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July 20, 2023

ELECTRONIC FILING

Mr. Adam J. Teitzman, Commission Clerk
Office of Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: Docket No. 20230023-GU; Petition for Rate Increase by Peoples Gas System, Inc.

Docket No. 20220219-GU; Peoples Gas System's Petition for Rate Approval of 2022 Depreciation Study

Docket No. 20220212-GU; Peoples Gas System's Petition for Approval of Depreciation Rate and Subaccount for Renewable Natural Gas Facilities Leased to Others

Dear Mr. Teitzman:

Attached for filing on behalf of Peoples Gas System, Inc. in the above-referenced docket is the Rebuttal Testimony of Dylan W. D'Ascendis and Exhibit No. DWD-2.

Thank you for your assistance in connection with this matter.

Sincerely,

J. Jeffry Wahlen

JJW/ne
Attachment
cc: All parties of record

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 20230023-GU

PETITION FOR RATE INCREASE

BY PEOPLES GAS SYSTEM, INC.

REBUTTAL TESTIMONY AND EXHIBIT

OF

DYLAN W. D'ASCENDIS

ON BEHALF OF

PEOPLES GAS SYSTEM, INC.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

REBUTTAL TESTIMONY

OF

DYLAN W. D'ASCENDIS

ON BEHALF OF PEOPLES GAS SYSTEM, INC.

I. INTRODUCTION

Q. Please state your name, address, occupation, and employer.

A. My name is Dylan W. D'Ascendis. My business address is 3000 Atrium Way, Suite 200, Mount Laurel, New Jersey 08054. I am employed by ScottMadden, Inc. as a Partner.

Q. Are you the same Dylan W. D'Ascendis who filed direct testimony in this proceeding?

A. Yes, I am.

II. PURPOSE, SUMMARY AND OVERVIEW

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is two-fold. First, due to the passage of time since the analysis in my direct testimony, I have updated my return on equity ("ROE") analyses to reflect more recent market data. Second, I respond to the

direct testimony of witness David J. Garrett, on behalf of the Florida Office of Public Counsel ("OPC"), concerning Peoples Gas System, Inc.'s ("Peoples" or the "Company") ROE on its Florida rate base.

Q. Have you prepared an exhibit supporting your rebuttal testimony?

A. Yes. I have prepared Exhibit No. DWD-2, comprising Document Nos. 1 through 17, which have been prepared by me or under my direction.

Document No. 1	Updated Cost of Common Equity Results
Document No. 2	Financial Profile of the Utility Proxy Group
Document No. 3	Application of the Discounted Cash Flow Model
Document No. 4	Application of the Risk Premium Model
Document No. 5	Application of the Capital Asset Pricing Model
Document No. 6	Basis of Selection for the Non-Price Regulated Companies Comparable in Total Risk to the Utility Proxy Group
Document No. 7	Application of Cost of Common Equity Models to the Non-Price Regulated Proxy Group

Document No. 8	Derivation of the Flotation Cost Adjustment to the Cost of Common Equity
Document No. 9	Derivation of the Indicated Size Premium for Peoples Relative to the Utility Proxy Group
Document No. 10	Comparison of Projected Capital Expenditures Relative to Net Plant
Document No. 11	Relationship Between Investor Required Returns on the Market and Authorized ROEs for Electric and Natural Gas Utilities, 1990 – 2022
Document No. 12	Gross Domestic Product ("GDP") by Industry, 1947 - 2022
Document No. 13	Evaluation of Implied Risk Premium Approach
Document No. 14	Company Size and Volatility of Returns
Document No. 15	Flotation Cost Illustration
Document No. 16	Frequency Distribution of Observed Market Risk Premiums ("MRP"), 1926 - 2022
Document No. 17	Referenced Endnotes for the Rebuttal Testimony of Dylan W. D'Ascendis

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

A. The remainder of my rebuttal testimony is organized as

follows:

- Section III – Provides my updated analyses;
- Section IV – Contains my response to OPC witness Garrett; and
- Section V – Summarizes my recommendations and conclusions.

Q. Please summarize the key issues addressed in your rebuttal testimony.

A. First, I discuss my updated analyses for the Company using market data as of June 16, 2023, which continue to support my initial ROE recommendation.

Next, I respond to witness Garrett's direct testimony concerning the appropriate ROE for Peoples. As discussed in Section IV, witness Garrett's shortcomings in his analyses include:

1. How far disconnected his recommended ROE is from his own analytical results and observable and relevant data;
2. His misinterpretation of the relationship between various returns referenced in an ROE analysis;
3. His misapplication of the Discounted Cash Flow ("DCF") model;
4. His misapplication of the Capital Asset Pricing Model ("CAPM"); and

5. His failure to consider flotation costs and other Company-specific risk factors in his ROE recommendation.

Finally, my rebuttal testimony also addresses witness Garrett's unfounded critiques of my direct testimony.

Q. Please summarize your recommendations and conclusions.

A. My updated analytical results indicate the reasonable range of ROEs applicable to Peoples is between 9.89 percent and 12.03 percent. From my updated analyses, I maintain my initial recommendation that the Florida Public Service Commission (the "Commission") authorize Peoples the opportunity to earn an ROE of 11.00 percent on its jurisdictional rate base, based on its proposed ratemaking capital structure. In view of current markets and the results of my ROE models, the 9.00 percent ROE proffered by witness Garrett is woefully inadequate.

III. UPDATED ANALYSES

Q. Have you updated your analyses to reflect current market conditions?

A. Yes, I have. As noted above, given the passage of time since my direct testimony analyses (data as of December 30, 2022),

I have updated my analyses using data as of June 16, 2023.

Q. Have you applied any of your ROE models differently in your updated analyses?

A. No, I have not.

Q. What are the results of your updated analyses?

A. Using market data available as of June 16, 2023, my updated analytical results are summarized in Document No. 1 of Exhibit No. DWD-2. As presented on page 2 of Document No. 1, the updated indicated range of common equity cost rates for the Company is between 9.89 percent and 12.03 percent. Since my original recommended ROE of 11.00 percent is within my updated recommended reasonable range of ROEs applicable to Peoples, I maintain my ROE recommendation of 11.00 percent for the Company for ratemaking purposes.

Q. Did you consider the indicated ROE from your Non-Price Regulated Proxy Group in the determination of your recommended ROE in this proceeding?

A. No, I did not. As stated on page 6 of my direct testimony, "I did not consider the ROE model results applied to my Non-

Price Regulated Proxy Group in the determination of my recommended range." Because I did not rely on the results of the Non-Price Regulated Proxy Group in my recommendation, and in an effort to limit the scope of this rebuttal testimony, I will not respond to any critiques of my Non-Price Regulated Proxy Group even though I maintain the applicability of the results of the model to the cost of common equity for utilities.

IV. RESPONSE TO WITNESS. GARRETT

Q. Please provide a brief summary of witness Garrett's analyses and recommendations regarding Peoples' ROE.

A. Witness Garrett believes an ROE of 9.00 percent is reasonable if the Commission approves his recommended imputed debt ratio of 51.00 percent for Peoples; otherwise, he suggests the Company's cost of equity is only 8.10 percent if the Commission approves Peoples' proposed debt ratio of approximately 45.00 percent.[1] Witness Garrett estimates the ROE using the sustainable growth DCF model (7.50 percent) and the CAPM (8.50 percent).[2]

Q. In what key areas are witness Garrett's analyses and recommendations incorrect or unsupported?

A. There are several areas in which witness Garrett's analyses and conclusions are incorrect or unsupported, including: (1) his recommended ROEs which are detached from his analytical results; (2) his incorrect observation that authorized ROEs have exceeded the investor-required return on the market for 30 years; (3) his misapplication of the DCF model; (4) his misapplication of the CAPM; and (5) his failure to consider flotation costs and other Company-specific risk factors in his recommended ROE. Those points are discussed in turn, below.

A. <u>Recommended Return on Equity</u>

Q. Are witness Garrett's analytical results and recommendation reasonable measures of Peoples' ROE?

A. No, they are not. Witness Garrett's recommended ROE of 9.00 percent is fundamentally disconnected from his own analyses and conclusions. Throughout his testimony, witness Garrett believes his analytical results indicate that the ROE range for Peoples is between 7.50 and 8.50 percent,[3] which is incorrect. His analytical model results of 8.50 percent and lower are far removed from observable and relevant data,[4] including the 2022 aggregated average authorized ROE of 9.53 percent for gas utilities provided in his testimony.[5] While I appreciate the need for judgment in developing ROE

recommendations, I believe there should be some empirical basis for them. Since witness Garrett's 9.00 percent recommendation is removed from his analytical model results, we cannot assess the basis of his ultimate recommendation, empirical or otherwise.

Q. Has witness Garrett also disregarded the results of his analytical models in determining his recommended ROE in other proceedings?

A. Yes, he has done so in several proceedings. For example, in Docket No. 20200051-GU before the Commission, witness Garrett noted that his analysis indicates the "true" ROE for the Company to be 6.90 percent, yet he recommended a 9.50 percent ROE.[6] Given that witness Garrett's analyses point to a lower return than what he ultimately recommended, it is unclear the extent to which witness Garrett relies on the analysis he presents as they clearly have no correlation with his recommendation.

Q. Do you agree with witness Garrett's recommendation to the Commission regarding the use of "gradualism" in determining the appropriate ROE for the Company?

A. No, I do not. I believe witness Garrett argues that the

Commission should apply the ratemaking concept of "gradualism" to move Peoples' ROE higher than his purported ROE based on his analytical results because he recognizes that his ROE, if implemented, would be confiscatory and illegal and he needs a different policy argument to avoid that result.[7] The role of ROE witnesses is to testify regarding the return required by equity investors, i.e., the ROE at a given point in time, and therefore, the application of "gradualism" is inappropriate.

Q. Please summarize witness Garrett's views on the relationship between the cost of equity, the investor-required ROE, and the awarded ROE for regulated utilities.

A. Witness Garrett initially correctly points out that the required return from the investor's perspective is synonymous with the cost of capital from the utility's perspective, but then states that he believes the above specified returns are different, yet related concepts.[8] Witness Garrett's views regarding the relationship between allowed and investor-required ROEs for utilities change throughout the course of his testimony.

For example, on page 15 of his testimony, witness Garrett discusses the equivalency of the cost of equity and the

awarded ROE, stating:

> The *Hope* Court makes it clear that the allowed return should be based on the actual cost of capital. Under the rate base rate of return model, a utility should be allowed to recover all its reasonable expenses, its capital investments through depreciation, and a return on its capital investments sufficient to satisfy the required return of its investors. The "required return" from the investors' perspective is synonymous with the "cost of capital" from the utility's perspective. Scholars agree that the allowed rate of return should be based on the actual cost of capital:
>
> > Since by definition the cost of capital of a regulated firm represents precisely the expected return that investors could anticipate from other investments while bearing no more or less risk, and since investors will not provide capital unless the investment is expected to yield its opportunity cost of capital, the correspondence of the definition of the cost of capital with the court's definition of legally required earnings appears clear.[9,10]

Then, on page 16 of his testimony, witness Garrett contradicts his above testimony by stating that awarded ROEs and cost of equity (i.e., investor-required returns) are very different concepts because of the regulatory process that may be influenced by factors other than objective market drivers.[11]

Witness Garrett continues to change his position regarding the equivalency, or non-equivalency, of the allowed and required ROE, sometimes in consecutive sentences. For example, on page 16 of his testimony, witness Garrett states that "The two concepts [allowed and required ROEs] are related in that the legal and technical standards encompassing this issue require that the awarded return reflect the true cost of capital. On the other hand, the two concepts are different in that the legal standard do not mandate that awarded returns exactly match the cost of capital."[12]

Q. What is your reaction to witness Garrett's views on the relationship between allowed and required ROEs for utility companies?

A. Witness Garrett is unnecessarily complicating a simple relationship. For regulated utilities, the ROE equals the investor-required ROE which equals the allowed ROE, as reflected in the *Hope* and *Bluefield* Supreme Court decisions

cited in both my direct testimony[13] and witness Garrett's testimony.[14] This relationship holds because utility regulation by regulatory commissions acts as a substitute for competition.

Q. Is the concept of utility regulation as a substitute for market competition widely accepted as a fact and reflected as such in academic literature?

A. Yes, it is. The *Cost of Capital Manual*, which is the training manual for the Society of Utility and Financial Analysts, of which witness Garrett and I are members, states:

> In a sense, the "visible hand of public regulation was (created) to replace the invisible hand of Adam Smith in order to protect consumers against exorbitant charges, restriction of output, deterioration of service, and unfair discrimination."[footnote omitted]
>
> ***
>
> As indicated above, regulation of public utilities reflects a belief that the competitive mechanism alone cannot be relied upon to protect the public interest. Essentially, it is theorized that a truly competitive market involving utilities cannot survive and, thereby, will fail to promote the

> general economic welfare. But this does not mean that regulation should alter the norm of competitive behavior for utilities. On the contrary, the primary objective of regulation is to produce market results (*i.e.*, price and quantity supplied) in the utility sectors of the economy closely approximating those conditions which would be obtained if utility rates and services were determined competitively.[15]

Additionally, in *Principles of Public Utility Rates*, Dr. Bonbright states:

> Lest the reader of this chapter gain the impression that it is intended to deny the relevance of any tests of reasonable rates derived from the theory or the behavior of competitive prices, let me state my conviction that no such conclusion would be warranted. On the contrary, a study of price behavior both under assumed conditions of pure competition and under actual conditions of mixed competition is essential to the development of sound principles of utility rate control. Not only that: any good program of public utility rate making must go a certain distance in accepting competitive-price principles as guides to monopoly

pricing. For rate regulation must necessarily try to accomplish the major objectives that unregulated competition is designed to accomplish; and the similarity of purpose calls for a considerable degree of similarity of price behavior.

Regulation, then, as I conceive it, is indeed a substitute for competition; and it is even a partly imitative substitute. But so is a Diesel locomotive a partly imitative substitute for a steam locomotive, and so is a telephone message a partly imitative substitute for a telegraph message. What I am trying to emphasize by these crude analogies is that the very nature of a monopolistic public utility is such as to preclude an attempt to make the emulation of competition very close. The fact, for example, that theories of pure competition leave no room for rate discrimination, while suggesting a reason for viewing the practice with skepticism, does not prove that discrimination should be outlawed. And a similar statement would apply alike to the use of an original-cost or a fair value rate base, neither of which is defensible under the theory or practice of competitive pricing.[16]

Finally, Dr. Phillips states in *The Regulation of Public Utilities*:

> Public utilities are no longer, if they ever were, isolated from the rest of the economy. It is possible that the expanding utility sector has been taking too large a share of the nation's resources, especially of investment.[footnote omitted] At a minimum, regulation must be viewed in the context of the entire economy – and evaluated in a similar context. Public utilities have always operated within the framework of a competitive system. They must obtain capital, labor and materials in competition with unregulated industries. Adequate profits are not guaranteed to them. Regulation then, should provide incentives to adopt new methods, improve quality, increase efficiency, cut costs, develop new markets and expand output in line with customer demand. In short, regulation is a substitute for competition and should attempt to put the utility sector under the same restraints competition places on the industrial sector.[17]

In view of the legal standard cited by me and witness Garrett, and treatises on regulation likening regulation of utilities and the competitive market, it is plain to see that allowed

returns and investor-required returns are also equal.

Q. Do you have any concerns with witness Garrett's 8.10 percent ROE estimate if the Company's proposed capital structure is approved?

A. Yes, I do. Witness Garrett derives his 8.10 percent ROE estimate using the Hamada model, which can be used to adjust the cost of equity based on changes in the debt ratio, assuming Peoples' proposed debt ratio of approximately 45.00 percent.[18] To estimate the change in the cost of equity based on the change in the debt ratio, witness Garrett had to assume a debt ratio to estimate the unlevered Beta coefficient ("beta"). Witness Garrett's assumption that 51.00 percent is an appropriate debt ratio for the proxy group is unfounded.

Q. Why do you disagree with witness Garrett's assumed 51.00 percent debt ratio?

A. While I agree that it is reasonable to review the capital structures of the proxy companies, the range of common equity ratios depicts the range of typical or proper equity ratios maintained by comparable risk companies. As shown in witness Garrett's Exhibit DJG-15, the Company's proposed debt ratio is within the range of the proxy companies. Because Peoples'

requested capital structure is consistent with the proxy companies, witness Garrett's Hamada adjustment, and his adjustment to the ROE to reflect Peoples' proposed capital structure, is unnecessary and should be ignored.

B. Witness Garrett's Incorrect Observations that Allowed ROEs for Utilities Exceed the Investor-Required Return on the Market

Q. Please summarize witness Garrett's claim that allowed returns for utility companies exceed the required return on the market.

A. Witness Garrett estimates the investor-required return on the market by adding the annual average 10-year Treasury bond yield to a MRP calculated by the New York University School of Business for the period 1990–2022.[19] He then compares that return to the average annual authorized returns for electric utilities over that same period[20] to support his argument that "awarded ROEs have been consistently above the market cost of equity for many years."[21] Witness Garrett further argues that the excess returns awarded to utilities result in a transfer of wealth from customers to shareholders.[22]

Witness Garrett also refers to an article published in Public Utilities Fortnightly,[23] suggesting that utility stocks have

outperformed the broader market and will continue to do so in the future.

Q. What is your response to witness Garrett's observations and the conclusions he draws from them?

A. Witness Garrett's observations and resulting conclusions are misguided. As a preliminary matter, witness Garrett's conclusion that allowed returns for utility companies exceed the required return on the market is merely his opinion and is driven by the inputs he has chosen to estimate the required return on the market. As discussed below, applying more reasonable models and inputs demonstrate allowed ROEs average about 71 percent of the required return on the market, consistent with utility betas over the period from 1990-2022.]

The Public Utilities Fortnightly article referenced by witness Garrett was published in August 2016 and relied on data from August 31, 2004 to June 28, 2016. Shortly after that date, the 30-year Treasury yield fell to its prior cyclical low of 2.11 percent on July 8, 2016. Between July and December 2016, the utility sector, as represented by witness Garrett's proxy group, lost 9.17 percent of its value as the broader market (measured by the S&P 500) increased by

5.11 percent. That is, despite the article's conviction that utilities would continue to outperform the market, shortly after its publication utility stocks meaningfully underperformed the broad market. From August 2016 through June 16, 2023, the utility sector (measured by the XLU and the Dow Jones Utility Average) significantly underperformed the S&P 500.[24] The premise and conclusion of the article witness Garrett relies on, therefore, were essentially immediately disproven.

Finally, regarding witness Garrett's required return on the market, I disagree with his calculation of the implied MRP because reasonable changes in his assumptions have considerable effects on the calculation (as will be discussed in detail in my critique of witness Garrett's CAPM analysis).

Q. Have you calculated the investor-required return on the market for the period from 1990–2022?

A. Yes, I have. Using the Predictive Risk Premium Method ("PRPM"),[25] I calculated the investor-required MRP for every month in the period from 1990–2022. I then averaged the monthly MRPs for each year and added the average 30-year Treasury bond yield to those averages to arrive at investor-required returns on the market for each year.

Q. How did you derive the investor-required return on the market using the PRPM?

A. As explained in my direct testimony, the inputs to the PRPM are the historical returns on large capitalization stocks minus the historical monthly yield on long-term U.S. Treasury securities for the period from January 1990 through December 2022.[26] Using a generalized form of ARCH,[27] known as GARCH, each projected MRP was determined using Eviews© statistical software. When the GARCH model is applied to the historical returns data, it produces a predicted GARCH variance series and a GARCH coefficient. I then averaged the monthly investor-required return for each year to determine an annual investor-required return, and then added the annual average long-term government bond yield for each year[28] to arrive at annual investor-required returns on the market for the period from 1990-2022.

Next, I compared the investor-required return on the market to the average allowed ROEs for natural gas and electric utilities for each year. As shown on page 2 of Document No. 11, the investor-required return on the market is consistently, and significantly, higher than the allowed returns for natural gas distribution utility companies. These results make intuitive sense, as the ratio of allowed

ROE versus required market return averages about 0.71, which is consistent with utility betas over the period.] Given the above, witness Garrett's claim that allowed ROEs for utilities exceed investor-required market returns is simply incorrect. In addition, witness Garrett's claim that the excess returns awarded to utilities result in a transfer of wealth from customers to shareholders[29] is also misplaced. Document No. 11 shows that utilities have not been awarded excess returns.

C. <u>Misapplication of the DCF Model</u>

Q. Please briefly describe witness Garrett's constant growth DCF analyses and results.

A. Witness Garrett applied "sustainable" growth rates to the constant growth DCF Model, which produced an ROE estimate of 7.50 percent.[30] For the dividend yield component, witness Garrett relied on annualized dividend payments and 30-day average stock prices as of May 25, 2023.[31] To estimate expected growth, witness Garrett looked to two measures: (1) nominal Gross Domestic Product ("GDP") and (2) real GDP.[32] Of those two measures, he chose the highest estimate, 3.90 percent.[33]

Q. What are your general concerns with the growth rates on which

witness Garrett's DCF analyses rely?

A. First, witness Garrett assumed a single, perpetual growth rate of 3.90 percent for all his proxy companies.[34] By reference to the Congressional Budget Office's expected inflation rate of 1.70 percent, witness Garrett's method assumed his proxy companies all will grow at real rates of approximately 2.20 percent, in perpetuity.[35] It is unlikely an investor would be willing to assume the risks of equity ownership in exchange for expected growth only modestly greater than expected inflation. The risk simply is not worth the expected return.[36]

For the same reason stated above, witness Garrett's remaining growth rate estimate (presented in Exhibit DJG-6) is also not an appropriate measure of growth for his DCF analysis.

Finally, as a practical matter, because they are generic in nature, his estimates fail to account for the risks and prospects faced by the proxy companies.

Q. What other concerns do you have with the 3.90 percent growth rate assumed for all companies in witness Garrett's DCF analysis?

A. Witness Garrett's 3.90 percent growth rate is not based on

any measure of company-specific growth, or growth in the utility industry in general. Rather, his proxy group serves the sole purpose of calculating the dividend yield. Under the DCF model's strict assumptions, however, expected growth and dividend yields are inextricably related. Witness Garrett's assumption that one growth rate applies to all companies, even though dividend yields vary across those companies, has no basis in theory or practice.

Q. Witness Garrett also offers his thoughts regarding the need for qualitative analyses in developing expected growth rates.[37] What is your response to witness Garrett's observations?

A. Witness Garrett suggests that although equity analysts may consider quantitative factors, such as historical growth in revenues or earnings, they also should consider "qualitative" factors, such as how a given company may meet some level of "sustainable" growth.[38] He further observes unregulated companies have options not available to utilities, and suggests it would be more appropriate to consider factors such as load growth in measuring growth rate expectations for utilities.[39]

There is no question analysts consider qualitative factors.

To that point, I reviewed transcripts of various utility earnings conference calls demonstrating that analysts focus on issues relating to operating expenses, required capital investments, rate relief, and other factors that affect the earned returns on common equity and, therefore, the sustainable growth estimate.[40] These inquiries reflect the type of considerations analysts typically consider for utility companies.

In the case of just one of his proxy companies, therefore, the level of fundamental research performed by analysts on issues directly related to long-term growth reflects a variety of factors, both quantitative and qualitative. They certainly go beyond "mere increases to rate base or earnings."[41] The analysts' research also far exceeded witness Garrett's limited perspective that load growth forecasts, together with other "qualitative factors", support his 3.90 percent expected growth rate.

Q. It is witness Garrett's opinion that growth in a DCF model is limited by the long-term growth in GDP.[42] Why is long-term growth in GDP not an upper limit for terminal growth as witness Garrett contends?

A. First, GDP is not a market measure – rather it is a measure

of the value of the total output of goods and services, excluding inflation, in an economy. While I understand that earnings per share ("EPS") growth is also not a market measure, it is well established in the financial literature that projected growth in EPS is the superior measure of dividend growth in a DCF model.[43] Furthermore, GDP is simply the sum of all private industry and government output in the United States, and its growth rate is simply an average of the value of those industries. To illustrate, Document No. 12 presents the compound annual growth rate of the industries that comprise GDP from 1947 to 2022. Of the 15 industries represented, seven industries (including utilities) grew faster than the overall GDP, and eight industries grew slower than the overall GDP.[44] Given that utilities have grown faster than the overall GDP over the 1947-2022 time period, I disagree with witness Garrett's suggestion that "it is reasonable to conclude that the long-term growth of a domestic firm cannot outpace the growth rate of the aggregate economy in which it operates."[45]

Q. Did you conduct another analysis that calculates the amount of time it would take an industry to overtake the entire economy?

A. Yes. I examined the value added by industry from 1947 to

2022 in Document No. 12 and used the compound annual growth rates for the highest growth rate industry (i.e., Educational Services, Healthcare, and Social Assistance at 8.53 percent per year) to see when that industry would comprise the entire economy. In the year 2327, or 380 years from the 1947 starting point, the industry would comprise over 50 percent of GDP, and in the year 8982, or 7,035 years after the 1947 starting point, the industry would comprise 100 percent of GDP.[46] Not only have individual companies or industries consistently grown at rates beyond GDP growth, but they have done so without overtaking the entire economy. While witness Garrett's argument may be technically correct, it is unrealistic at best.

Q. Please respond to witness Garrett's comment regarding "steady-state" growth rates.

A. On page 36 of his direct testimony, witness Garrett states, "it is not necessary to use multi-stage DCF Models to analyze the cost of equity of regulated utility companies. This is because regulated utilities are already in their 'sustainable,' low growth stage." While I agree with witness Garrett's statement regarding regulated utilities being in the "mature" stage in the company/industry life cycle, I disagree with his conclusion regarding the long-term growth

rates of regulated utilities.

As witness Garrett describes, the multi-stage DCF and its growth rates reflect the company/industry life cycle, which is typically described in three stages: (1) the growth stage, which is characterized by rapidly expanding sales, profits, and earnings. In the growth stage, dividend payout ratios are low in order to grow the firm; (2) the transition stage, which is characterized by slower growth in sales, profits, and earnings. In the transition stage, dividend payout ratios increase, as their need for exponential growth diminishes; and (3) the maturity (steady-state) stage, which is characterized by limited, slightly attractive investment opportunities, and steady earnings growth, dividend payout ratios, and returns on equity.

Since the utility industry is in the mature phase of the company life cycle, it is the company-specific projected EPS growth rate that is the appropriate measure of growth in a constant growth DCF model, not the projected GDP growth rate as witness Garrett asserts.

Q. Are there examples in basic finance texts that support your position?

A. Yes. For example, in Investments, life cycles and multi-stage growth models are discussed:

> As useful as the constant-growth DDM (dividend discount model) formula is, you need to remember that it is based on a simplifying assumption, namely, that the dividend growth rate will be constant forever. In fact, firms typically pass through life cycles with very different dividend profiles in different phases. In early years, there are ample opportunities for profitable reinvestment in the company. Payout ratios are low, and growth is correspondingly rapid. In later years, the firm matures, production capacity is sufficient to meet market demand, competitors enter the market, and attractive opportunities for reinvestment may become harder to find. In this mature phase, the firm may choose to increase the dividend payout ratio, rather than retain earnings. The dividend level increases, but thereafter it grows at a slower pace because the company has fewer growth opportunities.
>
> Table 18.2 illustrates this pattern. It gives Value Line's forecasts of return on assets, dividend payout ratio, and 3-year growth in

earnings per share for a sample of the firms in the computer software industry versus those of east coast electric utilities…

By in large, the software firms have attractive investment opportunities. The median return on assets of these firms is forecast to be 19.5%, and the firms have responded with high plowback ratios. Most of these firms pay no dividends at all. The high return on assets and high plowback result in rapid growth. The median growth rate of earnings per share in this group is projected at 17.6%.

In contrast, the electric utilities are *more representative of mature firms*. Their median return on assets is lower, 6.5%; dividend payout is higher, 68%; and median growth is lower, 4.6%.

***

To value companies with temporarily high growth, analysts use a multistage version of the dividend discount model. Dividends in the early high-growth period are forecast and their combined present value is calculated. Then, once the firm is projected to settle down to *a steady-growth phase, the constant-growth DDM is applied to value the*

remaining stream of dividends.[47] (Clarification and emphasis added)

The economics of the public utility business indicate that the industry is in the steady-state, or constant-growth stage of a multi-stage DCF, which would mean that the three- to five-year projected growth rates for each company would be the "steady-state" or terminal growth rate appropriate for the DCF model for utility companies, not the GDP growth rate, which is not a company-specific growth rate, nor is it an upward bound for growth, as discussed previously.

Q. Witness Garrett expressed a concern about using analysts' projected EPS growth rates because he asserts that analysts consider rate base growth in their projected growth rates and that utilities' natural financial incentive is to increase rate base regardless of customer needs.[48] Please respond.

A. The overall premise of witness Garrett's concern is without merit and should be dismissed. First, regulated utilities are only allowed to earn returns on and of assets that are considered used and useful in serving the needs of its customers. As the U.S. Supreme Court decision in *Duquesne Light Co. v. Barasch* states:

To the *extent* utilities' investments turn out to be

> bad ones (such as plants that are cancelled and so never used and useful to the public), the utilities suffer because the investments have no fair value and so justify no return.[49]

Additionally, capital projects undertaken by utility companies are often subject to prudency reviews from regulatory commissions, which would allow commissions to review and deny any capital project not deemed in the public interest. These two facts would eliminate any type of investment by the utility that is not needed to expressly provide safe, reliable service to their customers. Because of this, equity analysts appropriately consider growth in rate base in determining their recommended growth rates for utilities.

Finally, witness Garrett should recognize two things: (1) utility assets degrade over time and eventually need to be replaced; and (2) the assets replacing the degraded assets are usually significantly more expensive than the degraded assets. Because of this, rate base will grow consistently *ad infinitum*, which supports both the utility industry's mature position on the company/industry lifecycle regarding steady and predictable growth, and the use of company-specific projected analysts' EPS growth rates for use in the constant

growth DCF model.

Q. Witness Garrett claims undue reliance on projected EPS growth rates in the DCF model will lead to upward spiraling ROEs for utility companies due to a feedback loop.[50] Please respond.

A. As witness Garrett shows in his Figure 7 concerning annual authorized returns, an upward spiraling ROE simply does not exist. The independence of authorized ROEs and market data is consistent with conclusions reached by Bonbright, who states:

> In the first place, commissions cannot forecast, except within wide limits, the effect their rate orders will have on the market prices of the stocks of the companies they regulate. In the second place, *whatever the initial market prices may be, they are sure to change not only with the changing prospects for earnings, but with the changing outlook of an inherently volatile stock market*. In short, market prices are beyond the control, though not beyond the influence of rate regulation. Moreover, even if a commission did possess the power of control, any attempt to exercise it ... would result in harmful, uneconomic shifts in public utility rate levels (emphasis added).[51]

D. <u>Misapplication of the Capital Asset Pricing Model</u>

Q. Please summarize witness Garrett's CAPM analysis and results.

A. Witness Garrett's CAPM estimate relied on a risk-free rate of 3.81 percent,[52] an MRP of 5.60 percent,[53] and betas as reported by *Value Line Investment Services ("Value Line")*.[54] Those assumptions combined to produce an average CAPM estimate of 8.50 percent.[55]

Q. Do you agree with witness Garrett's CAPM analysis?

A. No, I do not. I disagree with witness Garrett's sole reliance on historical Treasury yields to estimate the risk-free rate and the various methods he used to estimate the MRP. Just as important as our methodological differences, however, is our difference regarding the reasonableness and reliability of an analysis that produces ROE estimates of 8.50 percent.

Q. How did witness Garrett derive his MRP estimate?

A. Witness Garrett estimated his MRP by reviewing: (1) a survey of expected returns from IESE Business School (5.70 percent); (2) an expected return reported by Kroll (6.00 percent); (3) implied MRP from Damodaran (5.10 percent); and (4) an "Implied Equity Risk Premium" calculation (5.50 percent).[56] Based on

those results, witness Garrett concluded that 5.60 percent, the average of his range, is appropriate.

Q. Do any of the surveys cited by witness Garrett provide support for your approach to estimating the current MRP?

A. Yes. As discussed in my direct testimony,[57] I calculated *ex-ante* MRPs in a similar manner to a study by Pablo Fernandez, *et al* (cited by witness Garrett), using the market capitalization-weighted constant growth DCF calculation on the individual companies in the S&P 500 Index.[58]

Q. Is there academic literature that supports the conclusion that MRPs using surveys are not widely used by practitioners?

A. Yes. Damodaran, who was cited by witness Garrett throughout his testimony, states the following about the applicability of survey MRPs:

> While survey premiums have become more accessible, very few practitioners seem to be inclined to use the numbers from these surveys in computations and there are several reasons for this reluctance:
>
> 1. Survey risk premiums are responsive to recent stock prices movements, with survey numbers generally increasing after bullish periods and

decreasing after market decline. Thus, the peaks in the SIA survey premium of individual investors occurred in the bull market of 1999, and the more moderate premiums of 2003 and 2004 occurred after the market collapse in 2000 and 2001.

2. Survey premiums are sensitive not only to whom the question is directed at but how the question is asked. For instance, individual investors seem to have higher (and more volatile) expected returns on equity than institutional investors and the survey numbers vary depending upon the framing of the question.[footnote omitted]

3. In keeping with other surveys that show differences across sub-groups, the premium seems to vary depending on who gets surveyed. Kaustia, Lehtoranta and Puttonen (2011) surveyed 1,465 Finnish investment advisors and note that not only are male advisors more likely to provide an estimate but that their estimated premiums are roughly 2% lower than those obtained from female advisors, after controlling for experience, education and other factors.[footnote omitted]

4. Studies that have looked at the efficacy of survey premiums indicate that if they have any predictive power, it is in the wrong direction. Fisher and Statman (2000) document the negative relationship between investor sentiment (individual and institutional) and stock returns.[footnote omitted] In other words, investors becoming more optimistic (and demanding a larger premium) is more likely to be a precursor to poor (rather than good) market returns.

As technology aids the process, the number and sophistication of surveys of both individual and institutional investors will also increase. However, it is also likely that these survey premiums will be more reflective of the recent past rather than good forecasts of the future.[59]

Q. What is your position on the 6.00 percent MRP quoted by Kroll?

A. A forecast is only as good as its inputs, and if the assumptions within those forecasts are by its nature unpredictable (e.g., productivity growth forecasts), they are of little value. In addition, the determination of the MRP as calculated by Kroll is not transparent, especially in view

of the historical data presented in 2023 SBBI® Yearbook, Stocks, Bonds, Bills, and Inflation ("SBBI-2023"), or the composition of its supply side method, which are already well known by investors. Because of the transparency of the historical data and how to gather and use the components of the supply side model, both the historical MRP (using the long-term arithmetic mean return on large company stocks less the long-term arithmetic income returns on long-term Government bonds) and the supply side model are superior measures of the MRP, when comparing to Kroll's simplistic and opaque MRP forecast.

Q. Please now describe the method by which witness Garrett calculated his fourth estimate, the implied MRP.

A. As witness Garrett points out, his method developed the Internal Rate of Return that sets equal the current value of the market index to the projected value of cash flows associated with owning the market index.[60] Witness Garrett observes that Damodaran "promotes the implied ERP method."[61] Although there are some differences, witness Garrett's approach is similar to the model Damodaran provides on his website.[62]

Witness Garrett's method, which is a two-stage form of the

DCF model, calculated the present value of cash flows over the five-year initial period, together with the terminal price (based on the Gordon Model[63]), to be received in the last (i.e., fifth) year. The model's principal inputs include the following assumptions:

- Over the coming five years, the S&P 500 Index (the "Index") will appreciate at a rate equal to the compound growth rate in "Operating Earnings" from 2012 through 2022;
- Cash flows associated with owning the Index will be equal to the historical average earnings, dividends, and buyback yields, applied to the projected Index value each year; and
- Beginning in the terminal year, the Index will appreciate, in perpetuity, at a rate equal to the 30-day average yield on 30-year Treasury securities, as of May 25, 2023.[64]

As discussed below, reasonable changes to those assumptions have a considerable effect on witness Garrett's calculated expected market return.

Q. Do you have any observations regarding witness Garrett's assumed first-stage growth rate?

A. Yes. Witness Garrett's 6.64 percent growth rate relates to growth in operating earnings, and does not reflect capital

appreciation, growth in dividends, or buy-backs.[65] In addition, if witness Garrett's position is that historical growth rates are meant to reflect expected future growth, they should reflect year-to-year variation (i.e., uncertainty). That is best accomplished using the arithmetic mean. I therefore calculated the average growth (i.e., arithmetic mean) for the four metrics included in witness Garrett's exhibit as shown on Document No. 13. The average growth rate, 9.79 percent, produced an estimated market return of about 10.02 percent,[66] which is still well below historical experience.

Q. Why did the market return increase by only 76 basis points (from 9.26 percent to 10.02 percent) when the first-stage growth rate increased by 315 basis points (from 6.64 percent to 9.79 percent)?

A. Because witness Garrett's model assumed the first stage lasts for five years (and the terminal stage is perpetual), the results are sensitive to changes in the assumed terminal growth rate. To put that effect in perspective, the terminal value (which is directly related to the terminal growth rate) represents approximately 76.90 percent of the "Intrinsic Value" in witness Garrett's analysis.[67]

Q. How did witness Garrett develop his assumed terminal growth rate?

A. The terminal growth rate represents investors' expectations of the rate at which the broad stock market will grow, in perpetuity, beginning in the terminal year. Witness Garrett assumed terminal growth is best measured by the average yield on 30-year Treasury securities over the 30 days ended May 25, 2023. That is, witness Garrett assumed the average 30-year Treasury yield between April 14, 2023 and May 25, 2023 is the best measure of expected earnings growth beginning five years from now and extending indefinitely into the future.

Q. Do you agree with witness Garrett's assumption?

A. No, I do not. I recognize witness Garrett followed the approach described in Damodaran's method, which Damodaran refers to as a "default" assumption.[68] In terms of historical experience, over the long-term the broad economy has grown at a long-term compound average growth rate of approximately 6.09 percent.[69] Considered from another perspective, Kroll reports the long-term rate of capital appreciation on Large Company stocks to be 7.90 percent.[70] Witness Garrett's model assumes, however, that the market index will grow by a rate almost 280 basis points below that amount, 5.11 percent, over

the coming four years.[71]

Witness Garrett has not explained why growth beginning five years in the future, and extending in perpetuity, will be less than one-half of long-term historical growth.[72] From a somewhat different perspective, assuming long-term inflation will be approximately 2.00 percent[73] implies perpetual real growth will be approximately 1.78 percent.[74] Nowhere in his testimony has witness Garrett explained the fundamental, systemic changes that would so dramatically reduce long-term economic growth, or why they are best measured by the long-term Treasury yield over 30 days between April 14, 2023 to May 25, 2023.

Further, research by the Federal Reserve Bank of San Francisco calls into question the relationship between interest rates and macroeconomic growth. As the authors noted, "[o]ver the past three decades, it appears that private forecasters have incorporated essentially no link between potential growth and the natural rate of interest: The two data series have a zero correlation."[75]

Q. Please briefly summarize your response to witness Garrett's Implied Equity Risk Premium calculation.

A. Witness Garrett's calculation is based on a series of questionable assumptions, to which a small set of very reasonable adjustments produces a market return estimate more consistent with (yet still below) the historical experience he considers relevant. Although the revised results still produce ROE estimates far below any reasonable measure, they do point out the sensitive nature of witness Garrett's analyses, and the tenuous nature of the conclusions he draws from them.

Q. Does witness Garrett employ an Empirical CAPM ("ECAPM") in his CAPM analysis?

A. No, he does not. Witness Garrett fails to consider the ECAPM, despite the fact that numerous tests of the CAPM have confirmed that the empirical security market line ("SML") described by the traditional CAPM is not as steeply sloped as the predicted SML. Because of the empirical findings presented in my direct testimony[76], witness Garrett should have considered the ECAPM in his CAPM analysis.

E. <u>Adjustments to the Cost of Common Equity</u>

Q. Does witness Garrett consider a business risk adjustment in his recommended ROE for Peoples?

A. No, he does not. Witness Garrett argues that "[i]nvestors do not require additional compensation for assuming these firm-specific business risks."[77] In addition, he states that firm-specific risk factors should not be considered when estimating Peoples' cost of equity.[78]

Q. Do you agree with witness Garrett's observations?

A. No, I do not. As discussed on pages 7-10 of my direct testimony, when determining an appropriate ROE, the relevant issue is where investors see the subject company in relation to other similarly situated utility companies. To the extent investors view a company as being exposed to higher risk, the required return will increase, and vice versa. Peoples' smaller size relative to the Utility Proxy Group companies indicates greater relative business risk for the Company because, all else being equal, size has a material bearing on risk.

Q. Did witness Garrett address the issue of a size premium in his testimony?

A. Yes. Witness Garrett lists several reasons for his decision to not include a size premium in his recommendation, including: (1) numerous studies show that "the performance of

large-cap stocks was basically equal to that of small cap stocks,"[79] and (2) that the "discovery of the size effect phenomenon likely caused its own demise."[80]

Q. Is witness Garrett's review of the size premium correct?

A. No, it is not. First, witness Garrett notes that after 1983, U.S. small-cap stocks underperformed large-cap stocks.[81] The issue with witness Garrett's position is that the size premium measures the increased risk associated with a company's smaller size; witness Garrett is only focused on returns. As I discussed in my direct testimony, smaller companies face increased business risk as they are less equipped to cope with significant events that affect sales, revenues, and earnings, as the loss of a few larger customers will have a greater effect on a smaller company than a larger company.[82]

This is further evident when we consider that increasing capital costs (i.e., risk) for one set of securities will put downward pressure on those securities as investors transition to securities with lower risk. Under this premise, the underperformance is directly tied to the increase in risk. As such, witness Garrett's premise that smaller companies' underperformance indicates a reduction of risk is in fact the opposite – underperformance indicates an increasing level of

risk.

Q. Witness Garrett points to a passage published in 2015 by Ibbotson[83] that states that the size premium no longer exists. What is your response?

A. Despite their findings, Kroll (which now owns Ibbotson) continues to publish data on their findings on the presence of a size premium in the market, and has provided additional measures of size and relative risk premiums. In addition to market capitalization, Kroll includes book common equity, market value of invested capital, five-year average net income, five-year average earnings before interest, taxes, depreciation and amortization, total assets, total sales, and total employees as valid measures of size from which relative size premiums are derived. If Kroll found that the size premium ceased to exist, it would not publish that it did.

Q. Do you agree with witness Garrett that the size effect no longer exists?

A. No, I do not. While the historical returns of large companies may have outperformed small utilities over the last several years, risk is measured by volatility, not returns. A study by Clifford Ang detailed the returns and volatility of returns

of companies by size, showing while larger companies out-performed smaller companies, smaller companies exhibited more risk.[84] Reviewing data from the same source as the Ang study, I replicated the study through May 2023. Document No. 14 presents the largest monthly gain and loss for each value-weighted decile for the period 1981 through May 2023. As shown in Document No. 14, small capitalization stocks exhibit more volatility (i.e., risk) in their returns than larger capitalization stocks.

Further, SBBI-2023 shows that the total return of large-cap stocks over the 1926-2022 period has a standard deviation of 19.8 percent, compared to 31.2 percent for small-cap stocks, echoing the findings of Document No. 14.[85] The higher level of risk indicates a higher level of required return.

Q. Did witness Garrett address the issue of flotation costs in his testimony?

A. Yes. Witness Garrett reasons that flotation costs for stock issuances are not out-of-pocket costs, which investors already have considered when deciding to invest in a company's shares at a given market price.[86] On that basis, he argues against considering the effect of flotation costs in setting the Company's ROE.

Q. What is your response to witness Garrett regarding the need to recover flotation costs?

A. First, witness Garrett's observation that underwriter fees are not "out-of-pocket" expenses[87] is a distinction without a meaningful difference. Whether paid directly or indirectly through an underwriting discount, the cost results in net proceeds that are less than the gross proceeds. As shown in Document No. 8, because those costs were incurred, the net proceeds were less than the gross proceeds. Whether the issuer wrote a check or received the proceeds at a discount does not matter. What does matter is that issuance costs are a permanent reduction to common equity, and absent a recovery of those costs, the issuing company will not be able to earn its required return.

Lastly, as shown in the illustrative examples provided in Document No. 15,[88] because of flotation costs, an authorized return of 10.85 percent would be required to realize an ROE of 10.75 percent (i.e., a 10-basis point flotation cost adjustment). If flotation costs are not recovered, the growth rate falls and the ROE decreases to 10.65 percent (i.e., below the required return).[89]

Q. Is the fact that investors are aware of equity issuance costs

when they decide to purchase stock[90] relevant to the determination of the appropriate compensation for those costs?

A. No, it is not. Although witness Garrett suggests current prices account for flotation costs, he has not provided any explanation as to how market prices compensate shareholders for flotation costs or any analyses to support his position. In that important respect, common stock is closely analogous to long-term debt, both in the sense that its purpose is to provide funding for long-term investments that are part of rate base, and that it remains a part of the utility's operations over the long run. Equity flotation costs and debt issuance expenses both are necessary and legitimate costs enabling the investment in assets needed to provide safe and reliable utility service; both should be recovered.

F. Response to Witness Garrett's Critiques of Company Testimony

Q. Does witness Garrett have any critiques of your analyses presented in your direct testimony?

A. Yes, he does. Witness Garrett's critiques of my direct testimony are: (1) my requested ROE is in excess of the investor-required return on the market; (2) my growth rates

used in the DCF model exceed GDP growth; (3) my MRP is unreasonable because it is not in line with his MRP estimates; (4) my use of the ECAPM; (5) my use of a non-regulated proxy group; (6) my inclusion of a small size premium is unnecessary; and (7) my application of flotation costs.

I have already addressed critiques 1, 2, 4, 6 and 7 previously and will not address them here. I will discuss witness Garrett's remaining arguments in turn.

Q. Witness Garrett states that your MRP is unreasonable in view of his measures of MRP as presented in his CAPM analysis.[91] Please respond.

A. I have discussed the inapplicability of witness Garrett's MRP estimates for cost of capital purposes previously in this rebuttal testimony and will not repeat that discussion here. Since witness Garrett's MRP measures are not valid MRPs, they cannot be comparable to my MRP estimates. Even though witness Garrett has presented no reliable evidence upon which to gauge the reasonableness of the MRP estimate, my estimates of 9.75 percent and 10.01 percent in my direct and rebuttal testimonies, respectively, are consistent with actual realized MRPs. As shown in Document No. 16, , my estimates fall within the 53rd and 54th percentile of historical MRPs,

respectively.

Given all of the above, my calculation of the MRPs in my CAPM and ECAPM analyses is reasonable in view of historical returns and other expected measures of the MRP and is supported by financial literature. Thus, witness Garrett's concern should be dismissed.

Q. Please summarize witness Garrett's argument against using a non-price regulated proxy group similar in total risk to a utility proxy group to determine an indicated ROE for Peoples in this proceeding.

A. Witness Garrett opines that there is no marginal benefit for running a CAPM or DCF model on a group of non-regulated, non-utility companies. Additionally, witness Garrett believes that competitive firms typically have higher levels of risk than utilities.[92]

Q. Do you agree with witness Garrett's reasoning?

A. No. As a preliminary matter, as noted on page 6 of my direct testimony, in an effort to be conservative, I have not directly considered the results of my Non-Price Regulated Proxy Group analyses in determining my recommended ROE range.

However, I have used the results of those analyses as a check on the reasonableness of my analytical models.

Regarding witness Garrett's claim that there is no marginal benefit to running my Non-Price Regulated Proxy Group analysis, this directly contradicts his own claim that "[i]t is preferable to use multiple models because the results of any one model may contain a degree of imprecision."[93] Because regulation is a substitute for competition, the application of cost of common equity models to comparable risk, non-regulated companies produces a marginal benefit that cannot be replicated using utility companies.

Q. Does witness Garrett discuss risk and relevance of risk for cost of capital purposes in his testimony?

A. Yes. In Section V of his direct testimony, witness Garrett discusses risk and return concepts in general. On page 28 of his direct testimony, witness Garrett states: "Market risk is the only type of risk that is rewarded by the market and is thus the primary type of risk the Commission should consider when determining the allowed return."

Q. How does your selection criteria for your Non-Price Regulated Proxy Group fit into the above discussion?

A. Following witness Garrett's logic, given that unadjusted betas are measures of market risk (the primary measure of risk according to witness Garrett), and one of my screening criteria was to generate companies with similar unadjusted betas as the Utility Proxy Group, my Non-Price Regulated Proxy Group, by his definition, would be comparable to my Utility Proxy Group.

Q. Does witness Garrett look to non-price regulated companies in any of his analyses?

A. Yes. In assessing Peoples' capital structure, witness Garrett reviews the debt ratios of competitive industries.[94] The major mistake in witness Garrett's analysis is the same mistake he falsely accuses me of. In his comparisons of the capital structures of non-regulated industries to Peoples, he does not evaluate the industries' market risk in comparison to Peoples. If witness Garrett evaluated the market risk (i.e., unadjusted betas) of those industries, he would have found that those industries are not comparable to utility companies like Peoples. Using witness Garrett's own source, Damodaran, the average unadjusted beta of the industries that have debt ratios over 45.32 percent is 0.56, whereas the Utility (General) unadjusted beta is 0.41.

Q. Please summarize your discussion regarding the use of non-price regulated proxy groups in cost of capital analyses for regulated utilities.

A. The use of non-price regulated proxy groups in cost of capital analyses for regulated utility companies should be considered by regulatory commissions as another tool in the tool kit to determine the ROE for a utility, provided that the non-price regulated proxy group is shown to be of comparable risk. The Non-Price Regulated Proxy Group used in my analyses was screened using measures of systematic and unsystematic risk, to show similar total risk. Witness Garrett's non-price regulated industry study was not screened for any risk aside from financial risk, which, as stated previously, is not a proxy for total risk. For these reasons, my Non-Price Regulated Proxy Group analyses should be considered by the Commission while witness Garrett's non-price regulated industry analyses should be rejected by the Commission.

V. SUMMARY

Q. Should any or all of the arguments made by witness Garrett persuade the Commission to lower the ROE it approves for Peoples below your recommendation?

A. No, they should not. Based on the analyses discussed

throughout my rebuttal testimony, and given the current capital market conditions, I believe that the reasonable range of ROE estimates for Peoples is from 9.89 percent to 12.03 percent, and 11.00 percent continues to be a reasonable, although conservative, estimate of the Company's ROE.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

EXHIBIT

OF

DYLAN W. D'ASCENDIS

ON BEHALF OF PEOPLES GAS SYSTEM, INC.

Table of Contents

Peoples Gas System
Recommended Capital Structure and Cost Rates
for Ratemaking Purposes

Type Of Capital	Ratios (1)	Cost Rate		Weighted Cost Rate
Long-Term Debt	40.48%	5.54%	(1)	2.24%
Short-Term Debt	4.84%	4.85%	(1)	0.23%
Common Equity	54.68%	11.00%	(2)	6.01%
Total	100.00%			8.48%

Notes:

(1) Company-provided.
(2) From page 2 of this Document.

Peoples Gas System
Brief Summary of Common Equity Cost Rate

Line No.	Principal Methods	Proxy Group of Six Natural Gas Companies
1.	Discounted Cash Flow Model (DCF) (1)	9.60%
2.	Risk Premium Model (RPM) (2)	11.42%
3.	Capital Asset Pricing Model (CAPM) (3)	11.74%
4.	Market Models Applied to Comparable Risk, Non-Price Regulated Companies (4)	12.30%
5.	Indicated Range of Common Equity Cost Rates before Adjustment for Company-specific Risk	9.60% - 11.74%
6.	Flotation Cost Adjustment (5)	0.09%
7.	Business Risk Adjustment (6)	0.20%
8.	Recommended Range of Common Equity Cost Rates after Adjustment for Company-specic Risk	9.89% - 12.03%
9.	Recommended Common Equity Cost Rate (7)	11.00%

Notes:
(1) From page 1 of Document No. 3.
(2) From page 1 of Document No. 4.
(3) From page 1 of Document No. 5.
(4) From page 1 of Document No. 7.
(5) From page 1 of Document No. 8.
(6) Adjustment to reflect the Company's specific business risks, such as smaller size, high customer growth, capital investment plans, and high level of performance, as detailed in Mr. D'Ascendis' Direct Testimony.
(7) Considers Company-specific factors (i.e., flotation costs and Company-specific business risks) relative to the Utility Proxy Group as detailed in Mr. D'Ascendis' Direct Testimony.

Peoples Gas System
Capitalization and Financial Statistics (1)
2018 - 2022, Inclusive

	2022	2021	2020	2019	2018	5 Year Average
	(MILLIONS OF DOLLARS)					
Capitalization Statistics						
Amount of Capital Employed						
Total Permanent Capital	$8,225.462	$7,455.217	$6,855.835	$6,012.401	$5,411.345	
Short-Term Debt	$703.086	$415.467	$333.183	$612.061	$629.275	
Total Capital Employed	$8,928.548	$7,870.684	$7,189.018	$6,624.462	$6,040.620	
Indicated Average Capital Cost Rates (2)						
Total Debt	3.10 %	2.95 %	3.29 %	3.63 %	3.57 %	
Preferred Stock	4.84 %	5.33 %	6.19 %	4.60 %	2.64 %	
Capital Structure Ratios						
Based on Total Permanent Capital:						
Long-Term Debt	49.01 %	50.18 %	50.03 %	46.42 %	46.03 %	48.33 %
Preferred Stock	2.16	2.31	1.78	1.92	1.14	1.86
Common Equity	48.83	47.51	48.18	51.66	52.84	49.80
Total	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Based on Total Capital:						
Total Debt, Including Short-Term Debt	53.56 %	54.26 %	53.51 %	51.06 %	51.14 %	52.71 %
Preferred Stock	1.93	2.18	1.66	1.68	0.99	1.69
Common Equity	44.52	43.56	44.83	47.26	47.87	45.61
Total	100.01 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Financial Statistics						
Financial Ratios - Market Based						
Earnings / Price Ratio	5.55 %	5.25 %	3.45 %	3.84 %	4.32 %	4.48 %
Market / Average Book Ratio	184.08	176.32	191.60	224.79	213.85	198.13
Dividend Yield	3.31	3.42	3.09	2.60	2.77	3.04
Dividend Payout Ratio	58.56	60.27	83.22	69.25	54.00	65.06
Rate of Return on Average Book Common Equity	10.54 %	9.85 %	6.75 %	8.68 %	9.55 %	9.08 %
Total Debt / EBITDA (3)	5.05 x	5.10 x	6.03 x	4.96 x	5.01 x	5.23 x
Funds from Operations / Total Debt (4)	14.42 %	11.70 %	12.46 %	14.99 %	24.21 %	15.55 %
Total Debt / Total Capital	53.56 %	54.26 %	53.51 %	51.06 %	51.14 %	52.71 %

Notes:
(1) All capitalization and financial statistics for the group are the arithmetic average of the achieved results for each individual company in the group, and are based upon financial statements as originally reported in each year.
(2) Computed by relating actual total debt interest or preferred stock dividends booked to average of beginning and ending total debt or preferred stock reported to be outstanding.
(3) Total debt relative to EBITDA (Earnings before Interest, Income Taxes, Depreciation and Amortization).
(4) Funds from operations (sum of net income, depreciation, amortization, net deferred income tax and investment tax credits, less total AFUDC) plus interest charges as a percentage of total debt.

Source of Information: Company Annual Forms 10-K

Peoples Gas System
Capital Structure Based upon Total Permanent Capital for the
Proxy Group of Six Natural Gas Companies
2018 - 2022, Inclusive

	2022	2021	2020	2019	2018	5 Year Average
Atmos Energy Corporation						
Long-Term Debt (1)	37.96 %	39.35 %	40.02 %	38.03 %	39.15 %	38.90 %
Preferred Stock	-	-	-	-	-	-
Common Equity	62.04	60.65	59.98	61.97	60.85	61.10
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
New Jersey Resources Corporation						
Long-Term Debt	57.77 %	57.81 %	55.35 %	50.11 %	47.89 %	53.79 %
Preferred Stock	-	-	-	-	-	-
Common Equity	42.23	42.19	44.65	49.89	52.11	46.21
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Nisource, Inc.						
Long-Term Debt	56.43 %	57.09 %	61.64 %	56.79 %	55.44 %	57.48 %
Preferred Stock	9.14	9.55	5.87	6.35	6.82	7.55
Common Equity	34.43	33.36	32.49	36.85	37.74	34.97
Total Capital	100.00 %	100.00 %	100.00 %	99.99 %	100.00 %	100.00 %
Northwest Natural Holding Company						
Long-Term Debt (1)	52.70 %	52.12 %	51.81 %	50.43 %	49.12 %	51.24 %
Preferred Stock	-	-	-	-	-	-
Common Equity	47.30	47.88	48.19	49.57	50.88	48.76
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
ONE Gas, Inc.						
Long-Term Debt (1)	37.79 %	41.74 %	41.76 %	37.65 %	38.62 %	39.51 %
Preferred Stock	-	-	-	-	-	-
Common Equity	62.21	58.26	58.24	62.35	61.38	60.49
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Spire Inc.						
Long-Term Debt	51.42 %	52.98 %	49.62 %	45.49 %	45.95 %	49.09 %
Preferred Stock	3.84	4.28	4.83	5.19	-	3.63
Common Equity	44.74	42.74	45.55	49.32	54.05	47.28
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Proxy Group of Six Natural Gas Companies						
Long-Term Debt	49.01 %	50.18 %	50.03 %	46.42 %	46.03 %	48.33 %
Preferred Stock	2.16	2.31	1.78	1.92	1.14	1.86
Common Equity	48.83	47.51	48.18	51.66	52.84	49.80
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %

Source of Information
Annual Forms 10-K

Notes:
(1) Excludes securitized debt associated with winter storms in 2021.

Peoples Gas System
Operating Subsidiary Company Capital Structures of the
Proxy Group of Six Natural Gas Companies

		2022		
Company Name	Parent Company Ticker	Common Equity	Long-Term Debt	Total Capital
Atmos Energy Corporation	ATO	53.50%	46.50%	100.00%
New Jersey Natural Gas Company	NJR	55.04%	44.96%	100.00%
Northern Indiana Public Service Company	NI	56.92%	43.08%	100.00%
Northwest Natural Gas Company	NWN	49.70%	50.30%	100.00%
ONE Gas, Inc.	OGS	48.85%	51.15%	100.00%
Spire Alabama Inc.	SR	60.24%	39.76%	100.00%
Spire Missouri Inc.	SR	51.56%	48.44%	100.00%
	Maximum	60.24%	51.15%	
	Minimum	48.85%	39.76%	

Source: S&P Global Market Intelligence.
Company Financial Statements.

Peoples Gas System
Indicated Common Equity Cost Rate Using the Discounted Cash Flow Model for the
Proxy Group of Six Natural Gas Companies

Proxy Group of Six Natural Gas Companies	[1] Average Dividend Yield (1)	[2] Value Line Projected Five Year Growth in EPS (2)	[3] Zack's Five Year Projected Growth Rate in EPS	[4] Yahoo! Finance Projected Five Year Growth in EPS	[5] Average Projected Five Year Growth in EPS (3)	[6] Adjusted Dividend Yield (4)	[7] Indicated Common Equity Cost Rate (5)
Atmos Energy Corporation	2.57 %	7.00 %	7.50 %	7.80 %	7.43 %	2.67 %	10.10 %
New Jersey Resources Corporation	3.05	5.00	6.00	6.00	5.67	3.14	8.81
Nisource, Inc.	3.60	9.50	6.90	6.70	7.70	3.74	11.44
Northwest Natural Holding Company	4.24	6.50	3.70	2.80	4.33	4.33	8.66
ONE Gas, Inc.	3.25	6.50	5.00	5.00	5.50	3.34	8.84
Spire Inc.	4.24	8.00	4.20	NA	6.10	4.37	10.47
						Average	9.72 %
						Median	9.47 %
						Average of Mean and Median	9.60 %

NA= Not Available

Notes:

(1) Indicated dividend at 06/16/2023 divided by the average closing price of the last 60 trading days ending 06/16/2023 for each company.
(2) From pages 2 through 7 of this Document.
(3) Average of Columns [2] through [4] excluding negative growth rates.
(4) This reflects a growth rate component equal to one-half the conclusion of growth rate (from Column [5]) x Column [1] to reflect the periodic payment of dividends (Gordon Model) as opposed to the continuous payment. Thus, for Atmos Energy Corporation, 2.57% x (1+(1/2 x 7.43%)) = 2.67%.
(5) Column [5] + Column [6].

Source of Information:

Value Line Investment Survey
www.zacks.com, Downloaded on 06/16/2023
www.yahoo.com, Downloaded on 06/16/2023

ATMOS ENERGY CORP. NYSE-ATO

RECENT PRICE 117.59 | P/E RATIO 18.9 (Trailing: 20.2, Median: 20.0) | RELATIVE P/E RATIO 1.15 | DIV'D YLD 2.7% | VALUE LINE

TIMELINESS 3 Lowered 2/10/23
SAFETY 1 Raised 6/6/14
TECHNICAL 2 Raised 5/26/23
BETA .85 (1.00 = Market)

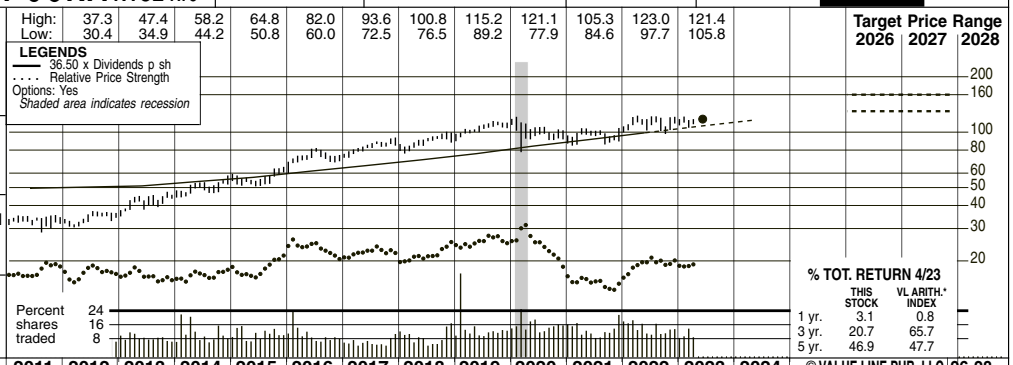
18-Month Target Price Range
Low-High Midpoint (% to Mid)
$96-$159 $128 (10%)

2026-28 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	160	(+35%)	*10%*
Low	130	(+10%)	*5%*

Institutional Decisions

	2Q2022	3Q2022	4Q2022
to Buy	333	331	345
to Sell	231	251	266
Hld's(000)	126964	128317	132007



2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	© VALUE LINE PUB. LLC	26-28
66.03	79.52	53.69	53.12	48.15	38.10	42.88	49.22	40.82	32.23	26.01	28.00	24.32	22.41	25.73	29.82	*32.65*	*36.85*	Revenues per sh [A]	*50.00*
4.14	4.19	4.29	4.64	4.72	4.76	5.14	5.42	5.81	6.19	6.62	7.24	7.57	8.03	8.64	9.30	*10.00*	*10.60*	"Cash Flow" per sh	*12.60*
1.94	2.00	1.97	2.16	2.26	2.10	2.50	2.96	3.09	3.38	3.60	4.00	4.35	4.72	5.12	5.60	*6.00*	*6.40*	Earnings per sh [AB]	*7.85*
1.28	1.30	1.32	1.34	1.36	1.38	1.40	1.48	1.56	1.68	1.80	1.94	2.10	2.30	2.50	2.72	*2.96*	*3.20*	Div'ds Decl'd per sh [C■]	*3.90*
4.39	5.20	5.51	6.02	6.90	8.12	9.32	8.32	9.61	10.46	10.72	13.19	14.19	15.38	14.87	17.35	*18.35*	*18.55*	Cap'l Spending per sh	*18.30*
22.01	22.60	23.52	24.16	24.98	26.14	28.47	30.74	31.48	33.32	36.74	42.87	48.18	53.95	59.71	66.85	*70.20*	*73.05*	Book Value per sh	*79.40*
89.33	90.81	92.55	90.16	90.30	90.24	90.64	100.39	101.48	103.93	106.10	111.27	119.34	125.88	132.42	140.90	*147.00*	*152.00*	Common Shs Outst'g [D]	*170.00*
15.9	13.6	12.5	13.2	14.4	15.9	15.9	16.1	17.5	20.8	22.0	21.7	23.2	22.3	18.8	19.3	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*18.5*
.84	.82	.83	.84	.90	1.01	.89	.85	.88	1.09	1.11	1.17	1.24	1.15	1.02	1.12			Relative P/E Ratio	*1.05*
4.2%	4.8%	5.3%	4.7%	4.2%	4.1%	3.5%	3.1%	2.9%	2.4%	2.3%	2.2%	2.1%	2.2%	2.6%	2.5%			Avg Ann'l Div'd Yield	*2.7%*
3886.3	4940.9	4142.1	3349.9	2759.7	3115.5	2901.8	2821.1	3407.5	4201.7	*4800*	*5600*	Revenues ($mill) [A]	*8500*
230.7	289.8	315.1	350.1	382.7	444.3	511.4	580.5	665.6	774.4	*875*	*965*	Net Profit ($mill)	*1325*
38.2%	39.2%	38.3%	36.4%	36.6%	27.0%	21.4%	19.5%	18.8%	9.1%	*11.5%*	*13.0%*	Income Tax Rate	*25.0%*
5.9%	5.9%	7.6%	10.5%	13.9%	14.3%	17.6%	20.6%	19.5%	18.4%	*18.2%*	*17.2%*	Net Profit Margin	*15.6%*
48.8%	44.3%	43.5%	38.7%	44.0%	34.3%	38.0%	40.0%	38.4%	37.9%	*40.0%*	*40.0%*	Long-Term Debt Ratio	*40.0%*
51.2%	55.7%	56.5%	61.3%	56.0%	65.7%	62.0%	60.0%	61.6%	62.1%	*60.0%*	*60.0%*	Common Equity Ratio	*60.0%*
5036.1	5542.2	5650.2	5651.8	6965.7	7263.6	9279.7	11323	12837	15180	*17200*	*18500*	Total Capital ($mill)	*22500*
6030.7	6725.9	7430.6	8280.5	9259.2	10371	11788	13355	15064	17240	*19300*	*20400*	Net Plant ($mill)	*25000*
5.9%	6.4%	6.6%	7.2%	6.4%	6.9%	6.1%	5.5%	5.5%	5.4%	*6.5%*	*6.5%*	Return on Total Cap'l	*7.0%*
8.9%	9.4%	9.9%	10.1%	9.8%	9.3%	8.9%	8.5%	8.4%	8.2%	*8.5%*	*8.5%*	Return on Shr. Equity	*10.0%*
8.9%	9.4%	9.9%	10.1%	9.8%	9.3%	8.9%	8.5%	8.4%	8.2%	*8.5%*	*8.5%*	Return on Com Equity	*10.0%*
4.0%	4.7%	4.9%	5.1%	4.9%	4.8%	4.6%	4.4%	4.3%	4.2%	*4.5%*	*4.5%*	Retained to Com Eq	*5.0%*
56%	50%	51%	50%	50%	48%	48%	49%	49%	49%	*50%*	*50%*	All Div'ds to Net Prof	*50%*

CAPITAL STRUCTURE as of 3/31/23
Total Debt $6554.6 mill. **Due in 5 Yrs** $2900.0 mill.
LT Debt $6553.1 mill. **LT Interest** $105.0 mill.
(LT interest earned: 9.3x; total interest coverage: 9.3x)
Leases, Uncapitalized Annual rentals $43.1 mill.

Pfd Stock None

Pension Assets-9/22 $479.0 mill.
Oblig. $449.5 mill.
Common Stock 144,487,306 shs.
as of 4/28/23

MARKET CAP: $17.0 billion (Large Cap)

CURRENT POSITION ($MILL.)	2021	2022	3/31/23
Cash Assets	116.7	51.6	95.2
Other	2722.0	2996.1	977.9
Current Assets	2838.7	3047.7	1073.1
Accts Payable	423.2	496.0	365.0
Debt Due	2400.5	2386.4	1.5
Other	686.7	720.2	746.5
Current Liab.	3510.4	3602.6	1113.0
Fix. Chg. Cov.	1457%	1238%	1245%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '20-'22 to '26-'28
Revenues	-5.5%	-4.5%	*11.5%*
"Cash Flow"	6.5%	7.0%	*6.5%*
Earnings	9.0%	9.0%	*7.0%*
Dividends	6.5%	8.5%	*7.5%*
Book Value	9.0%	12.0%	*5.0%*

Fiscal Year Ends	QUARTERLY REVENUES ($ mill.) [A] Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2020	875.6	977.6	493.0	474.9	2821.1
2021	914.5	1319.1	605.6	568.3	3407.5
2022	1012.8	1649.8	816.4	722.7	4201.7
2023	1484.0	1541.0	*930*	*845*	*4800*
2024	*1675*	*1860*	*1065*	*1000*	*5600*

Fiscal Year Ends	EARNINGS PER SHARE [A B E] Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2020	1.47	1.95	.79	.53	4.72
2021	1.71	2.30	.78	.37	5.12
2022	1.86	2.37	.92	.51	5.60
2023	1.91	2.48	*1.03*	*.58*	*6.00*
2024	*2.12*	*2.53*	*1.11*	*.64*	*6.40*

Cal-endar	QUARTERLY DIVIDENDS PAID [C■] Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2019	.525	.525	.525	.575	2.15
2020	.575	.575	.575	.625	2.35
2021	.625	.625	.625	.68	2.56
2022	.68	.68	.68	.74	2.78
2023	.74	.74			

BUSINESS: Atmos Energy Corporation is engaged primarily in the distribution and sale of natural gas to over three million customers through six regulated natural gas utility operations: Louisiana Division, West Texas Division, Mid-Tex Division, Mississippi Division, Colorado-Kansas Division, and Kentucky/Mid-States Division. Gas sales breakdown for fiscal 2022: 63.7%, residential; 28.8%, commercial; 5.8%, industrial; and 1.7% other. The company sold Atmos Energy Marketing, 1/17. Officers and directors own approximately .5% of common stock (12/22 Proxy). President and Chief Executive Officer: Kevin Akers. Incorporated: Texas. Address: Three Lincoln Centre, Suite 1800, 5430 LBJ Freeway, Dallas, Texas 75240. Telephone: 972-934-9227. Internet: www.atmosenergy.com.

Earnings for Atmos Energy showed some improvement through the first half of fiscal 2023 (ended March 31st). Share net of $4.39 was nearly 4% higher than last year's $4.23 tally. This was brought about partly by the distribution unit, helped largely by higher rates, especially in the Mid-Tex division. Furthermore, the performance of the pipeline and storage business benefited nicely from a rise in revenue from a Gas Reliability Infrastructure Program filing approved in fiscal 2022. Operating expenses did increase significantly during the period, but that's to be expected as the company expands. So, it seems that full-year profits will advance around 7%, to $6.00 a share, versus fiscal 2022's $5.60 total. Concerning next year, share net may grow at a similar percentage rate, to $6.40, assuming that operating margins widen further.

Corporate finances are in strong condition. When the second quarter concluded, cash and equivalents resided at $95.2 million. Moreover, long-term debt was quite manageable (almost 40% of total capital) and short-term borrowings were just $1.5 million. Too, $4 billion in common stock and/or debt securities remained available for issuance (out of $5 billion) under a shelf registration statement expiring in March, 2026. Lastly, Atmos can access four revolving credit facilities aggregating $2.5 billion plus a $1.5 billion commercial paper program. All told, there's sufficient liquidity to satisfy various obligations for quite a while.

We believe good things are in store for the company over the 2026-2028 span. It ranks as one of the nation's biggest natural gas-only distributors, with more than three million customers across several states, including Texas, Louisiana, and Mississippi. Also, the pipeline and storage segment appears to have promising overall expansion opportunities, given that it operates in one of the most-active drilling regions in the world. The sound balance sheet is another plus.

The high-quality stock holds unspectacular long-term total return potential. Capital gains possibilities are unenticing. Also, the dividend yield is below the average of *Value Line's* Natural Gas Utility Industry group.

Frederick L. Harris, III *May 26, 2023*

(A) Fiscal year ends Sept. 30th. **(B)** Diluted shrs. Excl. nonrec. gains (loss): '10, 5¢; '11, (1¢); '18, $1.43; '20, 17¢. Excludes discontinued operations: '11, 10¢; '12, 27¢; '13, 14¢; '17, 13¢. Next earnings report due early Aug. **(C)** Dividends historically paid in early March, June, Sept., and Dec. ■ Div. reinvestment plan. Direct stock purchase plan avail. **(D)** In millions. **(E)** Qtrs may not add due to change in shrs outstanding.

Company's Financial Strength	A+
Stock's Price Stability	95
Price Growth Persistence	65
Earnings Predictability	100

NEW JERSEY RES. NYSE-NJR

RECENT PRICE 49.72 | P/E RATIO 19.4 (Trailing: 18.0 Median: 17.0) | RELATIVE P/E RATIO 1.18 | DIV'D YLD 3.2% | VALUE LINE

TIMELINESS 2 Raised 5/12/23
SAFETY 2 Lowered 4/17/20
TECHNICAL 1 Raised 5/26/23
BETA .95 (1.00 = Market)

18-Month Target Price Range

Low-High	Midpoint (% to Mid)
$33-$62	$48 (-5%)

2026-28 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	65	(+30%)	*10%*
Low	45	(-10%)	*1%*

Institutional Decisions

	2Q2022	3Q2022	4Q2022
to Buy	126	139	166
to Sell	133	112	115
Hld's(000)	71193	72178	73958

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
High:	25.1	23.8	32.1	34.1	38.9	45.4	51.8	51.2	44.7	44.4	51.4	55.8						
Low:	19.3	19.5	21.9	26.8	30.5	33.7	35.6	40.3	21.1	33.3	37.8	48.3						

LEGENDS
0.40 x Dividends p sh divided by Interest Rate
Relative Price Strength
2-for-1 split 3/15
Options: Yes
Shaded area indicates recession

Target Price Range 2026 | 2027 | 2028

% TOT. RETURN 4/23

	THIS STOCK	VL ARITH.* INDEX
1 yr.	23.6	0.8
3 yr.	70.2	65.7
5 yr.	47.1	47.7

36.31	45.37	31.17	32.05	36.30	27.08	38.38	44.40	32.09	21.90	26.28	33.24	29.01	20.39	22.71	30.38	*26.80*	*29.10*
1.22	1.81	1.58	1.63	1.70	1.86	1.93	2.73	2.52	2.46	2.68	3.72	2.99	3.30	3.36	3.86	*4.20*	*4.35*
.78	1.35	1.20	1.23	1.29	1.36	1.37	2.08	1.78	1.61	1.73	2.72	1.96	2.07	2.16	2.50	*2.70*	*2.80*
.51	.56	.62	.68	.72	.77	.81	.86	.93	.98	1.04	1.11	1.19	1.27	1.36	1.45	*1.56*	*1.68*
.73	.86	.90	1.05	1.13	1.26	1.33	1.52	3.76	4.15	3.80	4.39	5.83	4.65	5.42	6.50	*6.20*	*6.65*
7.75	8.64	8.29	8.81	9.36	9.80	10.65	11.48	12.99	13.58	14.33	16.18	17.37	19.26	17.18	19.00	*22.15*	*24.70*
83.22	84.12	83.17	82.35	82.89	83.05	83.32	84.20	85.19	85.88	86.32	87.69	89.34	95.80	94.95	95.64	*97.00*	*98.00*
21.6	12.3	14.9	15.0	16.8	16.8	16.0	11.7	16.6	21.3	22.4	15.6	24.3	17.7	17.5	17.0	*Bold figures are Value Line estimates*	
1.15	.74	.99	.95	1.05	1.07	.90	.62	.84	1.12	1.13	.84	1.29	.91	.94	.98		
3.0%	3.3%	3.5%	3.7%	3.3%	3.4%	3.7%	3.5%	3.1%	2.9%	2.7%	2.6%	2.5%	3.5%	3.6%	3.4%		
3198.1	3738.1	2734.0	1880.9	2268.6	2915.1	2592.0	1953.7	2156.6	2906.0	*2600*	*2850*
113.7	176.9	153.7	138.1	149.4	240.5	175.0	196.2	207.7	240.3	*260*	*275*
25.4%	30.2%	26.3%	15.5%	17.2%	- -	- -	NMF	10.3%	21.4%	*22.0%*	*22.0%*
3.6%	4.7%	5.6%	7.3%	6.6%	8.2%	6.7%	10.0%	9.6%	8.3%	*10.0%*	*9.6%*
36.6%	38.2%	43.2%	47.7%	44.6%	45.4%	49.8%	55.1%	57.0%	57.8%	*57.0%*	*56.0%*
63.4%	61.8%	56.8%	52.3%	55.4%	54.6%	50.2%	44.9%	43.0%	42.2%	*43.0%*	*44.0%*
1400.3	1564.4	1950.6	2230.1	2233.7	2599.6	3088.9	4104.2	3793.0	4302.6	*5000*	*5500*
1643.1	1884.1	2128.3	2407.7	2609.7	2651.0	3041.2	3983.0	4213.5	4649.9	*5000*	*5200*
9.0%	12.1%	8.6%	6.9%	7.7%	10.1%	6.4%	5.6%	6.5%	5.6%	*5.0%*	*5.0%*
12.8%	18.3%	13.9%	11.8%	12.1%	16.9%	11.3%	10.6%	12.7%	13.2%	*12.0%*	*11.5%*
12.8%	18.3%	13.9%	11.8%	12.1%	16.9%	11.3%	10.6%	12.7%	13.2%	*12.0%*	*11.5%*
5.2%	11.0%	7.0%	4.8%	5.0%	10.2%	4.6%	4.3%	5.6%	6.2%	*5.0%*	*4.5%*
59%	40%	50%	60%	59%	40%	59%	60%	56%	53%	*58%*	*60%*

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Revenues per sh [A]	*32.50*
"Cash Flow" per sh	*4.25*
Earnings per sh [B]	*3.25*
Div'ds Decl'd per sh [C] ■	*1.95*
Cap'l Spending per sh	*7.50*
Book Value per sh [D]	*27.90*
Common Shs Outst'g [E]	*100.00*
Avg Ann'l P/E Ratio	*17.0*
Relative P/E Ratio	*.95*
Avg Ann'l Div'd Yield	*4.0%*
Revenues ($mill) [A]	*3250*
Net Profit ($mill)	*325*
Income Tax Rate	*22.0%*
Net Profit Margin	*10.0%*
Long-Term Debt Ratio	*55.0%*
Common Equity Ratio	*45.0%*
Total Capital ($mill)	*6200*
Net Plant ($mill)	*5500*
Return on Total Cap'l	*5.0%*
Return on Shr. Equity	*11.5%*
Return on Com Equity	*11.5%*
Retained to Com Eq	*4.5%*
All Div'ds to Net Prof	*60%*

CAPITAL STRUCTURE as of 3/31/23
Total Debt $2982.0 mill. **Due in 5 Yrs** $1049 mill.
LT Debt $2642.2 mill. **LT Interest** $85 mill.
Incl. $7.0 mill. capitalized leases.
(LT interest earned: 5.0x; total interest coverage: 5.0x)
Pension Assets-9/22 $484.1 mill. **Oblig.** $464.0 mill.
Pfd Stock None

Common Stock 96,964,456 shs.
as of 5/1/23
MARKET CAP: $4.8 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2021	2022	3/31/23
Cash Assets	4.7	1.1	27.1
Other	629.6	755.0	588.9
Current Assets	634.3	756.1	616.0
Accts Payable	429.6	156.6	121.8
Debt Due	450.1	499.1	339.8
Other	171.7	448.5	249.9
Current Liab.	1051.4	1104.2	711.5
Fix. Chg. Cov.	545%	545%	650%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '20-'22 to '26-'28
Revenues	-3.0%	-6.0%	*2.5%*
"Cash Flow"	7.0%	4.5%	*5.0%*
Earnings	5.0%	2.5%	*5.0%*
Dividends	6.5%	6.5%	*5.0%*
Book Value	7.5%	7.0%	*4.5%*

Fiscal Year Ends	QUARTERLY REVENUES ($ mill.) [A] Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2020	615.0	639.6	299.0	400.1	1953.7
2021	454.3	802.2	367.6	532.5	2156.6
2022	675.8	912.3	552.3	765.5	2906.0
2023	723.6	644.0	*550*	*682.4*	*2600*
2024	*725*	*875*	*550*	*700*	*2850*

Fiscal Year Ends	EARNINGS PER SHARE [A B] Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2020	.44	1.12	d.06	.57	2.07
2021	.46	1.77	d.15	.07	2.16
2022	.69	1.36	d.04	.50	2.50
2023	1.14	1.16	*d.05*	*.45*	*2.70*
2024	*1.00*	*1.25*	*.05*	*.50*	*2.80*

Cal-endar	QUARTERLY DIVIDENDS PAID [C] ■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2019	.2925	.2925	.2925	.3125	1.19
2020	.3125	.3125	.3125	.3325	1.27
2021	.3325	.3325	.3325	.3625	1.36
2022	.3625	.3625	.3625	.3625	1.45
2023	.39	.39			

BUSINESS: New Jersey Resources Corp. is a holding company providing retail/wholesale energy svcs. to customers in NJ, and in states from the Gulf Coast to New England, and Canada. New Jersey Natural Gas had 569,300 cust. at 9/30/22. Fiscal 2022 volume: 144 bill. cu. ft. (23% interruptible, 47% residential, commercial & firm transportation, 30% other). N.J. Natural Energy subsidiary provides unregulated retail/wholesale natural gas and related energy svcs. 2021 dep. rate: 2.7%. Has 1,288 empls. Off./dir. own less than 1% of common; BlackRock, 14.0%; Vanguard, 11.0% (12/22 Proxy). CEO, President & Director: Steven D. Westhoven. Incorporated: New Jersey. Address: 1415 Wyckoff Road, Wall, NJ 07719. Telephone: 732-938-1480. Web: www.njresources.com.

New Jersey Resources reported slight weakness in its fiscal second quarter. Historically warm weather conditions in the company's operating region during the March period, along with a significant reduction in the price of natural gas, resulted in a sharp decline in revenues. Despite the top line falling 40% below our estimate for the quarter, the company's net financial earnings per share (NFEPS) held its ground reasonably well. The quarter's profits per share of $1.16 ended just four cents lower than our estimate, signaling a strong showing in terms of margin resiliency, thanks in large part to the cost pass-through mechanism of the regulated utilities business. However, March-period earnings have declined for the second consecutive year running. In the quarter, each operating segment declined from the year-ago period, but on a fiscal year-to-date basis, the comparable profit figure is much more positive, showing double-digit growth, owing to a strong December period result.

We look for the company's earnings growth to slow in the years ahead. After a very strong first quarter, the rest of fiscal 2023 should be in for challenging comparisons. We expect NFEPS to fall below the prior-year levels in each of the remaining two quarters. Still, full-year earnings should manage to eke out an improvement of about 8% to reach $2.70, driven by strong customer growth trends and a diversified operating segmentation strategy that differentiates NJR from other highly-regulated pure-play utilities. In turn, we have left our fiscal 2024 earnings call unchanged at $2.80.

Long-term earnings growth potential is a bit uncertain at this juncture. We expect the growth of the Clean Energy Ventures (CEV) segment to be a harbinger of the company's future earnings potential. New Jersey Resources has the opportunity through exclusive rights agreements to triple its clean energy portfolio. However, this notion is being challenged in Washington where debt-limit negotiations put at risk the clean energy incentives introduced in the Inflation Reduction Act.

To wit, long-term total capital appreciation potential appears limited, regardless of CEV's political risk.

Earl B. Humes *May 26, 2023*

(A) Fiscal year ends Sept. 30th.
(B) Diluted earnings. Qtly. revenues and egs. may not sum to total due to rounding and change in shares outstanding. Next earnings report due early August.
(C) Dividends historically paid in early Jan., April, July, and October. ■ Dividend reinvestment plan available.
(D) Includes regulatory assets in 2022: $500 million, $5.23/share.
(E) In millions, adjusted for splits.

Company's Financial Strength	A+
Stock's Price Stability	85
Price Growth Persistence	55
Earnings Predictability	60

NISOURCE INC. NYSE-NI

RECENT PRICE 28.04 | P/E RATIO 18.1 (Trailing: 18.8 Median: 21.0) | RELATIVE P/E RATIO 1.10 | DIV'D YLD 3.6% | VALUE LINE

TIMELINESS 3 Raised 4/14/23
SAFETY 3 Lowered 3/19/21
TECHNICAL 3 Raised 5/19/23
BETA .85 (1.00 = Market)

18-Month Target Price Range

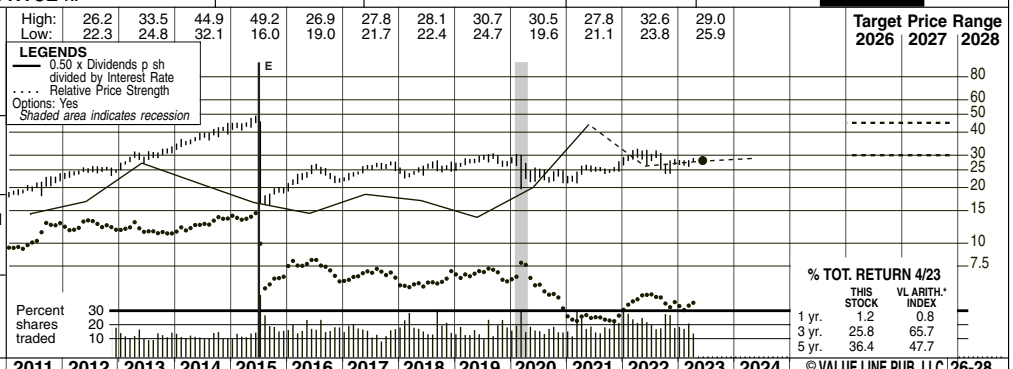
Low-High	Midpoint (% to Mid)
$23-$40	$32 (10%)

2026-28 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	45	(+60%)	*15%*
Low	30	(+5%)	*5%*

Institutional Decisions

	2Q2022	3Q2022	4Q2022
to Buy	270	255	315
to Sell	208	226	214
Hld's(000)	389752	379081	387502



Target Price Range 2026 | 2027 | 2028
80 60 50 40 30 25 20 15 10 7.5

% TOT. RETURN 4/23

	THIS STOCK	VL ARITH.* INDEX
1 yr.	1.2	0.8
3 yr.	25.8	65.7
5 yr.	36.4	47.7

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	© VALUE LINE PUB. LLC	26-28
28.96	32.36	24.02	22.99	21.33	16.31	18.04	20.47	14.58	13.90	14.46	13.74	13.63	11.95	12.09	14.23	*14.00*	*14.10*	Revenues per sh	*15.75*
3.20	3.32	2.96	3.19	2.98	3.13	3.41	3.60	2.27	2.71	2.07	2.86	3.17	3.15	3.26	3.47	*3.55*	*3.80*	"Cash Flow" per sh	*4.15*
1.14	1.34	.84	1.06	1.05	1.37	1.57	1.67	.63	1.00	.39	1.30	1.31	1.32	1.37	1.47	*1.55*	*1.70*	Earnings per sh [A]	*2.00*
.92	.92	.92	.92	.92	.94	.98	1.02	.83	.64	.70	.78	.80	.84	.88	.94	*1.00*	*1.04*	Div'ds Decl'd per sh [B] ■	*1.12*
2.88	3.54	2.81	2.88	3.99	4.83	5.99	6.42	4.26	4.57	5.03	4.88	4.72	4.49	4.53	6.32	*8.20*	*6.45*	Cap'l Spending per sh	*6.75*
18.52	17.24	17.54	17.63	17.71	17.90	18.77	19.54	12.04	12.60	12.82	13.08	13.36	12.44	13.33	13.14	*14.10*	*17.00*	Book Value per sh [C]	*18.00*
274.18	274.26	276.79	279.30	282.18	310.28	313.68	316.04	319.11	323.16	337.02	372.36	382.14	391.76	404.30	411.10	*420.00*	*425.00*	Common Shs Outst'g [D]	*445.00*
18.8	12.1	14.3	15.3	19.4	17.9	18.9	22.7	37.3	23.2	64.4	19.3	21.3	18.7	18.0	19.6	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*19.0*
1.00	.73	.95	.97	1.22	1.14	1.06	1.19	1.88	1.22	3.24	1.04	1.13	.96	.99	11.8			Relative P/E Ratio	*1.05*
4.3%	5.7%	7.6%	5.7%	4.5%	3.8%	3.3%	2.7%	3.5%	2.8%	2.8%	3.1%	2.9%	3.4%	3.6%	3.3%			Avg Ann'l Div'd Yield	*2.5%*
5657.3	6470.6	4651.8	4492.5	4874.6	5114.5	5208.9	4681.7	4899.6	5850.6	*5875*	*6000*	Revenues ($mill)	*7000*
490.9	530.7	198.6	328.1	128.6	478.3	549.8	562.6	626.3	648.2	*650*	*725*	Net Profit ($mill)	*890*
34.8%	36.9%	41.6%	35.7%	71.0%	19.7%	17.0%	18.3%	15.7%	17.2%	*19.0%*	*19.0%*	Income Tax Rate	*19.0%*
--	--	--	--	--	--	--	--	2.0%	2.3%	*2.5%*	*2.5%*	AFUDC % to Net Profit	*2.5%*
56.3%	56.9%	60.7%	59.8%	63.5%	55.3%	56.8%	61.6%	56.9%	55.7%	*55.5%*	*55.0%*	Long-Term Debt Ratio	*55.0%*
43.7%	43.1%	39.3%	40.2%	36.5%	37.9%	36.9%	32.5%	33.5%	31.6%	*32.5%*	*37.5%*	Common Equity Ratio	*40.0%*
13480	14331	9792.0	10129	11832	12856	13843	14972	16131	17099	*18250*	*19000*	Total Capital ($mill)	*20000*
14365	16017	12112	13068	14360	15543	16912	16620	17882	19843	*22500*	*25000*	Net Plant ($mill)	*27500*
5.2%	5.3%	4.0%	5.0%	2.6%	5.1%	5.3%	5.0%	4.9%	3.8%	*3.5%*	*4.0%*	Return on Total Cap'l	*4.5%*
8.3%	8.6%	5.2%	8.1%	3.0%	8.3%	9.2%	9.8%	9.0%	9.3%	*8.5%*	*8.5%*	Return on Shr. Equity	*9.5%*
8.3%	8.6%	5.2%	8.1%	3.0%	9.6%	9.7%	10.4%	10.6%	12.0%	*11.0%*	*10.0%*	Return on Com Equity	*11.0%*
3.1%	3.4%	NMF	3.0%	NMF	4.0%	3.8%	3.8%	4.2%	4.0%	*4.0%*	*4.0%*	Retained to Com Eq	*5.0%*
62%	61%	NMF	63%	NMF	60%	64%	67%	64%	64%	*65%*	*61%*	All Div'ds to Net Prof	*56%*

CAPITAL STRUCTURE as of 3/31/23
Total Debt $11576.6 mill. **Due in 5 Yrs** $2355 mill.
LT Debt $10264.7 mill. **LT Interest** $368 mill.
(Interest cov. earned: 5.8x) (57% of Cap'l)

Leases, Uncapitalized Annual rentals $8.0 mill.
Pension Assets-12/22 $1.4 bill. **Oblig.** $1.4 bill.

Pfd Stock $1547 mill. **Pfd Div'd** $55.1 mill.

Common Stock 413,063,219 shs.
as of 4/25/23
MARKET CAP: $11.6 billion (Large Cap)

CURRENT POSITION ($MILL.)	2021	2022	3/31/23
Cash Assets	85.2	40.8	106.4
Other	1835.6	2543.5	2230.1
Current Assets	1920.8	2584.3	2336.5
Accts Payable	697.8	899.5	642.2
Debt Due	618.1	1791.9	1311.9
Other	1430.3	1969.1	1952.8
Current Liab.	2746.2	4660.5	3906.9
Fix. Chg. Cov.	250%	255%	260%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '19-'21 to '26-'28
Revenues	-5.0%	-3.5%	*5.5%*
"Cash Flow"	0.5%	6.5%	*5.5%*
Earnings	1.5%	15.0%	*9.5%*
Dividends	-0.5%	3.5%	*4.5%*
Book Value	-3.0%	0.5%	*5.0%*

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2020	1605.5	962.7	902.5	1211.0	4681.7
2021	1545.6	986.0	959.4	1408.6	4899.6
2022	1873.3	1183.2	1089.5	1704.6	5850.6
2023	1966.0	*1170*	*1120*	*1619*	*5875*
2024	*2100*	*1200*	*1150*	*1550*	*6000*

Calendar	EARNINGS PER SHARE [A] Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2020	.76	.13	.09	.34	1.32
2021	.77	.13	.11	.39	1.37
2022	.75	.12	.10	.50	1.47
2023	.77	*.15*	*.12*	*.51*	*1.55*
2024	*.82*	*.18*	*.15*	*.55*	*1.70*

Calendar	QUARTERLY DIVIDENDS PAID [B] ■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2019	.200	.200	.200	.200	.80
2020	.21	.21	.21	.21	.84
2021	.22	.22	.22	.22	.88
2022	.235	.235	.235	.235	.94
2023	.25	.25			

BUSINESS: NiSource Inc. is a holding company for Northern Indiana Public Service Company (NIPSCO), which supplies electricity and gas to the northern third of Indiana. Customers: 479,185 electric in Indiana, 3,200,000 gas in Indiana, Ohio, Pennsylvania, Kentucky, Virginia, Maryland, through its Columbia subsidiaries. Revenue breakdown, 2022: electrical, 31%; gas, 69%; other, less than 1%. Generating sources, coal, 69.4%; purchased & other, 30.6%. 2022 reported depreciation rates: 3.1% electric, 2.3% gas. Has 7,304 employees. Chairman: Richard L. Thompson. President & Chief Executive Officer: Lloyd Yates. Incorporated: Indiana. Address: 801 East 86th Avenue, Merrillville, Indiana 46410. Telephone: 877-647-5990. Internet: www.nisource.com.

NiSource stock gained in the three months since our February review. The shares are up a modest 3.3%, compared to a slight decline in the S&P 500 Utility Sector index. In that time, the company reported its financial results for both 2022 full year and fourth quarter, and it's 2023 first quarter. In the fourth quarter revenues exceeded our forecast by a significant margin, and the full-year top-line result landed $951 million above the year prior. Earnings per share, however, stayed on target, and in strong form advanced just over 7% in 2022. In the first quarter, our top-line target was reached, while earnings per share of $0.77 fell a bit below our expectation, but still increased 2.7% from the year prior.

Our full-year 2023 and 2024 outlook provides for decent earnings growth. We look for an 8% - 10% rate base average annual growth rate over the next five years to drive performance on the bottom line. Earnings growth should be at a slightly lower level at about 5.5% in 2023, following the earnings miss in the first quarter and a likely economic slowdown ahead due to broad inflation and increased interest rates. Following that, 2024 earnings will likely return to a high growth rate of nearly 10% on anticipated rate-base increases. Over the three- to five-year horizon, returns on planned clean energy projects and investments in sustainable infrastructure, along with continued regulatory support, should allow for expected annual earnings growth of around 8.5% thereafter.

The equity's upside is not without risk. Chief among them, climate change has the potential to cause significant disruption to the company's operations. While there is a potential advantage in volatile temperatures leading to increased energy demand, the risk to established equipment and plant assets is also heightened here. Intensified flooding, windstorms and heatwaves all pose threats to NiSource's infrastructure investments.

These shares do not stand out to us at this juncture. Taking into account the equity's risk premium, with the context of heightened yields on bonds, conservative accounts can likely find a better long-term investment opportunity elsewhere.

Earl B. Humes *May 26, 2023*

(A) Dil. EPS. Excl. gains (losses) on disc. ops.: '07, 3¢; '08, ($1.14); '15, (30¢); '18, ($1.48). Next egs. report due early August. Qtl'y egs. may not sum to total due to rounding.
(B) Div'ds historically paid in mid-Feb., May, Aug., Nov. ■ Div'd reinv. avail.
(C) Incl. intang in '22: $1485.9 million, $3.61/sh.
(D) In mill.
(E) Spun off Columbia Pipeline Group (7/15)

Company's Financial Strength	B+
Stock's Price Stability	95
Price Growth Persistence	25
Earnings Predictability	55

N.W. NATURAL NYSE-NWN

RECENT PRICE 45.00 | P/E RATIO 16.7 (Trailing: 15.7 Median: 24.0) | RELATIVE P/E RATIO 1.01 | DIV'D YLD 4.3% | VALUE LINE

TIMELINESS 3 Lowered 1/13/23
SAFETY 3 Lowered 3/19/21
TECHNICAL 2 Raised 5/26/23
BETA .80 (1.00 = Market)

18-Month Target Price Range

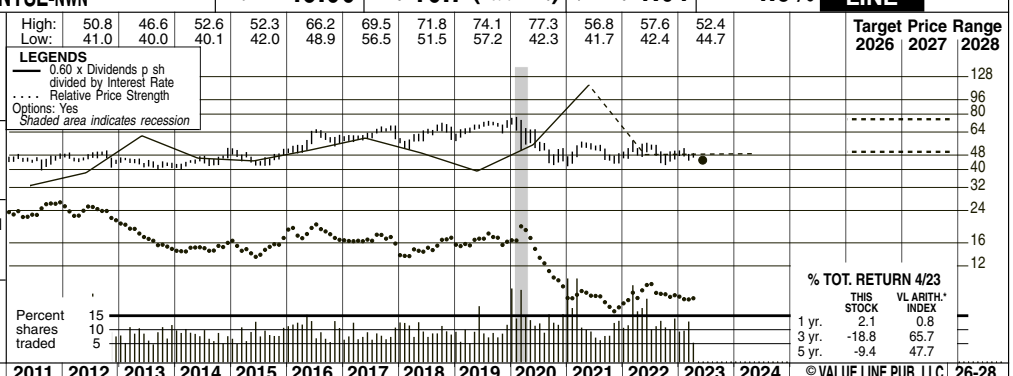
Low-High	Midpoint (% to Mid)
$39-$65	$52 (15%)

2026-28 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	75	(+65%)	*17%*
Low	50	(+10%)	*7%*

Institutional Decisions

	2Q2022	3Q2022	4Q2022
to Buy	139	115	124
to Sell	107	99	90
Hld's(000)	26050	26471	27135



2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	© VALUE LINE PUB. LLC	26-28
39.13	39.16	38.17	30.56	31.72	27.14	28.02	27.64	26.39	23.61	26.52	24.45	24.49	25.29	27.64	29.20	***28.90***	***29.35***	Revenues per sh	***31.25***
5.41	5.31	5.20	5.18	5.00	4.94	5.04	5.05	4.91	4.93	1.04	5.28	5.15	5.69	6.17	5.71	***6.15***	***6.40***	"Cash Flow" per sh	***6.25***
2.76	2.57	2.83	2.73	2.39	2.22	2.24	2.16	1.96	2.12	d1.94	2.33	2.19	2.30	2.56	2.54	***2.70***	***2.80***	Earnings per sh [A]	***3.15***
1.44	1.52	1.60	1.68	1.75	1.79	1.83	1.85	1.86	1.87	1.88	1.89	1.90	1.91	1.92	1.93	***1.95***	***1.97***	Div'ds Decl'd per sh [B]■	***2.00***
4.48	3.92	5.09	9.35	3.76	4.91	5.13	4.40	4.37	4.87	7.43	7.43	7.95	9.18	9.49	9.53	***9.05***	***7.75***	Cap'l Spending per sh	***7.50***
22.52	23.71	24.88	26.08	26.70	27.23	27.77	28.12	28.47	29.71	25.85	26.41	28.42	29.05	30.04	33.08	***34.95***	***34.65***	Book Value per sh [D]	***34.40***
26.41	26.50	26.53	26.58	26.76	26.92	27.08	27.28	27.43	28.63	28.74	28.88	30.47	30.59	31.13	35.53	***36.50***	***37.50***	Common Shs Outst'g [C]	***40.00***
16.7	18.1	15.2	17.0	19.0	21.1	19.4	20.7	23.7	26.9	- -	26.6	30.9	25.0	19.5	19.6	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	***20.0***
.89	1.09	1.01	1.08	1.19	1.34	1.09	1.09	1.19	1.41	- -	1.44	1.65	1.28	1.06	1.13			Relative P/E Ratio	***1.10***
3.1%	3.3%	3.7%	3.6%	3.9%	3.8%	4.2%	4.1%	4.0%	3.3%	3.0%	3.0%	2.8%	3.3%	3.8%	3.9%			Avg Ann'l Div'd Yield	***2.6%***
						758.5	754.0	723.8	676.0	762.2	706.1	746.4	773.7	860.4	1037.4	***1055***	***1100***	Revenues ($mill)	***1250***
						60.5	58.7	53.7	58.9	d55.6	67.3	65.3	70.3	78.7	86.3	***100***	***105***	Net Profit ($mill)	***125***
						40.8%	41.5%	40.0%	40.9%	- -	26.4%	16.2%	23.1%	25.8%	25.2%	***25.0%***	***25.0%***	Income Tax Rate	***25.0%***
						8.0%	7.8%	7.4%	8.7%	NMF	9.5%	8.8%	9.1%	9.1%	8.3%	***9.5%***	***9.5%***	Net Profit Margin	***10.0%***
						47.6%	44.8%	42.5%	44.4%	47.9%	48.1%	48.2%	49.2%	52.8%	51.5%	***50.0%***	***50.0%***	Long-Term Debt Ratio	***50.0%***
						52.4%	55.2%	57.5%	55.6%	52.1%	51.9%	51.8%	50.8%	47.2%	48.5%	***50.0%***	***50.0%***	Common Equity Ratio	***50.0%***
						1433.6	1389.0	1357.7	1529.8	1426.0	1468.9	1672.0	1748.8	1979.7	2421.6	***2550***	***2600***	Total Capital ($mill)	***2750***
						2062.9	2121.6	2182.7	2260.9	2255.0	2421.4	2438.9	2654.8	2871.4	3114.4	***3250***	***3400***	Net Plant ($mill)	***3750***
						5.8%	5.8%	5.5%	5.1%	NMF	5.8%	5.2%	5.2%	5.1%	3.6%	***4.0%***	***4.0%***	Return on Total Cap'l	***4.5%***
						8.1%	7.6%	6.9%	6.9%	NMF	8.8%	7.5%	7.9%	8.4%	7.3%	***8.0%***	***8.0%***	Return on Shr. Equity	***9.0%***
						8.1%	7.6%	6.9%	6.9%	NMF	8.8%	7.5%	7.9%	8.4%	7.3%	***8.0%***	***8.0%***	Return on Com Equity	***9.0%***
						1.5%	1.1%	.6%	.9%	NMF	2.1%	1.4%	1.7%	2.4%	2.1%	***2.5%***	***3.0%***	Retained to Com Eq	***3.5%***
						81%	85%	92%	87%	NMF	76%	82%	79%	71%	79%	***71%***	***70%***	All Div'ds to Net Prof	***64%***

CAPITAL STRUCTURE as of 3/31/23
Total Debt $1608 mill. **Due in 5 Yrs** $713 mill.
LT Debt $1294.6 mill. **LT Interest** $50 mill.

(Total interest coverage: 3.4x)

Pension Assets-12/22 $300.0 mill.
Oblig. $413.4 mill.

Pfd Stock None

Common Stock 35,965,613 shares
as of 4/27/23

MARKET CAP $1.6 billion (Small Cap)

CURRENT POSITION ($MILL.)	2021	2022	3/31/23
Cash Assets	18.6	29.3	140.8
Other	418.7	714.9	435.4
Current Assets	437.3	744.2	576.2
Accts Payable	133.5	180.7	111.2
Debt Due	389.8	348.9	313.2
Other	201.5	369.1	219.7
Current Liab.	724.8	898.7	644.1
Fix. Chg. Cov.	335%	320%	325%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '20-'22 to '26-'28
Revenues	-2.5%	- -	*4.5%*
"Cash Flow"	1.0%	2.5%	*5.0%*
Earnings	-1.0%	2.5%	*6.5%*
Dividends	1.5%	0.5%	*.5%*
Book Value	1.0%	0.5%	*4.0%*

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2020	285.2	135.0	93.3	260.2	773.7
2021	315.9	148.9	101.5	294.1	860.4
2022	350.3	195.0	116.8	375.3	1037.4
2023	462.4	***222.6***	***125***	***245***	***1055***
2024	***445***	***225***	***130***	***300***	***1100***

Calendar	EARNINGS PER SHARE [A] Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2020	1.58	d.17	d.61	1.50	2.30
2021	1.94	d.02	d.67	1.31	2.56
2022	1.80	.05	d.56	1.36	2.54
2023	2.01	***.09***	***d.65***	***1.25***	***2.70***
2024	***2.10***	***.15***	***d.70***	***1.25***	***2.80***

Calendar	QUARTERLY DIVIDENDS PAID [B] ■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2019	.475	.475	.475	.4775	1.90
2020	.4775	.4775	.4775	.48	1.91
2021	.48	.48	.48	.483	1.92
2022	.483	.483	.483	.485	1.93
2023	.485	.485			

BUSINESS: Northwest Natural Holding Co. distributes natural gas to 1,000 communities, 795,000 customers, in Oregon (88% of customers) and in southwest Washington state. Principal cities served: Portland and Eugene, OR; Vancouver, WA. Service area population: 3.7 mill. (77% in OR). Company buys gas supply from Canadian and U.S. producers; has transportation rights on Northwest Pipeline system. Owns local underground storage. Rev. breakdown: residential, 37%; commercial, 22%; industrial, gas transportation, 41%. Employs 1,258. BlackRock Inc. owns 17.3% of shares; Vanguard, 12.2%; Off./Dir., .95% (4/23 proxy). CEO: David H. Anderson. Inc.: Oregon. Address: 220 NW 2nd Ave., Portland, OR 97209. Tel.: 503-226-4211. Internet: www.nwnatural.com.

Northwest Natural's stock price dropped 8% since our February review, despite strong recent operating performance. The company beat our expectations in both quarters that were reported on in the three months since our last review. Northwest posted fourth-quarter revenues 26% above our estimate and roughly 28% above the year prior period, while share-earnings of $1.36 were 4% above both our target and the year prior. This capped off a year that saw solid top-line growth but tighter profit margins, thanks to the heightened price of natural gas. While net profit grew nearly 10%, share-earnings declined due to dilution.

The utility started 2023 in great form. The top line once again beat our expectation, advancing more than 32% year-over-year, which translated to a 28% increase in net income. At $71.7 million, Northwest generated more profit in one quarter than it had in most full years prior to 2020. Recent regulatory approval of higher base-rates in Oregon and Washington are largely responsible, although weather in the March period (5% colder than average) certainly helped comparisons to the year prior (8% warmer).

The natural gas utility's earnings growth should be steady. Main drivers here include population growth, consolidation through acquisition, and investments in sustainability, all three of which have been very active at Northwest this year. We look for earnings per share to increase by 6% and 4% in each of the next two years, respectively, and by 5.5% on average over the next three to five years.

The extra cash will help diversification efforts for sustainable growth. Northwest aims to expand in its renewables, water, gas storage, and now operations & maintenance businesses. These ventures could help to smooth out the earnings cycle, specifically with September period losses, while expanding the scope of its primary gas utility. A recent string of acquisitions has bolstered growth in the water management business, a segment that interests us for its long-term strategic value potential.

The shares are starting to look attractive as an income generating holding, at the recent quotation.

Earl B. Humes *May 26, 2023*

(A) Diluted earnings per share. Excludes non-recurring items: '06, ($0.06); '08, ($0.03); '09, $0.06; May not sum due to rounding. Next earnings report due in early August.
(B) Dividends historically paid in mid-February, May, August, and November.
■ Dividend reinvestment plan available.
(C) In millions.
(D) Includes intangibles. In 2021: $149 million, $4.20/share.

Company's Financial Strength	A
Stock's Price Stability	85
Price Growth Persistence	35
Earnings Predictability	10

ONE GAS, INC. NYSE-OGS

RECENT PRICE 80.57 | P/E RATIO 19.2 (Trailing: 19.7 Median: NMF) | RELATIVE P/E RATIO 1.16 | DIV'D YLD 3.3% | VALUE LINE

TIMELINESS 3 Raised 5/13/22
SAFETY 2 New 6/2/17
TECHNICAL 2 Raised 5/26/23
BETA .80 (1.00 = Market)

18-Month Target Price Range

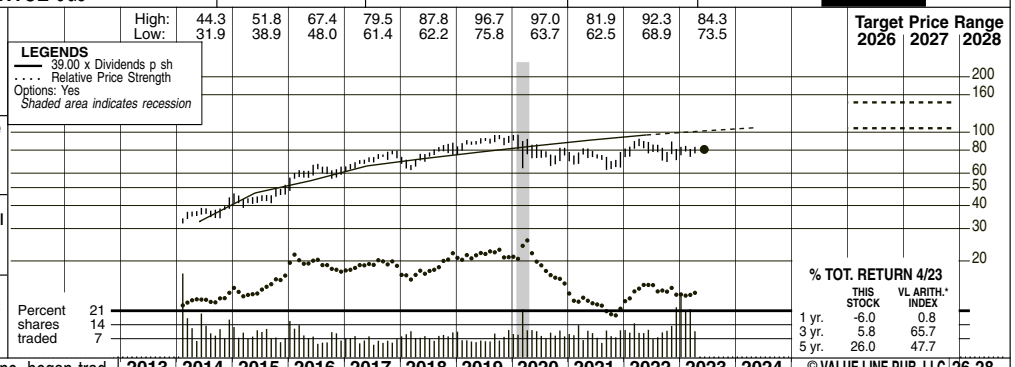
Low-High	Midpoint (% to Mid)
$61-$110	$86 (5%)

2026-28 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	145	(+80%)	*18%*
Low	105	(+30%)	*10%*

Institutional Decisions

	2Q2022	3Q2022	4Q2022
to Buy	171	136	176
to Sell	112	143	132
Hld's(000)	45263	45390	48298



The shares of ONE Gas, Inc. began trading "regular-way" on the New York Stock Exchange on February 3, 2014. That happened as a result of the separation of ONEOK's natural gas distribution operation. Regarding the details of the spinoff, on January 31, 2014, ONEOK distributed one share of OGS common stock for every four shares of ONEOK common stock held by ONEOK shareholders of record as of the close of business on January 21. It should be mentioned that ONEOK did not retain any ownership interest in the new company.

CAPITAL STRUCTURE as of 3/31/23
Total Debt $2962.8 mill. **Due in 5 Yrs** $1250.0 mill.
LT Debt $1875.6 mill. **LT Interest** $115.0 mill.
(LT interest earned: 4.5x; total interest coverage: 4.5x)
Leases, Uncapitalized Annual rentals $6.5 mill.
Pfd Stock None
Pension Assets-12/22 $950.8 mill.
Oblig. $953.0 mill.
Common Stock 55,389,050 shs.

MARKET CAP: $4.5 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2021	2022	3/31/23
Cash Assets	8.9	9.7	7.8
Other	2215.7	1207.9	780.7
Current Assets	2224.6	1217.6	788.5
Accts Payable	258.6	360.5	197.6
Debt Due	494.0	572.7	1087.2
Other	227.9	256.2	257.5
Current Liab.	980.5	1189.4	1542.3
Fix. Chg. Cov.	625%	540%	550%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '20-'22 to '26-'28
Revenues	- -	5.0%	*11.5%*
"Cash Flow"	- -	7.5%	*8.0%*
Earnings	- -	8.0%	*6.5%*
Dividends	- -	10.0%	*5.5%*
Book Value	- -	4.0%	*6.5%*

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2020	528.2	273.3	244.6	484.2	1530.3
2021	625.3	315.6	273.9	593.8	1808.6
2022	971.5	428.9	359.4	818.2	2578.0
2023	1032.1	*470*	*376*	*811.9*	*2690*
2024	*1075*	*515*	*420*	*840*	*2850*

Calendar	EARNINGS PER SHARE [A] Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2020	1.72	.48	.39	1.09	3.68
2021	1.79	.56	.38	1.12	3.85
2022	1.83	.59	.44	1.23	4.08
2023	1.84	*.64*	*.50*	*1.22*	*4.20*
2024	*1.89*	*.68*	*.57*	*1.26*	*4.40*

Calendar	QUARTERLY DIVIDENDS PAID [B] Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2019	.50	.50	.50	.50	2.00
2020	.54	.54	.54	.54	2.16
2021	.58	.58	.58	.58	2.32
2022	.62	.62	.62	.62	2.48
2023	.65	.65			

2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	© VALUE LINE PUB. LLC	26-28
- -	34.92	29.62	27.30	29.43	31.08	31.32	28.78	33.72	46.58	*48.45*	*51.35*	Revenues per sh	*70.15*
- -	4.52	4.82	5.43	5.96	6.32	6.96	7.36	7.71	8.13	*9.35*	*9.95*	"Cash Flow" per sh	*12.20*
- -	2.07	2.24	2.65	3.02	3.25	3.51	3.68	3.85	4.08	*4.20*	*4.40*	Earnings per sh [A]	*5.60*
- -	.84	1.20	1.40	1.68	1.84	2.00	2.16	2.32	2.48	*2.60*	*2.72*	Div'ds Decl'd per sh [B]■	*3.15*
- -	5.70	5.63	5.91	6.81	7.50	7.91	8.87	9.23	11.01	*11.25*	*11.55*	Cap'l Spending per sh	*12.30*
- -	34.45	35.24	36.12	37.47	38.86	40.35	42.01	43.81	46.69	*52.70*	*50.90*	Book Value per sh	*64.45*
- -	52.08	52.26	52.28	52.31	52.57	52.77	53.17	53.63	55.35	*55.50*	*55.50*	Common Shs Outst'g [C]	*57.00*
- -	17.8	19.8	22.7	23.5	23.1	25.3	21.7	18.9	19.9	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*22.5*
- -	.94	1.00	1.19	1.18	1.25	1.35	1.11	1.03	1.16			Relative P/E Ratio	*1.25*
- -	2.3%	2.7%	2.3%	2.4%	2.5%	2.3%	2.7%	3.2%	3.1%			Avg Ann'l Div'd Yield	*2.5%*
- -	1818.9	1547.7	1427.2	1539.6	1633.7	1652.7	1530.3	1808.6	2578.0	*2690*	*2850*	Revenues ($mill)	*4000*
- -	109.8	119.0	140.1	159.9	172.2	186.7	196.4	206.4	221.7	*235*	*245*	Net Profit ($mill)	*320*
- -	38.4%	38.0%	37.8%	36.4%	23.7%	18.7%	17.5%	16.3%	17.3%	*16.5%*	*17.0%*	Income Tax Rate	*22.0%*
- -	6.0%	7.7%	9.8%	10.4%	10.5%	11.3%	12.8%	11.4%	8.6%	*8.7%*	*8.6%*	Net Profit Margin	*8.0%*
- -	40.1%	39.5%	38.7%	37.8%	38.6%	37.7%	41.5%	61.1%	50.7%	*45.0%*	*49.0%*	Long-Term Debt Ratio	*51.0%*
- -	59.9%	60.5%	61.3%	62.2%	61.4%	62.3%	58.5%	39.0%	49.3%	*55.0%*	*51.0%*	Common Equity Ratio	*49.0%*
- -	2995.3	3042.9	3080.7	3153.5	3328.1	3415.5	3815.7	6032.9	5246.2	*5320*	*5540*	Total Capital ($mill)	*7500*
- -	3293.7	3511.9	3731.6	4007.6	4283.7	4565.2	4867.1	5190.8	5628.8	*6000*	*6375*	Net Plant ($mill)	*7400*
- -	4.4%	4.7%	5.2%	5.8%	5.9%	6.4%	6.0%	3.9%	5.0%	*5.5%*	*6.0%*	Return on Total Cap'l	*6.0%*
- -	6.1%	6.5%	7.4%	8.2%	8.4%	8.8%	8.8%	8.8%	8.6%	*8.0%*	*8.5%*	Return on Shr. Equity	*8.5%*
- -	6.1%	6.5%	7.4%	8.2%	8.4%	8.8%	8.8%	8.8%	8.6%	*8.0%*	*8.5%*	Return on Com Equity	*8.5%*
- -	3.7%	3.1%	3.5%	3.7%	3.7%	3.8%	3.7%	3.5%	3.4%	*3.0%*	*3.5%*	Retained to Com Eq	*4.0%*
- -	40%	53%	52%	55%	56%	56%	58%	60%	60%	*61%*	*62%*	All Div'ds to Net Prof	*56%*

BUSINESS: ONE Gas, Inc. provides natural gas distribution services to more than two million customers. There are three divisions: Oklahoma Natural Gas, Kansas Gas Service, and Texas Gas Service. The company purchased 165 Bcf of natural gas supply in 2022, compared to 164 Bcf in 2021. Total volumes delivered by customer (fiscal 2022): transportation, 57.3%; residential, 31.2%; commercial & industrial, 10.8%; other, .7%. ONE Gas has around 3,600 employees. BlackRock owns 12.6% of common stock; The Vanguard Group, 11.5%; State Street Corporation, 11.5%; officers and directors, 1.5% (4/23 Proxy). CEO: Robert S. McAnnally. Incorporated: Oklahoma. Address: 15 East Fifth Street, Tulsa, Oklahoma 74103. Telephone: 918-947-7000. Internet: www.onegas.com.

ONE Gas, Inc. got off to an unspectacular start in 2023. First-quarter earnings per share of $1.84 were just a penny above last year's $1.83 figure. That's attributable partly to higher depreciation expense, reflecting additional assets being placed into service. Employee-related costs and bad debt expense rose, as well. But the company was aided, to some degree, by benefits from new rates. A lower effective income tax rate plus a decrease in COVID-19-related costs also helped. So, at this juncture, it appears that full-year profits will grow at a 3% rate, to $4.20 a share, relative to 2022's $4.08 tally. Regarding 2024, we expect share net to advance at a somewhat stronger 5% rate, to $4.40, assuming further widening of operating margins.

The Financial Strength rating is solid, at B++. When the March period concluded, cash and equivalents were $7.8 million and cash flows were decent. Moreover, ONE Gas had $720 million available (out of $1 billion) under a commercial paper program. The company also possesses a $1 billion revolving credit facility maturing in March, 2028. Lastly, at the end of the first quarter, long-term debt was a manageable 41% of total capital. All told, the energy firm should continue to be able to meet its working capital requirements, capital expenditures, and other commitments with little trouble.

It's important to mention that operations are concentrated in only three states. Moreover, it seems that leadership is content with maintaining the status quo, given that some businesses are in metropolitan areas, such as Austin, Texas; Wichita, Kansas; and Tulsa, Oklahoma. Nonetheless, this lack of geographic diversification leaves the company somewhat more vulnerable to regional economic downturns and regulations.

What about the stock? It offers worthwhile capital appreciation potential over the 2026-2028 horizon. Consider, too, the 2 (Above Average) Safety rank and high Price Stability score of 90 out of 100. But the dividend yield does not stand out from the average yield in our Natural Gas Utility group. Meanwhile, OGS shares are pegged to just approximate the year-ahead market (Timeliness rank 3: Average).

Frederick L. Harris, III *May 26, 2023*

(A) Diluted EPS. Excludes nonrecurring gain: 2017, $0.06. Next earnings report due early Aug. Quarterly EPS figures for 2022 don't equal total due to rounding.
(B) Dividends historically paid in early March, June, Sept., and Dec. ■ Dividend reinvestment plan. Direct stock purchase plan.
(C) In millions.

Company's Financial Strength	B++
Stock's Price Stability	90
Price Growth Persistence	60
Earnings Predictability	100

SPIRE INC. NYSE-SR

RECENT PRICE 68.03 | P/E RATIO 15.9 (Trailing: 14.5 Median: 19.0) | RELATIVE P/E RATIO 0.96 | DIV'D YLD 4.3% | VALUE LINE

TIMELINESS 3 Lowered 5/19/23
SAFETY 2 Raised 6/20/03
TECHNICAL 2 Raised 5/5/23
BETA .80 (1.00 = Market)

18-Month Target Price Range

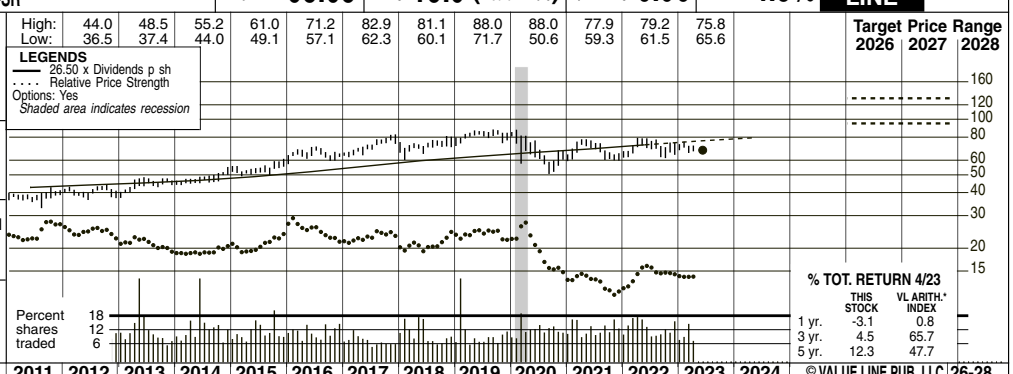
Low-High	Midpoint (% to Mid)
$56-$94	$75 (10%)

2026-28 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	130	(+90%)	*20%*
Low	95	(+40%)	*12%*

Institutional Decisions

	2Q2022	3Q2022	4Q2022
to Buy	145	128	146
to Sell	121	126	122
Hld's(000)	44899	45113	45462



2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	© VALUE LINE PUB. LLC	26-28
93.40	100.44	85.49	77.83	71.48	49.90	31.10	37.68	45.59	33.68	36.07	38.78	38.30	35.96	43.24	41.88	*51.30*	*47.15*	Revenues per sh [A]	*63.65*
3.87	4.22	4.56	4.11	4.62	4.58	3.12	3.87	6.15	6.16	6.54	7.55	7.12	5.25	9.09	8.44	*9.35*	*9.45*	"Cash Flow" per sh	*11.10*
2.31	2.64	2.92	2.43	2.86	2.79	2.02	2.35	3.16	3.24	3.43	4.33	3.52	1.44	4.96	3.95	*4.65*	*4.40*	Earnings per sh [A B]	*5.50*
1.45	1.49	1.53	1.57	1.61	1.66	1.70	1.76	1.84	1.96	2.10	2.25	2.37	2.49	2.60	2.74	*2.88*	*3.00*	Div'ds Decl'd per sh [C ■]	*3.45*
2.72	2.57	2.36	2.56	3.02	4.83	4.00	3.96	6.68	6.42	9.08	9.86	16.15	12.37	12.09	10.52	*13.20*	*13.60*	Cap'l Spending per sh	*12.00*
19.79	22.12	23.32	24.02	25.56	26.67	32.00	34.93	36.30	38.73	41.26	44.51	45.14	44.19	46.74	49.08	*53.40*	*59.75*	Book Value per sh [D]	*67.10*
21.65	21.99	22.17	22.29	22.43	22.55	32.70	43.18	43.36	45.65	48.26	50.67	50.97	51.60	51.70	52.50	*53.00*	*53.00*	Common Shs Outst'g [E]	*55.00*
14.2	14.3	13.4	13.7	13.0	14.5	21.3	19.8	16.5	19.6	19.8	16.7	22.8	51.1	13.6	17.5	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*20.5*
.75	.86	.89	.87	.82	.92	1.20	1.04	.83	1.03	1.00	.90	1.21	2.62	.73	1.01			Relative P/E Ratio	*1.15*
4.4%	3.9%	3.9%	4.7%	4.3%	4.1%	4.0%	3.8%	3.5%	3.1%	3.1%	3.1%	3.0%	3.4%	3.8%	4.0%			Avg Ann'l Div'd Yield	*3.1%*
1017.0	1627.2	1976.4	1537.3	1740.7	1965.0	1952.4	1855.4	2235.5	2198.5	*2720*	*2500*	Revenues ($mill) [A]	*3500*
52.8	84.6	136.9	144.2	161.6	214.2	184.6	88.6	271.7	220.8	*245*	*235*	Net Profit ($mill)	*300*
25.0%	27.6%	31.2%	32.5%	32.4%	NMF	15.7%	12.3%	20.1%	21.1%	*20.0%*	*20.5%*	Income Tax Rate	*25.0%*
5.2%	5.2%	6.9%	9.4%	9.3%	10.9%	9.5%	4.8%	12.2%	10.0%	*9.0%*	*9.4%*	Net Profit Margin	*8.6%*
46.6%	55.1%	53.0%	50.9%	50.0%	45.7%	45.0%	49.0%	52.5%	51.2%	*55.0%*	*52.0%*	Long-Term Debt Ratio	*51.0%*
53.4%	44.9%	47.0%	49.1%	50.0%	54.3%	49.7%	46.1%	43.2%	44.6%	*41.0%*	*44.0%*	Common Equity Ratio	*45.0%*
1959.0	3359.4	3345.1	3601.9	3986.3	4155.5	4625.6	4946.0	5597.3	5777.0	*6900*	*7200*	Total Capital ($mill)	*8200*
1776.6	2759.7	2941.2	3300.9	3665.2	3970.5	4352.0	4680.1	5055.7	5370.4	*5700*	*6000*	Net Plant ($mill)	*7100*
3.3%	3.1%	5.1%	4.9%	5.0%	6.3%	5.1%	2.9%	5.8%	4.9%	*5.0%*	*5.0%*	Return on Total Cap'l	*5.0%*
5.0%	5.6%	8.7%	8.2%	8.1%	9.5%	7.3%	3.5%	10.2%	7.8%	*8.5%*	*7.5%*	Return on Shr. Equity	*8.0%*
5.0%	5.6%	8.7%	8.2%	8.1%	9.5%	7.9%	3.2%	10.6%	8.0%	*8.5%*	*7.5%*	Return on Com Equity	*8.0%*
1.0%	1.5%	3.7%	3.3%	3.3%	4.7%	2.7%	NMF	5.1%	2.5%	*2.5%*	*2.0%*	Retained to Com Eq	*2.5%*
81%	73%	58%	59%	60%	51%	66%	NMF	54%	71%	*68%*	*74%*	All Div'ds to Net Prof	*68%*

CAPITAL STRUCTURE as of 3/31/23
Total Debt $4520.1 mill. **Due in 5 Yrs**$2775.0 mill.
LT Debt $3702.5 mill. **LT Interest** $200.0 mill.
(Total interest coverage: 3.3x)

Leases, Uncapitalized Annual rentals $9.0 mill.
Pension Assets-9/22 $625.9 mill.
Oblig. $882.8 mill.
Pfd Stock $242.0 mill. **Pfd Div'd** $14.8 mill.
Common Stock 52,597,027 shs.
as of 4/30/23

MARKET CAP: $3.6 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2021	2022	3/31/23
Cash Assets	4.3	6.5	6.9
Other	1312.2	1585.5	1104.7
Current Assets	1316.5	1592.0	1111.6
Accts Payable	409.9	617.4	232.3
Debt Due	727.8	1318.7	817.6
Other	470.6	417.5	357.0
Current Liab.	1608.3	2353.6	1406.9
Fix. Chg. Cov.	448%	393%	405%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '20-'22 to '26-'28
Revenues	-5.0%	1.0%	*8.0%*
"Cash Flow"	5.5%	4.0%	*6.5%*
Earnings	2.5%	1.0%	*8.0%*
Dividends	5.0%	6.0%	*5.0%*
Book Value	6.5%	4.0%	*6.5%*

Fiscal Year Ends	QUARTERLY REVENUES ($ mill.)[A] Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2020	566.9	715.5	321.1	251.9	1855.4
2021	512.6	1104.9	327.8	290.2	2235.5
2022	555.4	880.9	448.0	314.2	2198.5
2023	814.0	1123.4	*447.6*	*335*	*2720*
2024	*660*	*1070*	*430*	*340*	*2500*

Fiscal Year Ends	EARNINGS PER SHARE [A B F] Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2020	1.24	2.54	d1.87	d.45	1.44
2021	1.65	3.55	.03	d.26	4.96
2022	1.01	3.27	d.10	d.20	3.95
2023	1.66	3.33	*d.12*	*d.22*	*4.65*
2024	*1.30*	*3.45*	*d.11*	*d.24*	*4.40*

Cal-endar	QUARTERLY DIVIDENDS PAID [C ■] Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2019	.5925	.5925	.5925	.5925	2.37
2020	.6225	.6225	.6225	.6225	2.49
2021	.65	.65	.65	.65	2.60
2022	.685	.685	.685	.685	2.74
2023	.72	.72			

BUSINESS: Spire Inc., formerly known as the Laclede Group, Inc., is a holding company for natural gas utilities, which distributes natural gas across Missouri, including the cities of St. Louis and Kansas City, Alabama, and Mississippi. Has roughly 1.7 million customers. Acquired Missouri Gas 9/13, Alabama Gas Co 9/14. Utility therms sold and transported in fiscal 2022: 3.2 bill. Revenue mix for regulated operations: residential, 73%; commercial and industrial, 17%; transportation, 6%; other, 4%. Officers and directors own 2.9% of common shares; American Century Companies, 14.9% (12/22 proxy). Chairman: Edward Glotzbach; CEO: Suzanne Sitherwood. Inc.: Missouri. Address: 700 Market Street, St. Louis, Missouri 63101. Tel.: 314-342-0500. Internet: www.spireenergy.com.

Spire Inc. continues to perform nicely in fiscal 2023 (which concludes on September 30th). Through the first half, profits of $4.99 per share were 16.6% higher than the previous year's $4.28 total. This was made possible, in part, by the Gas Marketing division, as very favorable market conditions enabled it to optimize storage and transportation positions. Furthermore, results of the Gas Utility unit benefited from higher gas cost recoveries at the Spire Missouri and Spire Alabama utilities (supported by increased average gas costs being passed through to customers). Spire Missouri also enjoyed the effects of implementing 2022 and 2021 rate orders. Lastly, the Midstream segment was aided, to a big degree, by an improved showing from the Spire Storage business. Right now, it appears that full-year earnings per share will recover roughly 18%, to $4.65, compared to the fiscal 2022 figure of $3.95. Concerning next year, the bottom line might fall back around 5%, to $4.40 a share. This is based partially on our assumption that results for the Gas Marketing arm won't be as strong as in the current year.

Corporate finances are sound. When the March period ended, cash and equivalents stood at nearly $7 million. Moreover, there was $1.3 billion available via a revolving credit facility expiring in July, 2027. Too, long-term debt was a manageable 55% of total capital, and short-term obligations were not a major problem. All told, Spire ought to be able to satisfy its commitments for a while.

Prospects out to 2026-2028 seem decent. The gas utilities boast 1.7 million customers in Mississippi, Alabama, and Missouri. Too, the other businesses, particularly pipelines, hold promise. Additional expansionary projects and technological enhancements in customer service and elsewhere should help Spire, as well. Finally, acquisitions are plausible, given the adequate balance sheet.

These good-quality shares offer decent long-term total return potential. The dividend yield compares nicely to those of other equities in *Value Line's* Natural Gas Utility Industry. Moreover, 3- to 5-year capital appreciation possibilities look worthwhile.

Frederick L. Harris, III *May 26, 2023*

(A) Fiscal year ends Sept. 30th. **(B)** Based on diluted shares outstanding. Excludes gain from discontinued operations: '08, 94¢. Next earnings report due late July. **(C)** Dividends paid in early January, April, July, and October. ■ Dividend reinvestment plan available. **(D)** Incl. deferred charges. In '22: $1,171.6 mill., $22.32/sh. **(E)** In millions. **(F)** Qtly. egs. may not sum due to rounding or change in shares outstanding.

Company's Financial Strength	B++
Stock's Price Stability	90
Price Growth Persistence	45
Earnings Predictability	45

Peoples Gas System
Summary of Risk Premium Models for the
Proxy Group of Six Natural Gas Companies

	Proxy Group of Six Natural Gas Companies
Predictive Risk Premium Model (PRPM) (1)	11.82 %
Risk Premium Using an Adjusted Total Market Approach (2)	11.01
Average	11.42 %

Notes:
(1) From page 2 of this Document.
(2) From page 3 of this Document.

Peoples Gas System
Indicated ROE
Derived by the Predictive Risk Premium Model (1)

Proxy Group of Six Natural Gas Companies	[1] LT Average Predicted Variance	[2] Spot Predicted Variance	[3] Recommended Variance (2)	[4] GARCH Coefficient	[5] Predicted Risk Premium (3)	[6] Risk-Free Rate (4)	[7] Indicated ROE (5)
Atmos Energy Corporation	0.34%	0.38%	0.34%	2.2670	9.62%	3.80%	13.42%
New Jersey Resources Corporation	0.39%	0.30%	0.39%	2.1527	10.50%	3.80%	14.30%
Nisource, Inc.	0.48%	0.22%	0.48%	0.8204	4.86%	3.80%	8.66%
Northwest Natural Holding Company	0.33%	0.32%	0.33%	1.4286	5.84%	3.80%	9.64%
ONE Gas, Inc.	0.37%	0.52%	0.37%	3.2473	15.30%	3.80%	NMF
Spire Inc.	0.70%	0.38%	0.70%	0.9425	8.23%	3.80%	12.03%
						Average	11.61%
						Median	12.03%
						Average of Mean and Median	11.82%

Notes:
(1) The Predictive Risk Premium Model uses historical data to generate a predicted variance and a GARCH coefficient. The historical data used are the equity risk premiums for the first available trading month as reported by Bloomberg Professional Service.
(2) In view of current volatility, Mr. D'Ascendis recommends using the long-term predicted variance at this time.
(3) (1+(Column [3] * Column [4])^12) - 1.
(4) From note 2 on page 2 of Document No. 5.
(5) Column [5] + Column [6].

Peoples Gas System
Indicated Common Equity Cost Rate
Through Use of a Risk Premium Model
Using an Adjusted Total Market Approach

Line No.		Proxy Group of Six Natural Gas Companies
1.	Prospective Yield on Aaa Rated Corporate Bonds (1)	4.76 %
2.	Adjustment to Reflect Yield Spread Between Aaa Rated Corporate Bonds and A2 Rated Public Utility Bonds (2)	0.71
3.	Adjusted Prospective Yield on A2 Rated Public Utility Bonds	5.47 %
4.	Equity Risk Premium (3)	5.54
5.	Risk Premium Derived Common Equity Cost Rate	11.01 %

Notes:
(1) Consensus forecast of Moody's Aaa Rated Corporate bonds from Blue Chip Financial Forecasts (see pages 9 and 10 of this Document).
(2) The average yield spread of A2 rated public utility bonds over Aaa rated corporate bonds of 0.71% from page 4 of this Document.
(3) From page 7 of this Document.

Peoples Gas System
Interest Rates and Bond Spreads for
Moody's Corporate and Public Utility Bonds

Selected Bond Yields

	[1] Aaa Rated Corporate Bond	[2] A2 Rated Public Utility Bond	[3] Baa2 Rated Public Utility Bond
May-2023	4.67 %	5.36 %	5.71 %
Apr-2023	4.47	5.13	5.47
Mar-2023	4.60	5.39	5.68
Average	4.58 %	5.29 %	5.62 %

Selected Bond Spreads

A2 Rated Public Utility Bonds Over Aaa Rated Corporate Bonds: 0.71 % (1)

Baa2 Rated Public Utility Bonds Over A2 Rated Public Utility Bonds: 0.33 % (2)

Notes:
(1) Column [2] - Column [1].
(2) Column [3] - Column [2].

Source of Information:
Bloomberg Professional Service

Peoples Gas System
Comparison of Long-Term Issuer Ratings for
Proxy Group of Six Natural Gas Companies

Proxy Group of Six Natural Gas Companies	Moody's Long-Term Issuer Rating June 2023		Standard & Poor's Long-Term Issuer Rating June 2023	
	Long-Term Issuer Rating (1)	Numerical Weighting (2)	Long-Term Issuer Rating (1)	Numerical Weighting (2)
Atmos Energy Corporation	A1	5.0	A-	7.0
New Jersey Resources Corporation	A1	5.0	NR	- -
Nisource, Inc.	Baa1	8.0	BBB+	8.0
Northwest Natural Holding Company	Baa1	8.0	A+	5.0
ONE Gas, Inc.	A3	7.0	A-	7.0
Spire Inc.	A1/A2	5.5	A-	7.0
Average	A2	6.4	A-	6.8

Notes:
(1) Ratings are that of the average of each company's utility operating subsidiaries.
(2) From page 6 of this Document.

Source Information: Moody's Investors Service
Standard & Poor's Global Utilities Rating Service

Numerical Assignment for
Moody's and Standard & Poor's Bond Ratings

Moody's Bond Rating	Numerical Bond Weighting	Standard & Poor's Bond Rating	Numerical Bond Weighting
Aaa	1	AAA	1
Aa1	2	AA+	2
Aa2	3	AA	3
Aa3	4	AA-	4
A1	5	A+	5
A2	6	A	6
A3	7	A-	7
Baa1	8	BBB+	8
Baa2	9	BBB	9
Baa3	10	BBB-	10
Ba1	11	BB+	11
Ba2	12	BB	12
Ba3	13	BB-	13
B1	14	B+	14
B2	15	B	15
B3	16	B-	16

Peoples Gas System
Judgment of Equity Risk Premium for
Proxy Group of Six Natural Gas Companies

Line No.		Proxy Group of Six Natural Gas Companies
1.	Calculated equity risk premium based on the total market using the beta approach (1)	6.89 %
2.	Mean equity risk premium based on a study using the holding period returns of public utilities with A rated bonds (2)	4.83
3.	Predicted Equity Risk Premium Based on Regression Analysis of 821 Fully-Litigated Gas Utility Rate Cases (3)	4.90
4.	Average equity risk premium	5.54 %

Notes: (1) From page 8 of this Document.
(2) From page 11 of this Document.
(3) From page 12 of this Document.

Peoples Gas System
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for the
Proxy Group of Six Natural Gas Companies

Line No.	Equity Risk Premium Measure	Proxy Group of Six Natural Gas Companies
1.	Kroll Equity Risk Premium (1)	5.82 %
2.	Regression on Kroll Risk Premium Data (2)	7.45
3.	Kroll Equity Risk Premium based on PRPM (3)	9.77
4.	Equity Risk Premium Based on Value Line Summary and Index (4)	10.90
5.	Equity Risk Premium Based on Value Line S&P 500 Companies (5)	8.82
6.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	10.92
7.	Conclusion of Equity Risk Premium	8.95 %
8.	Adjusted Beta (7)	0.77
9.	Forecasted Equity Risk Premium	6.89 %

Notes:

(1) Based on the arithmetic mean historical monthly returns on large company common stocks from Kroll® SBBI® 2023 Market Report minus the arithmetic mean monthly yield of Moody's average Aaa and Aa corporate bonds from 1926-2022.

(2) This equity risk premium is based on a regression of the monthly equity risk premiums of large company common stocks relative to Moody's average Aaa and Aa rated corporate bond yields from 1928-2022 referenced in note 1 above.

(3) The Predictive Risk Premium Model (PRPM) is discussed in the accompanying direct testimony. The Kroll equity risk premium based on the PRPM is derived by applying the PRPM to the monthly risk premiums between Kroll large company common stock monthly returns and average Aaa and Aa corporate monthly bond yields, from January 1928 through May 2023.

(4) The equity risk premium based on the Value Line Summary and Index is derived by subtracting the average consensus forecast of Aaa corporate bonds of 4.76% (from page 3 of this Document) from the projected 3-5 year total annual market return of 15.66% (described fully in note 1 on page 2 of Document No. 5).

(5) Using data from Value Line for the S&P 500, an expected total return of 13.58% was derived based upon expected dividend yields as a proxy for income returns and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the average consensus forecast of Aaa corporate bonds of 4.76% results in an expected equity risk premium of 8.82%.

(6) Using data from Bloomberg Professional Service for the S&P 500, an expected total return of 15.68% was derived based upon expected dividend yields as a proxy for income returns and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the average consensus forecast of Aaa corporate bonds of 4.76% results in an expected equity risk premium of 10.92%.

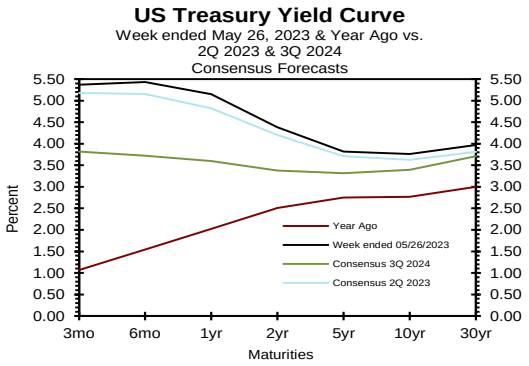
(7) Average of mean and median beta from page 1 of Document No. 5.

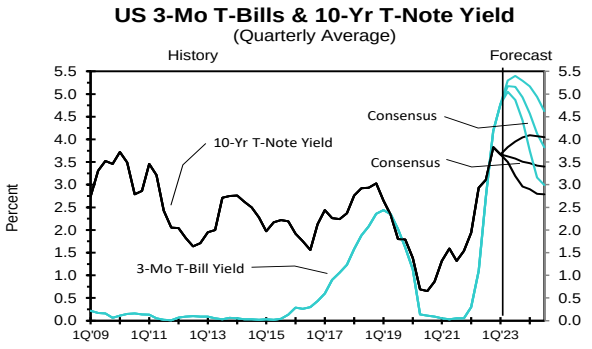
Sources of Information:
Stocks, Bonds, Bills, and Inflation - 2023 SBBI Yearbook, Kroll, Inc.
Industrial Manual and Mergent Bond Record Monthly Update.
Value Line Summary and Index
Blue Chip Financial Forecasts, June 1, 2023
Bloomberg Professional Service

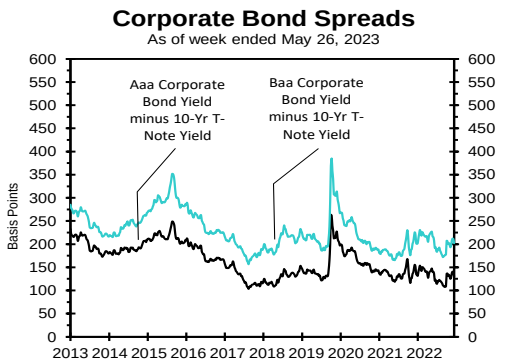
Consensus Forecasts of U.S. Interest Rates and Key Assumptions

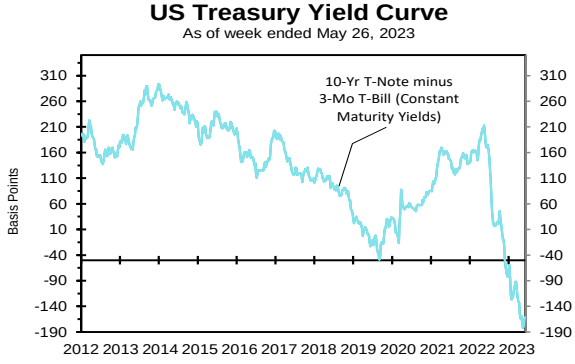
	History								Consensus Forecasts-Quarterly Avg.					
	Average For Week Ending				Average For Month			*Latest Qtr*	2Q	3Q	4Q	1Q	2Q	3Q
Interest Rates	May 26	May 19	May 12	May 5	Apr	Mar	Feb	1Q 2023	2023	2023	2023	2024	2024	2024
Federal Funds Rate	5.08	5.08	5.08	4.83	4.83	4.65	4.57	4.52	**5.0**	**5.1**	**5.0**	**4.6**	**4.2**	**3.9**
Prime Rate	8.25	8.25	8.25	8.00	8.00	7.82	7.74	7.69	**8.2**	**8.2**	**8.1**	**7.8**	**7.3**	**7.0**
SOFR	5.05	5.05	5.06	4.91	4.81	4.64	4.54	4.49	**5.0**	**5.1**	**4.9**	**4.6**	**4.2**	**3.9**
Commercial Paper, 1-mo.	5.10	5.07	5.04	5.00	4.82	4.74	4.55	4.54	**5.1**	**5.1**	**4.9**	**4.5**	**4.1**	**3.9**
Treasury bill, 3-mo.	5.37	5.26	5.26	5.26	5.07	4.86	4.79	4.78	**5.2**	**5.2**	**4.9**	**4.6**	**4.1**	**3.8**
Treasury bill, 6-mo.	5.43	5.31	5.15	5.09	4.99	4.99	4.97	4.92	**5.2**	**5.1**	**4.8**	**4.4**	**4.0**	**3.7**
Treasury bill, 1 yr.	5.15	4.91	4.75	4.72	4.68	4.68	4.93	4.77	**4.8**	**4.7**	**4.4**	**4.1**	**3.8**	**3.6**
Treasury note, 2 yr.	4.38	4.14	3.96	3.93	4.02	4.30	4.53	4.35	**4.2**	**4.1**	**3.9**	**3.7**	**3.5**	**3.4**
Treasury note, 5 yr.	3.82	3.60	3.44	3.43	3.54	3.82	3.94	3.80	**3.7**	**3.7**	**3.6**	**3.5**	**3.4**	**3.3**
Treasury note, 10 yr.	3.76	3.59	3.47	3.44	3.46	3.66	3.75	3.65	**3.6**	**3.6**	**3.5**	**3.5**	**3.4**	**3.4**
Treasury note, 30 yr.	3.97	3.89	3.80	3.75	3.68	3.77	3.80	3.74	**3.8**	**3.8**	**3.8**	**3.8**	**3.8**	**3.7**
Corporate Aaa bond	5.07	4.98	4.88	4.82	4.76	4.92	4.87	4.84	**4.8**	**4.8**	**4.8**	**4.7**	**4.6**	**4.6**
Corporate Baa bond	5.78	5.70	5.59	5.52	5.44	5.61	5.50	5.49	**5.8**	**5.9**	**5.9**	**5.7**	**5.6**	**5.5**
State & Local bonds	4.36	4.19	4.11	4.13	4.07	4.23	4.16	4.15	**4.0**	**4.1**	**4.1**	**4.0**	**3.9**	**3.9**
Home mortgage rate	6.57	6.39	6.35	6.39	6.34	6.54	6.26	6.36	**6.4**	**6.3**	**6.2**	**6.0**	**5.9**	**5.7**
	History								Consensus Forecasts-Quarterly					
	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
Key Assumptions	2021	2021	2021	2022	2022	2022	2022	2023	2023	2023	2023	2024	2024	2024
Fed's AFE $ Index	102.8	104.9	106.9	108.3	113.5	118.8	119.8	115.5	**115.4**	**114.4**	**114.0**	**113.6**	**113.5**	**113.5**
Real GDP	7.0	2.7	7.0	-1.6	-0.6	3.2	2.6	1.3	**0.8**	**-0.4**	**-0.1**	**0.8**	**1.3**	**1.9**
GDP Price Index	6.3	6.2	6.8	8.3	9.0	4.4	3.9	4.2	**3.3**	**2.8**	**2.7**	**2.5**	**2.5**	**2.2**
Consumer Price Index	7.5	6.6	8.8	9.2	9.7	5.5	4.2	3.8	**3.3**	**3.0**	**2.8**	**2.5**	**2.4**	**2.4**
PCE Price Index	6.4	5.6	6.2	7.5	7.3	4.3	3.7	4.2	**3.0**	**2.8**	**2.6**	**2.4**	**2.2**	**2.2**

Forecasts for interest rates and the Federal Reserve's Advanced Foreign Economies Index represent averages for the quarter. Forecasts for Real GDP, GDP Price Index, CPI and PCE Price Index are seasonally adjusted annual rates of change (saar). Individual panel members' forecasts are on pages 4 through 9. Historical data: Treasury rates from the Federal Reserve Board's H.15; AAA-AA and A-BBB corporate bond yields from Bank of America-Merrill Lynch and are 15+ years, yield to maturity; State and local bond yields from Bank of America-Merrill Lynch, A-rated, yield to maturity; Mortgage rates from Freddie Mac, 30-year, fixed; SOFR from the New York Fed. All interest rate data are sourced from Haver Analytics. Historical data for Fed's Major Currency Index are from FRSR H.10. Historical data for Real GDP, GDP Price Index and PCE Price Index are from the Bureau of Economic Analysis (BEA). Consumer Price Index history is from the Department of Labor's Bureau of Labor Statistics (BLS).









Long-Range Survey:

The table below contains the results of our twice-annual long-range CONSENSUS survey. There are also Top 10 and Bottom 10 averages for each variable. Shown are consensus estimates for the years 2024 through 2029 and averages for the five-year periods 2025-2029 and 2030-2034. Apply these projections cautiously. Few if any economic, demographic and political forces can be evaluated accurately over such long time spans.

		Average For The Year						Five-Year Averages	
		2024	2025	2026	2027	2028	2029	2025-2029	2030-2034
1. Federal Funds Rate	**CONSENSUS**	**3.9**	**3.0**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**
	Top 10 Average	4.6	3.5	3.2	3.2	3.2	3.1	3.2	3.1
	Bottom 10 Average	3.1	2.4	2.3	2.2	2.2	2.3	2.3	2.3
2. Prime Rate	**CONSENSUS**	**7.0**	**6.0**	**5.8**	**5.8**	**5.7**	**5.8**	**5.8**	**5.8**
	Top 10 Average	7.7	6.6	6.2	6.3	6.2	6.1	6.3	6.2
	Bottom 10 Average	6.3	5.5	5.4	5.3	5.3	5.4	5.4	5.4
3. SOFR	**CONSENSUS**	**3.8**	**2.9**	**2.6**	**2.7**	**2.6**	**2.6**	**2.7**	**2.6**
	Top 10 Average	4.5	3.4	3.0	3.1	3.0	2.9	3.1	3.0
	Bottom 10 Average	3.2	2.4	2.3	2.2	2.2	2.3	2.3	2.3
4. Commercial Paper, 1-Mo	**CONSENSUS**	**3.7**	**2.9**	**2.7**	**2.8**	**2.8**	**2.8**	**2.8**	**2.8**
	Top 10 Average	4.3	3.3	3.0	3.1	3.0	3.0	3.1	3.0
	Bottom 10 Average	3.3	2.6	2.4	2.4	2.4	2.6	2.5	2.5
5. Treasury Bill Yield, 3-Mo	**CONSENSUS**	**3.8**	**2.9**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**
	Top 10 Average	4.4	3.4	3.1	3.2	3.2	3.0	3.2	3.1
	Bottom 10 Average	3.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3
6. Treasury Bill Yield, 6-Mo	**CONSENSUS**	**3.8**	**3.0**	**2.8**	**2.8**	**2.8**	**2.8**	**2.8**	**2.8**
	Top 10 Average	4.4	3.5	3.2	3.3	3.2	3.1	3.2	3.1
	Bottom 10 Average	3.1	2.5	2.4	2.4	2.4	2.5	2.4	2.5
7. Treasury Bill Yield, 1-Yr	**CONSENSUS**	**3.6**	**3.0**	**2.9**	**2.9**	**2.9**	**2.9**	**2.9**	**2.9**
	Top 10 Average	4.3	3.5	3.3	3.4	3.3	3.2	3.3	3.3
	Bottom 10 Average	3.0	2.5	2.5	2.5	2.5	2.6	2.5	2.6
8. Treasury Note Yield, 2-Yr	**CONSENSUS**	**3.4**	**3.0**	**3.0**	**3.1**	**3.0**	**3.0**	**3.0**	**3.1**
	Top 10 Average	4.0	3.5	3.5	3.5	3.5	3.4	3.5	3.5
	Bottom 10 Average	2.8	2.6	2.6	2.6	2.5	2.7	2.6	2.7
9. Treasury Note Yield, 5-Yr	**CONSENSUS**	**3.4**	**3.1**	**3.2**	**3.2**	**3.3**	**3.2**	**3.2**	**3.3**
	Top 10 Average	4.0	3.6	3.7	3.8	3.8	3.6	3.7	3.8
	Bottom 10 Average	2.8	2.7	2.7	2.7	2.8	2.8	2.7	2.8
10. Treasury Note Yield, 10-Yr	**CONSENSUS**	**3.4**	**3.3**	**3.4**	**3.5**	**3.5**	**3.5**	**3.4**	**3.6**
	Top 10 Average	3.9	3.7	4.0	4.1	4.1	4.0	4.0	4.2
	Bottom 10 Average	3.0	3.0	2.9	2.9	3.0	3.0	3.0	3.1
11. Treasury Bond Yield, 30-Yr	**CONSENSUS**	**3.8**	**3.6**	**3.7**	**3.8**	**3.9**	**3.8**	**3.8**	**3.9**
	Top 10 Average	4.2	4.0	4.2	4.3	4.3	4.2	4.2	4.5
	Bottom 10 Average	3.4	3.3	3.3	3.3	3.4	3.4	3.3	3.4
12. Corporate Aaa Bond Yield	**CONSENSUS**	**4.7**	**4.6**	**4.7**	**4.8**	**4.9**	**4.8**	**4.8**	**5.0**
	Top 10 Average	5.1	4.9	5.2	5.4	5.4	5.3	5.2	5.6
	Bottom 10 Average	4.3	4.3	4.2	4.3	4.3	4.3	4.3	4.3
13. Corporate Baa Bond Yield	**CONSENSUS**	**5.8**	**5.6**	**5.7**	**5.8**	**5.8**	**5.8**	**5.7**	**5.9**
	Top 10 Average	6.1	5.9	6.1	6.3	6.3	6.2	6.1	6.5
	Bottom 10 Average	5.3	5.3	5.3	5.3	5.4	5.3	5.3	5.4
14. State & Local Bonds Yield	**CONSENSUS**	**4.0**	**3.8**	**4.0**	**4.1**	**4.1**	**4.1**	**4.0**	**4.2**
	Top 10 Average	4.3	4.1	4.3	4.4	4.5	4.3	4.3	4.5
	Bottom 10 Average	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.8
15. Home Mortgage Rate	**CONSENSUS**	**5.7**	**5.4**	**5.4**	**5.4**	**5.5**	**5.4**	**5.4**	**5.5**
	Top 10 Average	6.4	5.9	6.0	6.1	6.1	5.9	6.0	6.1
	Bottom 10 Average	5.1	4.9	4.7	4.8	4.8	4.9	4.8	4.9
A. Fed's AFE Nominal $ Index	**CONSENSUS**	**113.5**	**111.8**	**111.8**	**110.9**	**110.1**	**110.1**	**111.0**	**110.0**
	Top 10 Average	115.5	114.2	115.1	114.7	114.3	115.2	114.7	115.3
	Bottom 10 Average	111.5	109.5	108.4	107.5	106.3	105.8	107.5	105.3
		Year-Over-Year, % Change						Five-Year Averages	
		2024	2025	2026	2027	2028	2029	2025-2029	2030-2034
B. Real GDP	**CONSENSUS**	**1.1**	**2.1**	**2.2**	**2.1**	**2.0**	**1.9**	**2.1**	**2.0**
	Top 10 Average	2.0	2.5	2.7	2.5	2.3	2.1	2.4	2.3
	Bottom 10 Average	0.4	1.7	1.8	1.8	1.7	1.7	1.7	1.7
C. GDP Chained Price Index	**CONSENSUS**	**2.5**	**2.3**	**2.2**	**2.2**	**2.1**	**2.1**	**2.2**	**2.2**
	Top 10 Average	3.0	2.7	2.5	2.5	2.3	2.3	2.5	2.4
	Bottom 10 Average	2.1	1.9	1.9	1.9	2.0	2.0	1.9	1.9
D. Consumer Price Index	**CONSENSUS**	**2.6**	**2.3**	**2.2**	**2.2**	**2.2**	**2.1**	**2.2**	**2.2**
	Top 10 Average	3.0	2.7	2.5	2.5	2.3	2.3	2.5	2.4
	Bottom 10 Average	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
E. PCE Price Index	**CONSENSUS**	**2.4**	**2.2**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**
	Top 10 Average	2.9	2.5	2.4	2.3	2.2	2.2	2.3	2.3
	Bottom 10 Average	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9

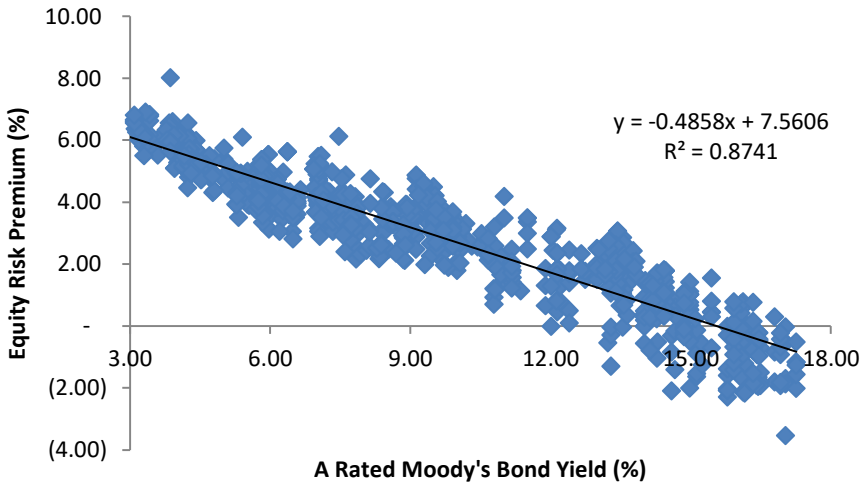
Peoples Gas System
Derivation of Mean Equity Risk Premium Based Studies
Using Holding Period Returns and
Projected Market Appreciation of the S&P Utility Index

Line No.	Equity Risk Premium based on S&P Utility Index Holding Period Returns (1):	Implied Equity Risk Premium
1.	Historical Equity Risk Premium	4.20 %
2.	Regression of Historical Equity Risk Premium (2)	5.14
3.	Forecasted Equity Risk Premium Based on PRPM (3)	5.44
4.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Value Line Data) (4)	4.56
5.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Bloomberg Data) (5)	NMF
6.	Average Equity Risk Premium (6)	4.83 %

NMF = Non-Meaningful Figure

Notes:
(1) Based on S&P Public Utility Index monthly total returns and Moody's Public Utility Bond average monthly yields from 1928-2022. Holding period returns are calculated based upon income received (dividends and interest) plus the relative change in the market value of a security over a one-year holding period.
(2) This equity risk premium is based on a regression of the monthly equity risk premiums of the S&P Utility Index relative to Moody's A2 rated public utility bond yields from 1928 - 2022 referenced in note 1 above.
(3) The Predictive Risk Premium Model (PRPM) is applied to the risk premium of the monthly total returns of the S&P Utility Index and the monthly yields on Moody's A2 rated public utility bonds from January 1928 - May 2023.
(4) Using data from Value Line for the S&P Utilities Index, an expected total return of 10.03% was derived based upon expected dividend yields as a proxy for income returns and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the expected A2 rated public utility bond yield of 5.47% results in an expected equity risk premium of 4.56%. (10.03% - 5.47 = 4.56%)
(5) Using data from Bloomberg Professional Service for the S&P Utilities Index, an expected return of 4.44% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation. Subtracting the expected A2 rated public utility bond yield of 5.47%, calculated on line 3 of page 3 of this Document results in an equity risk premium of -1.03%. (4.44% - 5.47% = -1.03%) Because a negative risk premium is inconsistent with financial theory, it is not included in the final average.
(6) Average of lines 1 through 5.

Peoples Gas System
Prediction of Equity Risk Premiums Relative to
Moody's A2 Rated Utility Bond Yields



Constant	Slope	Prospective A2 Rated Utility Bond (1)	Prospective Equity Risk Premium
7.5606 %	-0.4858	5.47 %	4.90 %

Notes:
(1) From line 3 of page 3 of this Document.

Source of Information: Regulatory Research Associates

Peoples Gas System
Indicated Common Equity Cost Rate Through Use
of the Traditional Capital Asset Pricing Model (CAPM) and Empirical Capital Asset Pricing Model (ECAPM)

Proxy Group of Six Natural Gas Companies	[1] Value Line Adjusted Beta	[2] Bloomberg Adjusted Beta	[3] Average Beta	[4] Market Risk Premium (1)	[5] Risk-Free Rate (2)	[6] Traditional CAPM Cost Rate	[7] ECAPM Cost Rate	[8] Indicated Common Equity Cost
Atmos Energy Corporation	0.85	0.73	0.79	10.01 %	3.80 %	11.71 %	12.24 %	11.97 %
New Jersey Resources Corporation	0.95	0.73	0.84	10.01	3.80	12.21	12.61	12.41
Nisource, Inc.	0.85	0.74	0.79	10.01	3.80	11.71	12.24	11.97
Northwest Natural Holding Company	0.80	0.60	0.70	10.01	3.80	10.81	11.56	11.18
ONE Gas, Inc.	0.80	0.63	0.71	10.01	3.80	10.91	11.63	11.27
Spire Inc.	0.80	0.68	0.74	10.01	3.80	11.21	11.86	11.53
Mean			0.76			11.43 %	12.02 %	11.72 %
Median			0.77			11.46 %	12.05 %	11.75 %
Average of Mean and Median			0.77			11.45 %	12.04 %	11.74 %

Notes on page 2 of this Document.

Peoples Gas System
Notes to Accompany the Application of the CAPM and ECAPM

Notes:

(1) The market risk premium (MRP) is derived by using six different measures from three sources: Kroll, Value Line, and Bloomberg as illustrated below:

Historical Data MRP Estimates:

Measure 1: Kroll Arithmetic Mean MRP (1926-2022)

Arithmetic Mean Monthly Returns for Large Stocks 1926-2022:	12.03 %
Arithmetic Mean Income Returns on Long-Term Government Bonds:	5.00
MRP based on Kroll Historical Data:	7.03 %

Measure 2: Application of a Regression Analysis to Kroll Historical Data (1926-2022) 8.65 %

Measure 3: Application of the PRPM to Kroll Historical Data: (January 1926 - May 2023) 10.88 %

Value Line MRP Estimates:

Measure 4: Value Line Projected MRP (Thirteen weeks ending June 16, 2023)

Total projected return on the market 3-5 years hence*:	15.66 %
Projected Risk-Free Rate (see note 2):	3.80
MRP based on Value Line Summary & Index:	11.86 %

*Forecasted 3-5 year capital appreciation plus expected dividend yield

Measure 5: Value Line Projected Return on the Market based on the S&P 500

Total return on the Market based on the S&P 500:	13.58 %
Projected Risk-Free Rate (see note 2):	3.80
MRP based on Value Line data	9.78 %

Measure 6: Bloomberg Projected MRP

Total return on the Market based on the S&P 500:	15.68 %
Projected Risk-Free Rate (see note 2):	3.80
MRP based on Bloomberg data	11.88 %

Average of Value Line, Kroll, and Bloomberg MRP: 10.01 %

(2) For reasons explained in the direct testimony, the appropriate risk-free rate for cost of capital purposes is the average forecast of 30 year Treasury Bonds per the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts. (See pages 9 and 10 of Document No. 4.) The projection of the risk-free rate is illustrated below:

Second Quarter 2023	3.80 %
Third Quarter 2023	3.80
Fourth Quarter 2023	3.80
First Quarter 2024	3.80
Second Quarter 2024	3.80
Third Quarter 2024	3.70
2025-2029	3.80
2030-2034	3.90
	3.80 %

(3) Average of Column [6] and Column [7].

Sources of Information:
Value Line Summary and Index
Blue Chip Financial Forecasts, June 1, 2023
Stocks, Bonds, Bills, and Inflation - 2023 SBBI Yearbook, Kroll, Inc.
Bloomberg Professional Services

Peoples Gas System
Basis of Selection of the Group of Non-Price Regulated Companies
Comparable in Total Risk to the Utility Proxy Group

The criteria for selection of the proxy group of non-price regulated companies comparable in total risk to the Utility Proxy Group were that the non-price regulated companies be domestic and reported in Value Line Investment Survey (Standard Edition).

The proxy group of non-price regulated companies was selected based on the unadjusted beta range of 0.58 – 0.86 and residual standard error of the regression range of 2.8160 – 3.3584 of the Utility Proxy Group

These ranges are based upon plus or minus two standard deviations of the unadjusted beta and standard error of the regression. Plus or minus two standard deviations captures 95.50% of the distribution of unadjusted betas and residual standard errors of the regression.

The standard deviation of the Utility Proxy Group's residual standard errors of the regression is 0.1356. The standard deviation of the standard error of the regression is calculated as follows:

$$\text{Standard Deviation of the Std. Err. of the Regr.} = \frac{\text{Standard Error of the Regression}}{\sqrt{2N}}$$

where: N = number of observations. Since Value Line betas are derived from weekly price change observations over a period of five years, N = 259

$$\text{Thus, } 0.1356 = \frac{3.0872}{\sqrt{518}} = \frac{3.0872}{22.7596}$$

Source of Information: Value Line, Inc., June 2023
Value Line Investment Survey (Standard Edition)

Peoples Gas System
Basis of Selection of Comparable Risk
Domestic Non-Price Regulated Companies

Proxy Group of Six Natural Gas Companies	[1] Value Line Adjusted Beta	[2] Unadjusted Beta	[3] Residual Standard Error of the Regression	[4] Standard Deviation of Beta
Atmos Energy Corporation	0.85	0.70	2.9159	0.0641
New Jersey Resources Corporation	0.95	0.87	3.1807	0.0699
Nisource, Inc.	0.85	0.76	2.6599	0.0585
Northwest Natural Holding Company	0.80	0.66	3.4174	0.0751
ONE Gas, Inc.	0.80	0.66	3.1969	0.0703
Spire Inc.	0.80	0.69	3.1526	0.0693
Average	0.84	0.72	3.0872	0.0679
Beta Range (+/- 2 Std. Devs. of Beta)	0.58	0.86		
2 Std. Devs. of Beta	0.14			
Residual Std. Err. Range (+/- 2 Std. Devs. of the Residual Std. Err.)	2.8160	3.3584		
Std. Dev. of the Res. Std. Err.	0.1356			
2 Std. Devs. of the Res. Std. Err.	0.2712			

Source of Information: Value Line Proprietary Database, June 2023

Peoples Gas System
Proxy Group of Non-Price Regulated Companies
Comparable in Total Risk to the
Proxy Group of Six Natural Gas Companies

Proxy Group of Forty-Six Non-Price Regulated Companies	[1] Value Line Adjusted Beta	[2] Unadjusted Beta	[3] Residual Standard Error of the Regression	[4] Standard Deviation of Beta
Abbott Labs.	0.90	0.81	3.3498	0.0737
AbbVie Inc.	0.85	0.73	3.2239	0.0709
Agilent Technologies	0.95	0.86	2.8174	0.0620
Air Products & Chem.	0.90	0.83	2.8706	0.0631
Alphabet Inc.	0.90	0.81	3.0042	0.0661
Altria Group	0.85	0.76	3.1089	0.0684
AmerisourceBergen	0.80	0.69	3.0890	0.0679
Assurant Inc.	0.90	0.81	3.3239	0.0731
AutoZone Inc.	0.95	0.85	3.2262	0.0709
Becton, Dickinson	0.75	0.60	2.9735	0.0654
Booz Allen Hamilton	0.85	0.73	2.9041	0.0639
Broadridge Fin'l	0.90	0.80	2.9031	0.0638
CACI Int'l	0.90	0.79	3.2678	0.0719
Casey's Gen'l Stores	0.90	0.79	3.2135	0.0707
Check Point Software	0.75	0.61	2.9399	0.0646
Chemed Corp.	0.80	0.62	2.8651	0.0630
CSG Systems Int'l	0.75	0.60	3.0717	0.0675
CSW Industrials	0.90	0.78	3.0735	0.0676
Exponent, Inc.	0.95	0.85	3.0031	0.0660
Fastenal Co.	0.90	0.83	2.8974	0.0637
Franklin Electric	0.90	0.83	3.3461	0.0736
Henry (Jack) & Assoc	0.85	0.72	3.0950	0.0681
L3Harris Technologie	0.90	0.81	3.0446	0.0669
Landstar System	0.80	0.64	2.9536	0.0649
Lockheed Martin	0.90	0.81	3.2180	0.0708
McCormick & Co.	0.80	0.63	3.1425	0.0691
McKesson Corp.	0.85	0.76	3.2934	0.0761
Monster Beverage	0.85	0.72	2.9689	0.0653
MSC Industrial Direc	0.95	0.85	3.1768	0.0699
NewMarket Corp.	0.75	0.60	2.9107	0.0640
Oracle Corp.	0.85	0.72	2.8385	0.0624
O'Reilly Automotive	0.90	0.84	3.1802	0.0699
OSI Systems	0.90	0.80	2.8765	0.0633
Pfizer, Inc.	0.80	0.67	3.0166	0.0663
Progressive Corp.	0.75	0.59	3.1020	0.0682
Quest Diagnostics	0.80	0.63	3.3323	0.0733
Selective Ins. Group	0.85	0.76	3.0143	0.0663
Service Corp. Int'l	0.90	0.84	2.9498	0.0649
Sirius XM Holdings	0.95	0.85	3.0127	0.0662
Smith (A.O.)	0.90	0.79	3.0652	0.0674
Stepan Company	0.80	0.64	3.2411	0.0713
UniFirst Corp.	0.90	0.82	3.1595	0.0695
VeriSign Inc.	0.95	0.86	2.9256	0.0643
Waters Corp.	0.95	0.85	3.0646	0.0674
Watsco, Inc.	0.90	0.77	3.2201	0.0708
Western Union	0.85	0.72	2.8812	0.0634
Average	0.87	0.75	3.0686	0.0676
Proxy Group of Six Natural Gas Companies	0.84	0.72	3.0872	0.0679

Source of Information: Value Line Proprietary Database, June 2023

Peoples Gas System
Summary of Cost of Equity Models Applied to
Proxy Group of Forty-Six Non-Price Regulated Companies
Comparable in Total Risk to the
Proxy Group of Six Natural Gas Companies

Principal Methods	Proxy Group of Forty-Six Non-Price Regulated Companies
Discounted Cash Flow Model (DCF) (1)	10.45 %
Risk Premium Model (RPM) (2)	13.19
Capital Asset Pricing Model (CAPM) (3)	12.42
Mean	12.02 %
Median	12.42 %
Average of Mean and Median	12.22 %

Notes:
(1) From page 2 of this Document.
(2) From page 3 of this Document.
(3) From page 6 of this Document.

Peoples Gas System
DCF Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the
Proxy Group of Six Natural Gas Companies

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Proxy Group of Forty-Six Non-Price Regulated Companies	Average Dividend Yield	Value Line Projected Five Year Growth in EPS	Zack's Five Year Projected Growth Rate in EPS	Yahoo! Finance Projected Five Year Growth in EPS	Average Projected Five Year Growth Rate in EPS	Adjusted Dividend Yield	Indicated Common Equity Cost Rate (1)
Abbott Labs.	1.93 %	4.50 %	5.10 %	(2.70) %	4.80 %	1.98 %	6.78 %
AbbVie Inc.	3.96	2.00	5.00	(4.10)	3.50	4.03	7.53
Agilent Technologies	0.69	13.50	11.00	11.66	12.05	0.73	12.78
Air Products & Chem.	2.48	10.50	9.50	9.38	9.79	2.60	12.39
Alphabet Inc.	-	10.50	14.50	17.61	14.20	-	NA
Altria Group	8.29	6.00	4.00	3.42	4.47	8.48	12.95
AmerisourceBergen	1.15	8.50	8.90	7.63	8.34	1.20	9.54
Assurant Inc.	2.27	10.50	11.60	11.60	11.23	2.40	13.63
AutoZone Inc.	-	13.00	12.50	9.95	11.82	-	NA
Becton, Dickinson	1.44	5.00	10.10	9.85	8.32	1.50	9.82
Booz Allen Hamilton	1.95	8.00	10.20	9.75	9.32	2.04	11.36
Broadridge Fin'l	1.95	8.50	NA	11.80	10.15	2.05	12.20
CACI Int'l	-	7.00	8.00	6.70	7.23	-	NA
Casey's Gen'l Stores	0.77	7.00	NA	11.60	9.30	0.81	10.11
Check Point Software	-	8.50	7.30	6.39	7.40	-	NA
Chemed Corp.	0.28	6.50	8.80	8.80	8.03	0.29	8.32
CSG Systems Int'l	2.19	15.50	NA	6.30	10.90	2.31	13.21
CSW Industrials	0.54	11.50	NA	12.00	11.75	0.57	12.32
Exponent, Inc.	1.11	12.00	NA	15.00	13.50	1.18	14.68
Fastenal Co.	2.59	6.50	9.00	6.33	7.28	2.68	9.96
Franklin Electric	0.97	10.00	12.00	13.40	11.80	1.03	12.83
Henry (Jack) & Assoc	1.35	7.00	7.30	7.30	7.20	1.40	8.60
L3Harris Technologie	2.39	19.50	2.60	1.14	7.75	2.48	10.23
Landstar System	0.67	2.50	12.00	12.00	8.83	0.70	9.53
Lockheed Martin	2.57	7.00	6.20	10.89	8.03	2.67	10.70
McCormick & Co.	1.80	4.50	7.50	7.40	6.47	1.86	8.33
McKesson Corp.	0.58	9.00	10.80	11.22	10.34	0.61	10.95
Monster Beverage	-	11.00	22.90	25.68	19.86	-	NA
MSC Industrial Direc	3.51	6.00	NA	9.12	7.56	3.64	11.20
NewMarket Corp.	2.34	(0.50)	NA	7.70	7.70	2.43	10.13
Oracle Corp.	1.61	10.00	8.00	11.46	9.82	1.69	11.51
O'Reilly Automotive	-	12.00	13.20	11.20	12.13	-	NA
OSI Systems	-	10.50	11.00	8.00	9.83	-	NA
Pfizer, Inc.	4.17	2.00	9.00	(14.94)	5.50	4.28	9.78
Progressive Corp.	0.30	12.00	25.60	26.80	21.47	0.33	NMF
Quest Diagnostics	2.06	4.00	NA	(0.47)	4.00	2.10	6.10
Selective Ins. Group	1.22	15.00	19.30	13.40	15.90	1.32	NMF
Service Corp. Int'l	1.61	5.00	8.20	12.00	8.40	1.68	10.08
Sirius XM Holdings	2.58	28.50	7.10	6.41	14.00	2.76	16.76
Smith (A.O.)	1.76	9.50	9.00	8.00	8.83	1.84	10.67
Stepan Company	1.52	7.50	NA	4.40	5.95	1.57	7.52
UniFirst Corp.	0.73	9.00	NA	10.00	9.50	0.76	10.26
VeriSign Inc.	-	13.00	NA	8.00	10.50	-	NA
Waters Corp.	-	10.00	7.50	7.66	8.39	-	NA
Watsco, Inc.	2.96	12.00	NA	4.42	8.21	3.08	11.29
Western Union	8.20	(0.50)	NA	0.31	0.31	8.21	8.52
						Mean	10.64 %
						Median	10.26 %
						Average of Mean and Median	10.45 %

NA= Not Available
NMF= Not Meaningful Figure

(1) The application of the DCF model to the domestic, non-price regulated comparable risk companies is identical to the application of the DCF to the Utility Proxy Group. The dividend yield is derived by using the 60 day average price and the spot indicated dividend as of June 16, 2023. The dividend yield is then adjusted by 1/2 the average projected growth rate in EPS, which is calculated by averaging the 5 year projected growth in EPS provided by Value Line, www.zacks.com, and www.yahoo.com (excluding any negative growth rates) and then adding that growth rate to the adjusted dividend yield.

Source of Information: Value Line Investment Survey
www.zacks.com, Downloaded on 06/16/2023
www.yahoo.com, Downloaded on 06/16/2023

Peoples Gas System
Indicated Common Equity Cost Rate
Through Use of a Risk Premium Model
Using an Adjusted Total Market Approach

Line No.		Proxy Group of Forty-Six Non-Price Regulated Companies
1.	Prospective Yield on Baa2 Rated Corporate Bonds (1)	5.75 %
2.	Adjustment to Reflect Bond rating Difference of Non-Price Regulated Companies (2)	(0.17)
3.	Adjusted Prospective Bond Yield	5.58 %
4.	Equity Risk Premium (2)	7.61
5.	Risk Premium Derived Common Equity Cost Rate	13.19 %

Notes: (1) Average forecast of Baa corporate bonds based upon the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts dated June 1, 2023 (see pages 9 and 10 of Document No. 4). The estimates are detailed below.

Second Quarter 2023	5.80 %
Third Quarter 2023	5.90
Fourth Quarter 2023	5.90
First Quarter 2024	5.70
Second Quarter 2024	5.60
Third Quarter 2024	5.50
2025-2029	5.70
2030-2034	5.90
Average	5.75 %

(2) The average yield spread of Baa rated corporate bonds over A corporate bonds for the three months ending June 2023. To reflect the Baa1 average rating of the non-utility proxy group, the prosepctive yield on Baa corporate bonds must be adjusted by 1/3 of the spread between A and Baa corporate bond yields as shown below:

	A Corp. Bond Yield	Baa Corp. Bond Yield	Spread
May-23	5.24 %	5.77 %	0.53 %
Apr-23	5.02	5.53	0.51
Mar-23	5.25	5.71	0.46
		Average yield spread	0.50 %
		1/3 of spread	0.17 %

(3) From page 5 of this Document.

Peoples Gas System
Comparison of Long-Term Issuer Ratings for the
Proxy Group of Forty-Six Non-Price Regulated Companies of Comparable risk to the
Proxy Group of Six Natural Gas Companies

	Moody's Long-Term Issuer Rating June 2023		Standard & Poor's Long-Term Issuer Rating June 2023	
Proxy Group of Forty-Six Non-Price Regulated Companies	Long-Term Issuer Rating	Numerical Weighting (1)	Long-Term Issuer Rating	Numerical Weighting (1)
Abbott Labs.	Aa3	4.0	AA-	4.0
AbbVie Inc.	Baa1	8.0	BBB+	8.0
Agilent Technologies	Baa1	8.0	BBB+	8.0
Air Products & Chem.	A2	6.0	A	6.0
Alphabet Inc.	Aa2	3.0	AA+	2.0
Altria Group	A3	7.0	BBB	9.0
AmerisourceBergen	Baa2	9.0	BBB+	8.0
Assurant Inc.	Baa2	9.0	BBB	9.0
AutoZone Inc.	Baa1	8.0	BBB	9.0
Becton, Dickinson	Baa2	9.0	BBB	9.0
Booz Allen Hamilton	NR	--	NR	--
Broadridge Fin'l	Baa2	9.0	BBB	9.0
CACI Int'l	NR	--	BB+	11.0
Casey's Gen'l Stores	NR	--	NR	--
Check Point Software	NR	--	NR	--
Chemed Corp.	WR	--	NR	--
CSG Systems Int'l	NR	--	BB+	11.0
CSW Industrials	NR	--	NR	--
Exponent, Inc.	NR	--	NR	--
Fastenal Co.	NR	--	NR	--
Franklin Electric	NR	--	NR	--
Henry (Jack) & Assoc	NR	--	NR	--
L3Harris Technologie	Baa2	9.0	BBB	9.0
Landstar System	NR	--	NR	--
Lockheed Martin	A3	7.0	A-	7.0
McCormick & Co.	Baa2	9.0	BBB	9.0
McKesson Corp.	Baa1	8.0	BBB+	8.0
Monster Beverage	NR	--	NR	--
MSC Industrial Direc	NR	--	NR	--
NewMarket Corp.	Baa2	9.0	BBB+	8.0
Oracle Corp.	Baa2	9.0	BBB	9.0
O'Reilly Automotive	Baa1	8.0	BBB	9.0
OSI Systems	NR	--	NR	--
Pfizer, Inc.	A1	5.0	A+	5.0
Progressive Corp.	A2	6.0	A	6.0
Quest Diagnostics	Baa2	9.0	BBB+	8.0
Selective Ins. Group	Baa2	9.0	BBB	9.0
Service Corp. Int'l	Ba3	13.0	BB+	11.0
Sirius XM Holdings	NR	--	NR	--
Smith (A.O.)	NR	--	NR	--
Stepan Company	NR	--	NR	--
UniFirst Corp.	NR	--	NR	--
VeriSign Inc.	Baa3	10.0	BBB	9.0
Waters Corp.	NR	--	NR	--
Watsco, Inc.	NR	--	NR	--
Western Union	Baa2	9.0	BBB	9.0
Average	Baa1	8.0	BBB+	8.1

Notes:
(1) From page 6 of Document No. 4.

Source of Information:
Bloomberg Professional Services

Peoples Gas System
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for
Proxy Group of Forty-Six Non-Price Regulated Companies of Comparable risk to the
Proxy Group of Six Natural Gas Companies

Line No.	Equity Risk Premium Measure	Proxy Group of Forty-Six Non-Price Regulated Companies
1.	Kroll Equity Risk Premium (1)	5.82 %
2.	Regression on Kroll Risk Premium Data (2)	7.45
3.	Kroll Equity Risk Premium based on PRPM (3)	9.77
4.	Equity Risk Premium Based on Value Line Summary and Index (4)	10.90
5	Equity Risk Premium Based on Value Line S&P 500 Companies (5)	8.82
6.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	10.92
7.	Conclusion of Equity Risk Premium	8.95 %
8.	Adjusted Beta (7)	0.85
9.	Forecasted Equity Risk Premium	7.61 %

Notes:
(1) From note 1 of page 9 of Document No. 4.
(2) From note 2 of page 9 of Document No. 4.
(3) From note 3 of page 9 of Document No. 4.
(4) From note 4 of page 9 of Document No. 4.
(5) From note 5 of page 9 of Document No. 4.
(6) From note 6 of page 9 of Document No. 4.
(7) Average of mean and median beta from page 6 of this Document.

Sources of Information:
Stocks, Bonds, Bills, and Inflation - 2023 SBBI Yearbook, Kroll, Inc.
Value Line Summary and Index
Blue Chip Financial Forecasts, June 1, 2023
Bloomberg Professional Services

Peoples Gas System
Traditional CAPM and ECAPM Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the
Proxy Group of Six Natural Gas Companies

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Forty-Six Non-Price Regulated Companies	Value Line Adjusted Beta	Bloomberg Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (3)
Abbott Labs.	0.90	0.84	0.87	10.01 %	3.80 %	12.51 %	12.84 %	12.67 %
AbbVie Inc.	0.90	0.63	0.77	10.01	3.80	11.51	12.08	11.80
Agilent Technologies	0.95	1.06	1.00	10.01	3.80	13.81	13.81	13.81
Air Products & Chem.	0.90	0.83	0.87	10.01	3.80	12.51	12.84	12.67
Alphabet Inc.	0.95	1.14	1.04	10.01	3.80	14.21	14.11	14.16
Altria Group	0.90	0.60	0.75	10.01	3.80	11.31	11.93	11.62
AmerisourceBergen	0.80	0.73	0.77	10.01	3.80	11.51	12.08	11.80
Assurant Inc.	0.90	0.76	0.83	10.01	3.80	12.11	12.54	12.32
AutoZone Inc.	0.95	0.85	0.90	10.01	3.80	12.81	13.06	12.94
Becton, Dickinson	0.75	0.73	0.74	10.01	3.80	11.21	11.86	11.53
Booz Allen Hamilton	0.85	0.76	0.81	10.01	3.80	11.91	12.39	12.15
Broadridge Fin'l	0.90	1.00	0.95	10.01	3.80	13.31	13.44	13.37
CACI Int'l	0.90	0.74	0.82	10.01	3.80	12.01	12.46	12.24
Casey's Gen'l Stores	0.90	0.77	0.84	10.01	3.80	12.21	12.61	12.41
Check Point Software	0.80	0.74	0.77	10.01	3.80	11.51	12.08	11.80
Chemed Corp.	0.80	0.67	0.73	10.01	3.80	11.11	11.78	11.45
CSG Systems Int'l	0.75	0.84	0.79	10.01	3.80	11.71	12.24	11.97
CSW Industrials	0.90	0.77	0.84	10.01	3.80	12.21	12.61	12.41
Exponent, Inc.	0.95	0.98	0.97	10.01	3.80	13.51	13.59	13.55
Fastenal Co.	0.90	0.98	0.94	10.01	3.80	13.21	13.36	13.29
Franklin Electric	0.90	0.96	0.93	10.01	3.80	13.11	13.29	13.20
Henry (Jack) & Assoc	0.85	0.76	0.81	10.01	3.80	11.91	12.39	12.15
L3Harris Technologie	0.90	0.81	0.85	10.01	3.80	12.31	12.69	12.50
Landstar System	0.80	0.82	0.81	10.01	3.80	11.91	12.39	12.15
Lockheed Martin	0.90	0.67	0.78	10.01	3.80	11.61	12.16	11.88
McCormick & Co.	0.80	0.74	0.77	10.01	3.80	11.51	12.08	11.80
McKesson Corp.	0.85	0.69	0.77	10.01	3.80	11.51	12.08	11.80
Monster Beverage	0.85	0.72	0.79	10.01	3.80	11.71	12.24	11.97
MSC Industrial Direc	0.95	0.87	0.91	10.01	3.80	12.91	13.14	13.02
NewMarket Corp.	0.75	0.64	0.70	10.01	3.80	10.81	11.56	11.18
Oracle Corp.	0.85	1.02	0.93	10.01	3.80	13.11	13.29	13.20
O'Reilly Automotive	0.90	0.83	0.87	10.01	3.80	12.51	12.84	12.67
OSI Systems	0.90	0.87	0.88	10.01	3.80	12.61	12.91	12.76
Pfizer, Inc.	0.80	0.71	0.75	10.01	3.80	11.31	11.93	11.62
Progressive Corp.	0.75	0.75	0.75	10.01	3.80	11.31	11.93	11.62
Quest Diagnostics	0.80	0.73	0.76	10.01	3.80	11.41	12.01	11.71
Selective Ins. Group	0.85	0.71	0.78	10.01	3.80	11.61	12.16	11.88
Service Corp. Int'l	0.90	0.76	0.83	10.01	3.80	12.11	12.54	12.32
Sirius XM Holdings	0.90	0.80	0.85	10.01	3.80	12.31	12.69	12.50
Smith (A.O.)	0.90	1.04	0.97	10.01	3.80	13.51	13.59	13.55
Stepan Company	0.80	0.88	0.84	10.01	3.80	12.21	12.61	12.41
UniFirst Corp.	0.90	0.81	0.86	10.01	3.80	12.41	12.76	12.59
VeriSign Inc.	0.95	1.12	1.03	10.01	3.80	14.11	14.04	14.07
Waters Corp.	0.95	0.96	0.95	10.01	3.80	13.31	13.44	13.37
Watsco, Inc.	0.90	1.08	0.99	10.01	3.80	13.71	13.74	13.72
Western Union	0.80	0.83	0.82	10.01	3.80	12.01	12.46	12.24
		Mean	0.85			12.28 %	12.67 %	12.47 %
		Median	0.84			12.16 %	12.57 %	12.37 %
		Average of Mean and Median	0.85			12.22 %	12.62 %	12.42 %

Notes:
(1) From note 1 of page 2 of Document No. 5.
(2) From note 2 of page 2 of Document No. 5.
(3) Average of CAPM and ECAPM cost rates.

Peoples Gas System
Derivation of the Flotation Cost Adjustment to the Cost of Common Equity

Equity Issuances (Company Provided)

Date	Issuing Company	[1] Shares Issued (1)	[2] Market Price per Share (1)	[3] Average Offering Price per Share (1)	[4] Underwriting Discount (1)	[5] Total Offering Expense per Share (1)	[6] Net Proceeds per Share (2)	[7] Total Flotation Costs (3)	[8] Gross Equity Issue before Costs (4)	[9] Net Proceeds (5)	[10] Flotation Cost Percentage (6)
At-The-Market 2022	Emera Incorporated	4,072,469	NA	61.310	NA	$ 0.491	$ 60.90	$ 2,000,000	$ 250,000,000	$ 248,000,000	0.80%
At-The-Market 2021	Emera Incorporated	4,987,123	NA	57.630	NA	$ 0.602	$ 56.95	$ 3,000,000	$ 287,000,000	$ 284,000,000	1.05%
At-The-Market 2020	Emera Incorporated	4,544,025	NA	56.040	NA	$ 0.880	$ 55.24	$ 4,000,000	$ 255,000,000	$ 251,000,000	1.57%
At-The-Market 2019	Emera Incorporated	1,768,120	NA	56.56	NA	$ 0.735	$ 55.82	$ 1,300,000	$ 100,000,000	$ 98,700,000	1.30%
12/18/2017	Emera Incorporated	14,614,000	47.980	47.900	1.916	$ 0.031	$ 45.95	$ 29,619,544	$ 701,179,720	$ 671,560,176	4.22%
12/8/2016	Emera Incorporated	7,624,500	44.260	45.250	1.810	$ 0.059	$ 43.38	$ 6,702,090	$ 337,460,370	$ 330,758,280	1.99%
	Total Public Issuances							$ 46,621,634	$ 1,930,640,090	$ 1,884,018,456	2.41%

Flotation Cost Adjustment

	[11] Average Dividend Yield (7)	[12] Average Projected EPS Growth Rate (7)	[13] Adjusted Dividend Yield (8)	[14] Average DCF Cost Rate Unadjusted for Flotation (9)	[15] DCF Cost Rate Adjusted for Flotation (10)	[16] Flotation Cost Adjustment (11)
Proxy Group of Six Natural Gas Companies	3.49 %	6.12 %	3.60 %	9.72 %	9.81 %	0.09 %

Notes:
(1) From Company prospectuses or annual filings.
(2) Column [3] - Column [4] - Column [5].
(3) (Column [2] - Column [6]) x Column [1].
(4) Column [1] x Column [2].
(5) Column [1] x Column [6].
(6) Column [7] / Column [8].
(7) From Document No. 4.
(8) Column [11] x (1 + 0.5 x Column [12]).
(9) Column [12] + Column [13].
(10) (Column [13] / (1 - Column [10])) + Column [12].
(11) Column [15] - Column [14].

Peoples Gas System
Derivation of Investment Risk Adjustment Based upon
Kroll Associates' Size Premia for the Decile Portfolios of the NYSE/AMEX/NASDAQ

Line No.		[1] Market Capitalization on June 16, 2023 (1) (millions)	(times larger)	[2] Applicable Decile of the NYSE/AMEX/ NASDAQ (2)	[3] Applicable Size Premium (3)	[4] Spread from Applicable Size Premium (4)
1	Peoples Gas System	$ 1,199.943		7	1.37%	
2	Proxy Group of Six Natural Gas Companies	$ 4,451.020	3.7 x	4	0.58%	0.79%

	[A] Decile	[B] Market Capitalization of Smallest Company (millions)	[C] Market Capitalization of Largest Company (millions)	[D] Size Premium (Return in Excess of CAPM)*
Largest	1	$ 31,549.077	$ 2,203,381.286	-0.26%
	2	12,372.885	31,316.513	0.45%
	3	5,918.981	12,323.854	0.57%
	4	3,770.176	5,916.017	0.58%
	5	2,365.425	3,769.877	0.93%
	6	1,389.851	2,365.076	1.16%
	7	789.019	1,389.118	1.37%
	8	377.076	782.383	1.18%
	9	218.389	373.879	2.15%
Smallest	10	2.015	218.227	4.83%

*From 2023 Kroll Cost of Capital Navigator

Notes:

(1) From page 2 of this Document.
(2) Gleaned from Columns [B] and [C] on the bottom of this page. The appropriate decile (Column [A]) corresponds to the market capitalization of the proxy group, which is found in Column [1].
(3) Corresponding risk premium to the decile is provided in Column [D] on the bottom of this page.
(4) Line No. 1 Column [3] – Line No. 2 Column [3]. For example, the 0.79% in Column [4], Line No. 2 is derived as follows 0.79% = 1.37% - 0.58%.

Peoples Gas System
Market Capitalization of Peoples Gas System and the
Proxy Group of Six Natural Gas Companies

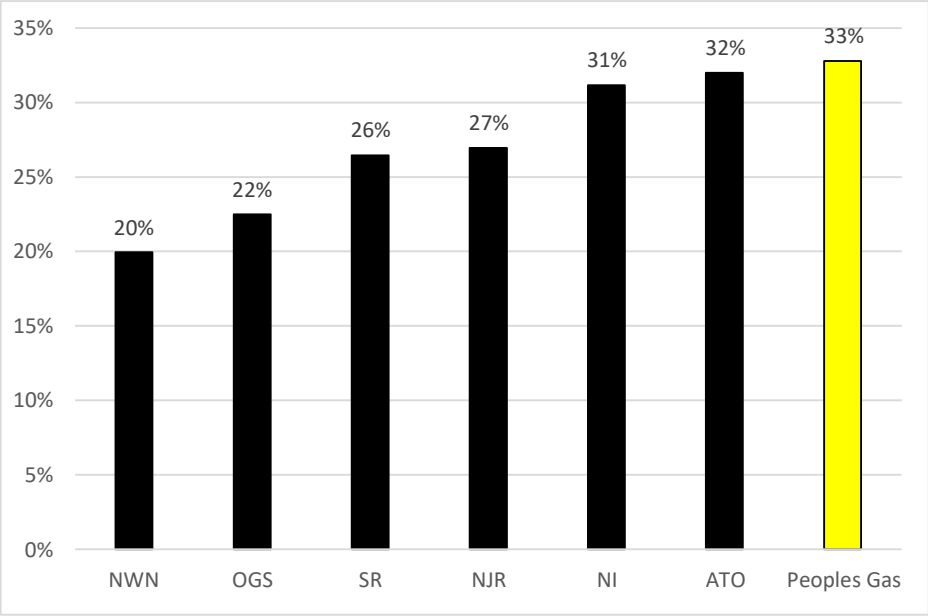
Company	Exchange	[1] Common Stock Shares Outstanding at Fiscal Year End 2022 (millions)	[2] Book Value per Share at Fiscal Year End 2022 (1)	[3] Total Common Equity at Fiscal Year End 2022 (millions)	[4] Closing Stock Market Price on June 16, 2023	[5] Market-to-Book Ratio on June 16, 2023 (2)	[6] Market Capitalization on June 16, 2023 (3) (millions)
Peoples Gas System		NA	NA	$ 700.492 (4)	NA		
Based upon Proxy Group of Six Natural Gas Companies						171.3 (5)	$ 1,199.943 (6)
Proxy Group of Six Natural Gas Companies							
Atmos Energy Corporation	NYSE	140.897	$ 66.851	$ 9,419.091	$ 117.000	175.0 %	$ 16,484.902
New Jersey Resources Corporation	NYSE	96.250	$ 18.880	$ 1,817.210	$ 47.490	251.5	$ 4,570.906
NiSource Inc.	NYSE	412.143	$ 14.143	$ 5,828.800	$ 27.380	193.6	$ 11,284.464
Northwest Natural Holding Company	NYSE	35.525	$ 33.088	$ 1,175.441	$ 42.500	128.4	$ 1,509.813
ONE Gas, Inc.	NYSE	55.350	$ 46.692	$ 2,584.426	$ 78.250	167.6	$ 4,331.134
Spire Inc.	NYSE	52.495	$ 53.691	$ 2,818.500	$ 63.490	118.3	$ 3,332.879
Median		75.800	$ 39.890	$ 2,701.463	$ 55.490	171.3 %	$ 4,451.020

NA= Not Available

Notes: (1) Column [3] / Column [1].
(2) Column [4] / Column [2].
(3) Column [1] * Column [4].
(4) Requested rate base multiplied by the requested common equity ratio.
(5) The market-to-book ratio of on June 16, 2023 is assumed to be equal to the market-to-book ratio of on June 16, 2023 as appropriate.
(6) Column [3] multiplied by Column [5].

Source of Information: 2022 Annual Forms 10K.
yahoo.finance.com.
Bloomberg Professional Services.

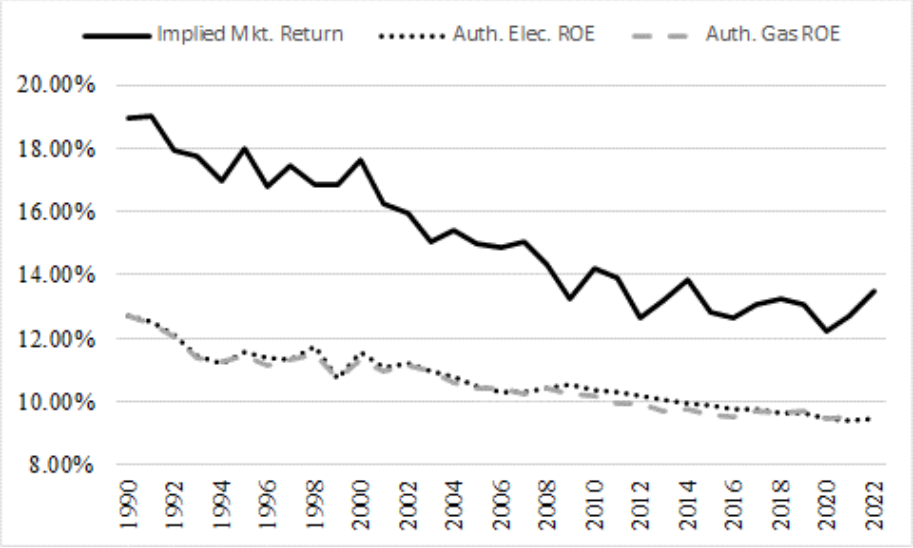
Peoples Gas System
Comparison of Projected Capital Expenditures Relative to Net Plant



Sources of Information:

Value Line
Peoples Gas, 2022 Annual Report
Company-provided data

Relationship Between Investor-Required Returns on the Market and Authorized Returns for Electric and Natural Gas Utilities, 1990 - 2022



Source: 2023 SBBI® Yearbook, Stocks, Bonds, Bills, and Inflation®, Appendix A-1, A-7; Exhibit DJG-14.

Peoples Gas System
Relationship between Investor-Required Return on the Market
and Authorized Returns for Gas and Electric Utilities 1990 - 2022

	Required Market Return (1)	Electric Authorized Return (2)	Gas Authorized Return (2)	Average Utility Authorized Return (2)	Ratio of Authorized Returns to Required Market Returns
1990	18.95%	12.70%	12.68%	12.69%	0.67
1991	19.02%	12.54%	12.45%	12.50%	0.66
1992	17.92%	12.09%	12.02%	12.06%	0.67
1993	17.75%	11.46%	11.37%	11.41%	0.64
1994	16.95%	11.21%	11.24%	11.22%	0.66
1995	18.02%	11.58%	11.44%	11.54%	0.64
1996	16.77%	11.40%	11.12%	11.26%	0.67
1997	17.43%	11.33%	11.30%	11.31%	0.65
1998	16.83%	11.77%	11.51%	11.64%	0.69
1999	16.85%	10.72%	10.74%	10.73%	0.64
2000	17.61%	11.58%	11.34%	11.44%	0.65
2001	16.24%	11.07%	10.96%	11.04%	0.68
2002	15.93%	11.21%	11.17%	11.19%	0.70
2003	15.05%	10.96%	10.99%	10.98%	0.73
2004	15.42%	10.81%	10.63%	10.72%	0.69
2005	15.00%	10.51%	10.41%	10.46%	0.70
2006	14.89%	10.32%	10.40%	10.35%	0.70
2007	15.02%	10.30%	10.22%	10.26%	0.68
2008	14.32%	10.41%	10.39%	10.40%	0.73
2009	13.26%	10.52%	10.22%	10.39%	0.78
2010	14.23%	10.37%	10.15%	10.28%	0.72
2011	13.92%	10.29%	9.92%	10.19%	0.73
2012	12.63%	10.17%	9.94%	10.08%	0.80
2013	13.20%	10.03%	9.68%	9.93%	0.75
2014	13.83%	9.91%	9.78%	9.86%	0.71
2015	12.85%	9.85%	9.60%	9.76%	0.76
2016	12.62%	9.77%	9.54%	9.68%	0.77
2017	13.09%	9.74%	9.72%	9.73%	0.74
2018	13.25%	9.64%	9.62%	9.63%	0.73
2019	13.08%	9.66%	9.71%	9.68%	0.74
2020	12.22%	9.44%	9.46%	9.45%	0.77
2021	12.72%	9.40%	9.52%	9.44%	0.74
2022	13.48%	9.47%	9.53%	9.47%	0.70
				Average	0.71

Notes:

(1) Source: SBBI 2023

(2) Source: Attachment DJG-14

Peoples Gas System
Gross Domestic Product by Industry
from 1947 - 2022

Industry	1947	2022	CAGR
Agriculture, forestry, fishing, and hunting	19.9	288.9	3.63%
Mining	5.8	483.5	6.07%
Utilities	3.5	440.2	**6.66%**
Construction	8.9	1,007.0	**6.51%**
Manufacturing	63.4	2,793.7	5.18%
Wholesale trade	15.6	1,613.3	**6.38%**
Retail trade	23.2	1,471.5	5.69%
Transportation and warehousing	14.1	815.0	5.56%
Information	7.7	1,394.6	**7.18%**
Finance, insurance, real estate, rental, and leasing	25.8	5,141.0	**7.31%**
Professional and business services	8.2	3,330.4	**8.34%**
Educational services, health care, and social assistance	4.6	2,139.2	**8.53%**
Arts, entertainment, recreation, accommodation, and food services	8.0	1,062.4	**6.74%**
Other services, except government	7.5	521.7	5.82%
Government	33.5	2,960.4	6.16%
Total Gross domestic product	249.7	25,462.8	6.36%

Source: Bureau of Economic Analysis

Industry	Gross Domestic Product	1947-2022 CAGR	Beginning Year	Ending Year	Gross Domestic Product In Ending Year	% of Total
Agriculture, forestry, fishing, and hunting	288.9	3.63%	1	304	1.E+07	
Mining	483.5	6.07%	1	304	3.E+10	
Utilities	440.2	6.66%	1	304	1.E+11	
Construction	1,007.0	6.51%	1	304	2.E+11	
Manufacturing	2,793.7	5.18%	1	304	1.E+10	
Wholesale trade	1,613.3	6.38%	1	304	2.E+11	
Retail trade	1,471.5	5.69%	1	304	3.E+10	
Transportation and warehousing	815.0	5.56%	1	304	1.E+10	
Information	1,394.6	7.18%	1	304	2.E+12	
Finance, insurance, real estate, rental, and leasing	5,141.0	7.31%	1	304	1.E+13	
Professional and business services	3,330.4	8.34%	1	304	1.E+14	
Educational services, health care, and social assistance	2,139.2	8.53%	1	304	1.E+14	50.00%
Arts, entertainment, recreation, accommodation, and food services	1,062.4	6.74%	1	304	4.E+11	
Other services, except government	521.7	5.82%	1	304	2.E+10	
Government	2,960.4	6.16%	1	304	2.E+11	
Total Gross domestic product	25,462.8				3.E+14	

Industry	Gross Domestic Product	1947-2022 CAGR	Beginning Year	Ending Year	Gross Domestic Product In Ending Year	% of Total
Agriculture, forestry, fishing, and hunting	288.9	3.63%	1	6959	2.E+110	
Mining	483.5	6.07%	1	6959	8.E+180	
Utilities	440.2	6.66%	1	6959	3.E+197	
Construction	1,007.0	6.51%	1	6959	4.E+193	
Manufacturing	2,793.7	5.18%	1	6959	1.E+156	
Wholesale trade	1,613.3	6.38%	1	6959	1.E+190	
Retail trade	1,471.5	5.69%	1	6959	2.E+170	
Transportation and warehousing	815.0	5.56%	1	6959	2.E+166	
Information	1,394.6	7.18%	1	6959	5.E+212	
Finance, insurance, real estate, rental, and leasing	5,141.0	7.31%	1	6959	1.E+217	
Professional and business services	3,330.4	8.34%	1	6959	4.E+245	
Educational services, health care, and social assistance	2,139.2	8.53%	1	6959	7.E+250	100.00%
Arts, entertainment, recreation, accommodation, and food services	1,062.4	6.74%	1	6959	1.E+200	
Other services, except government	521.7	5.82%	1	6959	5.E+173	
Government	2,960.4	6.16%	1	6959	1.E+184	
Total Gross domestic product	25,462.8				7.E+250	

Source: Bureau of Economic Analysis

Peoples Gas System
Mr. Garrett's Implied ERP Calculation

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Year	Market Value	Operating Earnings	Dividends	Buybacks	Earnings Yield	Dividend Yield	Buyback Yield	Gross Cash Yield
2012	12,742	870	281	399	6.83%	2.20%	3.13%	5.33%
2013	16,495	956	312	476	5.80%	1.89%	2.88%	4.77%
2014	18,245	1,004	350	553	5.50%	1.92%	3.03%	4.95%
2015	17,900	885	382	572	4.95%	2.14%	3.20%	5.33%
2016	19,268	920	397	536	4.77%	2.06%	2.78%	4.85%
2017	22,821	1,066	420	519	4.67%	1.84%	2.28%	4.12%
2018	21,027	1,282	456	806	6.10%	2.17%	3.84%	6.01%
2019	26,760	1,305	485	729	4.88%	1.81%	2.72%	4.54%
2020	31,659	1,019	480	520	3.22%	1.52%	1.64%	3.16%
2021	40,356	1,739	511	882	4.31%	1.27%	2.18%	3.45%
2022	32,133	1,656	565	923	5.15%	1.76%	2.87%	4.63%
Growth Rate		*13.73%*	*15.00%*	*18.26%*				

Cash Yield	4.65%	[9]
Growth Rate	6.64%	[10]
Risk-free Rate	3.81%	[11]
Current Index Value	4,135	[12]

	[13]	[14]	[15]	[16]	[17]
Year	1	2	3	4	5
Expected Dividends	205	219	233	249	265
Expected Terminal Value					5047
Present Value	188	183	179	174	3411

Intrinsic Index Value	4135	[18]
% Terminal Value	78.38%	
Required Return on Market	9.263%	[19]
Implied Equity Risk Premium	**5.5%**	[20]

[1-4] S&P Quarterly Press Releases, data found at https://us.spindices.com/indices/equity/sp-500 (additional info tab) (all dollar figures are in $ billions)
[1] Market value of S&P 500
[5] = [2] / [1]
[6] = [3] / [1]
[7] = [4] / [1]
[8] = [6] + [7]
[9] = Average of [8]
[10] = Compund annual growth rate of [2] = (end value / beginning value)^1/10-1
[11] Risk-free rate from DJG risk-free rate exhibit
[12] 30-day average of closing index prices from DJG stock price exhibit
[13-16] Expected dividends = [9]*[12]*(1+[10])'' ; Present value = expected dividend / (1+[11]+[19])''
[17] Expected terminal value = expected dividend * (1+[11]) / [19] ; Present value = (expected dividend + expected terminal value) / (1+[11]+[19])''
[18] = Sum([13-17]) present values.
[19] = [20] + [11]
[20] Internal rate of return calculation setting [18] equal to [12] and solving for the discount rate

Peoples Gas System
Mr. Garrett's Implied ERP Calculation
Corrected to Reflect the use of Average Annual Growth Rates

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	ARITHMETIC AVERAGE			
Year	Market Value	Operating Earnings	Dividends	Buybacks	Earnings Yield	Dividend Yield	Buyback Yield	Gross Cash Yield	Market Value	Operating Earnings	Dividends	Buybacks
2012	12,742	870	281	399	6.83%	2.20%	3.13%	5.33%				
2013	16,495	956	312	476	5.80%	1.89%	2.88%	4.77%	29.45%	9.86%	11.07%	19.22%
2014	18,245	1,004	350	553	5.50%	1.92%	3.03%	4.95%	10.61%	5.04%	12.40%	16.34%
2015	17,900	885	382	572	4.95%	2.14%	3.20%	5.33%	-1.89%	-11.83%	9.10%	3.41%
2016	19,268	920	397	536	4.77%	2.06%	2.78%	4.85%	7.65%	3.89%	3.90%	-6.25%
2017	22,821	1,066	420	519	4.67%	1.84%	2.28%	4.12%	18.44%	15.89%	5.68%	-3.17%
2018	21,027	1,282	456	806	6.10%	2.17%	3.84%	6.01%	-7.86%	20.23%	8.70%	55.26%
2019	26,760	1,305	485	729	4.88%	1.81%	2.72%	4.54%	27.26%	1.79%	6.39%	-9.63%
2020	31,659	1,019	480	520	3.22%	1.52%	1.64%	3.16%	18.31%	-21.89%	-1.05%	-28.69%
2021	40,356	1,739	511	882	4.31%	1.27%	2.18%	3.45%	27.47%	70.61%	6.42%	69.66%
2022	32,133	1,656	565	923	5.15%	1.76%	2.87%	4.63%	-20.38%	-4.78%	10.43%	4.65%
Growth Rate		*13.73%*	*15.00%*	*18.26%*					10.91%	8.88%	7.30%	12.08%

Cash Yield	4.65%	[9]
Growth Rate	9.79%	[10]
Risk-free Rate	3.81%	[11]
Current Index Value	4,135	[12]

	[13]	[14]	[15]	[16]	[17]
Year	1	2	3	4	5
Expected Dividends	211	232	254	279	307
Expected Terminal Value					5125
Present Value	192	191	191	191	3370
Intrinsic Index Value	4135	[18]			
% Terminal Value	76.90%				
Required Return on Market	10.021%	[19]			
Implied Equity Risk Premium	**6.2%**	[20]			

[1-4] S&P Quarterly Press Releases, data found at https://us.spindices.com/indices/equity/sp-500 (additional info tab) (all dollar figures are in $ billions)
[1] Market value of S&P 500
[5] = [2] / [1]
[6] = [3] / [1]
[7] = [4] / [1]
[8] = [6] + [7]
[9] = Average of [8]
[10] = Compund annual growth rate of [2] = (end value / beginning value)^1/10-1
[11] Risk-free rate from DJG risk-free rate exhibit
[12] 30-day average of closing index prices from DJG stock price exhibit
[13-16] Expected dividends = [9]*[12]*(1+[10])'' ; Present value = expected dividend / (1+[11]+[19])''
[17] Expected terminal value = expected dividend * (1+[11]) / [19] ; Present value = (expected dividend + expected terminal value) / (1+[11]+[19])''
[18] = Sum([13-17]) present values.
[19] = [20] + [11]
[20] Internal rate of return calculation setting [18] equal to [12] and solving for the discount rate

Size and Volatility of Returns

Decile:	1	2	3	4	5	6	7	8	9	10
Largest Gain:	29.5%	25.7%	21.3%	18.3%	19.8%	17.0%	17.2%	14.6%	14.3%	13.4%
Largest Loss:	-28.9%	-30.6%	-29.0%	-29.6%	-28.1%	-26.2%	-26.3%	-24.5%	-22.2%	-19.7%

Note: Deciles in ascending order with one (1) representing the smallest stocks by market capitalization. Source: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

Peoples Gas System
Hypothetical Example: Flotation Cost Recovery

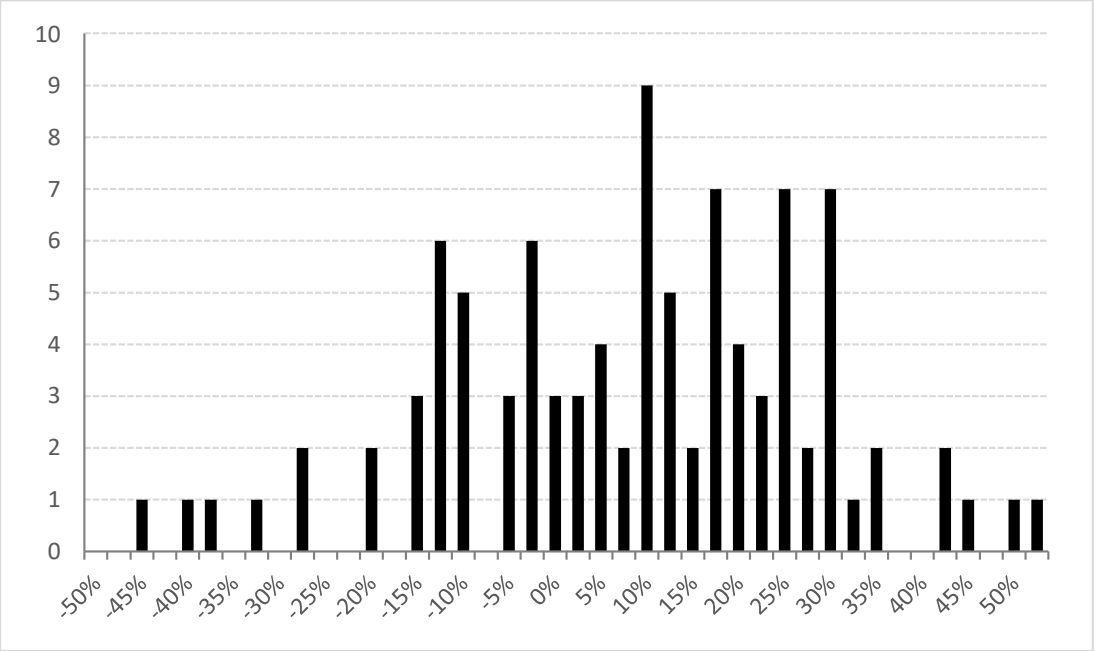
Return on Equity	10.75%
Flotation Costs	2.75%
Market Value	$ 25.00
Dividend Yield	3.50%
Growth Rate	7.25%
Adjusted ROE	10.85%
Flotation Cost Recovery:	**No**
DCF Estimate	**10.65%**

	Common Stock	Retained Earnings	Book Value	Market Price	Market/ Book Value	Earnings Per Share	Dividends Per Share	Payout Ratio
1	$ 24.31		$ 24.31	$ 25.00	1.0283	$ 2.61	$ 0.88	33.48%
2	$ 24.31	$ 1.74	$ 26.05	$ 26.79	1.0283	$ 2.80	$ 0.94	33.48%
3	$ 24.31	$ 3.60	$ 27.91	$ 28.70	1.0283	$ 3.00	$ 1.00	33.48%
4	$ 24.31	$ 5.60	$ 29.91	$ 30.76	1.0283	$ 3.22	$ 1.08	33.48%
5	$ 24.31	$ 7.74	$ 32.05	$ 32.96	1.0283	$ 3.45	$ 1.15	33.48%
6	$ 24.31	$ 10.03	$ 34.34	$ 35.31	1.0283	$ 3.69	$ 1.24	33.48%
7	$ 24.31	$ 12.48	$ 36.80	$ 37.84	1.0283	$ 3.96	$ 1.32	33.48%
8	$ 24.31	$ 15.12	$ 39.43	$ 40.54	1.0283	$ 4.24	$ 1.42	33.48%
9	$ 24.31	$ 17.94	$ 42.25	$ 43.44	1.0283	$ 4.54	$ 1.52	33.48%
10	$ 24.31	$ 20.96	$ 45.27	$ 46.55	1.0283	$ 4.87	$ 1.63	33.48%
	Growth Rate		7.15%	7.15%		7.15%	7.15%	

Return on Equity	10.75%
Flotation Costs	2.75%
Market Value	$ 25.00
Dividend Yield	3.50%
Growth Rate	7.25%
Adjusted ROE	10.85%
Flotation Cost Recovery:	**Yes**
DCF Estimate	**10.75%**

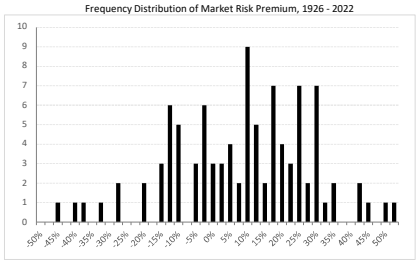
	Common Stock	Retained Earnings	Book Value	Market Price	Market/ Book Value	Earnings Per Share	Dividends Per Share	Payout Ratio
1	$ 24.31		$ 24.31	$ 25.00	1.0283	$ 2.64	$ 0.88	33.17%
2	$ 24.31	$ 1.76	$ 26.08	$ 26.81	1.0283	$ 2.83	$ 0.94	33.17%
3	$ 24.31	$ 3.65	$ 27.97	$ 28.76	1.0283	$ 3.03	$ 1.01	33.17%
4	$ 24.31	$ 5.68	$ 29.99	$ 30.84	1.0283	$ 3.25	$ 1.08	33.17%
5	$ 24.31	$ 7.86	$ 32.17	$ 33.08	1.0283	$ 3.49	$ 1.16	33.17%
6	$ 24.31	$ 10.19	$ 34.50	$ 35.48	1.0283	$ 3.74	$ 1.24	33.17%
7	$ 24.31	$ 12.69	$ 37.00	$ 38.05	1.0283	$ 4.01	$ 1.33	33.17%
8	$ 24.31	$ 15.37	$ 39.68	$ 40.81	1.0283	$ 4.31	$ 1.43	33.17%
9	$ 24.31	$ 18.25	$ 42.56	$ 43.76	1.0283	$ 4.62	$ 1.53	33.17%
10	$ 24.31	$ 21.33	$ 45.65	$ 46.94	1.0283	$ 4.95	$ 1.64	33.17%
	Growth Rate		7.25%	7.25%		7.25%	7.25%	

Frequency Distribution of Observed Market Risk Premiums, 1926 - 2022

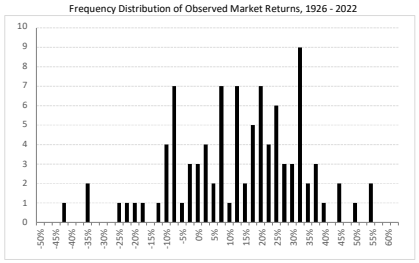


Peoples Gas System

Frequency Distribution of Market Risk Premium, 1926 - 2022



Frequency Distribution of Observed Market Returns, 1926 - 2022



Year	Large Company Stocks Total Returns Jan-Dec*	Long-Term Government Bond Income Returns Jan-Dec*	MRP Jan-Dec*
1926	0.1162	0.0373	0.0789
1927	0.3749	0.0341	0.3408
1928	0.4361	0.0322	0.4039
1929	-0.0842	0.0347	-0.1189
1930	-0.2490	0.0332	-0.2822
1931	-0.4334	0.0333	-0.4667
1932	-0.0819	0.0369	-0.1188
1933	0.5399	0.0312	0.5087
1934	-0.0144	0.0318	-0.0462
1935	0.4767	0.0281	0.4486
1936	0.3392	0.0277	0.3115
1937	-0.3503	0.0266	-0.3769
1938	0.3112	0.0264	0.2848
1939	-0.0041	0.0240	-0.0281
1940	-0.0978	0.0223	-0.1201
1941	-0.1159	0.0194	-0.1353
1942	0.2034	0.0246	0.1788
1943	0.2590	0.0244	0.2346
1944	0.1975	0.0246	0.1729
1945	0.3644	0.0234	0.3410
1946	-0.0807	0.0204	-0.1011
1947	0.0571	0.0213	0.0358
1948	0.0550	0.0240	0.0310
1949	0.1879	0.0225	0.1654
1950	0.3171	0.0212	0.2959
1951	0.2402	0.0238	0.2164
1952	0.1837	0.0266	0.1571
1953	-0.0099	0.0284	-0.0383
1954	0.5262	0.0279	0.4983
1955	0.3156	0.0275	0.2881
1956	0.0656	0.0299	0.0357
1957	-0.1078	0.0344	-0.1422
1958	0.4336	0.0327	0.4009
1959	0.1196	0.0401	0.0795
1960	0.0047	0.0426	-0.0379
1961	0.2689	0.0383	0.2306
1962	-0.0873	0.0400	-0.1273
1963	0.2280	0.0389	0.1891
1964	0.1648	0.0415	0.1233
1965	0.1245	0.0419	0.0826
1966	-0.1006	0.0449	-0.1455
1967	0.2398	0.0459	0.1939
1968	0.1106	0.0550	0.0556
1969	-0.0850	0.0595	-0.1445
1970	0.0386	0.0674	-0.0288
1971	0.1430	0.0632	0.0798
1972	0.1900	0.0587	0.1313
1973	-0.1469	0.0651	-0.2120
1974	-0.2647	0.0727	-0.3374
1975	0.3723	0.0799	0.2924
1976	0.2393	0.0789	0.1604
1977	-0.0716	0.0714	-0.1430
1978	0.0657	0.0790	-0.0133
1979	0.1861	0.0886	0.0975
1980	0.3250	0.0997	0.2253
1981	-0.0492	0.1155	-0.1647
1982	0.2155	0.1350	0.0805
1983	0.2256	0.1038	0.1218
1984	0.0627	0.1174	-0.0547
1985	0.3173	0.1125	0.2048
1986	0.1867	0.0898	0.0969
1987	0.0525	0.0792	-0.0267
1988	0.1661	0.0897	0.0764
1989	0.3169	0.0881	0.2288
1990	-0.0310	0.0819	-0.1129
1991	0.3047	0.0822	0.2225
1992	0.0762	0.0726	0.0036
1993	0.1008	0.0717	0.0291
1994	0.0132	0.0659	-0.0527
1995	0.3758	0.0760	0.2998
1996	0.2296	0.0618	0.1678
1997	0.3336	0.0664	0.2672
1998	0.2858	0.0583	0.2275
1999	0.2104	0.0557	0.1547
2000	-0.0910	0.0650	-0.1560
2001	-0.1189	0.0553	-0.1742
2002	-0.2210	0.0559	-0.2769
2003	0.2868	0.0480	0.2388
2004	0.1088	0.0502	0.0586
2005	0.0491	0.0469	0.0022
2006	0.1579	0.0468	0.1111
2007	0.0549	0.0486	0.0063
2008	-0.3700	0.0445	-0.4145
2009	0.2646	0.0347	0.2299
2010	0.1506	0.0425	0.1081
2011	0.0211	0.0382	-0.0171
2012	0.1600	0.0247	0.1353
2013	0.3239	0.0290	0.2949
2014	0.1369	0.0341	0.1028
2015	0.0138	0.0247	-0.0109
2016	0.1196	0.0230	0.0966
2017	0.2183	0.0267	0.1916
2018	-0.0438	0.0282	-0.0720
2019	0.3149	0.0255	0.2894
2020	0.1840	0.0153	0.1687
2021	0.2871	0.0173	0.2698
2022	-0.1811	0.0261	-0.2072
Average	0.1202	0.0485	0.0717
Std. Dev.	0.1978	0.0264	0.1989

Source: Kroll, 2023 SBBI, Appendix A-1, A-7

MRP Bin	Frequency	Cumulative %
-50.00%	0	0.0%
-47.50%	0	0.0%
-45.00%	1	1.0%
-42.50%	0	1.0%
-40.00%	1	2.1%
-37.50%	1	3.1%
-35.00%	0	3.1%
-32.50%	1	4.1%
-30.00%	0	4.1%
-27.50%	2	6.2%
-25.00%	0	6.2%
-22.50%	0	6.2%
-20.00%	2	8.2%
-17.50%	0	8.2%
-15.00%	3	11.3%
-12.50%	6	17.5%
-10.00%	5	22.7%
-7.50%	0	22.7%
-5.00%	3	25.8%
-2.50%	6	32.0%
0.00%	3	35.1%
2.50%	3	38.1%
5.00%	4	42.3%
7.50%	2	44.3%
10.00%	9	53.6%
12.50%	5	58.8%
15.00%	2	60.8%
17.50%	7	68.0%
20.00%	4	72.2%
22.50%	3	75.3%
25.00%	7	82.5%
27.50%	2	84.5%
30.00%	7	91.8%
32.50%	1	92.8%
35.00%	2	94.8%
37.50%	0	94.8%
40.00%	0	94.8%
42.50%	2	96.9%
45.00%	1	97.9%
47.50%	0	97.9%
50.00%	1	99.0%
51.00%	1	100.0%
Count:	97	

Market Returns Bin	Frequency	Cumulative %
-50.00%	0	0.0%
-47.50%	0	0.0%
-45.00%	0	0.0%
-42.50%	1	1.0%
-40.00%	0	1.0%
-37.50%	0	1.0%
-35.00%	2	3.1%
-32.50%	0	3.1%
-30.00%	0	3.1%
-27.50%	0	3.1%
-25.00%	1	4.1%
-22.50%	1	5.2%
-20.00%	1	6.2%
-17.50%	1	7.2%
-15.00%	0	7.2%
-12.50%	1	8.2%
-10.00%	4	12.4%
-7.50%	7	19.6%
-5.00%	1	20.6%
-2.50%	3	23.7%
0.00%	3	26.8%
2.50%	4	30.9%
5.00%	2	33.0%
7.50%	7	40.2%
10.00%	1	41.2%
12.50%	7	48.5%
15.00%	2	50.5%
17.50%	5	55.7%
20.00%	7	62.9%
22.50%	4	67.0%
25.00%	6	73.2%
27.50%	3	76.3%
30.00%	3	79.4%
32.50%	9	88.7%
35.00%	2	90.7%
37.50%	3	93.8%
40.00%	1	94.8%
42.50%	0	94.8%
45.00%	2	96.9%
47.50%	0	96.9%
50.00%	1	97.9%
52.50%	0	97.9%
55.00%	2	100.0%
57.50%	0	100.0%
60.00%	0	100.0%
62.50%	0	100.0%
	97	

MRP from Direct	Rank
9.75%	53.00%

MRP from Rebuttal	Rank
10.01%	53.50%

Average Return from Direct	Rank
13.66%	48.90%

Average Return from Rebuttal	
13.81%	49.10%

Referenced Endnotes

for the

Rebuttal Testimony

of

Dylan W. D'Ascendis

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[1] Garrett Direct Testimony, at 7 and 77-79. 45.00 percent includes short-term and long-term debt.

[2] Exhibits DJG-7 and DJG-12, respectively. Mr. Garrett also calculates an 8.3 percent Analyst Growth DCF, but states that the result is not indicative of market-based equity costs.

[3] Garrett Direct Testimony, at 6.

[4] Exhibit DJG-13.

[5] Exhibit DJG-14.

[6] *In re:* Petition for rate increase by Peoples Gas System No. 20200051-GU, Florida Public Service Commission, Direct Testimony of David J. Garrett (August 31, 2020), at 13.

[7] Garrett Direct Testimony, at 7-8.

[8] Garrett Direct Testimony, at 14-17.

[9] A. Lawrence Kolbe, George A. Read, Jr, George Hall, *The Cost of Capital: Estimating the Rate of Return for Public Utilities*, The MIT Press, 1984, at 21.

[10] Garrett Direct Testimony, at 15.

[11] Garrett Direct Testimony, at 16-17.

[12] Garrett Direct Testimony, at 16. Clarification and emphasis added.

[13] D'Ascendis Direct Testimony, at 7-10.

[14] Garrett Direct Testimony, at 14-15.

[15] David C. Parcell, *Cost of Capital Manual*, Society of Utility and Regulatory Financial Analysts, 2010 Edition, at 3-4.

[16] James C. Bonbright, *Principles of Public Utility Rates*, Columbia University Press, 1961, at 106-107.

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[17] Charles F. Phillips, *The Regulation of Public Utilities*, Public Utility Reports, Inc., 1993, at 173.

[18] Garrett Direct Testimony, at 77-79.

[19] Exhibit DJG-14.

[20] Garrett Direct Testimony, Figure 7, at 19; and Exhibit DJG-14.

[21] Garrett Direct Testimony, at 19.

[22] Garrett Direct Testimony, at 16.

[23] Garrett Direct Testimony, at 20.

[24] The XLU and DJU gained 29.05 percent and 30.13 percent, respectively, while the S&P 500 gained 103.13 percent. Source: S&P Capital IQ.

[25] D'Ascendis Direct Testimony, at 33-37.

[26] Source: 2023 SBBI® Yearbook, Stocks, Bonds, Bills, and Inflation®, Appendix A-1.

[27] Autoregressive conditional heteroscedasticity; see also, www.nobelprize.org.

[28] Source: 2023 SBBI® Yearbook, Stocks, Bonds, Bills, and Inflation®, Appendix A-1.

[29] Garrett Direct Testimony, at 16.

[30] Exhibit DJG-7.

[31] Exhibits DJG-4 and DJG-5.

[32] Exhibit DJG-6.

[33] Garrett Direct Testimony, at 39.

[34] Exhibit DJG-7.

[35] Garrett Direct Testimony, at 39; 2.20 percent equals nominal GDP of 3.90 percent minus real GDP of 1.70 percent.

[36] In the risk/return space, debt securities, with a higher yield and considerably less risk of capital loss (if held to maturity) may be the preferred alternative.

[37] Garrett Direct Testimony, at 40-42.

[38] Garrett Direct Testimony, at 40.

[39] Garrett Direct Testimony, at 41-42.

[40] *See*, for example, Atmos Energy Corporation., FQ2 2023 Earnings Call Transcript, May 4, 2023; New Jersey Resources Corp., FQ2 2023 Earnings Call Transcript, May 4, 2023; NiSource Inc., FQ1 2023 Earnings Call Transcript, May 3, 2023; Northwest Natural Holding Co., FQ1 2023 Earnings Call Transcript, May 4, 2023; ONE Gas, Inc., FQ1 2023 Earnings Call Transcript, May 2, 2023; Spire Inc., FQ2 2023 Earnings Call Transcript, May 3, 2023.

[41] Garrett Direct Testimony, at 42.

[42] Garrett Direct Testimony, at 39.

[43] *See*, for example, Harris, *Using Analysts' Growth Forecasts to Estimate Shareholder Required Rate of Return*, Financial Management, Spring 1986; Christofi, Christofi, Lori and Moliver, *Evaluating Common Stocks Using Value Line's Projected Cash Flows and Implied Growth Rate*, Journal of Investing, Spring 1999; Harris and Marston, *Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts*, Financial Management, Summer 1992; and Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs. History*, The Journal of Portfolio Management, Spring 1988.

[44] Source: Bureau of Economic Analysis.

[45] Garrett Direct Testimony, at 39.

[46] To put the amount of time that will take these two milestones to happen in perspective, approximately 300 years ago, in the year 1719, France and Spain were at war in New France (now Louisiana), and approximately 3,476 years ago, in the year 1457 BC, the first recorded battle in military history, the Battle of Megiddo, was waged between the Egyptians, led by Pharaoh Thutmose III against Kadesh, Canaanite, Mitanni, and Amurru forces. *See also* Zager and Evans, *In the Year 2525*, *on* 2525 (Exordium & Terminus) (RCA 1968).

[47] Bodie, Kane, and Marcus, Investments, 7th Edition, McGraw-Hill Irwin, 2008, at 616-617.

[48] Garrett Direct Testimony, at 40-43.

[49] U.S. Supreme Court, *Duquesne Light Co. v. Barasch*, No. 87-1160 (1989).

[50] Garrett Direct Testimony, at 41-42.

[51] James C. Bonbright, Albert L. Danielsen and David R. Kamerschen, Principles of Public Utility Rates, Second Edition, Public Utilities Reports, Inc., 1988, at 334.

[52] Exhibit DJG-8.

[53] Exhibit DJG-11.

[54] Exhibit DJG-9.

[55] Exhibit DJG-12.

[56] Garrett Direct Testimony, Figure 12, at 55; and Exhibit DJG-11.

[57] D'Ascendis Direct Testimony, at 53-55.

[58] *See*, Pablo Fernandez, Eduardo de Apellaniz and Javier F. Acin, *Survey: Market Risk Premium and Risk-Free Rate used for 81 countries in 2020*, IESE Business School, March 25, 2020, at 10. Specifically, the study states: [t]he [implied equity premium] is the implicit [required equity premium] used in the valuation of a stock (or market index) that matches the current market price. The most widely used model to calculate the [implied equity premium] is the dividend discount model: the current price per share (P_0) is the present value of expected dividends discounted at the required rate of return (K_e). If d_1 is the dividend per share expected to be received in year 1, and g the expected long-term growth rate in dividends per share,
$P_0 = d_1 / (Ke - g)$, which implies:
[implied equity premium] = $d_1/P_0 + g - R_f$

[59] Aswath Damodaran, Stern School of Business, *Equity Risk Determinants, Estimation and Implications – The 2022 Edition*, Updated March 23, 2022, at 27-28.

[60] Garrett Direct Testimony, at 51-54.

[61] Garrett Direct Testimony, at 54.

[62] *See*, http://pages.stern.nyu.edu/~adamodar.

[63] Exhibit DJG-10.

[64] Exhibit DJG-10. The model also assumes that all payments are received at year-end, rather than during the year. That assumption also tends to under-state the implied MRP.

[65] Exhibit DJG-10. Whereas the compound average growth rate in operating earnings was 6.64 percent, dividends and buybacks grew by 7.24 percent and 8.75 percent, respectively.

[66] Document No. 13, page 2.

[67] Document No. 13. Please note that regardless of the assumed first and terminal-stage growth rates, the terminal stage consistently represents approximately 77.00 percent of the Intrinsic Value.

[68] *See*, http://pages.stern.nyu.edu/~adamodar.

[69] Source: Bureau of Economic Analysis for the years 1929 to 2022. *See also*, https://www.bea.gov/data/gdp/gross-domestic-product.

[70] SBBI-2023, 137.

[71] Exhibit DJG-10. (5047/4135)^(1/4)- 1 = 5.11 percent.

[72] As measured by the long-term rate of capital appreciation.

[73] For example, in line with the Federal Reserve's target average rate of inflation.

[74] 1.78 percent = [(1.0381/1.020)-1]. Please note that the long-term historical average rate of inflation, measured by the difference between real and nominal GDP growth, has been approximately 2.93 percent, which would also imply perpetual real growth of 0.88 percent. Similarly, the projected difference in nominal GDP and real GDP from the Congressional Budget Office as reported in Exhibit DJG-6 has been approximately 2.20 percent, which implies perpetual real growth of 1.61 percent.

[75] FRBSF Economic Letter, *Does Slower Growth Imply Lower Interest Rates?*, November 10, 2014, at 3.

[76] D'Ascendis Direct Testimony, at 50-52.

[77] Garrett Direct Testimony, at 63.

[78] Garrett Direct Testimony, at 62.

[79] Garrett Direct Testimony, at 65.

[80] Garrett Direct Testimony, at 64.

[81] Garrett Direct Testimony, at 64.

[82] D'Ascendis Direct Testimony, at 66.

[83] Garrett Direct Testimony, at 65.

[84] Clifford S. Ang, "The Absence of a Size Effect Relevant to the cost of Equity", Business Valuation Review, Volume 37, No. 3, 2018.

[85] SBBI-2023, at 137. Note: Utility companies are included in this data set.

[86] Garrett Direct Testimony, at 67-68.

[87] Garrett Direct Testimony, at 67.

[88] This example is based on an analysis performed by Dr. Roger Morin. See, Roger A. Morin, Modern Regulatory Finance, Public Utility Reports, Inc., 2021, at 337-340.

[89] Document No. 15 is provided for illustrative purposes only. Please note that I have not relied on the results of the analysis in determining my recommended ROE or range.

[90] Garrett Direct Testimony, at 67-68.

[91] Garrett Direct Testimony, at 58.

[92] Garrett Direct Testimony, at 66.

[93] Garrett Direct Testimony, at 22.

[94] Garrett Direct Testimony, at 74-76.