BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Docket No. R-2015-2518438

UGI Utilities, Inc. – Gas Division

Statement No. 3-R

Rebuttal Testimony of
Paul R. Moul, Managing Consultant
P. Moul & Associates, Inc.

Topics Addressed: Cost of Common Equity

Dated: May 10, 2016

## REBUTTAL TESTIMONY OF PAUL R. MOUL

### INTRODUCTION

**Q. Please state your name, occupation and business address.**

A. My name is Paul Ronald Moul. My business address is 251 Hopkins Road, Haddonfield, New Jersey 08033-3062. I am Managing Consultant at the firm P. Moul & Associates, an independent financial and regulatory consulting firm.

**Q. Did you previously submit direct testimony in this proceeding on behalf of UGI Utilities, Inc. – Gas Division ("UGI Gas" or the "Company")?**

A. Yes. I submitted my direct testimony, UGI Gas Statement No. 3, on January 19, 2016.

**Q. What is the purpose of your rebuttal testimony?**

A. My testimony responds to certain portions of the direct testimony submitted by David C. Parcell, a witness appearing on behalf of the Office of Consumer Advocate ("OCA") and Rachel Maurer, a witness appearing on behalf of the Bureau of Investigation and Enforcement ("I&E"). *If I fail to address each and every issue in the testimonies of Mr. Parcell and Ms. Maurer, it does not imply agreement with those issues.*

**Q. What are the key aspects of the rate of return issue that the Commission should consider when deciding this issue in this case?**

A. Both Mr. Parcell and Ms. Maurer have accepted the Company's proposed capital structure ratios and cost of long-term and short-term debt for the fully forecast test year. As such, the rate of return on common equity is the only issue of dispute here. There are three key factors that bear on the rate of return issue in this case. Aside from technical issues that I will discuss later in my rebuttal testimony, the Commission should take into consideration the following:

1) A rate of return that will be reflective of rising capital cost rates,

particularly the projected increase in interest rates.

2) A rate of return that reflects the current turmoil in the capital markets.

3) A rate of return that will reflect and be supportive of the Company's financial and risk profile.

4) The management effectiveness displayed by UGI Gas.

As I explain below, the opposing party recommendations fail to adequately consider these four points and thereby significantly understate the required cost of common equity in this proceeding. The opposing party recommendations for substantial rate decreases are particularly troublesome as they fail to provide adequate support for the Company's financial profile and would materially increase its risk and cost of capital.

**Q. How should the rate of return set by the Commission support the Company's financial profile?**

A. The Company currently has available the DSIC mechanism that provides a 10.00% return on equity that was authorized by the Commission at its public meeting on January 28, 2015 (Docket No. M-2016-2522717). To date, UGI Gas has not availed itself of the DSIC, but it's sister companies UGI Central Penn Gas and UGI Penn Natural Gas currently employ the DSIC. The Commission should reject the proposal by Mr. Parcell and Ms. Maurer to cut that return to 9.15% and 8.90%, respectively. It is only at the top end of his range does that the position of Mr. Parcell conforms with the return set by the Commission in the DSIC. A reduction in the Company's equity return would be viewed as unsupportive of the Company's financial condition. Rather, based on the factors listed below, and for technical reasons set forth later in my prefiled rebuttal testimony, the Commission should increase the equity return for UGI Gas well above the return used for DSIC purposes.

**Q. Mr. Parcell also argues that equity return authorized by state commissions has declined and continue to decline in 2015. Please respond.**

A. On page 14 of his prefiled direct testimony (OCA Statement No. 2), Mr. Parcell presents a table that displays declining allowed average returns on equity ("ROEs") for electric and natural gas utilities based on rate case decisions by state commissions. For the 2015 rate case decisions, the range of authorized returns was 9.00% to 10.30% for the electric utilities (after excluding the Virginia generation cases) and the range for the gas utilities was also 9.00% to 10.30%. What is missing from this analysis is the fact that that the spread between authorized returns and interest rates on A-rated public utility bonds has widened considerably over the past 30-years. This is shown by the following table:

| Average | | Regulatory Premium |
|---|---|---|
| 1986-2015 | | 4.03% |
| 2006-2015 | | 4.89% |
| 2011-2015 | | 5.44% |

These data reveal an increasing regulatory return premium. That is to say, progressively higher premiums result for the ten-year average 2006 through 2015 period, and the five-year average 2011 through 2015, which can be traced to declining public utility bond yields and the impact of the financial crisis and Great Recession.

**Q. Should the Commission consider the future trend in capital cost rates when deciding the return on equity issue in this case?**

A. Yes. Unlike Mr. Parcell's approach (see page 11 of OCA Statement No. 2) that take a backward view of interest rates, accumulative FOMC policy has masked the risk of utilities and with prospectively higher interest rates, those conditions will be reversed. All recognized forecasts indicate a future rise in interest rates as the Federal Open

Market Committee ("FOMC") moves its monetary policy toward normalization. The FOMC began this process with the end of quantitative easing in October 2014 and the increase in the Fed Funds rate on December 16, 2015. To gain a consensus view of future interest rates, I tabulated the forecasts of yields on 10-year Treasury notes published by a variety of well recognized and investor-influencing sources. I chose the 10-year Treasury note because it is available on a consistent basis across all sources. The comparisons are:

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Change in Basis Points |
|---|---|---|---|---|---|---|---|
| Blue Chip | 2.14% | 2.70% | 3.40% | 3.80% | 4.10% | 4.20% | 206 |
| Value Line | 2.14% | 2.20% | 2.60% | 3.00% | 3.50% | 3.70% | 156 |
| EIA | 2.14% | 3.75% | 4.21% | 4.11% | 4.12% | 4.12% | 198 |
| CBO-The Budget and Economic Outlook | 2.14% | 2.80% | 3.50% | 3.80% | 4.00% | 4.10% | 196 |

The universal consensus is that interest rates will increase in the future. So while Mr. Parcell (as indicated on page 13 of OCA Statement No. 2) has argued that lower interest rates on bank deposits, lower yields on Treasury and corporate bonds, lower social security cost of living benefits, and lower authorized regulatory ROEs in 2015 justify his ROE in this case, Fed actions indicate a trough in interest rates has passed and the forecasts show interest rates will rise. The Commission should take the forecast trend toward higher interest rates into account when it sets the cost of equity for UGI Gas. Mr. Parcell's position of a lower return in this case clearly unreasonably relies on historic data when investors expect increases in interest rates.

**Q. Does the recent volatility in the stock market further support a higher return for UGI Gas?**

A. Yes. For a variety of reasons that I will address later in my rebuttal testimony, the ROEs proposed by Mr. Parcell and Ms. Maurer are much too low. The fact that they propose to lower the return in this case as compared to the DSIC return runs counter to the turmoil in the stock market that has been revealed by wide swings in stock prices since the beginning of 2016. Indeed, the CBOE volatility index, i.e., the VIX, has averaged 20.49 for the first quarter of 2016. Since the end of the Great Recession, the average VIX was 18.74 from July 2009 to December 2015. The VIX provides a relative measure of the expected volatility in the stock market, and the higher the volatility (i.e., a higher VIX value) the more risky are stocks. The high VIX in the first quarter of 2016 reveals the significant uncertainty in the equity markets, and higher risk of equity investments.

**Q. Are there additional issues that the Commission should consider when setting the Company's return?**

A. Yes. The Commission should consider both the Company's significant exposure to the high level of industrial throughput and the exemplary performance of the Company's management when setting the return. These factors should be recognized by the Commission by moving to the upper portion of the range of reasonable returns. By moving above the midpoint of the range of returns, the Commission should recognize the Company's high risk attributed to the large proportion of industrial throughput, and to provide recognition of the exemplary performance of the Company's management.

**Q. How is the remainder of your testimony organized?**

A. I will cover the issues of (i) the composition of the proxy (i.e., barometer) group, (ii) the weight to be given to the DCF method, (iii) the DCF growth rate, (iv) the leverage adjustment to the DCF and CAPM methods, (v) the CAPM, (vi) the Risk Premium analysis, (vii) Comparable Earnings, and (viii) the relative risk of UGI Gas.

## COMPARABLE COMPANIES

**Q. Are there differences in the barometer groups utilized by the rate of return witnesses in this case?**

A. Yes. Mr. Parcell (see page 24 of OCA Statement No. 2) and I have used the same barometer group. On page 8 of her prefiled direct testimony (I&E Statement No. 1) Ms. Maurer, however, error by excluding three companies from the group.

**Q. Ms. Maurer (page 7 of I&E Statement No. 1) used the percentage of revenues devoted to utility operations as a criterion for screening companies to assemble her barometer group. Please explain why this is not the correct criterion.**

A. For natural gas companies, the percentage of regulated revenues cannot be used to select a barometer group because the margins on other business segments are generally dissimilar to the gas distribution business. Energy trading is a case in point, which would make revenue comparisons incompatible because of the large revenues and small margins associated with that business. That is to say, energy trading generates large amount of revenues, but little profits because the margins on such trades are very small. The correct screening criterion is the percentage of gas assets to total assets. This measure best describes the amount of capital that a firm devotes to each business segment.

**Q. Has Ms. Maurer adequately substantiated the exclusion of Chesapeake Utilities, New Jersey Resources, and WGL Holdings from her barometer group?**

A. No. When asked to provide workpapers to substantiate these exclusions she stated that "No such workpapers exist." Rather she claimed that she looked at annual reports

(10-Ks) to determine whether a company had more or less than 50% of its revenue derived from the natural gas distribution segment. Essentially, Ms. Maurer has not substantiated her exclusions.

**Q. Do you have evidence that shows that these three companies are valid members of the barometer group?**

A. Yes. That evidence is provided as Rebuttal Exhibit PRM-1. The data provided on this exhibit was contained in an attachment to my response to interrogatory I&E-RR-3-D and shows that all of the companies that comprise my barometer group are properly included. Ms. Maurer's reasoning for excluding Chesapeake Utilities, New Jersey Resources, and WGL Holding from the barometer group is based on her mistaken belief that their relatively low percentage of revenues from gas utility operations, according to her, disqualifies them from the barometer group. As shown on my Rebuttal Exhibit PRM-1, the percentage of regulated assets for Chesapeake Utilities is 88.01%, New Jersey Resources is 69.81%, and WGL Holding is 80.34%. All these companies qualify for membership in the proxy group as explained above. With these companies included in the barometer group, the average regulated assets are 86.27% for the Gas Group.

## DISCOUNTED CASH FLOW

**Q. The DCF model has been used by Mr. Parcell, Ms. Maurer and you to measure the cost of equity. What is your position concerning the usefulness of the DCF method?**

A. While the results of a DCF analysis should certainly be given weight, the use of more than one method provides a superior foundation for the cost of equity determination. Since all cost of equity methods contain certain unrealistic and overly restrictive assumptions, the use of more than one method will capture the multiplicity of factors that motivate investors to commit capital to an enterprise (i.e., current income, capital appreciation, preservation of capital, level of risk bearing, etc.). Mr. Parcell's cost of equity analysis gives weight to the CAPM and Comparable Earnings in addition to DCF. Ms. Maurer appears to give near exclusive weight to DCF, even though she submits a CAPM analysis. The use of multiple methods provides a more comprehensive and reliable basis to establish a reasonable equity return for UGI Gas.

**Q. What form of the DCF model has been employed in this case?**

A. The constant growth form of the DCF model has been used by Mr. Parcell, Ms. Maurer, and me.

**Q. Do the DCF results proposed by Mr. Parcell (see page 28 of OCA Statement No. 2) provide a reasonable representation of the cost of equity?**

A. Not in my opinion. The principal purpose of assembling a proxy group is to avoid relying on data for a single company that may not be representative and to thereby smooth out any abnormalities. That said, when some of the proxy group company results are unreasonable on their face, the reliability of the method being used, or the witness' application of that method, must be questioned. As indicated below, several of Mr. Parcell's DCF results are deficient because they are too close to the cost of debt to provide a meaningful measure of the greater risk of cost of equity over debt investment. Indeed, four of Mr. Parcell's DCF results taken from page 4 of Schedule 7 of Exhibit DCP-1 are:

| | | |
|---|---|---|
| Atmos Energy | | 7.7% |
| Laclede Group | | 7.4% |
| Northwest Natural | | 5.9% |
| WGL Holdings | | 7.5% |
| | | |
| Average | | 7.1% |
| | | |

The 7.1% *average result shown above are unreliable for measuring the cost of* equity for UGI Gas. Each of these returns are below 8.3%, which represents Mr. Parcell's DCF conclusion for this case. The DCF analysis by Ms. Maurer suffers from the same infirmities as Mr. Parcell's. Listed below results fall into that category:

| Company | | Average: 52 wk & Spot Yield | + | Growth | = | Total |
|---|---|---|---|---|---|---|
| | | | | | | |
| Northwest Natural Gas | | 3.78% | + | 4.25% | = | 8.03% |
| Southwest Gas | | 2.96% | + | 5.33% | = | 8.29% |
| | | | | | | |
| Average | | | | | | 8.16% |
| | | | | | | |

The cost of equity must be higher than the cost of debt by a meaningful margin to compensate for the higher risk associated with a common equity investment. As I have demonstrated in my direct testimony, given the current and prospective level of interest rates, a spread of 6.50% is reasonable between the cost of debt and the cost of equity, indicating a cost of equity of 11.50% based on a prospective bond yield of 5.00% (5.00% + 6.50%). Yet, each of the companies listed above have DCF returns that fail to provide a sufficient spread over the six-month average yield of 4.26% on A-rated public utility bonds, or the March 2016 yield that was 4.16%. By eliminating the anomalous results for the two companies shown above from Ms. Maurer's group, the average DCF result would be 9.38% (3.28% + 6.10%). Adding the leverage adjustment that I developed in my direct testimony to that return would produce a final DCF result of

10.19% (9.38% + 0.81%). In my opinion, a three-month measurement period is too short of time for this case. Indeed, the average dividend yield in the first quarter of 2016 was 2.87% for the Gas Group, as compared to the average dividend yield of 3.16% in the fourth quarter of 2015. The decline in the dividend yields for the Gas Group in the first quarter of 2016 can be traced to investors seeking a "safe haven" in utility stocks during increased market volatility.

## DCF GROWTH RATE

**Q. *Please summarize the DCF growth rate analysis performed by Ms. Maurer.***

A. As shown on page 3 of Schedule 4 of I&E Exhibit No. 1, Ms. Maurer proposes a growth rate of 5.58%, based on her review of analysts' projected earnings growth rates (see page 25 of I&E Statement No. 1). I generally concur with Ms. Maurer's approach and would only note that if she had excluded the abnormally low growth rates of 4.25% for Northwest Natural Gas and 5.53% for Southwest Gas, her average growth rate would have been 6.10%, which is close to the 6.25% DCF growth rate that I used.

**Q. On page 25 of I&E Statement No. 1, Ms. Maurer cautions that the analysts' forecasts of earnings per share growth used in her DCF analysis may be biased. *Please comment.***

A. As a preliminary matter, I disagree with Ms. Maurer's premise and would point to an article published in The Wall Street Journal on April 26, 2010, which reported that 64% of companies had beaten analysts' forecasts since the start of 1999. More importantly, however, investors rely heavily on analysts' forecasts in determining the price they are willing to pay for a particular stock. Consequently, if the forecasted earnings growth rates were to be discounted, a downward adjustment would also have to be made to the stock prices those forecasts have produced. This, in turn, would generate higher dividend yields in the DCF analysis.

**Q. How has Mr. Parcell analyzed the growth rate component of the DCF model?**

A. Mr. Parcell has looked at (i) historic retention growth, (ii) historic per share growth, (iii) prospective retention growth, (iv) prospective per share growth, and (v) First Call EPS growth (see page 26 of OCA Statement No. 2).

**Q. As to the DCF growth component, what financial variables should be given greatest weight when assessing investor expectations?**

A. The theory of the DCF holds that (1) the value of a firm's equity (i.e., share price) will grow at the same rate as earnings per share with a constant P-E ratio and (2) dividend growth will equal earnings growth with a constant payout ratio. Therefore, to properly reflect investor expectations within the limitations of the DCF model, earnings per share growth, which is the basis for the capital gains yield and the source of dividend payments, must be given greatest weight. The reason that earnings per share growth is the primary determinant of investor expectations rests with the fact that the capital gains yield (i.e., price appreciation) will track earnings growth with a constant price earnings multiple (a key assumption of the DCF model). It is also important to recognize that analysts' forecasts significantly influence investor growth expectations. Moreover, it is instructive to note that Professor Myron Gordon, the foremost proponent of the DCF model in public utility rate cases, has established that the best measure of growth for use in the DCF model is forecasts of earnings per share growth. Indeed, page 3 of Schedule 7 of Exhibit DCP-1 provides the data to calculate a 5.9% earnings per share growth rate for Mr. Parcell's barometer group based on the Value Line forecasts. Setting aside the abnormally low earnings growth rate of 1.5% for New Jersey Resources which would imply a 4.4% DCF cost rate (2.9% + 1.5%), produces a growth rate of 6.6%, which is above the 6.25% DCF growth rate I used. A reasonable dividend yield of 3.0% and a growth rate of 6.6% produces a DCF cost rate of 9.6% or near the current DSIC cost rate.

**Q. In his direct testimony (see page 26 of OCA Statement No. 2), Mr. Parcell relies in part on retention growth in his DCF model. Please discuss the limitations of this approach.**

A. Retention growth, along with external financing growth, is another means of describing book value per share growth. Other factors also contribute to earnings growth that is not accounted for by the retention growth formula, such as sales of new common stock, reacquisition of common stock previously issued, changes in financial leverage, acquisition of new business opportunities, profitable liquidation of assets, and repositioning of existing assets. In my view, book value per share growth, or its surrogate retention growth, does not represent the proper financial variable to be considered when selecting the DCF growth component. This is because utility stocks do not typically trade at book value.

**Q. Can you show how the DCF model may be misapplied using the retention growth rate method?**

A. Yes. The major infirmity of the DCF method becomes apparent when viewing the model in its retention growth rate form. Mr. Parcell has employed the "b x r" approach, i.e., the retention growth rate method (see page 2 of Schedule 7 of Exhibit DCP-1), in his DCF analysis. This special form of the DCF merely adjusts an assumed return on book common equity by the difference between the dividend yield on book value and the dividend yield on market value. This form of the DCF cannot be viewed as a full market model because it mixes accounting returns and market returns in the following manner:

$$\begin{array}{r} E/B \\ -D/B \\ \underline{+D/P} \\ ROE \end{array}$$

where:
E = earnings per share
D = dividend per share
B = book value per share
P = price per share
ROE = return on equity

In reality, a true market model should be represented by the formula:

where:
D = dividends per share
$P_0$= current price per share
$P_1$= appreciated price per share

k = cost of equity

$$K = \frac{D_1}{P_0} + \frac{P_1 - P_0}{P_0}$$

The retention growth rate form of the DCF does not adequately reflect investor expectations of total returns (dividend yield + capital gains yield). Since retention growth is intended to describe growth in book value, this method is inappropriate because investors do not necessarily realize growth in the value of their investment at the retention growth rate because utility stocks infrequently trade at book value.

**Q. Please explain.**

A. My illustration starts with the Value Line forecast ROE which shows an average of 10.30% using Mr. Parcell's data for the Barometer Group (i.e., 10.3% + 9.4% + 11.2% = 30.9% ÷ 3) for the periods 2016, 2017 and 2018-20 as shown on page 1 of Schedule 10 of Exhibit DCP-1. These equity returns are what Value Line is forecasting that these companies will actually achieve prospectively. Please notice the trend toward higher *future returns. However, these equity returns are converted by Mr. Parcell into the* 7.7% DCF return shown on page 4 of Schedule 7 of Exhibit DCP-2, under the column "Prospective Retention Growth" for Mr. Parcell's proxy group of gas companies as follows:

| | | |
|---|---|---|
| E/B | | 10.30% |
| -D/B | | -5.60% |
| +D/P | | 3.00% |
| | | |
| ROE | | 7.70% |
| | | |

Mr. Parcell never explains how gas utilities could realize a return on equity of 10.30%, which is what investors actually expect, if the results of the DCF model are 7.7%, which is substantially lower than their expectations. Even Mr. Parcell must not place much reliance on this form of this form of DCF return, because he concludes that his DCF analysis indicates an 8.3% ROE. It is clear that this form of the DCF is severely deficient and is not a useful measure of the cost of equity in this case.

**Q. Has Mr. Parcell included external financing growth in his internal growth/sustainable growth analysis?**

A. No. This omission results in a further downward bias in his retention growth rate analysis. Forecasts indicate future growth from external stock financing will add to the growth in equity for the Value Line gas companies. For example, Value Line is forecasting an increase in the number of outstanding common shares that shows 2.0% growth rate annually for his barometer group. By failing to incorporate these data into his cost of equity analysis, Mr. Parcell has understated the DCF return.

**Q. Mr. Parcell asserts (see page 39 of OCA Statement No. 2) that your proposed DCF**

**growth rate substantially exceeds investor expectations and is not supported by the data that you present. Please respond.**

A. My DCF growth rate is entirely within investor growth expectations for the gas utilities and is fully supported by my data. As shown on Schedule 9 of Exhibit B, the analysts' forecasts of average earnings growth for the gas utilities were 5.12% by FirstCall/IBES, 6.11% by Reuters, 5.47% by Zacks, 4.80% by Morningstar, 5.28% by SNL, and 7.06% by Value Line. *The range of the forecasts of earnings per share growth is 4.80% to* 7.06%. The 6.25% rate that I used in my DCF analysis is entirely within this range. As noted previously, a 6.6% growth rate can be derived by excluding one anomalous growth rate from the project earnings per share growth rates provided by Mr. Parcell.

## LEVERAGE ADJUSTMENT

**Q. Mr. Parcell has criticized your leverage adjustment. Please respond.**

A. Mr. Parcell states that investors are aware that gas utilities have their rates established based upon book values. But this is no reason to ignore the leverage adjustment because investors can only realize their returns based on the market prices at which they purchase the stocks of gas utilities. Indeed, this difference is the very reason that *the leverage adjustment in necessary.*

As noted in my direct testimony, the problem with an unadjusted DCF arises when those returns are applied to a book value capital structure, rather than market capitalization. Unless we use the market values in the calculation of the weighted average cost of capital, then other methods, such as Comparable Earnings, that focus on book values should also be used. Indeed, Mr. Parcell has used the Comparable Earnings approach, which is principally a book value approach.

Mr. Parcell makes reference to the Aqua Pennsylvania and PPL Electric Utilities rate case **(see page 41 of OCA Statement No. 2)** decisions by the Pennsylvania

Public Utility Commission as reason for opposing the leverage adjustment. The fact that the Commission declined to use the leverage adjustment in the Aqua Pennsylvania case cited by Mr. Parcell does not invalidate its use. Notably, the Commission did not repudiate the leverage adjustment in the Aqua case, but instead arrived at an 11.00% return on equity for Aqua by including a separate return increment for management performance. Just like an increment for management performance is not recognized in all rate cases, so too the Commission seems to be taking a similar approach to the leverage adjustment. As to the PPL Electric order, the Commission followed the same approach as the Aqua Pennsylvania order, whereby it granted a management performance increment rather than the leverage adjustment when it set the return on equity.

In addition, the betas that I have used in the CAPM are calculated strictly from market values, using a firm's stock price as the dependent variable and the market index as the independent variable. There is no reference to book values in those calculations. As I have previously explained, the regulatory-determined cost of equity must be adjusted for the differences between the financial risks implicit in the market-based capital structure versus the financial risk associated with book value capital structure used in ratesetting. The Hamada formula that I utilized to adjust the betas is merely an extension of the Modigliani and Miller formula that I used in connection with my DCF calculations.

**Q. Please respond to Ms. Maurer's criticisms of your leverage adjustment (see page 38 of I&E Statement No. 1).**

A. Ms. Maurer offers a variety of reasons for not making a leverage adjustment. As a preliminary matter, Ms. Maurer is incorrect on page 38 of I&E Statement No. 1 to label the leverage adjustment as a "market-to-book" ratio adjustment because the market-to-book ratio plays no role in the leverage adjustment, and Ms. Maurer has not, nor could she, show that market-to-book ratios are part of the leverage adjustment. Ms. Maurer also notes on page 42 of I&E Statement No. 1 that the credit rating agencies assess financial risk in terms of the book value of debt in their analysis of the creditworthiness of a company. I agree. But this has nothing to do with my leverage adjustment. The credit rating agencies do not measure the market required cost of equity for a company. They are judging risk associated with a company's debt. Hence, they are not concerned with the cost of equity or how it is applied in the ratesetting context. Rather, the credit rating agencies are only concerned with the interests of lenders and the timely payment of interest and principal by utilities. While Ms. Maurer's observation is correct, it has no relevance to my leverage adjustment.

**Q. Ms. Maurer also questions your leverage adjustment by reference to prior Commission orders. Please comment.**

A. Ms. Maurer also points to several decisions where the Commission declined to make a leverage adjustment (see page 43 of I&E Statement No. 1) – i.e., rate cases including Metropolitan Edison, Aqua Pennsylvania (also cited by Mr. Parcell), and the City of Lancaster Water Department. It is my understanding that the adjustment proposed in the MetEd case is distinguishable and, as such, the Commission's rejection of it in the MetEd case has no bearing on my adjustment here. Moreover, after rejecting an adjustment in the MetEd case, the Commission subsequently accepted my adjustment in a later case for PPL Gas Utilities Corporation in Docket No. R-00061398. Further, the fact that the Commission declined to use the leverage adjustment in the Aqua Pennsylvania case cited by Ms. Maurer does not invalidate its use. As I noted above with respect to Mr. Parcell's testimony, the Commission *did not repudiate* the leverage adjustment in the Aqua case, but instead arrived at an 11.00% return on equity for Aqua by including a separate return increment for management performance. As to the City of Lancaster decision, the situation there was quite different than the leverage adjustment that I propose in this case. Lancaster proposed a leverage adjustment to the cost of equity measured with the Hamada formula and applied it to the DCF result, the Risk Premium result, and the CAPM. While the Hamada formula plays a role in the CAPM, it is not applicable to the DCF or the Risk Premium measures of the cost of equity. Hence, this distinguishes the City of Lancaster approach to the leverage adjustment from mine in this case.

**Q. Ms. Maurer next says that your leverage adjustment lacks academic literature support. Please respond.**

A. Leverage adjustments are routinely discussed in the academic literature. Indeed, any basic finance textbook discusses the relationship between returns and the degree of financial leverage, and often references the work of Modigliani and Miller and Hamada. I have merely extended these well-accepted principles to the ratesetting process. Ms. Maurer (see page 45 of I&E Statement No. 1) also contends that information presented to investors, such as that included in the Value Line reports, argues against my leverage adjustment because investors base their investment decisions on book value. However, the Value Line reports clearly show the market capitalization of each company in her barometer group. This means that investors are well aware of the market capitalization of the natural gas utility stocks that Ms. Maurer relies upon for her analysis of the cost of equity. Stated differently, investors are concerned with the return that will be earned on the dollars they invest (i.e., their market price) and not some accounting value of little relevance to them. Since the financial risk associated with the book value capital structure is different from the market value of the capitalization, that risk difference must be taken into account in setting the ROE using the DCF. Hence, her point here is irrelevant.

## CAPITAL ASSET PRICING MODEL

**Q. Do you have concerns regarding Mr. Parcell's and Ms. Maurer's application of the CAPM?**

A. Yes. Mr. Parcell's CAPM analysis understates the cost of equity for a number of reasons including his use of the yield on 20-year Treasury notes, his use of historical geometric means to calculate total market return, his failure to use leveraged adjusted betas, and his failure to recognize the size adjustment. Ms. Maurer's CAPM analysis is deficient because it uses the yield on 10-year Treasury notes as the risk-free rate of return, it uses historical geometric means to calculate the market premium, it fails to use leverage adjusted betas, and it lacks a size adjustment.

**Q. How does the use of the yield on 10-year Treasury notes compare with yields on longer-term Treasury bonds?**

A. The Blue Chip report dated March 1, 2016, which Ms. Maurer relied on, shows this comparison. For the fourth quarter of 2015, the gap was 0.77% (2.96% - 2.19%) between the yields on 30-year and 10-year Treasury obligations. For the forecast periods, this gap is expected to persist. The use of 10-year yield produces a systematic understatement of Ms. Maurer's CAPM returns, unless there is an inverted yield curve. Inverted yield curves are not common and when they occur it is usually a precursor to a recession. This understatement can be traced to extraordinary monetary policy actions taken by the Federal Open Market Committee ("FOMC") to deal with the sluggishness in the economy. Part of the Fed's strategy in dealing with this issue is a low Fed Funds rate that has resulted in low short-term interest rates. For this reason, long-term rates, such as those revealed by 30-year Treasury bonds, should be used to measure the risk-free rate of return. Use of shorter term rates, such as Ms. Maurer's 10-year Treasury Notes yields, are more susceptible to Fed policy actions.

**Q. What issues do you have with Mr. Parcell's risk-free rate of return in his CAPM application?**

A. I have two issues. First Mr. Parcell should have used the yield on 30-year, not 20-year Treasury (see page 29 of OCA Statement No. 2). The longer term Treasury yields are more consistent with investors' long-term horizon for common stocks. Second and more importantly, he should have used forecasts of the yields on treasury bonds. As I have substantiated above, interest rates are forecast to increase, and to make the CAPM forward-looking, which is a requirement of the model those forecasts must be incorporated into the model.

**Q. Ms. Maurer has used forecasts in developing her risk-free rate of return in the CAPM. Have you detected any problems with the forecast she has used?**

A. Yes. *The support for her forecast risk-free rate of return is shown on page 2 of* Schedule 7 of I&E Exhibit No. 1. There, she incorrectly gives the same weight to the yield on 10-year Treasury notes for the fourth quarter of 2015 as she does for the entire five-year period 2017 through 2021. This approach leads to a seriously understated risk-free rate of return even putting aside the unreasonableness of using 10-year yields. There are a variety of problems with her approach. First, the yields on 10-year Treasury notes for the fourth quarter of 2015 and first three quarters of 2016 will all be history by the time new rates become effective in October 2016. Therefore, even if 10-year rates are used, it is necessary to correct the quarterly and annual data to be considered in the risk-free rate of return and the weights assigned to the forecast data presented by Ms. Maurer. I have revised her forecast below, based upon the Blue Chip reports dated December 1, 2015 and March 1, 2016 that she used. Moreover, Blue Chip provides higher yields on Treasury obligations as the forecasts are extended into the future.

| Year | 10-Year Treasury Yield | 10-Year Treasury Yield |
|---|---|---|
| 2016 | 2.50% | 3.20% |
| 2017 | 3.40% | 4.00% |
| 2018 | 3.80% | 4.40% |
| 2019 | 4.10% | 4.60% |
| 2020 | 4.20% | 4.80% |
| 2021 | 4.30% | 4.90% |
| Average | 3.72% | 4.32% |

The resulting risk-free rate of return is 3.72% using the yield on 10-year Treasury Notes and 4.32% using the yield on 30-year Treasury Bonds exceeds substantially the 2.57% rate that she used.

**Q. What are your observations regarding Mr. Parcell's and Ms. Maurer's use of the geometric mean to calculate historic market returns?**

A. Mr. Parcell (see page 30 of OCA Statement No. 2) and Ms. Maurer (see page 29 of I&E Statement No. 1) incorrectly used the geometric mean is their historic analysis of the total market returns. The theoretical foundation of the CAPM requires that the arithmetic mean be used because it conforms to the single period specification of the model and it provides a representation of all probable outcomes and has a measurable variance. It has been established that the arithmetic mean best describes expected future returns -- the objective of the CAPM. In contrast, use of the geometric mean, which Mr. Parcell and Ms. Maurer considered, consists merely of a rate of return taken from two data points which would have no measurable variance (i.e., the dispersion of the returns cannot be calculated with a geometric mean). So while a geometric mean will capture the growth from an initial to a terminal value, it cannot provide a reasonable representation of the market premium in the context of the CAPM because the model requires a single period return expectation of investors. The arithmetic mean provides an unbiased estimate, provides the correct representation of all probable outcomes, and has a measurable variance.

As stated by Ibbotson:

> Arithmetic Versus Geometric Differences
> For use as the expected equity risk premium in the CAPM, the arithmetic or simple difference of the arithmetic means of stock market returns and riskless rates is the relevant number. This is because the CAPM is an additive model where the cost of capital is the sum of its parts. Therefore, the CAPM expected equity risk premium must be derived by arithmetic, not geometric, subtraction.
>
> Arithmetic Versus Geometric Means
> The expected equity risk premium should always be calculated using the arithmetic mean. The arithmetic mean is the rate of return which, when compounded over multiple periods, gives the mean of the probability distribution of ending wealth values....This makes the arithmetic mean return appropriate for computing the cost of capital. The discount rate that equates expected (mean) future values with the present value of an investment is that investment's cost of capital. The logic of using the discount rate as the cost of capital is reinforced by noting that investors will discount their (mean) ending wealth values from an investment back to the present using the arithmetic mean, for the reason given above. They will therefore require such an expected (mean) return prospectively (that is, in the present looking toward the future) in order to commit their capital to the investment. (Stocks, Bonds, Bills and Inflation - 1996 Yearbook, pages 153-154)[1]

**Q. Are there later quotes available from the Ibbotson Yearbook that might lead to a**

[1] The SBBI Yearbook has been used by Mr. Parcell and me to analyze historical returns. This source is cited frequently in public utility rate cases, and its results are frequently reported in the financial press. Hence, it is an investor influencing source.

**different conclusion regarding the use of arithmetic means?**

A. No. A careful reading of Ibbotson on this point indicates that its view for using arithmetic data in the CAPM has not changed in later publications of its Yearbook. In the 2014 Yearbook (see page 83), Ibbotson states that "... the arithmetic mean better represents a typical performance over single periods." The CAPM is a single-period model that requires use of the arithmetic mean to conform with the specification of the model. Moreover, when applying the CAPM (see page 152), Ibbotson specifically states: "The equity risk premium is calculated by subtracting the arithmetic mean of the government bond income return from the arithmetic mean of the stock market total return." As such, the geometric mean should not be used in the CAPM.

**Q. Are there comparative data presented by Mr. Parcell that indicate that market premiums using geometric mean are improper?**

A. Yes. Looking at page 30 of OCA Statement No. 2, his annual return analysis shows a 6.85% market premium for the S&P 500 and an arithmetic market premium of 6.0% with the Morningstar data. This clearly shows that the geometric market premium of 4.4% is an outlier and is much too low.

**Q. What are your observations concerning Ms. Maurer's calculation of the total market return?**

A. Ms. Maurer's historical returns are understated because they use geometric means for overlapping periods, thus result in double-counting recent yearly results. The correct arithmetic mean provides returns of:

| | | Arithmetic |
|---|---|---|
| | | Mean |
| 5 yr S&P Composite Index Historical Return | | 13.11% |
| 10 yr S&P Composite Index Historical Return | | 9.14% |
| 20 yr S&P Composite Index Historical Return | | 9.94% |
| 40 yr S&P Composite Index Historical Return | | 12.65% |
| 62 yr S&P Composite Index Historical Return | | 12.07% |
| | | |
| Average Historic Market Return | | 11.38% |
| | | |

We can see that the 10.00% historical overall market return that she uses in the CAPM is understated because the arithmetic means are much higher.

**Q. Mr. Parcell argues against recognition of a size adjustment to the results of the CAPM. Please respond.**

A. Mr. Parcell argues that the size adjustment is not necessary because size premiums are not required for utilities (see page 44 of OCA Statement No. 2). Mr. Parcell is incorrect in this regard. First, the size adjustment that I used was employed in the context of the CAPM. Risk associated with size is not a systematic risk that is considered in the CAPM cost rate. The beta component of the CAPM measures strictly systematic, or market risk. All other risk is unsystematic, or company-specific risk. So the size of a firm, which is an unsystematic risk, must be considered separately in the context of the CAPM. Second, Mr. Parcell's arguments concerning the application of the size adjustment revolve around the purported distinction between regulated utilities and unregulated industrial companies. But, the Wong article that he cites employed data going back into the 1960s. Enormous changes have occurred in the public utility industry since the 1960s that have fundamentally changed the utility business. The Wong article also noted that betas for the non-regulated companies were larger than the betas of the utilities. This, however, is not a revelation, because history shows that utilities generally have lower betas than many other companies. This fact does not invalidate the additional risk associated with small size.

The Wong article further concludes that size cannot be explained in terms of beta. Again, this should not be a surprise. Beta is not the tool that should be employed to make that determination. Indeed, beta is a measure of systematic risk and it does not provide the means to identify the return necessary to compensate for the additional risk of small size. In contrast, the definitive and often cited Fama/French study (see "The Cross-Section of Expected Stock Returns," The Journal of Finance, June 1992) identified size as a separate factor that helps explain returns. Further, the article by Dr. Thomas Zepp presented research on water utilities that support a small firm effect in the utility industry.[2]

**Q. Mr. Parcell further claims (see page 46 of OCA Statement No. 2) that for utilities smaller companies have the lowest returns. Please respond.**

A. Mr. Parcell's table on page 46 of his prefiled direct testimony does not support his conclusion. This is because the smallest utility group, i.e., the water companies, have returns that are influenced by revenue decoupling mechanisms ("RDM"). Indeed, the three California water companies in his group all have a 9.43% authorized ROE (according to Mr. Parcell) while at the same time possessing RDMs. Likewise, the company with the next lowest authorized ROE in his group is in Connecticut that also has an RDM. Mr. Parcell is incorrect to try to correlate his ROEs based on authorized returns and the size of the gas utilities and argue that size is not a factor in setting the authorized return. Plus, Mr. Parcell never reveals the vintage of the authorized returns for the other utility groups. Those higher returns for those groups might be the product

[2] Zepp, Thomas M. (2002) "Utility stocks and the size effect: revisited". Economics and Finance Quarterly, 43, 578-582.

of old rate case decisions.

**Q. Ms. Maurer (see page 47 of I&E Statement No.1) also argues against the need to adjust the CAPM results for size differences. Please comment.**

A. Ms. Maurer's arguments revolve around the affiliation of UGI Gas with UGI Corporation and that the studies that measure the size adjustment are not specific to the utility industry. First no witness in the case has analyzed the cost of equity for UGI Corporation. Hence, a comparison of size of either UGI Gas or the barometer group to UGI Corporation is not relevant to the size issue. Second, the purported distinction between regulated utilities and unregulated industrial companies is not an issue that subverts the size adjustment. The Wong article that Ms. Maurer cites to does not refute the size adjustment as explained above regarding Mr. Parcell's testimony. By adding the size adjustment to his results, the CAPM return would be 8.00% (6.9% + 1.10%)

## RISK PREMIUM ANALYSIS

**Q. Do you believe the Risk Premium method provides significant evidence of the cost of equity?**

A. Yes. In my opinion, the Risk Premium results should be given serious consideration. The Risk Premium method is straight-forward, understandable and has intuitive appeal because it is based on a company's own borrowing rate. The utility's borrowing rate provides the foundation for its cost of equity which must be higher than the cost of debt in recognition of the higher risk of equity. So, while Mr. Parcell and Ms. Maurer decline to use the Risk Premium approach to measure the Company's cost of equity, it is an approach that provides a direct and complete reflection of a utility's risk and return because it considers additional factors not reflected in the beta measure of systematic risk. It is particularly useful when investors expect changes in the cost of debt prospectively.

**Q. Please respond to Mr. Parcell's criticisms of your Risk Premium approach.**

A. Mr. Parcell's testimony (see page 41 of OCA Statement No. 2) seems critical of my use of selected periods related to the historical relationship between stock returns and bond returns. While Mr. Parcell's tabulation presented on page 42 of his direct testimony looks at all years in the Ibbotson/Morningstar data, I have specifically tailored my Risk Premium analysis to the current and prospective cost of debt. As I established in my direct testimony, it is necessary to analyze specific periods because it is clear from the data that there is an inverse relationship between the level of interest rates and the magnitude of the risk premium. That is to say, the risk premium narrows as interest rates increase and the risk premium expands when interest rates fall. I have incorporated this relationship into my risk premium analysis. Moreover, it is quite common to analyze the differentials between historical returns on stocks and bonds, as this approach is often employed in the academic literature and referenced in the trade press.

**Q. What does Ms. Maurer say about your Risk Premium analysis?**

A. Ms. Maurer (see page 18 of I&E Statement No. 1) makes the unfounded assertion that the Risk Premium, and CAPM as well, do not carry over from the investment decision-making process to the utility ratesetting process. In fact, it is precisely because investors consider the results of other methods that they too should be used in addition to the DCF in the development of the cost of equity in this proceeding. Ms. Maurer's assertion that the Risk Premium method does not measure the current cost of equity as directly as the DCF is similarly without foundation. As I explained in my direct testimony, we are facing the prospect of increasing interest rates for the future. I incorporated the trend toward higher interest rates when I developed my Risk Premium cost of equity of 11.50% (5.00% interest rate on A-rated public utility bonds + 6.50% equity risk premium). So unlike the argument made by Ms. Maurer, the risk premium does vary according to the level of interest rates that are captured by my application of the Risk Premium approach.

## COMPARABLE EARNINGS APPROACH

**Q. Please comment on Mr. Parcell's Comparable Earnings approach.**

A. The underlying premise of the Comparable Earnings method is that regulation should emulate results obtained by firms operating in competitive markets and that a utility must be given an opportunity cost of capital equal to that which could be earned if one invested in firms of comparable risk. For non-regulated firms, the cost of capital concept is used to determine whether the expected marginal returns on new projects will be greater than the cost of capital, i.e., the cost of capital provides the hurdle rate at which new projects can be justified, and therefore undertaken. Further, given the 10-year time frame (i.e., five years historical and five years projected) considered by my study, it is unlikely that the earned returns of non-regulated firms would diverge significantly from their cost of capital.

The Comparable Earnings approach satisfies the comparability standard established in the Hope case. In addition, the financial community has expressed the view that the regulatory process must consider the returns that are being achieved in the non-regulated sector to ensure that regulated companies can compete effectively in the capital markets. Moreover, in 1994 a study that addressed the ROE issue, John Olson (then with Merrill Lynch) established that ROEs from non-regulated companies provide better assessment of investor requirements than those available for regulated utilities.[3]

**Q. Is Mr. Parcell's use of market-to-book ("M/B") ratios in his Comparable Earnings approach (see page 32 of OCA Statement No. 2). Is that necessary or appropriate?**

A. No, an analysis of M/B ratios is not necessary to apply the Comparable Earnings method. There is no basis to alter investor expected returns on book value due to any divergence in market prices from book value. Indeed, consideration of M/B ratios introduces subjectivity that the Comparable Earnings method is designed to avoid. That is to say, Comparable Earnings uses actual or expected returns directly to measure the required return on equity without additional subjective judgment that would be involved by considering M/B ratios. Moreover, it is impossible to know whether the market valuation is solely related to earnings for a particular company. Market sentiment can significantly influence the price of stock. This is particularly true given the increasingly global market for capital, the advent of program trading, and the effect on the market of mergers and leveraged financed stock acquisitions. M/B ratios for all sectors of stocks have exceeded 1.0 for an extended period. Mr. Parcel's assumption would mean that the market, on average, earns significantly more than the cost of equity. Mr. Parcell's base CE analysis without his M/B adjustment therefore indicates a common equity cost rate of 10.8% to 11.2%.

**Q. In his critique of your approach, Mr. Parcell criticizes your mechanism of applying the Comparable Earnings approach. Please comment.**

A. I have used this approach in connection with the other market models (i.e., DCF, Risk

[3] "Natural Gas: The Case for ROE Reform," John E. Olson First Vice President, Merrill Lynch & Co., October 11, 1994.

Premium, and CAPM) and the combined results of all methods fulfill established standards of a fair rate of return, i.e. namely, comparability and capital attraction. Unlike Mr. Parcell's Comparable Earnings approach, I have used objective measures to establish screening parameters to identify comparable companies with similar risks. Unlike my approach, Mr. Parcell compares the returns for the companies in the Comparable Earnings group with the returns for the gas utilities. This comparison is not appropriate because it introduces circularity to the Comparable Earnings method, which I avoid for reasons explained in my direct testimony (see page 61 of my prefiled direct testimony).

**Q. Mr. Parcell disagrees with the parameters you used to establish comparability. Please comment.**

A. Mr. Parcell alleges that the risk parameters that I used to screen for my Comparable Earnings companies do not establish that expected earnings for utilities and non-utilities are the same. Notably, however, he used three of the same variables in comparing risk on page 1 of Schedule 12 of Exhibit DCP-1. There is a fundamental relationship between risk and return that Mr. Parcell has not refuted. By levelizing the risk for the non-regulated companies and utilities, the returns derived from the non-regulated companies are directly relevant for the utilities.

<u>UGI RELATIVE RISK TRAITS</u>

**Q. On a variety of occasions in his prefiled direct testimony, Mr. Parcell makes the argument that UGI Gas have positive risk characteristics, such as the fully forecast test year, that he says that transfers risk from shareholders to ratepayers. Do any of Mr. Parcell's observations substantiate a return for UGI Gas that does not reflect its higher risk traits?**

A. No. Mr. Parcell's observation regarding a fully projected test year ignores the fact that a variety of gas utilities also employ a fully projected future test year. As such, the market prices of five barometer group companies that are used to measure the cost of equity already reflect the risk attributes of the fully forecast test year. The same concept applies to other regulatory mechanisms such as the DSIC, which is common for many gas distribution utilities. It is revealing that Mr. Parcell chooses to ignore that many gas distribution utilities also used weather stabilization and/or revenue decoupling mechanisms. UGI Gas has not proposed either of these mechanisms, which would mean that the Company has greater risk than the barometer group companies. And, Mr. Parcell ignores the extraordinarily high percentage of industrial throughput on the UGI Gas system that makes the Company more risky than the barometer group companies. For UGI Gas, its industrial load, which comprises, 56% of system throughput, is susceptible to fluctuating margins associated with alternative fuel prices or physical bypass. This provides significant risk to the Company that far outweighs the risk faced by most other gas utilities. While the Company has proposed to decouple the interruptible margins above cost of service from the revenues claimed in this case to minimize that risk, if the Company is unsuccessful in doing so, then this additional risk should be reflected in the cost of common equity.

**Q. Do the positions of the opposing parties, if adopted by the Commission, point to a further increase in the Company's risk?**

A. Yes. The Company calculates the cost of serving the interruptible class at $5 million. These customers all have verified dual fuel capability and service is priced against alternative fuel, normally number 2 fuel oil. Oil/gas spreads have been fairly wide in recent years and as a result the company has had pretty steady revenue from this class of customer. The Company's proposal in this case is to set revenue requirement at $5 million for this class and the Company will keep the excess revenue to offset risk that spreads will diminish and margin will drop. The opposing parties contend that cost to serve the class is much higher and want to include the entire $20 million of interruptible margin in rates. The Company has presented compelling evidence that shows that their position is not justified. If they were to prevail with the Commission and the Company's proposal is rejected, all interruptible margins will be credited to cost of service. This would clearly increase UGI risk and its cost of capital.

**Q. How should the Commission recognize the exemplary performance of the Company's management when setting its return in this case?**

A. The Commission should move the point in the range of reasonable returns above the midpoint to recognize the exemplary performance of the Company's management. This process has been used in other cases where the Commission added 25 basis points to the return in the case of West Penn Power Company, 22 basis points to the return in the case of Aqua Pennsylvania, and 12 basis points to the return in the case of PPL Electric Utilities. Certainly in this case, UGI Gas is deserving of similar treatment. 20 basis points would represent an average (025% + 0.22% + 0.12% = 0.59% ÷ 3 = 0.20%) of the performance recognition previously utilized by the Commission in the past. I believe UGI should receive at least this level of allowance.

## SUMMARY

**Q. Please summarize your rebuttal testimony.**

A. It is my opinion that the equity allowances proposed by Mr. Parcell and Ms. Maurer significantly understate the cost of common equity for UGI Gas. In an environment of prospectively higher interest rates, significant stock market uncertainty and company-specific risk factors including UGI Gas' operating risk and its small size, an 11.00% cost of equity provides a reasonable return for UGI Gas. Moreover, the Commission should be guided by the exemplary performance of the Company's management when selecting the point in the range when setting the Company's return in this case, which should be at least 20 basis points.

**Q. Does this conclude your rebuttal testimony?**

A. Yes, it does.

# UGI Gas Exhibit PRM-1

Gas Group
Business Segments

| Company | Total Assets ($000) | | | | Assets Percentage | | | |
|---|---|---|---|---|---|---|---|---|
| | Regulated | Non-regulated | Other/Eliminations | Total | Regulated | Non-regulated | Other | Total |
| Atmos Energy Corp. | $ 10,769,617 | $ 585,916 | $(2,262,588) | $ 9,092,945 | 118.44% | 6.44% | -24.88% | 100.00% |
| Chesapeake Utilities Corp. | $ 796,021 | $ 84,732 | $ 23,716 | $ 904,469 | 88.01% | 9.37% | 2.62% | 100.00% |
| Laclede Group, Inc. | $ 4,686,200 | $ 160,600 | $ 443,400 | $ 5,290,200 | 88.58% | 3.04% | 8.38% | 100.00% |
| New Jersey Resources Corp. | $ 2,331,060 | $ 1,072,583 | $ (64,605) | $ 3,339,038 | 69.81% | 32.12% | -1.93% | 100.00% |
| Northwest Natural Gas | $ 2,775,011 | $ 273,813 | $ 16,121 | $ 3,064,945 | 90.54% | 8.93% | 0.53% | 100.00% |
| South Jersey Industries, Inc. | $ 2,185,672 | $ 1,121,916 | $ 41,837 | $ 3,349,425 | 65.26% | 33.50% | 1.25% | 100.00% |
| Southwest Gas Corp. | $ 4,657,709 | $ 567,405 | | $ 5,225,114 | 89.14% | 10.86% | 0.00% | 100.00% |
| WGL Holdings, Inc. | $ 4,253,552 | $ 1,399,719 | $ (359,070) | $ 5,294,201 | 80.34% | 26.44% | -6.78% | 100.00% |
| Average | | | | | 86.27% | | | |