Docket No. 13-0079
ICC Staff Exhibit 3.0

DIRECT TESTIMONY

of

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Finance Department

Financial Analysis Division

Illinois Commerce Commission

Mt. Carmel Public Utility Company

Proposed Electric Rate Design Revision
and
Proposed General Increase in Gas Rates

Docket No. 13-0079

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WITNESS IDENTIFICATION

Q1. Please state your name and business address.

A1. My name is Sheena Kight-Garlisch. My business address is 527 East Capitol Avenue, Springfield, IL 62701.

Q2. By whom are you employed and in what capacity?

A2. I am employed by the Illinois Commerce Commission ("Commission") as a Senior Financial Analyst in the Finance Department of the Financial Analysis Division.

Q3. Please describe your qualifications and background.

A3. In May of 1998, I received a Bachelor of Business degree in Finance and Marketing from Western Illinois University in Macomb, Illinois. I earned a Master of Business Administration degree, with a concentration in Finance, also at Western Illinois University in May 2001. I have been employed by the Commission since January of 2001. I was promoted to Senior Financial Analyst on October 1, 2004.

Q4. Please state the purpose of your testimony in this proceeding.

A4. The purpose of my testimony and accompanying schedules is to present my analysis of the cost of capital of, and recommend an overall rate of return for Mt. Carmel Public Utility Company ("Mt. Carmel" or the "Company").

COST OF CAPITAL

Q5. Please summarize your cost of capital findings.

A5. I recommend a 7.57% overall rate of return for the Company's electric delivery service operations and a 7.12% overall rate of return for the Company's natural gas distribution operations, as shown on Schedule 3.01.

Q6. Why must one determine the overall rate of return for a public utility?

A6. Under the traditional regulatory model, ratepayer and shareholder interests are balanced when the Commission authorizes a rate of return on rate base equal to the public utility's overall cost of capital, as long as that overall cost of capital is not unnecessarily expensive.[1] If the authorized rate of return on rate base exceeds the overall cost of capital, then ratepayers bear the burden of excessive prices. Conversely, if the authorized rate of return on rate base is lower than the overall cost of capital, the financial strength of the utility could deteriorate, making it difficult for the utility to raise capital at a reasonable cost. Ultimately, the utility's inability to raise sufficient capital would impair service quality. Therefore, ratepayer interests are served best when the authorized rate of return on rate base equals the utility's overall cost of capital.

In authorizing a rate of return on rate base equal to the overall cost of capital, all costs of service are assumed reasonable and accurately measured, including the costs and balances of the components of the capital structure. If unreasonable costs continue to be incurred, or if any reasonable cost of service component is measured inaccurately, then the allowed rate of return on rate base will not balance ratepayer and investor interests.

[1] The remainder of the discussion assumes that the utility's overall cost of capital is not unnecessarily expensive; that is, the utility's cost of capital reflects a reasonable balance between financial strength and cost.

Q7. Please define the overall cost of capital for a public utility.

A7. The overall cost of capital for a public utility equals the sum of the costs of the components of the capital structure (i.e., debt, preferred stock, and common equity) after weighting each by its proportion to total capital.

CAPITAL STRUCTURE

Q8. What capital structure does the Company propose for determining the rate of return on rate base?

A8. The Company proposes determining the rate of return on rate base on a December 31, 2011 capital structure comprising 46.29% long-term debt and 53.71% common equity.[2]

Q9. What capital structure do you recommend for setting rates in this proceeding?

A9. My proposed capital structure is shown on Schedule 3.01. I used a December 31, 2012 capital structure comprising 5.97% short-term debt, 38.60% long-term debt and 55.43% common equity.

Q10. Should short-term debt be included in the capital structure of Mt. Carmel?

A10. Yes. Mt. Carmel obtained a line of credit in July 2012.[3] The Company has relied on short-term debt as a source of funds since July 2012 and they forecast a continued need to do so.[4]

[2] MCPU Ex. 1.0, p. 12.
[3] Docket No. 11-0738, Report, February 8, 2013.
[4] Company's response to Staff DRs SK 1-01 and SK 3-03.

Q11. How was the balance of short-term debt measured?

A11. Since short-term debt balances tend to fluctuate substantially during a year, any single balance might not be representative of the typical amount employed throughout the year. Therefore, I averaged the end of month balances from June 2012 through June 2013 inclusive. To calculate the balance of short-term debt, I first calculated the monthly ending net balance of short-term debt outstanding from June 2012 through June 2013. The net balance of short-term debt equals the monthly ending gross balance of short-term debt outstanding minus the corresponding monthly ending balance of construction-work-in-progress ("CWIP") accruing an allowance for funds used during construction ("AFUDC") times the lesser of the ratio of short-term debt to total CWIP for the corresponding month or one. That adjustment recognizes the Commission's formula for calculating AFUDC which assumes short-term debt is the first source of funds financing CWIP[5] and addresses the double-counting concern the Commission raised in a previous Order.[6] Next, I calculated the twelve monthly averages from the adjusted monthly ending balances of short-term debt. Finally, I averaged the twelve monthly balances of short-term debt for July 2012 through June 2013. Schedule 3.02 presents the calculation of the average adjusted balance of short-term debt.

[5] Uniform System of Accounts for Gas Utilities Operating in Illinois, Gas Plant Instruction 3(A)(17). Long-term debt, preferred stock and common equity are assumed to finance CWIP balances in excess of the short-term debt balance according to their relative proportions to long-term capital and Uniform System of Accounts for Electric Utilities Operating in Illinois, Electric Plant Instruction 3(A)(17). Long-term debt, preferred stock and common equity are assumed to finance CWIP balances in excess of the short-term debt balance according to their relative proportions to long-term capital.

[6] Order, Docket No. 95-0076 (Illinois-American Water Company, general rate increase), December 20, 1995, p. 51.

Q12. Did you adjust the Company's proposed long-term debt balance?

A12. Yes. The Company refinanced all of its long-term debt on July 17, 2012.[7] The refinancing resulted in a reduction of $1,500,000 to the total long-term debt balance. I adjusted the long-term debt balance to reflect the actual amount outstanding as of December 31, 2012.[8] The long-term debt balance is presented on Schedule 3.03.

Q13. Did you adjust the Company's proposed common equity balance?

A13. Yes. I adjusted the common equity balance to reflect the actual amount outstanding as of December 31, 2012.[9] The common equity balance is presented on Schedule 3.01.

Cost of Short-Term Debt

Q14. What is Mt. Carmel's cost of short-term debt?

A14. Mt. Carmel issues short-term debt via a line of credit. The interest rate on its line of credit is equal to the current prime rate minus 0.55%.[10] I used the current prime rate as of March 19, 2013 of 3.25% and subtracted 0.55% to arrive at the Company's cost of short-term debt of 2.70%, as presented on Schedule 3.01.

7 Docket No. 11-0738, Report, February 8, 2013.
8 Company's response to Staff DR SK 2-01.
9 Company's response to Staff DR SK 1-04.
10 Company's response to Staff DR SK 2-01.

Cost of Long-Term Debt

Q15. What is Mt. Carmel's embedded cost of long-term debt?

A15. As shown on Schedule 3.03, Mt. Carmel's embedded cost of long-term debt for December 31, 2012 is 3.45%.

Cost of Common Equity

Q16. What is your estimate of Mt. Carmel's costs of common equity for electric delivery service operations and natural gas distribution operations?

A16. My analysis indicates that Mt. Carmel's cost of common equity is 10.97% for electric delivery service operations and 10.15% for natural gas distribution operations.

Q17. How did you measure the investor required rate of return on common equity for Mt. Carmel?

A17. I measured the investor-required rates of return on common equity for Mt. Carmel's electric delivery service and natural gas distribution operations with the non-constant discounted cash flow ("NCDCF") and risk premium models. Since the Company does not have market-traded common stock, NCDCF and risk premium models cannot be applied directly to the Company; therefore, I applied both models to samples of public utilities comparable in risk to the electric delivery service and natural gas distribution operations of the Company.

Sample Selection

Q18. How did you select your Electric sample?

A18. To form a sample comparable to Mt. Carmel's electric delivery service operations, I selected an electric sample based on the following criteria. First, I began with a list of all domestic publicly-traded companies assigned an industry number of 4911 (i.e., electric services) within *S&P Utility Compustat* and categorized in the Electric Utility Industry by The Value Line Investment Survey ("Value Line"). Second, I removed any company that had no Zacks Investment Research ("Zacks") long-term growth rates. Third, I removed any company that lacked sufficient information to estimate beta. Finally, I eliminated any company involved in any significant merger activity. The remaining nineteen companies that compose my Electric Sample are American Electric Power Company, Inc.; Black Hills Corp.; Dominion Resources, Inc.; DTE Energy Co.; Edison International; El Paso Electric Co.; FirstEnergy Corp.; Great Plains Energy Inc.; Hawaiian Electric Industries Inc.; IdaCorp, Inc.; Northeast Utilities; NV Energy Inc.; Otter Tail Corp.; Pinnacle West Capital Corp.; PNM Resources, Inc.; Portland General Electric Co.; Southern Co.; UIL Holdings Corp.; and UNS Energy Corp. The Electric Sample is shown on Schedule 3.05-E.

Q19. How did you select your Gas sample?

A19. To form a sample comparable to Mt. Carmel's natural gas distribution operations, I selected a gas sample based on the following criteria. First, I began with a list of all domestic publicly-traded companies assigned an industry number of 4924 (i.e., natural gas distribution companies) within *S&P Utility Compustat* and categorized in the Natural Gas Utility Industry by Value Line. Second, I removed any company that had no Zacks long-term growth rates. Third, I removed any company that lacked sufficient information to estimate beta. Finally, I eliminated any company involved in any significant merger activity. The remaining eight companies that compose my Gas Sample are AGL Resources Inc.; Atmos

Energy Corp.; The Laclede Group, Inc.; New Jersey Resources Corp.; Northwest Natural Gas Company; Piedmont Natural Gas Company Inc.; South Jersey Industries, Inc.; and WGL Holdings Inc. The Gas Sample is shown on Schedule 3.05-G.

DCF Analysis

Q20. Please describe DCF analysis.

A20. For a utility to attract common equity capital, it must provide a rate of return on common equity sufficient to meet investor requirements. DCF analysis establishes a rate of return directly from investor requirements. A comprehensive analysis of operating and financial risks is unnecessary to apply DCF analysis to a company since the market price of that company's stock already embodies the market consensus of those risks.

According to DCF theory, a security price equals the present value of the cash flow investors expect it to generate. Specifically, the market value of common stock equals the cumulative value of the expected stream of future dividends after each is discounted by the investor-required rate of return.

Q21. Please describe the DCF model with which you measured the investor required rate of return on common equity.

A21. As it applies to common stocks, DCF analysis is generally employed to determine appropriate stock prices given a specified discount rate. Since a DCF model incorporates time-sensitive valuation factors, it must correctly reflect the timing of the dividend payments that stock prices embody. As such, incorporating stock prices that the financial market sets on the basis of quarterly

dividend payments into a model that ignores the time value of quarterly cash flows constitutes a misapplication of DCF analysis. The companies in the Electric and Gas Samples pay dividends quarterly; therefore, I applied a multi-stage non-constant-growth quarterly DCF model to measure the annual required rate of return on common equity.

Q22. Why did you apply a non-constant growth DCF model in this proceeding?

A22. A single-stage, constant growth DCF model employs a single growth rate estimate which is assumed to be sustainable infinitely. Thus, the cost of common equity calculation derived from a constant growth estimate is correct if the near-term growth rate forecast for each company in the sample is expected to equal its average long-term dividend growth. However, the level of growth indicated by the average 3-5 year growth rates for my Electric Sample is not sustainable over the long-term. Therefore, I implemented a multi-stage, non-constant growth DCF model.

Q23. Why did you conclude that the 3-5 year growth rates for your Electric Sample are not sustainable over the long-term?

A23. The average 3-5 year growth rate is 5.76% for my Electric Sample. As I will discuss later, the current expectations of growth for the economy is only approximately 4.6%. In theory, no company could sustain indefinitely a growth rate greater than that of the overall economy, or it would eventually grow to dominate the entire economy. Moreover, since utilities in particular are generally below-average growth companies, the sustainability of an above average growth rate is particularly dubious. Given that the average growth rate for my Electric Sample companies was greater than the overall growth expectations for the economy, the sustainability of the average 3-5 year growth rates for my Electric

Sample is unlikely.[11] Thus, I used a non-constant growth DCF model that employs distinct growth rate estimates for each of three discrete time periods.

As an additional evaluation of the sustainability of the 3-5 year growth rates, I also calculated the return on equity ("ROE") those growth rates imply, based on the dividend payout and other data published in Value Line for each company in the Electric and Gas Samples. That calculation produced an average ROE of 20.95% for the Electric Sample and 13.59% for the Gas Sample. In comparison, Value Line forecasts an implied average ROE of 10.33%[12] and 10.98%[13], respectively for the Electric and Gas Samples for the 2015-2017 and 2016-2018 periods.[14] Therefore, the implication that investors expect those companies to sustain a 20.95% or 13.59% rate of return on equity indefinitely is unlikely. Consequently, I implemented a multi-stage NCDCF analysis.

Q24. Please describe how you modeled your non-constant growth DCF analysis.

A24. I modeled three stages of dividend growth. The first, a near-term growth stage, is assumed to last five years. The second stage is a transitional growth period lasting from the end of the fifth year to the end of the tenth year. Finally, the third, or "steady-state," growth stage is assumed to begin after the tenth year and continue into perpetuity. An expected stream of dividends is estimated by applying these stages of growth to the current dividend. The discount rate that equates the present value of this expected stream of cash flows to the

[11] For the sake of consistency, I also implemented the non-constant growth DCF model for the Gas Sample even though the average 3-5 year growth rate for the Gas Sample is 4.42%.

[12] This average is based on 2015-2017 Value Line data for all the companies in the Electric Sample except Dominion Resources, First Energy, Hawaiian Electric, Northeast Utilities, PNM Resources, Southern Co., and UIL Holdings for which 2016-2018 Value Line data was available.

[13] This average is based on 2016-2018 Value Line data.

[14] The published Value Line ROE forecasts for both Samples' companies reflect return on end of year equity. Therefore, I adjusted the Value Line published forecasts to reflect the return on average 2016 or 2017 common equity.

company's current stock price equals the market-required return on common equity. Schedule 3.04 mathematically presents the relationship between the cash flow stream, stock price, and market required rate of return on common equity.

Q25. How did you estimate the growth rate parameters?

A25. Determining the market-required rate of return with the DCF methodology requires a growth rate that reflects the expectations of investors. Although the current market price reflects aggregate investor expectations, market-consensus expected growth rates cannot be observed directly.

For the first stage, which is assumed to last five years, I used the Zacks growth rate estimates as of March 19, 2013. Zacks summarizes and publishes the 3-5 year earnings growth expectations of financial analysts employed by the research departments of investment brokerage firms.

The growth rate employed in the intervening, five-year transitional stage equals the average of the Zacks growth rate used for the first stage and the third stage growth rate.

For the third stage, which begins at the end of the tenth year, I calculated the nominal overall economic growth beginning in 2023 to estimate the long-term growth expectations of investors. The overall economic growth rate is composed of two parts, the expected real growth rate and the expected inflation rate. I estimated the expected real growth rate from the average of the Energy Information Administration's ("EIA") and Global Insight's forecasts of real gross domestic product ("GDP"). EIA forecasts that real GDP will average 2.4% over

the 2023-2040 period. Similarly, Global Insight forecasts that real GDP will average 2.5% over the 2023-2042 period.

I extracted an estimate of the expected inflation rate from the difference in yields on U.S. Treasury bonds, which contain a premium for expected inflation, and U.S. Treasury Inflation-Protected Securities ("TIPS"), which do not contain a premium for expected inflation. The formula for this calculation is:

$$\text{Expected inflation} = [(1+\text{UST}) / (1+\text{TIPS})] - 1$$

Where UST = yield on U.S. Treasury bonds; and
TIPS = yield on U.S. Treasury Inflation-Protected Securities.

An implied 20-year forward TIPS yield in ten years of 1.24% was derived from the -0.61% 10-year and 0.62% 30-year TIPS rates as of March 19, 2013. An implied 20-year forward U.S. Treasury rate in ten years of 3.74% was derived from the 1.92% 10-year and 3.13% 30-year U.S. Treasury rates as of March 19, 2013. The implied 20-year forward rates were calculated using the following formula:

$$ {}_{20}f_{10} = [(1+{}_{30}r_0)^{30} / (1+{}_{10}r_0)^{10}]^{1/20} - 1$$

Where ${}_{20}f_{10}$ = the implied 20-year forward rate in ten years;
${}_{30}r_0$ = the current 30-year rate; and
${}_{10}r_0$ = the current 10-year rate.

Therefore, the estimate of long-term expected inflation equals 2.5%:

$$(1+3.74\%) / (1+1.24\%) - 1 = 2.5\%$$

The two components of nominal overall economic growth were then combined to estimate the long-term growth rate for the third stage, using the following formula:

Nominal overall economic growth= [(1+Real GDP) * (1+Inflation)] - 1

Therefore, from the long-term estimates of real GDP growth of 2.5% and expected inflation of 2.5%, the long-term estimate of overall economic growth equals 5.0%:

Nominal overall economic growth = [(1+2.5%) * (1+2.5%)] – 1 = 5.0%

I also calculated the nominal economic growth EIA forecasted for the 2023-2040 period (4.3%) and Global Insight forecasted for the 2023-2042 period (4.4%). Finally, I combined the 4.3% average of the EIA and Global Insight forecasts with the 5.0% nominal economic growth estimate described above to derive my long-term estimate of overall economic growth of 4.7%.

Schedule 8.05-E presents the growth rate estimates for the companies in the Electric Sample. Schedule 8.05-G presents the growth rate estimates for the companies in the Gas Sample.

Q26. Is an estimate of the long-term overall economic growth rate a reasonable estimate for the steady-state stage growth for your Electric and Gas Samples?

A26. Ideally, company-specific steady-state growth rate estimates are preferable. Unfortunately, company specific steady-state growth rate forecasts are not available. Further, for the reasons presented above, it is evident that investors

cannot reasonably expect utilities in the Electric Sample to sustain growth over the very long term at the level of analysts' current 3-5 growth rate estimates. Thus, while the overall economic growth rate might be biased upward for generally low-growth companies such as utilities, it is much closer to the growth rate that investors could reasonably expect utilities to sustain over the long term.

Q27. How did you measure the stock price?

A27. A current stock price reflects all information that is available and relevant to the market; thus, it represents the market's assessment of the common stock's current value. I measured each company's current stock price with its closing market price from March 19, 2013. Those stock prices for the companies in the Electric Sample appear on Schedule 8.06-E. Those stock prices for the companies in the Gas Sample appear on Schedule 8.06-G.

Since stock prices reflect the market's concurrent expectation of the cash flows the securities will produce and the rate at which those cash flows are discounted, an observed change in the market price does not necessarily indicate a change in the required rate of return on common equity. Rather, a price change may reflect investors' re-evaluation of the expected dividend growth rate. In addition, stock prices change with the approach of dividend payment dates. Consequently, when estimating the required return on common equity with the DCF model, one should measure the expected dividend yield and the corresponding expected growth rate concurrently. Using a historical stock price along with current growth expectations or combining an updated stock price with past growth expectations would likely produce an inaccurate estimate of the market-required rate of return on common equity.

Q28. Please explain the significance of the column titled "Next Dividend Payment Date" shown on Schedules 8.06-E and 8.06-G.

A28. Estimating the present value of dividends requires measuring the length of time between each dividend payment date and the first anniversary of the stock observation date. For the first dividend payment, that length of time is measured from the "Next Dividend Payment Date." Subsequent dividend payments occur in quarterly intervals.

Q29. How did you estimate the expected future quarterly dividends?

A29. Most utilities declare and pay the same dividend per share for four consecutive quarters before adjusting the rate. Consequently, I assumed the current declared dividend rate will remain in effect for a minimum of four quarters and then adjust during the same quarter it changed during the preceding year; if the utility did not change its dividend during the last year, I assumed the rate would change during the next quarter. The average expected growth rate was applied to the current declared dividend rate to estimate the expected dividend rate. For the Electric Sample, Schedule 8.06-E presents the quarterly dividends for the prior year and Schedule 8.07-E presents the expected quarterly dividends for the coming year. For the Gas Sample, Schedule 8.06-G presents the quarterly dividends for the prior year and Schedule 8.07-G presents the expected quarterly dividends for the coming year. This technique was applied to produce dividend projections for the next 11 years, substituting the appropriate growth rate estimate for each of the three stages of my non-constant growth DCF analysis.

Q30. Based on your DCF analysis, what are the estimated required rates of return on common equity for the Electric and Gas Samples?

A30. My non-constant growth DCF analysis estimates a required rate of return on common equity of 8.99% for the Electric Sample, as shown on Schedule 8.08-E. The DCF estimates for the Electric Sample are derived from the growth rates presented on Schedule 8.05-E, the stock price and dividend payment dates presented on Schedule 8.06-E, and the expected quarterly dividends presented on Schedule 8.07-E.

My non-constant growth DCF analysis estimates a required rate of return on common equity of 8.66% for the Gas Sample, as shown on Schedule 8.08-G. The DCF estimates for the Gas Sample are derived from the growth rates presented on Schedule 8.05-G, the stock price and dividend payment dates presented on Schedule 8.06-G, and the expected quarterly dividends presented on Schedule 8.07-G.

Risk Premium Analysis

Q31. Please describe the risk premium model.

A31. The risk premium model is based on the theory that the market-required rate of return for a given risk-bearing security equals the risk-free rate of return plus a risk premium that investors expect in exchange for assuming the risk associated with that security. Mathematically, a risk premium equals the difference between the expected rate of return on a risk factor and the risk-free rate. If the risk of a security is measured relative to a portfolio, then multiplying that relative measure of risk and the portfolio's risk premium produces a security-specific risk premium for that risk factor.

The risk premium methodology is consistent with the theory that investors are risk-averse. That is, investors require higher returns to accept greater exposure to risk. Thus, if investors had an opportunity to purchase one of two securities with equal expected returns, they would purchase the security with less risk. Similarly, if investors had an opportunity to purchase one of two securities with equal risk, they would purchase the security with the higher expected return. In equilibrium, two securities with equal quantities of risk have equal required rates of return.

The Capital Asset Pricing Model ("CAPM") is a one-factor risk premium model that mathematically depicts the relationship between risk and return as:

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

where R_j ≡ the required rate of return for security *j*;

R_f ≡ the risk-free rate;

R_m ≡ the expected rate of return for the market portfolio; and

β_j ≡ the measure of market risk for security *j*.

In the CAPM, the risk factor is market risk, which is defined as risk that cannot be eliminated through portfolio diversification. To implement the CAPM, one must estimate the risk-free rate of return, the expected rate of return on the market portfolio, and a security or portfolio-specific measure of market risk.

Q32. How did you estimate the risk-free rate of return?

A32. I examined the suitability of the yields on four-week U.S. Treasury bills and thirty-year U.S. Treasury bonds as estimates of the risk-free rate of return.

Q33. Why did you examine the yields on U.S. Treasury bills and bonds as measures of the risk-free rate?

A33. The proxy for the nominal risk-free rate should contain no risk premium and reflect similar inflation and real risk-free rate expectations to the security being analyzed through the risk premium methodology.[15] The yields of fixed income securities include premiums for default and interest rate risk. Default risk pertains to the possibility of default on principal or interest payments. Securities of the United States Treasury are virtually free of default risk by virtue of the federal government's fiscal and monetary authority. Interest rate risk pertains to the effect of unexpected interest rate fluctuations on the value of securities.

Since common equity theoretically has an infinite life, its market-required rate of return reflects the inflation and real risk-free rates anticipated to prevail over the long run. U.S. Treasury bonds, the longest term treasury securities, are issued with terms to maturity of thirty years; U.S. Treasury notes are issued with terms to maturity ranging from two to ten years; U.S. Treasury bills are issued with terms to maturity ranging from four weeks to fifty-two weeks. Therefore, U.S. Treasury bonds are more likely to incorporate within their yields the inflation and real risk-free rate expectations that drive, in part, the prices of common stocks than either U.S. Treasury notes or Treasury bills.

However, due to relatively long terms to maturity, U.S. Treasury bond yields also contain an interest rate risk premium that diminishes their usefulness as measures of the risk-free rate. U.S. Treasury bill yields contain a smaller

[15] The real risk-free rate and inflation expectations compose the non-risk related portion of a security's rate of return.

premium for interest rate risk. Thus, in terms of interest rate risk, U.S. Treasury bill yields more accurately measure the risk-free rate.

Q34. Given that the inflation and real risk-free rate expectations reflected in the yields on U.S. Treasury bonds and the prices of common stocks are similar, does it necessarily follow that the inflation and real risk-free rate expectations that are reflected in the yields on U.S. Treasury bills and the prices of common stocks are dissimilar?

A34. No. To the contrary, short and long-term inflation and real risk-free rate expectations, including those that are reflected in the yields on U.S. Treasury bills, U.S. Treasury bonds, and the prices of common stocks, should equal over time. Any other assumption implausibly implies that the real risk-free rate and inflation is expected to systematically and continuously rise or fall.

Although expectations for short and long-term real risk-free rates and inflation should equal over time, in finite time periods, short- and long-term expectations may differ. Short-term interest rates tend to be more volatile than long-term interest rates.[16] Consequently, over time U.S. Treasury bill yields are less biased (i.e., more accurate) but less reliable (i.e., more volatile) estimators of the long-term risk-free rate than U.S. Treasury bond yields. In comparison, U.S. Treasury bond yields are more biased (i.e., less accurate) but more reliable (i.e., less volatile) estimators of the long-term risk-free rate. Therefore, an estimator of the long-term nominal risk-free rate should not be chosen mechanistically. Rather, the similarity in current short- and long-term nominal risk-free rates should be evaluated. If those risk-free rates are similar, then U.S. Treasury bill yields

[16] Fabozzi and Fabozzi, ed., *The Handbook of Fixed Income Securities*, Fourth Edition, Irwin, p. 789.

should be used to measure the long-term nominal risk-free rate. If not, some other proxy or combination of proxies should be used.

Q35. Provide the current yield on 4-week U.S. Treasury bills and the current estimated yield on thirty-year U.S. Treasury bonds.

A35. Four-week U.S. Treasury bills are currently yielding 0.08%. The estimated yield for thirty-year U.S. Treasury bonds equals 3.15%. Both estimates are derived from quotes for March 19, 2013.[17] Schedule 3.09 presents the published quotes and effective yields.

Q36. Of the U.S. Treasury bill and bond yields, which is currently a better proxy for the long-term risk-free rate?

A36. In terms of the gross domestic product ("GDP") price index, the Energy Information Administration ("EIA") forecasts the inflation rate will average 1.7% annually during the 2013-2040 period.[18] Global Insight forecasts the GDP price index will average 1.8% annually during the 2013-2042 period.[19] In terms of the Personal Consumption Expenditures ("PCE"), the *Survey of Professional Forecasters* ("*Survey*") forecasts the inflation rate will average 2.1% during the next ten years.[20] EIA forecasts of real GDP growth imply the real risk-free rate will average 2.6% during the 2013-2040 period.[21] Global Insight forecasts of real GDP growth imply the real risk-free rate will average 2.6% during the 2013-2042

[17] The Federal Reserve Board, *Federal Reserve Statistical Release: Selected Interest Rates, H.15 Daily Update*, www.federalreserve.gov/releases/H15/update, March 25, 2013.
[18] Energy Information Administration, *Annual Energy Outlook Early Release 2013, Table 20, Macroeconomic Indicators, www.eia.doe.gov/oiaf/aeo/, December 5, 2012.*
[19] Global Insight, *The U.S. Economy: The 30-Year Focus, Fourth Quarter 2012*, Table 1: Summary of the U.S. Economy.
[20] Federal Reserve Bank of Philadelphia, *Survey of Professional Forecasters*, www.phil.frb.org/files/spf/survq107.htm, February 15, 2013. The *Survey* aggregates the forecasts of 37 forecasters.
[21] Energy Information Administration, *Annual Energy Outlook Early Release 2013*, Table 20, Macroeconomic Indicators, www.eia.doe.gov/oiaf/aeo/, December 5, 2012.

period.[22] The *Survey* forecasts real GDP growth will average 2.6% during the next ten years.[23] Those forecasts imply a long-term, nominal risk-free rate between 4.3% and 4.7%.[24] Therefore, to the extent inflation and real GDP growth expectations coincide with EIA, Global Insight, and *Survey* forecasts, the U.S. Treasury bond yield more closely approximates the long-term risk-free rate. Therefore, I conclude that the U.S. Treasury bond yield is the better proxy for the long-term risk-free rate currently. It should be noted, however, that the estimate from using the U.S. Treasury bond yield contains an upward bias due to the inclusion of an interest rate risk premium associated with its relatively long term to maturity.

Q37. Please explain why the real risk-free rate and the GDP growth rate should be similar.

A37. Risk-free securities provide a rate of return sufficient to compensate investors for the time value of money, which is a function of production opportunities, time preferences for consumption, and inflation.[25] The real risk-free rate does not include premiums for inflation; therefore, only production opportunities and consumption preferences affect it. The real GDP growth rate measures output of goods and services excluding inflation and, as such, also reflects both production

[22] Global Insight, *The U.S. Economy: The 30-Year Focus, Fourth Quarter 2012*, Table 1: Summary of the U.S. Economy.

[23] Federal Reserve Bank of Philadelphia, *Survey of Professional Forecasters*, www.phil.frb.org/files/spf/survq107.html, February 15, 2013.

[24] Nominal interest rates are calculated as follows:

$$r = (1 + R) \times (1 + i) - 1.$$

where $r \equiv$ nominal interest rate;
$R \equiv$ real interest rate; and
$i \equiv$ inflation rate.

[25] Brigham and Houston, *Fundamentals of Financial Management*, 8th edition.

and consumers' consumption preferences. Therefore, both the real GDP growth rate and the real risk-free rate of return should be similar since both are a function of production opportunities and consumption preferences without the effects of a risk premium or an inflation premium.

Q38. How was the expected rate of return on the market portfolio estimated?

A38. The expected rate of return on the market was estimated by conducting a DCF analysis on the firms composing the S&P 500 Index ("S&P 500") as of December 31, 2012. That analysis used dividend information and closing market prices reported by Zacks Research Wizard and in the January 2013 edition of *S&P Security Owner's Stock Guide*. January 2, 2013 growth rate estimates were also obtained primarily from Zacks and secondarily from Reuters.[26] Firms not paying a dividend as of December 31, 2012, or for which neither Zacks nor Reuters growth rates were available were eliminated from the analysis. The resulting company-specific estimates of the expected rate of return on common equity were then weighted using market value data from Zacks Research Wizard. The estimated weighted average expected rate of return for the remaining 401 firms, composing 87.16% of the market capitalization of the S&P 500, equals 12.59%.

Q39. How did you measure market risk on a security-specific basis?

A39. Beta measures risk in a portfolio context. When multiplied by the market risk premium, a security's beta produces a market risk premium specific to that security. I used Value Line's betas, Zacks' betas, and a regression analysis to estimate the betas of the Electric and Gas Samples.

[26] Growth rates were obtained from Reuters only if unavailable from Zacks.

Value Line estimates beta for a security with the following model using an ordinary least-squares technique:[27]

$$R_{j,t} = a_j + \beta_j \times R_{m,t} + e_{j,t}$$

where $R_{j,t}$ ≡ the return on security *j* in period *t*;

$R_{m,t}$ ≡ the return on the market portfolio in period *t*;

a_j ≡ the intercept term for security *j*;

β_j ≡ beta, the measure of market risk for security *j*; and

$e_{j,t}$ ≡ the residual term in period *t* for security *j*.

A beta can be calculated for firms with market-traded common stock. Value Line calculates its betas in two steps. First, the returns of each company are regressed against the returns of the New York Stock Exchange Composite Index ("NYSE Index") to estimate a raw beta. The Value Line regression employs 259 weekly observations of stock return data. Then, an adjusted beta is estimated through the following equation:

$$\beta_{adjusted} = 0.35 + 0.67 \times \beta_{raw}.$$

The regression analysis applies an ordinary least-squares technique to the following model to estimate beta for a security or portfolio of securities:

$$R_{j,t} - R_{f,t} = \alpha + \beta (R_{m,t} - R_{f,t}) + \varepsilon_t$$

[27] Statman, Meir, "Betas Compared: Merrill Lynch vs. Value Line", *The Journal of Portfolio Management*, Winter 1981.

where $R_{j,t}$ ≡ the return on security *j* in period *t*;

$R_{f,t}$ ≡ the risk-free rate of return in period *t*;

$R_{m,t}$ ≡ the return on the market portfolio in period *t*;

α ≡ the intercept term for security *j*;

β ≡ beta, the measure of market risk for security *j*; and

ε_t ≡ the residual term in period *t* for security *j*.

Next, a beta estimate for both Samples was calculated in three steps using regression analysis. First, the U.S. Treasury bill return is subtracted from the average percentage change in the sample's stock prices and the percentage change in the NYSE Index to estimate the portfolios' returns in excess of the risk-free rate. Second, the excess returns of each of the Samples are regressed against the excess returns of the NYSE Index to estimate a raw beta. The regression analysis employs sixty monthly observations of stock and U.S. Treasury bill return data. Third, the beta is adjusted through the following equation:

$$\beta_{adjusted} = 0.33743 + 0.66257 \times \beta_{raw}.$$

Like Staff's regression beta, Zacks employs 60 monthly observations in its beta estimation. However, Zacks' betas regress stock returns against the S&P 500 Index rather than the NYSE Index. Further, the beta estimates Zacks publishes are raw betas. Thus, I adjusted the Zacks raw betas using the same formula used to adjust the regression beta.

Q40. Why do you use an adjusted beta estimate?

A40. I use an adjusted beta estimate for two reasons. First, betas tend to regress towards the market mean value of 1.0 over time; therefore, the adjustment represents an attempt to estimate a forward-looking beta. Second, some empirical tests of the CAPM suggest that the linear relationship between risk, as measured by raw beta, and return is flatter than the CAPM predicts. That is, securities with raw betas less than one tend to realize higher returns than the CAPM predicts. Conversely, securities with raw betas greater than one tend to realize lower returns than the CAPM predicts. Adjusting the raw beta estimate towards the market mean value of 1.0 results in a linear relationship between the beta estimate and realized rate of return that more closely conforms to the CAPM prediction.[28] Securities with betas less than one are adjusted upwards thereby increasing the predicted required rate of return towards observed realized rates of return. Conversely, securities with betas greater than one are adjusted downwards thereby decreasing the predicted required rate of return towards observed realized rates of return.

Q41. What are the beta estimates for the samples?

A41. The regression beta estimate for the Electric Sample is 0.67. The average Value Line beta and average Zacks beta for the Electric Sample are 0.74 and 0.72, respectively, as shown in Table 1 below.[29]

[28] Litzenberger, Ramaswamy and Sosin, "On the CAPM Approach to the Estimation of A Public Utility's Cost of Equity Capital," *Journal of Finance*, May 1980, pp. 375-376.

[29] The Value Line Investment Survey, "Summary and Index," March 8, 2013, pp. 2-23; Zacks Research Wizard, March 19, 2013.

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Table 1

Company	Value Line Estimate	Zacks Estimate*
American Electric Power Co.	0.65	0.64
Black Hills Corp.	0.80	0.95
Dominion Resources, Inc.	0.65	0.62
DTE Energy Company	0.75	0.71
Edison International	0.75	0.73
El Paso Electric Company	0.70	0.70
FirstEnergy Corp.	0.75	0.60
Great Plains Energy Inc.	0.75	0.79
Hawaiian Electric Industries, Inc.	0.70	0.66
IdaCorp, Inc.	0.70	0.61
Northeast Utilities	0.70	0.62
NV Energy, Inc.	0.85	0.69
Otter Tail Corp.	0.90	1.05
Pinnacle West Capital Corp.	0.70	0.66
PNM Resources, Inc.	0.95	0.85
Portland General Electric Co.	0.75	0.74
Southern Co.	0.55	0.50
UIL Holdings Corp.	0.70	0.75
UNS Energy Corp.	0.70	0.73
Average	0.74	0.72

* after adjustment

519 Since the Zacks beta estimate (0.72) and the regression beta estimate (0.67) are
520 calculated using monthly data[30] rather than weekly data (as Value Line uses), I
521 averaged those results to avoid over-weighting that approach. The average of
522 the two monthly beta estimates is 0.69. I then averaged that result with the
523 Value Line beta (0.74), which produces a beta for the Electric Sample of 0.72.

524 The regression beta estimate for the Gas Sample is 0.49. The average Value
525 Line beta and average Zacks beta for the Gas Sample are 0.65 and 0.52,
526 respectively, as shown in Table 2 below.[31]

Table 2

Company	Value Line Estimate	Zacks Estimate*
AGL Resources Inc.	0.75	0.60
Atmos Energy Corp.	0.70	0.64
The Laclede Group, Inc.	0.55	0.38
New Jersey Resources Corp.	0.65	0.48
Northwest Natural Gas Co.	0.60	0.50
Piedmont Natural Gas Co.	0.65	0.52
South Jersey Industries, Inc.	0.65	0.54
WGL Holdings Inc.	0.65	0.48
Average	0.65	0.52

* after adjustment

[30] Hereafter referred to as "monthly betas."
[31] The Value Line Investment Survey, "Summary and Index," March 8, 2013, pp. 2-23; Zacks Research Wizard, March 19. 2013.

The average of the two monthly beta estimates is 0.50. I then averaged that result with the Value Line beta (0.65), which produces a beta for the Gas Sample of 0.58.

Q42. What required rate of return on common equity does the risk premium model estimate for the Samples?

A42. The risk premium model estimates a required rate of return on common equity of 9.95% for the Electric Sample and 8.63% for the Gas Sample. The computation of those estimates appears on Schedule 3.09.

Cost of Equity Recommendation

Q43. Based on your entire analysis, what is your estimate of the required rate of return on the common equity for the Samples?

A43. A thorough analysis of the required rate of return on common equity requires both the application of financial models and the analyst's informed judgment. An estimate of the required rate of return on common equity based solely on judgment is inappropriate. Nevertheless, because techniques to measure the required rate of return on common equity necessarily employ proxies for investor expectations, judgment remains necessary to evaluate the results of such analyses. Along with DCF and risk premium cost of common equity analyses, I have considered the observable 4.03% rate of return the market currently requires on less risky A-rated long-term utility debt.[32] Based on my analysis, in my judgment the investor required rate of return on common equity for the Electric Sample is 9.47% and for the Gas Sample is 8.65%.

[32] The Value Line Investment Survey, "Selection & Opinion," March 8, 2013.

Q44. How did you minimize measurement error in your cost of common equity analyses?

A44. The models from which the individual company estimates were derived are correctly specified and thus contain no source of bias. Moreover, excepting the use of U.S. Treasury bond yield as a proxy for the long-term risk-free rate and the use of overall economic growth as a proxy for long-term utility growth, I am unaware of bias in my proxy for investor expectations. In addition, measurement error has been minimized through the use of a sample, since estimates for a sample as a whole are subject to less measurement error than individual company estimates.

Q45. Please summarize how you determined that the investor-required rate of return on common equity for Mt. Carmel's electric delivery service operations and its natural gas distribution operations.

A45. First, I estimated the investor-required rate of return on common equity for the Electric and Gas Samples from the results of the NCDCF and risk premium analyses for each Sample. The average investor required rate of return on common equity for the Electric Sample, 9.47%, is based on the average of the NCDCF-derived results (8.99%) and the risk premium-derived results (9.95%). The average investor required rate of return on common equity for the Gas Sample, 8.65%, is based on the average of the NCDCF-derived results (8.66%) and the risk premium-derived results (8.63%). Next, I considered adjusting the cost of common equity estimates of the Electric and Gas Samples to better reflect the cost of common equity of Mt. Carmel.

Q46. Did you make any adjustment to the cost of common equity estimates of the Electric and Gas Samples to better reflect the cost of common equity of Mt. Carmel?

A46. Yes, I adjusted the cost of common equity estimates for the Electric and Gas Samples for liquidity costs, which arise from the probability and financial consequences of an investor's inability to sell an asset at the desired time, at a predictable price. The Electric and Gas Samples comprises market-traded companies whose security prices do not reflect substantial liquidity costs. However, the security prices of small standalone companies, such as Mt. Carmel, typically reflect significant liquidity costs, which are largely due to the lack of a market for their securities. Thus, a direct assessment of the liquidity premium in the cost of Mt. Carmel's common equity cannot be performed since the cost of common equity to small electric and gas distribution utilities is not directly observable.

Q47. How did you estimate the liquidity premium for Mt. Carmel's common equity?

A47. I based Mt. Carmel's liquidity premium on the approximately 150 basis point difference between the yield on similar debt issuances and the interest rate on Mt. Carmel's debt at the time of issuance.[33] Therefore, in my judgment, a fair rate of return on common equity for Mt. Carmel's electric delivery service operations equals the cost of common equity for the Electric Sample, 9.47%, plus 150 basis points, or 10.97%. A fair rate of return on common equity for Mt. Carmel's natural gas distribution operations equals the cost of common equity for the Gas Sample, 8.65%, plus 150 basis points, or 10.15%.

[33] Mt. Carmel entered into four different bank loans on July 17, 2012.

OVERALL COST OF CAPITAL RECOMMENDATION

Q48. What are the overall costs of capital for Mt. Carmel?

A48. As shown on Schedule 3.01, Mt. Carmel's overall cost of capital for its electric delivery service operations is 7.57% and for its natural gas distribution operations is 7.12%.

Q49. Does this conclude your direct testimony?

A49. Yes, it does.

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ICC Staff Exhibit 3.0
Schedule 3.01

Mt. Carmel Public Utility Company

Staff's Proposed Overall Cost of Capital

Electric Delivery Service Operations

Capital Component	December 31, 2012 Balance	Capital Structure Ratio	Cost	Liquidity Premium	Weighted Cost
Short-Term Debt	$ 994,341	5.97%	2.70%		0.16%
Long-Term Debt	$ 6,432,185	38.60%	3.45%		1.33%
Common Equity	$ 9,237,760	55.43%	9.47%	1.50%	6.08%
Total	$ 16,664,286	100.00%			7.57%

Natural Gas Distribution Operations

Capital Component	December 31, 2012 Balance	Capital Structure Ratio	Cost	Liquidity Premium	Weighted Cost
Short-Term Debt	$ 994,341	5.97%	2.70%		0.16%
Long-Term Debt	$ 6,432,185	38.60%	3.45%		1.33%
Common Equity	$ 9,237,760	55.43%	8.65%	1.50%	5.63%
Total	$ 16,664,286	100.00%			7.12%

Docket No. 13-0079
ICC Staff Exhibit 3.0
Schedule 3.02

Mt. Carmel Public Utility Company

Balance of Short-term Debt
December 31, 2012

Date (A)	Gross Short-term Debt Outstanding (B)	CWIP (C)	CWIP Accruing AFUDC (D)	(B) - (D)	(B) - ((B)/(C)*(D))	Net Short-term Debt Outstanding (E)	Monthly Average (F)
Jun-12	$ -	$ 627,565	$ 9,019	-$9,019	$0	$0	
Jul-12	3,000,000	$ 658,577	$ 11,329	$2,988,671	$2,948,394	$2,988,671	$1,494,336
Aug-12	1,500,000	$ 551,472	$ 11,329	$1,488,671	$1,469,185	$1,488,671	$2,238,671
Sep-12	1,500,000	$ 578,424	$ 11,329	$1,488,671	$1,470,621	$1,488,671	$1,488,671
Oct-12	1,500,000	$ 389,846	$ 11,329	$1,488,671	$1,456,410	$1,488,671	$1,488,671
Nov-12	1,500,000	$ 396,644	$ 11,329	$1,488,671	$1,457,157	$1,488,671	$1,488,671
Dec-12	1,500,000	$ 473,792	$ 11,329	$1,488,671	$1,464,133	$1,488,671	$1,488,671
Jan-13	1,500,000	$ 133,451	$ -	$1,500,000	$1,500,000	$1,500,000	$1,494,336
Feb-13	-	$ 153,245	$ (69)	$69	$0	$69	$750,035
Mar-13	-	$ 250,000	$ 1,536	-$1,536	$0	$0	$35
Apr-13	-	$ 350,000	$ 2,130	-$2,130	$0	$0	$0
May-13	-	$ 450,000	$ 2,740	-$2,740	$0	$0	$0
Jun-13	-	$ 475,000	$ 2,894	-$2,894	$0	$0	$0
Average						**$994,341**	**$994,341**

Notes: Column (E) = the greater of [Column (B) - Column (D)] or [Column (B) - Column (B) / Column (C) * Column (D)]

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ICC Staff Exhibit 3.0
Schedule 3.03

Mt. Carmel Public Utility Company

Embedded Cost of Debt

December 31, 2012

Line No.	Issue	Date Issued	Maturity Date	Original Principal Amount	Principal Amount Outstanding	Unamortized Debt Expense or Discount	Carrying Value	Interest Cost	Annual Amortization of Debt Expense or Discount	Annualized Interest	Embedded Cost
1	Bank Loan- 4.05%	7/17/12	7/17/19	$ 2,000,000	$ 1,932,185		$ 1,932,185	$ 81,000	$ -	81,000	
2	Bank Loan- 3.70%	7/17/12	7/17/17	$ 1,500,000	$ 1,500,000		$ 1,500,000	$ 55,500	$ -	55,500	
3	Bank Loan- 3.20%	7/17/12	7/17/15	$ 1,500,000	$ 1,500,000		$ 1,500,000	$ 48,000	$ -	48,000	
4	Bank Loan- 2.50%	2/17/13	2/17/20	$ 1,500,000	$ 1,500,000		$ 1,500,000	$ 37,556	$ -	37,556	
	Totals			$ 6,500,000	$ 6,432,185	$ -	$ 6,432,185	$ 222,056	$ -	$ 222,056	3.45%

Mt. Carmel Public Utility Company

The Non-Constant Growth Discounted Cash Flow Model

The formula for measuring the cost of common equity, *k*, when growth, *g*, does not become constant until period φ, is as follows:

$$k = \left[\frac{D_{1,1}(1+k)^{\varphi-0.25} + D_{1,2}(1+k)^{\varphi-0.50} + D_{1,3}(1+k)^{\varphi-0.75} + \ldots + D_{\varphi,4} + P_{\varphi,4}}{P} \right]^{\left(\frac{1}{x+\varphi-0.25} \right)} - 1$$

where: P ≡ the current market value;

$D_{\varphi,q}$ ≡ the expected dividend at the end of quarter q in year φ, where q = 1 to 4 and φ = the number of periods until the steady-state growth period;

k ≡ the cost of common equity;

x ≡ the elapsed time between the stock observation and first dividend payment dates, in years; and

$P_{\varphi,4}$, the market value at the beginning of the steady-state growth stage, is calculated from the following equation:

$$P_{\varphi,4} = \frac{\sum_{q=1}^{4} D_{\varphi,q}(1+g_l)(1+k)^{1-[x+0.25(q-1)]}}{k - g_l}$$

where: $D_{\varphi,q}$ ≡ the dividend paid in quarter q during the last year of the transitional growth stage; and

g_l ≡ the steady-state growth rate.

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ICC Staff Exhibit 3.0
Schedule 3.05-E

Mt. Carmel Public Utility Company

Growth Rates

Electric Sample

	Company	Growth Rates Stage 1[1]	Stage 2[2]	Stage 3[3]
1	American Electric Power Company	3.38%	4.04%	4.70%
2	Black Hills Corp.	6.00%	5.35%	4.70%
3	Dominion Resources, Inc.	4.63%	4.67%	4.70%
4	DTE Energy Company	4.95%	4.83%	4.70%
5	Edison International	5.85%	5.28%	4.70%
6	El Paso Electric Company	2.10%	3.40%	4.70%
7	FirstEnergy Corp.	4.00%	4.35%	4.70%
8	Great Plains Energy Inc.	7.10%	5.90%	4.70%
9	Hawaiian Electric Industries Inc.	6.35%	5.53%	4.70%
10	IdaCorp, Inc.	4.00%	4.35%	4.70%
11	Northeast Utilities	7.05%	5.88%	4.70%
12	NV Energy, Inc.	11.07%	7.89%	4.70%
13	Otter Tail Corp	6.00%	5.35%	4.70%
14	Pinnacle West Capital Corp.	7.20%	5.95%	4.70%
15	PNM Resources, Inc.	8.35%	6.53%	4.70%
16	Portland General Electric Company	4.43%	4.57%	4.70%
17	Southern Company	4.98%	4.84%	4.70%
18	UIL Holdings Corp.	4.00%	4.35%	4.70%
19	UNS Energy Corp.	7.95%	6.33%	4.70%

[1] Zacks 3-5 year earnings per share growth rate estimates (Zacks Investment Research, Inc.)

[2] Equals the average of Stage 1 and Stage 3 growth rates.

[3] The Federal Reserve Board, Federal Reserve Statistical Release: Selected Interest Rates, H.15 Daily Update, http://www.federalreserve.gov/releases/H15/update/, March 25, 2013

Energy Information Administration, *Annual Energy Outlook 2013 Early Release,* Table A20. Macroeconomic Indicators, www.eia.doe.gov/oiaf/aeo/, December 2012.

Global Insight, *The U.S. Economy: The 30-Year Focus, Fourth Quarter 2012* , Table 1: Summary of the U.S. Economy.

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ICC Staff Exhibit 3.0
Schedule 3.05-G

Mt. Carmel Public Utility Company

Growth Rates

Gas Sample

	Company	Growth Rates Stage 1[1]	Stage 2[2]	Stage 3[3]
1	AGL Resources Inc.	3.53%	4.12%	4.70%
2	Atmos Energy Corp.	6.00%	5.35%	4.70%
3	The Laclede Group, Inc.	3.00%	3.85%	4.70%
4	New Jersey Resources Corp.	4.00%	4.35%	4.70%
5	Northwest Natural Gas Company	3.83%	4.27%	4.70%
6	Piedmont Natural Gas Company Inc.	3.73%	4.22%	4.70%
7	South Jersey Industries, Inc.	6.00%	5.35%	4.70%
8	WGL Holdings Inc.	5.25%	4.98%	4.70%

[1] Zacks 3-5 year earnings per share growth rate estimates (Zacks Investment Research, Inc.)

[2] Equals the average of Stage 1 and Stage 3 growth rates.

[3] The Federal Reserve Board, Federal Reserve Statistical Release: Selected Interest Rates, H.15 Daily Update, http://www.federalreserve.gov/releases/H15/update/, March 25, 2013

Energy Information Administration, *Annual Energy Outlook 2013 Early Release,* Table A20. Macroeconomic Indicators, www.eia.doe.gov/oiaf/aeo/, December 2012.

Global Insight, *The U.S. Economy: The 30-Year Focus, Fourth Quarter 2012* , Table 1: Summary of the U.S. Economy.

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ICC Staff Exhibit 3.0
Schedule 3.06-E

Mt. Carmel Public Utility Company

Electric Sample

	Company	Current Dividend $D_{0,1}$	$D_{0,2}$	$D_{0,3}$	$D_{0,4}$	Next Dividend Payment Date	Stock Price
1	American Electric Power Company	$0.470	$0.470	$0.470	$0.470	6/10/2013	$ 47.700
2	Black Hills Corp.	0.370	0.370	0.370	0.380	6/1/2013	43.14
3	Dominion Resources, Inc.	0.528	0.528	0.528	0.563	6/20/2013	56.74
4	DTE Energy Company	0.588	0.620	0.620	0.620	7/15/2013	66.02
5	Edison International	0.325	0.325	0.325	0.338	4/30/2013	50.74
6	El Paso Electric Company	0.250	0.250	0.250	0.250	6/28/2013	33.75
7	FirstEnergy Corp.	0.550	0.550	0.550	0.550	6/1/2013	41.60
8	Great Plains Energy Inc.	0.213	0.213	0.218	0.218	6/20/2013	22.89
9	Hawaiian Electric Industries Inc.	0.310	0.310	0.310	0.310	6/14/2013	27.01
10	IdaCorp, Inc.	0.330	0.330	0.380	0.380	5/31/2013	47.44
11	Northeast Utilities	0.343	0.343	0.343	0.368	6/27/2013	42.39
12	NV Energy, Inc.	0.170	0.170	0.170	0.190	6/20/2013	19.99
13	Otter Tail Corp	0.298	0.298	0.298	0.298	6/7/2013	30.61
14	Pinnacle West Capital Corp.	0.525	0.525	0.545	0.545	6/20/2013	56.66
15	PNM Resources, Inc.	0.145	0.145	0.145	0.145	5/15/2013	22.98
16	Portland General Electric Company	0.265	0.270	0.270	0.270	4/15/2013	29.72
17	Southern Company	0.490	0.490	0.490	0.490	6/6/2013	45.47
18	UIL Holdings Corp.	0.432	0.432	0.432	0.432	7/1/2013	38.68
19	UNS Energy Corp.	0.430	0.430	0.430	0.435	6/25/2013	46.80

Mt. Carmel Public Utility Company

Gas Sample

	Company	Current Dividend $D_{0,1}$	$D_{0,2}$	$D_{0,3}$	$D_{0,4}$	Next Dividend Payment Date	Stock Price
1	AGL Resources Inc.	$0.460	$ 0.460	$0.460	$ 0.470	6/1/2013	$ 41.15
2	Atmos Energy Corp.	0.345	0.345	0.350	0.350	6/18/2013	41.23
3	The Laclede Group, Inc.	0.415	0.415	0.425	0.425	7/2/2013	41.17
4	New Jersey Resources Corp.	0.380	0.400	0.400	0.400	7/1/2013	44.37
5	Northwest Natural Gas Company	0.445	0.445	0.455	0.455	5/15/2013	43.81
6	Piedmont Natural Gas Company Inc.	0.300	0.300	0.300	0.300	4/15/2013	33.28
7	South Jersey Industries, Inc.	0.403	0.403	0.443	0.443	7/2/2013	54.63
8	WGL Holdings Inc.	0.400	0.400	0.400	0.400	5/1/2013	43.74

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ICC Staff Exhibit 3.0
Schedule 3.07-E

Mt. Carmel Public Utility Company

Expected Quarterly Dividends

Electric Sample

	Company	$D_{1,1}$	$D_{1,2}$	$D_{1,3}$	$D_{1,4}$
1	American Electric Power Company	$ 0.486	$ 0.486	$ 0.486	$ 0.486
2	Black Hills Corp.	0.380	0.380	0.380	0.403
3	Dominion Resources, Inc.	0.563	0.563	0.563	0.589
4	DTE Energy Company	0.620	0.651	0.651	0.651
5	Edison International	0.338	0.338	0.338	0.357
6	El Paso Electric Company	0.255	0.255	0.255	0.255
7	FirstEnergy Corp.	0.550	0.572	0.572	0.572
8	Great Plains Energy Inc.	0.218	0.218	0.233	0.233
9	Hawaiian Electric Industries Inc.	0.330	0.330	0.330	0.330
10	IdaCorp, Inc.	0.380	0.380	0.395	0.395
11	Northeast Utilities	0.368	0.368	0.368	0.393
12	NV Energy, Inc.	0.190	0.190	0.190	0.211
13	Otter Tail Corp	0.315	0.315	0.315	0.315
14	Pinnacle West Capital Corp.	0.545	0.545	0.584	0.584
15	PNM Resources, Inc.	0.165	0.165	0.165	0.165
16	Portland General Electric Company	0.270	0.282	0.282	0.282
17	Southern Company	0.514	0.514	0.514	0.514
18	UIL Holdings Corp.	0.449	0.449	0.449	0.449
19	UNS Energy Corp.	0.435	0.435	0.435	0.470

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ICC Staff Exhibit 3.0
Schedule 3.07-G

Mt. Carmel Public Utility Company

Expected Quarterly Dividends

Gas Sample

	Company	$D_{1,1}$	$D_{1,2}$	$D_{1,3}$	$D_{1,4}$
1	AGL Resources Inc.	$ 0.470	$ 0.470	$ 0.470	$ 0.487
2	Atmos Energy Corp.	0.350	0.350	0.371	0.371
3	The Laclede Group, Inc.	0.425	0.425	0.438	0.438
4	New Jersey Resources Corp.	0.400	0.416	0.416	0.416
5	Northwest Natural Gas Company	0.455	0.455	0.472	0.472
6	Piedmont Natural Gas Company Inc.	0.310	0.310	0.310	0.310
7	South Jersey Industries, Inc.	0.443	0.443	0.469	0.469
8	WGL Holdings Inc.	0.420	0.420	0.420	0.420

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ICC Staff Exhibit 3.0
Schedule 3.08-E

Mt. Carmel Public Utility Company

DCF- Cost of Equity Estimate

Electric Sample

	Company	Cost of Equity Estimate
1	American Electric Power Company	8.63%
2	Black Hills Corp.	8.70%
3	Dominion Resources, Inc.	8.82%
4	DTE Energy Company	8.75%
5	Edison International	7.71%
6	El Paso Electric Company	7.38%
7	FirstEnergy Corp.	10.17%
8	Great Plains Energy Inc.	9.34%
9	Hawaiian Electric Industries Inc.	10.21%
10	IdaCorp, Inc.	7.94%
11	Northeast Utilities	8.87%
12	NV Energy, Inc.	10.44%
13	Otter Tail Corp	9.27%
14	Pinnacle West Capital Corp.	9.43%
15	PNM Resources, Inc.	8.33%
16	Portland General Electric Company	8.57%
17	Southern Company	9.47%
18	UIL Holdings Corp.	9.32%
19	UNS Energy Corp.	9.41%
	Average	**8.99%**

Docket No. 13-0079
ICC Staff Exhibit 3.0
Schedule 3.08-G

Mt. Carmel Public Utility Company

DCF- Cost of Equity Estimate

Gas Sample

	Company	Cost of Equity Estimate
1	AGL Resources Inc.	9.17%
2	Atmos Energy Corp.	8.58%
3	The Laclede Group, Inc.	8.61%
4	New Jersey Resources Corp.	8.37%
5	Northwest Natural Gas Company	8.89%
6	Piedmont Natural Gas Company Inc.	8.40%
7	South Jersey Industries, Inc.	8.39%
8	WGL Holdings Inc.	8.83%
	Average	**8.66%**

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ICC Staff Exhibit 3.0
Schedule 3.09

Mt. Carmel Public Utility Company

Risk Premium Analysis

Interest Rates as of March 19, 2013

U.S. Treasury Bills		U.S. Treasury Bonds	
Discount Rate	Effective Yield	Bond Equivalent Yield	Effective Yield
0.08%	0.08%	3.13%	3.15%

Risk Premium Cost of Equity Estimates

Treasury Bond

Electric Sample

Risk-Free Rate		Beta		Risk Premium		Cost of Common Equity
3.15%	+	0.720	*	(12.59% - 3.15%)	=	**9.95%**

Gas Sample

Risk-Free Rate		Beta		Risk Premium		Cost of Common Equity
3.15%	+	0.580	*	(12.59% - 3.15%)	=	**8.63%**