Exhibit No.:
Issue: Rate of Return/Capital Structure
Witness: Robert B. Hevert
Sponsoring Party: Liberty Utilities
Case No.: GR-2014-0152
Date Testimony Prepared: July 30, 2014

MISSOURI PUBLIC SERVICE COMMISSION

Case No. GR-2014-0152

REBUTTAL TESTIMONY

OF

ROBERT B. HEVERT

SUSSEX ECONOMIC ADVISORS, LLC

Submitted on Behalf Of

LIBERTY UTILITIES (MIDSTATES NATURAL GAS) CORP.
d/b/a LIBERTY UTILITIES

July 30, 2014

** Denotes Highly Confidential Information **

* Denotes Proprietary Information *

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BEFORE THE

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I. INTRODUCTION

Q. Please state your name, affiliation and business address.

A. My name is Robert B. Hevert. I am Managing Partner of Sussex Economic Advisors, LLC ("Sussex"). My business address is 161 Worcester Road, Suite 503, Framingham, Massachusetts 01701.

Q. Are you the Robert B. Hevert who submitted Direct Testimony in this proceeding?

A. Yes, I filed Direct Testimony on behalf of Liberty Utilities (Midstates Natural Gas) Corp., d/b/a Liberty Utilities ("Liberty Utilities" or the "Company"), an indirect wholly owned subsidiary of Algonquin Power & Utilities Corp.

Q. Please state the purpose of your Rebuttal Testimony.

A. The purpose of my Rebuttal Testimony is to respond to the Revenue Requirement Cost of Service Report (the "Cost of Service Report") submitted in this proceeding by Staff of the Missouri Public Service Commission ("Staff") as it relates to the Company's Return on Equity ("ROE"), cost of debt and capital structure. Mr. Zephania Marevangepo presents

Staff's ROE, cost of debt and capital structure recommendation. My Rebuttal Testimony also provides an updated set of calculations and analytical results with respect to the Company's Cost of Equity in this proceeding.[1] My analyses and recommendations are supported by the data presented in Schedules RBH-R12 through RBH-R25, which have been prepared by me or under my direction.

Q. How is the remainder of your Rebuttal Testimony organized?

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

Section II – Provides a summary and overview of my Rebuttal Testimony, including a summary of my updated analyses;

Section III – Provides my response to Mr. Marevangepo regarding the Company's Cost of Equity and capital structure;

Section IV – Provides my updated analyses; and

Section V – Summarizes my conclusions and recommendation.

II. SUMMARY AND OVERVIEW OF TESTIMONY

Q. Please summarize the key issues and recommendations addressed in your Rebuttal Testimony.

A. In my Direct Testimony, I recommended an ROE of 10.50 percent, based on a range of ROE estimates of 10.00 percent to 10.50 percent.[2] As my Direct Testimony discussed, that recommendation, and the analytical results on which it was based, considered a variety of factors including prevailing capital market conditions and the specific risks

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1 Throughout my Rebuttal Testimony, I alternatively use the terms "ROE" and "Cost of Equity" in discussing the Return on Equity.

2 *See* Direct Testimony of Robert B. Hevert, at 3.

faced by Liberty Utilities. 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. As such, I have updated many of the analyses contained in my Direct Testimony, and provided several new analyses in response to issues raised by Mr. Marevangepo. These analyses continue to support a reasonable range of ROE estimates from 10.00 percent to 10.50 percent, and within that range, 10.50 percent as a reasonable and appropriate estimate of the Company's Cost of Equity.

In this proceeding, there is a meaningful difference in my ROE recommendation and the recommendation offered by Staff, through its witness, Mr. Marevangepo. Mr. Marevangepo, recommends an ROE range of 8.20 percent to 9.20 percent, with a point estimate of 8.70 percent.[3] As discussed throughout my Rebuttal Testimony, there are a number of methodological, theoretical and practical reasons why a recommendation as low as 8.70 percent is unreasonably low. For example, Mr. Marevangepo develops his recommendation by giving weight to ROE estimates that are more than 60 basis points below any return authorized by any regulatory commission in at least 30 years. Despite the significant effect of those estimates on his ROE range and recommendation, and notwithstanding the fact that the results are so low as to be highly improbable relative to

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3 Staff Cost of Service Report, at 7.

observed authorized returns, Mr. Marevangepo has not explained why Liberty is so less risky, or how it is that present capital market conditions are so benign that investors would reduce their return requirements far below the returns available to other natural gas utilities. While I am not suggesting that the Commission should be bound by the decisions made in other regulatory jurisdictions, given that investors consider such data in framing their investment decisions, and knowing that Staff sees such data as an important benchmark, return recommendations that materially deviate from observed industry norms should be supported by clear and unambiguous reasons explaining those deviations.

As to Staff's recommendation to impute additional revenue in connection with various special contracts, the effect of that adjustment would be to reduce the Company's requested Return on Equity from 10.50 percent to ** ** percent.[4] In essence, even if its requested position was authorized in its entirety but for the revenue adjustment, the Company would not be able to earn more than approximately ** ** percent on its equity capital. As a consequence, the Company's financial metrics would approach those of a below investment grade utility. While Messrs. DaFonte and Krygier address the basis of Staff's recommendation, the likely practical effect of the proposed adjustment would be to substantially diminish the Company's financial profile, significantly increasing its risk and, therefore, required equity return.

Lastly, Mr. Marevangepo's recommendation to apply Liberty Utility Company's capital structure of * * percent common equity and * * percent long-term debt

[4] *See*, my Rebuttal Testimony filed July 30, 2014 on Financial Integrity/Revenue Imputation, at 6.

is inconsistent with industry practice, which calls for a considerably higher proportion of common equity.[5] If adopted, Mr. Marevangepo's recommendation would increase the Company's financial risk, place significant downward pressure on its financial profile, and likely increase its overall cost of capital. The Company's proposed capital structure of 58.34 percent common equity and 41.66 percent long-term debt, on the other hand, is consistent with both industry practice and recent Commission precedent.[6] As such, I continue to support the proposed capital structure as reasonable and appropriate.

Q. What are the principal analytical issues that account for the differences between your recommendations and those offered by Mr. Marevangepo?

A. Our respective analyses differ in several ways, but key differences lie in: (1) the inputs used in the Constant Growth Discounted Cash Flow ("DCF") analyses and the interpretation of that model's results; (2) the use of the Quarterly Growth and Multi-Stage Discounted Cash Flow ("DCF") models; (3) the application of the Capital Asset Pricing Model ("CAPM"), in particular, the derivation of the Market Risk Premium ("MRP") component of that model; (4) the assumptions and methods underlying the Bond Yield Plus Risk Premium analysis; (5) the interpretation of the implications of authorized ROEs in other jurisdictions; (6) the assumptions underlying the assessment of the reasonableness of the Company's proposed capital structure; and (7) the appropriate cost of debt.

Q. Please now summarize the updated analyses contained in your Rebuttal Testimony.

A. I have updated the Quarterly DCF, Constant Growth DCF, Multi-Stage DCF, Capital

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5 Staff Cost of Service Report, at 7. *See* Schedule RBH-R21 for the proxy group capital structures.

6 *See*, for example, Report and Order, Public Service Commission of the State of Missouri, Case No. WR-2006-0425, at 23.

Asset Pricing Model ("CAPM"), and Bond Yield Risk Premium analysis based on data through June 30, 2014 and applied those analyses to the proxy group contained in my Direct Testimony.

Table 1: Summary of Analytical Results

Quarterly DCF	***Mean Low***	***Mean***	***Mean High***
30-Day Average	7.81%	9.17%	10.98%
90-Day Average	7.92%	9.29%	11.10%
180-Day Average	8.01%	9.38%	11.19%
Constant Growth DCF	***Mean Low***	***Mean***	***Mean High***
30-Day Average	7.69%	9.02%	10.77%
90-Day Average	7.80%	9.13%	10.88%
180-Day Average	7.88%	9.21%	10.96%
Multi-Stage DCF	***Mean Low***	***Mean***	***Mean High***
30-Day Average	9.30%	9.62%	10.08%
90-Day Average	9.41%	9.74%	10.21%
180-Day Average	9.49%	9.83%	10.31%

CAPM Results	***Bloomberg Derived Market Risk Premium***	***Value Line Derived Market Risk Premium***
Average Calculated Beta Coefficient		
Current 30-Year Treasury (3.40%)	11.36%	10.84%
Near Term Projected 30-Year Treasury (3.95%)	11.91%	11.39%
Average Bloomberg Beta Coefficient		
Current 30-Year Treasury (3.40%)	11.19%	10.69%
Near Term Projected 30-Year Treasury (3.95%)	11.74%	11.23%
Average Value Line Beta Coefficient		
Current 30-Year Treasury (3.40%)	10.97%	10.48%
Near Term Projected 30-Year Treasury (3.95%)	11.52%	11.03%

	Low	***Mid***	***High***
Bond Yield Plus Risk Premium	10.08%	10.20%	10.77%
Flotation Cost	0.13%		

III. RESPONSE TO THE STAFF COST OF SERVICE REPORT AS IT RELATES TO THE COST OF CAPITAL AND CAPITAL STRUCTURE

Q. Please briefly summarize Staff's ROE and capital structure analyses and recommendations.

A. Staff, through its witness Mr. Marevangepo, recommends an ROE range of 8.20 percent to 9.20 percent, with a point estimate of 8.70 percent.[7] To develop his ROE recommendation, Mr. Marevangepo relies on the Constant Growth DCF model and includes a * * basis point upward adjustment to reflect Liberty Utilities' lower credit rating relative to the proxy group.[8] Although he does not rely on their results in arriving at his ROE recommendation, Mr. Marevangepo also performs a CAPM analysis and Risk Premium analysis as a "test" on the reasonableness of his DCF results.[9] Mr. Marevangepo recommends Liberty Utility Company's (the intermediary parent of Liberty Utilities) * * percent cost of long-term debt.[10] Lastly, Mr. Marevangepo recommends Liberty Utility Company's capital structure of * * percent common equity and * * percent long-term debt.[11]

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7 Staff Cost of Service Report, at 7.

8 *Ibid.* Please note that Mr. Marevangepo's Constant Growth DCF results are 7.80% to 8.80%. As discussed in more detail below, I disagree with giving any weight to results that are near or below the lowest ROE authorized by any regulatory commission in at least 30 years.

9 As discussed below, Mr. Marevangepo's "Rule of Thumb" is a form of Risk Premium analysis.

10 Staff Cost of Service Report, at 21. Staff notes they may update their cost of debt recommendation based on pending data discovery responses.

11 *Ibid.*, at 19, 35.

Proxy Group Composition

Q. Please describe the screening criteria by which Mr. Marevangepo developed his proxy group.

A. Mr. Marevangepo started with SNL's universe of market-traded natural gas distribution companies and selected a proxy group of eight gas utilities based on the following six screening criteria[12]:

1. The company's stock is publically traded;
2. At least 65.00 percent of operating income is derived from natural gas distribution;
3. At least 65.00 percent of assets are natural gas distribution assets;
4. Long-term EPS growth estimates are available from at least one analyst in the past 30 days, and from at least two analysts in the past 90 days;
5. The company's dividends per share must have grown, on a compound-annual bases, over the past five years;
6. The company's credit rating must be at least investment grade.

Based on those criteria, Mr. Marevangepo developed a group of eight companies, all of which were contained in my proxy group. The only difference between our respective proxy groups is Mr. Marevangepo's exclusion of South Jersey Industries.

Q. Why did Mr. Marevangepo's exclude South Jersey Industries from his proxy group?

A. Based on Mr. Marevangepo's Schedule 7-1, which illustrates his screening process,

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12 Staff Cost of Service Report, at 22-23.

South Jersey Industries was excluded from his proxy group because less than two analyst long-term earnings per share ("EPS") growth estimates were available. Mr. Marevangepo relies on a single source (SNL Financial) for his analyst growth estimates, which only reported one long-term EPS growth estimate.

Q. Why is South Jersey Industries included in your proxy group?

A. My proxy group selection criteria also require that at least two analyst long-term EPS growth rate estimates are available. However, two (First Call and Zacks) of the three sources I rely on for analyst long-term EPS growth estimates include more than one analyst estimate.

Application of the DCF Model

Q. Please briefly summarize Mr. Marevangepo's Constant Growth DCF analysis and results.

A. Mr. Marevangepo's Constant Growth DCF analysis produces DCF results of 7.80 percent and 8.80 percent by combining his proxy group's average dividend yield of 3.78 percent with his 4.00 percent to 5.00 percent growth rate estimate (and rounding to the nearest decimal place). To calculate the dividend yield for each proxy group company, Mr. Marevangepo divides SNL Financial's projected weighted average 2014 and 2015 dividends per share by the average of the monthly high and low stock prices for the three month period ending April 30, 2014.[13] For the "perpetual" growth rate component of the DCF model, Mr. Marevangepo considers the proxy group's historical and projected EPS,

[13] Staff Cost of Service Report, at 23-24. Staff Workpaper "Marevangepo Direct-Schedules and Workpapers-ZM Proprietary" indicates the 2014 dividend was given 2/3 weight and the 2015 dividend was given 1/3 weight.

dividend per share ("DPS") and book value per share ("BVPS") growth rates as well as forecasts of GDP growth before selecting a growth rate range of 4.00 percent to 5.00 percent.[14]

Q. Please summarize the differences between you and Mr. Marevangepo regarding the Constant Growth DCF model.

A. As a preliminary matter, I note that Mr. Marevangepo's analysis produces DCF results ranging from 7.80 percent to 8.80 percent.[15] I strongly disagree that a DCF result as low as 7.80 percent is relevant in determining the Company's Cost of Equity. Not only is Mr. Marevangepo's highest DCF result 89 basis points below the average authorized ROE for natural gas utilities since the beginning of 2013, there has not been a single case in which an ROE as low as 8.80 percent (the high end of Mr. Marevangepo's range) was authorized for a gas utility since at least 1980.[16] As discussed below, Mr. Marevangepo's low DCF results are largely explained by (1) the growth rates that he has applied in his analysis, and (2) his failure to consider the results of a multi-stage DCF model which may better reflect investor expectations in the current economic environment.

Q. How does Mr. Marevangepo select the growth rates used in his Constant Growth DCF analysis?

A. Mr. Marevangepo reviews a number of data points, including: historical ten year and five year DPS, BVPS, and EPS growth rates; projected three year DPS, BVPS, and EPS growth rates as reported by SNL; projected five year EPS growth rates as reported by

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14 *Ibid.*, at 24-31.

15 *Ibid.*, at 31 and Appendix 2, Schedule 11.

16 Source: Regulatory Research Associates. See Schedule RBH-R23.

SNL; and a number of real GDP growth estimates reported in the U.S. Energy Information Administration's 2013 Annual Energy Outlook which cover various forecast periods that end between eight and 26 years in the future.[17]

Mr. Marevangepo also reviews the gas industry's rolling ten year average growth in DPS, EPS and BVPS relative to the rolling ten year average growth in nominal GDP from 1979 – 2011 and concludes GDP growth should be the upper limit to gas utility growth.[18]

Q. Please summarize the differences between you and Mr. Marevangepo in the selection and application of growth rates in your respective DCF analyses.

A. My Quarterly DCF, Constant Growth DCF and the first-stage of my Multi-Stage DCF rely on analysts' earnings growth projections, as published by Zacks, First Call and Value Line, as well as a measure of Retention Growth.[19] The long-term growth rate in my Multi-Stage DCF model reflects the assumption that gas distribution utilities' earnings growth will converge toward GDP growth over the long-term. Mr. Marevangepo's analysis, on the other hand, reflects both historical and projected growth in DPS, BVPS, and EPS, as well as historical and projected GDP growth. As discussed in my Direct Testimony, it is my view that forward-looking earnings growth estimates are the relevant measure of growth. While I agree that it is reasonable to assume that gas distribution utilities' earnings will generally grow at the same rate as GDP over the long-term, I disagree with Mr. Marevangepo's application of a growth rate constrained to GDP

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17 Staff Cost of Service Report, at 24-25 and Appendix 2, Schedules 8-1 through 8-6.

18 *Ibid.*, at 25.

19 *See*, Direct Testimony of Robert B. Hevert, at 18.

growth in the near and medium-terms. In that regard, if Mr. Marevangepo is concerned that near-term analyst earnings estimates do not appropriately reflect investor's long-term growth expectations, it would have been appropriate for him to consider a multi-stage form of the DCF model, as I have.

In addition, I believe the GDP growth estimates Mr. Marevangepo relies on do not have sufficiently long time horizons. It is important to remember that, as Mr. Marevangepo notes, "the constant growth rate is assumed to last in perpetuity."[20] Quite simply, the term of even the longest GDP forecast considered by Mr. Marevangepo does not reflect the perpetual nature of the terminal growth assumed in the DCF model.

Q. Why do you disagree with Mr. Marevangepo's position that dividend or book value growth rates are appropriate inputs to the DCF model?

A. As a preliminary matter, it is important to realize that earnings growth is ultimately the source of both dividend *and* book value growth. As noted in my Direct Testimony, earnings are the fundamental driver of a company's ability to pay dividends and there is substantial academic research that indicates earnings growth rates are the appropriate growth measure for estimating equity returns using the DCF model.[21] Corporate decisions to manage the dividend payout ratio for the purpose of minimizing future dividend reductions, or to signal future earnings prospects can influence dividend growth rates in near-term periods in a manner that is disproportionate to earnings growth.

Similarly, book value can increase over time only through the addition of retained earnings, or with the issuance of new equity. Both of those factors are derivative of

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20 *Ibid.*, at 25.

21 *See* Direct Testimony of Robert B. Hevert, at 13-15.

earnings; retained earnings increase with the amount of earnings not distributed as dividends, while the price at which new equity is issued is a function of the earnings per share and the then-current Price/Earnings ("P/E") ratio. Moreover, as noted in my Direct Testimony, academic research has clearly indicated that measures of earnings and cash flow are strongly related to returns.[22]

Mr. Marevangepo's reference to dividend and book value growth rates also is misplaced because the only scenario under which dividend growth rates and book value growth rates are relevant is when the fundamental assumptions underlying the Constant Growth DCF model essentially hold. Under those fundamental assumptions, the Constant Growth DCF model produces the same result whether the stock is held in perpetuity or sold after an assumed holding period and the assumed growth rate equals the rate of capital appreciation (*i.e.*, the stock price growth rate). Given that investors tend to value common equity on the basis of P/E ratios, the required return on equity is a function of the long-term growth in earnings, not dividends or book value.

Q. Have you conducted any analyses to determine which measures of growth are statistically related to the proxy companies' stock valuation levels.

A. Yes, I have. My analyses are structured based on a methodological approach used by Professors Carleton and Vander Weide, who conducted a comparison of the predictive capability of historical growth estimates and analysts' consensus forecasts of five-year

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22 *See*, for example, Christofi, Christofi, Lori and Moliver, *Evaluating Common Stocks Using Value Line's Projected Cash Flows and Implied Growth Rate*, Journal of Investing (Spring 1999); *see* also Harris and Marston, *Estimating Shareholder Rise Premia Using Analysts Growth Forecasts*, Financial Management, 21 (Summer 1992).

earnings growth for the stock prices of sixty-five utility companies.[23] While their study addressed the use of historical growth rates, the general methodology established by Professors Carleton and Vander Weide also can be used to determine which growth rate projections have the greatest predictive capability with respect to stock valuation levels. As discussed below, my analyses were structured to assess the ability of various growth estimates to explain changes in the proxy group stock valuation levels. Essentially, the analysis is structured to determine whether investors use Earnings, Dividend, or Book Value growth rates when valuing the proxy company stocks.

At the outset, I note that the Value Line universe of natural gas utilities includes only eleven companies, which is too small a sample to provide reasonably robust statistical results. Because Mr. Marevangepo did not suggest that dividend and book value growth rates are relevant only to natural gas utilities, I began with the Value Line universe of 58 electric and natural gas utilities. In order to control for differences in risk across the companies in general, and between electric and gas utilities in particular, I included three additional variables, also from Value Line:

1. Earnings Predictability;
2. Growth Persistence; and
3. Price Stability Rank.

I then performed a series of regression analyses in which the projected EPS, DPS and BVPS growth rates and the additional variables noted above were included as

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[23] Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs. History*, The Journal of Portfolio Management, Spring 1988, at 81. Please note that while the original study was published in 1988, it was updated in 2004 under the direction of Dr. Vander Weide. The results of this updated study are consistent with the Vander Weide and Carlton's original conclusions.

explanatory variables, with the P/E ratio as the dependent variable. The intent of those analyses was to determine which, if any, of the growth rates are statistically related to the proxy company stock valuation levels. As shown in Table 2 (*see* also Schedule RBH-R22), the results of all four regression analyses indicate that EPS is the only meaningful, statistically significant explanatory variable for P/E ratios.

Table 2: Regression Results- Price to Earnings v. Growth Rates

	Intercept	*Coefficient*	*Standard Error*	*T-Stat*	*F-Stat*
Scenario 1- Projected EPS	11.0559	43.253	13.031	3.319	3.409
Scenario 2- Projected DPS	18.099	24.313	15.684	1.550	1.168
Scenario 3- Projected BVPS	23.684	-20.322	25.576	-0.795	0.707
Scenario 4-					
Projected EPS	13.060	42.250	13.552	3.118	2.740
Projected DPS		14.135	15.191	0.930	
Projected BVPS		-33.683	23.623	-1.426	

In the first set of analyses (Scenarios 1-3), I considered each independent variable separately (*i.e.*, performed three separate regressions with P/E as the dependent variable and projected EPS, DPS and BVPS as the independent variable). To ensure that those separate analyses did not somehow bias my results, I then performed a single regression that included all three variables as potential explanatory variables (Scenario 4). To ensure that my approach was reasonable, I also ran the analyses using the step-wise regression procedure in a statistical software package. As shown in Schedule RBH-R22, those results confirm the procedure discussed above.

Q. What did those analyses reveal?

A. In all scenarios, the only theoretically meaningful and statistically significant variable

was the projected EPS growth rate; neither projected DPS growth nor projected BVPS growth provided any meaningful explanatory value.[24]

Q. What conclusions did you draw from those analyses?

A. Since my analyses demonstrate that only EPS growth has a meaningful and statistically significant level of explanatory value with respect to the proxy companies' stock valuations, I conclude that investors consider expected EPS growth rates, not expected DPS or BVPS growth rates, in establishing market prices for those companies. Therefore, I have continued to rely on projected EPS growth rates from Value Line, Zacks, and First Call, as well as an estimate of Retention Growth, in my DCF analyses.

Q. Have you performed any analysis to assess the reasonableness of Mr. Marevangepo's long-term growth estimate?

A. Yes, I have. While Mr. Marevangepo reviews GDP growth estimates that end from eight to 26 years from now, it is important to remember the long-term growth rate used in the DCF model is a perpetual growth rate extending indefinitely.[25] With respect to nominal GDP growth, I note that the long-term geometric average from 1929 to 2013 was 6.23 percent, and the arithmetic average was 6.47 percent. Those observed growth rates are as much as 147 basis points above the high end of the 4.00 percent to 5.00 percent growth rate range on which Mr. Marevangepo relies as a measure of long-term expected growth. Since Mr. Marevangepo considered ten year average growth rates when comparing GDP growth rates to natural gas utility EPS, DPS and BVPS growth rates,[26] I reviewed ten

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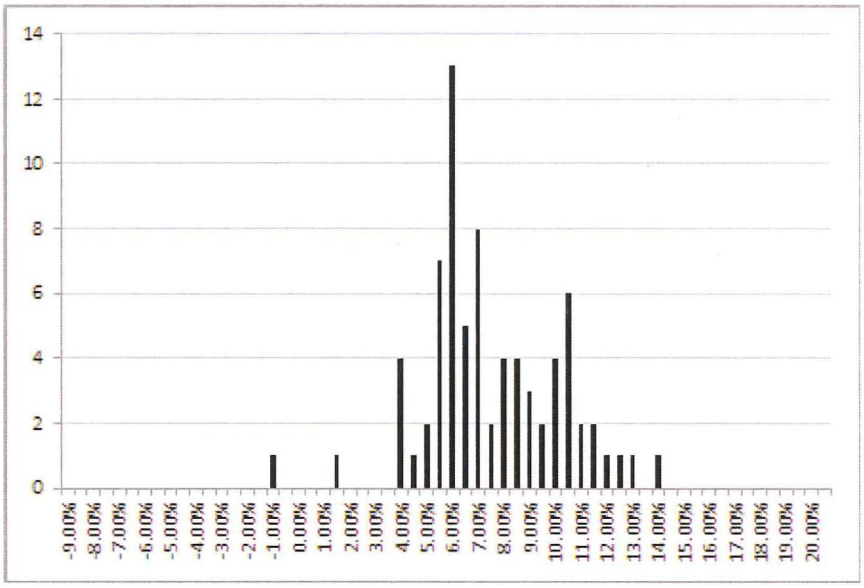
24 While BVPS was not statistically significant, I also note it has a negative sign suggesting the untenable and theoretically unlikely situation in which stock valuation increases as growth decreases.

25 Staff Cost of Service Report, at 25.

26 *Ibid.*, at 28.

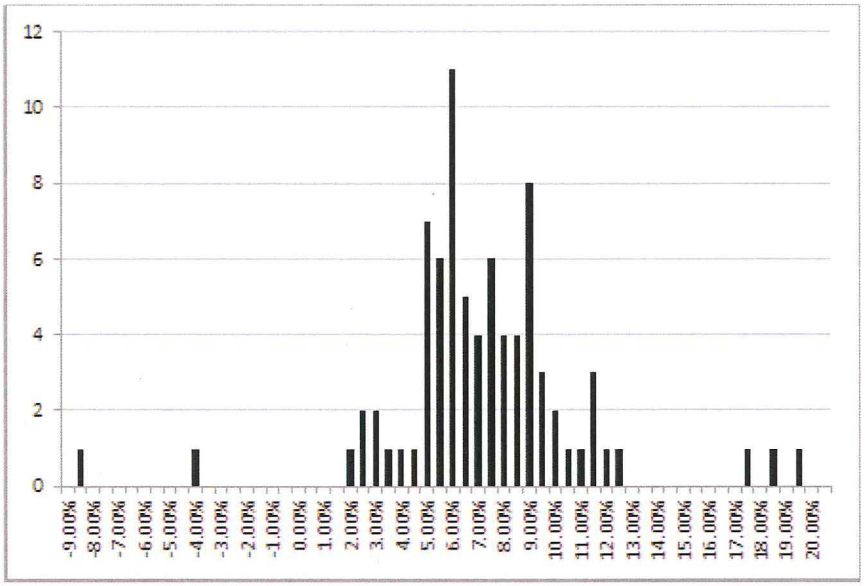
year average GDP growth rates over the 1929 to 2013 period. I then arranged that data in to a histogram to provide a perspective of how frequently various levels of growth have occurred. As Chart 1 demonstrates, average annual growth as low as 4.00 percent has been observed very infrequently; when measured over ten year periods, average annual growth exceeded 5.00 percent in 66 of 75 periods. To provide another perspective, I also calculated average GDP growth over five year periods. In that case, average annual GDP growth rate was greater than 5.00 percent in 63 of 80 periods (see Chart 2).

Chart 1: Average Annual GDP Growth Measured over Ten-Year Periods[27]



[27] Source: Bureau of Economic Analysis.

Chart 2: Average Annual GDP Growth Measured over Five-Year Periods[28]



Q. Are there other benchmarks that may help put that growth rate in context?

A. Yes, there are. Mr. Marevangepo's long-term growth projections can be assessed in the context of authorized ROEs. The average authorized natural gas ROE since the beginning of 2013 (i.e., January 2013 through June 2014) for natural gas utilities was 9.69 percent.[29] In the context of the Constant Growth DCF model, that return includes income from dividends (*i.e.,* the dividend yield) and expected growth (*i.e.*, capital appreciation). Assuming Mr. Marevangepo's proxy group average dividend yield of 3.78 percent as the average industry dividend yield, the average reported authorized ROE of 9.69 percent provided in Schedule RBH-R23 implies an expected long-term growth rate of 5.91 percent.[30] That estimate is consistent with, although somewhat higher than, the

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28 Source: Bureau of Economic Analysis.

29 Source: SNL Financial. *See* Schedule RBH-R23.

30 9.69 percent – 3.78 percent = 5.91 percent.

long-term growth estimate of 5.71 percent used in my Multi-Stage DCF analysis.

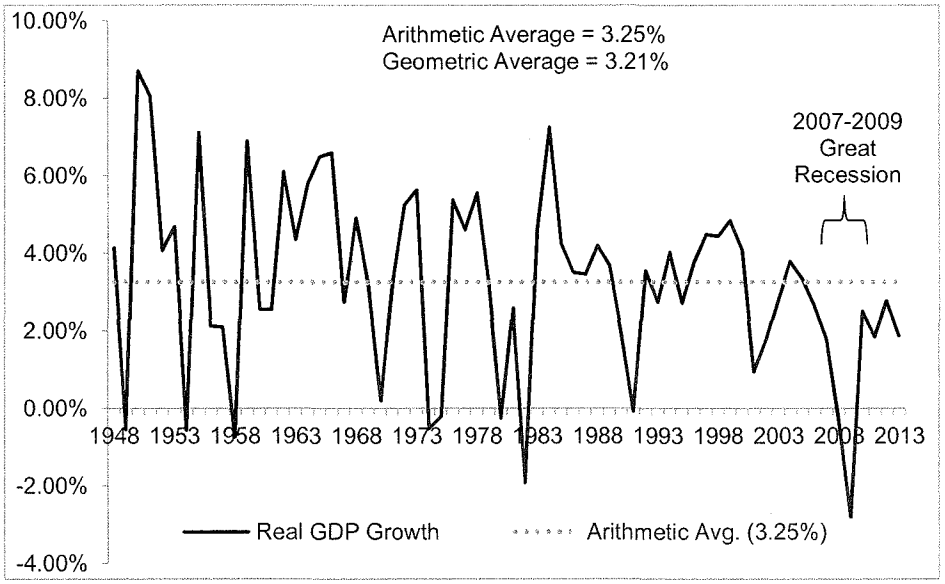
Q. Is there another approach to calculating the long-term growth rate that produces more reasonable results?

A. Yes, there is. As noted in my Direct Testimony, it is possible to use observable market data regarding nominal and inflation-protected Treasury yields (referred to as "Treasury Inflation Protected Securities" or "TIPS") to calculate the market's forward view of inflation (that is, inflation expected over the long term beginning ten years from now). In particular, the difference between nominal Treasury yields and TIPS yields is commonly considered to be a measure of expected inflation. That measure of expected inflation can then be combined with average historical real GDP growth. According to data provided by the Bureau of Economic Analysis, over the period 1929 to 2013 the average annual real GDP growth rate was 3.27 percent. Combining real GDP growth with the expected inflation rate of 2.36 percent produces an expected long-term growth rate of 5.71 percent. Interestingly, my estimate of GDP growth is 20 basis points *below* the 5.91 percent estimate implied by Mr. Marevangepo's model, assuming the average authorized ROE during 2013 - 2014.

Q. Is it reasonable to assume future real GDP growth will reflect historical real GDP growth?

A. Yes, it is. As shown in Chart 3 below, but for the recent "great recession" and the continued slow economic recovery, real GDP growth since the post-World War II era has been cyclical, but maintained a relatively steady mean reversion level close to the long-term historical average of 3.27 percent.

Chart 3: Real GDP Growth Mean Reversion (1948 to 2013)



Over that more recent period, annual real GDP growth rates have been above the long-term 3.27 percent geometric average more than half of the time (35 of 66 years). As noted above, Mr. Marevangepo surveyed a number of GDP forecasts with time horizons ranging from eight to 26 years. Based on that data, Mr. Marevangepo relies on a long-term real GDP growth rate estimate of 2.50 percent.[31] It is interesting to note that annual real GDP growth has been at or above 2.50 percent more than 70.00 percent of the time since 1948 (47 of 66 years). In fact, of the 19 years with 2.50 percent real growth or less, five have been during or following the recent "great recession." Mr. Marevangepo, however, has provided no rational to explain his assumed decline of more than 70 basis points in the structural growth potential of the economy over the long-term.

Q. Do you agree with Mr. Marevangepo's suggestion that utility companies should grow at a rate less than that of the overall economy?

31 Staff Cost of Service Report, at 26.

A. No, I do not. Even a brief survey of finance texts speaks to the use of long-term GDP growth as a reasonable estimate for the terminal period. For example, Dr. Roger Morin writes: "It is useful to remember that eventually all company growth rates, especially utility services growth rates, converge to a level consistent with the growth rate of the aggregate economy."[32] Similarly, Eugene F. Brigham and Michael C. Ehrhardt in Financial Management: Theory and Practice note:

> Expected growth rates vary somewhat among companies, but dividend growth for most mature firms is generally expected to continue in the future at about the same rate as nominal gross domestic product (real GDP plus inflation). On that basis, one might expect the dividends of an average, or "normal," company to growth at a rate of 5% to 8% a year.[33]

In addition, Morningstar notes that "...historically, the growth in corporate earnings has been in line with the growth of overall economic productivity,"[34] and Ibbotson and Chen state: "For the whole period [1926-2000], GDP per capita slightly outgrew earnings and dividends, but all four factors grew at approximately the same rate."[35]

Q. Do you agree with Mr. Marevangepo's assertion that because their payout ratios are relatively higher than the average payout ratio for the S&P 500, utilities will likely grow at a slower rate than the overall economy?

A. No, I do not. In 2006, two articles appeared in Financial Analysts Journal, which addressed the theory that high dividend payouts (*i.e.*, low retention ratios) are associated

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32 Roger A. Morin, New Regulatory Finance, Public Utilities Reports, Inc. (2006), at 308.

33 Eugene Brigham and Michael Ehrhardt, Financial Management: Theory and Practice, 12th Ed. (Mason, OH: South-Western Cengage Learning, 2008), at 291.

34 Morningstar, Inc., 2012 Ibbotson Stocks, Bonds, Bills and Inflation Valuation Yearbook, at 64.

35 Roger G. Ibbotson and Peng Chen, *Long-Run Stock Returns: Participating in the Real Economy*, Financial Analysts Journal, January/February 2003, at 93.

with low future earnings growth.[36] Both of those articles cite a 2003 study by Arnott and Asness who found that, over the course of 130 years of data, future earnings growth is associated with high, rather than low, payout ratios.[37] Consequently, a general observation regarding the relative size of the average payout ratio of gas utility companies compared to the S&P 500 index does not provide sufficient information to determine the extent to which the two growth rates may (or may not) diverge.

Moreover, Mr. Marevangepo's own data shows that the gas utility industry's average DPS, EPS and BVPS ten year compound growth rates have trended upward over the past 15 years, even as nominal GDP growth has declined.[38] In fact, the gas utility industries' ten year compound growth has exceeded nominal GDP growth since approximately 2008.

Q. Have you performed any analysis to assess Staff's assertion that investors expect utilities to grow more slowly than the overall economy because "investors invest in utility companies for yield and not growth"?[39]

A. Yes, I have. I collected dividend yield and projected earnings growth data, as reported by Bloomberg Financial, for the companies in the S&P 500 Index. After excluding companies that did not have earnings growth projections, I ran a regression using dividend yield as the independent variable and projected earnings growth as the

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36 *See*, Ping Zhou, William Ruland, *Dividend Payout and Future Earnings Growth*, Financial Analysts Journal, Vol. 62, No. 3, 2006. *See* also Owain ap Gwilym, James Seaton, Karina Suddason, Stephen Thomas, *International Evidence on the Payout Ratio, Earnings, Dividends and Returns*, Financial Analysts Journal, Vol. 62, No. 1, 2006.

37 *See*, Robert Arnott, Clifford Asness, *Surprise: Higher Dividends = Higher Earnings Growth*, Financial Analysts Journal, Vol. 59, No. 1, 2003.

38 Staff Cost of Service Report, at 28.

39 Staff Cost of Service Report, at 24.

dependent variable. As shown in Table 3, below, the results of that regression were statistically significant (*see also*, Schedule RBH-R24). Combining Mr. Marevangepo's 3.78 percent estimated proxy group dividend yield with the regression coefficients below produces an expected growth rate of 7.81 percent. Looked at another way, the average projected growth rate for S&P 500 companies that have dividend yields between 3.50 percent and 4.00 percent is 6.60 percent. Consequently, Mr. Marevangepo's assumption is misplaced given that those growth rates are well above my 5.71 percent long-term GDP growth rate estimate.

Table 3: S&P 500 Regression Results- Dividend Yields v. Growth Rates

	Coefficient	*Standard Error*	*t-Statistic*
Intercept	0.147	0.004	36.297
Dividend Yield	-1.830	0.176	-10.375

Q. Do you have any concerns with Mr. Marevangepo's use of GDP estimates as a constraint on the growth component of the Constant Growth DCF model?

A. Yes, I do. As noted above, Mr. Marevangepo's own analysis shows that, since about 2000, the gas industry's growth rate has been increasing even as GDP growth has slowed, with gas utility growth actually exceeding GDP growth over the past few years.[40] Recognizing that relationship, Mr. Marevangepo asserts that "empirical evidence shows that natural gas distribution utility growth has had very little correlation to that of

[40] Staff Cost of Service Report, page 29. Note, Mr. Marevangepo's analysis is based on 10-year rolling growth rates.

GDP."[41] If the two growth rates are uncorrelated, as Mr. Marevangepo suggests, it is unclear why gas companies' growth rates should somehow be limited by GDP growth. To that point, both analyst EPS growth rate projections and the Retention Growth model indicate some companies' near-term growth may substantially exceed estimated GDP growth.

While it is reasonable to assume natural gas utilities' earnings growth will be generally consistent with GDP growth over the long-term, I believe it is important to recognize some proxy group companies may grow faster than GDP in the near-term. Thus, rather than limiting the growth rate component of his Constant Growth DCF model to GDP growth, it would have been more reasonable for Mr. Marevangepo to consider the results of the Multi-Stage DCF analysis presented in my Direct Testimony.[42]

The use of the Multi-Stage DCF model allows the analyst to address certain limiting assumptions of the Constant Growth DCF model that may not reflect investor expectations at a given time.[43] For example, as discussed in my Direct Testimony, the Multi-Stage DCF model enables the analyst to address the sometimes limiting assumption that companies will grow at the same rate in perpetuity by specifying growth rates over three distinct stages. In addition, the Multi-Stage DCF model allows the analyst to reflect the assumption that companies may increase or decrease capital spending levels over time, or transition from current payout levels to long-term expected payout levels.

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41 Staff Cost of Service Report, at 28.

42 *See* Direct Testimony of Robert B. Hevert, at 19-23.

43 Limiting assumptions of the Constant Growth DCF model were discussed in my Direct Testimony; *see* Direct Testimony of Robert B. Hevert, at 17.

Q. Has the Multi-Stage DCF model been accepted in other regulatory jurisdictions?

A. Yes, it has. For example, a recent recommended decision for Public Service of Colorado notes:

> This Proceeding provides the opportunity to consider the Multi-Stage DCF, a newly-introduced variation of the DCF used by Public Service and Staff. The ALJ agrees with Public Service that the Multi-Stage DCF provides a degree of flexibility that may address the limiting assumptions of the Constant Growth DCF model. The incorporation of the short-term, transitional, and long-term growth rates, as opposed to a single growth rate, is a superior method for estimating growth.[44]

The final decision in that proceeding accepted the Administrative Law Judge's finding, noting that it "derives from a rational, model-based approach supported by the evidence."[45] Similarly, while the Federal Energy Regulatory Commission ("FERC") has long used a "two-step" DCF model for oil and natural gas pipelines, a recent FERC decision determined current market conditions necessitated a shift from a Constant Growth DCF model to a two-step DCF model for electric utilities as well.[46]

Application of the Capital Asset Pricing Model

Q. Please briefly describe Mr. Marevangepo's CAPM analysis.

A. Mr. Marevangepo's CAPM analyses assume a risk-free rate of 3.63 percent based on the average 30-year Treasury yield for the three month period ending April 31, 2014, an average calculated five year Beta coefficient of 0.80, and historical MRP estimates of

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44 Public Utilities Commission of the State of Colorado, Docket No. 12AL-1268G, Recommended Decision of Administrative Law Judge, dated October 22, 2013 at 99-100.

45 Public Utilities Commission of the State of Colorado, Proceeding No. 12AL-1268G, Decision No. C13-1568, at para. 36.

46 United States of America Federal Energy Regulatory Commission, Docket No. EL11-66-001, Opinion No. 531, Order on Initial Decision, June 19, 2014, at 6.

6.20 percent (using the arithmetic mean) and 4.64 percent (using the geometric mean).[47] Based on those inputs, Mr. Marevangepo's CAPM calculations resulted in Cost of Equity estimates of 8.55 percent and 7.31 percent, respectively.[48]

Q. Do you agree with Mr. Marevangepo's application of the CAPM?

A. No, I principally disagree with Mr. Marevangepo's exclusion of projected measures of the risk-free rate component of the model and his use of historical Market Risk Premium estimates. More important than our methodological differences, however, are our respective conclusions regarding the reasonableness and reliability of an analysis that produces an ROE estimate of 7.31 percent (using the geometric risk premium) and 8.55 percent (using the arithmetic risk premium). As noted earlier, there is no market data of which I am aware that could rationalize such low results.

Q. Turning first to the risk-free rate component of the CAPM model, do you agree with Mr. Marevangepo's use of the average 30-year Treasury yield?

A. While I agree with Mr. Marevangepo that it is appropriate to use the current average 30-year Treasury yield, I also believe that, since the purpose of this proceeding is to establish the Cost of Equity for Liberty Utilities' gas utility operations on a forward-looking basis, it is important to develop a CAPM analysis that reflects investor expectations concerning the risk-free rate and, as discussed in more detail below, the MRP. For that reason, as also discussed in my Direct Testimony, I relied on both the current 30-day average 30-year Treasury yield and the projected near-term 30-year Treasury yield as reported by

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47 Staff Cost of Service Report, at 32-33.

48 *Ibid.*

Blue Chip Financial Forecast.[49]

Q. How did Mr. Marevangepo calculate his MRP estimates?

A. Mr. Marevangepo cites Duff & Phelps' 2014 Valuation Handbook and states he calculated his 6.20 percent arithmetic and 4.64 percent geometric historical MRP estimates by taking the difference between the long-term average earned return on stocks and bonds from 1926 – 2013.[50] I note, however, Duff & Phelps reports arithmetic and geometric historical Market Risk Premium estimates of 6.96 percent and 4.89 percent, respectively.[51] It is not clear why Mr. Marevangepo's MRP estimates are so much lower than his source's (Duff & Phelps) reported values.

Q. Is it appropriate to rely exclusively on historical data in estimating the MRP, as Mr. Marevangepo has done?

A. No. The Market Risk Premium represents the additional return required by equity investors to assume the risks of owning the "market portfolio" of equity relative to long-term Treasury securities. As with other elements of Cost of Equity analyses, the MRP is meant to be a forward-looking parameter. Simply relying on the historical MRP may produce results that are inconsistent with investor sentiment and current conditions in capital markets. For example, Morningstar observes:

> It is important to note that the expected equity risk premium, as it is used in discount rates and cost of capital analysis, is a forward-looking concept. That is, the equity risk premium that is used in the discount rate should be reflective of what investors think the risk premium will be going forward.[52]

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49 Direct Testimony of Robert B. Hevert, at 27.

50 Staff Cost of Service Report, at 33.

51 Duff & Phelps, 2014 Valuation Handbook, at 3-19.

52 Morningstar, Inc., 2013 Ibbotson Stocks, Bonds, Bills and Inflation Valuation Yearbook, at 53.

The historical MRP, however, does not necessarily reflect investors' expectations or, for that matter, the relationship between market risk and returns. As shown in Table 4 (below), when measured on a historical basis, the average MRP decreased during the 2008 – 2009 financial crisis even as market volatility (the primary statistical measure of market risk) significantly increased. That is, historical data suggests that investors reduced their equity return requirements as the markets became increasingly unstable.

Table 4: Historical Market Risk Premium and Market Volatility

	Historical MRP[53]	***Market Volatility***[54]
2013	6.96%	14.23
2012	6.70%	17.80
2011	6.60%	24.20
2010	6.70%	22.55
2009	6.70%	31.48
2008	6.50%	32.69
2007	7.10%	17.54

The assumption that investors would become less risk averse (as manifested in a lower MRP) during periods of increasing market uncertainty (as measured by the volatility of returns) from 2007 to 2008 is counter-intuitive, and in my view, leads to unreliable analytical results. Likewise, the increase in the historical Market Risk Premium since 2008 is counter-intuitive in light of the decreased volatility over that time period. As noted earlier, the relevant analytical issue in the application of the CAPM is

53 *See* Morningstar, Inc., 2014 Ibbotson SBBI Market Report, Table 10, at 16; *See* Morningstar, Inc., 2013 Ibbotson Stocks, Bonds, Bills and Inflation Valuation Yearbook, at 142-143. Historical MRP equals total return on large company stocks less income return on long-term government securities.

54 Source: Bloomberg Professional. Market Volatility equals the average VIX for a given year.

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.

Q. What is the difference between the geometric and the arithmetic mean risk premium?

A. Although I do not endorse the use of a historical Market Risk Premium, the arithmetic risk premium best approximates the uncertainty associated with returns from year to year. The important distinction between the arithmetic and geometric averages is that the arithmetic mean assumes that each periodic return is an independent observation and, therefore, incorporates uncertainty into the calculation of the long-term average. The geometric mean, by contrast, is a backward-looking calculation that essentially equates a beginning value to an ending value over a specific period of time. Geometric averages, therefore, provide a standardized basis of review of historical performance across investments or investment managers; they do not, however, reflect forward-looking uncertainty.

Since there is no uncertainty with respect to past returns, the use of geometric averages is appropriate when comparing investment performance on a retrospective basis. On a prospective basis, however, uncertainty exists and should be taken into consideration when developing return expectations and requirements. That is why investors and researchers commonly use the arithmetic mean when estimating the risk premium over historical periods for the purpose of estimating equity cost rates. Moreover, investment risk, or volatility, typically is measured on the basis of the standard deviation. The standard deviation, in turn, is a function of the arithmetic, as opposed to the geometric mean. In that regard, the Beta coefficients applied in CAPM analyses are a

function of the standard deviation of returns.[55] In any case, Morningstar notes that:

> The arithmetic average equity risk premium can be demonstrated to be the most appropriate when discounting future cash flows. For use as the expected equity risk premium in either the CAPM or the building block approach, the arithmetic mean or the simple difference of the arithmetic means of the stock market returns and the riskless rates is the relevant number.[56]

Similarly, an article reviewing literature on the topic noted the following rationale for using the arithmetic mean:

> Note that the arithmetic mean, not the geometric mean is the relevant value for this purpose. The quantity desired is the rate of return that investors expect over the next year for the random annual rate of return on the market. The arithmetic mean, or simple average, is the unbiased measure of the expected value of repeated observations of a random variable, not the geometric mean....[The] geometric mean underestimates the expected annual rate of return.[57]

Q. Do you have any other concerns with Mr. Marevangepo's CAPM analyses?

A. Yes, I do. As discussed in my Direct Testimony, it is important to consider the incremental risk associated with Liberty Utilities' relatively small size.[58] Duff & Phelps (the source Mr. Marevangepo cites for the data he uses to calculate his historical MRPs) notes the CAPM formula can be adjusted to account for the risk associated with size, and provides the following formula[59]:

$$k_e = r_f + (\beta * ERP) + RP_s \quad \text{Equation [5]}$$

where:

k_e = the required market ROE for a security;

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55 *See* Direct Testimony of Robert B. Hevert, at 26.

56 Morningstar, Inc., 2013 Ibbotson Stocks, Bonds, Bills, and Inflation Valuation Yearbook, at 56.

57 Ian Cooper, *Arithmetic versus geometric mean estimators: Setting discount rates for capital budgeting*, European Financial Management 2.2, (1996): 158.

58 Direct Testimony of Robert B. Hevert, at 34-36.

59 Duff & Phelps, 2014 Valuation Handbook, at 10-26.

β = the Beta coefficient of that security;

r_f = the risk-free rate of return; and

ERP = the equity risk premium

RP_S = the beta-adjusted size premium

Including the general micro-cap size risk premium of 3.87 percent would significantly increase Mr. Marevangepo's CAPM results.[60] Mr. Marevangepo's analysis, however, does not take into account the Company's size.

Risk Premium Analysis and the Relevance of Authorized ROEs in Other Jurisdictions

Q. Did Mr. Marevangepo present a Risk Premium Analysis other than his CAPM analysis?

A. Yes. Mr. Marevangepo presented an additional risk premium analysis, referred to as his "Rule of Thumb" approach, which adds a premium of 3.00 percent to 4.00 percent to the corporate bond yield as represented by the average interest rate on Moody's A and Baa rated bonds from February through April 2014. Based on that approach, Mr. Marevangepo estimates an ROE range of 7.51 percent to 9.28 percent.[61] Mr. Marevangepo reasons that the equity risk premium for utilities is toward the lower end of that range since investors view utility stocks as similar to bonds.[62]

Q. Are Mr. Marevangepo's conclusions valid?

A. No. The principal issue is that Mr. Marevangepo's "Rule of Thumb" approach ignores

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60 Duff & Phelps, 2014 Valuation Handbook, Appendix 3.

61 Staff Cost of Service Report, at 34.

62 *Ibid.*

the well-established finding that the equity risk premium is inversely related to interest rates. As summarized in *New Regulatory Finance*:

> Published studies by Brigham, Shome, and Vinson (1985), Harris (1986), Harris and Marston (1992, 1993), Carelton, Chambers, and Lakonishok (1983), Morin (2005), and McShane (2005), and others demonstrate that, beginning in 1980, risk premiums varied inversely with the level of interest rates - rising when rates fell and declining when interest rates rose.[63]

That relationship, which was demonstrated with respect to long-term Treasury yields in my direct testimony,[64] also applies to utility bond yields. As Chart 4, below, demonstrates (*see also*, Schedule RBH-R25), there is a significant, negative relationship between the Moody's Baa Utility Bond Index yield and the equity risk premium (defined by reference to authorized ROEs). In fact, applying the 5.28 percent Baa yield noted on page 34 of Staff's Cost of Service Report to the regression equation provided in Chart 4 produces a risk premium estimate of approximately 4.67 percent, well above Mr. Marevangepo's "Rule of Thumb" risk premium.

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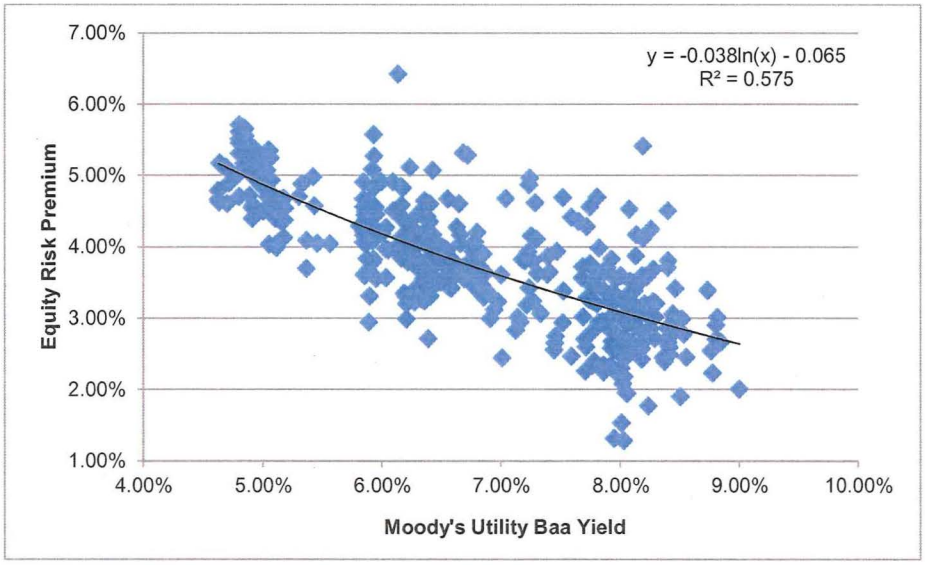
63 Morin, Roger A., *New Regulatory Finance*, Public Utilities Reports, Inc. (2006), at 128.

64 *See* Direct Testimony of Robert B. Hevert, at 33.

Chart 4: Equity Risk Premium vs. Moody's Baa Utility Bond Yield



Q. Do the returns recently authorized for natural gas utilities in other jurisdictions provide a practical benchmark that can be used to assess the reasonableness of recommendations made in this proceeding?

A. Yes, they do. Authorized returns in other jurisdictions are a relevant benchmark because Liberty Utilities must compete for capital with other comparable regulated natural gas distribution utilities.[65] Investors frame their return requirements, at least in part, by reference to returns authorized in other jurisdictions. Consequently, it is reasonable to consider returns authorized in other jurisdictions as a means of corroborating the reasonableness of ROE estimates and recommendations.

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65 As noted by Mr. Marevangepo, the Commission also has considered authorized ROEs a relevant data point in prior rate case proceedings. *See*, for example, Report and Order, Public Service Commission of the State of Missouri, File No. ER-2011-0028, dated July 13, 2011, at 67.

Q. Is Mr. Marevangepo's 8.70 percent ROE recommendation consistent with authorized ROEs in other jurisdictions.

A. No, it is not. Mr. Marevangepo reviewed the average authorized ROEs for electric and natural gas utilities in 2013 (9.68 percent and 10.02 percent, respectively) and the first quarter of 2014 (9.54 percent and 10.23 percent, respectively), but did not reconcile those results with his ROE recommendation.[66] Considering more recent data, I note that in the second quarter of 2014 the average authorized natural gas ROE was 9.75 percent (based on six rate cases) and ranged from 9.10 percent to 10.40 percent.[67] In fact, as noted above, Mr. Marevangepo's recommendation is below any natural gas or electric authorized ROE reported in at least 30 years.[68]

Capital Market Conditions

Q. Please summarize Mr. Marevangepo's position with respect to the effect of capital market conditions on the Company's Cost of Equity.

A. Mr. Marevangepo states "[u]tility debt markets clearly indicate a lower cost-of-capital environment" and notes that if the equity risk premium were assumed to be constant then the "lower cost of debt is indicative of lower cost of capital."[69] Mr. Marevangepo further suggests that "[i]nvestors view regulated utility company stock investments as a close alternative to bond investments," and notes utility stock prices tend to move inversely

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66 Staff Cost of Service Report, at 34-35.

67 *See* Schedule RBH-R23. Excludes two duplicate authorized ROEs reported for Southwest Gas Corp. as part of a single rate case. Including each reported ROE would increase the average authorized ROE to 9.84%.

68 Source: Regulatory Research Associates ("RRA").

69 Staff Cost of Service Report, at 13.

with interest rates.[70] Finally, while noting that his gas utility proxy group's total return underperformed the S&P 500 over the twelve-months ending March 31, 2014, Mr. Marevangepo suggests the valuation levels of his proxy group companies remain higher than they were when the Commission last authorized returns for several electric utilities in 2012.[71]

Q. Is the equity risk premium constant as Mr. Marevangepo assumes?

A. As discussed in detail above, it is not. The inverse relationship between the equity risk premium and long-term Treasury yields is demonstrated in my Direct Testimony,[72] and the inverse relationship with respect to utility bond yields is demonstrated in Chart 4 above. There is also substantial prior research that has documented the inverse relationship between interest rates and equity risk premiums (see above).

Q. Is it reasonable for Mr. Marevangepo to assume investors view regulated utility stocks as close alternatives to bond investments?

A. No, it is not. While it may be Mr. Marevangepo's opinion that investors consider utility ROEs as a close equivalent to the cost of debt, he provides no support for his assertion that natural gas utilities in general (and the Company in particular) essentially have no residual (that is, equity) risk and somehow take on the risk characteristics of debt.

As a preliminary matter, it is important to note that, under any condition, debt investors are the beneficiaries of a contractual obligation to make interest and principal payments, while equity investors bear the "residual risk" associated with ownership. In

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70 *Ibid.*

71 *Ibid.*, at 15.

72 *See* Direct Testimony of Robert B. Hevert, at 32-33.

light of that priority and the incremental security provided by the debt agreements, yields on long-term debt are below returns required by equity investors. For that reason alone, it is difficult to imagine that the Cost of Equity would approach the cost of debt. More importantly, it is clear that investors consider equity to be far more risky than debt.

Q. Is it possible to test the conclusion that the equity risk for utility companies approaches the risk associated with long-term bonds?

A. Yes, it is. One approach is to consider the volatility of each investment relative to the broader market. An important component of the CAPM is the Beta coefficient, which measures the volatility of the underlying security relative to the volatility of the market as a whole.[73] It is possible to calculate the implied Beta coefficient associated with debt yields. To the extent that the implied debt Beta is well below the equity Beta coefficient, Mr. Marevangepo's assertion that utilities are an alternative investment to long-term bonds is called into question. In that regard, since debt holders benefit from the contractual obligation of the debtor to pay both principal and interest, the volatility of debt securities relative to the broad equity market is extremely low; in fact, a common assumption is that debt Beta coefficients are near-zero. In the 1984 edition of their widely-used text, for example, Brealey and Myers note that:

> Debt betas are typically close to zero – close enough that for large blue-chip companies many financial analysts just assume $\beta_{debt} = 0$.[74]

More recently, in their 2008 text, Ross, Westerfield and Jaffe state that "[t]he beta

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73 *See*, Staff Cost of Service Report, at 32-33.

74 Richard Brealey, Stewart Myers, Principles of Corporate Finance, 2nd Ed., 1984, McGraw-Hill, at 175.

of debt is very low in practice."[75]

The implied debt Beta coefficients of Baa-rated utilities can be calculated using the average yield on that debt. For the sake of discussion, using the Moody's Baa-rated Utility Bond Index yield (5.28 percent), average risk-free rate (3.63 percent) and arithmetic average MRP (6.20 percent) presented in Mr. Marevangepo's direct testimony,[76] the implied Beta coefficient for Moody's Baa-rated Utility Bond Index is 0.27 (5.28 percent = 3.63 percent + (0.27 x 6.20 percent)). The Value Line equity Beta coefficients for Mr. Marevangepo's proxy group presented in Schedule 12 range from 0.75 to 0.89 with an average of 0.80, or nearly three times the implied debt Beta coefficient. Thus, Mr. Marevangepo's data and assumptions do not support the notion that investors consider utility stocks and bonds to be close alternatives or substitutes.

Q. Does Mr. Marevangepo take into account consensus forecasts that suggest interest rates are expected to rise?

A. No, he does not. Looking forward, economists' consensus projections suggest that the capital markets expect an upward movement in long-term Treasury yields. Given that the Cost of Equity is forward-looking, it is appropriate to reflect those expectations in establishing the ROE in this proceeding. To reflect the consensus view of professional forecasters, I relied on Blue Chip Financial Forecast's near-term and long-term projected 30-year Treasury yields. As shown on Schedules RBH-R18 and RBH-R19, those projections call for substantial increases in long-term interest rates.

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75 Stephen Ross, Randolph Westerfield, Jeffery Jaffe, Corporate Finance, 8th Ed., 2008, McGraw-Hill/Irwin, at 351.

76 Staff Cost of Service Report, at 32-34.

Q. Do you have any general observations regarding Mr. Marevangepo's discussion of the Federal Reserve's bond purchase program?[77]

A. As noted in my Direct Testimony, the Federal Reserve has undertaken a series of initiatives to lower long-term Treasury yields, including a nearly eight-fold increase in the Federal Reserve balance sheet. Much has been reported about the Federal Reserve's Quantitative Easing policy, and its effect on interest rates. The issue as to how those policies, and the continuing level of interest rates affects utility stock prices is less clear. As discussed below, for example, while Federal policy has affected interest rates, it also correlates with lower levels of market volatility. Generally speaking, when volatility is low investors are willing to take on more risk, and allocate capital to less defensive stocks. In essence, they are more willing to take on additional risk in expectation of realizing higher returns. Recently, however, the market appears to be providing conflicting signals; low volatility and low interest rates have resulted in defensive stocks somewhat outperforming other sectors.

A relevant question, then, is how investors will react when the Federal Reserve completes its market intervention. A viable outcome is that investors will perceive greater chances for economic growth, which will increase the growth rates included in the Constant Growth DCF model. At the same time, higher growth and the absence of Federal Reserve market intervention could provide the opportunity for interest rates to increase, thereby increasing the dividend yield portion of the DCF model. In that case, both terms of the Constant Growth DCF model would increase, producing increased ROE

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[77] Staff Cost of Service Report, at 11-12.

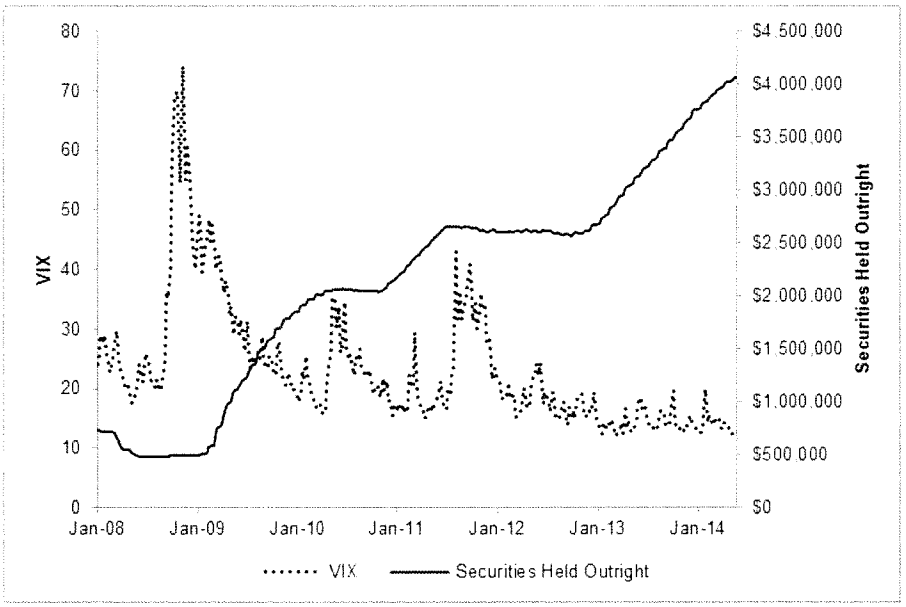
estimates.

At this time, however, market data is somewhat disjointed. As a consequence, it is difficult to rely on a single model to estimate the Company's Cost of Equity. A more reasoned approach is to understand the relationships among Federal Reserve policies, interest rates and risk, and assess how those factors may affect different models. For the reasons discussed below, the current market is one in which it is very important to consider a broad range of data and models when determining the Cost of Equity.

Q. How has the Federal Reserve's Quantitative Easing program affected market volatility?

A. Just as market intervention by the Federal Reserve has reduced interest rates, it also has had the effect of reducing market volatility. As shown in Chart 5 below, each time the Federal Reserve began to purchase bonds (as evidenced by the increase in "Securities Held Outright" on its balance sheet), volatility subsequently declined. In fact, in September 2012, when the Federal Reserve began to purchase long-term securities at a pace of $85 billion per month, volatility (as measured by the CBOE Volatility Index, known as the "VIX") fell, and has since remained in a relatively narrow range. The reason is quite straight-forward: investors became confident that the Federal Reserve would intervene if markets were to become unstable.

Chart 5: VIX and Federal Reserve Asset Purchases



The important analytical issue is whether we can infer that risk aversion among investors is at a historically low level, implying a Cost of Equity that is well below recently authorized returns. Given the negative correlation between the expansion of the Federal Reserve's balance sheet and the VIX, it is difficult to conclude that fundamental risk aversion and investor return requirements have fallen. If it were the case that investors believe that volatility will remain at low levels (that is, that market risk and uncertainty will remain low), it is not clear why they would decrease their return requirements for defensive sectors such as utilities.

Under those conditions, the tapering of the Federal Reserve's bond purchase program noted by Mr. Marevangepo may suggest an increased risk of a rise in both interest rates and market volatility (which would put upward pressure on the Cost of Equity).

Capital Structure

Q. Please briefly summarize Mr. Marevangepo's recommendation regarding the Company's Capital Structure.

A. Mr. Marevangepo recommends an equity ratio of * * percent based on the capital structure of Liberty Utilities Company ("LUCo"), the intermediary parent of Liberty Utilities.[78] Mr. Marevangepo rejects the use of Liberty Utilities' actual capital structure because Liberty: (1) is not rated by credit rating agencies, (2) does not issue its own debt, and (3) does not issue its own equity. Similarly, Mr. Marevangepo rejects the use of Liberty Utilities' ultimate parent company's capital structure noting Algonquin Power & Utilities Corp. ("APUC") is a Canadian corporation listed on the Toronto Stock Exchange and received less than * * percent of its operating income from regulated operations.

Q. What are your principal conclusions regarding Mr. Marevangepo's recommended capital structure?

A. Mr. Marevangepo's misgivings regarding the use of Liberty Utilities' actual capital structure are misplaced. Liberty Utilities' capital structure is highly consistent with the capital structure ratios reported in Schedule RBH-R21 for both my and Mr. Marevangepo's proxy groups. Liberty Utilities' 58.34 percent equity ratio is also consistent with the 57.00 percent equity ratio Mr. Marevangepo notes for APUC, which is the source of both LUCo and Liberty Utilities' equity and the ultimate driver of their credit ratings. The * * percent equity ratio recommended by Mr. Marevangepo,

[78] Staff Cost of Service Report, at 18-19.

however, is inconsistent with both APUC and Liberty Utilities' capital structures and is well below the range of equity ratios in place at the companies in both Mr. Marevangepo and my proxy groups (*see* Schedule RBH-R21).

Q. What is your response to Mr. Marevangepo's suggestion that APUC's listing on the Toronto Stock Exchange and the size of its non-regulated operations make it an unsuitable benchmark for assessing the reasonableness of Liberty Utilities' capital structure?

A. I disagree with Mr. Marevangepo's position. First, APUC's listing on the Toronto Stock Exchange does not invalidate its use as a benchmark to assess Liberty Utilities' capital structure. This is particularly true given that all of APUC's regulated operations and approximately 75.00 percent of its non-regulated operations are based in the United States. Second, APUC's non-regulated operations primarily consist of long-term contracted renewable energy generation and, therefore, would not be expected to substantially increase APUC's consolidated business risk profile.[79] Moreover, APUC's 2013 Annual Report notes that over 88.00 percent of the non-regulated division's revenue is earned from large utility customers with BBB or better credit ratings.[80]

Contrary to Mr. Marevangepo's position, to the extent APUC's capital structure is consistent with the capital structures in place at the proxy group companies, it is a highly relevant benchmark. It is important to note, as Mr. Marevangepo states: "APUC is (1)

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79 In a recent research update, Standard & Poor's notes the power business is almost fully contracted with an average contract length of 12.4 years in 2012. *See*, *
*, Standard & Poor's Ratings Service, October 11, 2013, at 3.

80 Algonquin Power & Utilities Corp, Annual Report 2013, at 63.

the ultimate parent Company of Liberty Midstates and LUCo, (2) the primary basis for the rating that S&P assigns to LUCo, and (3) publicly–traded and market tested."[81]

Q. Have you considered how adopting Mr. Marevangepo's capital structure would affect the Company's financial integrity?

A. Yes, I have. Mr. Marevangepo's equity ratio recommendation of * * percent is substantially below both Liberty Utilities and APUC's current equity ratios. If the Commission were to adopt Staff's capital structure recommendation, it could place significant pressure on APUC's credit rating. S&P recently upgraded APUC and LUCo from * *,[82] and DBRS currently rates APUC * *. Consequently, a one notch downgrade would place APUC at * *. Such a move could result in Liberty Utilities paying higher interest rates and cause investors to require a higher Cost of Equity for the Company.

Q. Are there other reasons it is important for the Company to maintain an adequate capital structure?

A. Yes, there are. An adequate capital structure is an important factor in maintaining access to financing. For utilities, which need to support large construction programs, consistent and reliable access to external capital is of paramount importance. As opposed to other industries, utilities do not have the option to avoid or defer many of their capital

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81 Staff Cost of Service Report, at 20.

82 *See*, * *, Standard & Poor's Ratings Service, October 11, 2013, at 3.

investments. As a practical matter, much of any utility capital investment program relates to replacement, is driven by reliability needs, or is mandated by law. In addition, many such capital investments (such as that related to replacement or reliability investments) do not directly generate incremental revenue or necessarily lower costs. Moreover, utilities must respond to external events such as storms, and their lack of geographic diversity can increase overall operating and business risk. Consequently, internally generated funds cannot be relied on as the only source of financing, and the maintenance of a credit profile that will enable capital access is extremely important.

Q. Is there precedent for using Algonquin Power & Utility's ultimate parent company capital structure?

A. Yes, there is. The Commission approved a capital structure of 58.21 percent equity and 41.79 percent long-term debt for Algonquin Water Resources of Missouri, LLC ("AWRM") in Case No. WR-2006-0425 based on the ultimate parent's capital structure.[83] At the time, AWRM was a wholly owned subsidiary of Algonquin Water Resources of America, which was a wholly owned subsidiary of the publically-traded Algonquin Power Income Fund (traded on the Toronto Stock Exchange). In that case, the use of the ultimate parent company's capital structure was necessary because AWRM's actual capital structure was 100 percent equity.

Cost of Debt

Q. Has the cost of debt for Liberty Utilities' been updated?

A. Yes, it has. As detailed in the response to Staff Data Request No. 0177, the Company's

[83] Report and Order, Public Service Commission of the State of Missouri, Case No. WR-2006-0425, at 23.

cost of debt has been revised to 4.50 percent (from 4.78 percent).

Q. Please summarize Mr. Marevangepo's position on Liberty Utilities' cost of debt.

A. Mr. Marevangepo recommends the imputation of LUCo's consolidated cost of debt under the assumption that it is "logically consistent" with his recommendation to use LUCo's capital structure. Mr. Marevangepo calculates a preliminary cost of debt of * * percent based on the stated interest rates of LUCo debt reported in APUC's "Notes to Financial Statements" as of September 30, 2013.[84]

Q. Do you agree with Mr. Marevangepo's imputation of LUCo's cost of debt to Liberty?

A. No, I do not. The authorized cost of debt should reflect Liberty Utilities' embedded cost of debt which is 4.50 percent.[85] That cost rate is reasonable and appropriate compared to the mean embedded cost of debt for natural gas utilities in calendar year 2013.[86]

IV. SUMMARY OF UPDATED ANALYSES

Q. Have you updated the analyses presented in your Direct Testimony?

A. Yes. I have updated my DCF (Quarterly Growth, Constant Growth and Multi-Stage models), CAPM and Bond Yield Plus Risk Premium analyses using data as of June 30,

84 Staff Cost of Service Report, at 21.
85 *See* response to Staff Data Request No. 0177.
86 *See* Direct Testimony of Robert B. Hevert, at 46.

2014.

Q. Please summarize your DCF model results.

A. I continue to use projected earnings growth rates from Zacks, First Call, and Value Line as well as Retention Growth in developing my DCF model results, and have presented those results based on the low, average and high growth rates for each company. The results of the Quarterly Growth DCF model, Constant Growth DCF model and Multi-Stage DCF model are shown in Table 6 (below; *see also*, Schedules RBH-R12, RBH-R13 and RBH-R14).

Table 6: Summary of DCF Model Results[87]

	Mean Low	***Mean***	***Mean High***
Quarterly Growth DCF Results			
30-Day Average	7.81%	9.17%	10.98%
90-Day Average	7.92%	9.29%	11.10%
180-Day Average	8.01%	9.38%	11.19%
Constant Growth DCF Results			
30-Day Average	7.69%	9.02%	10.77%
90-Day Average	7.80%	9.13%	10.88%
180-Day Average	7.88%	9.21%	10.96%
Multi-Stage DCF Results			
30-Day Average	9.30%	9.62%	10.08%
90-Day Average	9.41%	9.74%	10.21%
180-Day Average	9.49%	9.83%	10.31%

Q. Please summarize your updated CAPM analysis.

A. I have used data updated through June 30, 2014 for the CAPM analyses. For the risk-free

87 DCF results presented in Table 6 are unadjusted (*i.e.*, prior to any adjustment for flotation costs).

rate, I continue to refer to: (1) the 30-day average of the 30-year Treasury yield; and (2) a consensus forecast of the average 30-Year Treasury yield through the third quarter of 2015. For the Beta coefficient, I rely on published estimates from both Value Line and Bloomberg, as well as Beta coefficients calculated over 18-months.

For the MRP, I develop *ex-ante* Market Risk Premia using the expected return on the S&P 500 Index less the current 30-year Treasury yield. To calculate the expected market return, I continue to rely on data from Value Line and Bloomberg.

Q. What are your updated CAPM results?

A. My updated CAPM results are shown in Table 7 below (*see also*, Schedule RBH-R18).

Table 7: Summary of CAPM Results

	Bloomberg Derived Market Risk Premium	***Value Line Derived Market Risk Premium***
Average Calculated Beta Coefficient		
Current 30-Year Treasury (3.40%)	11.36%	10.84%
Near Term Projected 30-Year Treasury (3.95%)	11.91%	11.39%
Average Bloomberg Beta Coefficient		
Current 30-Year Treasury (3.40%)	11.19%	10.69%
Near Term Projected 30-Year Treasury (3.95%)	11.74%	11.23%
Average Value Line Beta Coefficient		
Current 30-Year Treasury (3.40%)	10.97%	10.48%
Near Term Projected 30-Year Treasury (3.95%)	11.52%	11.03%

Q. Please summarize your updated Risk Premium analysis.

A. My updated Risk Premium analysis includes authorized ROEs as reported by Regulatory Research Associates through June 30, 2014. For the purpose of calculating the expected risk premium and ROE, I have used the current, near-term and long-term projected 30-year Treasury yield, as shown in Schedule RBH-R19.

Table 8: Summary of Bond Yield Risk Premium Results

Treasury Yield	Return on Equity
Current 30-Year Treasury (3.40%)	10.08%
Near Term Projected 30-Year Treasury (3.95%)	10.20%
Long Term Projected 30-Year Treasury (5.45%)	10.77%

Q. Have you considered whether your recommended returns meet the standard of a fair rate of return?

A. Yes. As I noted in my Direct Testimony, my recommendation is based upon my understanding of the *Hope* and *Bluefield* cases, wherein those decisions established the standards for determining a fair and reasonable allowed Return on Equity including: consistency of the allowed return with other businesses having similar risk; adequacy of the return to provide access to capital and support credit quality; and that the end result must lead to just and reasonable rates.[88]

My assessment also reflects the Company's need to attract capital at terms similar to those offered to companies of comparable risk. A recommendation that diminishes the Company's ability to compete for capital in the open market does not meet the "comparable company" standard.

[88] *See*, Direct Testimony of Robert B. Hevert, at 6.

V. CONCLUSIONS AND RECOMMENDATION

Q. What is your conclusion regarding the Company's cost of capital and capital structure?

A. My updated analytical results are provided in Schedule RBH-R12 through RBH-R21. Based on the analyses discussed throughout my Rebuttal Testimony, I conclude that the reasonable range of ROE estimates is from 10.00 percent to 10.50 percent, and within that range, 10.50 percent is a reasonable and appropriate estimate of the Company's Cost of Equity.

I also find the Company's revised 4.50 percent cost of debt is reasonable. Lastly, the Company's proposed capital structure of 58.34 percent common equity and 41.66 percent long-term debt is consistent with industry practice and reflects the nature of assets financed by natural gas utilities such as Liberty Utilities. On that basis, I continue to conclude the proposed capital structure is reasonable and appropriate.

Q. Does this conclude your Rebuttal Testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Liberty Utilities	)	
(Midstates Natural Gas) Corp. d/b/a	)	
Liberty Utilities' Tariff Revisions Designed	)	
To Implement a General Rate Increase	)	Case No. GR-2014-0152
For Natural Gas Service in the Missouri	)	
Service Areas of the Company.	)	

AFFIDAVIT OF ROBERT B. HEVERT

COMMONWEALTH OF MASSACHUSETTS)
) **ss**
COUNTY OF MIDDLESEX)

Robert B. Hevert, being first duly sworn on his oath, states:

1. My name is Robert B. Hevert. I am Managing Partner of Sussex Economic Advisors, LLC and my business address is 161 Worcester Road, Suite 503, Framingham, Massachusetts 01701.

2. Attached hereto and made a part hereof for all purposes is my Rebuttal Testimony on behalf of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities consisting of fifty (50) pages and Schedules RBH-R12 through RBH-R25, all of which having been prepared in written form for introduction into evidence in the above-captioned docket.

3. I have knowledge of the matters set forth therein. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereto, are true and accurate to the best of my knowledge, information and belief.

Robert B. Hevert

Subscribed and sworn before me this 30th day of July, 2014.

Notary Public

My commission expires: April 16, 2015

KIMBERLY H. DAO
Notary Public
Commonwealth of Massachusetts
My Commission Expires
April 16, 2015