OCA Statement No. 2-SR

BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	)	
	)	
v.	)	DOCKET NO. R-2018-2647577
	)	
Columbia Gas of Pennsylvania, Inc.	)	

SURREBUTTAL TESTIMONY OF

MARLON F. GRIFFING, PH.D.

ON BEHALF OF THE

OFFICE OF THE CONSUMER ADVOCATE OF PENNSYLVANIA

JULY 17, 2018

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I. INTRODUCTION

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

A. My name is Dr. Marlon F. Griffing. I am a Senior Consultant with the economic consulting firm of PCMG & Associates Inc. ("PCMG"). My business address is 22 Brookes Drive, Gaithersburg, MD 20785.

Q. ARE YOU THE SAME DR. MARLON F. GRIFFING WHO FILED DIRECT TESTIMONY ON BEHALF OF THE PENNSYLVANIA OFFICE OF THE CONSUMER ADVCOCATE IN THIS DOCKET?

A. Yes. I am filing Surrebuttal Testimony regarding the cost of capital for the natural-gas distribution company Columbia Gas of Pennsylvania, Inc. ("CPA" or the "Company") in this docket before the Pennsylvania Public Utility Commission ("Commission"). As noted in my Direct Testimony, CPA is a wholly-owned subsidiary of NiSource Gas Distribution Group, which is a wholly-owned subsidiary of NiSource, Inc. ("NiSource")

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

A. I respond to the Rebuttal Testimony of Company witness Mr. Paul Moul.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. My testimony has four sections.

- First, I update my Discounted Cash Flow ("DCF") model ROE analysis for CPA from the values I presented in my Direct Testimony. I apply the same methods, but I include more recent values for common-equity share prices, dividends paid, and forecasted earnings per share (EPS) growth rates for the natural-gas distribution companies in my Comparison Group.

- Second, I update my capital asset pricing model (CAPM) analysis. Again, I use the same methods employed in my Direct Testimony, but the inputs are the most recent values for Comparison Group companies' betas, the risk-free rate of return (30-Year Treasury Bond yield), and the 3-to-5-year projected dividend earnings and growth rates for the universe of 1,700 stocks that *Value Line* follows.
- Third, I respond to various criticisms of my ROE analysis by Mr. Moul.
- Fourth, I summarize my testimony and recommendations.

Q. PLEASE STATE YOUR CONCLUSIONS REGARDING THE COMPANY'S ROE AND ROR.

A. I continue to recommend an ROE for the Company of 9.45 percent. When this number is included in the calculation of the ROR, the result is a weighted-average cost of capital of 7.32 percent for CPA. If the Company's requested Weather Normalization Adjustment is made permanent, then the recommended ROE is 9.38 percent and the recommended ROR is 7.28 percent.[1]

II. UPDATED DCF RETURN ON EQUITY ANALYSIS

1. Review of the DCF ROE Process

Q. FOR EASE OF REFERENCE, PLEASE SUMMARIZE YOUR PROCESS FOR ESTIMATING AN ROE FOR CPA.

A. I performed a DCF analysis on a group of natural gas distribution utilities comparable to the Company that are publicly traded and have similar investment risk. Using proxies to determine an ROE is typical for the DCF process. Therefore, I had to find companies similar in risk to CPA to develop the ROE for the Company. The estimated rates of return

[1] See Exhibit MFG-17.

for members of this group form the basis for my estimate of a fair rate of return for the Company.

Q. HOW DID YOU PROCEED IN FINDING PROXIES FOR CPA?

A. CPA does not have an independent S&P credit rating, but the credit rating for NiSource, its parent company, is BBB+, an investment-grade rating. CPA's risk profile is reflected in S&P's credit rating for NiSource, Inc., CPA's ultimate parent company, making that BBB+ rating a good surrogate credit rating for CPA. In conjunction with the NiSource, Inc. credit rating, I applied screens, which I described in my Direct Testimony, as I selected companies from Value Line's Natural Gas Utility industry listing for my Comparison Group.

Q. PLEASE IDENTIFY EVENTS THAT HAVE OCCURRED SINCE YOU PERFORMED YOUR INITIAL ROE ANALYSIS THAT AFFECTED GAS UTILITIES CONSIDERED FOR MEMBERSHIP IN THE COMPARISON GROUP.

A. South Jersey Industries ("SJI") has completed its acquisition of Elizabethtown Gas and Elkton Gas in New Jersey and Maryland, respectively, on July 2, 2018.[2] The completion of the transaction means there is no longer a reason to exclude SJI from the ROE analysis. Therefore, I no longer report a separate ROE for the group without SJI, as I did in my Direct Testimony. Further, AltaGas Ltd. completed its acquisition of Washington Gas Light Holdings, Inc. ("WGL") on July 6, 2018. I already had excluded WGL from my ROE analysis on the grounds that it would soon no longer be an independent company, a decision that the completion of the acquisition affirms.[3]

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[2] See Exhibit MFG-18.
[3] See Exhibit MFG-19.

Q. PLEASE NAME THE COMPANIES THAT REMAIN IN THE COMPARISON GROUP.

A. There are eight companies remaining in the Comparison Group. They are Atmos Energy, New Jersey Resources, NiSource, Inc., Northwest Natural Gas, ONE Gas, Inc., South Jersey Industries, Inc., Southwest Gas, and Spire, Inc.

Q. PLEASE DISCUSS YOUR INCLUSION OF RESULTS FROM NISOURCE IN YOUR ANALYSIS

A. As noted in my Direct Testimony, NiSource meets all my criteria for inclusion in the Comparison Group. However, I prefer not to use a parent company as a member of the Comparison Group for the company under analysis. If the parent is included, it introduces circularity into the analysis. Nevertheless, I do include NiSource in my analysis because there are only eight gas distribution companies that qualify for the Comparison Group. Therefore, I conduct analysis with NiSource as a member of the Comparison Group and with NiSource excluded from the Comparison Group, reporting both ROE outcomes.

Q. WHAT WAS THE NEXT STEP AFTER THE COMPARISON GROUP WAS CREATED?

A. I applied the constant-growth DCF model to the Comparison Group's eight members to determine my recommended ROE for the Company.

Q. IN GENERAL, WHAT IS THE STRUCTURE OF DCF MODELS?

A. The DCF model uses publicly available data for the individual companies' growth-rate estimates, dividends paid, and common-equity prices. I insert these values for each company into the constant-growth DCF equation:

$$k = \frac{D_1}{P_0} + g$$

Where:

D_1 is the annual dividend one year from the present;

P_0 is the current price of a stock share;

g is the growth rate of the dividend; and

k is the discount rate and the fair rate of return on equity.

The first term on the right-hand side of the equation is the dividend yield and the second term is the dividend growth rate. Together, they produce the estimated ROE for a company.

Q. HOW DID YOU USE THE INFORMATION FOR THE COMPARISON GROUP TO DETERMINE YOUR RECOMMENDED ROE FOR CPA?

A. Using the DCF model, I estimated a mean growth rate for each company in my Comparison Group. The mean growth rate is the average of the earnings per share (EPS) growth rates from Value Line, Zacks, and Yahoo! Finance with each source weighted equally. Next, I calculated the dividend yield for each company, then adjusted for dividend growth to find the expected dividend yield.

Q. PLEASE CONTINUE.

A. I checked my DCF ROE results against CAPM results and recent authorized ROEs for natural gas distribution companies, as I did in my Direct Testimony before determining my recommended ROE for the Company.

2. Updated DCF Analysis

Q. WHAT ARE THE DATES OF THE GROWTH-RATE PROJECTIONS WITH WHICH YOU CALCULATED THE GROWTH-RATE COMPONENTS OF THE COMPARISON GROUP COMPANIES' ROES?

A. My Value Line growth rates were taken from the June 1, 2018 issue of the firm's research reports. The Zacks and Yahoo! Finance growth rates were taken from those sources' websites on July 11, 2018.[4]

Q. WHAT ARE THE DATES OF THE EQUITY PRICES YOU USED TO CALCULATE THE DIVIDEND-YIELD PORTION OF COMPARISON GROUP COMPANIES' ROES?

A. My equity prices are the average of closing prices on the 19 trading days for the period June 18-July 13, 2018.[5] This period is long enough to dampen any short-term aberrations in the capital market. It is also close to the July 17, 2018 date of this testimony, making the prices timely.

Q. WHAT ARE THE DATES OF THE DIVIDENDS YOU USED TO CALCULATE THE DIVIDEND-YIELD PORTION OF COMPARISON GROUP COMPANIES' ROES?

A. I used the higher of the reported dividends annualized from either Value Line in its June 1, 2018 issue, or from Zacks as of July 11, 2018. Value Line has a higher dividend for Atmos Energy than Zacks ($1.98 vs. $1.94), otherwise the two sources report identical dividends for the companies.[6]

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[4] See Exhibit MFG-22, Schedule 1.
[5] See Exhibit MFG-20, pages 1-2.
[6] See Exhibit MFG-21.

Q. WERE ANY OF THE PROJECTED EPS GROWTH RATES UNUSUAL?

A. Yes. Value Line's EPS growth-rate estimate for NiSource, Inc. is 18.00 percent and its growth-rate estimate for Northwest Natural Gas is 30.50 percent. These projected growth rates are not representative of growth rates that a natural gas distribution company would have to match as it competed for capital in equity markets. Consider, the next highest growth rate from the three sources is the 12.40 percent that Zacks projects for SJI, 5.4 percent less than the Value Line EPS for NiSource and 18.1 percent less than Value Line EPS for Northwest Natural Gas. Moreover, as noted in my Direct Testimony, the highest authorized ROE awarded any U.S. natural gas company from January 1, 2016-May 3, 2018 in a fully litigated rate case was 11.78 percent to ENSTAR Natural Gas Co. of Alaska. ENSTAR's operations include regulated pipelines, meaning this ROE is not a fair standard of comparison for gas distribution companies like CPA. The next highest award after the ENSTAR award in the same period was 10.10 percent.[7]

Q. DID YOU MAKE ANY ADJUSTMENTS TO THE WEIGHTED-AVERAGE GROWTH RATES BEFORE DETERMINING THE DCF ROE OF THE COMPARISON GROUP?

A. Yes, I, excluded the growth-rate estimates for NiSource and Northwest Natural Gas from my DCF analysis. Instead, I used the weighted average of the Zacks and Yahoo! Finance EPS growth rates for NiSource and Northwest Natural Gas, similar to what I did for Southwest Gas, which does not have an EPS growth rate from Zacks.[8]

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[7] See Exhibit MFG-12.
[8] See Exhibit MFG-22, Schedule 1.

Q. WHAT ARE THE RESULTS OF YOUR DCF ROE ANALYSIS USING UPDATED DATA?

A. The mean ROE for the full Comparison Group is 9.26 percent. When NiSource is excluded the resulting ROE is 9.35 percent. See Exhibit MFG-21. These values are composed of mean expected dividend growth rates of 6.40 percent and 6.52 percent, plus mean expected dividend yields of 2.86 percent and 2.83 percent, respectively.[9]

Q. DID YOU ALSO UPDATE YOUR MULTISTAGE DCF ANALYSIS FOR THE COMPARISON GROUP?

A. Yes. I updated the multistage DCF analysis. The ROE for the Comparison Group from the multistage DCF analysis is 8.50 percent, 8.54 percent with NiSource excluded. [10]

III. UPDATED CAPM RETURN ON EQUITY ANALYSIS

Q. PLEASE RESTATE THE ROLE OF THE CAPM IN YOUR ROE ANALYSIS.

A. I use the CAPM as a check on the reasonableness of my DCF ROE analysis outcome. As noted in my Direct Testimony, the possible input values for the riskless asset, beta, and market risk premium can vary considerably.

Q. DID YOU UPDATE THE CAPITAL ASSET PRICING MODEL (CAPM) ROE ANALYSIS YOU PERFORMED IN YOUR DIRECT TESTIMONY?

A. Yes. I updated the calculation of my CAPM ROE using the methods I employed in my Direct Testimony.

[9] Sums of individual ROE components may not match total ROE due to rounding.
[10] See Exhibit MFG-22, Schedules 2.

Q. PLEASE REVIEW YOUR UPDATE OF YOUR CAPM ROE ANALYSIS.

A. The updating process included using the average closing yield (2.99 percent) on a 30-year Treasury bond for June 18-July 13, 2018 as my riskless asset rate.[11] I also used the average (0.73) of the adjusted Betas for each company as published in the Value Line Research Reports of June 1, 2018.[12] To update the market risk premium, I used the Value Line July 13, 2018 Summary and Index, which forecasts aggregate dividend yields and growth rates for the broad economy (1,700 stocks in the "Value Line Universe"). Value Line forecasts the dividend yield (2.0 percent) and the 3- to 5-year appreciation potential (45 percent) for these companies.[13] These inputs yield a market risk premium of 8.74 percent.[14]

Q. WHAT IS THE OUTCOME OF YOUR UPDATED CAPM ROE UPDATE?

A. My updated CAPM ROE for the full group is 9.38 percent, while my updated ECAPM ROE is 9.97 percent. Excluding NiSource produces ROEs of 9.55 percent and 10.09 percent. See Exhibit MFG-25, Schedule 4.

IV. UPDATED AUTHORIZED ROES STUDY

Q. PLEASE RESTATE THE VALUES OF THE AUTHORIZED ROES STUDY YOU PRESENTED IN YOUR DIRECT TESTIMONY.

A. The results of the set of authorized ROEs from other jurisdictions in fully litigated gas rate cases from editions of SNL's Regulatory Research Associates ("RRA") *Regulatory Focus* are presented below in Table 1, which was also presented in my Direct Testimony. No new decisions in fully litigated cases have been published since I filed my Direct Testimony.

[11] See Exhibit MFG-23, Schedule 1.
[12] *Id.*, Schedule 2.
[13] *Id.*, Schedule 3.
[14] *Id.*, Schedule 4.

Table 1

Year	No. of Cases	Mean ROE	Median ROE	ROE Range
2018	7	9.63	9.70	9.30-9.80
2017	9	9.82 (9.48 w/o Alaska)	9.50	8.70-11.88 (8.70-10.10 w/o Alaska)
2016	9	9.59	9.50	9.11-10.10

V. RESPONSE TO MR. MOUL'S REBUTTAL TESTIMONY

Q. DOES MR. MOUL MAKE CRITICISMS OF YOUR ROE ANALYSIS TO WHICH YOU WANT TO RESPOND?

A. Yes. I respond to Mr. Moul regarding:

1. the 2017 Tax Cut and Jobs Act ("TCJA"), risk and ROE;
2. whether higher interest rates are captured in the ROE models;
3. current yields versus forecasted yields in the CAPM;
4. Mr. Moul's use of Value Line book value returns to support a higher authorized ROE; and
5. Mr. Moul's leverage adjustment.

1. The 2017 Tax Cut and Jobs Act ("TCJA"), Risk, and ROE

Q. PLEASE DISCUSS MR MOUL'S POSITION REGARDING THE TCJA.

A. Mr. Moul asserts that the TCJA has had a negative effect on the credit positions of utility holding companies and operating companies. He cites reduced cash flow and coverage ratios as factors that have been identified as causes of increased operating risk, and that the increased risk means that the cost of capital for utilities will increase. Mr. Moul argues that public utility regulatory commissions should respond to this cause-and-effect chain by authorizing higher ROEs for utilities and increasing the ratio of common equity permitted in utility capital structures. Mr. Moul does not have faith that any increased risk for public utilities due to the TCJA is addressed in the ROE models employed in this docket.[15]

Q. DO YOU AGREE THAT THE TCJA INCREASES THE OPERATING RISK OF PUBLIC UTILITIES?

A. Credit ratings agencies have argued that the TCJA has a negative effect on the cash flow and credit metrics of public utilities, thus increasing risk for the utilities, at least in the short term.

Q. DO YOU AGREE THAT THIS PERCEIVED INCREASED RISK REQUIRES ADJUSTMENTS TO AUTHORIZED ROES BEYOND THOSE PRODUCED BY APPLYING RECOGNIZED MODELS?

A. No. The recognized and tested models for calculating ROE are constructed such that they will capture the effects of increased risk for public utilities whatever the cause, not just an event such as the TCJA.

Q. PLEASE REVIEW HOW CHANGES IN RISK SUCH AS THOSE CREATED BY THE TCJA ARE REFLECTED IN THE DCF MODEL.

A. The DCF model's dividend-yield component includes the price of common-equity shares of a company in its denominator. As changing perceptions of risk caused by the TCJA or other factors are absorbed by investors, the willingness of the investors to pay to own shares of a public utility company rise and fall. Less risk and the price increases; more risk and

[15] See Moul Statement 8R at 4.

the price falls. Since price is in the denominator of the dividend yield, a falling price due to increased risk increases the ROE yielded by applying the DCF model.

Q. DOES THE DCF MODEL ADDRESS THE CASH-FLOW AND CREDIT-QUALITY ISSUES RAISED BY THE TCJA ON A PROSPECTIVE BASIS?

A. Yes. The DCF model is a forward-looking, or prospective model. The common-equity prices incorporated in the dividend yield reflect the views of investors about the future prospects of companies. If investors believe the TCJA affects the cash flow and credit quality of public utilities in the future, these beliefs affect the present price that investors are willing to pay. Moreover, the DCF model reflects the magnitude of any concerns by investors about risk issues posed by the TCJA. Greater risk causes a larger drop in the common-equity share prices, a larger increase in the dividend yield, and a larger increase in the ROE.

Q. MR. MOUL STATES THAT CREDIT RATINGS AGENCIES ARE CONCERNED ABOUT THE CASH-FLOW IMPLICATIONS OF THE TCJA AND IMPLIES THAT YOUR ROE RECOMMENDATION DOES NOT REFLECT THIS CONCERN. DO YOU AGREE?

A. No. Mr. Moul includes a ratings action from Moody's Investors Service issued January 19, 2018[16] in his Rebuttal Testimony and quotes another Moody's release from June 18, 2018 as evidence of concern about the TCJA (signed into law December 22, 2017).[17] The January document changed Moody's outlook to "negative" for 24 utilities and the June document, according to Mr. Moul (it is not included in the record), downgraded regulated utilities as a class to "negative." For documents such as these to not be reflected in DCF

[16] *Id.*, Exhibit PRM-1R.
[17] *Id.*, at 3.

model results, they would have to be closely held secrets and thus unavailable to investors as they make common-equity buying and selling decisions. But the views of Moody's and other investor services are well known to investors. Therefore, this information was reflected in the ROE analyses for my Direct Testimony (prices gathered for April 23-May 18, 2018) and this Surrebuttal Testimony (prices gathered for June 18-July 13, 2018).

Q. DOES THE ROE FOR CPA NEED TO BE SET AT A MUCH HIGHER RATE IN RESPONSE TO THE TCJA, AS MR. MOUL SUGGESTS?

A. No. The DCF model as applied in my analyses, conducted after the TCJA became law, effectively captures the strength of view of investors regarding the TCJA and risk, and translates them into an ROE value that reflects those views. No further adjustments are necessary to respond to any risk matters associated with the TCJA.

2. Higher Interest Rate Levels and the ROE Models

Q. HOW ARE HIGHER INTEREST RATES CAPTURED IN THE DCF MODEL?

A. Financial instruments that pay interest are alternatives to investments in common equity share. If interest rates are expected to increase, as Mr. Moul maintains,[18] investors are aware of these expectations and take them into account in establishing the prices they are willing to pay to own common equity shares. No ad hoc adjustments need be made to the DCF model result.

Q. HOW ARE HIGHER INTEREST RATES CAPTURED IN THE CAPM?

A. I stated in my Direct Testimony that if investors expect interest rates to rise, then the yields on Treasury bonds will increase. The yield on the 30-Year Treasury Bond is of most interest in this docket as I use it as my risk-free rate of return in my CAPM analysis. Thus, rising

[18] *Id.*, at 5, 8.

interest rates, or expectations of rising interest rates, are captured through the risk-free rate. Interest rates also influence the expected rate of growth in broad market measures, such as the *Value Line* universe of 1,700 stocks, that are part of my calculation of the market risk premium element of the CAPM. Again, no adjustment need be made to the CAPM outcome.

3. Current Yields vs. Forecasted Yields in the CAPM.

Q. PLEASE RESPOND TO MR. MOUL'S ASSERTION THAT THE CURRENT YIELD FOR THE 30-YEAR TREASURY BOND IS NOT FORWARD-LOOKING.

A. I explained in my Direct Testimony why the current yield on the 30-Year Treasury Bond is forward-looking.[19] I need not elaborate on that explanation in this Surrebuttal Testimony.

Q. MR. MOUL ASSERTS THAT YOU ARE BEING INCONSISTENT WHEN YOU USE THE CURRENT YIELD ON THE 30-YEAR TREASURY BOND RATHER THAN FORECASTS OF THAT YIELD FOR YOUR CAPM RISK-FREE RATE.

A. Mr. Moul states that since I use *Value Line*, Zacks, and Yahoo! Finance forecasts for EPS growth rates in my DCF model, consistency requires that I should be using forecasted 30-Year Treasury Bond yields as the risk-free rate in my CAPM analysis. [20]

Q. ARE THE EPS GROWTH-RATE FORECASTS AND THE FORECASTED YIELDS COMPARABLE?

A. No. The EPS growth-rate forecasts cited by Mr. Moul are not comparable to the yield on a treasury instrument. The EPS growth rates of the DCF model are comparable to the *Value Line* stock-appreciation potential forecast I use to find a forward-looking growth rate for the broad market in the calculation of the CAPM market risk premium.

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[19] Griffing OCA Statement 2 at 47-50.
[20] Moul Statement 8R at 28.

Q. WHAT IS COMPARABLE WITH THE CURRENT YIELD OF A TREASURY BOND?

A. The current yield on a Treasury bond is like the dividend-yield component of the DCF model. The numerator of both yields is a dollar payment made to the owner of an asset: dividends paid on common equity in the DCF model and the coupon payment for a Treasury instrument. The actual yield on each instrument is determined by the denominators, the current prices investors are willing to pay to own the respective assets. These prices are determined by the value that the investors place on future expected returns from the assets. For Mr. Moul's consistency argument to hold, he would have to support using forecasted share prices in place of current share prices when calculating the DCF dividend yield on the grounds that current share prices do not reflect investors' forward-looking views.

4. Mr. Moul's Use of *Value Line* Book Value Returns on Equity to Support a Higher Authorized ROE

Q. PLEASE IDENTIFY THE *VALUE LINE* RETURNS CITED BY MR. MOUL AS THE RETURNS ON EQUITY EXPECTED BY INVESTORS.

A. Mr. Moul presents a table of forecasted returns on equity for the companies in his proxy group in his Rebuttal Testimony.[21] He states that knowledgeable investors are aware of these rates of returns. These returns average 10.00 percent for 2019 and 10.89 percent for 2021-2023, which are higher than the 9.45 percent ROE that I recommended for CPA in my Direct Testimony. Mr. Moul states that the data support his 10.95 percent equity return.

[21] Moul Statement No. 8R at 9.

Q. WHAT FACT ABOUT THESE RETURNS DOES MR. MOUL OMIT?

A. The returns on equity in Mr. Moul's table are returns on the book value of common equity shares in the companies, not market-value returns such as the 9.45 percent I calculate in the DCF model and CAPM. Only if the book values and market values of the shares were identical would the returns be comparable. Public utility equity market values are greater than equity book values, often in the range of a ratio of 2-to-1. This fact means that the book-value returns presented by Mr. Moul are not comparable with the market-value returns that are the basis for my ROE recommendation. Mr. Moul's book-value returns overstate the return on equity expected by investors. When the larger equity market values are substituted for the equity book values in the denominators of the calculations of the percentage rates of return, the values of the returns decline. Therefore, these book-value rates of return on equity do not support Mr. Moul's case for a 10.95 percent ROE.

5. Mr. Moul's Leverage Adjustment

Q. PLEASE COMMENT ON MR. MOUL'S LEVERAGE ADJUSTMENT.

A. I have addressed Mr. Moul's leverage adjustment in my Direct Testimony.[22] I will not repeat most of those arguments as to why it should not be applied.

Q. DO YOU HAVE A POINT OF EMPHASIS REGARDING MR. MOUL'S LEVERAGE ADJUSTMENT?

A. Yes. Mr. Moul states that in order to make DCF results relevant in the rate setting context, the market-derived cost rate cannot be used without modification.[23] The Commission has decided to the contrary in many rate cases in which Mr. Moul has proposed a leverage

[22] Griffing OCA Statement No. 2 at 44-45.
[23] Moul Statement No. 8R at 16.

adjustment. The Commission should continue to deny the requested leverage adjustment in this case.

Q. ARE THESE FIVE ISSUES THE ONLY AREAS OF DISAGREEMENT BETWEEN YOU AND MR. MOUL?

A. No. I disagree with him regarding his using the average of recent authorized ROEs as a floor for excluding individual company ROEs below that average from analysis; the need for a size adjustment to ROE; whether the Federal Reserve's announced intentions to increase the federal funds target rate necessarily result in higher rates of interest for other instruments,[24] making consensus forecasts of future yields from such bodies as *Blue Chip Financial Forecasts* the appropriate risk-free rate for CAPM analysis; and the relevance of the Comparable Earnings and Risk-Premium approaches to finding a reasonable ROE, among other issues. The absence of further comments here does not mean I agree with Mr. Moul.

VI. RECOMMENDED ROE AND OVERALL RATE OF RETURN

Q. WHAT ROE DO YOU RECOMMEND FOR THE COMPANY?

A. The results of my updated DCF analysis for the Comparison Group with and without NiSource are about 10 basis points lower than they were in my Direct Testimony. On the other hand, the CAPM results, which I use as one check on the reasonableness of my DCF outcome, declined, but not as much. Further, my ECAPM results dropped by a lesser amount as well.

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[24] For example, the yield for the 30-Year Treasury Bond was 3.10 percent on June 13, 2018, the date of the most recent Federal Open Market Committee 25-basis point increase in the target federal funds rate. The yield on July 13, 2018 was 2.94 percent, a decrease of 16 basis points. See Exhibit MFG-23. Schedule 1.

Q. PLEASE DISCUSS RECENT AUTHORIZED ROES AND THEIR INFLUENCE ON YOUR RECOMMENDED ROE.

A. The recent authorized ROEs are my other check on my DCF results. The results, 9.26 and 9.35 percent, of my DCF analyses fall within the ranges of the 2016 and 2017 authorized ROEs. However, the 9.26 percent outcome for the full Comparison Group is less than the lowest value of 9.30 percent for 2018. Hence, my updated DCF ROEs are at the low end of authorized ROEs in recent fully litigated natural gas rate cases.

Q. PLEASE DISCUSS RECENT AUTHORIZED ROES AND THEIR INFLUENCE ON YOUR RECOMMENDED ROE.

A. The combined evidence from my DCF, CAPM, and ECAPM analyses leads me to conclude that the ROE of 9.45 percent I recommended for CPA in my Direct Testimony is still a reasonable ROE for CPA. It also is within the range of the set of recent authorized ROEs.

Q. WHAT OVERALL RATE OF RETURN DO YOU RECOMMEND FOR THE COMPANY?

A. Using my recommended ROE, and the Company's cost of debt and capital structure, I recommend an overall rate of return of 7.32 percent for the Company. Additionally, as discussed in my Direct Testimony, if the Company's requested Weather Normalization Adjustment is made permanent, then my recommended ROR is 7.28 percent.

VII. SUMMARY

Q. WHAT ARE THE CRITERIA THE COMMISSION SHOULD CONSIDER IN SETTING THE COMPANY'S ROE AND ROR?

A. The Commission should only consider whether the ROE and ROR meet the *Bluefield* and *Hope* criteria for a fair return. Recounting, these criteria include returns commensurate with returns being earned on other investments with equivalent risks, rate of return sufficient to enable the utility to attract capital, and returns sufficient to enable the regulated company to maintain its credit rating and financial integrity. The interpretation of the *Hope* and *Bluefield* criteria is that a company should be given the opportunity to earn an ROE and ROR sufficient to meet these standards.

Q. WHAT DOES YOUR ROE ANALYSIS REFLECT?

A. My ROE analysis reflects the latest views of investors regarding the prospects of the Comparison Group companies. I have adjusted the outcome of my forward-looking DCF analysis upward to make it compatible with recent ROE awards to natural gas utilities. My CAPM and ECAPM results indicate this recommendation is reasonable.

Q. WHAT IS YOUR RECOMMENDED RETURN ON EQUITY AND OVERALL COST OF CAPITAL?

A. I recommend a return on equity of 9.45 percent and an overall rate of return of 7.32 percent. Additionally, as discussed in my Direct Testimony, if the Company's requested Weather Normalization Adjustment is made permanent, then the recommended ROE is 9.38 percent and the recommended ROR is 7.28 percent.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Exhibits

ROE and ROR Analysis for Columbia Gas Pennsylvania
ROR for Comparison Group

Constant-Growth DCF Analysis
Comparison Group

	Ratio	DCF Cost	WACC
Long-Term Debt	44.42%	5.11%	2.27%
Short-Term Debt	3.24%	3.20%	0.10%
Common Equity	52.34%	9.26%	4.85%
Overall Rate of Return	100%		7.22%

NiSource excluded

	Ratio	DCF Cost	WACC
Long-Term Debt	44.42%	5.11%	2.27%
Short-Term Debt	3.24%	3.20%	0.10%
Common Equity	52.34%	9.35%	4.89%
Overall Rate of Return	100%		7.26%

Mean DCF constant-growth ROE 9.30%

Capital Structure: The capital structure ratios for Columbia Gas Pennsylvania are those presented by Company witness Paul Moul in CPA Schedule No. 400, Page 1 of 28, Schedule 1 (1 of 2). They are accepted.

Recommended ROE and ROR

	Ratio	DCF Cost	WACC
Long-Term Debt	44.42%	5.11%	2.27%
Short-Term Debt	3.24%	3.20%	0.10%
Common Equity	52.34%	9.45%	4.95%
Overall Rate of Return	100%		7.32%

Weather Normalization

	Ratio	DCF Cost	WACC
Long-Term Debt	44.42%	5.11%	2.27%
Short-Term Debt	3.24%	3.20%	0.10%
Common Equity	52.34%	9.38%	4.91%
Overall Rate of Return	100%		7.28%

Other ROE Analysis Results

Multistage DCF		CAPM		ECAPM	
DCF Cost	WACC	ß = 0.73 CAPM Cost	WACC	ECAPM Cost	WACC
5.11%	2.27%	5.11%	2.27%	5.11%	2.27%
3.20%	0.10%	3.20%	0.10%	3.20%	0.10%
8.50%	4.45%	9.38%	4.91%	9.97%	5.22%
	6.82%		7.29%		7.59%
		ß = 0.74 CAPM Cost	WACC	ECAPM Cost	WACC
5.11%	2.27%	5.11%	2.27%	5.11%	2.27%
3.20%	0.10%	3.20%	0.10%	3.20%	0.10%
8.54%	4.47%	9.55%	5.00%	10.09%	5.28%
	6.84%		7.37%		7.66%

Means	**CAPM ROE**	9.47%	**ECAPM ROE**	10.03%

Sources: The Constant-Growth DCF outcomes are taken from Exhibit MFG-22, Schedule 1. The Multistage DCF outcome is taken from Exhibit MFG-22, Schedule 2. The CAPM/ECAPM results are taken from Exhibit MFG-23, Schedule 4.

Notes: The DCF Constant-Growth ROE for the Comparison Group is 9.27 percent and with NiSource excluded 9.35 percent. The CAPM ROE is 9.38 percent for the full group and 9.55 percent when NiSource is excluded. The corresponding ECAPM outcomes are 9.97 percent and 10.09 percent. Although the DCF ROE results have decreased since my Direct Testimony, as have the CAPM and ECAPM results, the CAPM and ECAPM results have been more stable. I give more weight to the DCF results, but a check with the CAPM/ECAPM results indicates that my original recommendation ROE of 9.45 percent is still reasonable. This ROE also is reasonable when compared with recent authorized natural gas ROEs.

S&P Global

AltaGas closes acquisition of WGL Holdings

Friday, July 06, 2018 5:07 PM CT

By Miguel Angel Cordon

Alberta-based AltaGas Ltd. closed its roughly C$9 billion acquisition of Washington, D.C.-headquartered WGL Holdings Inc., it said in a July 6 news release.

Following the acquisition's closing, Terry McCallister will retire as WGL Holdings' CEO and, if accepted, will join the AltaGas board of directors. Adrian Chapman, who currently serves as president and COO of WGL Holdings, will be succeeding McCallister as president and CEO of Washington Gas Light Co.

As previously announced, WGL shareholders will receive US$88.25 in cash for each share they own. WGL Holdings' common stock will also cease to be traded and will be delisted from the NYSE.

"The combined forces of AltaGas and WGL will expand clean energy choices for our customers and enhance AltaGas' position as a leading North American clean energy infrastructure company," AltaGas President and CEO David Harris said in the news release.

The company cited its presence in both the Montney and Marcellus gas plays as giving it the ability to participate in energy export markets on both coasts of North America. It also said it sees growth opportunities in clean energy resources such as hydroelectric, wind, small-scale solar, biomass and energy storage.

With the completion of the merger, the combined company serves about 1.8 million customers with a rate base of C$4.5 billion. AltaGas projects that rate base growing to about C$7 billion by the end of 2021.

AltaGas on July 2 received approval from the Public Service Commission of the District of Columbia for the acquisition of WGL, following a settlement agreement from both companies with the agency. That was the last regulatory approval needed to complete the merger.

S&P Global

South Jersey Industries closes acquisitions of NJ, Md. utilities

Monday, July 02, 2018 7:41 AM CT

By Sibyl Layag

South Jersey Industries Inc. completed its acquisitions of the New Jersey utility Elizabethtown Gas Co. Inc. and the Maryland-based utility Elkton Gas Co. from Southern Co. subsidiary Pivotal Utility Holdings Inc.

The deal expands South Jersey Industries' portfolio of regulated assets by 3,315 miles of gas pipeline and its customer count to more than 681,000, making it the third-largest local gas distribution company in the U.S., according to a July 2 news release. In New Jersey, South Jersey Industries is now the second largest natural gas provider, the company said.

South Jersey Industries in June received approval from the New Jersey Board of Public Utilities and the Maryland Public Service Commission for the acquisitions.

Williams Capital Group analysts said in a July 2 note that the deal's near-term results are not likely to contribute to the company for at least several quarters, but the transaction is ultimately a positive for shareholders in the longer run due to an improved capital structure and a fast-growing rate base.

South Jersey Industries also recently agreed to divest its portfolio of solar energy projects for $350 million, as part of a strategy to monetize noncore businesses and focus its investments in regulated assets.

Guggenheim Securities served as lead financial adviser, Bank of America Merrill Lynch served as financial adviser and Gibson Dunn & Crutcher LLP served as lead legal adviser to South Jersey Industries.

ROE and ROR Analysis for Columbia Gas PA
Comparison Group
Common Equity Share Prices
Yahoo Finance, May 22, 2018

	Atmos Energy (ATO)		New Jersey Resources (NJR)		NiSource (NI)		Northwest Natural Gas (NWN)
Date	Close	Date	Close	Date	Close	Date	Close
6/18/2018	$ 87.11	6/18/2018	$ 43.00	6/18/2018	$ 24.39	6/18/2018	$ 60.70
6/19/2018	$ 88.32	6/19/2018	$ 43.90	6/19/2018	$ 24.67	6/19/2018	$ 61.45
6/20/2018	$ 88.33	6/20/2018	$ 44.05	6/20/2018	$ 24.80	6/20/2018	$ 62.10
6/21/2018	$ 88.85	6/21/2018	$ 44.05	6/21/2018	$ 24.78	6/21/2018	$ 62.45
6/22/2018	$ 89.11	6/22/2018	$ 44.35	6/22/2018	$ 25.06	6/22/2018	$ 62.65
6/25/2018	$ 90.53	6/25/2018	$ 44.85	6/25/2018	$ 25.67	6/25/2018	$ 63.70
6/26/2018	$ 89.84	6/26/2018	$ 44.40	6/26/2018	$ 25.57	6/26/2018	$ 63.90
6/27/2018	$ 90.13	6/27/2018	$ 44.55	6/27/2018	$ 25.83	6/27/2018	$ 64.10
6/28/2018	$ 90.39	6/28/2018	$ 45.00	6/28/2018	$ 26.12	6/28/2018	$ 64.70
6/29/2018	$ 90.14	6/29/2018	$ 44.75	6/29/2018	$ 26.28	6/29/2018	$ 63.80
7/2/2018	$ 90.34	7/2/2018	$ 45.40	7/2/2018	$ 26.52	7/2/2018	$ 64.45
7/3/2018	$ 91.27	7/3/2018	$ 45.70	7/3/2018	$ 26.73	7/3/2018	$ 65.05
7/5/2018	$ 92.05	7/5/2018	$ 46.80	7/5/2018	$ 26.80	7/5/2018	$ 65.90
7/6/2018	$ 92.57	7/6/2018	$ 47.30	7/6/2018	$ 26.88	7/6/2018	$ 66.55
7/9/2018	$ 89.81	7/9/2018	$ 46.25	7/9/2018	$ 26.06	7/9/2018	$ 64.05
7/10/2018	$ 90.67	7/10/2018	$ 46.90	7/10/2018	$ 26.24	7/10/2018	$ 64.50
7/11/2018	$ 91.06	7/11/2018	$ 46.35	7/11/2018	$ 26.38	7/11/2018	$ 64.65
7/12/2018	$ 91.13	7/12/2018	$ 46.25	7/12/2018	$ 26.30	7/12/2018	$ 64.75
7/13/2018	$ 91.13	7/13/2018	$ 45.95	7/13/2018	$ 26.30	7/13/2018	$ 64.30
Mean	$ 90.15		$ 45.25		$ 25.86		$ 63.88

ROE and ROR Analysis for Columbia Gas PA
Comparison Group
Common Equity Share Prices
Yahoo Finance, May 22, 2018

ONE Gas, Inc. (OGS)		South Jersey Industries		Southwest Gas (SWX)		Spire, Inc. (SR)	
Date	Close	Date	Close	Date	Close	Date	Close
6/18/2018	$ 72.47	6/18/2018	$ 31.53	6/18/2018	$ 75.86	6/18/2018	$ 68.30
6/19/2018	$ 73.72	6/19/2018	$ 32.24	6/19/2018	$ 77.94	6/19/2018	$ 69.85
6/20/2018	$ 74.03	6/20/2018	$ 32.75	6/20/2018	$ 78.26	6/20/2018	$ 69.95
6/21/2018	$ 74.39	6/21/2018	$ 33.12	6/21/2018	$ 78.29	6/21/2018	$ 70.40
6/22/2018	$ 74.70	6/22/2018	$ 33.13	6/22/2018	$ 77.96	6/22/2018	$ 71.05
6/25/2018	$ 75.28	6/25/2018	$ 33.85	6/25/2018	$ 76.81	6/25/2018	$ 71.50
6/26/2018	$ 75.25	6/26/2018	$ 33.52	6/26/2018	$ 76.59	6/26/2018	$ 71.10
6/27/2018	$ 74.89	6/27/2018	$ 33.57	6/27/2018	$ 75.98	6/27/2018	$ 71.05
6/28/2018	$ 74.79	6/28/2018	$ 33.80	6/28/2018	$ 76.83	6/28/2018	$ 71.30
6/29/2018	$ 74.74	6/29/2018	$ 33.47	6/29/2018	$ 76.27	6/29/2018	$ 70.65
7/2/2018	$ 75.66	7/2/2018	$ 33.96	7/2/2018	$ 76.85	7/2/2018	$ 71.65
7/3/2018	$ 76.48	7/3/2018	$ 34.17	7/3/2018	$ 78.14	7/3/2018	$ 72.40
7/5/2018	$ 77.35	7/5/2018	$ 34.96	7/5/2018	$ 78.88	7/5/2018	$ 73.80
7/6/2018	$ 77.41	7/6/2018	$ 35.27	7/6/2018	$ 79.99	7/6/2018	$ 74.35
7/9/2018	$ 74.22	7/9/2018	$ 33.88	7/9/2018	$ 77.77	7/9/2018	$ 72.40
7/10/2018	$ 75.47	7/10/2018	$ 34.48	7/10/2018	$ 79.26	7/10/2018	$ 72.80
7/11/2018	$ 75.90	7/11/2018	$ 34.49	7/11/2018	$ 79.79	7/11/2018	$ 72.75
7/12/2018	$ 75.63	7/12/2018	$ 34.10	7/12/2018	$ 80.08	7/12/2018	$ 72.70
7/13/2018	$ 75.24	7/13/2018	$ 33.65	7/13/2018	$ 79.72	7/13/2018	$ 72.10
Mean	$ 75.14		$ 33.68		$ 77.96		$ 71.58

ROE and ROR Analysis for Columbia Gas Pennsylvania
Comparison Group
Dividends

Docket No. R-2018-2647577
Exhibit MFG-21

Name	Value Line	Zacks	Highest Dividend
Atmos Energy	$ 1.98	$ 1.94	$ 1.98
New Jersey Resources	$ 1.09	$ 1.09	$ 1.09
NiSource, Inc.	$ 0.78	$ 0.78	$ 0.78
Northwestern Natural Gas	$ 1.89	$ 1.89	$ 1.89
ONE Gas, Inc.	$ 1.84	$ 1.84	$ 1.84
South Jersey Industries	$ 1.12	$ 1.12	$ 1.12
Southwest Gas	$ 2.08	$ 2.08	$ 2.08
Spire, Inc.	$ 2.25	$ 2.25	$ 2.25

Value Line dividends taken from June 1, 2018 Research Reports

Zacks dividends taken from its website on July 11, 2018

ROE and ROR Analysis for Columbia Gas Pennsylvania
Comparison Group
Discounted Cash Flow Constant-Growth Model Analysis
Common Equity Share Prices June 18-July 13, 2018
Zacks, Yahoo! Finance, and Value Line EPS Growth-Rate Estimates--June-July 2018

Docket No. R-2018-2647577
Exhibit MFG-22, Schedule 1

	A	B	C	D
Company Name	**Zacks EPS Growth Rate (%)**	**Yahoo! Finance EPS Growth Rates (%)**	**Value Line EPS Growth Rates (%)**	**Zacks-Yahoo! Finance-Value Line Mean Growth Rate (%)**
Atmos Energy	7.00%	6.65%	7.50%	7.05%
New Jersey Resources	6.00%	6.43%	9.50%	7.31%
NiSource, Inc.*	5.49%	5.70%	18.00%	5.60%
Northwest Natural Gas*	4.33%	4.50%	30.50%	4.42%
ONE Gas, Inc.	5.70%	5.50%	7.00%	6.07%
South Jersey Industries	12.40%	6.00%	9.50%	9.30%
Southwest Gas	NA	4.00%	9.00%	6.50%
Spire, Inc.	4.02%	3.47%	7.50%	5.00%
Mean	6.42%	5.28%	12.31%	6.40%
			w/o NiSource	6.52%

*-Value Line EPS Growth Rates Excluded

	E	F	G	H	I
Company Name	**Average of Closing Prices**	**Annualized Dividend**	**Dividend Yield (Rate/Price)**	**Expected Dividend Yield**	**Required Rate of Return on Equity**
Atmos Energy	$ 90.15	$ 1.98	2.20%	2.27%	9.32%
New Jersey Resources	$ 45.25	$ 1.09	2.41%	2.50%	9.81%
NiSource, Inc.*	$ 25.86	$ 0.78	3.02%	3.10%	8.70%
Northwest Natural Gas*	$ 63.88	$ 1.89	2.96%	3.02%	7.44%
ONE Gas, Inc.	$ 75.14	$ 1.84	2.45%	2.52%	8.59%
South Jersey Industries	$ 33.68	$ 1.12	3.33%	3.48%	12.78%
Southwest Gas	$ 77.96	$ 2.08	2.67%	2.75%	9.25%
Spire, Inc.	$ 71.58	$ 2.25	3.14%	3.22%	8.22%
		Mean	2.77%	2.86%	9.26%
		w/o NiSource	2.74%	2.83%	9.35%

A: Zacks website, July 11, 2018. See Workpapers.
B: Yahoo! Finance website; July 11, 2018. See Workpapers.
C: Value Line Investment Survey: June 1, 2018. See Workpapers.
E: Yahoo! Finance website; June 18-July 13, 2018 (19 trading days).
F: Higher of Value Line Investment Survey: June 1, 2018 and Zacks report, July 11, 2018. See Exhibit MFG-21.

D: (A + B + C)/3 G: F/E H: G*(1+(0.5*D)) I: D + H

ROE and ROR Analysis for Columbia Gas Pennsylvania
Comparison Group
Discounted Cash Flow Constant-Growth Model Analysis
Common Equity Share Prices June 18-July 13, 2018
Zacks, Yahoo! Finance, and Value Line EPS Growth-Rate Estimates--June-July 2018

	A	B	C	D	E	F
Company Name	**Zacks EPS Growth Rate (%)**	**Yahoo! Finance EPS Growth Rates (%)**	**Value Line EPS Growth Rates (%)**	**Zacks-Yahoo! Finance-Value Line Mean Growth Rate (%)**	**Average of Closing Prices**	**Annualized Dividend**
Atmos Energy	7.00%	6.65%	7.50%	7.05%	$ 90.15	$ 1.98
New Jersey Resources	6.00%	6.43%	9.50%	7.31%	$ 45.25	$ 1.09
NiSource, Inc.*	5.49%	5.70%	18.00%	5.60%	$ 25.86	$ 0.78
Northwest Natural Gas*	4.33%	4.50%	30.50%	4.42%	$ 63.88	$ 1.89
ONE Gas, Inc.	5.70%	5.50%	7.00%	6.07%	$ 75.14	$ 1.84
South Jersey Industries	12.40%	6.00%	9.50%	9.30%	$ 33.68	$ 1.12
Southwest Gas	NA	4.00%	9.00%	6.50%	$ 77.96	$ 2.08
Spire, Inc.	4.02%	3.47%	7.50%	5.00%	$ 71.58	$ 2.25
Mean	6.42%	5.28%	12.31%	6.40%		
			w/o NiSource	6.52%		

*-Value Line EPS Growth Rates Excluded

	G	H	I	J	K	L	M
Company Name	**Dividend Yield (Rate/Price)**	**Expected Dividend Yield**	**CBO Long-Run Projected Growth Rate, 3.9%**	**EIA Long-Run Projected Growth Rate, 4.3%**	**Average Growth Rate**	**Weighted Projected Growth Rate, 4.1%**	**Mulitistage Weighted Cost of Equity**
Atmos Energy	2.20%	2.27%	3.90%	4.30%	4.10%	6.07%	8.34%
New Jersey Resources	2.41%	2.50%	3.90%	4.30%	4.10%	6.24%	8.74%
NiSource, Inc.*	3.02%	3.10%	3.90%	4.30%	4.10%	5.10%	8.20%
Northwest Natural Gas*	2.96%	3.02%	3.90%	4.30%	4.10%	4.31%	7.33%
ONE Gas, Inc.	2.45%	2.52%	3.90%	4.30%	4.10%	5.41%	7.93%
South Jersey Industries	3.33%	3.48%	3.90%	4.30%	4.10%	7.57%	11.05%
Southwest Gas	2.67%	2.75%	3.90%	4.30%	4.10%	5.70%	8.45%
Spire, Inc.	3.14%	3.22%	3.90%	4.30%	4.10%	4.70%	7.92%
Mean	2.77%	2.86%				5.64%	8.50%
w/o NiSource	2.74%	2.83%			w/o NiSource	5.71%	8.54%

A: Zacks website, July 11, 2018. See Workpapers.
B: Yahoo! Finance website; July 11, 2018. See Workpapers.
C: Value Line Investment Survey: June 1, 2018. See Workpapers.
E: Yahoo! Finance website; June 18-July 13, 2018 (19 trading days).
F: Higher of Value Line Investment Survey: June 1, 2018 and Zacks report, July 11, 2018. See Exhibit MFG-9.
I: Congressional Budget Office, *Budget and Economic Outlook: 2018 to 2028*. April 9, 2018, www.cbo.gov/publication/52801. See Exhibit MFG-10, Schedule 3.
J: U.S. Energy Information Administration, *Annual Energy Outlook 2018*, Table A20. See Exhibit MFG-10, Schedule 4.

D: = (A + B + C)/3 G: = F/E H: = G*(1+(0.5*J)) K: = (I + J)/2 L: = ((2/3 * D) + (1/3 * K)) M: = H + L

ROE and ROR Analysis for Columbia Gas Pennsylvania
Capital Asset Pricing Model (CAPM) Analysis
Risk-Free Rate Analysis

Yield Curve Rates (Percent)
June 18, 2018-July 13, 2018

Date	1 mo	3 mo	6 mo	1 yr	2 yr	3 yr	5 yr	7 yr	10 yr	20 yr	30 yr
6/18/2018	1.84	1.94	2.13	2.35	2.56	2.67	2.80	2.89	2.92	2.98	3.05
6/19/2018	1.85	1.94	2.13	2.34	2.54	2.64	2.77	2.84	2.89	2.95	3.02
6/20/2018	1.85	1.94	2.14	2.36	2.56	2.67	2.80	2.89	2.93	2.99	3.06
6/21/2018	1.85	1.94	2.12	2.34	2.56	2.65	2.77	2.86	2.90	2.97	3.04
6/22/2018	1.83	1.93	2.11	2.33	2.56	2.65	2.77	2.86	2.90	2.97	3.04
6/25/2018	1.80	1.93	2.13	2.34	2.54	2.63	2.75	2.83	2.87	2.95	3.02
6/26/2018	1.79	1.93	2.14	2.33	2.53	2.63	2.75	2.84	2.88	2.95	3.03
6/27/2018	1.79	1.93	2.10	2.33	2.52	2.59	2.71	2.79	2.83	2.90	2.97
6/28/2018	1.76	1.93	2.11	2.33	2.52	2.60	2.73	2.81	2.84	2.91	2.97
6/29/2018	1.77	1.93	2.11	2.33	2.52	2.63	2.73	2.81	2.85	2.91	2.98
7/2/2018	1.90	1.98	2.14	2.34	2.57	2.65	2.75	2.83	2.87	2.92	2.99
7/3/2018	1.91	1.98	2.12	2.33	2.53	2.63	2.72	2.79	2.83	2.89	2.96
7/5/2018	1.87	1.96	2.11	2.32	2.55	2.65	2.74	2.80	2.84	2.88	2.95
7/6/2018	1.86	1.97	2.13	2.34	2.53	2.64	2.71	2.78	2.82	2.87	2.94
7/9/2018	1.87	1.98	2.15	2.34	2.57	2.66	2.75	2.82	2.86	2.90	2.96
7/10/2018	1.88	1.99	2.15	2.36	2.59	2.69	2.77	2.83	2.87	2.91	2.97
7/11/2018	1.89	1.97	2.14	2.36	2.58	2.67	2.74	2.82	2.85	2.89	2.95
7/12/2018	1.89	1.98	2.17	2.39	2.6	2.68	2.75	2.83	2.85	2.89	2.95
7/13/2018	1.87	1.98	2.16	2.37	2.59	2.66	2.73	2.8	2.83	2.87	2.94
										Mean	2.99
6/13/2018	1.82	1.94	2.09	2.35	2.59	2.71	2.85	2.95	2.98	3.04	3.10

lata-chart-center/interest-rates/Pages/TextView.aspx?data=yieldAll

ROE and ROR Analysis for Columbia Gas Pennsylvania
Capital Asset Pricing Model (CAPM) Analysis
Beta calculation for Comparison Group

Docket No. R-2018-2647577
Exhibit MFG-23, Schedule 2

Company Name		Value Line Betas--Comparison Group w/ NiSource		Value Line Betas--Comparison Group w/o NiSource
Atmos Energy		0.70		0.70
New Jersey Resources		0.80		0.80
NiSource, Inc.		0.60		
Northwest Natural Gas		0.70		0.70
ONE Gas, Inc.		0.70		0.70
South Jersey Industries		0.85		0.85
Southwest Gas		0.80		0.80
Spire, Inc.		0.70		0.70
	Mean	0.73	Mean	0.75

Value Line betas taken from June 1, 2018 Investment Survey Research Reports.

THE VALUE LINE Investment Survey®

Part 1 Summary & Index

File at the front of the *Ratings & Reports* binder. Last week's *Summary & Index* should be removed.

July 13, 2018

TABLE OF SUMMARY & INDEX CONTENTS

Summary & Index Page Number

SCREENS

The Median of Estimated
PRICE-EARNINGS RATIOS
of all stocks with earnings

18.4

26 Weeks Ago	Market Low 3-9-09	Market High 1-26-18
20.5	10.3	21.1

The Median of Estimated
DIVIDEND YIELDS
(next 12 months) of all dividend paying stocks under review

2.0%

26 Weeks Ago	Market Low 3-9-09	Market High 1-26-18
1.9%	4.0%	1.8%

The Estimated Median Price
APPRECIATION POTENTIAL
of all 1700 stocks in the Value Line universe in the hypothesized economic environment 3 to 5 years hence

45%

26 Weeks Ago	Market Low 3-9-09	Market High 1-26-18
25%	185%	20%

ANALYSES OF INDUSTRIES IN ALPHABETICAL ORDER WITH PAGE NUMBER

Numeral in parenthesis after the industry is rank for probable performance (next 12 months).

*Reviewed in this week's issue.

In three parts: This is Part 1, the Summary & Index. Part 2 is Selection & Opinion. Part 3 is Ratings & Reports. Volume LXXIII, No. 48.
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ROE and ROR Analysis for Columbia Gas Pennsylvania
Capital Asset Pricing Model (CAPM) Analysis
Calculation of ROE

CAPM calculation

$k = r + \beta (k_m - r)$

Where:
- k = required rate of return for the specific stock
- β = beta, the systematic or stock-specific risk
- r = rate of return on a riskless asset
- k_m = required rate of return in the market portfolio

4-Year Annualized Growth Rate for Value Line Data

Value Line May 18, 2018 forecast data*	
Dividend yield	2.00%
45 percent market appreciation potential, 3-5 years	
4-year growth rate ($1.45^{0.25}$ - 1.00)	9.73%
Value Line forecast result (2.0% + 9.73%)	11.73%
Market risk premium (11.83% - 2.99%)	8.74%

*-Exhibit MFG-11, Schedule 3

	$r =$	2.99%	30-Year Treasury Bill June 18-July 13, 2018 average, Exhibit MFG-11, Schedule 1
	$(k_m - r) =$	8.74%	Market risk premium
	$\beta =$	0.73	Value Line mean beta for Comparison Group, Exhibit MFG-11, Schedule 2
	β (km - r)	6.39%	
CAPM ROE	$k =$	9.38%	w/ NiSource
	$\beta =$	0.75	
	β (km - r)	6.56%	
CAPM ROE	$k =$	9.55%	w/o NiSource

Empirical CAPM (ECAPM) calculation**

$k = r + x (k_m - r) + (1 - x) \beta (k_m - r)$

Where:	$x =$	0.25	
	$\beta =$	0.73	
ECAPM ROE	$k =$	9.97%	w/ NiSource
	$\beta =$	0.75	
ECAPM ROE	$k =$	10.09%	w/o NiSource

**-See Pages 190-191, Morin, Roger, *New Regulatory Finance* (2006), Public Utilities Reports, Inc., Vienna, Virginia, Exhibit MFG-13, Schedule 5

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:	
	:	
v.	:	Docket No. R-2018-2647577
	:	
Columbia Gas of Pennsylvania, Inc.	:	

VERIFICATION

I, MARLON GRIFFING, hereby state that the facts set forth in my Surrebuttal Testimony, OCA Statement No. 2-SR , are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

7-17-18
Date

Signed: Marlon Griffing
Marlon Griffing