends, the model replaces the *D* component of the constant growth DCF model with the following equation:

$$D = d_1(1 + k)^{.75} + d_2(1+k)^{.50} + d_3(1+k)^{.25} + d_4(1+k)^{0} \quad \text{Equation [4]}$$

where:

d_1, d_2, d_3, d_4 = expected quarterly dividends over the coming year; and

k = the required Return on Equity.

Because the required ROE (k) is a variable in the dividend calculation, the quarterly growth DCF model is solved in an iterative fashion.

To calculate the expected dividends over the coming year for the proxy companies (*i.e.*, d_1, d_2, d_3, and d_4), I obtained the last four paid quarterly dividends for each company, and multiplied them by one plus the growth rate (*i.e.*, 1 + g). For the P_0 component of the dividends yield, I obtained the closing stock prices over the 30-, 90-, and 180-trading days ended August 18, 2017 for each company in the proxy group.

Q. PLEASE SUMMARIZE THE RESULTS OF YOUR DCF ANALYSES.

A. Table 4 (below) presents the results of the quarterly growth DCF analysis (*see* also Schedule KM-2).

[13] Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006 at 344.

Table 4: Quarterly Growth DCF Model Results[14]

	Low	***Mean***	***High***
30-Day Average	7.37%	9.08%	11.37%
90-Day Average	7.42%	9.13%	11.41%
180-Day Average	7.52%	9.23%	11.52%

CAPITAL ASSET PRICING MODEL

Q. PLEASE BRIEFLY DESCRIBE THE CAPM.

A. The CAPM is a risk premium method that estimates the cost of equity for a given security as a function of a risk-free return plus a risk premium (to compensate investors for the non-diversifiable or "systematic" risk of that security). As shown in Equation [4], the CAPM is defined by four components, each of which theoretically must be a forward-looking estimate:

$$k = r_f + \beta(r_m - r_f) \qquad \text{Equation [4]}$$

where:

k = the required market ROE for a security;

β = the beta coefficient of that security;

r_f = the risk-free rate of return; and

r_m = the required return on the market as a whole.

In Equation [4], the term (r_m – r_f) represents the market risk premium.[15] According to the theory underlying the CAPM, since unsystematic risk can be diversified away by adding securities to their investment portfolio, investors should be concerned

[14] DCF results presented in Table 4 are unadjusted (*i.e.*, prior to any adjustment for flotation costs).
[15] The market risk premium is defined as the incremental return of the market over the risk-free rate.

only with systematic or non-diversifiable risk. Non-diversifiable risk is measured by the beta coefficient, which is defined as:

$$\beta_j = \frac{\sigma_j}{\sigma_m} x\, \rho_{j,m} \quad \text{Equation [5]}$$

Where σ_j is the standard deviation of returns for company "j," σ_m is the standard deviation of returns for the broad market (as measured, for example, by the S&P 500 Index), and $\rho_{j,m}$ is the correlation of returns in between company j and the broad market. The beta coefficient therefore represents both relative volatility (*i.e.*, the standard deviation) of returns, and the correlation in returns between the subject company and the overall market.

Intuitively, higher beta coefficients indicate that the subject company's returns have been relatively volatile, and are responsive to the movements of the overall market. If a company has a beta coefficient of 1.00, it is considered as risky as the market and its required return equals the expected market return.

Q. WHAT RISK-FREE RATE ASSUMPTION DID YOU INCLUDE IN YOUR CAPM ANALYSIS?

A. In determining the security most relevant to the application of the CAPM, it is important to select the term (or maturity) that best matches the life of the underlying investment. Natural gas utilities typically are long-duration investments and as such, I used the 30-year Treasury bonds as my estimate of the risk-free rate. I relied on both the current 30-day average yield (2.85 percent as of August 18, 2017) and the near-term projected yield reported by Blue Chip Financial Forecast (3.35 percent).

Q. WHY HAVE YOU CONSIDERED A FORWARD-LOOKING RISK-FREE RATE?

A. In general, the cost of capital is a forward-looking concept. The relevant analytical issue

in the application of the CAPM is to ensure that all three components of the model (*i.e.*, the risk-free rate, beta, and the MRP) are consistent with current market conditions and investor perceptions.

Since the purpose of this proceeding is to establish the cost of equity for Liberty Midstates' gas distribution operations on a going-forward basis, it is important to develop a CAPM analysis that reflects investor expectations concerning the risk-free rate. As discussed in more detail in Section VII, the need to consider forward-looking interest rates is particularly important at the current time given that the Federal Reserve has begun to "unwind" its monetary policy actions that were intended to lower Treasury yields in response to the 2008/2009 financial crisis and the ensuing protracted economic recovery.

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

A. I considered the beta coefficients reported by two sources: Bloomberg Professional ("Bloomberg") and Value Line. For each source, I employed the average of the reported beta coefficient for each proxy group company. Value Line calculates the beta coefficient over a five-year period using the New York Stock Exchange ("NYSE") Index as the market return, while Bloomberg's calculation is based on two years of data and uses the S&P 500 Index as the market return. 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.[16] The Value Line and Bloomberg proxy group

[16] The regression tendency of beta coefficients to converge to 1.0 over time is well known and widely discussed in financial literature. (*See, e.g.,* Blume, Marshall E., *On the Assessment of Risk*, The Journal of Finance, Vol. 26, No. 1, March 1971, at 1-10).

average beta coefficients are 0.73 and 0.64, respectively.[17]

Q. PLEASE DESCRIBE YOUR APPROACH TO ESTIMATING THE MARKET RISK PREMIUM.

A. The approach is based on the market required return, less the current 30-year Treasury bond yield. To estimate the market required return, I calculated the market capitalization weighted average ROE using the constant growth DCF model. To do so, I relied on data from two sources: (1) Bloomberg and (2) Value Line. For both Bloomberg and Value Line, I calculated the market capitalization weighted expected dividend yield (using the same one-half growth rate assumption described earlier), and combined that amount with the market capitalization weighted projected earnings growth rate to arrive at the average DCF result. I performed that calculation using each of companies in the S&P 500 Index for which Bloomberg and Value Line provided growth estimates. I then subtracted the risk-free rate from that amount to arrive at the market DCF-derived ex-ante market risk premium estimate. The results of those calculations are provided in Schedule KM-4.

Q. WHAT ARE THE RESULTS OF YOUR CAPM ANALYSIS?

A. The results of my CAPM analysis are summarized in Table 5, below (*see* also Schedule KM-6).

[17] *See* Schedule KM-5.

Table 5: Summary of CAPM Results

	Bloomberg MRP	***Value Line MRP***
Value Line Beta, Current Risk-Free Rate (2.85%)	10.53%	11.08%
Value Line Beta, Projected Risk-Free Rate (3.35%)	10.67%	11.22%
Bloomberg Beta, Current Risk-Free Rate (2.85%)	9.62%	10.11%
Bloomberg Beta, Projected Risk-Free Rate (3.35%)	9.80%	10.29%

BOND YIELD PLUS RISK PREMIUM APPROACH

Q. PLEASE GENERALLY DESCRIBE THE BOND YIELD PLUS RISK PREMIUM APPROACH.

A. This approach is based on the basic financial tenet that equity investors bear the residual risk associated with ownership and therefore require a premium over the return they would have earned as a bondholder. That is, because returns to equity holders are more risky than returns to bondholders, equity investors must be compensated for bearing that risk. Risk premium approaches, therefore, estimate the cost of equity as the sum of the equity risk premium and the yield on a particular class of bonds. Because the equity risk premium is not directly observable, it typically is estimated using a variety of approaches, some of which incorporate *ex-ante*, or forward-looking estimates of the cost of equity, and others that consider historical, or *ex-post*, estimates. An alternative approach is to use actual authorized returns for natural gas utilities to estimate the equity risk premium.

Q. PLEASE EXPLAIN HOW YOU PERFORMED YOUR RISK PREMIUM ANALYSIS.

A. I first defined the equity risk premium as the difference between actual authorized ROEs and the then-prevailing level of long-term utility bond rates. I then gathered data from

547 natural gas rate proceedings between the fourth quarter of 1992 and August 18, 2017 and calculated the average authorized ROE for each calendar quarter.[18] Using that data, I calculated the observed risk premium in each quarter as the difference between the average authorized ROE and the average utility Baa bond yield reported by Moody's.

Relative to the long-term historical average, the analytical period includes interest rates and authorized ROEs that are relatively high during one period (*i.e.*, the early 1990s) and that are quite low during another (*i.e.*, the post-Lehman bankruptcy period). To account for the well-documented inverse relationship between interest rates and the risk premium,[19] I conducted a regression analysis in which the observed equity risk premium is the dependent variable, and the average utility Baa bond yield is the independent variable. The form of the equation for the regression analysis was:

$$RP = \alpha + \beta(T) \qquad \text{Equation [6]}$$

where "RP" is the risk premium (i.e., average authorized ROE less average utility Baa bond yield yield), "α" is the intercept term, "β" is the slope term and "T" is the average yield on Baa-rated utility bonds.

Q. WHAT WERE THE RESULTS OF YOUR RISK PREMIUM ANALYSIS?

A. As Chart 1 illustrates, over time there has been a statistically significant, negative relationship between Baa-rated utility bond yields and the equity risk premium.

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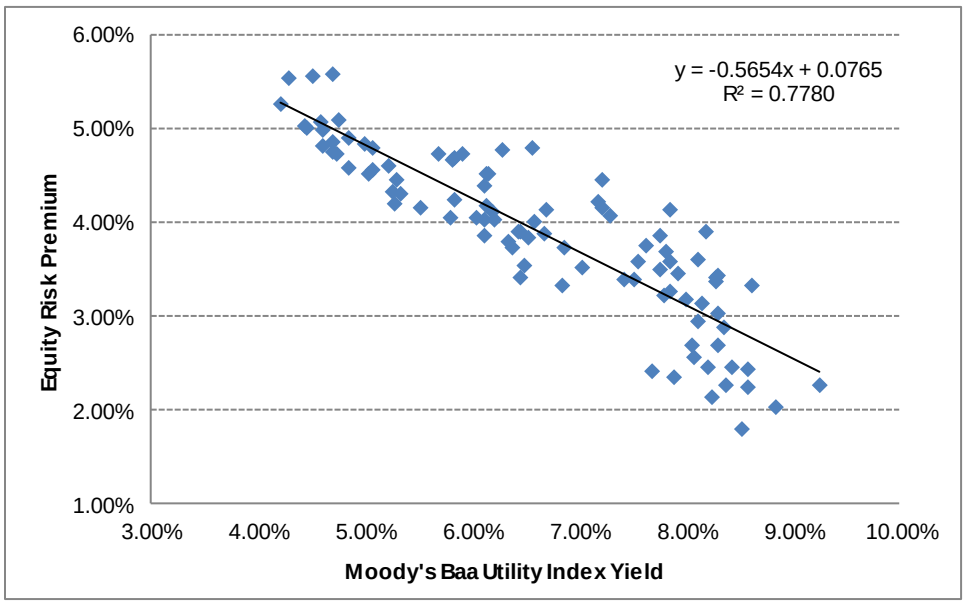
[18] The period for which data was available. The data covers a number of economic cycles; *see* National Bureau of Economic Research, *U.S. Business Cycle Expansion and Contractions*.

[19] *See*, *e.g.*, Robert S. Harris and Felicia C. Marston, *Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts*, Financial Management, Summer 1992, at 63-70; 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 33-45; and Farris M. Maddox, Donna T. Pippert, and Rodney N. Sullivan, *An Empirical Study of Ex Ante Risk Premiums for the Electric Utility Industry*, Financial Management, Autumn 1995, at 89-95.

Chart 1: Equity Risk Premium



Consequently, simply applying the long-term average equity risk premium of 3.88 percent would significantly understate the cost of equity and produce results well below any reasonable estimate. Based on the regression coefficients in Chart 1, however, the implied ROE is between 9.52 percent and 10.41 percent (*see* Schedule KM-7, and Table 6, below).

Table 6: Bond Yield Plus Risk Premium Results[20]

Treasury Yield	Return on Equity
Current Baa Utility Bond Yield (4.53%)	9.52%
Near Term Projected Utility Bond Yield (5.39%)	9.83%
Long Term Projected Utility Bond Yield (6.67%)	10.41%

EXPECTED EARNINGS ANALYSIS

Q. PLEASE GENERALLY DESCRIBE THE EXPECTED EARNINGS ANALYSIS.

[20] Projected Baa utility bond yields calculated as current yield plus Blue Chip Financial Forecast's projected increase in corporate Baa bond yields. *See*, Blue Chip Financial Forecasts, Vol. 36, No. 8, Aug. 1, 2017, at 2; and, Blue Chip Financial Forecasts, Vol. 36, No. 6, Jun. 1, 2017, at 14.

A. The expected earnings analysis calculates the projected returns on book value for the gas industry group as a whole and for the specific firms in the proxy group individually. To implement the model, I used the projected return on common equity for the period 2020-2022 provided in the latest Value Line utility reports. I then adjusted those returns to account for the fact that they show ROE on the basis of book equity at the end of the period, as opposed to ROE on average book equity.

I first considered the expected returns for the proxy group companies for which the mean and median expected returns were 11.11 percent and 10.80 percent. I then reviewed the mean and median returns for all Value Line gas utilities (note that mergers do not affect book returns on equity as they do the DCF returns on market value), which were 10.74 percent and 10.35 percent, respectively (*see* Exhibit KM-8).

Q. WHAT ARE THE ADVANTAGES OF USING THE EXPECTED EARNINGS APPROACH?

A. Whereas other cost of equity analyses calculate investors' required return on the market value of their investments, the expected earnings model is uniquely suited to the task of determining an appropriate return on book value of equity. For example, as noted above, the DCF model depends on market data. The dividend yield, a principal component of the DCF analysis, is a market-derived parameter. Since the DCF model calculates the discount rate that equates the future stream of cash flows to the current market price, it calculates the required return on the market value of the utility's stock (rather than the book value of equity). Similarly, the CAPM also calculates a required return on market price (*e.g.*, risk is based on movements in stock prices, and required risk compensation is based on expected returns on a market index). In practice, those returns are applied to the

book value of the utility's equity to determine the revenue requirement. The market value, except under very rare circumstances, is not equal to the book value. Given this mismatch, it is useful to consider a direct measure of the expected return on the book value, versus market value, of utility stocks.

VI. BUSINESS RISKS AND OTHER CONSIDERATIONS

Q. WHAT ADDITIONAL INFORMATION DID YOU CONSIDER IN ASSESSING THE ANALYTICAL RESULTS NOTED ABOVE?

A. Because the analytical methods discussed above provide a range of estimates, there are several additional factors that should be taken into consideration when establishing a reasonable range for the Company's cost of equity. Those factors include (1) the Company's relatively small size; (2) the regulatory environment in which the Company operates; and (3) flotation costs associated with equity issuances.

SMALL SIZE PREMIUM

Q. PLEASE EXPLAIN THE RISK ASSOCIATED WITH SMALL SIZE.

A. Both the financial and academic communities have long accepted the proposition that the cost of equity for small firms is subject to a "size effect."[21] While empirical evidence of the size effect often is based on studies of industries beyond regulated utilities, utility analysts also have noted the risks associated with small market capitalizations. Specifically, Ibbotson Associates noted: "For small utilities, investors face additional obstacles, such as a smaller customer base, limited financial resources, and a lack of diversification across customers, energy sources, and geography. These obstacles imply

[21] *See* Mario Levis, *The record on small companies: A review of the evidence*, Journal of Asset Management, March 2002, at 368-397, for a review of literature relating to the size effect.

a higher investor return."[22]

Q. HOW DOES LIBERTY MIDSTATES COMPARE IN SIZE TO THE PROXY COMPANIES?

A. Liberty Midstates is significantly smaller than the proxy group, both in terms of number of customers and annual revenues. Schedule KM-10 estimates the implied market capitalization for Liberty Midstates (*i.e.*, the implied market capitalization if Liberty Midstates were a stand-alone, publicly traded entity). That is, because Liberty Midstates is not a separately traded entity, an estimated stand-alone market capitalization for Liberty Midstates must be calculated. The implied market capitalization of Liberty Midstates is calculated by applying the median market-to-book ratio for the proxy group of 2.21 to the Company's implied total common equity of approximately $52.56 million. The implied market capitalization based on that calculation is $116.15 million, which is less than 4 percent of the proxy group median of $3.79 billion.

Q. HAVE YOU CONSIDERED LIBERTY MIDSTATES' COMPARATIVELY SMALL SIZE IN YOUR ESTIMATED COST OF EQUITY?

A. Yes. While I have quantified the small size effect, rather than proposing a specific premium, I have considered the small size of Liberty Midstates in my assessment of business risks in order to determine where, within a reasonable range of returns, Liberty Midstates' required ROE appropriately falls. In that regard, Liberty Midstates' comparatively small size further supports my conclusion that an ROE at the upper end of my recommended range is reasonable.

[22] Michael Annin, *Equity and the Small-Stock Effect*, Public Utilities Fortnightly, October 15, 1995.

Q. HOW DID YOU ESTIMATE THE SIZE PREMIUM FOR LIBERTY MIDSTATES?

A. In its *2016 Valuation Handbook*, Duff & Phelps presents its calculation of the size premium for deciles of market capitalizations relative to the S&P 500 Index. An estimate of the size premium associated with Liberty Midstates, therefore, is the difference in the Duff & Phelps size risk premiums for the proxy group median market capitalization relative to the implied market capitalization for Liberty Midstates.

As shown on Schedule KM-10, based on recent market data, the median market capitalization of the proxy group was approximately $3.79 billion, which corresponds to the fourth decile of Duff & Phelp's market capitalization data. Based on the Duff & Phelps analysis, that decile has a size premium of 0.98 percent (or 98 basis points). The implied market capitalization for Liberty Midstates is approximately $116 million, which falls within the 10th decile and corresponds to a size premium of 5.59 percent (or 559 basis points). The difference between those size premiums is 461 basis points (4.61 percent).

REGULATORY RISK

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

A. The regulatory environment in which a utility operates can significantly affect both the access to, and the cost of capital in several ways. The proportion and cost of debt capital available to utility companies are influenced by the rating agencies' assessment of the regulatory environment. One element of this assessment includes evaluating a company's ability to recover costs. Moody's, for example, considers the nature of

regulation, including its effect on cost recovery and cash flow generation, to be of such consequence that it represents one-half of the factors analyzed in arriving at credit ratings.[23] As to the overall regulatory environment, Moody's notes that the regulatory "framework in which a regulated utility operates is typically one of its most significant credit considerations. The regulatory structure and its general framework is a primary consideration that differentiates the industry from most other corporate sectors."[24] Moody's further explains:

> As the revenues set by the regulator are a primary component of a utility's cash flow, the utility's ability to obtain predictable and supportive treatment within its regulatory framework is one of the most significant factors in assessing a utility's credit quality. The regulatory framework generally provides more certainty around a utility's cash flow and typically allows the company to operate with significantly less cushion in its cash flow metrics than comparably rated companies in other industrial sectors. In situations where the regulatory framework is less supportive, or is more contentious, a utility's credit quality can deteriorate rapidly.[25]

Similarly, Standard & Poor's has noted that:

> Regulatory advantage is the most heavily weighted factor when S&P Global Ratings analyzes a regulated utility's business risk profile. One significant aspect of regulatory risk that influences credit quality is the regulatory environment in the jurisdictions where a utility operates.
>
> …
>
> When we evaluate U.S utility regulatory environments, we consider financial stability to be of substantial importance. Cash takes precedence in credit analysis. A regulatory jurisdiction that recognizes the significance of cash flow in its decision-making is one that will appeal to creditors.[26]

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[23] *See* Moody's Investors Service, *Rating Methodology: Regulated Electric and Gas Utilities*, December 23, 2013, at 6.

[24] *See* Moody's Investors Service, *Special Comment: Regulatory Frameworks – Ratings and Credit Quality for Investor-Owned Utilities*, June 18, 2010, at 1.

[25] *Ibid*., at 2.

[26] S&P Global Ratings, RatingsDirect, "Assessing U.S. Investor-Owned Utility Regulatory Environments," August 10, 2016, at 2.

It is important to recognize that regulatory mechanisms and regulatory decisions regarding the authorized ROE and capital structure have direct consequences for the subject utility's internal cash flow generation (sometimes referred to as "Funds from Operations", or FFO). Since credit ratings are intended to reflect the ability to meet financial obligations as they come due, the ability to generate the cash flows required to meet those obligations (and to provide an additional amount for unexpected events) is of critical importance to debt investors. Two of the most important metrics used to assess that ability are the ratios of FFO to debt, and FFO to interest expense, both of which are directly affected by regulatory decisions regarding the appropriate rate of return, and capital structure.

Q. HAVE YOU PERFORMED ANY ANALYSES OF INVESTOR'S PERCEPTIONS OF THE REGULATORY ENVIRONMENT IN WHICH LIBERTY MIDSTATES OPERATES RELATIVE TO THE PROXY GROUP COMPANIES?

A. Yes, I have. In order to assess investors' relative view of the Company's regulatory environment, I considered the jurisdictional rankings developed by Regulatory Research Associates ("RRA").[27] RRA rates regulatory jurisdictions from the perspective of investors, and assigns ratings of "Above Average," "Average," or "Below Average." RRA further distinguishes jurisdictions within those respective categories by applying ratings of 1, 2 or 3, with a rating of "1" being the strongest. In describing its ranking system, RRA notes that:

> The evaluations are assigned from an investor perspective and indicate the relative regulatory risk associated with the ownership of securities issued by each jurisdiction's electric

[27] *See* Regulatory Research Associates, *State Regulatory Evaluations*, May 11, 2017, at 3.

> and gas utilities. Each evaluation is based upon our consideration of the numerous factors affecting the regulatory process in the state, and may be adjusted as events occur that cause RRA to modify its view of the regulatory risk accruing to the ownership of utility securities in that individual jurisdiction.[28]

Missouri was downgraded to "Below Average 1" from "Average 2" in May 2017. Regarding Missouri's regulatory environment, RRA has noted "[t]he state's traditional approach to ratemaking is less investor friendly than the more constructive frameworks now being utilized in many other jurisdictions" and highlighted that the 2017 legislative session did not adopt a proposed bill that would have altered the state's ratemaking structure to address concerns regarding regulatory lag.

To compare Liberty Midstates' regulatory environment to the proxy group, I used a numerical approach that ranks jurisdictions from 9 to 1, using Regulatory Research Associate's ranking convention. Under that approach, higher values indicate a more credit supportive jurisdiction. I applied that ranking system to the proxy group companies by regulatory jurisdiction. For each proxy group company that operates in multiple jurisdictions, I considered the ranking for each regulatory jurisdiction in which they operate. As shown in Exhibit KM-12, the simple average of the RRA ranking for each of the proxy group companies, in all jurisdictions, is 5.10 (*i.e.*, generally Average/2). The Company's Missouri operations have a ranking of 3.00 (*i.e.*, Below Average/1).

Q. WHAT IS YOUR CONCLUSION REGARDING THE EFFECT OF THE COMPANY'S REGULATORY RISK ON ITS ROE?

A. Rankings such as those provided by RRA are observable and meaningful indicators of the

[28] *Ibid.*, at 2.

financial community's view of the regulatory risks faced by utilities. Based on my analysis, using the RRA ranking structure, the financial community appears to attribute somewhat higher regulatory risk to the Company than to the proxy group (on average). This would support an ROE for the Company toward the upper end of the range of results.

FLOTATION COSTS

Q. WHAT ARE FLOTATION COSTS?

A. Flotation costs are the costs associated with the sale of new issues of common stock. These include out-of-pocket expenditures for preparation, filing, underwriting, and other costs of issuance.

Q. ARE FLOTATION COSTS PART OF THE UTILITY'S INVESTED COSTS OR PART OF THE UTILITY'S EXPENSES?

A. Flotation costs are part of capital costs, which are properly reflected on the balance sheet under "paid in capital" rather than current expenses on the income statement. Flotation costs are incurred over time, just as investments in rate base or debt issuance costs. As a result, the great majority of flotation costs are incurred prior to the test year, but remain part of the cost structure during the test year and beyond.

Q. HOW DID YOU CALCULATE THE FLOTATION COST RECOVERY ADJUSTMENT?

A. I modified the constant growth DCF calculation to provide a dividend yield that would reimburse investors for issuance costs. My flotation cost adjustment recognizes the costs of issuing equity that were incurred by APUC and the proxy companies in their most recent two issuances. As shown in Schedule KM-12, an adjustment of 0.10 percent (*i.e.*,

10 basis points) reasonably represents flotation costs for the Company.

Q. ARE YOU PROPOSING TO ADJUST YOUR RECOMMENDED ROE BY 10 BASIS POINTS TO REFLECT THE EFFECT OF FLOTATION COSTS ON LIBERTY MIDSTATES' ROE?

A. No. Rather, I have considered the effect of flotation costs, in addition to the Company's other business risks, in determining where the Company's ROE falls within the range of results.

VII. CAPITAL MARKET ENVIRONMENT

Q. DO ECONOMIC CONDITIONS INFLUENCE THE REQUIRED COST OF CAPITAL AND REQUIRED RETURN ON COMMON EQUITY?

A. Yes. The required cost of capital, including the ROE, is a function of prevailing and expected economic and capital market conditions. As discussed in Section V, the models used to estimate the cost of equity are meant to reflect, and therefore are influenced by, current and expected capital market conditions. However, it is important to recognize that all analytical models used to estimate the required ROE are based on simplifying assumptions that may not hold true under specific market circumstances. When market data used in the ROE models reflect unusual market conditions that investors may not expect to persist (such as current interest rates), it is important to assess the reasonableness of the results in the context of other observable market data. To the extent that certain ROE estimates are incompatible with such data or inconsistent with basic financial principles, it is appropriate to consider whether alternative estimation techniques are likely to provide more meaningful and reliable results.

Q. ARE THERE ANY MARKET FACTORS THAT CALL INTO QUESTION ROUTINE APPLICATION OF THE DCF, CAPM AND BOND YIELD PLUS RISK PREMIUM ANALYSES AT THE CURRENT TIME?

A. Yes, there are. In particular, as discussed in more detail below, the Federal Reserve's unprecedented actions after the recent financial crisis have continued to have a significant influence on capital markets. It is clear, for example, that those actions have led to historically low long-term yields (which can skew the results of risk premium models such as the CAPM) and unusually high utility stock valuations (which can suppress DCF-based market results). Consequently, I believe it is reasonable to give more weight to the upper end of the range of DCF results at the current time and to give particular consideration to investors' expectations for future interest rate levels when performing risk premium analyses.

Q. PLEASE SUMMARIZE THE EFFECT OF RECENT FEDERAL RESERVE POLICIES ON INTEREST RATES AND THE COST OF CAPITAL.

A. Starting in the summer of 2007, the Federal Reserve took a number of steps to respond to the emerging financial crisis. Among other actions, the Federal Reserve lowered the Federal Funds target rate from 5.25 percent in September 2007 to a range of 0.00-0.25 percent by December 2008.[29] Beginning in 2008, the Federal Reserve also proceeded on a steady path of "quantitative easing" ("QE") initiatives intended to lower long-term Treasury yields.[30] QE was "designed to put downward pressure on longer-term interest rates by having the Federal Reserve take onto its balance sheet some of the duration and

29 *See* http://www.federalreserve.gov/monetarypolicy/openmarket.htm.

30 *See* Federal Reserve Press Release dated June 19, 2013. (Available at http://www.federalreserve.gov/newsevents/press/monetary/20130619a.htm).

prepayment risks that would otherwise have been borne by private investors."[31] While the Federal Reserve completed its final round of QE in October 2014, it has continued to reinvest principal repayments from its holdings of agency debt and mortgage-backed securities.[32] Under that policy, "Securities Held Outright" on the Federal Reserve's balance sheet increased from approximately $489 billion at the beginning of October 2008 to $4.25 trillion by mid-August 2017.[33] To put that increase in context, the securities held by the Federal Reserve represented approximately 3.28 percent of Gross Domestic Product ("GDP") at the end of September 2008, and had risen to 22.09 percent of GDP in August 2017.[34] As of the end of 2016, the Federal Reserve held approximately 36 percent of the supply of U.S. government Treasury securities with maturities over ten years.[35] As such, the Federal Reserve policy actions have represented a significant source of liquidity, and have had a substantial effect on capital markets.

In December 2015 the Federal Reserve raised the Federal Funds rate for the first time in nine years, and began the process of rate normalization.[36] Since that time the Federal Reserve has made three more 25 basis point increases to the federal funds target rate.[37] The Federal Reserve has also begun to consider unwinding the $4 trillion of

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31 Federal Reserve Bank of New York, *Domestic Open Market Operations During 2012*, April 2013, at 29. (Available at https://www.newyorkfed.org/medialibrary/media/markets/omo/omo2012-pdf.pdf).

32 http://www.federalreserve.gov/monetarypolicy/bst_openmarketops.htm.

33 Source: Federal Reserve Schedule H.4.1. "Securities Held Outright" include U.S. Treasury securities, Federal agency debt securities, and mortgage-backed securities.

34 Sources: Federal Reserve Schedule H.4.1; Bureau of Economic Analysis, GDP data as of the second calendar quarter of 2017.

35 Federal Reserve Bank of New York, *Domestic Open Market Operations During 2016*, April 2017 at 25.

36 *Federal Reserve Press Release* dated December 16, 2015. (Available at http://www.federalreserve.gov/newsevents/press/monetary/20151216a1.htm).

37 25 basis point increases were made in December 14, 2016, March 15, 2017 and June 14, 2017. The current federal funds target rate had increased to 1.00% - 1.25% as of August 18, 2017.

securities put on its balance sheet during its various QE initiatives (*e.g.*, capping the dollar amount of maturing securities that are reinvested); there is widespread expectation that process will begin soon.[38] Although there remains some uncertainty regarding the timing and approach under which the positions will be unwound, market data indicates investors expect the Federal Reserve to continue down the path of monetary policy normalization, and interest rates to increase significantly over the coming year. That market uncertainty, together with the prospect of increasing interest rates presents additional risks for utility equity holders.

Q. DOES YOUR RECOMMENDATION CONSIDER THE INTEREST RATE ENVIRONMENT?

A. Yes, it does. From an analytical perspective, it is important that the inputs and assumptions used to arrive at an ROE recommendation, including assessments of capital market conditions, are consistent with the recommendation itself. Although all analyses require an element of judgment, the application of that judgment must be made in the context of the quantitative and qualitative information available to the analyst, and the capital market environment in which the analyses were undertaken. Because the cost of equity is forward-looking, the salient issue is whether investors see the likelihood of increased interest rates during the period in which the rates set in this proceeding will be in effect.

The low interest rate environment associated with central bank intervention may lead some analysts to conclude that current capital costs, including the cost of equity, are

[38] Blue Chip Financial Forecast, Vol. 36, No. 8, August 1, 2017, at 1 and 14.

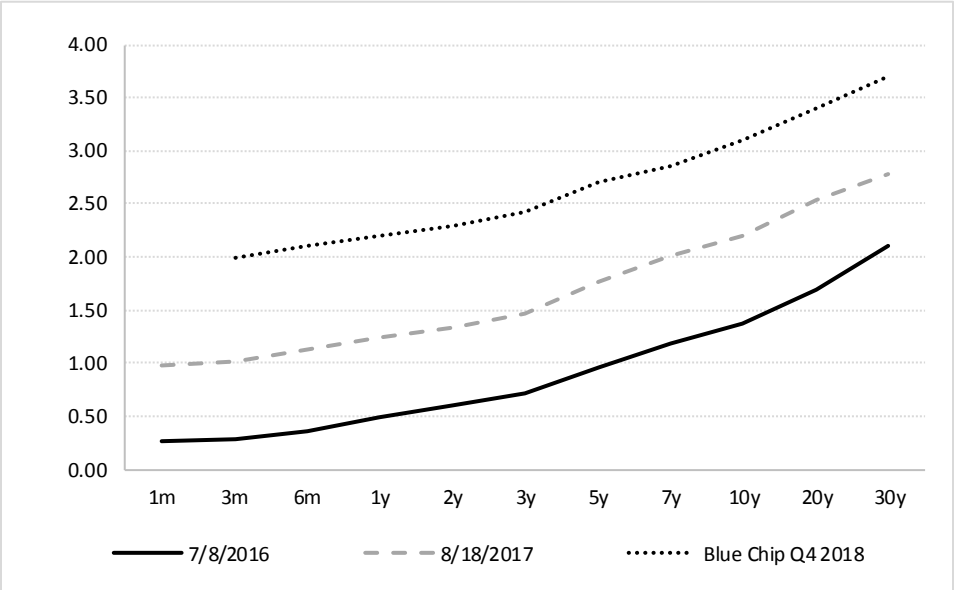
low and will remain as such. However, that conclusion only holds true under the hypothesis of Perfectly Competitive Capital Markets ("PCCM") and the classical valuation framework which, under normal economic and capital market conditions, underpin the traditional cost of equity models. Perfectly Competitive Capital Markets are those in which no single trader, or "market-mover", would have the power to change the prices of goods or services, including bond and common stock securities. In other words, under the PCCM hypothesis, no single trader would have a significant effect on market prices.

Classic valuation theory assumes investors trade securities rationally, with prices reflecting their perceptions of value. Although central banks may set benchmark interest rates, they have maintained below-normal rates to stimulate economic expansion and capital market recovery. It therefore is reasonable to conclude that the Federal Reserve and other central banks have been acting as market-movers, thereby having a significant effect on the market prices of both bonds and stocks. The presence of market-movers, such as the Federal Reserve, runs counter to the PCCM hypothesis, which underlies traditional cost of equity models. Consequently, the results of those models should be considered in the context of both quantitative and qualitative information.

Although the Federal Reserve's market intervention policies have kept interest rates historically low, since July 8, 2016 (when the 30-year Treasury yield hit an all-time low of 2.11 percent), rates have risen. As the Federal Reserve increased the Federal Funds target rate range by 25 basis points in December 2016 (to 0.50-0.75 percent), March 2017 (to 0.75-1.00 percent) and June 2017 (to 1.00-1.25 percent), short-term

interest rates increased by a corresponding amount.[39] Long-term yields have also increased by similar margins, with the ten-year and 30-year Treasury yields increasing by 82 basis points and 67 basis points, respectively, by August 18, 2017 (*see* Chart 2 below).

Chart 2: Treasury Yield Curve: 7/8/2016, 8/18/2017 and Projected Q4 2018[40]



The increases in the ten and 30-year yields since July 2016 are among the highest increases in at least 25 years.[41]

Q. DOES MARKET-BASED DATA INDICATE THAT INVESTORS SEE A PROBABILITY OF INCREASING INTEREST RATES?

A. Yes. Forward Treasury yields implied by the slope of the yield curve and published projections by sources such as *Blue Chip Financial Forecasts* (which provides consensus estimates from approximately 50 professional economists) indicate investors expect long-

39 Federal Reserve Board Schedule H.15. 6-month and 1-year Treasury yields increased by 77 basis points and 76 basis points, respectively, July 8, 2016 to August 18, 2017.

40 Sources: Federal Reserve Board Schedule H.15.; Blue Chip Financial Forecasts, Vol. 36, No.8, August 1, 2017, at 2. 3-year, 7-year and 20-year projected Treasury yields interpolated.

41 Source: Federal Reserve Schedule H.15. The increases fall in approximately the top 88th and 89th percentiles for both the 10 and 30-year Treasury yields, respectively.

term interest rates to increase (*see* Chart 2 above). Those projections are supported by the fact that investors are willing to pay a significantly higher premium for the option to sell long-term Government bonds, at today's price, in January 2019 than they are for the option to buy.[42] Because the value of bonds fall as interest rates increase, the option to sell bonds at today's price becomes more valuable when interest rates are expected to increase.[43] That market-based data tells us that investors consider an increase in interest rates as likely.

Looking to short-term interest rates, data compiled by CME Groups indicates that investors see a high likelihood of further Federal Funds rate increases, even after the three increases between December 14, 2016 and June 14, 2017. As shown in Table 7, (below) the market is now anticipating at least one additional rate hike (69.40 percent probability) by June 2018.

Table 7: Probability of Federal Funds Rate Increases[44]

Target Rate (bps)	Federal Reserve Meeting Date						
	Sep 17	Nov 17	Dec 17	Jan 18	Mar 18	May 18	Jun 18
100-125	98.6%	92.7%	49.6%	48.6%	40.4%	39.5%	30.6%
125-150	1.4%	7.2%	47.0%	47.0%	47.3%	47.1%	45.6%
150-175		0.1%	3.4%	4.3%	11.5%	12.3%	19.2%
175-200				0.1%	0.8%	1.0%	3.3%
200-225							0.2%

[42] The option to sell the TLT index in January 2019 at today's price costs approximately one-third more than the option to buy the fund. Source: http://www.nasdaq.com/symbol/tlt/option-chain?dateindex=7.

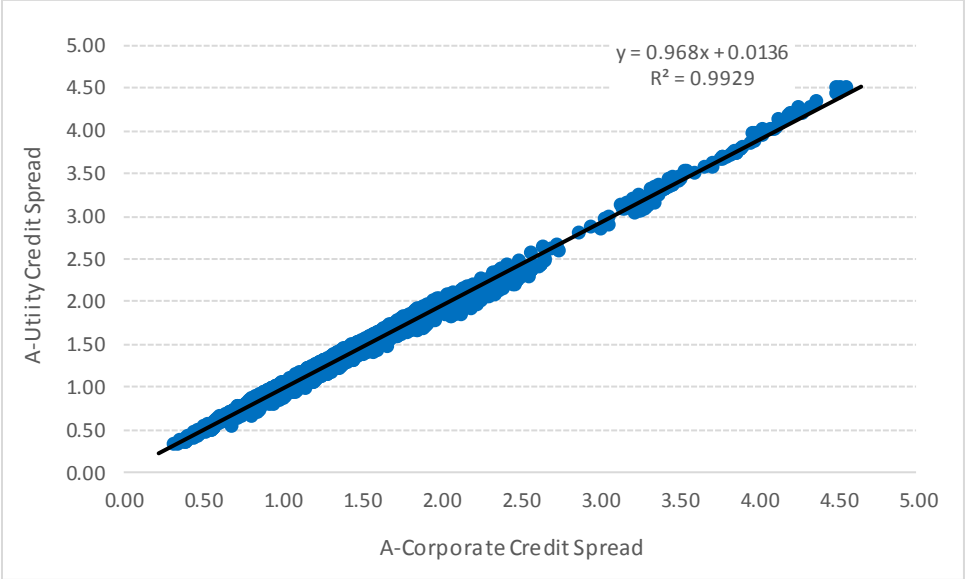
[43] In other words, if there is a high probability that interest rates will increase and bond prices will fall, there is value in the option to sell those bonds in the future at today's price. Conversely, if there is a strong probability that interest rates will decrease (price of bonds will increase), there is value in the option to buy those bonds in the future at today's price.

[44] Source: http://www.cmegroup.com/trading/interest-rates/countdown-to-fomc.html, accessed Aug 1, 2017.

Q. HAVE YOU ALSO REVIEWED THE RELATIONSHIP BETWEEN CREDIT SPREADS FOR A-RATED UTILITY DEBT RELATIVE TO A-RATED CORPORATE DEBT?

A. Yes, I have. Given the historical volatility in the spread between corporate and utility A-rated debt, there is no reason to conclude that utility yields are different than those of their corporate counterparts. That conclusion is consistent with the finding that over time, there has been a nearly one-to-one relationship between credit spreads on A-rated corporate and utility bonds. In fact, a regression analysis in which corporate credit spreads are the explanatory variable and utility credit spreads are the dependent variable shows that slope is approximately 1.00 and highly significant (*see* Chart 3, below). Because the intercept term is statistically insignificant, we can conclude that there has been no material difference between the two, and there certainly is no meaningful difference in the current market.

Chart 3: Corporate and Utility Credit Spreads (A-Rated)[45]



It also is important to recognize that the policy of reducing asset purchases under the Federal Reserve's quantitative easing program is related to expectations of improved conditions and sustained growth in the overall economy. [46] From that perspective, we would expect to see higher growth estimates for companies in the overall economy, including the utility sector. Since companies such as Liberty Midstates continue to invest in their rate base, and given that utilities provide a vital service to other industry sectors, it also would not be surprising to see an increase in expected utility growth rates.

Q. HAVE THERE BEEN RECENT PERIODS WHEN UTILITY VALUATION LEVELS WERE HIGH RELATIVE TO BOTH THEIR LONG-TERM AVERAGE AND THE MARKET?

A. Yes. For example, between July and December 2016, the S&P Electric Utility Index lost approximately 9.00% of its value. At the same time, the S&P 500 increased

45 Source: Federal Reserve Schedule H.15.

46 *See*, Minutes of the Federal Open Market Committee December 17–18, 2013, at 10.

approximately by 7.00%, indicating that the utility sector under-performed the market by about 16.00%. Also during that time, the 30-year Treasury yield increased by approximately 95 basis points (an increase of nearly 45.00%). The point simply is that as interest rates increased, utility valuations fell. Because (as noted above) investors see the strong likelihood of further interest rate increases, there is a continuing risk of losses in the utility sector.

Q. WHAT CONCLUSIONS DO YOU DRAW FROM YOUR ANALYSES OF THE CURRENT CAPITAL MARKET ENVIRONMENT, AND HOW DO THOSE CONCLUSIONS AFFECT YOUR ROE RECOMMENDATION?

A. I do not believe we can conclude that the recent levels of utility valuations are due to a fundamental change in the risk perceptions of utility investors. There is no measurable difference between credit spreads of A-rated utility debt and A-rated corporate debt. That is, based on analyses of credit spreads, there is no reason to conclude that investors see utilities as less risky relative to either historical levels or to their corporate counterparts.

From an analytical perspective, it is important that the inputs and assumptions used to arrive at an ROE determination, including assessments of capital market conditions, are consistent with the conclusion itself. Although all analyses require an element of judgment, the application of that judgment must be made in the context of the quantitative and qualitative information available to the analyst and the capital market environment in which the analyses were undertaken. Because the application of financial models and interpretation of their results often is the subject of differences among analysts in regulatory proceedings, I believe that it is important to review and consider a variety of data points; doing so enables us to put in context both quantitative analyses and

the associated recommendations.

Because not all models used to estimate the cost of equity adequately reflect those changing market dynamics, it is important to give appropriate weight to the methods and to their results. Moreover, because those models produce a range of results, it is important to consider the type of data discussed above in determining where the Company's ROE falls within that range. On balance, I believe that the DCF-based results should be viewed very carefully, and that somewhat more weight should be afforded the risk premium-based methods. I believe that doing so supports my recommended range of 9.90 percent to 10.35 percent, and my ROE recommendation of 10.25 percent.

VIII. CAPITAL STRUCTURE

Q. WHAT CAPITAL STRUCTURE ARE YOU PROPOSING FOR LIBERTY MIDSTATES?

A. I am proposing an authorized capital structure consisting of 53.00 percent common equity and 47.00 percent long-term debt based on the average capital structure employed by the proxy companies (*see* Schedule KM-9). A 53.00 percent equity ratio is generally consistent with Value Line's projected proxy group average equity ratio,[47] but somewhat lower than Liberty Midstates' equity ratio as of December 31, 2017.[48]

Q. HOW DOES THE CAPITAL STRUCTURE AFFECT THE COST OF EQUITY?

A. The capital structure relates to a Company's financial risk, which represents the risk that a company may not have adequate cash flows to meet its financial obligations, and is a function of the percentage of debt (or financial leverage) in its capital structure. In that

47 *See* Schedule KM-9.

48 Calculated from FERC Form 2 data provided by Company.

regard, as the percentage of debt in the capital structure increases, so do the fixed obligations for the repayment of that debt. To the extent earnings and cash flows become less certain, the ability to meet those fixed obligations also becomes less certain. That is, as the degree of financial leverage increases, the risk of financial distress (i.e., financial risk) also increases; it is for that reason that (in general) credit quality deteriorates and the cost of debt increases with higher levels of debt in the capital structure.

From the perspective of equity investors, who do not have the contractual claim on cash flows given to bondholders, increased levels of debt tend to concentrate the uncertainty of the cash flows remaining after debt payments are made. Because their risk is increased, equity investors also require higher returns as the use of debt increases. Since the capital structure can affect the subject company's overall level of risk,[49] it is an important consideration in establishing a just and reasonable rate of return.

Q. WILL THE CAPITAL STRUCTURE AND ROE AUTHORIZED IN THIS PROCEEDING AFFECT THE COMPANY'S ABILITY TO MAINTAIN ACCESS TO CAPITAL AT REASONABLE RATES?

A. Yes. The level of earnings authorized by the Commission directly affects the Company's ability to finance its operations with internally-generated funds. Internally-generated funds are a very important source of investment funding for all utilities, including the Company. For that reason, credit rating agencies and investors expect the Company to be able to generate a substantial portion of its investment funding from operating cash flow in order to maintain adequate financial strength.

[49] *See* Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 45-46.

Similarly, it also is important to realize that because a utility's investment horizon is very long, investors require the assurance of a sufficiently high ROE to satisfy the long-run financing requirements of the assets the Company places into service. Those assurances, which often are measured by the relationship between internally-generated cash flows and debt (or interest expense), depend quite heavily on the capital structure. As a consequence, both the ROE and capital structure are very important to both debt and equity investors.

Q. PLEASE DISCUSS YOUR ANALYSIS OF THE CAPITAL STRUCTURES OF THE PROXY GROUP COMPANIES.

A. I calculated the average capital structure for each of the proxy group companies over the past eight calendar quarters. As shown in Table 8 (below), the proxy group had a mean equity ratio of 53.08 percent and a mean long-term debt ratio of 46.92 percent.

Table 8: Proxy Group Average Capital Structure Q3 2015 – Q2 2017[50]

		Common Equity Ratio	Long-Term Debt Ratio
Atmos Energy Corp.	ATO	57.96%	42.04%
Black Hills Corp.	BKH	36.26%	63.74%
Chesapeake Utilities Corp.	CPK	71.43%	28.57%
Northwest Natural Gas Co.	NWN	55.91%	44.09%
ONE Gas, Inc.	OGS	61.14%	38.86%
Sempra Energy	SRE	45.82%	54.18%
Southwest Gas Corp.	SWX	51.13%	48.87%
Spire Inc.	SR	47.85%	52.15%
Vectren Corp.	VVC	50.23%	49.77%
Average		**53.08%**	**46.92%**
Median		**51.13%**	**48.87%**

Q. WHAT IS THE BASIS FOR USING AVERAGE CAPITAL COMPONENTS RATHER THAN A POINT-IN-TIME MEASUREMENT?

A. Measuring the capital components at a particular point in time can skew the capital structure by the specific circumstances of a particular period. Therefore, it is more appropriate to normalize the relative relationship between the capital components over a period of time.

Q. WHAT IS YOUR CONCLUSION REGARDING AN APPROPRIATE CAPITAL STRUCTURE FOR LIBERTY MIDSTATES?

A. At the current time, Liberty Midstates' actual equity ratio is at the high end of the range of equity ratios employed by the proxy companies. Considering the range of capital structures employed by the proxy group companies, I believe a 53.00 percent equity ratio

[50] *See* Schedule KM-9.

is reasonable and appropriate.

IX. COST OF DEBT

Q. WHAT IS THE COMPANY'S COST OF DEBT?

A. As shown in WP-1 Rate of Return, the Company's cost of debt of is 4.70 percent.

Q. HAVE YOU ASSESSED THE COMPANY'S COST OF DEBT RELATIVE TO OTHER NATURAL GAS UTILITIES?

A. Yes, I calculated the embedded cost of debt for all authorized returns from January 1, 2016 through August 18, 2017. The mean embedded cost of debt over that period was 4.91 percent and the median was 4.95 percent.[51] Based on that review, I believe the Company's 4.70 percent cost of debt is reasonable and appropriate.

X. CONCLUSIONS AND RECOMMENDATION

Q. WHAT IS YOUR CONCLUSION REGARDING THE COMPANY'S COST OF EQUITY?

A. As discussed earlier in my Direct Testimony, I have performed several analyses to estimate the Company's cost of equity, and have considered several market-wide and Company-specific issues. In light of those considerations, I believe that a rate of return on common equity in the range of 9.90 percent to 10.35 percent represents the range of equity investors' required rate of return for investment in natural gas utilities similar to Liberty Midstates in today's capital markets. Within that range, it is my view that an ROE of 10.25 percent is reasonable and appropriate.

As discussed earlier in my testimony, my recommendation reflects analytical

[51] Excludes rate cases from Arkansas and Michigan because those jurisdictions report capital structures that include non-investor supplied financing sources (*e.g.*, deferred taxes), which skews the implied cost of debt calculation.

results based on a proxy group of natural gas utilities. My recommendation also takes into consideration a variety of factors such as the financial environment and the Company's risk profile, including its relatively small size and its regulatory environment. My recommendation also considers the direct costs associated with equity issuances, although I do not make a specific adjustment for those costs.

I also conclude that a capital structure consisting of 53.00 percent common equity and 47.00 percent debt, is consistent with industry practice and, therefore, is reasonable and appropriate. Lastly, I conclude that the Company's 4.70 percent cost of debt, which is consistent with the cost of debt reflected in the overall rate of return for gas utilities since the beginning of 2016, also is reasonable and appropriate.

Table 9: Summary of Analytical Results

DCF Analyses	*Proxy Group*		
	Low	*Mean*	*High*
Constant Growth, 30-day Stock Prices	7.22%	8.96%	11.13%
Constant Growth, 90-day Stock Prices	7.26%	9.01%	11.17%
Constant Growth, 180-day Stock Prices	7.36%	9.10%	11.27%
Quarterly Growth, 30-day Stock Prices	7.37%	9.08%	11.37%
Quarterly Growth, 90-day Stock Prices	7.42%	9.13%	11.41%
Quarterly Growth, 180-day Stock Prices	7.52%	9.23%	11.52%
CAPM		*Bloomberg MRP*	*Value Line MRP*
Value Line Beta, Current Risk-Free Rate (2.85%)		10.53%	11.08%
Value Line Beta, Projected Risk-Free Rate (3.35%)		10.67%	11.22%
Bloomberg Beta, Current Risk-Free Rate (2.85%)		9.62%	10.11%
Bloomberg Beta, Projected Risk-Free Rate (3.35%)		9.80%	10.29%
Bond Yield Plus Risk Premium	*Low*	*Mean*	*High*
Current and Projected Baa Utility Bond Yields	9.52%	9.83%	10.41%
Expected Earnings Analysis	*Low*	*Mean*	*High*
Value Line Projected Return on Book Equity	10.74%	10.93%	11.11%

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

Constant Growth Discounted Cash Flow Model
30 Day Average Stock Price

Company	Ticker	[1] Annualized Dividend	[2] Average Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Zacks Earnings Growth	[6] First Call Earnings Growth	[7] Value Line Earnings Growth	[8] Retention Growth Estimate	[9] Average Earnings Growth	[10] Low ROE	[11] Mean ROE	[12] High ROE
Atmos Energy Corporation	ATO	$1.80	$86.23	2.09%	2.16%	7.00%	7.30%	6.00%	8.44%	7.19%	8.15%	9.35%	10.62%
Black Hills Corporation	BKH	$1.78	$69.39	2.57%	2.65%	5.00%	7.65%	7.50%	5.51%	6.42%	7.63%	9.06%	10.31%
Chesapeake Utilities	CPK	$1.30	$77.71	1.67%	1.75%	6.00%	8.10%	8.00%	13.24%	8.84%	7.72%	10.58%	15.03%
Northwest Natural Gas Company	NWN	$1.88	$62.99	2.98%	3.06%	4.30%	4.00%	7.00%	4.10%	4.85%	7.04%	7.91%	10.09%
One Gas Inc	OGS	$1.68	$72.42	2.32%	2.39%	5.50%	5.50%	9.50%	4.81%	6.33%	7.19%	8.72%	11.93%
Sempra Energy	SRE	$3.29	$114.33	2.88%	2.98%	8.70%	7.80%	8.00%	2.73%	6.81%	5.65%	9.78%	11.70%
Southwest Gas	SWX	$1.98	$79.73	2.48%	2.55%	5.00%	4.00%	7.50%	6.03%	5.63%	6.53%	8.19%	10.08%
Spire Inc	SR	$2.10	$72.96	2.88%	2.95%	4.40%	3.74%	8.00%	5.16%	5.33%	6.67%	8.28%	10.99%
Vectren Corporation	VVC	$1.68	$59.87	2.81%	2.89%	5.70%	5.50%	6.50%	5.96%	5.92%	8.38%	8.81%	9.40%
Proxy Group Mean				2.52%	2.60%	5.73%	5.95%	7.56%	6.22%	6.37%	7.22%	8.96%	11.13%
Proxy Group Median				2.57%	2.65%	5.50%	5.50%	7.50%	5.51%	6.33%	7.19%	8.81%	10.62%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals indicated number of trading day average as of August 18, 2017
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.5 x [9])
[5] Source: Zacks
[6] Source: Yahoo! Finance
[7] Source: Value Line
[8] Source: Schedule KM-3, Value Line
[9] Equals Average([5], [6], [7], [8])
[10] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7], [8])) + Minimum([5], [6], [7], [8])
[11] Equals [4] + [9]
[12] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7], [8])) + Maximum([5], [6], [7], [8])

Constant Growth Discounted Cash Flow Model
90 Day Average Stock Price

Company	Ticker	[1] Annualized Dividend	[2] Average Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Zacks Earnings Growth	[6] First Call Earnings Growth	[7] Value Line Earnings Growth	[8] Retention Growth Estimate	[9] Average Earnings Growth	[10] Low ROE	[11] Mean ROE	[12] High ROE
Atmos Energy Corporation	ATO	$1.80	$83.64	2.15%	2.23%	7.00%	7.30%	6.00%	8.44%	7.19%	8.22%	9.41%	10.68%
Black Hills Corporation	BKH	$1.78	$69.09	2.58%	2.66%	5.00%	7.65%	7.50%	5.51%	6.42%	7.64%	9.07%	10.32%
Chesapeake Utilities	CPK	$1.30	$75.03	1.73%	1.81%	6.00%	8.10%	8.00%	13.24%	8.84%	7.78%	10.64%	15.09%
Northwest Natural Gas Company	NWN	$1.88	$61.37	3.06%	3.14%	4.30%	4.00%	7.00%	4.10%	4.85%	7.12%	7.99%	10.17%
One Gas Inc	OGS	$1.68	$70.76	2.37%	2.45%	5.50%	5.50%	9.50%	4.81%	6.33%	7.24%	8.78%	11.99%
Sempra Energy	SRE	$3.29	$113.65	2.89%	2.99%	8.70%	7.80%	8.00%	2.73%	6.81%	5.67%	9.80%	11.72%
Southwest Gas	SWX	$1.98	$79.27	2.50%	2.57%	5.00%	4.00%	7.50%	6.03%	5.63%	6.55%	8.20%	10.09%
Spire Inc	SR	$2.10	$71.02	2.96%	3.04%	4.40%	3.74%	8.00%	5.16%	5.33%	6.75%	8.36%	11.08%
Vectren Corporation	VVC	$1.68	$59.93	2.80%	2.89%	5.70%	5.50%	6.50%	5.96%	5.92%	8.38%	8.80%	9.39%
Proxy Group Mean				2.56%	2.64%	5.73%	5.95%	7.56%	6.22%	6.37%	7.26%	9.01%	11.17%
Proxy Group Median				2.58%	2.66%	5.50%	5.50%	7.50%	5.51%	6.33%	7.24%	8.80%	10.68%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals indicated number of trading day average as of August 18, 2017
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.5 x [9])
[5] Source: Zacks
[6] Source: Yahoo! Finance
[7] Source: Value Line
[8] Source: Schedule KM-3, Value Line
[9] Equals Average([5], [6], [7], [8])
[10] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7], [8])) + Minimum([5], [6], [7], [8])
[11] Equals [4] + [9]
[12] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7], [8])) + Maximum([5], [6], [7], [8])

Constant Growth Discounted Cash Flow Model
180 Day Average Stock Price

Company	Ticker	[1] Annualized Dividend	[2] Average Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Zacks Earnings Growth	[6] First Call Earnings Growth	[7] Value Line Earnings Growth	[8] Retention Growth Estimate	[9] Average Earnings Growth	[10] Low ROE	[11] Mean ROE	[12] High ROE
Atmos Energy Corporation	ATO	$1.80	$79.91	2.25%	2.33%	7.00%	7.30%	6.00%	8.44%	7.19%	8.32%	9.52%	10.79%
Black Hills Corporation	BKH	$1.78	$66.02	2.70%	2.78%	5.00%	7.65%	7.50%	5.51%	6.42%	7.76%	9.20%	10.45%
Chesapeake Utilities	CPK	$1.30	$70.98	1.83%	1.91%	6.00%	8.10%	8.00%	13.24%	8.84%	7.89%	10.75%	15.19%
Northwest Natural Gas Company	NWN	$1.88	$60.28	3.12%	3.19%	4.30%	4.00%	7.00%	4.10%	4.85%	7.18%	8.05%	10.23%
One Gas Inc	OGS	$1.68	$67.70	2.48%	2.56%	5.50%	5.50%	9.50%	4.81%	6.33%	7.35%	8.89%	12.10%
Sempra Energy	SRE	$3.29	$109.46	3.01%	3.11%	8.70%	7.80%	8.00%	2.73%	6.81%	5.78%	9.92%	11.84%
Southwest Gas	SWX	$1.98	$79.81	2.48%	2.55%	5.00%	4.00%	7.50%	6.03%	5.63%	6.53%	8.18%	10.07%
Spire Inc	SR	$2.10	$68.06	3.09%	3.17%	4.40%	3.74%	8.00%	5.16%	5.33%	6.88%	8.49%	11.21%
Vectren Corporation	VVC	$1.68	$57.38	2.93%	3.01%	5.70%	5.50%	6.50%	5.96%	5.92%	8.51%	8.93%	9.52%
Proxy Group Mean				2.65%	2.74%	5.73%	5.95%	7.56%	6.22%	6.37%	7.36%	9.10%	11.27%
Proxy Group Median				2.70%	2.78%	5.50%	5.50%	7.50%	5.51%	6.33%	7.35%	8.93%	10.79%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals indicated number of trading day average as of August 18, 2017
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.5 x [9])
[5] Source: Zacks
[6] Source: Yahoo! Finance
[7] Source: Value Line
[8] Source: Schedule KM-3, Value Line
[9] Equals Average([5], [6], [7], [8])
[10] Equals [3] x (1 + 0.5 x Minimum([5], [6], [7], [8])) + Minimum([5], [6], [7], [8])
[11] Equals [4] + [9]
[12] Equals [3] x (1 + 0.5 x Maximum([5], [6], [7], [8])) + Maximum([5], [6], [7], [8])

Quarterly Discounted Cash Flow Model
30 Day Average Stock Price

Company	Ticker	[1] Dividend 1	[2] Dividend 2	[3] Dividend 3	[4] Dividend 4	[5] Expected Dividend 1	[6] Expected Dividend 2	[7] Expected Dividend 3	[8] Expected Dividend 4	[9] Stock Price	[10] Zacks Earnings Growth	[11] First Call Earnings Growth	[12] Value Line Earnings Growth	[13] Retention Growth Estimate	[14] Average Earnings Growth	[15] Low ROE	[16] Mean ROE	[17] High ROE
Atmos Energy Corporation	ATO	$0.45	$0.45	$0.45	$0.45	$0.48	$0.48	$0.48	$0.48	$86.23	7.00%	7.30%	6.00%	8.44%	7.19%	8.33%	9.50%	10.85%
Black Hills Corporation	BKH	$0.42	$0.45	$0.45	$0.45	$0.45	$0.47	$0.47	$0.47	$69.39	5.00%	7.65%	7.50%	5.51%	6.42%	7.80%	9.20%	10.55%
Chesapeake Utilities	CPK	$0.31	$0.31	$0.33	$0.33	$0.33	$0.33	$0.35	$0.35	$77.71	6.00%	8.10%	8.00%	13.24%	8.84%	7.80%	10.67%	15.21%
Northwest Natural Gas Company	NWN	$0.47	$0.47	$0.47	$0.47	$0.49	$0.49	$0.49	$0.49	$62.99	4.30%	4.00%	7.00%	4.10%	4.85%	7.29%	8.07%	10.42%
One Gas Inc	OGS	$0.35	$0.42	$0.42	$0.42	$0.37	$0.45	$0.45	$0.45	$72.42	5.50%	5.50%	9.50%	4.81%	6.33%	7.26%	8.76%	12.10%
Sempra Energy	SRE	$0.76	$0.76	$0.82	$0.82	$0.81	$0.81	$0.88	$0.88	$114.33	8.70%	7.80%	8.00%	2.73%	6.81%	5.72%	9.87%	11.93%
Southwest Gas	SWX	$0.45	$0.45	$0.50	$0.50	$0.48	$0.48	$0.52	$0.52	$79.73	5.00%	4.00%	7.50%	6.03%	5.63%	6.59%	8.21%	10.21%
Spire Inc	SR	$0.53	$0.53	$0.53	$0.53	$0.55	$0.55	$0.55	$0.55	$72.96	4.40%	3.74%	8.00%	5.16%	5.33%	6.90%	8.45%	11.34%
Vectren Corporation	VVC	$0.42	$0.42	$0.42	$0.42	$0.44	$0.44	$0.44	$0.44	$59.87	5.70%	5.50%	6.50%	5.96%	5.92%	8.65%	8.99%	9.69%
Proxy Group Mean											5.73%	5.95%	7.56%	6.22%	6.37%	7.37%	9.08%	11.37%
Proxy Group Median											5.50%	5.50%	7.50%	5.51%	6.33%	7.29%	8.99%	10.85%

Notes:
[1] Source: Bloomberg Professional Service
[2] Source: Bloomberg Professional Service
[3] Source: Bloomberg Professional Service
[4] Source: Bloomberg Professional Service
[5] Equals Col. [1] x (1 + Col. [14])
[6] Equals Col. [2] x (1 + Col. [14])
[7] Equals Col. [3] x (1 + Col. [14])
[8] Equals Col. [4] x (1 + Col. [14])
[9] Source: Blomberg Professional Service
[10] Source: Zacks
[11] Source: Yahoo! Finance
[12] Source: Value Line
[13] Source: Schedule KM-3, Value Line
[14] Equals Average (Cols. [10], [11], [12], [13])
[15] Implied Low DCF
[16] Implied Mean DCF
[17] Implied High DCF

Quarterly Discounted Cash Flow Model
90 Day Average Stock Price

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
Company	Ticker	Dividend 1	Dividend 2	Dividend 3	Dividend 4	Expected Dividend 1	Expected Dividend 2	Expected Dividend 3	Expected Dividend 4	Stock Price	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Retention Growth Estimate	Average Earnings Growth	Low ROE	Mean ROE	High ROE
Atmos Energy Corporation	ATO	$0.45	$0.45	$0.45	$0.45	$0.48	$0.48	$0.48	$0.48	$83.64	7.00%	7.30%	6.00%	8.44%	7.19%	8.41%	9.57%	10.92%
Black Hills Corporation	BKH	$0.42	$0.45	$0.45	$0.45	$0.45	$0.47	$0.47	$0.47	$69.09	5.00%	7.65%	7.50%	5.51%	6.42%	7.82%	9.21%	10.57%
Chesapeake Utilities	CPK	$0.31	$0.31	$0.33	$0.33	$0.33	$0.33	$0.35	$0.35	$75.03	6.00%	8.10%	8.00%	13.24%	8.84%	7.86%	10.73%	15.28%
Northwest Natural Gas Company	NWN	$0.47	$0.47	$0.47	$0.47	$0.49	$0.49	$0.49	$0.49	$61.37	4.30%	4.00%	7.00%	4.10%	4.85%	7.38%	8.16%	10.52%
One Gas Inc	OGS	$0.35	$0.42	$0.42	$0.42	$0.37	$0.45	$0.45	$0.45	$70.76	5.50%	5.50%	9.50%	4.81%	6.33%	7.32%	8.82%	12.16%
Sempra Energy	SRE	$0.76	$0.76	$0.82	$0.82	$0.81	$0.81	$0.88	$0.88	$113.65	8.70%	7.80%	8.00%	2.73%	6.81%	5.74%	9.88%	11.95%
Southwest Gas	SWX	$0.45	$0.45	$0.50	$0.50	$0.48	$0.48	$0.52	$0.52	$79.27	5.00%	4.00%	7.50%	6.03%	5.63%	6.60%	8.22%	10.22%
Spire Inc	SR	$0.53	$0.53	$0.53	$0.53	$0.55	$0.55	$0.55	$0.55	$71.02	4.40%	3.74%	8.00%	5.16%	5.33%	6.99%	8.54%	11.43%
Vectren Corporation	VVC	$0.42	$0.42	$0.42	$0.42	$0.44	$0.44	$0.44	$0.44	$59.93	5.70%	5.50%	6.50%	5.96%	5.92%	8.64%	8.98%	9.68%
Proxy Group Mean											5.73%	5.95%	7.56%	6.22%	6.37%	7.42%	9.13%	11.41%
Proxy Group Median											5.50%	5.50%	7.50%	5.51%	6.33%	7.38%	8.98%	10.92%

Notes:
[1] Source: Bloomberg Professional Service
[2] Source: Bloomberg Professional Service
[3] Source: Bloomberg Professional Service
[4] Source: Bloomberg Professional Service
[5] Equals Col. [1] x (1 + Col. [14])
[6] Equals Col. [2] x (1 + Col. [14])
[7] Equals Col. [3] x (1 + Col. [14])
[8] Equals Col. [4] x (1 + Col. [14])
[9] Source: Blomberg Professional Service
[10] Source: Zacks
[11] Source: Yahoo! Finance
[12] Source: Value Line
[13] Source: Schedule KM-3, Value Line
[14] Equals Average (Cols. [10], [11], [12], [13])
[15] Implied Low DCF
[16] Implied Mean DCF
[17] Implied High DCF

Quarterly Discounted Cash Flow Model
180 Day Average Stock Price

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
Company	Ticker	Dividend 1	Dividend 2	Dividend 3	Dividend 4	Expected Dividend 1	Expected Dividend 2	Expected Dividend 3	Expected Dividend 4	Stock Price	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Retention Growth Estimate	Average Earnings Growth	Low ROE	Mean ROE	High ROE
Atmos Energy Corporation	ATO	$0.45	$0.45	$0.45	$0.45	$0.48	$0.48	$0.48	$0.48	$79.91	7.00%	7.30%	6.00%	8.44%	7.19%	8.52%	9.69%	11.04%
Black Hills Corporation	BKH	$0.42	$0.45	$0.45	$0.45	$0.45	$0.47	$0.47	$0.47	$66.02	5.00%	7.65%	7.50%	5.51%	6.42%	7.95%	9.34%	10.71%
Chesapeake Utilities	CPK	$0.31	$0.31	$0.33	$0.33	$0.33	$0.33	$0.35	$0.35	$70.98	6.00%	8.10%	8.00%	13.24%	8.84%	7.97%	10.84%	15.40%
Northwest Natural Gas Company	NWN	$0.47	$0.47	$0.47	$0.47	$0.49	$0.49	$0.49	$0.49	$60.28	4.30%	4.00%	7.00%	4.10%	4.85%	7.44%	8.22%	10.58%
One Gas Inc	OGS	$0.35	$0.42	$0.42	$0.42	$0.37	$0.45	$0.45	$0.45	$67.70	5.50%	5.50%	9.50%	4.81%	6.33%	7.43%	8.94%	12.28%
Sempra Energy	SRE	$0.76	$0.76	$0.82	$0.82	$0.81	$0.81	$0.88	$0.88	$109.46	8.70%	7.80%	8.00%	2.73%	6.81%	5.85%	10.00%	12.07%
Southwest Gas	SWX	$0.45	$0.45	$0.50	$0.50	$0.48	$0.48	$0.52	$0.52	$79.81	5.00%	4.00%	7.50%	6.03%	5.63%	6.58%	8.21%	10.20%
Spire Inc	SR	$0.53	$0.53	$0.53	$0.53	$0.55	$0.55	$0.55	$0.55	$68.06	4.40%	3.74%	8.00%	5.16%	5.33%	7.13%	8.68%	11.59%
Vectren Corporation	VVC	$0.42	$0.42	$0.42	$0.42	$0.44	$0.44	$0.44	$0.44	$57.38	5.70%	5.50%	6.50%	5.96%	5.92%	8.79%	9.12%	9.83%
Proxy Group Mean											5.73%	5.95%	7.56%	6.22%	6.37%	7.52%	9.23%	11.52%
Proxy Group Median											5.50%	5.50%	7.50%	5.51%	6.33%	7.44%	9.12%	11.04%

Notes:
[1] Source: Bloomberg Professional Service
[2] Source: Bloomberg Professional Service
[3] Source: Bloomberg Professional Service
[4] Source: Bloomberg Professional Service
[5] Equals Col. [1] x (1 + Col. [14])
[6] Equals Col. [2] x (1 + Col. [14])
[7] Equals Col. [3] x (1 + Col. [14])
[8] Equals Col. [4] x (1 + Col. [14])
[9] Source: Blomberg Professional Service
[10] Source: Zacks
[11] Source: Yahoo! Finance
[12] Source: Value Line
[13] Source: Schedule KM-3, Value Line
[14] Equals Average (Cols. [10], [11], [12], [13])
[15] Implied Low DCF
[16] Implied Mean DCF
[17] Implied High DCF

Retention Growth Estimate

Company	Ticker	[1] Projected Earnings per share 2020-22	[2] Projected Dividend Declared per share 2020-22	[3] Retention Ratio (B)	[4] Projected Book Value per Share 2018	[5] Projected Book Value per Share 2020-22	[6] Return on Average Book Value (R)	[7] B x R	[8] Projected Common Shares 2018	[9] Projected Common Shares 2020-22	[10] Common Shares Growth Rate	[11] 2017 High Price	[12] 2017 Low Price	[13] 2017 Price Midpoint	[14] Projected Book Value per Share 2017
Atmos Energy Corporation	ATO	4.50	2.30	48.89%	37.15	38.50	11.76%	5.75%	110.00	120.00	2.94%	82.70	72.50	$ 77.60	37.10
Black Hills Corporation	BKH	4.25	2.20	48.24%	35.35	41.00	10.61%	5.12%	60.25	61.00	0.41%	72.00	60.00	$ 66.00	31.85
Chesapeake Utilities	CPK	4.20	1.55	63.10%	32.20	32.90	12.81%	8.08%	17.00	20.00	5.57%	74.90	63.00	$ 68.95	31.05
Northwest Natural Gas Company	NWN	3.15	2.00	36.51%	30.40	32.25	9.86%	3.60%	29.50	30.00	0.56%	61.70	56.50	$ 59.10	29.90
One Gas Inc	OGS	4.00	2.45	38.75%	38.95	41.45	9.75%	3.78%	52.50	55.00	1.56%	70.60	61.40	$ 66.00	37.80
Sempra Energy	SRE	7.50	4.55	39.33%	55.25	58.25	12.99%	5.11%	254.00	236.00	-2.42%	118.00	99.70	$ 108.85	53.45
Southwest Gas	SWX	4.75	2.50	47.37%	42.85	57.70	8.60%	4.07%	49.00	52.00	2.00%	86.60	75.60	$ 81.10	38.55
Spire Inc	SR	4.65	2.50	46.24%	41.85	48.30	9.85%	4.55%	48.50	50.00	1.02%	70.70	62.30	$ 66.50	39.50
Vectren Corporation	VVC	3.35	2.00	40.30%	23.80	28.50	12.09%	4.87%	84.00	86.00	0.79%	62.80	51.50	$ 57.15	22.50

Company	Ticker	[15] Market/ Book Ratio	[16] "S"	[17] "V"	[18] S x V	[19] BR + SV
Atmos Energy Corporation	ATO	2.09	6.16%	52.19%	3.21%	8.44%
Black Hills Corporation	BKH	2.07	0.86%	51.74%	0.44%	5.51%
Chesapeake Utilities	CPK	2.22	12.36%	54.97%	6.79%	13.24%
Northwest Natural Gas Company	NWN	1.98	1.11%	49.41%	0.55%	4.10%
One Gas Inc	OGS	1.75	2.73%	42.73%	1.17%	4.81%
Sempra Energy	SRE	2.04	-4.93%	50.90%	-2.51%	2.73%
Southwest Gas	SWX	2.10	4.21%	52.47%	2.21%	6.03%
Spire Inc	SR	1.68	1.72%	40.60%	0.70%	5.16%
Vectren Corporation	VVC	2.54	2.00%	60.63%	1.21%	5.96%
					Mean:	6.22%
					Median:	5.51%

Notes:

[1] Source: Value Line
[2] Source: Value Line
[3] Equals 1 - [2] / [1]
[4] Source: Value Line
[5] Source: Value Line
[6] Equals [1] / ([4] + (2.5/3) x ([5] - [4]))
[7] Equals [3] x [6]
[8] Source: Value Line
[9] Source: Value Line
[10] Equals ([9] / [8]) ^(1/3) - 1
[11] Source: Value Line
[12] Source: Value Line
[13] Equals Average ([11], [12])
[14] Source: Value Line
[15] Equals [13] / [14]
[16] Equals [10] x [15]
[17] Equals 1 - (1 / [15])
[18] Equals [16] x [17]
[19] Equals ([7] + [18])/(1+[16])

Ex-Ante Market Risk Premium
Market DCF Method Based - Value Line & Bloomberg

	Bloomberg	Value Line
Est. S&P 500 Return [1]:	13.41%	14.16%
Current Risk-Free Rate [2]:	2.85%	2.85%
Near-Term Projected Risk-Free Rate [3]:	3.35%	3.35%
Current Market Risk Premium [4]:	10.56%	11.31%
Near-Term Projected Market Risk Premium [5]:	10.06%	10.81%

		[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
					Bloomberg			Value Line	
Company	Ticker	Market Capitalization ($MM)	Dividend Yield	Growth Rate	DCF Result	Weight in Index	Growth Rate	DCF Result	Weight in Index
AGILENT TECHNOLOGIES INC	A	19,681.92	0.86%	9.53%	10.43%	0.09%	7.00%	7.89%	0.10%
AMERICAN AIRLINES GROUP INC	AAL	22,183.27	0.94%	-1.26%	-0.32%	0.10%	1.00%	1.94%	0.11%
ADVANCE AUTO PARTS INC	AAP	6,888.42	0.27%	11.68%	11.96%	0.03%	9.50%	9.78%	0.03%
APPLE INC	AAPL	813,523.41	1.53%	10.35%	11.96%	3.71%	10.00%	11.60%	4.10%
ABBVIE INC	ABBV	111,522.87	3.68%	7.45%	11.27%	0.51%	11.50%	15.39%	0.56%
AMERISOURCEBERGEN CORP	ABC	17,222.17	1.86%	9.23%	11.17%	0.08%	8.00%	9.93%	0.09%
ABBOTT LABORATORIES	ABT	84,682.98	2.22%	11.33%	13.67%	0.39%	8.50%	10.82%	0.43%
ACCENTURE PLC-CL A	ACN	82,294.66	1.91%	9.75%	11.75%	0.38%	9.00%	10.99%	0.42%
ADOBE SYSTEMS INC	ADBE	73,009.24	0.00%	19.56%	19.56%	0.33%	29.50%	29.50%	0.37%
ANALOG DEVICES INC	ADI	28,531.47	2.12%	11.70%	13.95%	0.13%	16.00%	18.29%	0.14%
ARCHER-DANIELS-MIDLAND CO	ADM	23,216.33	3.11%	9.80%	13.07%	0.11%	4.00%	7.18%	0.12%
AUTOMATIC DATA PROCESSING	ADP	46,397.17	2.26%	11.60%	13.99%	0.21%	9.00%	11.36%	0.23%
ALLIANCE DATA SYSTEMS CORP	ADS	12,276.82	0.82%	14.00%	14.88%	0.06%	9.50%	10.36%	0.06%
AUTODESK INC	ADSK	23,925.72	0.00%	26.00%	26.00%	0.11%	N/A	N/A	N/A
AMEREN CORPORATION	AEE	14,366.41	3.04%	5.60%	8.72%	0.07%	6.00%	9.13%	0.07%
AMERICAN ELECTRIC POWER	AEP	35,491.20	3.30%	3.67%	7.02%	0.16%	4.00%	7.36%	0.18%
AES CORP	AES	7,309.04	4.35%	9.33%	13.89%	0.03%	N/A	N/A	N/A
AETNA INC	AET	51,292.85	1.08%	11.46%	12.60%	0.23%	8.50%	9.63%	0.26%
AFLAC INC	AFL	31,555.09	2.18%	5.00%	7.24%	0.14%	4.00%	6.23%	0.16%
ALLERGAN PLC	AGN	74,881.24	1.31%	16.00%	17.42%	0.34%	10.00%	11.38%	0.38%
AMERICAN INTERNATIONAL GROUP	AIG	55,414.90	2.10%	11.00%	13.22%	0.25%	27.00%	29.39%	0.28%
APARTMENT INVT & MGMT CO -A	AIV	7,089.58	3.20%	19.14%	22.65%	0.03%	N/A	N/A	N/A
ASSURANT INC	AIZ	5,389.22	2.17%	20.39%	22.78%	0.02%	4.00%	6.21%	0.03%
ARTHUR J GALLAGHER & CO	AJG	10,438.70	2.69%	9.95%	12.78%	0.05%	15.50%	18.40%	0.05%
AKAMAI TECHNOLOGIES INC	AKAM	7,775.75	0.00%	13.72%	13.72%	0.04%	12.50%	12.50%	0.04%
ALBEMARLE CORP	ALB	12,438.13	1.14%	12.20%	13.41%	0.06%	9.50%	10.70%	0.06%
ALIGN TECHNOLOGY INC	ALGN	13,514.19	0.00%	29.87%	29.87%	0.06%	21.50%	21.50%	0.07%
ALASKA AIR GROUP INC	ALK	9,690.57	1.54%	9.95%	11.56%	0.04%	10.00%	11.61%	0.05%
ALLSTATE CORP	ALL	33,577.53	1.57%	9.00%	10.65%	0.15%	7.50%	9.13%	0.17%
ALLEGION PLC	ALLE	7,424.97	0.76%	12.58%	13.39%	0.03%	10.00%	10.80%	0.04%
ALEXION PHARMACEUTICALS INC	ALXN	29,772.91	0.00%	20.04%	20.04%	0.14%	23.50%	23.50%	0.15%
APPLIED MATERIALS INC	AMAT	47,606.18	0.93%	19.68%	20.70%	0.22%	18.00%	19.02%	0.24%
ADVANCED MICRO DEVICES	AMD	11,711.66	0.00%	5.00%	5.00%	0.05%	N/A	N/A	N/A
AMETEK INC	AME	14,526.26	0.60%	11.62%	12.26%	0.07%	5.50%	6.12%	0.07%
AFFILIATED MANAGERS GROUP	AMG	9,672.19	0.46%	15.79%	16.29%	0.04%	7.00%	7.48%	0.05%
AMGEN INC	AMGN	122,067.29	2.75%	4.67%	7.48%	0.56%	7.50%	10.36%	0.62%
AMERIPRISE FINANCIAL INC	AMP	20,812.12	2.34%	N/A	N/A	N/A	11.50%	13.98%	0.10%
AMERICAN TOWER CORP	AMT	60,084.84	1.87%	20.68%	22.74%	0.27%	11.00%	12.97%	0.30%
AMAZON.COM INC	AMZN	460,429.36	0.00%	27.62%	27.62%	2.10%	56.00%	56.00%	2.32%
ANDEAVOR	ANDV	14,565.17	2.46%	16.76%	19.42%	0.07%	6.50%	9.04%	0.07%
ANSYS INC	ANSS	10,646.79	0.00%	11.80%	11.80%	0.05%	7.00%	7.00%	0.05%
ANTHEM INC	ANTM	50,158.93	1.41%	9.78%	11.25%	0.23%	10.00%	11.48%	0.25%
AON PLC	AON	34,722.13	1.03%	10.86%	11.95%	0.16%	9.50%	10.58%	0.18%
SMITH (A.O.) CORP	AOS	9,305.02	1.04%	15.00%	16.12%	0.04%	11.50%	12.60%	0.05%
APACHE CORP	APA	15,355.45	2.48%	-20.62%	-18.39%	0.07%	23.00%	25.77%	0.08%
ANADARKO PETROLEUM CORP	APC	23,630.30	0.47%	-10.30%	-9.85%	0.11%	N/A	N/A	N/A
AIR PRODUCTS & CHEMICALS INC	APD	31,769.47	2.53%	8.89%	11.54%	0.14%	9.00%	11.65%	0.16%
AMPHENOL CORP-CL A	APH	23,952.99	0.84%	10.00%	10.88%	0.11%	8.50%	9.37%	0.12%
ALEXANDRIA REAL ESTATE EQUIT	ARE	11,236.07	2.83%	6.90%	9.82%	0.05%	N/A	N/A	N/A
ARCONIC INC	ARNC	10,712.64	1.21%	16.90%	18.21%	0.05%	N/A	N/A	N/A
ACTIVISION BLIZZARD INC	ATVI	46,812.66	0.48%	13.17%	13.69%	0.21%	9.00%	9.51%	0.24%
AVALONBAY COMMUNITIES INC	AVB	26,096.34	3.00%	6.91%	10.02%	0.12%	N/A	N/A	N/A
BROADCOM LTD	AVGO	101,392.00	1.63%	15.42%	17.18%	0.46%	44.00%	45.99%	0.51%
AVERY DENNISON CORP	AVY	8,223.63	1.83%	7.65%	9.55%	0.04%	9.00%	10.91%	0.04%

		[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
					Bloomberg			Value Line	
AMERICAN WATER WORKS CO INC	AWK	14,519.31	1.99%	7.00%	9.06%	0.07%	8.50%	10.58%	0.07%
AMERICAN EXPRESS CO	AXP	75,474.18	1.57%	9.00%	10.64%	0.34%	6.00%	7.62%	0.38%
ACUITY BRANDS INC	AYI	7,506.50	0.29%	17.67%	17.99%	0.03%	16.50%	16.82%	0.04%
AUTOZONE INC	AZO	14,300.98	0.00%	11.69%	11.69%	0.07%	11.50%	11.50%	0.07%
BOEING CO/THE	BA	139,359.73	2.41%	16.35%	18.96%	0.64%	9.50%	12.03%	0.70%
BANK OF AMERICA CORP	BAC	232,670.71	1.66%	17.07%	18.86%	1.06%	16.00%	17.79%	1.17%
BAXTER INTERNATIONAL INC	BAX	33,166.29	0.97%	13.56%	14.60%	0.15%	4.00%	4.99%	0.17%
BB&T CORP	BBT	37,269.23	2.73%	9.75%	12.61%	0.17%	5.50%	8.31%	0.19%
BEST BUY CO INC	BBY	18,136.11	2.28%	13.28%	15.71%	0.08%	8.00%	10.37%	0.09%
CR BARD INC	BCR	23,124.08	0.33%	8.73%	9.08%	0.11%	9.50%	9.85%	0.12%
BECTON DICKINSON AND CO	BDX	44,987.32	1.47%	10.05%	11.60%	0.21%	9.00%	10.54%	0.23%
FRANKLIN RESOURCES INC	BEN	23,328.65	1.91%	10.00%	12.00%	0.11%	5.00%	6.96%	0.12%
BROWN-FORMAN CORP-CLASS B	BF/B	19,988.12	1.50%	8.47%	10.03%	0.09%	9.00%	10.57%	0.10%
BRIGHTHOUSE FINANCIAL INC	BHF	6,880.96	0.00%	14.05%	14.05%	0.03%	N/A	N/A	N/A
BAKER HUGHES A GE CO	BHGE	37,526.30	1.70%	N/A	N/A	N/A	N/A	N/A	N/A
BIOGEN INC	BIIB	59,575.12	0.00%	6.11%	6.11%	0.27%	7.00%	7.00%	0.30%
BANK OF NEW YORK MELLON CORP	BK	53,827.44	1.65%	12.08%	13.83%	0.25%	8.50%	10.22%	0.27%
BLACKROCK INC	BLK	67,716.47	2.41%	13.60%	16.18%	0.31%	8.50%	11.01%	0.34%
BALL CORP	BLL	14,113.64	0.76%	7.23%	8.01%	0.06%	15.00%	15.82%	0.07%
BRISTOL-MYERS SQUIBB CO	BMY	92,524.65	2.78%	8.00%	10.89%	0.42%	14.50%	17.48%	0.47%
BERKSHIRE HATHAWAY INC-CL B	BRK/B	438,811.07	0.00%	2.00%	2.00%	2.00%	N/A	N/A	N/A
BOSTON SCIENTIFIC CORP	BSX	36,896.50	0.00%	10.69%	10.69%	0.17%	18.50%	18.50%	0.19%
BORGWARNER INC	BWA	9,358.51	1.27%	5.48%	6.79%	0.04%	7.00%	8.32%	0.05%
BOSTON PROPERTIES INC	BXP	18,491.89	2.53%	5.25%	7.84%	0.08%	N/A	N/A	N/A
CITIGROUP INC	C	181,400.94	1.45%	10.18%	11.70%	0.83%	11.00%	12.53%	0.91%
CA INC	CA	13,636.51	3.15%	2.97%	6.16%	0.06%	7.00%	10.26%	0.07%
CONAGRA BRANDS INC	CAG	14,323.48	2.46%	8.65%	11.22%	0.07%	1.00%	3.47%	0.07%
CARDINAL HEALTH INC	CAH	20,373.29	2.80%	9.19%	12.12%	0.09%	13.00%	15.98%	0.10%
CATERPILLAR INC	CAT	67,323.62	2.73%	8.05%	10.89%	0.31%	10.00%	12.87%	0.34%
CHUBB LTD	CB	67,690.11	1.95%	10.00%	12.05%	0.31%	8.00%	10.03%	0.34%
CBRE GROUP INC - A	CBG	11,908.84	0.00%	9.35%	9.35%	0.05%	7.00%	7.00%	0.06%
CBOE HOLDINGS INC	CBOE	10,860.46	1.08%	21.49%	22.68%	0.05%	12.50%	13.65%	0.05%
CBS CORP-CLASS B NON VOTING	CBS	26,050.84	1.13%	13.37%	14.57%	0.12%	12.00%	13.20%	0.13%
CROWN CASTLE INTL CORP	CCI	42,300.54	3.70%	21.60%	25.70%	0.19%	8.50%	12.36%	0.21%
CARNIVAL CORP	CCL	48,975.45	2.29%	13.11%	15.56%	0.22%	12.50%	14.94%	0.25%
CELGENE CORP	CELG	99,867.06	0.00%	19.46%	19.46%	0.46%	25.00%	25.00%	0.50%
CERNER CORP	CERN	21,304.18	0.00%	12.70%	12.70%	0.10%	9.50%	9.50%	0.11%
CF INDUSTRIES HOLDINGS INC	CF	6,771.17	4.13%	6.00%	10.26%	0.03%	10.00%	14.34%	0.03%
CITIZENS FINANCIAL GROUP	CFG	16,552.19	1.92%	21.44%	23.57%	0.08%	10.50%	12.52%	0.08%
CHURCH & DWIGHT CO INC	CHD	12,487.93	1.52%	9.14%	10.73%	0.06%	7.00%	8.57%	0.06%
CHESAPEAKE ENERGY CORP	CHK	3,597.02	0.00%	-13.13%	-13.13%	0.02%	N/A	N/A	N/A
C.H. ROBINSON WORLDWIDE INC	CHRW	9,374.98	3.24%	9.20%	12.58%	0.04%	6.50%	9.84%	0.05%
CHARTER COMMUNICATIONS INC-A	CHTR	119,038.24	0.00%	23.96%	23.96%	0.54%	26.00%	26.00%	0.60%
CIGNA CORP	CI	44,572.28	0.02%	12.91%	12.93%	0.20%	11.50%	11.52%	0.22%
CINCINNATI FINANCIAL CORP	CINF	12,682.40	2.59%	N/A	N/A	N/A	6.50%	9.17%	0.06%
COLGATE-PALMOLIVE CO	CL	62,557.40	2.29%	8.99%	11.38%	0.29%	11.50%	13.92%	0.32%
CLOROX COMPANY	CLX	17,776.61	2.46%	6.88%	9.43%	0.08%	7.50%	10.05%	0.09%
COMERICA INC	CMA	12,202.94	1.57%	14.10%	15.78%	0.06%	13.50%	15.17%	0.06%
COMCAST CORP-CLASS A	CMCSA	190,985.85	1.55%	11.57%	13.21%	0.87%	11.00%	12.64%	0.96%
CME GROUP INC	CME	42,621.59	4.72%	10.47%	15.44%	0.19%	8.50%	13.42%	0.21%
CHIPOTLE MEXICAN GRILL INC	CMG	8,874.03	0.00%	50.88%	50.88%	0.04%	15.50%	15.50%	0.04%
CUMMINS INC	CMI	25,275.51	2.75%	10.23%	13.12%	0.12%	7.50%	10.35%	0.13%
CMS ENERGY CORP	CMS	13,595.83	2.75%	7.50%	10.36%	0.06%	6.50%	9.34%	0.07%
CENTENE CORP	CNC	14,399.99	0.00%	12.48%	12.48%	0.07%	17.00%	17.00%	0.07%
CENTERPOINT ENERGY INC	CNP	12,504.02	3.71%	6.00%	9.82%	0.06%	6.00%	9.82%	0.06%
CAPITAL ONE FINANCIAL CORP	COF	39,435.46	1.96%	6.99%	9.02%	0.18%	4.00%	6.00%	0.20%
CABOT OIL & GAS CORP	COG	11,280.20	0.70%	31.95%	32.75%	0.05%	N/A	N/A	N/A
COACH INC	COH	11,410.77	3.38%	12.23%	15.81%	0.05%	9.50%	13.04%	0.06%
ROCKWELL COLLINS INC	COL	20,231.49	1.08%	10.86%	12.00%	0.09%	8.00%	9.12%	0.10%
COOPER COS INC/THE	COO	11,972.35	0.02%	11.20%	11.23%	0.05%	16.50%	16.53%	0.06%
CONOCOPHILLIPS	COP	52,462.68	2.47%	7.00%	9.55%	0.24%	60.50%	63.71%	0.26%
COSTCO WHOLESALE CORP	COST	68,894.24	2.98%	10.18%	13.32%	0.31%	9.00%	12.12%	0.35%
COTY INC-CL A	COTY	14,377.09	2.94%	2.01%	4.98%	0.07%	8.00%	11.06%	0.07%
CAMPBELL SOUP CO	CPB	16,271.58	2.57%	5.37%	8.01%	0.07%	5.00%	7.64%	0.08%
SALESFORCE.COM INC	CRM	64,639.27	0.00%	26.88%	26.88%	0.30%	N/A	N/A	N/A
CISCO SYSTEMS INC	CSCO	151,851.65	3.91%	7.54%	11.60%	0.69%	7.00%	11.04%	0.77%
CSRA INC	CSRA	5,165.81	1.27%	7.55%	8.86%	0.02%	N/A	N/A	N/A
CSX CORP	CSX	44,551.41	1.60%	11.33%	13.02%	0.20%	9.00%	10.67%	0.22%
CINTAS CORP	CTAS	13,981.85	1.09%	11.58%	12.73%	0.06%	9.50%	10.64%	0.07%

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					Bloomberg			Value Line	
CENTURYLINK INC	CTL	10,530.51	11.27%	-2.62%	8.51%	0.05%	8.50%	20.25%	0.05%
COGNIZANT TECH SOLUTIONS-A	CTSH	41,384.93	0.71%	14.35%	15.11%	0.19%	12.00%	12.76%	0.21%
CITRIX SYSTEMS INC	CTXS	11,319.41	0.00%	13.10%	13.10%	0.05%	5.50%	5.50%	0.06%
CVS HEALTH CORP	CVS	78,946.42	2.61%	12.00%	14.77%	0.36%	9.00%	11.73%	0.40%
CHEVRON CORP	CVX	201,779.89	4.07%	42.57%	47.51%	0.92%	15.50%	19.89%	1.02%
CONCHO RESOURCES INC	CXO	16,138.24	0.00%	7.90%	7.90%	0.07%	27.00%	27.00%	0.08%
DOMINION ENERGY INC	D	50,565.09	3.84%	5.45%	9.39%	0.23%	5.50%	9.44%	0.26%
DELTA AIR LINES INC	DAL	34,413.16	2.04%	6.93%	9.04%	0.16%	11.50%	13.66%	0.17%
DU PONT (E.I.) DE NEMOURS	DD	70,448.49	1.88%	7.50%	9.45%	0.32%	8.00%	9.96%	0.36%
DEERE & CO	DE	37,523.02	2.05%	8.73%	10.88%	0.17%	6.00%	8.12%	0.19%
DISCOVER FINANCIAL SERVICES	DFS	22,128.88	2.16%	6.19%	8.41%	0.10%	5.00%	7.21%	0.11%
DOLLAR GENERAL CORP	DG	20,243.30	1.41%	9.08%	10.55%	0.09%	9.50%	10.97%	0.10%
QUEST DIAGNOSTICS INC	DGX	14,304.85	1.69%	7.84%	9.59%	0.07%	9.50%	11.27%	0.07%
DR HORTON INC	DHI	13,358.16	1.12%	12.66%	13.85%	0.06%	11.50%	12.69%	0.07%
DANAHER CORP	DHR	56,179.57	0.68%	8.78%	9.49%	0.26%	9.00%	9.71%	0.28%
WALT DISNEY CO/THE	DIS	155,428.53	1.61%	7.89%	9.57%	0.71%	8.00%	9.68%	0.78%
DISCOVERY COMMUNICATIONS-A	DISCA	12,630.97	0.00%	6.35%	6.35%	0.06%	13.50%	13.50%	0.06%
DISH NETWORK CORP-A	DISH	26,493.83	0.00%	-7.33%	-7.33%	0.12%	6.00%	6.00%	0.13%
DELPHI AUTOMOTIVE PLC	DLPH	24,621.71	1.28%	10.84%	12.19%	0.11%	14.00%	15.37%	0.12%
DIGITAL REALTY TRUST INC	DLR	18,905.79	3.25%	5.58%	8.92%	0.09%	N/A	N/A	N/A
DOLLAR TREE INC	DLTR	17,574.12	0.00%	17.10%	17.10%	0.08%	16.50%	16.50%	0.09%
DOVER CORP	DOV	13,059.88	2.15%	15.47%	17.78%	0.06%	4.50%	6.70%	0.07%
DOW CHEMICAL CO/THE	DOW	77,566.41	3.09%	5.70%	8.88%	0.35%	8.00%	11.22%	0.39%
DR PEPPER SNAPPLE GROUP INC	DPS	16,551.49	2.55%	8.58%	11.24%	0.08%	7.00%	9.64%	0.08%
DUKE REALTY CORP	DRE	10,266.43	5.28%	4.52%	9.92%	0.05%	33.50%	39.67%	0.05%
DARDEN RESTAURANTS INC	DRI	10,528.26	3.01%	10.05%	13.21%	0.05%	14.50%	17.73%	0.05%
DTE ENERGY COMPANY	DTE	19,845.73	3.00%	5.35%	8.43%	0.09%	6.00%	9.09%	0.10%
DUKE ENERGY CORP	DUK	60,455.91	4.07%	3.50%	7.64%	0.28%	4.50%	8.66%	0.30%
DAVITA INC	DVA	10,751.18	0.00%	7.38%	7.38%	0.05%	10.50%	10.50%	0.05%
DEVON ENERGY CORP	DVN	15,978.24	0.79%	18.42%	19.28%	0.07%	15.00%	15.85%	0.08%
DXC TECHNOLOGY CO	DXC	23,726.02	0.88%	15.25%	16.20%	0.11%	18.00%	18.96%	0.12%
ELECTRONIC ARTS INC	EA	36,084.10	0.00%	13.75%	13.75%	0.16%	12.00%	12.00%	0.18%
EBAY INC	EBAY	37,225.57	0.00%	8.05%	8.05%	0.17%	9.50%	9.50%	0.19%
ECOLAB INC	ECL	37,651.40	1.15%	12.86%	14.08%	0.17%	8.50%	9.70%	0.19%
CONSOLIDATED EDISON INC	ED	25,879.35	3.30%	4.50%	7.88%	0.12%	2.50%	5.84%	0.13%
EQUIFAX INC	EFX	16,838.91	1.12%	11.17%	12.35%	0.08%	10.00%	11.18%	0.08%
EDISON INTERNATIONAL	EIX	25,719.54	2.77%	6.23%	9.08%	0.12%	4.00%	6.83%	0.13%
ESTEE LAUDER COMPANIES-CL A	EL	38,960.80	1.39%	10.54%	12.00%	0.18%	8.50%	9.95%	0.20%
EASTMAN CHEMICAL CO	EMN	12,010.48	2.48%	7.43%	10.00%	0.05%	10.00%	12.60%	0.06%
EMERSON ELECTRIC CO	EMR	37,121.14	3.32%	7.45%	10.89%	0.17%	5.00%	8.40%	0.19%
EOG RESOURCES INC	EOG	48,557.61	0.80%	-16.18%	-15.44%	0.22%	30.00%	30.92%	0.24%
EQUINIX INC	EQIX	35,075.30	1.78%	32.64%	34.71%	0.16%	23.00%	24.99%	0.18%
EQUITY RESIDENTIAL	EQR	24,672.43	3.00%	9.54%	12.69%	0.11%	N/A	N/A	N/A
EQT CORP	EQT	10,442.95	0.20%	20.00%	20.22%	0.05%	20.50%	20.72%	0.05%
EVERSOURCE ENERGY	ES	19,982.82	3.02%	6.00%	9.11%	0.09%	6.50%	9.62%	0.10%
EXPRESS SCRIPTS HOLDING CO	ESRX	34,976.37	0.00%	11.15%	11.15%	0.16%	12.50%	12.50%	0.18%
ESSEX PROPERTY TRUST INC	ESS	17,207.48	2.68%	7.37%	10.14%	0.08%	N/A	N/A	N/A
E*TRADE FINANCIAL CORP	ETFC	10,911.48	0.00%	15.37%	15.37%	0.05%	14.00%	14.00%	0.06%
EATON CORP PLC	ETN	31,669.76	3.36%	11.28%	14.83%	0.14%	7.00%	10.48%	0.16%
ENTERGY CORP	ETR	13,973.84	4.53%	-3.83%	0.62%	0.06%	-3.50%	0.95%	0.07%
ENVISION HEALTHCARE CORP	EVHC	6,066.70	0.00%	8.03%	8.03%	0.03%	N/A	N/A	N/A
EDWARDS LIFESCIENCES CORP	EW	23,884.08	0.00%	16.60%	16.60%	0.11%	17.00%	17.00%	0.12%
EXELON CORP	EXC	35,169.74	3.45%	2.00%	5.49%	0.16%	7.00%	10.57%	0.18%
EXPEDITORS INTL WASH INC	EXPD	9,917.10	1.53%	8.40%	10.00%	0.05%	8.00%	9.59%	0.05%
EXPEDIA INC	EXPE	21,791.69	0.79%	17.98%	18.84%	0.10%	23.00%	23.88%	0.11%
EXTRA SPACE STORAGE INC	EXR	9,417.25	4.25%	6.20%	10.58%	0.04%	N/A	N/A	N/A
FORD MOTOR CO	F	41,941.73	5.86%	-2.07%	3.73%	0.19%	2.50%	8.44%	0.21%
FASTENAL CO	FAST	11,714.95	3.13%	15.40%	18.77%	0.05%	4.00%	7.19%	0.06%
FACEBOOK INC-A	FB	486,151.98	0.00%	26.79%	26.79%	2.22%	31.50%	31.50%	2.45%
FORTUNE BRANDS HOME & SECURI	FBHS	9,625.68	1.14%	12.12%	13.33%	0.04%	12.00%	13.21%	0.05%
FREEPORT-MCMORAN INC	FCX	20,479.40	0.00%	24.46%	24.46%	0.09%	N/A	N/A	N/A
FEDEX CORP	FDX	55,261.41	0.98%	14.00%	15.05%	0.25%	12.50%	13.54%	0.28%
FIRSTENERGY CORP	FE	14,586.52	4.39%	-5.00%	-0.72%	0.07%	9.00%	13.58%	0.07%
F5 NETWORKS INC	FFIV	7,401.91	0.00%	12.48%	12.48%	0.03%	10.00%	10.00%	0.04%
FIDELITY NATIONAL INFO SERV	FIS	29,860.65	1.30%	9.18%	10.53%	0.14%	10.00%	11.37%	0.15%
FISERV INC	FISV	25,331.63	0.00%	10.80%	10.80%	0.12%	9.00%	9.00%	0.13%
FIFTH THIRD BANCORP	FITB	19,397.99	2.27%	4.20%	6.52%	0.09%	5.00%	7.33%	0.10%
FOOT LOCKER INC	FL	4,514.21	3.56%	3.40%	7.02%	0.02%	9.00%	12.72%	0.02%
FLIR SYSTEMS INC	FLIR	5,190.11	1.48%	N/A	N/A	N/A	7.50%	9.04%	0.03%

		[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
					Bloomberg			Value Line	
FLUOR CORP	FLR	5,269.98	2.26%	12.72%	15.13%	0.02%	4.50%	6.81%	0.03%
FLOWSERVE CORP	FLS	4,979.90	2.00%	12.68%	14.81%	0.02%	2.50%	4.53%	0.03%
FMC CORP	FMC	11,083.03	0.82%	14.13%	15.01%	0.05%	7.50%	8.35%	0.06%
TWENTY-FIRST CENTURY FOX-A	FOXA	50,084.53	1.50%	9.23%	10.80%	0.23%	9.50%	11.08%	0.25%
FEDERAL REALTY INVS TRUST	FRT	9,173.52	3.16%	6.20%	9.47%	0.04%	N/A	N/A	N/A
TECHNIPFMC PLC	FTI	12,030.96	0.94%	10.23%	11.22%	0.05%	N/A	N/A	N/A
FORTIVE CORP	FTV	22,572.01	0.34%	9.37%	9.73%	0.10%	N/A	N/A	N/A
GENERAL DYNAMICS CORP	GD	59,512.04	1.67%	9.54%	11.28%	0.27%	5.50%	7.21%	0.30%
GENERAL ELECTRIC CO	GE	212,552.57	3.91%	11.00%	15.13%	0.97%	14.00%	18.19%	1.07%
GGP INC	GGP	18,081.07	4.58%	4.65%	9.34%	0.08%	N/A	N/A	N/A
GILEAD SCIENCES INC	GILD	94,170.34	2.98%	-7.44%	-4.57%	0.43%	-3.50%	-0.57%	0.47%
GENERAL MILLS INC	GIS	32,759.20	3.53%	7.57%	11.23%	0.15%	5.00%	8.62%	0.17%
CORNING INC	GLW	25,180.76	2.24%	9.05%	11.39%	0.11%	10.50%	12.86%	0.13%
GENERAL MOTORS CO	GM	50,754.56	4.40%	9.04%	13.64%	0.23%	5.50%	10.02%	0.26%
ALPHABET INC-CL A	GOOGL	635,972.51	0.00%	16.64%	16.64%	2.90%	N/A	N/A	N/A
GENUINE PARTS CO	GPC	11,981.41	3.31%	7.81%	11.25%	0.05%	7.00%	10.42%	0.06%
GLOBAL PAYMENTS INC	GPN	14,297.35	0.05%	14.50%	14.55%	0.07%	12.00%	12.05%	0.07%
GAP INC/THE	GPS	8,963.94	4.05%	6.14%	10.32%	0.04%	0.50%	4.56%	0.05%
GARMIN LTD	GRMN	10,135.62	4.04%	5.68%	9.83%	0.05%	5.00%	9.14%	0.05%
GOLDMAN SACHS GROUP INC	GS	89,425.22	1.37%	11.19%	12.64%	0.41%	9.50%	10.94%	0.45%
GOODYEAR TIRE & RUBBER CO	GT	7,489.97	1.34%	N/A	N/A	N/A	10.00%	11.41%	0.04%
WW GRAINGER INC	GWW	9,310.70	3.15%	9.55%	12.85%	0.04%	5.00%	8.22%	0.05%
HALLIBURTON CO	HAL	33,983.51	1.84%	N/A	N/A	N/A	21.50%	23.54%	0.17%
HASBRO INC	HAS	11,946.49	2.39%	9.70%	12.20%	0.05%	10.50%	13.01%	0.06%
HUNTINGTON BANCSHARES INC	HBAN	13,799.61	2.76%	10.71%	13.61%	0.06%	10.00%	12.89%	0.07%
HANESBRANDS INC	HBI	8,576.19	2.50%	9.76%	12.38%	0.04%	9.00%	11.61%	0.04%
HCA HEALTHCARE INC	HCA	28,007.69	0.00%	11.30%	11.30%	0.13%	9.50%	9.50%	0.14%
WELLTOWER INC	HCN	26,061.28	4.94%	4.37%	9.41%	0.12%	N/A	N/A	N/A
HCP INC	HCP	13,529.59	5.14%	3.37%	8.59%	0.06%	N/A	N/A	N/A
HOME DEPOT INC	HD	176,332.40	2.41%	13.07%	15.64%	0.80%	10.50%	13.04%	0.89%
HESS CORP	HES	12,221.09	2.64%	-14.74%	-12.29%	0.06%	N/A	N/A	N/A
HARTFORD FINANCIAL SVCS GRP	HIG	20,240.51	1.72%	9.50%	11.30%	0.09%	12.50%	14.32%	0.10%
HILTON WORLDWIDE HOLDINGS IN	HLT	19,796.42	0.98%	15.76%	16.82%	0.09%	7.00%	8.02%	0.10%
HARLEY-DAVIDSON INC	HOG	7,997.47	3.14%	8.90%	12.18%	0.04%	8.00%	11.26%	0.04%
HOLOGIC INC	HOLX	10,495.32	0.00%	9.08%	9.08%	0.05%	27.00%	27.00%	0.05%
HONEYWELL INTERNATIONAL INC	HON	102,638.81	2.00%	9.95%	12.05%	0.47%	8.50%	10.59%	0.52%
HELMERICH & PAYNE	HP	4,745.01	6.41%	N/A	N/A	N/A	8.00%	14.66%	0.02%
HEWLETT PACKARD ENTERPRIS	HPE	28,220.39	1.47%	-1.80%	-0.34%	0.13%	4.00%	5.50%	0.14%
HP INC	HPQ	31,158.53	2.87%	3.30%	6.22%	0.14%	N/A	N/A	N/A
H&R BLOCK INC	HRB	6,225.69	3.18%	11.00%	14.35%	0.03%	8.00%	11.31%	0.03%
HORMEL FOODS CORP	HRL	18,018.28	1.99%	6.40%	8.46%	0.08%	10.50%	12.60%	0.09%
HARRIS CORP	HRS	14,472.19	1.90%	N/A	N/A	N/A	7.00%	8.96%	0.07%
HENRY SCHEIN INC	HSIC	13,399.20	0.00%	10.54%	10.54%	0.06%	8.50%	8.50%	0.07%
HOST HOTELS & RESORTS INC	HST	12,899.10	4.66%	2.97%	7.70%	0.06%	N/A	N/A	N/A
HERSHEY CO/THE	HSY	22,804.04	2.38%	9.53%	12.02%	0.10%	7.00%	9.46%	0.12%
HUMANA INC	HUM	35,736.21	0.65%	16.59%	17.29%	0.16%	9.50%	10.18%	0.18%
INTL BUSINESS MACHINES CORP	IBM	130,192.06	4.20%	3.54%	7.81%	0.59%	N/A	N/A	N/A
INTERCONTINENTAL EXCHANGE IN	ICE	38,010.73	1.28%	10.92%	12.26%	0.17%	12.00%	13.35%	0.19%
IDEXX LABORATORIES INC	IDXX	13,129.77	0.00%	10.81%	10.81%	0.06%	15.00%	15.00%	0.07%
INTL FLAVORS & FRAGRANCES	IFF	10,648.30	1.93%	7.75%	9.76%	0.05%	7.50%	9.50%	0.05%
ILLUMINA INC	ILMN	27,640.72	0.00%	15.11%	15.11%	0.13%	17.00%	17.00%	0.14%
INCYTE CORP	INCY	24,929.36	0.00%	43.93%	43.93%	0.11%	62.00%	62.00%	0.13%
IHS MARKIT LTD	INFO	18,263.27	0.00%	14.21%	14.21%	0.08%	19.00%	19.00%	0.09%
INTEL CORP	INTC	164,511.99	3.09%	8.20%	11.42%	0.75%	7.50%	10.71%	0.83%
INTUIT INC	INTU	34,361.25	1.01%	15.72%	16.82%	0.16%	13.00%	14.08%	0.17%
INTERNATIONAL PAPER CO	IP	22,417.16	3.40%	6.73%	10.24%	0.10%	18.50%	22.22%	0.11%
INTERPUBLIC GROUP OF COS INC	IPG	8,065.94	3.51%	8.64%	12.30%	0.04%	10.00%	13.68%	0.04%
INGERSOLL-RAND PLC	IR	21,607.43	1.93%	10.53%	12.56%	0.10%	9.50%	11.52%	0.11%
IRON MOUNTAIN INC	IRM	9,753.37	5.67%	14.60%	20.68%	0.04%	11.00%	16.98%	0.05%
INTUITIVE SURGICAL INC	ISRG	36,645.84	0.00%	10.05%	10.05%	0.17%	14.00%	14.00%	0.18%
GARTNER INC	IT	10,827.29	0.00%	17.50%	17.50%	0.05%	15.50%	15.50%	0.05%
ILLINOIS TOOL WORKS	ITW	46,690.75	2.00%	9.20%	11.30%	0.21%	9.50%	11.60%	0.24%
INVESCO LTD	IVZ	13,370.46	3.52%	12.29%	16.03%	0.06%	5.50%	9.12%	0.07%
HUNT (JB) TRANSPRT SVCS INC	JBHT	10,574.75	0.95%	13.35%	14.36%	0.05%	9.50%	10.49%	0.05%
JOHNSON CONTROLS INTERNATION	JCI	34,545.37	2.72%	12.50%	15.39%	0.16%	0.50%	3.22%	0.17%
JACOBS ENGINEERING GROUP INC	JEC	5,997.71	0.90%	8.73%	9.67%	0.03%	8.00%	8.94%	0.03%
JOHNSON & JOHNSON	JNJ	355,978.88	2.52%	6.03%	8.63%	1.62%	9.50%	12.14%	1.80%
JUNIPER NETWORKS INC	JNPR	10,329.18	1.54%	9.46%	11.08%	0.05%	8.00%	9.60%	0.05%
JPMORGAN CHASE & CO	JPM	319,310.83	2.33%	10.20%	12.65%	1.46%	5.50%	7.89%	1.61%

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					Bloomberg			Value Line	
NORDSTROM INC	JWN	7,361.09	3.39%	7.56%	11.08%	0.03%	2.00%	5.42%	0.04%
KELLOGG CO	K	24,142.17	3.04%	6.23%	9.36%	0.11%	6.50%	9.64%	0.12%
KEYCORP	KEY	19,129.92	2.17%	10.90%	13.18%	0.09%	11.50%	13.79%	0.10%
KRAFT HEINZ CO/THE	KHC	102,930.04	2.91%	8.39%	11.42%	0.47%	N/A	N/A	N/A
KIMCO REALTY CORP	KIM	8,231.81	5.65%	20.25%	26.46%	0.04%	N/A	N/A	N/A
KLA-TENCOR CORP	KLAC	14,156.42	2.48%	2.30%	4.81%	0.06%	12.50%	15.13%	0.07%
KIMBERLY-CLARK CORP	KMB	42,887.43	3.17%	6.22%	9.49%	0.20%	10.50%	13.84%	0.22%
KINDER MORGAN INC	KMI	41,426.37	2.70%	20.00%	22.96%	0.19%	24.00%	27.02%	0.21%
CARMAX INC	KMX	11,722.34	0.00%	13.89%	13.89%	0.05%	10.00%	10.00%	0.06%
COCA-COLA CO/THE	KO	194,796.44	3.23%	5.14%	8.45%	0.89%	4.50%	7.81%	0.98%
MICHAEL KORS HOLDINGS LTD	KORS	6,361.60	0.00%	4.75%	4.75%	0.03%	2.00%	2.00%	0.03%
KROGER CO	KR	20,513.34	2.24%	7.03%	9.34%	0.09%	6.50%	8.81%	0.10%
KOHLS CORP	KSS	6,355.55	5.97%	3.48%	9.55%	0.03%	7.00%	13.18%	0.03%
KANSAS CITY SOUTHERN	KSU	11,153.56	1.32%	13.00%	14.40%	0.05%	9.50%	10.88%	0.06%
LOEWS CORP	L	16,015.49	0.53%	N/A	N/A	N/A	14.50%	15.06%	0.08%
L BRANDS INC	LB	10,383.72	6.63%	6.39%	13.23%	0.05%	0.50%	7.15%	0.05%
LEGGETT & PLATT INC	LEG	6,140.69	3.04%	14.50%	17.76%	0.03%	7.50%	10.65%	0.03%
LENNAR CORP-A	LEN	11,918.94	0.31%	11.29%	11.62%	0.05%	10.00%	10.32%	0.06%
LABORATORY CRP OF AMER HLDGS	LH	15,668.04	0.00%	10.75%	10.75%	0.07%	8.50%	8.50%	0.08%
LKQ CORP	LKQ	10,516.72	0.00%	12.50%	12.50%	0.05%	11.50%	11.50%	0.05%
L3 TECHNOLOGIES INC	LLL	13,929.07	1.72%	5.93%	7.70%	0.06%	10.00%	11.81%	0.07%
ELI LILLY & CO	LLY	84,853.22	2.70%	9.35%	12.18%	0.39%	11.00%	13.85%	0.43%
LOCKHEED MARTIN CORP	LMT	86,166.87	2.47%	9.42%	12.01%	0.39%	9.50%	12.09%	0.43%
LINCOLN NATIONAL CORP	LNC	15,062.65	1.74%	8.66%	10.47%	0.07%	7.00%	8.80%	0.08%
ALLIANT ENERGY CORP	LNT	9,760.08	2.98%	5.75%	8.81%	0.04%	6.50%	9.57%	0.05%
LOWE'S COS INC	LOW	62,168.84	2.19%	15.67%	18.02%	0.28%	13.50%	15.83%	0.31%
LAM RESEARCH CORP	LRCX	26,072.35	1.11%	12.46%	13.63%	0.12%	15.00%	16.19%	0.13%
LEUCADIA NATIONAL CORP	LUK	8,596.49	1.50%	18.00%	19.64%	0.04%	31.50%	33.24%	0.04%
SOUTHWEST AIRLINES CO	LUV	31,825.72	0.85%	8.20%	9.09%	0.15%	11.00%	11.90%	0.16%
LEVEL 3 COMMUNICATIONS INC	LVLT	19,110.23	0.00%	5.00%	5.00%	0.09%	14.50%	14.50%	0.10%
LYONDELLBASELL INDU-CL A	LYB	34,569.52	4.05%	6.50%	10.68%	0.16%	4.00%	8.13%	0.17%
MACY'S INC	M	5,934.84	7.95%	-2.48%	5.37%	0.03%	2.00%	10.03%	0.03%
MASTERCARD INC - A	MA	139,650.63	0.67%	14.33%	15.06%	0.64%	12.50%	13.22%	0.70%
MID-AMERICA APARTMENT COMM	MAA	12,016.29	3.31%	N/A	N/A	N/A	N/A	N/A	N/A
MACERICH CO/THE	MAC	7,514.76	5.80%	7.76%	13.78%	0.03%	N/A	N/A	N/A
MARRIOTT INTERNATIONAL -CL A	MAR	36,508.34	1.31%	15.32%	16.73%	0.17%	15.00%	16.41%	0.18%
MASCO CORP	MAS	11,596.81	1.15%	14.33%	15.55%	0.05%	13.50%	14.72%	0.06%
MATTEL INC	MAT	5,764.66	4.93%	11.30%	16.51%	0.03%	11.50%	16.72%	0.03%
MCDONALD'S CORP	MCD	127,785.07	2.42%	10.05%	12.60%	0.58%	9.00%	11.53%	0.64%
MICROCHIP TECHNOLOGY INC	MCHP	18,985.99	1.77%	17.06%	18.98%	0.09%	11.50%	13.37%	0.10%
MCKESSON CORP	MCK	30,698.04	0.85%	5.38%	6.26%	0.14%	11.00%	11.90%	0.15%
MOODY'S CORP	MCO	24,923.59	1.17%	8.00%	9.22%	0.11%	7.00%	8.21%	0.13%
MONDELEZ INTERNATIONAL INC-A	MDLZ	64,738.06	1.87%	11.64%	13.62%	0.30%	10.00%	11.96%	0.33%
MEDTRONIC PLC	MDT	113,356.41	2.25%	6.06%	8.38%	0.52%	5.50%	7.81%	0.57%
METLIFE INC	MET	49,976.10	3.41%	28.28%	32.17%	0.23%	7.00%	10.53%	0.25%
MGM RESORTS INTERNATIONAL	MGM	17,664.15	1.43%	17.24%	18.79%	0.08%	41.50%	43.23%	0.09%
MOHAWK INDUSTRIES INC	MHK	18,507.98	0.00%	8.48%	8.48%	0.08%	7.50%	7.50%	0.09%
MCCORMICK & CO-NON VTG SHRS	MKC	12,604.36	1.94%	9.60%	11.64%	0.06%	7.50%	9.51%	0.06%
MARTIN MARIETTA MATERIALS	MLM	12,601.87	0.85%	21.24%	22.18%	0.06%	17.50%	18.43%	0.06%
MARSH & MCLENNAN COS	MMC	39,648.92	1.85%	12.29%	14.26%	0.18%	10.00%	11.94%	0.20%
3M CO	MMM	121,460.02	2.31%	7.87%	10.27%	0.55%	8.00%	10.40%	0.61%
MONSTER BEVERAGE CORP	MNST	30,709.54	0.00%	20.30%	20.30%	0.14%	12.00%	12.00%	0.15%
ALTRIA GROUP INC	MO	122,193.57	4.02%	0.61%	4.64%	0.56%	9.50%	13.71%	0.62%
MONSANTO CO	MON	51,343.68	1.94%	10.20%	12.24%	0.23%	8.00%	10.02%	0.26%
MOSAIC CO/THE	MOS	6,971.85	3.68%	16.25%	20.22%	0.03%	3.00%	6.73%	0.04%
MARATHON PETROLEUM CORP	MPC	25,368.38	3.01%	11.96%	15.14%	0.12%	5.50%	8.59%	0.13%
MERCK & CO. INC.	MRK	167,705.02	3.06%	6.07%	9.22%	0.77%	5.50%	8.64%	0.85%
MARATHON OIL CORP	MRO	9,237.71	1.84%	5.00%	6.89%	0.04%	N/A	N/A	N/A
MORGAN STANLEY	MS	83,362.40	2.02%	16.72%	18.91%	0.38%	10.50%	12.63%	0.42%
MICROSOFT CORP	MSFT	558,335.67	2.32%	9.12%	11.55%	2.55%	8.00%	10.42%	2.82%
MOTOROLA SOLUTIONS INC	MSI	14,211.04	2.16%	4.10%	6.30%	0.06%	10.50%	12.77%	0.07%
M & T BANK CORP	MTB	23,310.91	1.97%	10.19%	12.26%	0.11%	8.00%	10.05%	0.12%
METTLER-TOLEDO INTERNATIONAL	MTD	14,749.89	0.00%	12.08%	12.08%	0.07%	11.00%	11.00%	0.07%
MICRON TECHNOLOGY INC	MU	33,845.32	0.00%	10.00%	10.00%	0.15%	22.50%	22.50%	0.17%
MYLAN NV	MYL	16,474.54	0.00%	3.20%	3.20%	0.08%	10.00%	10.00%	0.08%
NAVIENT CORP	NAVI	3,727.82	4.78%	8.00%	12.97%	0.02%	6.00%	10.92%	0.02%
NOBLE ENERGY INC	NBL	11,506.79	1.69%	3.72%	5.44%	0.05%	N/A	N/A	N/A
NASDAQ INC	NDAQ	12,494.71	1.97%	9.08%	11.13%	0.06%	10.00%	12.06%	0.06%
NEXTERA ENERGY INC	NEE	70,352.30	2.62%	6.88%	9.59%	0.32%	7.00%	9.71%	0.35%

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					Bloomberg			Value Line	
NEWMONT MINING CORP	NEM	19,107.12	0.69%	-11.65%	-11.00%	0.09%	0.50%	1.19%	0.10%
NETFLIX INC	NFLX	71,903.60	0.00%	40.60%	40.60%	0.33%	44.50%	44.50%	0.36%
NEWFIELD EXPLORATION CO	NFX	5,044.77	0.00%	12.19%	12.19%	0.02%	18.00%	18.00%	0.03%
NISOURCE INC	NI	8,730.07	2.62%	6.98%	9.69%	0.04%	5.50%	8.19%	0.04%
NIKE INC -CL B	NKE	90,194.59	1.42%	11.00%	12.49%	0.41%	15.50%	17.03%	0.45%
NIELSEN HOLDINGS PLC	NLSN	14,141.86	3.37%	10.00%	13.53%	0.06%	N/A	N/A	N/A
NORTHROP GRUMMAN CORP	NOC	46,589.38	1.46%	8.81%	10.34%	0.21%	8.00%	9.52%	0.23%
NATIONAL OILWELL VARCO INC	NOV	11,545.57	0.66%	N/A	N/A	N/A	3.00%	3.67%	0.06%
NRG ENERGY INC	NRG	8,155.19	0.47%	-9.00%	-8.56%	0.04%	N/A	N/A	N/A
NORFOLK SOUTHERN CORP	NSC	34,187.01	2.06%	12.68%	14.87%	0.16%	8.00%	10.14%	0.17%
NETAPP INC	NTAP	10,641.77	2.03%	8.60%	10.72%	0.05%	9.50%	11.63%	0.05%
NORTHERN TRUST CORP	NTRS	20,090.77	1.82%	12.14%	14.07%	0.09%	7.50%	9.39%	0.10%
NUCOR CORP	NUE	17,284.14	2.79%	12.00%	14.96%	0.08%	20.50%	23.58%	0.09%
NVIDIA CORP	NVDA	96,092.50	0.35%	12.52%	12.90%	0.44%	19.00%	19.39%	0.48%
NEWELL BRANDS INC	NWL	24,338.37	1.83%	12.05%	14.00%	0.11%	23.50%	25.55%	0.12%
NEWS CORP - CLASS A	NWSA	7,818.11	1.72%	12.59%	14.42%	0.04%	48.00%	50.13%	0.04%
REALTY INCOME CORP	O	15,581.18	4.46%	4.87%	9.43%	0.07%	N/A	N/A	N/A
ONEOK INC	OKE	19,353.82	5.61%	7.53%	13.35%	0.09%	14.50%	20.52%	0.10%
OMNICOM GROUP	OMC	17,712.69	2.94%	6.97%	10.02%	0.08%	7.50%	10.55%	0.09%
ORACLE CORP	ORCL	201,125.48	1.40%	9.40%	10.86%	0.92%	8.00%	9.45%	1.01%
O'REILLY AUTOMOTIVE INC	ORLY	17,420.26	0.00%	15.27%	15.27%	0.08%	11.00%	11.00%	0.09%
OCCIDENTAL PETROLEUM CORP	OXY	45,224.50	5.19%	-3.39%	1.71%	0.21%	25.00%	30.84%	0.23%
PAYCHEX INC	PAYX	19,763.17	3.57%	8.28%	11.99%	0.09%	8.50%	12.22%	0.10%
PEOPLE'S UNITED FINANCIAL	PBCT	5,730.19	4.15%	2.00%	6.19%	0.03%	10.50%	14.87%	0.03%
PACCAR INC	PCAR	22,136.72	2.83%	6.73%	9.66%	0.10%	6.50%	9.43%	0.11%
P G & E CORP	PCG	35,456.49	3.03%	6.00%	9.12%	0.16%	9.50%	12.67%	0.18%
PRICELINE GROUP INC/THE	PCLN	88,796.82	0.00%	17.26%	17.26%	0.41%	15.50%	15.50%	0.45%
PATTERSON COS INC	PDCO	3,491.03	2.98%	5.25%	8.30%	0.02%	13.00%	16.17%	0.02%
PUBLIC SERVICE ENTERPRISE GP	PEG	23,614.94	3.68%	2.90%	6.64%	0.11%	1.00%	4.70%	0.12%
PEPSICO INC	PEP	167,640.03	2.69%	6.39%	9.17%	0.77%	7.50%	10.29%	0.85%
PFIZER INC	PFE	194,299.89	3.92%	5.50%	9.53%	0.89%	11.00%	15.13%	0.98%
PRINCIPAL FINANCIAL GROUP	PFG	18,184.30	2.94%	9.37%	12.44%	0.08%	4.50%	7.50%	0.09%
PROCTER & GAMBLE CO/THE	PG	235,799.82	3.04%	7.22%	10.37%	1.08%	7.50%	10.66%	1.19%
PROGRESSIVE CORP	PGR	28,256.38	1.93%	8.00%	10.01%	0.13%	8.00%	10.01%	0.14%
PARKER HANNIFIN CORP	PH	20,663.40	1.74%	9.94%	11.76%	0.09%	7.50%	9.30%	0.10%
PULTEGROUP INC	PHM	7,627.20	1.30%	18.40%	19.82%	0.03%	16.50%	17.91%	0.04%
PACKAGING CORP OF AMERICA	PKG	10,377.72	2.25%	8.25%	10.59%	0.05%	6.50%	8.82%	0.05%
PERKINELMER INC	PKI	6,995.32	0.44%	10.66%	11.12%	0.03%	8.00%	8.46%	0.04%
PROLOGIS INC	PLD	32,424.95	2.85%	5.84%	8.77%	0.15%	N/A	N/A	N/A
PHILIP MORRIS INTERNATIONAL	PM	179,129.18	3.68%	9.61%	13.46%	0.82%	7.50%	11.32%	0.90%
PNC FINANCIAL SERVICES GROUP	PNC	60,911.94	2.05%	10.15%	12.30%	0.28%	5.50%	7.60%	0.31%
PENTAIR PLC	PNR	11,064.79	2.29%	5.78%	8.14%	0.05%	11.50%	13.92%	0.06%
PINNACLE WEST CAPITAL	PNW	9,966.95	2.98%	5.50%	8.56%	0.05%	5.50%	8.56%	0.05%
PPG INDUSTRIES INC	PPG	26,181.46	1.66%	8.09%	9.82%	0.12%	10.50%	12.24%	0.13%
PPL CORP	PPL	26,496.39	4.05%	2.00%	6.10%	0.12%	N/A	N/A	N/A
PERRIGO CO PLC	PRGO	11,019.56	0.83%	1.64%	2.48%	0.05%	-0.50%	0.33%	0.06%
PRUDENTIAL FINANCIAL INC	PRU	43,532.65	2.99%	10.93%	14.09%	0.20%	5.50%	8.57%	0.22%
PUBLIC STORAGE	PSA	34,155.00	4.11%	4.25%	8.44%	0.16%	N/A	N/A	N/A
PHILLIPS 66	PSX	41,718.82	3.35%	10.00%	13.52%	0.19%	5.00%	8.43%	0.21%
PVH CORP	PVH	9,423.26	0.16%	10.40%	10.57%	0.04%	7.50%	7.66%	0.05%
QUANTA SERVICES INC	PWR	5,281.99	0.00%	8.00%	8.00%	0.02%	12.50%	12.50%	0.03%
PRAXAIR INC	PX	37,846.42	2.40%	11.73%	14.27%	0.17%	8.00%	10.49%	0.19%
PIONEER NATURAL RESOURCES CO	PXD	22,444.37	0.06%	20.00%	20.07%	0.10%	38.50%	38.57%	0.11%
PAYPAL HOLDINGS INC	PYPL	71,470.48	0.00%	19.44%	19.44%	0.33%	N/A	N/A	N/A
QUALCOMM INC	QCOM	76,637.39	4.22%	8.75%	13.16%	0.35%	6.00%	10.35%	0.39%
QORVO INC	QRVO	8,866.74	0.00%	13.18%	13.18%	0.04%	N/A	N/A	N/A
ROYAL CARIBBEAN CRUISES LTD	RCL	25,557.34	1.66%	19.10%	20.92%	0.12%	12.50%	14.27%	0.13%
EVEREST RE GROUP LTD	RE	10,800.59	1.95%	10.00%	12.04%	0.05%	3.50%	5.48%	0.05%
REGENCY CENTERS CORP	REG	11,013.07	3.26%	9.43%	12.84%	0.05%	N/A	N/A	N/A
REGENERON PHARMACEUTICALS	REGN	50,145.10	0.00%	17.94%	17.94%	0.23%	22.00%	22.00%	0.25%
REGIONS FINANCIAL CORP	RF	16,802.83	2.27%	13.86%	16.29%	0.08%	9.50%	11.88%	0.08%
ROBERT HALF INTL INC	RHI	5,467.57	2.21%	8.30%	10.60%	0.02%	4.50%	6.76%	0.03%
RED HAT INC	RHT	17,822.27	0.00%	16.93%	16.93%	0.08%	17.50%	17.50%	0.09%
RAYMOND JAMES FINANCIAL INC	RJF	11,225.01	1.12%	15.45%	16.66%	0.05%	11.00%	12.18%	0.06%
RALPH LAUREN CORP	RL	6,852.05	2.45%	0.15%	2.60%	0.03%	1.00%	3.46%	0.03%
RESMED INC	RMD	10,391.22	1.96%	11.56%	13.63%	0.05%	8.50%	10.54%	0.05%
ROCKWELL AUTOMATION INC	ROK	20,714.61	1.90%	11.37%	13.37%	0.09%	5.50%	7.45%	0.10%
ROPER TECHNOLOGIES INC	ROP	23,326.53	0.61%	12.93%	13.58%	0.11%	7.00%	7.63%	0.12%
ROSS STORES INC	ROST	22,969.53	1.07%	13.40%	14.54%	0.10%	8.50%	9.61%	0.12%

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RANGE RESOURCES CORP	RRC	4,451.49	0.45%	0.21%	0.65%	0.02%	28.00%	28.51%	0.02%
REPUBLIC SERVICES INC	RSG	21,515.75	2.04%	11.46%	13.62%	0.10%	8.50%	10.63%	0.11%
RAYTHEON COMPANY	RTN	51,345.05	1.78%	8.41%	10.27%	0.23%	8.00%	9.85%	0.26%
STARBUCKS CORP	SBUX	76,093.53	1.93%	16.68%	18.77%	0.35%	15.00%	17.07%	0.38%
SCANA CORP	SCG	8,693.64	4.03%	4.07%	8.18%	0.04%	4.00%	8.11%	0.04%
SCHWAB (CHARLES) CORP	SCHW	52,908.61	0.80%	19.46%	20.34%	0.24%	14.00%	14.86%	0.27%
SEALED AIR CORP	SEE	8,543.81	1.42%	7.45%	8.93%	0.04%	12.00%	13.51%	0.04%
SHERWIN-WILLIAMS CO/THE	SHW	30,729.14	1.03%	10.74%	11.82%	0.14%	13.50%	14.60%	0.15%
SIGNET JEWELERS LTD	SIG	3,666.29	1.90%	2.90%	4.83%	0.02%	1.50%	3.42%	0.02%
JM SMUCKER CO/THE	SJM	13,823.92	2.62%	4.93%	7.61%	0.06%	6.50%	9.20%	0.07%
SCHLUMBERGER LTD	SLB	87,668.07	3.18%	44.21%	48.10%	0.40%	17.50%	20.96%	0.44%
SL GREEN REALTY CORP	SLG	9,691.93	3.24%	0.80%	4.05%	0.04%	N/A	N/A	N/A
SNAP-ON INC	SNA	8,520.20	2.00%	10.85%	12.96%	0.04%	8.50%	10.59%	0.04%
SCRIPPS NETWORKS INTER-CL A	SNI	11,121.06	1.36%	8.53%	9.94%	0.05%	6.50%	7.90%	0.06%
SYNOPSYS INC	SNPS	11,602.12	0.00%	9.12%	9.12%	0.05%	9.50%	9.50%	0.06%
SOUTHERN CO/THE	SO	48,069.38	4.78%	4.77%	9.66%	0.22%	3.50%	8.36%	0.24%
SIMON PROPERTY GROUP INC	SPG	47,739.23	4.62%	7.26%	12.04%	0.22%	N/A	N/A	N/A
S&P GLOBAL INC	SPGI	38,575.70	1.09%	10.00%	11.15%	0.18%	12.00%	13.16%	0.19%
STAPLES INC	SPLS	6,691.91	4.74%	N/A	N/A	N/A	2.50%	7.30%	0.03%
STERICYCLE INC	SRCL	6,033.45	0.15%	7.68%	7.83%	0.03%	5.50%	5.65%	0.03%
SEMPRA ENERGY	SRE	29,234.40	2.82%	10.67%	13.64%	0.13%	8.00%	10.93%	0.15%
SUNTRUST BANKS INC	STI	26,938.80	2.36%	8.56%	11.02%	0.12%	7.00%	9.45%	0.14%
STATE STREET CORP	STT	34,560.96	1.73%	9.05%	10.86%	0.16%	7.50%	9.30%	0.17%
SEAGATE TECHNOLOGY	STX	9,154.18	8.16%	8.73%	17.24%	0.04%	4.50%	12.85%	0.05%
CONSTELLATION BRANDS INC-A	STZ	38,579.19	1.06%	16.36%	17.51%	0.18%	13.00%	14.13%	0.19%
STANLEY BLACK & DECKER INC	SWK	21,058.47	1.74%	11.00%	12.84%	0.10%	9.50%	11.33%	0.11%
SKYWORKS SOLUTIONS INC	SWKS	18,780.08	1.13%	13.59%	14.80%	0.09%	13.50%	14.71%	0.09%
SYNCHRONY FINANCIAL	SYF	23,915.73	1.87%	8.07%	10.02%	0.11%	7.50%	9.44%	0.12%
STRYKER CORP	SYK	53,973.59	1.19%	9.23%	10.47%	0.25%	14.00%	15.27%	0.27%
SYMANTEC CORP	SYMC	17,483.66	1.08%	13.14%	14.29%	0.08%	10.50%	11.64%	0.09%
SYSCO CORP	SYY	27,386.06	2.66%	11.47%	14.28%	0.12%	11.50%	14.31%	0.14%
AT&T INC	T	229,451.80	5.26%	5.25%	10.65%	1.05%	5.50%	10.91%	1.16%
MOLSON COORS BREWING CO -B	TAP	19,325.54	1.84%	7.32%	9.23%	0.09%	14.50%	16.48%	0.10%
TRANSDIGM GROUP INC	TDG	14,177.29	0.00%	10.21%	10.21%	0.06%	12.00%	12.00%	0.07%
TE CONNECTIVITY LTD	TEL	27,461.48	1.96%	6.87%	8.90%	0.13%	8.00%	10.04%	0.14%
TARGET CORP	TGT	30,702.57	4.46%	-0.78%	3.66%	0.14%	4.50%	9.06%	0.15%
TIFFANY & CO	TIF	10,972.85	2.15%	10.10%	12.35%	0.05%	8.00%	10.23%	0.06%
TJX COMPANIES INC	TJX	45,331.68	1.73%	12.44%	14.28%	0.21%	10.50%	12.33%	0.23%
TORCHMARK CORP	TMK	8,911.30	0.78%	7.17%	7.97%	0.04%	7.50%	8.30%	0.04%
THERMO FISHER SCIENTIFIC INC	TMO	69,063.76	0.35%	12.40%	12.77%	0.32%	9.00%	9.36%	0.35%
TRIPADVISOR INC	TRIP	5,539.01	0.00%	14.50%	14.50%	0.03%	8.00%	8.00%	0.03%
T ROWE PRICE GROUP INC	TROW	19,781.46	2.71%	12.85%	15.74%	0.09%	8.00%	10.82%	0.10%
TRAVELERS COS INC/THE	TRV	35,290.87	2.21%	6.37%	8.64%	0.16%	1.00%	3.22%	0.18%
TRACTOR SUPPLY COMPANY	TSCO	6,930.27	1.92%	14.90%	16.96%	0.03%	10.50%	12.52%	0.03%
TYSON FOODS INC-CL A	TSN	25,481.33	1.29%	8.60%	9.95%	0.12%	9.50%	10.86%	0.13%
TOTAL SYSTEM SERVICES INC	TSS	11,966.26	0.68%	11.00%	11.71%	0.05%	10.50%	11.21%	0.06%
TIME WARNER INC	TWX	78,705.72	1.63%	8.30%	9.99%	0.36%	9.50%	11.20%	0.40%
TEXAS INSTRUMENTS INC	TXN	79,173.39	2.55%	10.53%	13.21%	0.36%	9.50%	12.17%	0.40%
TEXTRON INC	TXT	12,624.20	0.18%	8.78%	8.97%	0.06%	12.00%	12.19%	0.06%
UNDER ARMOUR INC-CLASS A	UAA	7,196.28	0.00%	13.26%	13.26%	0.03%	14.00%	14.00%	0.04%
UNITED CONTINENTAL HOLDINGS	UAL	19,698.59	0.00%	4.37%	4.37%	0.09%	6.00%	6.00%	0.10%
UDR INC	UDR	10,424.65	3.18%	5.97%	9.25%	0.05%	N/A	N/A	N/A
UNIVERSAL HEALTH SERVICES-B	UHS	10,330.03	0.28%	8.69%	8.98%	0.05%	10.00%	10.29%	0.05%
ULTA BEAUTY INC	ULTA	15,148.34	0.00%	22.17%	22.17%	0.07%	21.00%	21.00%	0.08%
UNITEDHEALTH GROUP INC	UNH	184,496.21	1.51%	12.13%	13.73%	0.84%	12.50%	14.10%	0.93%
UNUM GROUP	UNM	10,816.97	1.79%	7.00%	8.86%	0.05%	10.50%	12.39%	0.05%
UNION PACIFIC CORP	UNP	83,159.99	2.36%	11.73%	14.22%	0.38%	8.00%	10.45%	0.42%
UNITED PARCEL SERVICE-CL B	UPS	98,148.84	2.92%	9.13%	12.17%	0.45%	10.00%	13.06%	0.49%
UNITED RENTALS INC	URI	9,456.65	0.00%	14.17%	14.17%	0.04%	8.00%	8.00%	0.05%
US BANCORP	USB	86,448.76	2.24%	12.13%	14.51%	0.39%	5.00%	7.30%	0.44%
UNITED TECHNOLOGIES CORP	UTX	92,242.28	2.37%	8.56%	11.03%	0.42%	8.00%	10.46%	0.47%
VISA INC-CLASS A SHARES	V	234,416.32	0.64%	17.50%	18.20%	1.07%	11.50%	12.18%	1.18%
VARIAN MEDICAL SYSTEMS INC	VAR	9,225.99	0.00%	7.20%	7.20%	0.04%	7.00%	7.00%	0.05%
VF CORP	VFC	24,711.55	2.72%	8.77%	11.61%	0.11%	8.50%	11.34%	0.12%
VIACOM INC-CLASS B	VIAB	12,002.15	2.81%	2.96%	5.81%	0.05%	2.00%	4.83%	0.06%
VALERO ENERGY CORP	VLO	28,597.74	4.33%	10.30%	14.85%	0.13%	5.00%	9.44%	0.14%
VULCAN MATERIALS CO	VMC	15,075.38	0.88%	24.06%	25.04%	0.07%	20.50%	21.47%	0.08%
VORNADO REALTY TRUST	VNO	14,003.36	6.04%	-3.15%	2.79%	0.06%	14.50%	20.98%	0.07%
VERISK ANALYTICS INC	VRSK	13,271.43	0.00%	7.96%	7.96%	0.06%	10.50%	10.50%	0.07%

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VERISIGN INC	VRSN	9,812.21	0.00%	10.20%	10.20%	0.04%	10.50%	10.50%	0.05%
VERTEX PHARMACEUTICALS INC	VRTX	37,346.37	0.00%	72.50%	72.50%	0.17%	N/A	N/A	N/A
VENTAS INC	VTR	23,548.65	4.73%	3.99%	8.81%	0.11%	N/A	N/A	N/A
VERIZON COMMUNICATIONS INC	VZ	194,546.97	4.89%	1.92%	6.86%	0.89%	2.00%	6.94%	0.98%
WATERS CORP	WAT	14,344.30	0.00%	8.28%	8.28%	0.07%	8.50%	8.50%	0.07%
WALGREENS BOOTS ALLIANCE INC	WBA	85,639.82	1.87%	9.35%	11.31%	0.39%	11.00%	12.98%	0.43%
WESTERN DIGITAL CORP	WDC	24,231.37	2.42%	11.74%	14.30%	0.11%	11.00%	13.56%	0.12%
WEC ENERGY GROUP INC	WEC	20,383.09	3.22%	5.55%	8.86%	0.09%	6.00%	9.32%	0.10%
WELLS FARGO & CO	WFC	256,536.66	2.98%	11.46%	14.61%	1.17%	5.00%	8.05%	1.29%
WHOLE FOODS MARKET INC	WFM	13,364.10	1.53%	6.53%	8.11%	0.06%	3.50%	5.06%	0.07%
WHIRLPOOL CORP	WHR	12,412.35	2.49%	14.19%	16.85%	0.06%	9.50%	12.11%	0.06%
WILLIS TOWERS WATSON PLC	WLTW	19,933.84	1.42%	10.00%	11.49%	0.09%	N/A	N/A	N/A
WASTE MANAGEMENT INC	WM	33,112.69	2.26%	10.22%	12.59%	0.15%	7.00%	9.34%	0.17%
WILLIAMS COS INC	WMB	24,030.74	4.13%	13.00%	17.40%	0.11%	18.50%	23.01%	0.12%
WAL-MART STORES INC	WMT	239,079.93	2.72%	5.12%	7.91%	1.09%	4.00%	6.77%	1.21%
WESTROCK CO	WRK	14,297.69	2.84%	9.67%	12.65%	0.07%	N/A	N/A	N/A
WESTERN UNION CO	WU	8,760.22	3.71%	8.00%	11.86%	0.04%	5.50%	9.31%	0.04%
WEYERHAEUSER CO	WY	23,469.16	4.01%	7.40%	11.56%	0.11%	14.50%	18.80%	0.12%
WYNDHAM WORLDWIDE CORP	WYN	9,941.44	2.40%	14.40%	16.97%	0.05%	6.50%	8.98%	0.05%
WYNN RESORTS LTD	WYNN	13,836.16	1.51%	31.90%	33.65%	0.06%	14.00%	15.61%	0.07%
CIMAREX ENERGY CO	XEC	9,365.83	0.33%	39.33%	39.72%	0.04%	31.00%	31.38%	0.05%
XCEL ENERGY INC	XEL	24,880.38	2.94%	6.10%	9.13%	0.11%	4.50%	7.50%	0.13%
XL GROUP LTD	XL	11,295.37	2.01%	9.00%	11.10%	0.05%	13.00%	15.14%	0.06%
XILINX INC	XLNX	15,169.66	2.31%	8.37%	10.77%	0.07%	8.00%	10.40%	0.08%
EXXON MOBIL CORP	XOM	324,731.79	4.00%	4.74%	8.83%	1.48%	11.50%	15.73%	1.64%
DENTSPLY SIRONA INC	XRAY	12,129.17	0.65%	9.35%	10.04%	0.06%	8.50%	9.18%	0.06%
XEROX CORP	XRX	7,993.64	3.24%	2.90%	6.18%	0.04%	4.00%	7.30%	0.04%
XYLEM INC	XYL	10,599.93	1.12%	15.00%	16.20%	0.05%	12.00%	13.19%	0.05%
YUM! BRANDS INC	YUM	25,999.35	1.71%	12.74%	14.56%	0.12%	6.00%	7.76%	0.13%
ZIMMER BIOMET HOLDINGS INC	ZBH	22,520.58	0.89%	8.26%	9.18%	0.10%	11.00%	11.93%	0.11%
ZIONS BANCORPORATION	ZION	8,879.40	1.00%	9.00%	10.05%	0.04%	14.50%	15.57%	0.04%
ZOETIS INC	ZTS	29,713.53	0.69%	13.43%	14.17%	0.14%	11.50%	12.23%	0.15%
Total Market Capitalization:		22,094,195			13.41%			14.16%	
W/ Bloomberg Growth Est.:		21,911,024							
W/ Value Line Growth Est.:		19,828,726							

Notes:
[1] Equals sumproduct of Cols. [9] x [10], and Cols. [12] x [13]
[2] Source: Bloomberg Professional
[3] Source: Blue Chip Financial Forecasts, Vol. 36, No. 8, August 1, 2017, at 2. (6 quarters ending December 2018)
[4] Equals [1] − [2]
[5] Equals [1] − [3]
[6] Source: Bloomberg Professional
[7] Source: Bloomberg Professional
[8] Source: Bloomberg Professional
[9] Equals ([7] x (1 + (0.5 x [8]))) + [8]
[10] Equals weight in S&P 500 based on market capitalization, excluding N/As
[11] Source: Value Line
[12] Equals ([7] x (1 + (0.5 x [11]))) + [11]
[13] Equals weight in S&P 500 based on market capitalization, excluding N/As

Value Line and Bloomberg Beta Coefficients

Company	Ticker	[1] Value Line	[2] Bloomberg
Atmos Energy Corporation	ATO	0.70	0.61
Black Hills Corporation	BKH	0.85	0.54
Chesapeake Utilities	CPK	0.70	0.71
Northwest Natural Gas Company	NWN	0.65	0.55
One Gas Inc	OGS	0.70	0.69
Sempra Energy	SRE	0.80	0.72
Southwest Gas	SWX	0.75	0.63
Spire Inc	SR	0.70	0.63
Vectren Corporation	VVC	0.70	0.68
Mean		0.73	0.64

Notes:
[1] Source: Value Line
[2] Source: Bloomberg Professional Service

Capital Asset Pricing Model Results

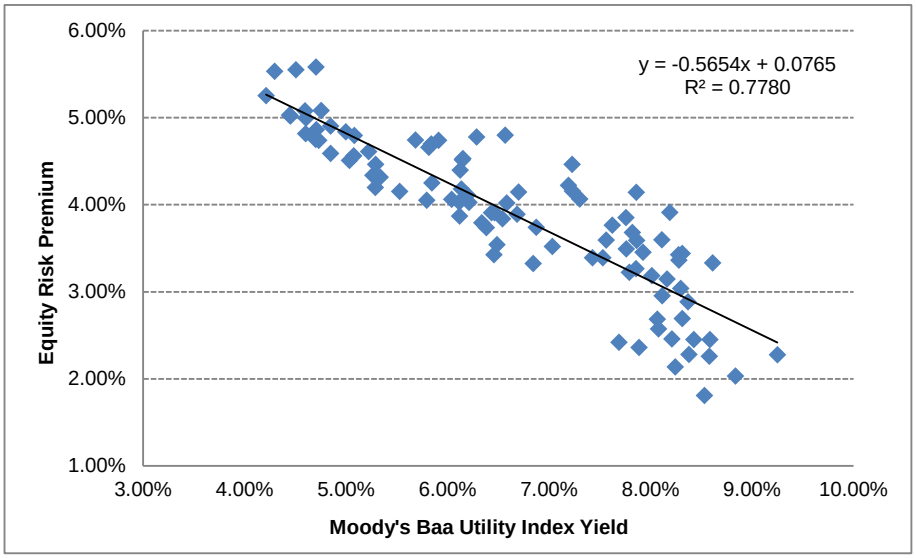
	[1]	[2]	[3]	[4]	[5]	[6]
					CAPM Result	
	Risk-Free Rate	Average Beta Coefficient	Bloomberg Market DCF Derived	Value Line Market DCF Derived	Bloomberg Market DCF Derived	Value Line Market DCF Derived
VALUE LINE BETA COEFFICIENT						
Current 30-Year Treasury (30-day average) [7]	2.85%	0.728	10.56%	11.31%	10.53%	11.08%
Near-Term Projected Treasury Yield [8]	3.35%	0.728	10.06%	10.81%	10.67%	11.22%
BLOOMBERG BETA COEFFICIENT						
Current 30-Year Treasury (30-day average) [7]	2.85%	0.642	10.56%	11.31%	9.62%	10.11%
Near-Term Projected Treasury Yield [8]	3.35%	0.642	10.06%	10.81%	9.80%	10.29%

	Summary of Results
Mean:	10.42%
Minimum:	9.62%
Maximum:	11.22%

Notes:
[1] S*ee Notes [7], [8]*
[2] Source: Schedule KM-5
[3] Source: Schedule KM-4
[4] Source: Schedule KM-4
[5] Equals Col. [1] + (Col. [2] x Col. [3])
[6] Equals Col. [1] + (Col. [2] x Col. [4])
[7] Source: Bloomberg Professional
[8] Source: Blue Chip Financial Forecasts, Vol. 36, No. 8, August 1, 2017, at 2. (6 quarters ending December 2018)

Bond Yield Plus Risk Premium

Scenario	[1] Constant	[2] Slope	[3] Baa Utility Bond Yield	[4] Risk Premium	[5] Return on Equity
Current Utility Bond Yield	7.65%	-0.565	4.30%	5.22%	9.52%
Near-Term Projected Utility Bond Yield	7.65%	-0.565	5.03%	4.81%	9.83%
Long-Term Projected Utility Bond Yield	7.65%	-0.565	6.36%	4.05%	10.41%



Notes:
[1] Constant of regression equation
[2] Slope of regression equation
[3] Projected yields = Current yield + projected change in corporate Baa bond yields
Sources: Current = Bloomberg Professional (30-day average);
Near Term Projected = Blue Chip Financial Forecasts, Vol. 36, No. 8, August 1, 2017, at 2;
Long Term Projected = Blue Chip Financial Forecasts, Vol. 36, No. 6, June 1, 2017, at 14
[4] Equals [1] + [3] x [2]
[5] Equals [3] + [4]

Expected Earnings Analysis - Proxy Group

Company	Ticker	[1] Expected ROE 2020-2022	[2] Projected Common Shares 2018	[3] Projected Common Shares 2020-22	[4] Projected BPS 2018	[5] Projected BPS 2020-22	[6] Book Value Growth Rate	[7] Adjusted ROE
Atmos Energy Corporation	ATO	11.50%	110.00	120.00	37.15	38.50	4.17%	11.75%
Black Hills Corporation	BKH	10.50%	60.25	61.00	35.35	41.00	5.50%	10.80%
Chesapeake Utilities Corporation	CPK	13.00%	17.00	20.00	32.20	32.90	6.33%	13.42%
Northwest Natural Gas Company	NWN	10.00%	29.50	30.00	30.40	32.25	2.56%	10.13%
One Gas Inc	OGS	9.50%	52.50	55.00	38.95	41.45	3.69%	9.68%
Sempra Energy	SRE	13.00%	254.00	236.00	55.25	58.25	-0.69%	12.96%
Southwest Gas Corporation	SWX	8.50%	49.00	52.00	42.85	57.70	12.64%	9.07%
Spire Inc	SR	9.50%	48.50	50.00	41.85	48.30	5.96%	9.79%
Vectren Corporation	VVC	12.00%	84.00	86.00	23.80	28.50	7.03%	12.44%
								11.11%
								10.80%

Expected Earnings Analysis - Value Line Gas Universe

Company	Ticker	[1] Expected ROE 2020-2022	[2] Projected Common Shares 2018	[3] Projected Common Shares 2020-22	[4] Projected BPS 2018	[5] Projected BPS 2020-22	[6] Book Value Growth Rate	[7] Adjusted ROE
Atmos Energy Corporation	ATO	11.50%	110.00	120.00	37.15	38.50	4.17%	11.75%
Chesapeake Utilities Corporation	CPK	13.00%	17.00	20.00	32.20	32.90	6.33%	13.42%
New Jersey Resources Corporation	NJR	12.00%	86.00	86.00	15.25	18.25	6.17%	12.38%
NiSource Inc.	NI	11.00%	325.00	330.00	13.20	13.60	1.52%	11.08%
Northwest Natural Gas Company	NWN	10.00%	29.50	30.00	30.40	32.25	2.56%	10.13%
One Gas Inc	OGS	9.50%	52.50	55.00	38.95	41.45	3.69%	9.68%
South Jersey Industries Inc	SJI	7.00%	83.00	86.00	19.60	25.00	9.74%	7.36%
Southwest Gas Corporation	SWX	8.50%	49.00	52.00	42.85	57.70	12.64%	9.07%
Spire Inc	SR	9.50%	48.50	50.00	41.85	48.30	5.96%	9.79%
UGI Corporation	UGI	12.50%	170.00	170.00	19.05	24.75	9.12%	13.10%
WGL Holdings, Inc.	WGL	10.00%	53.00	55.00	32.10	37.60	6.72%	10.35%
								10.74%
								10.35%

Notes:
[1] Source: Value Line
[2] Source: Value Line
[3] Source: Value Line
[4] Source: Value Line
[5] Source: Value Line
[6] Equals (([3] x [5]) / ([2] x [4]))^(1/3)-1
[7] Equals [1] x (1/(1 - 0.5 x [6]))

Proxy Group Capital Structure - Current

Company	Ticker	% Common Equity 2017Q2	2017Q1	2016Q4	2016Q3	2016Q2	2016Q1	2015Q4	2015Q3	Average
Atmos Energy Corporation	ATO	55.99%	59.92%	59.06%	58.68%	58.54%	57.66%	57.13%	56.72%	57.96%
Black Hills Corporation	BKH	34.62%	34.23%	33.42%	33.28%	33.14%	31.91%	44.16%	45.32%	36.26%
Chesapeake Utilities Corporation	CPK	68.36%	75.61%	74.95%	73.80%	70.88%	70.35%	69.37%	68.16%	71.43%
Northwest Natural Gas Company	NWN	54.58%	54.86%	54.17%	56.69%	57.35%	57.57%	56.75%	55.29%	55.91%
ONE Gas, Inc.	OGS	61.84%	61.98%	61.29%	60.97%	61.14%	61.04%	60.71%	60.12%	61.14%
Sempra Energy	SRE	45.01%	46.52%	45.77%	46.12%	45.55%	45.97%	45.68%	45.91%	45.82%
Southwest Gas Holdings, Inc.	SWX	50.05%	51.89%	50.97%	49.74%	52.67%	53.47%	50.37%	49.84%	51.13%
Spire Inc.	SR	51.30%	49.44%	46.45%	46.06%	49.49%	47.76%	46.36%	45.94%	47.85%
Vectren Corporation	VVC	51.14%	51.09%	50.78%	50.25%	49.82%	49.62%	48.53%	50.60%	50.23%
Mean		52.54%	53.95%	52.99%	52.84%	53.17%	52.82%	53.23%	53.10%	53.08%
Median		51.30%	51.89%	50.97%	50.25%	52.67%	53.47%	50.37%	50.60%	51.13%

Company	Ticker	% Long-Term Debt 2017Q2	2017Q1	2016Q4	2016Q3	2016Q2	2016Q1	2015Q4	2015Q3	Average
Atmos Energy Corporation	ATO	44.01%	40.08%	40.94%	41.32%	41.46%	42.34%	42.87%	43.28%	42.04%
Black Hills Corporation	BKH	65.38%	65.77%	66.58%	66.72%	66.86%	68.09%	55.84%	54.68%	63.74%
Chesapeake Utilities Corporation	CPK	31.64%	24.39%	25.05%	26.20%	29.12%	29.65%	30.63%	31.84%	28.57%
Northwest Natural Gas Company	NWN	45.42%	45.14%	45.83%	43.31%	42.65%	42.43%	43.25%	44.71%	44.09%
ONE Gas, Inc.	OGS	38.16%	38.02%	38.71%	39.03%	38.86%	38.96%	39.29%	39.88%	38.86%
Sempra Energy	SRE	54.99%	53.48%	54.23%	53.88%	54.45%	54.03%	54.32%	54.09%	54.18%
Southwest Gas Holdings, Inc.	SWX	49.95%	48.11%	49.03%	50.26%	47.33%	46.53%	49.63%	50.16%	48.87%
Spire Inc.	SR	48.70%	50.56%	53.55%	53.94%	50.51%	52.24%	53.64%	54.06%	52.15%
Vectren Corporation	VVC	48.86%	48.91%	49.22%	49.75%	50.18%	50.38%	51.47%	49.40%	49.77%
Mean		47.46%	46.05%	47.01%	47.16%	46.83%	47.18%	46.77%	46.90%	46.92%
Median		48.70%	48.11%	49.03%	49.75%	47.33%	46.53%	49.63%	49.40%	48.87%

Source: SNL Financial

Proxy Group Capital Structure - Value Line Projections

Company	Ticker	% Common Equity 2017	2018	2020-22
Atmos Energy Corporation	ATO	62.00%	61.00%	55.00%
Black Hills Corporation	BKH	32.50%	39.50%	40.50%
Chesapeake Utilities Corporation	CPK	77.00%	75.00%	70.00%
Northwest Natural Gas Company	NWN	55.50%	55.00%	54.50%
ONE Gas, Inc.	OGS	62.00%	62.00%	62.00%
Sempra Energy	SRE	46.50%	46.00%	40.00%
Southwest Gas Holdings, Inc.	SWX	52.00%	54.00%	59.00%
Spire Inc.	SR	49.50%	50.00%	51.00%
Vectren Corporation	VVC	52.50%	52.50%	54.00%
Mean		54.39%	55.00%	54.00%
Median		52.50%	54.00%	54.50%

Company	Ticker	% Long-Term Debt 2017	2018	2020-22
Atmos Energy Corporation	ATO	38.00%	39.00%	45.00%
Black Hills Corporation	BKH	67.50%	60.50%	59.50%
Chesapeake Utilities Corporation	CPK	23.00%	25.00%	30.00%
Northwest Natural Gas Company	NWN	44.50%	45.00%	45.50%
ONE Gas, Inc.	OGS	38.00%	38.00%	38.00%
Sempra Energy	SRE	53.50%	54.00%	60.00%
Southwest Gas Holdings, Inc.	SWX	48.00%	46.00%	41.00%
Spire Inc.	SR	50.50%	50.00%	49.00%
Vectren Corporation	VVC	47.50%	47.50%	46.00%
Mean		45.61%	45.00%	46.00%
Median		47.50%	46.00%	45.50%

Source: SNL Financial

Small Size Premium

	[1]	[2]
	Customers (Mil)	($Mil)
Liberty IL	0.06	$52.56
Median Market to Book for Comp Group		2.21
Liberty IL Implied Market Cap		$116.15

		[3]	[4]	[5]
Company Name	Ticker	Customers (Mil)	Market Cap ($Mil)	Market to Book Ratio
Atmos Energy Corporation	ATO	3.19	$9,145.63	2.36
Black Hills Corporation	BKH	1.03	$3,710.50	2.21
Chesapeake Utilities Corporation	CPK	0.15	$1,266.65	2.74
Northwest Natural Gas Company	NWN	0.73	$1,805.29	2.07
ONE Gas, Inc.	OGS	2.15	$3,785.47	1.96
Sempra Energy	SRE	6.81	$28,701.63	2.16
Southwest Gas Holdings, Inc.	SWX	1.98	$3,793.69	2.21
Spire Inc.	SR	1.68	$3,521.21	1.76
Vectren Corporation	VVC	1.02	$4,968.24	2.77
MEDIAN		1.7	$3,785.47	2.21
MEAN		2.1	$6,744.26	2.25

Market Capitalization ($Mil) [6]			
Decile	Low	High	Size Premium
2	$ 10,784.101	$ 24,233.747	0.61%
3	$ 5,683.991	$ 10,711.194	0.89%
4	$ 3,520.566	$ 5,676.716	0.98%
5	$ 2,392.689	$ 3,512.913	1.51%
6	$ 1,571.193	$ 2,390.899	1.66%
7	$ 1,033.341	$ 1,569.984	1.72%
8	$ 569.279	$ 1,030.426	2.08%
9	$ 263.715	$ 567.843	2.68%
10	$ 2.516	$ 262.891	5.59%
Proxy Group Median		$ 3,785.474	0.98%
10th Decile Size Premium		$ 116.155	5.59%
Difference from Proxy Group Median			4.61%

Notes:
[1] Algonquin Power & Utilities Corporation, Annual Information Form, March 30, 2017, at 43.
[2] Requested Rate Base x Equity Ratio
[3] Source: SNL Financial
[4] Source: Bloomberg Professional Services, 30-day average
[5] Source: Bloomberg Professional Services, 30-day average
[6] Source: Duff & Phelps, *2017 Valuation Handbook,* Appendix 3

RRA Regulatory Risk Ranking

Company		State of Operation	RRA Rank [1]	Numeric Conversion [2]
Atmos Energy Corporation	CO	Colorado	Average / 2	5
	GA	Georgia	Above Average / 2	8
	IA	Iowa	Average / 1	6
	IL	Illinois	Average / 2	5
	KS	Kansas	Below Average / 1	3
	KY	Kentucky	Average / 1	6
	LA	Louisiana	Average / 2	5
	MO	Missouri	Below Average / 1	3
	MS	Mississippi	Above Average / 3	7
	TN	Tennessee	Above Average / 3	7
	TX	Texas	Average / 2	5
	VA	Virginia	Above Average / 2	8
Black Hills Corporation	AR	Arkansas	Average / 1	6
	CO	Colorado	Average / 2	5
	IA	Iowa	Average / 1	6
	KS	Kansas	Below Average / 1	3
	MT	Montana	Average / 3	4
	NE	Nebraska	Average / 1	6
	SD	South Dakota	Average / 2	5
	WY	Wyoming	Average / 3	4
Chesapeake Utilities	DE	Delaware	Average / 3	4
	FL	Florida	Above Average / 2	8
	MD	Maryland	Below Average / 3	1
New Jersey Resources Corporation	NJR	New Jersey	Below Average / 2	2
Northwest Natural Gas Company	OR	Oregon	Average / 2	5
	WA	Washington	Average / 3	4
One Gas Inc	KS	Kansas	Below Average / 1	3
	OK	Oklahoma	Average / 3	4
	TX	Texas	Average / 2	5
South Jersey Industries, Inc.	SJI	New Jersey	Below Average / 2	2
Sempra Energy	CA	California	Above Average / 3	7
Southwest Gas Corporation	AZ	Arizona	Average / 3	4
	CA	California	Above Average / 3	7
	NV	Nevada	Average / 2	5
Spire Inc	AL	Alabama	Above Average / 1	9
	MO	Missouri	Below Average / 1	3
	MS	Mississippi	Above Average / 3	7
Vectren Corporation	IN	Indiana	Average / 1	6
	OH	Ohio	Average / 2	5
Proxy Group Average				5.1
Liberty Utilities		Missouri	Below Average / 1	3

Notes:
[1] Source: RRA, *State Regulatory Evaluations* , Updated May 10, 2017.
[2] Highest risk (Below Average / 3) = 1; lowest risk (Above Average / 1) = 9

Flotation Cost Adjustment

Two most recent open market follow-on common stock issuances per company, if available

Company	Date	Shares Issued	Offering Price	Underwriting Discount	Offering Expense	Net Proceeds Per Share	Total Flotation Costs	Gross Equity Issue Before Costs	Net Proceeds	Flotation Cost Percent
Algonquin Power & Utilities Corp.	11/25/2015	16,508,250	$10.45	$0.4180	$500,000	$10.00	$7,400,449	$172,511,213	$165,110,764	4.290%
Algonquin Power & Utilities Corp.	12/2/2014	10,055,000	$9.95	$0.3980	$700,000	$9.48	$4,701,890	$100,047,250	$95,345,360	4.700%
Atmos Energy Corporation	2/11/2014	9,200,000	$44.00	$1.5400	$350,000	$42.42	$14,518,000	$404,800,000	$390,282,000	3.586%
Atmos Energy Corporation	12/7/2006	6,325,000	$31.50	$1.1025	$400,000	$30.33	$7,373,313	$199,237,500	$191,864,188	3.701%
Black Hills Corp.	11/19/2015	6,325,000	$40.25	$1.4088	$1,200,000	$38.65	$10,110,344	$254,581,250	$244,470,906	3.971%
Black Hills Corp.	12/7/2010	4,413,519	$29.75	$1.0413	$276,650	$28.65	$4,872,227	$131,302,190	$126,429,964	3.711%
Chesapeake Utilities Corporation	9/22/2016	960,488	$62.26	$2.3300	$157,000	$59.77	$2,394,937	$59,799,983	$57,405,046	4.005%
Chesapeake Utilities Corporation	11/16/2006	690,345	$30.10	$1.1250	$225,000	$28.65	$1,001,638	$20,779,385	$19,777,746	4.820%
Northwest Natural Gas Company	11/10/2016	1,012,000	$54.63	$2.0500	$250,000	$52.33	$2,324,600	$55,285,560	$52,960,960	4.205%
Northwest Natural Gas Company	3/30/2004	1,290,000	$31.00	$1.0100	$175,000	$29.85	$1,477,900	$39,990,000	$38,512,100	3.696%
Sempra Energy	10/9/2003	16,500,000	$28.00	$0.8400	$500,000	$27.13	$14,360,000	$462,000,000	$447,640,000	3.108%
Spire Inc.	5/13/2016	2,185,000	$63.05	$2.0491	$300,000	$60.86	$4,777,284	$137,764,250	$132,986,967	3.468%
Spire Inc.	6/5/2014	10,350,000	$46.25	$1.7113	$1,000,000	$44.44	$18,711,438	$478,687,500	$459,976,063	3.909%
Vectren Corporation	2/20/2007	5,290,000	$28.33	$0.9900	$425,000	$27.26	$5,662,100	$149,865,700	$144,203,600	3.778%
Vectren Corporation	7/31/2003	7,475,000	$22.81	$0.7980	$300,000	$21.97	$6,265,050	$170,504,750	$164,239,700	3.674%
Mean							$7,063,411	$189,143,769		
								WEIGHTED AVERAGE FLOTATION COSTS:		3.734%

Discounted Cash Flow Model Adjustment for Flotation Costs - 30 Day Average Stock Price

Company	Ticker	[1] Expected Dividend Yield	[2] Dividend Yield Adjusted for Flot. Costs
Atmos Energy Corporation	ATO	2.16%	2.25%
Black Hills Corporation	BKH	2.65%	2.75%
Chesapeake Utilities	CPK	1.75%	1.81%
Northwest Natural Gas Company	NWN	3.06%	3.18%
One Gas Inc	OGS	2.39%	2.49%
Sempra Energy	SRE	2.98%	3.09%
Southwest Gas	SWX	2.55%	2.65%
Spire Inc	SR	2.95%	3.07%
Vectren Corporation	VVC	2.89%	3.00%
PROXY GROUP MEAN		2.60%	2.70%

Dividend Yield Adjusted For Flotation Costs:	2.70%	
Dividend Yield Unadjusted For Flotation Costs:	2.60%	
Difference (Flotation Cost Adjustment):	0.10%	[3]

Notes:
The proxy group DCF result is adjusted for flotation costs by dividing each company's expected dividend yield by (1 - flotation cost). The flotation cost adjustment is derived as the difference between the unadjusted DCF result and the DCF result adjusted for flotation costs.
[1] Source: Schedule KM-2
[2] Equals [1] / (1 - 0.0373)
[3] Equals average [2] - average [1]

AFFIDAVIT OF KEITH MAGEE

COMMONWEALTH OF MASSACHUSETTS)
) ss
COUNTY OF WORCESTER)

On the 28 day of September, 2017, before me appeared Keith Magee, to me personally known, who, being by me first duly sworn, states that he is a director at ScottMadden, Inc. and acknowledges that he has read the above and foregoing document and believes that the statements therein are true and correct to the best of his information, knowledge and belief.

Keith Magee

Subscribed and sworn to before me this 28 day of September, 2017.

Notary Public

My commission expires: March 11, 2022

KIMBERLY H. DAO
NOTARY PUBLIC
COMMONWEALTH OF MASSACHUSETTS
MY COMM. EXPIRES MARCH 11, 2022