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April 4, 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 20230023-GU, Petition for Rate Increase by Peoples Gas System, Inc.

Dear Mr. Teitzman:

Attached for filing on behalf of Peoples Gas System, Inc. in the above-referenced docket is the Direct Testimony of Dylan W. D'Ascendis and Exhibit No. DWD-1.

Thank you for your assistance in connection with this matter.

(Document 10 of 18)

Sincerely,

A handwritten signature in blue ink, appearing to read 'J. Jeffry Wahlen', with a long horizontal flourish extending to the right.

J. Jeffry Wahlen

cc: Charles J. Rehwinkel, Public Counsel
Jon Moyle, FIPUG
Major Thompson, OGC
Ryan Sandy, OGC

JJW/ne
Attachment

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 20230023-GU

IN RE: PETITION FOR RATE INCREASE
BY PEOPLES GAS SYSTEM, INC.

PREPARED DIRECT TESTIMONY AND EXHIBIT
OF
DYLAN W. D'ASCENDIS

ON BEHALF OF
PEOPLES GAS SYSTEM, INC.

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OF
DYLAN W. D'ASCENDIS
ON BEHALF OF PEOPLES GAS SYSTEM, INC.

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

PREPARED DIRECT TESTIMONY

OF

DYLAN W. D'ASCENDIS

ON BEHALF OF PEOPLES GAS SYSTEM, INC.

1
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5
6
7 **I. INTRODUCTION**

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

9
10 **A.** My name is Dylan W. D'Ascendis. My business address is 3000
11 Atrium Way, Suite 200, Mount Laurel, New Jersey 08054. I am
12 employed by ScottMadden, Inc. as a Partner.

13
14 **Q.** Please provide a brief outline of your educational background
15 and relevant business experience.

16
17 **A.** I am a graduate of the University of Pennsylvania, where I
18 received a Bachelor of Arts degree in Economic History. I
19 also received a Master of Business Administration with high
20 honors and concentrations in Finance and International
21 Business from Rutgers University.

22
23 I have offered expert testimony on behalf of investor-owned
24 utilities before more than 35 state regulatory commissions in
25 the United States, the Federal Energy Regulatory Commission,

1 the Alberta Utility Commission, an American Arbitration
2 Association panel, and the Superior Court of Rhode Island on
3 issues including, but not limited to, common equity cost rate,
4 rate of return, valuation, capital structure, class cost of
5 service, and rate design.

6
7 I also provide services on behalf of the American Gas
8 Association ("AGA"). I calculate the AGA Gas Index, which
9 serves as the benchmark against which the performance of the
10 American Gas Index Fund ("AGIF") is measured on a monthly
11 basis. The AGA Gas Index and AGIF are a market capitalization
12 weighted index and mutual fund, respectively, comprised of
13 the common stocks of the publicly traded corporate members of
14 the AGA.

15
16 I am a member of the Society of Utility and Regulatory
17 Financial Analysts ("SURFA"). In 2011, I was awarded the
18 professional designation "Certified Rate of Return Analyst"
19 by SURFA, which is based on education, experience, and the
20 successful completion of a comprehensive written examination.

21
22 I am also a member of the National Association of Certified
23 Valuation Analysts ("NACVA") and was awarded the professional
24 designation "Certified Valuation Analyst" by the NACVA in
25 2015.

1 The details of my educational background and expert witness
2 appearances are provided in Document No. 13 to my direct
3 testimony.

4
5 **Q.** What is the purpose of your prepared direct testimony in this
6 proceeding?

7
8 **A.** The purpose of my direct testimony is to present evidence and
9 provide the Florida Public Service Commission ("Commission")
10 with a recommendation regarding Peoples Gas System, Inc.'s
11 ("Peoples" or the "company") return on common equity ("ROE")
12 for its natural gas operations, and to provide an assessment
13 of the capital structure to be used for ratemaking purposes,
14 as proposed in the direct testimony of Peoples witnesses
15 Rachel B. Parsons and Kenneth D. McOnie.

16
17 **Q.** Did you prepare any exhibits in support of your prepared
18 direct testimony?

19
20 **A.** Yes. Exhibit No. DWD-1 was prepared by me or under my
21 direction and supervision. My analyses and conclusions are
22 supported by the data presented in Document Nos. 1 through
23 13.

24 Document No. 1 Summary of Common Equity Cost Rate

25 Document No. 2 Financial Profile of the Utility Proxy

1		Group
2	Document No. 3	Application of the Discounted Cash Flow
3		Model
4	Document No. 4	Application of the Risk Premium Model
5	Document No. 5	Application of the Capital Asset Pricing
6		Model
7	Document No. 6	Basis of Selection for the Non-Price
8		Regulated Companies Comparable in Total
9		Risk to the Utility Proxy Group
10	Document No. 7	Application of Cost of Common Equity Models
11		to the Non-Price Regulated Proxy Group
12	Document No. 8	Derivation of the Flotation Cost Adjustment
13		to the Cost of Common Equity
14	Document No. 9	Derivation of the Indicated Size Premium
15		for Peoples Relative to the Utility Proxy
16		Group
17	Document No. 10	Comparison of Projected Capital
18		Expenditures Relative to Net Plant
19	Document No. 11	Fama & French - Figure 2
20	Document No. 12	Referenced Endnotes for the Prepared Direct
21		Testimony of Dylan W. D'Ascendis
22	Document No. 13	Resume and Testimony Listing of Dylan W.
23		D'Ascendis
24		
25	Q.	What is your recommended common equity cost rate?

1 **A.** I recommend that the Commission authorize Peoples the
2 opportunity to earn an ROE of 11.00 percent on its
3 jurisdictional rate base, based on its proposed ratemaking
4 capital structure. The company's requested ratemaking
5 capital structure consists of 40.48 percent long-term debt
6 and 54.68 percent common equity, to which my recommended ROE
7 of 11.00 percent would apply. That common equity ratio is
8 consistent with the company's historical equity ratios, and
9 the equity ratios maintained by the Utility Proxy Group
10 (discussed below) and their operating subsidiary utility
11 companies. The overall rate of return is summarized on page
12 1 of Document No. 1.

13
14 **Q.** Please summarize your recommended ROE.

15
16 **A.** My recommended ROE of 11.00 percent is summarized on page 2
17 of Document No. 1. I have assessed the market-based common
18 equity cost rates of companies of relatively similar, but not
19 necessarily identical, risk to Peoples. Using companies of
20 relatively comparable risk as proxies is consistent with the
21 principles of fair rate of return established by the U.S.
22 Supreme Court in two cases: (1) *Federal Power Comm'n v. Hope*
23 *Natural Gas Co.*, 320 U.S. 591 (1944) ("*Hope*"); and (2)
24 *Bluefield Water Works Improvement Co. v. Public Serv. Comm'n*,
25 262 U.S. 679 (1923) ("*Bluefield*"). No proxy group can be

1 identical in risk to any single company. Consequently, there
2 must be an evaluation of relative risk between the company
3 and the proxy group to determine if it is appropriate to
4 adjust the proxy group's indicated rate of return.

5
6 My recommendation results from the application of several
7 cost of common equity models, specifically the Discounted
8 Cash Flow ("DCF") model, the Risk Premium Model ("RPM"), and
9 the Capital Asset Pricing Model ("CAPM"), to the market data
10 of a proxy group of six natural gas distribution utilities
11 ("Utility Proxy Group") whose selection criteria will be
12 discussed below. In addition, I applied the DCF model, RPM,
13 and CAPM to a Non-Price Regulated Proxy Group similar in total
14 risk to the Utility Proxy Group. In order to be conservative,
15 I did not consider the ROE model results applied to my Non-
16 Price Regulated Proxy Group in the determination of my
17 recommended range. The results derived from each are
18 summarized on page 2 of Document No. 1.

19
20 The indicated range of common equity cost rates applicable to
21 the Utility Proxy Group is between 10.00 percent and 11.62
22 percent before any company-specific adjustments.

23
24 To reflect Peoples' specific business risks, I adjusted the
25 indicated common equity cost rate model results to reflect

1 the company's smaller relative size, as well as high level of
2 customer growth, overall performance, and capital investment
3 plans, as compared to the Utility Proxy Group. I also
4 adjusted the indicated range of common equity cost rate upward
5 to reflect flotation costs.¹ These adjustments resulted in a
6 company-specific indicated range of common equity cost rates
7 between 10.32 percent and 11.70 percent. Given the Utility
8 Proxy Group and company-specific ranges of common equity cost
9 rates, I recommend the Commission adopt an ROE of 11.00
10 percent for ratemaking purposes in this case.

11
12 **II. GENERAL PRINCIPLES**

13 **Q.** What general principles have you considered in arriving at
14 your recommended common equity cost rate of 11.00 percent?
15

16 **A.** In unregulated industries, marketplace competition is the
17 principal determinant of the price of products or services.
18 For regulated public utilities, regulation must act as a
19 substitute for marketplace competition. Assuring that the
20 utility can fulfill its obligations to the public, while
21 providing safe and reliable service at all times, requires a
22 level of earnings sufficient to maintain the integrity of
23 presently invested capital. Sufficient earnings also permit
24 the attraction of needed new capital at a reasonable cost,
25 for which the utility must compete with other companies of

1 comparable risk, consistent with the fair rate of return
2 standards established by the U.S. Supreme Court in the
3 previously cited *Hope* and *Bluefield* cases.

4
5 The U.S. Supreme Court affirmed the fair rate of return
6 standards in *Hope* when it stated:

7 The rate-making process under the Act, *i.e.*, the
8 fixing of 'just and reasonable' rates, involves a
9 balancing of the investor and the consumer
10 interests.

11
12 Thus we stated in the *Natural Gas Pipeline Co. Case*
13 that 'regulation does not insure that the business
14 shall produce net revenues.' 315 U.S. at page 590,
15 62 S.Ct. at page 745. But such considerations
16 aside, the investor interest has a legitimate
17 concern with the financial integrity of the company
18 whose rates are being regulated. From the investor
19 or company point of view it is important that there
20 be enough revenue not only for operating expenses
21 but also for the capital costs of the business.
22 These include service on the debt and dividends on
23 the stock. *Cf. Chicago & Grand Trunk R. Co. v.*
24 *Wellman*, 143 U.S. 339, 345, 346 12 S.Ct. 400,402.
25 By that standard the return to the equity owner

1 should be commensurate with returns on investments
2 in other enterprises having corresponding risks.
3 That return, moreover, should be sufficient to
4 assure confidence in the financial integrity of the
5 enterprise, so as to maintain its credit and to
6 attract capital.²

7
8 In summary, the U.S. Supreme Court has found a return that is
9 adequate to attract capital at reasonable terms enables the
10 utility to provide service while maintaining its financial
11 integrity. As discussed above, and in keeping with
12 established regulatory standards, that return should be
13 commensurate with the returns expected elsewhere for
14 investments of equivalent risk. The Commission's decision in
15 this proceeding, therefore, should provide the company with
16 the opportunity to earn a return that is: (1) adequate to
17 attract capital at reasonable cost and terms; (2) sufficient
18 to ensure its financial integrity; and (3) commensurate with
19 returns on investments in enterprises having corresponding
20 risks.

21
22 Lastly, the required return for a regulated public utility is
23 established on a stand-alone basis, *i.e.*, for the utility
24 operating company at issue in a rate case. Parent entities,
25 like other investors, have capital constraints and must look

1 at the attractiveness of the expected risk-adjusted return of
2 each investment alternative in their capital budgeting
3 process. That is, utility holding companies that own many
4 utility operating companies have choices as to where they
5 will invest their capital within the holding company family.
6 Therefore, the opportunity cost concept applies regardless of
7 the source of the funding, public funding or corporate
8 funding.

9
10 It therefore is important that the authorized ROE reflects
11 the risks and prospects of the utility's operations and
12 supports the utility's financial integrity from a stand-alone
13 perspective, as measured by its combined business and
14 financial risks. Consequently, the ROE authorized in this
15 proceeding should be sufficient to support the operational
16 (*i.e.*, business risk) and financing (*i.e.*, financial risk) of
17 the company's utility subsidiary on a stand-alone basis.

18
19 **Q.** Within that broad framework, how is the cost of capital
20 estimated in regulatory proceedings?

21
22 **A.** Regulated utilities primarily use common stock and long-term
23 debt to finance their permanent property, plant, and
24 equipment (*i.e.*, rate base). The fair rate of return for a
25 regulated utility is based on its weighted average cost of

1 capital, in which, as noted earlier, the costs of the
2 individual sources of capital are weighted by their
3 respective book values.

4
5 The cost of capital is the return investors require to make
6 an investment in a company. Investors will provide funds to
7 a firm only if the return that they *expect* is equal to, or
8 greater than, the return that they *require* to accept the risk
9 of providing funds to the firm.

10
11 The cost of capital (*i.e.*, the combination of the costs of
12 debt and equity) is based on the economic principle of
13 "opportunity costs." Investing in any asset (whether debt or
14 equity securities) represents a forgone opportunity to invest
15 in alternative assets. For any investment to be sensible,
16 its expected return must be at least equal to the return
17 expected on alternative, comparable risk investment
18 opportunities. Because investments with like risks should
19 offer similar returns, the opportunity cost of an investment
20 should equal the return available on an investment of
21 comparable risk.

22
23 Whereas the cost of debt is contractually defined and can be
24 directly observed as the interest rate or yield on debt
25 securities, the cost of common equity must be estimated based

1 on market data and various financial models. Because the
2 cost of common equity is premised on opportunity costs, the
3 models used to determine it are typically applied to a group
4 of "comparable" or "proxy" companies.

5
6 In the end, the estimated cost of capital should reflect the
7 return that investors require in light of the subject
8 company's business and financial risks, and the returns
9 available on comparable investments.

10
11 **Q.** Is the authorized return set in regulatory proceedings
12 guaranteed?

13
14 **A.** No, it is not. Consistent with the *Hope* and *Bluefield*
15 standards, the ratemaking process should provide the utility
16 a reasonable opportunity to recover its return of, and return
17 on, its reasonably incurred investments, but it does not
18 guarantee that return. While a utility may have control over
19 some factors that affect the ability to earn its authorized
20 return (e.g., management performance, operating and
21 maintenance expenses, etc.), there are several factors beyond
22 a utility's control that affect its ability to earn its
23 authorized return. Those may include factors such as weather,
24 the economy, and the prevalence and magnitude of regulatory
25 lag.

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A. Business Risk

Q. Please define business risk and explain why it is important for determining a fair rate of return.

A. The investor-required return on common equity reflects investors' assessment of the total investment risk of the subject firm. Total investment risk is often discussed in the context of business and financial risk.³

Business risk reflects the uncertainty associated with owning a company's common stock without the company's use of debt and/or preferred stock financing. One way of considering the distinction between business and financial risk is to view the former as the uncertainty of the expected earned return on common equity, assuming the firm is financed with no debt.

Examples of business risks generally faced by utilities include, but are not limited to, the regulatory environment, mandatory environmental compliance requirements, customer mix and concentration of customers, service territory economic growth, market demand, risks and uncertainties of supply, operations, capital intensity, size, the degree of operating leverage, emerging technologies, the vagaries of weather, and the like, all of which have a direct bearing on earnings.

1 Although analysts, including ratings agencies, may categorize
2 business risks individually, as a practical matter, such
3 risks are interrelated and not wholly distinct from one
4 another. When determining an appropriate return on common
5 equity, the relevant issue is where investors see the subject
6 company in relation to other similarly situated utility
7 companies (e.g., those in the Utility Proxy Group). To the
8 extent investors view a company as being exposed to higher
9 risk, the required return will increase, and vice versa.

10
11 For regulated utilities, business risks are both long-term
12 and near-term in nature. Whereas near-term business risks
13 are reflected in year-to-year variability in earnings and
14 cash flow brought about by economic or regulatory factors,
15 long-term business risks reflect the prospect of an impaired
16 ability of investors to obtain both a fair rate of return on,
17 and return of, their capital. Moreover, because utilities
18 accept the obligation to provide safe, adequate, and reliable
19 service at all times (in exchange for a reasonable opportunity
20 to earn a fair return on their investment), they generally do
21 not have the option to delay, defer, or reject capital
22 investments. Because those investments are capital-
23 intensive, utilities generally do not have the option to avoid
24 raising external funds during periods of capital market
25 distress, if necessary.

1 Because utilities invest in long-lived assets, long-term
2 business risks are of paramount concern to equity investors.
3 That is, the risk of not recovering the return on their
4 investment extends far into the future. The timing and nature
5 of events that may lead to losses, however, also are uncertain
6 and, consequently, those risks and their implications for the
7 required return on equity tend to be difficult to quantify.
8 Regulatory commissions (like investors who commit their
9 capital) must review a variety of quantitative and
10 qualitative data and apply their reasoned judgment to
11 determine how long-term risks weigh in their assessment of
12 the market-required return on common equity.

13
14 **B. Financial Risk**

15 **Q.** Please define financial risk and explain why it is important
16 for determining a fair rate of return.

17
18 **A.** Financial risk is the additional risk created by the
19 introduction of debt and preferred stock into the capital
20 structure. The higher the proportion of debt and preferred
21 stock in the capital structure, the higher the financial risk
22 to common equity owners (*i.e.*, failure to receive dividends
23 due to default or other covenants). Therefore, consistent
24 with the basic financial principle of risk and return, common
25 equity investors require higher returns as compensation for

1 bearing higher financial risk.

2

3 **Q.** Can bond and credit ratings be a proxy for a firm's combined
4 business and financial risks to equity owners (*i.e.*,
5 investment risk)?

6

7 **A.** Yes, similar bond ratings/issuer credit ratings reflect, and
8 are representative of, similar combined business and
9 financial risks (*i.e.*, total risk) faced by bond investors.⁴
10 Although specific business or financial risks may differ
11 between companies, the same bond/credit rating indicates that
12 the combined risks are roughly similar from a debtholder
13 perspective. The caveat is that these debtholder risk
14 measures do not translate directly to risks for common equity.

15

16 **Q.** Do ratings agencies account for company size in their bond
17 ratings?

18

19 **A.** No. Neither Standard & Poor's Ratings Services ("S&P") nor
20 Moody's Investors Service ("Moody's") have minimum company
21 size requirements for any given rating level. This means,
22 all else being equal, a relative size analysis must be
23 conducted for equity investments in companies with similar
24 bond ratings.

25

1 **III. PEOPLES AND THE UTILITY PROXY GROUP**

2 **Q.** Are you familiar with Peoples' operations?

3

4 **A.** Yes. As of the end of December, 2022, Peoples Gas System was
5 a division of Tampa Electric Company providing natural gas
6 distribution service to over 467,000 residential, commercial,
7 industrial and electric power generation customers in the
8 state of Florida.⁵ As of January 1, 2023, the assets of
9 Peoples Gas System, a division of Tampa Electric Company were
10 transferred to Peoples Gas System, Inc., a wholly owned
11 subsidiary of TECO Gas Operations, Inc., which is not publicly
12 traded as it comprises an operating subsidiary of TECO Energy,
13 Inc., whose ultimate parent is Emera Incorporated ("Emera").⁶
14 Emera has electric generation, transmission and distribution
15 operations, natural gas transmission and distribution
16 operations, and non-regulated energy marketing operations in
17 the U.S., Canada, and Caribbean Islands.⁷ Emera is publicly
18 traded on the Toronto Stock Exchange under ticker symbol EMA.

19

20 **Q.** Why is it necessary to develop a proxy group when estimating
21 the ROE for the company?

22

23 **A.** Because the company is not publicly traded and does not have
24 publicly traded equity securities, it is necessary to develop
25 groups of publicly traded, comparable companies to serve as

1 "proxies" for the company. In addition to the analytical
2 necessity of doing so, the use of proxy companies is
3 consistent with the *Hope* and *Bluefield* comparable risk
4 standards, as discussed above. I have selected two proxy
5 groups that, in my view, are fundamentally risk-comparable to
6 the company: a Utility Proxy Group, and a Non-Price Regulated
7 Proxy Group that is comparable in total risk to the Utility
8 Proxy Group.⁸

9
10 Even when proxy groups are carefully selected, it is common
11 for analytical results to vary from company to company.
12 Despite the care taken to ensure comparability, because no
13 two companies are identical, market expectations regarding
14 future risks and prospects will vary within the proxy group.
15 It therefore is common for analytical results to reflect a
16 seemingly wide range, even for a group of similarly situated
17 companies. At issue is how to estimate the ROE from within
18 that range. That determination will be best informed by
19 employing a variety of sound analyses that necessarily must
20 consider the sort of quantitative and qualitative information
21 discussed throughout my direct testimony. Additionally, a
22 relative risk analysis between the company and the Utility
23 Proxy Group must be made to determine whether or not explicit
24 company-specific adjustments need to be made to the Utility
25 Proxy Group's indicated results.

1 Q. Please explain how you selected the companies in the Utility
2 Proxy Group.

3

4 A. The companies selected for the Utility Proxy Group met the
5 following criteria:

6 • They were included in the Natural Gas Utility Group of
7 *Value Line's Standard Edition* (November 25, 2022) ("*Value*
8 *Line*");

9 • They have 60 percent or greater of fiscal year 2021 total
10 operating income derived from, and 60 percent or greater
11 of fiscal year 2021 total assets attributable to,
12 regulated gas distribution operations;

13 • At the time of preparation of this testimony, they had
14 not publicly announced that they were involved in any
15 major merger or acquisition activity (*i.e.*, one publicly-
16 traded utility merging with or acquiring another) or any
17 other major development;

18 • They have not cut or omitted their common dividends during
19 the five years ended 2021 or through the time of
20 preparation of this testimony;

21 • They have *Value Line* and Bloomberg Professional Services
22 ("*Bloomberg*") adjusted Beta coefficients ("*beta*");

23 • They have positive *Value Line* five-year dividends per
24 share ("*DPS*") growth rate projections; and

25 • They have *Value Line*, Zacks, or Yahoo! Finance consensus

1 five-year earnings per share ("EPS") growth rate
2 projections.

3

4 **Q.** Please identify the companies that met the above-stated
5 criteria.

6

7 **A.** The following six companies met these criteria: Atmos Energy
8 Corporation (Ticker: ATO); New Jersey Resources Corporation
9 (Ticker: NJR); NiSource Inc. (Ticker: NI); Northwest Natural
10 Gas Company (Ticker: NWN); ONE Gas, Inc. (Ticker: OGS); and
11 Spire Inc. (Ticker: SR).

12

13 **Q.** Please describe Document No. 2, page 1.

14

15 **A.** Page 1 of Document No. 2 contains comparative capitalization
16 and financial statistics for the Utility Proxy Group for the
17 five years from 2017 to 2021.

18

19 During the five-year period ending December 31, 2021, the
20 historically achieved average earnings rate on book common
21 equity for the group was 8.13 percent, the average common
22 equity ratio based on total permanent capital (excluding
23 short-term debt) was 50.13 percent, and the average dividend
24 payout ratio was 63.67 percent.

25

1 Total debt to earnings before interest, taxes, depreciation,
2 and amortization for the years 2017 to 2021 ranges between
3 4.96 and 7.65 times, with an average of 5.75 times. Funds
4 from operations to total debt range from 11.70 percent to
5 24.21 percent, with an average of 15.94 percent.
6

7 **IV. CAPITAL STRUCTURE**

8 **Q.** What is Peoples' requested capital structure?
9

10 **A.** Peoples' requested capital structure consists of 40.48
11 percent long-term debt and 54.68 percent common equity, as
12 shown in my Document No. 1 that is based on data included in
13 the company's MFR Schedule G-3, page 2.
14

15 **Q.** What are the typical sources of capital commonly considered
16 in establishing a utility's capital structure?
17

18 **A.** Common equity and long-term debt are commonly considered in
19 establishing a utility's capital structure, because they are
20 the typical sources of capital financing for a utility's rate
21 base.
22

23 **Q.** Please explain.
24

25 **A.** Long-lived assets are typically financed with long-lived

1 securities, so that the overall term structure of the
2 utility's long-term liabilities (both debt and equity)
3 closely match the life of the assets being financed. As
4 stated by Brigham and Houston:

5 In practice, firms don't finance each specific
6 asset with a type of capital that has a maturity
7 equal to the asset's life. However, academic
8 studies do show that most firms tend to finance
9 short-term assets from short-term sources and long-
10 term assets from long-term sources.⁹

11
12 Whereas short-term debt has a maturity of one year or less,
13 long-term debt may have maturities of 30 years or longer.
14 Although there are practical financing constraints, such as
15 the need to "stagger" long-term debt maturities, the general
16 objective is to extend the average life of long-term debt.
17 Still, long-term debt has a finite life, which is likely to
18 be less than the life of the assets included in rate base.
19 Common equity, on the other hand, is outstanding into
20 perpetuity. Thus, common equity more accurately matches the
21 life of the going concern of the utility, which is also
22 assumed to operate in perpetuity. Consequently, it is both
23 typical and important for utilities to have significant
24 proportions of common equity in their capital structures.

25

1 Q. Why is it important that the company's requested capital
2 structure, consisting of 40.48 percent long-term debt and
3 54.68 percent common equity, be authorized in this
4 proceeding?

5
6 A. In order to continue to provide safe and reliable service to
7 its customers, Peoples must meet the needs and serve the
8 interests of its various stakeholders, including its
9 customers, shareholders, and bondholders. The interests of
10 these stakeholder groups are aligned with maintaining a
11 healthy balance sheet, strong credit ratings, and a
12 supportive regulatory environment, so that the company has
13 access to capital on reasonable terms in order to make
14 necessary investments.

15
16 Safe and reliable service cannot be maintained at a reasonable
17 cost if utilities do not have the financial flexibility and
18 strength to access competitive financing markets on
19 reasonable terms. The authorization of a capital structure
20 that understates the company's actual common equity will
21 weaken the financial condition of its operations and
22 adversely impact the company's ability to address expenses
23 and investments, to the detriment of customers and
24 shareholders. Safe and reliable service for customers cannot
25 be sustained over the long term if the interests of

1 shareholders and bondholders are minimized such that the
2 public interest is not optimized.

3
4 **Q.** How does the company's requested common equity ratio of 54.68
5 percent compare with the common equity ratios maintained by
6 the Utility Proxy Group?

7
8 **A.** The company's requested ratemaking common equity ratio of
9 54.68 percent is reasonable and consistent with the range of
10 common equity ratios maintained by the Utility Proxy Group.

11
12 As shown on page 2 of Document No. 2, common equity ratios
13 for the Utility Proxy Group range from 33.36 percent to 60.65
14 percent for fiscal year 2021.¹⁰ I also considered *Value Line*
15 projected capital structures for the Utility Proxy Group for
16 2025-2027. That analysis showed a range of projected common
17 equity ratios between 39.50 percent and 60.00 percent for the
18 Utility Proxy Group (see, pages 2 through 7 of Document No.
19 3).

20
21 In addition to comparing the company's proposed common equity
22 ratio with common equity ratios currently and expected to be
23 maintained by the Utility Proxy Group, I also compared the
24 company's proposed common equity ratio with the equity ratios
25 maintained by the operating subsidiaries of the Utility Proxy

1 Group. As shown on page 3 of Document No. 2, common equity
2 ratios of the operating utility subsidiaries of the companies
3 in the Utility Proxy Group range from 38.74 percent to 58.48
4 percent for fiscal year 2021.

5
6 **Q.** Given the range of equity ratios present within the Utility
7 Proxy Group, is the equity ratio of 54.68 percent proposed by
8 Peoples appropriate for ratemaking purposes?

9
10 **A.** Yes, it is.

11
12 **V. COMMON EQUITY COST RATE MODEL**

13 **Q.** Is it important that cost of common equity models be market-
14 based?

15
16 **A.** Yes. While a public utility operates a regulated business
17 within the states in which it operates, it still must compete
18 for equity in capital markets along with all other companies
19 of comparable risk, which includes non-utilities. The cost
20 of common equity is thus determined based on equity market
21 expectations for the returns of those companies. If an
22 individual investor is choosing to invest their capital among
23 companies of comparable risk, they will choose a company
24 providing a higher return over a company providing a lower
25 return.

1 Q. Are your cost of common equity models market-based?

2

3 A. Yes. The DCF model uses market prices in developing the
4 model's dividend yield component. The RPM uses bond ratings
5 and expected bond yields that reflect the market's assessment
6 of bond/credit risk. In addition, betas (β), which reflect
7 the market/systematic risk component of equity risk premium,
8 are derived from regression analyses of market prices. The
9 Predictive Risk Premium Model ("PRPM") uses monthly market
10 returns in addition to expectations of the risk-free rate.
11 The CAPM is market-based for many of the same reasons that
12 the RPM is market-based (*i.e.*, the use of expected bond yields
13 and betas). Selection criteria for comparable risk, non-
14 price regulated companies are based on regression analyses of
15 market prices and reflect the market's assessment of total
16 risk.

17

18 Q. What analytical approaches did you use to determine the
19 company's ROE?

20

21 A. As discussed earlier, I have relied on the DCF model, the
22 RPM, and the CAPM, which I applied to the Utility Proxy Group
23 described above. I also applied these same models to a Non-
24 Price Regulated Proxy Group described later in this section.

25

1 I rely on these models because reasonable investors use a
2 variety of tools and do not rely exclusively on a single
3 source of information or single model. Moreover, the models
4 on which I rely focus on different aspects of return
5 requirements and provide different insights to investors'
6 views of risk and return. The DCF model, for example,
7 estimates the investor-required return assuming a constant
8 expected dividend yield and growth rate in perpetuity, while
9 Risk Premium-based methods (*i.e.*, the RPM and CAPM
10 approaches) provide the ability to reflect investors' views
11 of risk, future market returns, and the relationship between
12 interest rates and the cost of common equity. Just as the
13 use of market data for the Utility Proxy Group adds the
14 reliability necessary to inform expert judgment in arriving
15 at a recommended common equity cost rate, the use of multiple
16 generally accepted common equity cost rate models also adds
17 reliability and accuracy when arriving at a recommended
18 common equity cost rate.

19
20 **Q.** Has the Commission approved the use of multiple methods in
21 determining the cost of equity during past rate cases of
22 Peoples?

23
24 **A.** Yes. In Docket No. 20080318-GU, the Commission stated that
25 there are several models which satisfy the terms for

1 determining a fair rate of return as laid out by *Hope* and
2 *Bluefield*:

3 While the logic of the legal and economic concepts
4 of a fair rate of return are fairly straight
5 forward, the actual implementation of these
6 concepts is more controversial. Unlike the cost
7 rate on debt that is fixed and known due to its
8 contractual terms, the cost of equity must be
9 estimated. **Financial models have been developed to**
10 **estimate the investor-required ROE for a company.**
11 Market-based approaches such as the Discounted Cash
12 Flow (DCF) model and the Capital Asset Pricing
13 Model (CAPM) are generally recognized as being
14 consistent with the market-based standards of a
15 fair return enunciated in *Hope*, 320 U.S. 591 and
16 *Bluefield*, 262 U.S. 679. [Emphasis added]¹¹

17
18 **A. Discounted Cash Flow Model**

19 **Q.** What is the theoretical basis of the DCF model?

20
21 **A.** The theory underlying the DCF model is that the present value
22 of an expected future stream of net cash flows during the
23 investment holding period can be determined by discounting
24 those cash flows at the cost of capital, or the investors'
25 capitalization rate. DCF theory indicates that an investor

1 buys a stock for an expected total return rate, which is
2 derived from the cash flows received from dividends and market
3 price appreciation. Mathematically, the dividend yield on
4 market price plus a growth rate equals the capitalization
5 rate (i.e., the total common equity return rate expected by
6 investors), as depicted in the formula below:

$$7 \quad K_e = (D_0 (1+g))/P + g$$

8 Where:

9 K_e = the required return on common equity;

10 D_0 = the annualized dividend per share;

11 P = the current stock price; and

12 g = the growth rate.

13
14 **Q.** Which version of the DCF model did you use?

15
16 **A.** I relied on the single-stage constant growth DCF model in my
17 analyses.

18
19 **Q.** Please describe the dividend yield you used in applying the
20 constant growth DCF model.

21
22 **A.** The unadjusted dividend yields are based on the proxy
23 companies' dividends as of December 30, 2022, divided by the
24 average closing market price for the 60 trading days ended
25 December 30, 2022 (see, Column 1, page 1 of Document No. 3).

1 **Q.** Please explain your adjustment to the dividend yield.

2

3 **A.** Because dividends are paid periodically (e.g., quarterly), as
4 opposed to continuously (daily), an adjustment must be made
5 to the dividend yield. This is often referred to as the
6 discrete, or the Gordon Periodic, version of the DCF model.

7

8 DCF theory calls for using the full growth rate, or D_1 , in
9 calculating the model's dividend yield component. Since the
10 companies in the Utility Proxy Group increase their quarterly
11 dividends at various times during the year, a reasonable
12 assumption is to reflect one-half the annual dividend growth
13 rate in the dividend yield component, or $D_{1/2}$. Because the
14 dividend should be representative of the next 12-month
15 period, this adjustment is a conservative approach that does
16 not overstate the dividend yield. Therefore, the actual
17 average dividend yields in Column 1, page 1 of Document No.
18 3 have been adjusted upward to reflect one-half the average
19 projected growth rate shown in Column 5.

20

21 **Q.** Please explain the basis for the growth rates you apply to
22 the Utility Proxy Group in your constant growth DCF model.

23

24 **A.** Investors are likely to rely on widely available financial
25 information services, such as *Value Line*, Zacks, and Yahoo!

1 Finance. Investors realize that analysts have significant
2 insight into the dynamics of the industries and individual
3 companies they analyze, as well as companies' abilities to
4 effectively manage the effects of changing laws and
5 regulations, and ever-changing economic and market
6 conditions. For these reasons, I used analysts' five-year
7 forecasts of earnings per share growth in my DCF analysis.

8
9 Over the long run, there can be no growth in dividends per
10 share without growth in earnings per share. Security
11 analysts' earnings expectations have a more significant
12 influence on market prices than dividend expectations. Thus,
13 using projected earnings growth rates in a DCF analysis
14 provides a better match between investors' market price
15 appreciation expectations and the growth rate component of
16 the DCF.

17
18 **Q.** Please summarize the constant growth DCF model results.

19
20 **A.** As shown on page 1 of Document No. 3, the application of the
21 constant growth DCF model to the Utility Proxy Group results
22 in a range of indicated ROEs from 8.80 percent to 11.70
23 percent. The mean of those results is 10.12 percent, the
24 median result is 9.89 percent, and the average of the two is
25 10.00 percent.

1 In arriving at a conclusion for the constant growth DCF-
2 indicated common equity cost rate for the Utility Proxy Group,
3 I relied on an average of the mean and the median results of
4 the DCF, specifically 10.00 percent, applicable to the
5 Utility Proxy Group. This approach takes into consideration
6 all proxy company results while mitigating high and low side
7 outliers of those results.

8
9 **B. The Risk Premium Model**

10 **Q.** Please describe the theoretical basis of the Risk Premium
11 Model.

12
13 **A.** The RPM is based on the fundamental financial principle of
14 risk and return; namely, that investors require greater
15 returns for bearing greater risk. The RPM recognizes that
16 common equity capital has greater investment risk than debt
17 capital, as common equity shareholders are behind debt
18 holders in any claim on a company's assets and earnings. As
19 a result, investors require higher returns from common stocks
20 than from bonds to compensate them for bearing the additional
21 risk.

22
23 While it is possible to directly observe bond returns and
24 yields, common equity returns required by investors cannot be
25 directly determined or observed. According to RPM theory,

1 one can estimate a common equity risk premium over bonds
2 (either historically or prospectively) and use that premium
3 to derive a cost rate of common equity. The cost of common
4 equity equals the expected cost rate for long-term debt
5 capital, plus a risk premium over that cost rate, to
6 compensate common shareholders for the added risk of being
7 unsecured and last-in-line for any claim on the corporation's
8 assets and earnings upon liquidation.

9
10 **Q.** Please explain how you derived your indicated cost of common
11 equity based on the RPM.

12
13 **A.** To derive my indicated cost of common equity under the RPM,
14 I used two risk premium methods. The first method was the
15 PRPM and the second method was a risk premium model using a
16 total market approach. The PRPM estimates the risk-return
17 relationship directly, while the total market approach
18 indirectly derives a risk premium by using known metrics as
19 a proxy for risk.

20
21 **The Predictive Risk Premium Model**

22 **Q.** Please explain the PRPM.

23
24 **A.** The PRPM, published in the *Journal of Regulatory Economics*,¹²
25 was developed from the work of Robert F. Engle, who shared

1 the Nobel Prize in Economics in 2003 "for methods of analyzing
2 economic time series with time-varying volatility" or ARCH.¹³
3 Engle found that volatility changes over time and is related
4 from one period to the next, especially in financial markets.
5 Engle discovered that volatility of prices and returns
6 clusters over time and is, therefore, highly predictable and
7 can be used to predict future levels of risk and risk
8 premiums.

9
10 The PRPM estimates the risk-return relationship directly, as
11 the predicted equity risk premium is generated by predicting
12 volatility or risk. The PRPM is not based on an estimate of
13 investor behavior, but rather on an evaluation of the results
14 of that behavior (*i.e.*, the variance of historical equity
15 risk premiums).

16
17 A generalized form of the ARCH methodology ("GARCH") has been
18 well tested by academia since Engle's, *et al.* research was
19 originally published in 1982, 40 years ago. The PRPM is in
20 the public domain, having been published six times in
21 academically peer-reviewed journals: Journal of Economics and
22 Business (June 2011 and April 2015),¹⁴ The Journal of
23 Regulatory Economics (December 2011),¹⁵ The Electricity
24 Journal (May 2013 and March 2020),¹⁶ and Energy Policy (April
25 2019).¹⁷ Notably, none of these articles have been rebutted

1 in the academic literature.

2
3 The PRPM is also cited in the following textbooks on cost of
4 capital by authors unaffiliated with the authors of the
5 academic articles cited above:

- 6 • Shannon Pratt and Roger Grabowski, Cost of Capital:
7 Applications and Examples, (Fifth Edition), Wiley & Sons,
8 2015;
- 9 • Shannon Pratt and Roger Grabowski, The Lawyer's Guide to
10 Cost of Capital: Understanding Risk and Return for Valuing
11 Businesses and Other Investments, ABA Publishing, 2015;
12 and
- 13 • Roger A. Morin, Modern Regulatory Finance, PUR Books, 2021.

14
15 **Q.** Please explain the application of the PRPM.

16
17 **A.** The inputs to the model are the historical returns on the
18 common shares of each of the Utility Proxy Group's companies
19 minus the historical monthly yield on long-term U.S. Treasury
20 securities through December 2022. Using GARCH, I calculated
21 each of the Utility Proxy Group's companies' projected equity
22 risk premium using Eviews® statistical software. When the
23 GARCH model is applied to the historical return data, it
24 produces a predicted GARCH variance series (as illustrated on
25 Columns 1 and 2, page 2 of Document No. 4) and a GARCH

1 coefficient (as illustrated on Column 4, page 2 of Document
2 No. 4). Multiplying the predicted monthly variance by the
3 GARCH coefficient and then annualizing it¹⁸ produces the
4 predicted annual equity risk premium. I then added the
5 forecasted 30-year U.S. Treasury bond yield of 3.91 percent
6 (see, Column 6, page 2 of Document No. 4) to each company's
7 PRPM-derived equity risk premium to arrive at an indicated
8 cost of common equity. The 30-year U.S. Treasury bond yield
9 is a consensus forecast derived from *Blue Chip Financial*
10 *Forecasts* ("*Blue Chip*").¹⁹

11
12 **Q.** Please describe your selection of a risk-free rate of return.

13
14 **A.** As shown in Document Nos. 4 and 5, the risk-free rate of
15 return adopted for applications of the RPM and CAPM is 3.91
16 percent. This risk-free rate is based on the average of the
17 *Blue Chip* consensus forecast of the expected yields on 30-
18 year U.S. Treasury bonds for the six quarters ending with the
19 first calendar quarter of 2024, and long-term projections for
20 the years 2024 to 2028 and 2029 to 2033.

21
22 **Q.** Why did you use the projected 30-year Treasury yield in your
23 analyses?

24
25 **A.** The yield on long-term U.S. Treasury bonds is almost risk-

1 free and its term is consistent with the long-term cost of
2 capital to public utilities measured by the yields on Moody's
3 A2-rated public utility bonds; the long-term investment
4 horizon inherent in utilities' common stocks; and the long-
5 term life of the jurisdictional rate base to which the allowed
6 fair rate of return (*i.e.*, cost of capital) will be applied.
7 In contrast, short-term U.S. Treasury yields are more
8 volatile and largely a function of Federal Reserve monetary
9 policy.

10
11 **Q.** What are the results of the PRPM as applied to the Utility
12 Proxy Group?

13
14 **A.** As shown on page 2 of Document No. 4, the mean PRPM-indicated
15 common equity cost rate for the Utility Proxy Group is 11.80
16 percent, the median is 12.23 percent, and the average of the
17 two is 12.02 percent. Consistent with my reliance on the
18 average of the median and mean results of the DCF model, I
19 relied on the average of the mean and median results of the
20 Utility Proxy Group's PRPM to calculate cost of common equity
21 rates of 12.02 percent for the Utility Proxy Group.

22
23 **The Total Market Approach Risk Premium Model (RPM)**

24 **Q.** Please explain the total market approach RPM.
25

1 **A.** The total market approach RPM adds a prospective public
2 utility bond yield to an average of: (1) an equity risk
3 premium that is derived from a beta-adjusted total market
4 equity risk premium, (2) an equity risk premium based on the
5 S&P Utilities Index, and (3) an equity risk premium based on
6 authorized ROEs for natural gas distribution utilities.

7
8 **Q.** Please explain the basis of the expected bond yield of 5.88
9 percent, applicable to the Utility Proxy Group.

10
11 **A.** The first step in the total market approach RPM analysis is
12 to determine the expected bond yield. Because both ratemaking
13 and the cost of capital, including the common equity cost
14 rate, are prospective in nature, a prospective yield on
15 similarly rated long-term debt is essential. I relied on a
16 consensus forecast of about 50 economists of the expected
17 yield on Aaa-rated corporate bonds for the six calendar
18 quarters ending with the first calendar quarter of 2024, and
19 *Blue Chip's* long-term projections for 2024 to 2028 and 2029
20 to 2033. As shown on line 1, page 3 of Document No. 4, the
21 average expected yield on Moody's Aaa-rated corporate bonds
22 is 5.05 percent. In order to adjust the expected Aaa-rated
23 corporate bond yield to an equivalent A2-rated public utility
24 bond yield, I made an upward adjustment of 0.83 percent, which
25 represents a recent spread between Aaa-rated corporate bonds

1 and A2-rated public utility bonds, as shown on line 2 and
2 explained in note 2, page 3 of Document No. 4. Adding that
3 recent 0.83 percent spread to the expected Aaa-rated
4 corporate bond yield of 5.05 percent results in an expected
5 A2-rated public utility bond yield of 5.88 percent, as shown
6 on page 3 of Document No. 4. This corresponds to the average
7 Moody's long-term issuer rating of the Utility Proxy Group of
8 A2.

9
10 **Q.** Please explain how the beta-derived equity risk premium is
11 determined.

12
13 **A.** The components of the beta-derived risk premium model are:
14 (1) an expected market equity risk premium over corporate
15 bonds, and (2) the beta. The derivation of the beta-derived
16 equity risk premium that I applied to the Utility Proxy Group
17 is shown on lines 1 through 9, on page 8 of Document No. 4.
18 The total beta-derived equity risk premium I applied is based
19 on an average of three historical market data-based equity
20 risk premiums, two *Value Line*-based equity risk premiums, and
21 a Bloomberg-based equity risk premium. Each of these is
22 described below.

23
24 **Q.** How did you derive a market equity risk premium based on long-
25 term historical data?

1 **A.** To derive an historical market equity risk premium, I used
2 the most recent holding period returns for the large company
3 common stocks from the Stocks, Bonds, Bills, and Inflation
4 (SBBI) Yearbook 2022 ("SBBI-2022")²⁰ less the average
5 historical yield on Moody's Aaa/Aa-rated corporate bonds for
6 the period 1928 to 2021. Using holding period returns over
7 a very long time is appropriate because it is consistent with
8 the long-term investment horizon presumed by investing in a
9 going concern, *i.e.*, a company expected to operate in
10 perpetuity.

11
12 SBBI's long-term arithmetic mean monthly total return rate on
13 large company common stocks was 12.11 percent and the long-
14 term arithmetic mean monthly yield on Moody's Aaa/Aa-rated
15 corporate bonds was 5.98 percent, as explained in note 1,
16 page 9 of Document No. 4. As shown on line 1, page 8 of
17 Document No. 4, subtracting the mean monthly bond yield from
18 the total return on large company stocks results in a long-
19 term historical equity risk premium of 6.13 percent.

20
21 I used the arithmetic mean monthly total return rates for the
22 large company stocks and yields (income returns) for the
23 Moody's Aaa/Aa-rated corporate bonds, because they are
24 appropriate for the purpose of estimating the cost of capital
25 as noted in SBBI-2022.²¹ Using the arithmetic mean return

1 rates and yields is appropriate because historical total
2 returns and equity risk premiums provide insight into the
3 variance and standard deviation of returns needed by
4 investors in estimating future risk when making a current
5 investment. If investors relied on the geometric mean of
6 historical equity risk premiums, they would have no insight
7 into the potential variance of future returns; the geometric
8 mean relates the change over many periods to a constant rate
9 of change, thereby obviating the year-to-year fluctuations,
10 or variance, which is critical to risk analysis.

11
12 **Q.** Please explain the derivation of the regression-based market
13 equity risk premium.

14
15 **A.** To derive the regression-based market equity risk premium of
16 7.26 percent shown on line 2, page 8 of Document No. 4, I
17 used the same monthly annualized total returns on large
18 company common stocks relative to the monthly annualized
19 yields on Moody's Aaa/Aa-rated corporate bonds as mentioned
20 above. I modeled the relationship between interest rates and
21 the market equity risk premium using the observed monthly
22 market equity risk premium as the dependent variable, and the
23 monthly yield on Moody's Aaa/Aa-rated corporate bonds as the
24 independent variable. I then used a linear Ordinary Least
25 Squares ("OLS") regression, in which the market equity risk

1 premium is expressed as a function of the Moody's Aaa/Aa-
2 rated corporate bond yield:

$$3 \quad RP = \alpha + \beta (R_{Aaa/Aa})$$

4 Where:

5 RP = the market equity risk premium;

6 α = the regression intercept coefficient;

7 β = the regression slope coefficient; and

8 $R_{Aaa/Aa}$ = the Moody's Aaa/Aa-rated corporate bond
9 yield.

10

11 **Q.** Please explain the derivation of the PRPM equity risk premium.

12

13 **A.** I used the same PRPM approach described above to the PRPM
14 equity risk premium. The inputs to the model are the
15 historical monthly returns on large company common stocks
16 minus the monthly yields on Moody's Aaa/Aa-rated corporate
17 bonds during the period from January 1928 through December
18 2022.²² Using the previously discussed GARCH method, the
19 projected equity risk premium is determined using Eviews®
20 statistical software. The resulting PRPM predicted a market
21 equity risk premium of 9.76 percent (as shown on line 3, page
22 8 of Document No. 4).

23

24 **Q.** Please explain the derivation of a projected equity risk
25 premium based on *Value Line* data for your RPM analysis.

1 **A.** As noted above, because both ratemaking and the cost of
2 capital are prospective, a prospective market equity risk
3 premium is needed. The derivation of the forecasted or
4 prospective market equity risk premium can be found in note
5 4, page 9 of Document No. 4. Consistent with my calculation
6 of the dividend yield component in my DCF analysis, this
7 prospective market equity risk premium is derived from an
8 average of the three- to five-year median market price
9 appreciation potential by *Value Line* for the 13 weeks ended
10 December 30, 2022, plus an average of the median estimated
11 dividend yield for the common stocks of the 1,700 firms
12 covered in *Value Line* (Standard Edition) (as explained in
13 detail in note 1, page 2 of Document No. 5).

14
15 The average median expected price appreciation is 71 percent,
16 which translates to a 14.35 percent annual appreciation, and
17 when added to the average of *Value Line's* median expected
18 dividend yields of 2.23 percent, equates to a forecasted
19 annual total return rate on the market of 16.58 percent. The
20 forecasted Moody's Aaa-rated corporate bond yield of 5.05
21 percent is deducted from the total market return of 16.58
22 percent, resulting in an equity risk premium of 11.53 percent,
23 as shown on line 4, page 8 of Document No. 4.

24
25 **Q.** Please explain the derivation of an equity risk premium based

1 on the S&P 500 companies.

2

3 **A.** Using data from *Value Line*, I calculated an expected total
4 return on the S&P 500 companies using expected dividend yields
5 and long-term growth estimates as a proxy for capital
6 appreciation. The expected total return for the S&P 500 is
7 15.67 percent. Subtracting the prospective yield on Moody's
8 Aaa-rated corporate bonds of 5.05 percent results in a 10.62
9 percent projected equity risk premium.

10

11 **Q.** Please explain the derivation of an equity risk premium based
12 on Bloomberg data.

13

14 **A.** Using data from Bloomberg, I calculated an expected total
15 return on the S&P 500 using expected dividend yields and long-
16 term growth estimates as a proxy for capital appreciation
17 identical to the method described above. The expected total
18 return for the S&P 500 is 11.06 percent. Subtracting the
19 prospective yield on Moody's Aaa-rated corporate bonds of
20 5.05 percent results in a 6.01 percent projected equity risk
21 premium.

22

23 **Q.** What is your conclusion of a beta-derived equity risk premium
24 for use in your RPM analysis?

25

1 **A.** I gave equal weight to all six equity risk premiums based on
2 each source - historical, *Value Line*, and Bloomberg - in
3 arriving at an 8.55 percent equity risk premium, as shown on
4 page 8 of Document No. 4.

5
6 After calculating the average market equity risk premium of
7 8.55 percent, I adjusted it by beta to account for the risk
8 of the Utility Proxy Group. As discussed below, beta is a
9 meaningful measure of prospective relative risk to the market
10 as a whole, and is a logical way to allocate a company's, or
11 proxy group's, share of the market's total equity risk premium
12 relative to corporate bond yields. As shown on page 1 of
13 Document No. 5, the average of the mean and median beta for
14 the Utility Proxy Group is 0.76. Multiplying this beta by
15 the market equity risk premium of 8.55 percent results in a
16 beta-adjusted equity risk premium for the Utility Proxy Group
17 of 6.50 percent.

18
19 **Q.** How did you derive the equity risk premium based on the S&P
20 Utility Index and Moody's A2-rated public utility bonds?

21
22 **A.** I estimated three equity risk premiums based on S&P Utility
23 Index holding period returns, and two equity risk premiums
24 based on the expected returns of the S&P Utilities Index,
25 using *Value Line* and Bloomberg data, respectively. Turning

1 first to the S&P Utility Index holding period returns, I
2 derived a long-term monthly arithmetic mean equity risk
3 premium between the S&P Utility Index total returns of 10.74
4 percent and monthly Moody's A2-rated public utility bond
5 yields of 6.46 percent from 1928 to 2021, to arrive at an
6 equity risk premium of 4.28 percent (as shown on line 1, page
7 12 of Document No. 4). I then used the same historical data
8 to derive an equity risk premium of 4.80 percent based on a
9 regression of the monthly equity risk premiums. The final
10 S&P Utility Index holding period equity risk premium involved
11 applying the PRPM using the historical monthly equity risk
12 premiums from January 1928 to December 2022 to arrive at a
13 PRPM-derived equity risk premium of 5.56 percent for the S&P
14 Utility Index.

15
16 I then derived expected total returns on the S&P Utilities
17 Index of 9.50 percent and 9.20 percent using data from *Value*
18 *Line* and Bloomberg, respectively, and subtracted the
19 prospective Moody's A2-rated public utility bond yield of
20 5.88 percent (derived on line 3, page 3 of Document No. 4).
21 This resulted in equity risk premiums of 3.62 percent and
22 3.32 percent, respectively. As with the market equity risk
23 premiums, I averaged each risk premium based on each source
24 (*i.e.*, historical, *Value Line*, and Bloomberg) to arrive at my
25 utility-specific equity risk premium of 4.32 percent, as

1 shown on page 12 of Document No. 4.

2
3 **Q.** How did you derive an equity risk premium of 4.71 percent
4 based on authorized ROEs for gas utilities?

5
6 **A.** The equity risk premium of 4.71 percent shown on page 13 of
7 Document No. 4 is the result of a regression analysis based
8 on regulatory awarded ROEs related to the yields on Moody's
9 A2-rated public utility bonds, and contains the graphical
10 results of a regression analysis of 818 rate cases for
11 distribution natural gas utilities, which were fully
12 litigated during the period from January 1, 1980 through
13 December 30, 2022. It shows the implicit equity risk premium
14 relative to the yields on A2-rated public utility bonds
15 immediately prior to the issuance of each regulatory
16 decision. It is readily discernible that there is an inverse
17 relationship between the yield on A2-rated public utility
18 bonds and equity risk premiums. In other words, as interest
19 rates decline, the equity risk premium rises and vice versa,
20 a result consistent with financial literature on the
21 subject.²³ I used the regression results to estimate the
22 equity risk premium applicable to the projected yield on
23 Moody's A2-rated public utility bonds. Given the expected
24 A2-rated utility bond yield of 5.88 percent, it can be
25 calculated that the indicated equity risk premium applicable

1 to that bond yield is 4.71 percent.

2

3 **Q.** What is your conclusion of equity risk premium for use in
4 your total market approach RPM for the Utility Proxy Group?

5

6 **A.** The equity risk premium I applied to the Utility Proxy Group
7 is 5.18 percent, which is the average of the beta-adjusted
8 equity risk premium for the Utility Proxy Group, the S&P
9 Utilities Index, and the authorized return utility equity
10 risk premiums of 6.50 percent, 4.32 percent, and 4.71 percent,
11 respectively, as shown on page 7 of Document No. 4.

12

13 **Q.** What is the indicated RPM common equity cost rate based on
14 the total market approach?

15

16 **A.** As shown on line 5, page 3 of Document No. 4, I calculated a
17 common equity cost rate of 11.06 percent for the Utility Proxy
18 Group based on the total market approach RPM.

19

20 **Q.** What are the results of your application of the PRPM and the
21 total market approach RPM?

22

23 **A.** As shown on page 1 of Document No. 4, the indicated RPM-
24 derived common equity cost rate is 11.54 percent, which gives
25 equal weight to the results of the PRPM (12.02 percent) and

1 the adjusted-market approach (11.06 percent).

2
3 **C. The Capital Asset Pricing Model**

4 **Q.** Please explain the theoretical basis of the CAPM.

5
6 **A.** CAPM theory defines risk as the co-variability of a security's
7 returns with the market's returns as measured by the beta
8 (β). A beta less than 1.0 indicates lower variability than
9 the market as a whole, while a beta greater than 1.0 indicates
10 greater variability than the market.

11
12 The CAPM assumes that all non-market or unsystematic risk can
13 be eliminated through diversification. The risk that cannot
14 be eliminated through diversification is called market, or
15 systematic, risk. In addition, the CAPM presumes that
16 investors only require compensation for systematic risk,
17 which is the result of macroeconomic and other events that
18 affect the returns on all assets. The model is applied by
19 adding a risk-free rate of return to a market risk premium,
20 which is adjusted proportionately to reflect the systematic
21 risk of the individual security relative to the total market
22 as measured by the beta. The traditional CAPM model is
23 expressed as:

24
$$R_s = R_f + \beta (R_m - R_f)$$

25 Where:

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R_s = Return rate on the common stock;
 R_f = Risk-free rate of return;
 R_m = Return rate on the market as a whole; and
 β = Adjusted beta (volatility of the security relative to the market as a whole).

Numerous tests of the CAPM have measured the extent to which security returns and beta are related as predicted by the CAPM, confirming its validity. The empirical CAPM ("ECAPM") reflects the reality that while the results of these tests support the notion that the beta is related to security returns, the empirical Security Market Line ("SML") described by the CAPM formula is not as steeply sloped as the predicted SML.²⁴

The ECAPM reflects this empirical reality. Fama & French clearly state regarding the figure in Document No. 11, below, that "[t]he returns on the low beta portfolios are too high, and the returns on the high beta portfolios are too low."²⁵

In addition, Morin observes that while the results of these tests support the notion that beta is related to security returns, the empirical SML described by the CAPM formula is not as steeply sloped as the predicted SML. Morin states:

With few exceptions, the empirical studies agree

1 that ... low-beta securities earn returns somewhat
2 higher than the CAPM would predict, and high-beta
3 securities earn less than predicted.²⁶

4 * * *

5 Therefore, the empirical evidence suggests that the
6 expected return on a security is related to its
7 risk by the following approximation:

$$8 \quad K = RF + x (RM - RF) + (1-x) \beta (RM - RF)$$

9 where x is a fraction to be determined empirically.

10 The value of x that best explains the observed
11 relationship [is] $\text{Return} = 0.0829 + 0.0520 \beta$ is
12 between 0.25 and 0.30. If $x = 0.25$, the equation
13 becomes:

$$14 \quad K = RF + 0.25(RM - RF) + 0.75 \beta (RM - RF)^{27}$$

15
16 Fama & French provide similar support for the ECAPM when they
17 state:

18 The early tests firmly reject the Sharpe-Lintner
19 version of the CAPM. There is a positive relation
20 between beta and average return, but it is too
21 'flat.'... The regressions consistently find that the
22 intercept is greater than the average risk-free
23 rate... and the coefficient on beta is less than the
24 average excess market return... This is true in the
25 early tests... as well as in more recent cross-

1 section regressions tests, like Fama and French
2 (1992).²⁸

3
4 Finally, Fama & French further note:

5 Confirming earlier evidence, the relation between
6 beta and average return for the ten portfolios is
7 much flatter than the Sharpe-Linter CAPM predicts.
8 The returns on low beta portfolios are too high,
9 and the returns on the high beta portfolios are too
10 low. For example, the predicted return on the
11 portfolio with the lowest beta is 8.3 percent per
12 year; the actual return is 11.1 percent. The
13 predicted return on the portfolio with the t beta
14 is 16.8 percent per year; the actual is 13.7
15 percent.²⁹

16
17 Clearly, the justification from Morin and Fama & French, along
18 with their reviews of other academic research on the CAPM,
19 validate the use of the ECAPM. In view of theory and
20 practical research, I have applied both the traditional CAPM
21 and the ECAPM to the companies in the Utility Proxy Group and
22 averaged the results.

23
24 **Q.** What betas did you use in your CAPM analysis?
25

1 **A.** For the betas in my CAPM analysis, I considered two sources:
2 *Value Line* and Bloomberg. While both of these services adjust
3 their calculated (or "raw") beta to reflect their tendency to
4 regress to the market mean of 1.00, *Value Line* calculates
5 their beta over a five-year period, while Bloomberg
6 calculates theirs over a two-year period.

7
8 **Q.** Please describe your selection of a risk-free rate of return.

9
10 **A.** As discussed previously, the risk-free rate adopted for both
11 applications of the CAPM is 3.91 percent. This risk-free
12 rate is based on the average of the *Blue Chip* consensus
13 forecast of the expected yields on 30-year U.S. Treasury bonds
14 for the six quarters ending with the first calendar quarter
15 of 2024, and long-term projections for the years 2024 to 2028
16 and 2029 to 2033.

17
18 **Q.** Please explain the estimation of the expected risk premium
19 for the market used in your CAPM analysis.

20
21 **A.** The basis of the market risk premium is explained in detail
22 in note 1 on page 2 of Document No. 5. As discussed above,
23 the market risk premium is derived from an average of three
24 historical data-based market risk premiums, two *Value Line*
25 data-based market risk premiums, and one Bloomberg data-based

1 market risk premium.

2
3 The long-term income return on U.S. Government securities of
4 5.02 percent was deducted from the SBBI-2022 monthly
5 historical total market return of 12.37 percent, which
6 results in an historical market equity risk premium of 7.35
7 percent.³⁰ I applied a linear OLS regression to the monthly
8 annualized historical returns on the S&P 500 relative to
9 historical yields on long-term U.S. Government securities
10 from SBBI-2022. That regression analysis yielded a market
11 equity risk premium of 8.71 percent. The PRPM market equity
12 risk premium is 10.86 percent and is derived using the PRPM
13 relative to the yields on long-term U.S. Treasury securities
14 from January 1926 through December 2022, as shown on page 2
15 of Document No. 5.

16
17 The *Value Line*-derived forecasted total market equity risk
18 premium is derived by deducting the forecasted risk-free rate
19 of 3.91 percent, discussed above, from the *Value Line*
20 projected total annual market return of 16.58 percent,
21 resulting in a forecasted total market equity risk premium of
22 12.67 percent. The S&P 500 projected market equity risk
23 premium using *Value Line* data is derived by subtracting the
24 projected risk-free rate of 3.91 percent from the projected
25 total return of the S&P 500 of 15.67 percent. The resulting

1 market equity risk premium is 11.76 percent.

2
3 The S&P 500 projected market equity risk premium using
4 Bloomberg data is derived by subtracting the projected risk-
5 free rate of 3.91 percent from the projected total return of
6 the S&P 500 of 11.06 percent. The resulting market equity
7 risk premium is 7.15 percent. These six measures, when
8 averaged, result in an average total market equity risk
9 premium of 9.75 percent, as shown on page 2 of Document No.
10 5.

11
12 **Q.** What are the results of your application of the traditional
13 and empirical CAPM to the Utility Proxy Group?

14
15 **A.** As shown on page 1 of Document No. 5, the mean result of my
16 CAPM/ECAPM applied to the Utility Proxy Group is 11.54
17 percent, the median is 11.70 percent, and the average of the
18 two is 11.62 percent. Consistent with my reliance on the
19 average of mean and median DCF results discussed above, the
20 indicated common equity cost rate for each group using the
21 CAPM/ECAPM is 11.62 percent.

22
23 **D. Common Equity Cost Rates for a Proxy Group of Domestic,**
24 **Non-Price Regulated Companies Based on the DCF, RPM, and**
25 **CAPM**

1 Q. Why do you also consider a proxy group of domestic, non-price
2 regulated companies?

3

4 A. In the *Hope* and *Bluefield* cases, the U.S. Supreme Court did
5 not specify that comparable risk companies had to be
6 utilities. Since the purpose of rate regulation is to be a
7 substitute for marketplace competition, non-price regulated
8 firms operating in the competitive marketplace make an
9 excellent proxy if they are comparable in total risk to the
10 Utility Proxy Group being used to estimate the cost of common
11 equity. The selection of such domestic, non-price regulated
12 competitive firms theoretically and empirically results in a
13 proxy group which is comparable in total risk to the Utility
14 Proxy Group, since all of these companies compete for capital
15 in the exact same markets.

16

17 Q. How did you select domestic, non-price regulated companies
18 that are comparable in total risk to the Utility Proxy Group?

19

20 A. In order to select a proxy group of domestic, non-price
21 regulated companies similar in total risk to the Utility Proxy
22 Group, I relied on betas and related statistics derived from
23 *Value Line* regression analyses of weekly market prices over
24 the most recent 260 weeks (*i.e.*, five years). As shown on
25 Document No. 6, these selection criteria resulted in a proxy

1 group of 39 domestic, non-price regulated firms comparable in
2 total risk to the Utility Proxy Group. Total risk is the sum
3 of non-diversifiable market risk and diversifiable company-
4 specific risks. The criteria used in selecting the domestic,
5 non-price regulated firms were:

- 6 • They must be covered by *Value Line* (Standard Edition);
- 7 • They must be domestic, non-price regulated companies,
8 *i.e.*, not utilities;
- 9 • Their unadjusted betas must lie within plus or minus two
10 standard deviations of the average unadjusted beta of the
11 Utility Proxy Group; and
- 12 • The residual standard errors of the *Value Line*
13 regressions, which gave rise to the unadjusted betas, must
14 lie within plus or minus two standard deviations of the
15 average residual standard error of the Utility Proxy
16 Group.

17
18 Betas measure market, or systematic, risk, which is not
19 diversifiable. The residual standard errors of the
20 regressions measure each firm's company-specific,
21 diversifiable risk. Companies that have similar betas and
22 similar residual standard errors resulting from the same
23 regression analyses have similar total investment risk.

24
25 Q. Did you calculate the common equity cost rate using the DCF

1 model, the RPM, and the CAPM for the Non-Price Regulated Proxy
2 Group?

3
4 **A.** Yes. Because the DCF model, RPM, and CAPM have been applied
5 in an identical manner as described above, I will not repeat
6 the details of the rationale and application of each model.
7 One exception is in the application of the RPM, where I did
8 not use public utility-specific equity risk premiums because
9 these risk premiums are derived from utility-specific returns
10 and thus, are not applicable to non-price regulated
11 companies. Additionally, I did not apply the PRPM to the
12 individual non-price regulated companies due to a lack of
13 available data necessary to complete the analysis.

14
15 Page 2 of Document No. 7 derives the constant growth DCF model
16 common equity cost rate. As shown, the indicated common
17 equity cost rate, using the constant growth DCF for the Non-
18 Price Regulated Proxy Group comparable in total risk to the
19 Utility Proxy Group, is 11.57 percent.

20
21 Pages 3 through 5 of Document No. 7 contain the data and
22 calculations that support the 13.30 percent RPM common equity
23 cost rates. As shown on line 1, page 3 of Document No. 7,
24 the consensus prospective yield on Moody's Baa2-rated
25 corporate bonds for the six quarters ending in the first

1 quarter of 2024, and for the years 2024 to 2028 and 2029 to
2 2033, is 6.05 percent.³¹ Since the Non-Price Regulated Proxy
3 Group has an average Moody's long-term issuer rating of Baa1,
4 a downward adjustment of 0.17 percent to the projected Baa2-
5 rated corporate bond yield is necessary to reflect a
6 difference in ratings which results in a projected Baa1-rated
7 corporate bond yield of 5.88 percent.

8
9 When beta-adjusted risk premiums of 7.42 percent (as derived
10 on page 5 of Document No. 7) relative to the Non-Price
11 Regulated Proxy Group is added to the adjusted prospective
12 Baa1 bond yield of 5.88 percent, the indicated RPM common
13 equity cost rate is 13.30 percent.

14
15 Page 6 of Document No. 7 contains the inputs and calculations
16 that support my indicated CAPM/ECAPM common equity cost rates
17 of 12.32 percent.

18
19 **Q.** What is the cost rate of common equity based on the Non-Price
20 Regulated Proxy Group comparable in total risk to the Utility
21 Proxy Group?

22
23 **A.** As shown on page 1 of Document No. 7, the results of the
24 common equity models applied to the Non-Price Regulated Proxy
25 Group - which group is comparable in total risk to the Utility

1 Proxy Group - are as follows: 11.57 percent (DCF), 13.30
2 percent (RPM), and 12.32 percent (CAPM).

3
4 The average of the mean and median of these models is 12.36
5 percent, which I used as the indicated common equity cost
6 rates for the Non-Price Regulated Proxy Group. To be
7 conservative, I do not consider the results of this analysis
8 directly in my determination of the reasonable range of ROEs
9 attributable to the Utility Proxy Group.

10
11 **VI. RANGE OF COMMON EQUITY COST RATES BEFORE ADJUSTMENTS**

12 **Q.** What is the range of indicated common equity cost rates
13 produced by your ROE models?

14
15 **A.** By applying multiple cost of common equity models to the
16 Utility Proxy Group and the Non-Price Regulated Proxy Group,
17 the indicated range of common equity cost rates attributable
18 to the Utility Proxy Group before any relative risk
19 adjustments is between 10.00 percent and 11.62 percent, as
20 shown on Document No. 1, page 2. I used multiple cost of
21 common equity models as primary tools in arriving at my
22 recommended common equity cost rate, because no single model
23 is so inherently precise that it can be relied on to the
24 exclusion of other theoretically sound models. Using
25 multiple models adds reliability to the estimated common

1 equity cost rate, with the prudence of using multiple cost of
2 common equity models supported in both the financial
3 literature and regulatory precedent.

4 As will be discussed below, Peoples has greater risk than the
5 Utility Proxy Group. Because of this, the indicated range of
6 model results based on the Utility Proxy Group must be
7 adjusted to reflect Peoples' greater relative risk.

8
9 **VII. ADJUSTMENTS TO THE COMMON EQUITY COST RATE**

10 **Q.** What company-specific business risks did you consider for
11 your relative risk analysis?

12
13 **A.** As detailed below, I have considered flotation costs. I also
14 considered Peoples' smaller relative size, as well as high
15 level of customer growth, overall performance, and capital
16 investment plans relative to the companies in the Utility
17 Proxy Group.

18
19 **A. Flotation Costs**

20 **Q.** What are flotation costs?

21
22 **A.** Flotation costs are those costs associated with the sale of
23 new issuances of common stock. They include market pressure
24 and the mandatory unavoidable costs of issuance (e.g.,
25 underwriting fees and out-of-pocket costs for printing,

1 legal, registration, etc.). For every dollar raised through
2 debt or equity offerings, the company receives less than one
3 full dollar in financing.

4
5 **Q.** Has the Commission supported the use of flotation cost
6 adjustments in past rate proceedings?

7
8 **A.** Yes. In Peoples' 2008 rate proceedings, the Commission did
9 not make a specific adjustment for flotation costs but
10 recognized that "[t]his Commission has traditionally
11 recognized a reasonable adjustment for flotation costs in the
12 determination of the investor-required ROE."³²

13
14 **Q.** Why is it important to recognize flotation costs in the
15 allowed common equity cost rate?

16
17 **A.** It is important because there is no other mechanism in the
18 ratemaking paradigm through which such costs can be
19 recognized and recovered. Because these costs are real,
20 necessary, and legitimate, recovery of these costs should be
21 permitted. As noted by Morin:

22 The costs of issuing these securities are just as
23 real as operating and maintenance expenses or costs
24 incurred to build utility plants, and fair
25 regulatory treatment must permit the recovery of

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these costs...

The simple fact of the matter is that common equity capital is not free...[Flotation costs] must be recovered through a rate of return adjustment.³³

Q. Should flotation costs be recognized whether or not there is a stock issuance of additional shares during the test year?

A. Yes. As noted above, there is no mechanism to recapture such costs in the ratemaking paradigm other than an adjustment to the allowed common equity cost rate. Flotation costs are charged to capital accounts and are not expensed on a utility's income statement. As such, flotation costs are analogous to capital investments, albeit negative, reflected on the balance sheet. Recovery of capital investments relates to the expected useful lives of the investment. Since common equity has a very long and indefinite life (assumed to be infinity in the standard regulatory DCF model), flotation costs should be recovered through an adjustment to common equity cost rate, even when there has not been an issuance during the test year, or in the absence of an expected imminent issuance of additional shares of common stock.

Historical flotation costs are a permanent loss of investment to the utility and should be accounted for. When any company,

1 including a utility, issues common stock, flotation costs are
2 incurred for legal, accounting, printing fees and the like.
3 For each dollar of issuing market price, a small percentage
4 is expensed and is permanently unavailable for investment in
5 utility rate base. Since these expenses are charged to
6 capital accounts and not expensed on the income statement,
7 the only way to restore the full value of that dollar of
8 issuing price with an assumed investor required return of
9 10.00 percent is for the net investment, \$0.95, to earn more
10 than 10.00 percent to net back to the investor a fair return
11 on that dollar. In other words, if a company issues stock at
12 \$1.00 with 5.00 percent in flotation costs, it will net \$0.95
13 in investment. Assuming the investor in that stock requires
14 a 10.00 percent return on his or her invested \$1.00 (*i.e.*, a
15 return of \$0.10), the company needs to earn approximately
16 10.5 percent on its invested \$0.95 to receive a \$0.10 return.

17
18 **Q.** Do the common equity cost rate models you have used already
19 reflect investors' anticipation of flotation costs?

20
21 **A.** No. All of these models assume no transaction costs. The
22 literature is quite clear that these costs are not reflected
23 in the market prices paid for common stocks. For example,
24 Brigham and Daves confirm this and provide the methodology
25 utilized to calculate the flotation adjustment.³⁴ In

1 addition, Morin confirms the need for such an adjustment even
2 when no new equity issuance is imminent.³⁵ Consequently, it
3 is proper to include a flotation cost adjustment when using
4 cost of common equity models to estimate the common equity
5 cost rate.

6
7 **Q.** How did you calculate the flotation cost allowance?

8
9 **A.** I modified the DCF calculation to provide a dividend yield
10 that would reimburse investors for issuance costs in
11 accordance with the method cited in literature by Brigham and
12 Daves, as well as by Morin. The flotation cost adjustment
13 recognizes the actual costs of issuing equity that were
14 incurred by Emera in its equity issuances since 2016 when it
15 acquired Peoples. Based on the issuance costs shown on
16 Document No. 8, an adjustment of 0.12 percent is required to
17 reflect the flotation costs applicable to the Utility Proxy
18 Group.

19
20 **B. Business Risk Adjustment**

21 **Q.** Does Peoples' smaller size relative to the Utility Proxy Group
22 companies increase its business risk?

23
24 **A.** Yes. Peoples' smaller size relative to the Utility Proxy
25 Group companies indicates greater relative business risk for

1 the company because, all else being equal, size has a material
2 bearing on risk.

3
4 Size affects business risk because smaller companies
5 generally are less able to cope with significant events that
6 affect sales, revenues, and earnings. For example, smaller
7 companies face more risk exposure to business cycles and
8 economic conditions, both nationally and locally.
9 Additionally, the loss of revenues from a few larger customers
10 would have a greater effect on a small company than on a
11 bigger company with a larger, more diverse, customer base.

12
13 As further evidence that smaller firms are riskier, investors
14 generally demand greater returns from smaller firms to
15 compensate for less marketability and liquidity of their
16 securities. Kroll's Cost of Capital Navigator: U.S. Cost of
17 Capital Module ("Kroll") discusses the nature of the small-
18 size phenomenon, providing an indication of the magnitude of
19 the size premium based on several measures of size. In
20 discussing "Size as a Predictor of Equity Returns," Kroll
21 states:

22 The size effect is based on the empirical
23 observation that companies of smaller size are
24 associated with greater risk and, therefore, have
25 greater cost of capital [sic]. The "size" of a

1 company is one of the most important risk elements
2 to consider when developing cost of equity capital
3 estimates for use in valuing a business simply
4 because size has been shown to be a *predictor* of
5 equity returns. In other words, there is a
6 significant (negative) relationship between size
7 and historical equity returns - as size *decreases*,
8 returns tend to *increase*, and vice versa. [Footnote
9 omitted] [Emphasis in original].³⁶

10
11 Furthermore, in *The Capital Asset Pricing Model: Theory and*
12 *Evidence*, Fama & French note size is indeed a risk factor
13 which must be reflected when estimating the cost of common
14 equity. On page 38, they note:

15 . . . the higher average returns on small stocks
16 and high book-to-market stocks reflect unidentified
17 state variables that produce undiversifiable risks
18 (covariances) in returns not captured in the market
19 return and are priced separately from market
20 betas.³⁷

21
22 Based on this evidence, Fama & French proposed their three-
23 factor model which includes a size variable in recognition of
24 the effect size has on the cost of common equity.

1 Also, it is a basic financial principle that the use of funds
2 invested, and not the source of funds, is what gives rise to
3 the risk of any investment.³⁸ Eugene Brigham, a well-known
4 authority, states:

5 A number of researchers have observed that
6 portfolios of small-firms (sic) have earned
7 consistently higher average returns than those of
8 large-firm stocks; this is called the "small-firm
9 effect." On the surface, it would seem to be
10 advantageous to the small firms to provide average
11 returns in a stock market that are higher than those
12 of larger firms. In reality, it is bad news for
13 the small firm; what the small-firm effect means is
14 that the capital market demands higher returns on
15 stocks of small firms than on otherwise similar
16 stocks of the large firms. [Emphasis added]³⁹

17
18 Consistent with the financial principle of risk and return
19 discussed above, increased relative risk due to small size
20 must be considered in the allowed rate of return on common
21 equity. Therefore, the Commission's authorization of a cost
22 rate of common equity in this proceeding must appropriately
23 reflect the unique risks of Peoples, including its smaller
24 relative size, which is justified and supported above by
25 evidence in the financial literature.

1 **Q.** Is there a way to quantify a relative risk adjustment due to
2 Peoples' smaller size relative to the Utility Proxy Group?

3
4 **A.** Yes. Peoples has greater relative risk than the average
5 utility in the Utility Proxy Group because of its smaller
6 size compared with the utilities in those groups, as measured
7 by an estimated market capitalization of common equity for
8 the company.

9
10 As shown in page 1 of Document No. 9, Peoples' estimated
11 market capitalization is approximately \$2.180 billion,
12 compared with the market capitalization of the average
13 companies in the Utility Proxy Group of approximately \$6.634
14 billion as of December 30, 2022. The average companies in
15 the Utility Proxy Group have a market capitalization of three
16 times the size of Peoples' estimated market capitalization.
17 As a proxy for the business risk adjustment, I used the SBBI-
18 2022 size study. The determination is based on the size
19 premiums for portfolios of New York Stock Exchange, American
20 Stock Exchange, and NASDAQ listed companies ranked by deciles
21 for the 1926 to 2021 period. The average size premium for
22 the Utility Proxy Group with a market capitalization of
23 approximately \$6.634 billion falls in the 4th decile, while
24 the company's estimated market capitalizations of \$2.180
25 billion places it in the 6th decile. The size premium spread

1 between the 4th decile and the 6th decile is 0.62 percent.

2
3 **Q.** Since Peoples is an indirectly owned operating subsidiary of
4 Emera, why is the size of the total company not more
5 appropriate to use when determining a business risk
6 adjustment?

7
8 **A.** The return derived in this proceeding will not apply to
9 Emera's operations as a whole, but only to Peoples. Emera is
10 the sum of its constituent parts, including those constituent
11 parts' ROEs. Potential investors in Emera are aware that it
12 is a combination of operations in each state, and that each
13 state's operations experience the operating risks specific to
14 their jurisdiction. The market's expectation of Emera's
15 return is commensurate with the realities of Emera's
16 composite operations in each of the states in which it
17 operates.

18
19 **Q.** Have you considered any other company-specific issues in
20 determining the company-specific business risk adjustment?

21
22 **A.** Yes, I have. In addition to the company's smaller relative
23 size, I have also considered the company's high level of
24 customer growth, overall performance, and capital expenditure
25 plans compared to the Utility Proxy Group companies in the

1 company-specific business risk adjustment.

2
3 **Q.** Please describe the company's customer growth.

4
5 **A.** As discussed in the direct testimony of Peoples witness Eric
6 Fox, the company has experienced strong customer growth over
7 the last five years, with average residential customer growth
8 of 4.3 percent and average commercial customer growth of 1.9
9 percent. As discussed by witness Fox, Peoples will continue
10 to experience relatively strong growth over the next five
11 years driven by projected household and economic growth. The
12 increased customer growth in the company's service territory
13 necessitates increased and accelerated capital investment.

14
15 **Q.** Please discuss the company's high level of overall
16 performance.

17
18 **A.** Based upon the metrics of J.D. Power, which are the industry
19 standard for reliability and service, Peoples is a
20 consistently high performing gas utility. Peoples received
21 the first, second, or third highest J.D. Power Customer
22 Satisfaction Index Score amongst their entire industry for
23 both their Residential and Business Gas Customer groups every
24 year for the past 10 years.⁴⁰ The J.D. Power Gas Customer
25 Satisfaction Score is a comprehensive analysis of how gas

1 utilities are performing from a customer standpoint. For 10
2 consecutive years, Residential Customers have given the
3 company the top J.D. Power Customer Satisfaction score
4 amongst mid-size natural gas utilities in the south region.⁴¹
5 The company's industry leading satisfaction scores are based
6 upon excellence in areas such as Safety & Reliability, Price,
7 Billing & Payment, Communication, Customer Care and Corporate
8 Citizenship.⁴²
9

10 **Q.** Please briefly summarize the company's capital investment
11 plans.

12
13 **A.** Peoples currently plans to invest over \$1.0 billion of capital
14 from January 1, 2022 to December 31, 2024,⁴³ which represents
15 approximately 60.00 percent of its 2021 year-end net utility
16 plant.⁴⁴ That amount includes investments in its distribution
17 facilities, which are necessary to support growth and to
18 maintain safe, sufficient, and reliable service. As
19 discussed by witnesses McOnie and Parsons, the company will
20 require continued access to the capital markets, at
21 reasonable terms, to finance its capital spending plan. As
22 Peoples moves forward with its capital spending plan, timely
23 recovery of its capital costs is critical to mitigate the
24 delay of capital recovery and execute its capital spending
25 program.

1 Q. Do substantial capital expenditures directly relate to a
2 utility being allowed the opportunity to earn a return
3 adequate to attract capital at reasonable terms?
4

5 A. Yes, they do. The allowed ROE should enable the subject
6 utility to finance capital expenditures and working capital
7 requirements at reasonable rates, and to maintain its
8 financial integrity in a variety of economic and capital
9 market conditions. As discussed throughout my direct
10 testimony, a return adequate to attract capital at reasonable
11 terms enables the utility to provide safe, reliable service
12 while maintaining its financial soundness. To the extent a
13 utility is provided the opportunity to earn its market-based
14 cost of capital, neither customers nor shareholders should be
15 disadvantaged. These requirements are of particular
16 importance to a utility when it is engaged in a substantial
17 capital expenditure program.
18

19 The ratemaking process is predicated on the principle that,
20 for investors and companies to commit the capital needed to
21 provide safe and reliable utility services, the utility must
22 have the opportunity to recover the return of, and the market-
23 required return on, invested capital. Regulatory commissions
24 recognize that since utility operations are capital
25 intensive, regulatory decisions should enable the utility to

1 attract capital at reasonable terms; doing so balances the
2 long-term interests of the utility and its ratepayers.

3
4 Further, the financial community carefully monitors the
5 current and expected financial conditions of utility
6 companies, as well as the regulatory environment in which
7 those companies operate. In that respect, the regulatory
8 environment is one of the most important factors considered
9 in both debt and equity investors' assessments of risk. That
10 is especially important during periods in which the utility
11 expects to make significant capital investments and,
12 therefore, may require access to capital markets.

13
14 **Q.** Do credit rating agencies recognize risks associated with
15 increased capital expenditures?

16
17 **A.** Yes, they do. From a credit perspective, the additional
18 pressure on cash flows associated with high levels of capital
19 expenditures exerts corresponding pressure on credit metrics
20 and, therefore, credit ratings. S&P has noted several long-
21 term challenges for utilities' financial health including
22 heavy construction programs to address demand growth,
23 declining capacity margins, aging infrastructure, and
24 regulatory responsiveness to mounting requests for rate
25 increases.⁴⁵ More recently, S&P noted:

1 We assume that capital spending will remain a focus
2 of most utility managements and strain credit
3 metrics. It provides growth when sales are
4 diminished by ongoing demanded efficiency from
5 regulators and other trends, and it is welcomed by
6 policymakers that appreciate the economic stimulus
7 and the benefits of safer, more reliable service.
8 The speed with which the regulatory process turns
9 the new spending into higher rates to begin to pay
10 for it is an important factor in our assumptions
11 and the forecast. Any extended lag between spending
12 and recovery can exacerbate the negative effect on
13 credit metrics and therefore ratings.⁴⁶

14
15 The rating agency views noted above also are consistent with
16 certain observations discussed in my direct testimony: (1)
17 the benefits of maintaining a strong financial profile are
18 significant when capital access is required and become
19 particularly acute during periods of market instability; and
20 (2) the Commission's decision in this proceeding will have a
21 direct bearing on the company's credit profile and its ability
22 to access the capital needed to fund its investments.

23
24 **Q.** How do the company's expected capital expenditures compare to
25 the Utility Proxy Group?

1 **A.** To reasonably make that comparison, I calculated the ratio of
2 expected capital expenditures to net plant for each company
3 in the Utility Proxy Group. I performed that calculation using
4 Peoples' total projected capital expenditures from January 1,
5 2022 to December 31, 2024 relative to its net plant for the
6 year ended December 31, 2021. As shown in Document No. 10,
7 Peoples has the highest ratio of projected capital
8 expenditures to net plant relative to the Utility Proxy Group,
9 approximately 21.00 percent higher than the Utility Proxy
10 Group median.

11
12 **Q.** What are your conclusions regarding the effect of Peoples'
13 capital investment plans on its risk profile and cost of
14 capital?

15
16 **A.** It is clear that Peoples' capital investment plans relative
17 to net plant is larger than the median of the Utility Proxy
18 Group companies. It also is clear that equity investors and
19 credit rating agencies recognize the additional risks
20 associated with substantial capital expenditures.

21
22 **Q.** What is your conclusion regarding an adjustment for the
23 company's specific business risks?

24
25 **A.** Based on my analysis, a business risk adjustment of 0.20

1 percent is appropriate for Peoples to account for the
2 company's smaller size, as well as strong customer growth,
3 high level of performance, and capital investment plans,
4 relative to the Utility Proxy Group. Even though my analysis
5 of the company's smaller size relative to the Utility Proxy
6 Group indicates an upward size adjustment of 0.62 percent, I
7 conservatively applied an overall business risk adjustment of
8 0.20 percent to the results as shown on page 2 of Document
9 No. 1.

10
11 **Q.** Please summarize your adjustments to the indicated ranges of
12 ROEs applicable to the Utility Proxy Group.

13
14 **A.** The summary of my adjustments for the company-specific
15 business risks and flotation costs to the indicated ranges of
16 ROEs applicable to the Utility Proxy Group are summarized in
17 page 2 of Document No. 1. As shown, the range of ROEs
18 applicable to the company is between 10.32 percent and 11.70
19 percent.

20
21 **VIII. CONCLUSION**

22 **Q.** What is your recommended ROE for Peoples?

23
24 **A.** Given the indicated ROE range applicable to the company of
25 10.32 percent to 11.70 percent, I conclude that an appropriate

1 ROE for the company is 11.00 percent.

2

3 **Q.** In your opinion, is your proposed ROE of 11.00 percent fair
4 and reasonable to Peoples and its customers?

5

6 **A.** Yes, it is.

7

8 **Q.** In your opinion, is Peoples' proposed capital structure
9 consisting of 40.48 percent long-term debt and 54.68 percent
10 common equity fair and reasonable?

11

12 **A.** Yes, it is.

13

14 **Q.** Does this conclude your prepared direct testimony?

15

16 **A.** Yes.

17

18

19

20

21

22

23

24

25

DOCKET NO. 20230023-GU
WITNESS: D'ASCENDIS

EXHIBIT

OF

DYLAN W. D'ASCENDIS

ON BEHALF OF PEOPLES GAS SYSTEM, INC.

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DOCUMENT NO.	TITLE	PAGE
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Peoples Gas System
 Recommended Capital Structure and Cost Rates
for Ratemaking Purposes

<u>Type Of Capital</u>	<u>Ratios (1)</u>	<u>Cost Rate</u>	<u>Weighted Cost Rate</u>
Long-Term Debt	40.48%	5.54% (1)	2.24%
Short-Term Debt	4.84%	4.85% (1)	0.24%
Common Equity	<u>54.68%</u>	11.00% (2)	<u>6.01%</u>
Total	<u>100.00%</u>		<u>8.49%</u>

Notes:

(1) Per data included on Company MFR Schedule G-3, page 2.

(2) From page 2 of this Document.

Peoples Gas System
Brief Summary of Common Equity Cost Rate

<u>Line No.</u>	<u>Principal Methods</u>	<u>Proxy Group of Six Natural Gas Companies</u>
1.	Discounted Cash Flow Model (DCF) (1)	10.00%
2.	Risk Premium Model (RPM) (2)	11.54%
3.	Capital Asset Pricing Model (CAPM) (3)	11.62%
4.	Market Models Applied to Comparable Risk, Non-Price Regulated Companies (4)	<u>12.36%</u>
5.	Indicated Range of Common Equity Cost Rates before Adjustment for Company-specific Risk	10.00% - 11.62%
6.	Flotation Cost Adjustment (5)	0.12%
7.	Business Risk Adjustment (6)	<u>0.20%</u>
8.	Recommended Range of Common Equity Cost Rates after Adjustment for Company-specific Risk	<u><u>10.32% - 11.70%</u></u>
9.	Recommended Common Equity Cost Rate (7)	<u><u>11.00%</u></u>

- 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 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)
2017 - 2021, Inclusive

	2021	2020	2019	2018	2017	
	(millions of dollars)					
<u>Capitalization Statistics</u>						
<u>Amount of Capital Employed</u>						
Total Permanent Capital	\$7,455.217	\$6,855.835	\$6,012.401	\$5,411.345	\$5,040.640	
Short-Term Debt	\$415.467	\$333.183	\$612.061	\$629.275	\$468.027	
Total Capital Employed	<u>\$7,870.684</u>	<u>\$7,189.018</u>	<u>\$6,624.462</u>	<u>\$6,040.620</u>	<u>\$5,508.667</u>	
<u>Indicated Average Capital Cost Rates (2)</u>						
Total Debt	2.95 %	3.29 %	3.63 %	3.57 %	3.77 %	
Preferred Stock	5.33	6.19				
<u>Capital Structure Ratios</u>						
Based on Total Permanent Capital:						
Long-Term Debt	50.18 %	50.03 %	46.42 %	46.03 %	49.53 %	48.44 %
Preferred Stock	2.31	1.78	1.92	1.14	-	1.43
Common Equity	47.51	48.18	51.66	52.84	50.47	50.13
Total	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
Based on Total Capital:						
Total Debt, Including Short-Term	54.26 %	53.51 %	51.06 %	51.14 %	53.67 %	52.73 %
Preferred Stock	2.18	1.66	1.68	0.99	-	1.30
Common Equity	43.56	44.83	47.26	47.87	46.33	45.97
Total	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>Financial Statistics</u>						
<u>Financial Ratios - Marked Based</u>						
Earnings / Price Ratio	5.25 %	3.45 %	3.84 %	4.32 %	2.74 %	3.92 %
Market / Average Book Ratio	176.32	191.60	224.79	213.85	213.58	204.03
Dividend Yield	3.44	3.10	2.61	2.78	2.71	2.93
Dividend Payout Ratio	60.27	83.22	69.25	54.00	51.64	63.67
<u>Rate of Return on Average Book Common Eq</u>	9.85 %	6.75 %	8.68 %	9.55 %	5.82 %	8.13 %
<u>Total Debt / EBITDA (3)</u>	5.10 x	6.03 x	4.96 x	5.01 x	7.65 x	5.75 x
<u>Funds From Operations / Total Debt (4)</u>	11.70 %	12.46 %	14.99 %	24.21 %	16.35 %	15.94 %
<u>Total Debt / Total Capital</u>	54.26 %	53.51 %	51.06 %	51.14 %	53.67 %	52.73 %

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.

Capital Structure Based upon Total Permanent Capital for the
Proxy Group of Six Natural Gas Companies
2017 - 2021, Inclusive

	<u>2021</u>	<u>2020</u>	<u>2019</u>	<u>2018</u>	<u>2017</u>	<u>5 Year Average</u>
<u>Atmos Energy Corporation</u>						
Long-Term Debt (1)	39.35 %	40.02 %	38.03 %	39.15 %	44.03 %	40.12 %
Preferred Stock	-	-	-	-	-	-
Common Equity	60.65	59.98	61.97	60.85	55.97	59.88
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>New Jersey Resources Corporation</u>						
Long-Term Debt	57.81 %	55.35 %	50.11 %	47.89 %	48.45 %	51.92 %
Preferred Stock	-	-	-	-	-	-
Common Equity	42.19	44.65	49.89	52.11	51.55	48.08
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>NiSource Inc.</u>						
Long-Term Debt	57.09 %	61.64 %	56.79 %	55.44 %	64.35 %	59.06 %
Preferred Stock	9.55	5.87	6.35	6.82	-	5.72
Common Equity	33.36	32.49	36.85	37.74	35.65	35.22
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>Northwest Natural Holding Company</u>						
Long-Term Debt (1)	52.12 %	51.81 %	50.43 %	49.12 %	51.22 %	50.94 %
Preferred Stock	-	-	-	-	-	-
Common Equity	47.88	48.19	49.57	50.88	48.78	49.06
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>ONE Gas, Inc.</u>						
Long-Term Debt (1)	41.74 %	41.76 %	37.65 %	38.62 %	37.84 %	39.52 %
Preferred Stock	-	-	-	-	-	-
Common Equity	58.26	58.24	62.35	61.38	62.16	60.48
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>Spire Inc.</u>						
Long-Term Debt	52.98 %	49.62 %	45.49 %	45.95 %	51.27 %	49.06 %
Preferred Stock	4.28	4.83	5.19	-	-	2.86
Common Equity	42.74	45.55	49.32	54.05	48.73	48.08
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>
<u>Proxy Group of Six Natural Gas Companies</u>						
Long-Term Debt	50.18 %	50.03 %	46.42 %	46.03 %	49.53 %	48.44 %
Preferred Stock	2.31	1.78	1.92	1.14	-	1.43
Common Equity	47.51	48.18	51.66	52.84	50.47	50.13
Total Capital	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>	<u>100.00 %</u>

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

<u>Company Name</u>	<u>Parent Company Ticker</u>	<u>2021</u>		
		<u>Common Equity</u>	<u>Long-Term Debt</u>	<u>Total Capital</u>
Atmos Energy Corporation	ATO	51.11%	48.89%	100.00%
New Jersey Natural Gas Company	NJR	56.23%	43.77%	100.00%
Northern Indiana Public Service Company	NI	50.01%	49.99%	100.00%
Northwest Natural Gas Company	NWN	47.81%	52.19%	100.00%
ONE Gas, Inc.	OGS	38.74%	61.26%	100.00%
Spire Alabama Inc.	SR	58.48%	41.52%	100.00%
Spire Missouri Inc.	SR	54.08%	45.92%	100.00%
	Maximum	<u>58.48%</u>	<u>61.26%</u>	
	Minimum	<u>38.74%</u>	<u>41.52%</u>	

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
Utility Proxy Group

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Proxy Group of Six Natural Gas Companies	Average Dividend Yield (1)	Value Line Projected Five Year Growth in EPS (2)	Zack's Five Year Projected Growth Rate in EPS	Yahoo! Finance Projected Five Year Growth in EPS	Average Projected Five Year Growth in EPS (3)	Adjusted Dividend Yield (4)	Indicated Common Equity Cost Rate (5)
Atmos Energy Corporation	2.69 %	7.50 %	7.50 %	8.16 %	7.72 %	2.79 %	10.51 %
New Jersey Resources Corporation	3.40	5.00	6.00	6.00	5.67	3.50	9.17
NiSource Inc.	3.58	9.50	6.80	6.35	7.55	3.72	11.27
Northwest Natural Holding Company	4.13	6.50	4.30	4.30	5.03	4.23	9.26
ONE Gas, Inc.	3.21	6.50	5.00	5.00	5.50	3.30	8.80
Spire Inc.	4.22	9.00	5.00	8.00	7.33	4.37	11.70
						Average	<u>10.12 %</u>
						Median	<u>9.89 %</u>
						Average of Mean and Median	<u>10.00 %</u>

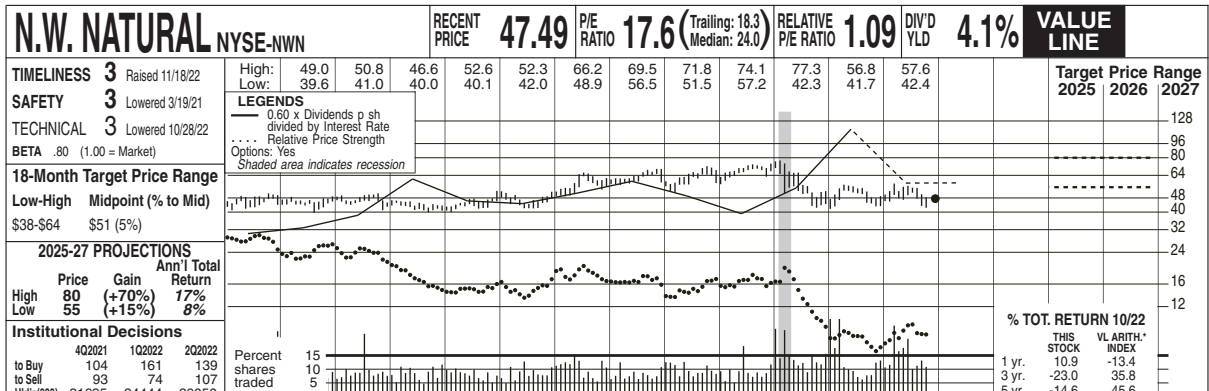
Notes:

- (1) Indicated dividend at 12/30/2022 divided by the average closing price of the last 60 trading days ending 12/30/2022 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, $2.69\% \times (1 + (1/2 \times 7.72\%)) = 2.79\%$.
- (5) Column 5 + Column 6.

Source of Information: Value Line Investment Survey.
www.zacks.com, Downloaded on 12/30/2022.
www.yahoo.com, Downloaded on 12/30/2022.

NEW JERSEY RES. NYSE-NJR										RECENT PRICE	P/E RATIO	Trailing: 21.4 Median: 17.0	RELATIVE P/E RATIO	DIV/D YLD	3.5%	VALUE LINE			
TIMELINESS	3	Raised 8/19/22	High: 25.2	25.1	23.8	32.1	34.1	38.9	45.4	51.8	51.2	44.7	44.4	47.5		Target Price	Range		
SAFETY	2	Lowered 4/17/20	Low: 19.8	19.3	19.5	21.9	26.8	30.5	33.7	35.6	40.3	21.1	33.3	37.8		2025	2026	2027	
TECHNICAL	2	Raised 7/22/22	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																
BETA	.95	(1.00 = Market)	2-for-1 2025-27 PROJECTIONS Ann'l Total Return High 55 (+25%) Low 40 (-10%) Gain 9% Return 2%																
18-Month Target Price Range																			
Low-High Midpoint (% to Mid)																			
\$29-\$46 \$38 (-15%)																			
Institutional Decisions 402021 102022 202022 to Buy 158 144 126 to Sell 95 110 133 Hld's(000) 68260 69401 71193 Percent shares traded 30 20 10																			
© VALUE LINE PUB. LLC 25-27 % TOT. RETURN 10/22 THIS STOCK V. ARTH. INDEX 1 yr. 22.3 -13.4 3 yr. 14.4 35.8 5 yr. 18.1 45.6																			
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Revenues per sh ^A	33.00
39.81	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	28.15	29.40	"Cash Flow" per sh	4.25
1.37	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	3.70	3.90	Earnings per sh ^B	2.90
.93	.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	2.40	2.50	Div's Decl'd per sh ^C	1.95
.48	.51	.56	.62	.68	.72	.77	.81	.86	.93	.98	1.04	1.11	1.19	1.27	1.36	1.45	1.55	Cap'l Spending per sh	8.50
.64	.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	6.05	5.15	Book Value per sh ^D	25.00
7.50	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	18.75	20.00	Common Shs Outst'g ^E	100.00
82.88	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	98.00	99.00	Avg Ann'l P/E Ratio	17.0
16.1	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	17.5	17.5	Relative P/E Ratio	.95
.87	1.15	.74	.99	.95	1.05	1.07	.90	.62	.84	1.12	1.13	.84	1.29	.91	.94	.94	.94	Avg Ann'l Div'd Yield	4.0%
3.2%	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%	3.6%	3.6%		
CAPITAL STRUCTURE as of 6/30/22 Total Debt \$2919.7 mill. Due in 5 Yrs \$300 mill. LT Debt \$2524.6 mill. LT Interest \$78.6 mill. Incl. \$6.0 mill. capitalized leases. (LT interest earned: 5.0x; total interest coverage: 5.0x) Pension Assets-9/21 \$469.5 mill. Oblig. \$640.2 mill. Prd Stock None Common Stock 96,228,378 shs. as of 8/1/22 MARKET CAP: \$4.3 billion (Mid Cap)																			
CURRENT POSITION 2020 2021 6/30/22 (SMILL.) Cash Assets 117.0 4.7 27.7 Other 505.3 629.6 712.4 Current Assets 622.3 634.3 740.1 Accts Payable 270.1 429.6 129.4 Debt Due 152.6 450.1 395.1 Other 111.0 171.7 444.9 Current Liab. 533.7 1051.4 969.4 Fix. Chg. Cov. 545% 545% 550%																			
ANNUAL RATES Past 10 Yrs. Past 5 Yrs. Est'd '19-'21 of change (per sh) 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%																			
QUARTERLY REVENUES (\$ mill.)^A Fiscal Year Ends Dec.31 Mar.31 Jun.30 Sep.30 Full Fiscal Year 2019 811.8 866.2 434.9 479.1 2592.0 2020 615.0 639.6 299.0 400.1 1953.7 2021 454.3 802.2 367.6 532.5 2156.6 2022 675.8 912.3 552.3 559.6 2700 2023 775 1050 500 525 2850																			
EARNINGS PER SHARE^{A B} Fiscal Year Ends Dec.31 Mar.31 Jun.30 Sep.30 Full Fiscal Year 2019 .61 1.27 d.20 .29 1.96 2020 .44 1.12 d.06 .57 2.07 2021 .46 1.77 d.15 .07 2.16 2022 .69 1.36 d.04 .39 2.40 2023 .65 1.45 Nil .40 2.50																			
QUARTERLY DIVIDENDS PAID^C Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year 2018 .273 .273 .273 .2925 1.11 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																			
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 564,000 cust. at 9/30/21. Fiscal 2021 volume: 112 bill. cu. ft. (20% interruptible, 61% residential, commercial & firm transportation, 19% other). N.J. Natural Energy subsidiary provides unregulated retail/wholesale natural gas and related energy svcs. 2021 dep. rate: 2.4%. Has 1,251 empl. Off/dir. own less than 1% of common; BlackRock, 15.3%; Vanguard, 10.6% (1/21 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 has fared well since our August report, as compared to its industry peers. Rising interest rates have taken a toll on large utility stocks, while rising bond yields compete with the sector's strong dividends. Investors flocked to the stability of utilities earlier in the year when facing broad market volatility and uncertainty. As a result, shares saw gains amidst a broader market downturn, which caused dividend yields to fall. Over the past three months, the Dow Jones Utility Average Index has fallen just over 10% in value. By comparison, NJR has lost only 3% in that same time. This is mostly due to the company's strong diversification strategy. By venturing beyond the regulated utility space and integrating a wider scope relating to energy services, clean energy, and storage and transportation, NJR is more protected from the volatility of the cost of energy and regulatory dynamics facing the utility sector. These non-utility categories account for 40% of the company's net financial earnings per share and set the company apart from its comparable industry group.																			
company's convincing path. June-period revenue outpaced the year prior by 50%, while share losses decreased significantly. (Note: the company was set to report fourth-quarter results shortly after we went to press.) The increase was mostly a result of higher utility revenues as base-rate increases led to higher sales, offsetting rising energy costs. The company's other business groups lagged; margins were compressed but should rebound as key projects near completion. One of the most significant constructions is the Adelpia natural gas pipeline, which will help to bring service to thousands of new customers. The company is also increasing its solar production capacity, and using the energy to create clean hydrogen gas to blend into its existing gas infrastructure. The strategic fit of these additions augurs well for the company's financial sustainability out to mid decade.																			
These shares currently trade above our 18-month targets, and also offer underwhelming capital appreciation potential in our 3- to 5-year forecast. For now it would be best to turn the page.																			
Recent performance demonstrates the Earl B.Humes November 25, 2022																			

(A) Fiscal year ends Sept. 30th.
 (B) Diluted earnings. City, revenues and eggs may not sum to total due to rounding and change in shares outstanding. Next earnings report due late February
 (C) Dividends historically paid in early Jan., April, July, and October. ■ Dividend reinvestment plan available.
 (D) Includes regulatory assets in 2021: \$522.1 million, \$5.49/share.
 (E) In millions, adjusted for splits.
 Company's Financial Strength A+
 Stock's Price Stability 85
 Price Growth Persistence 80
 Earnings Predictability 55
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2025-27 PROJECTIONS													2023		25-27	
High	Low	Price	Gain	Ann'l Total									Revenues per sh	32.90		
80	55	(+70%)	(+15%)	Return									"Cash Flow" per sh	7.25		
				8%									Earnings per sh A	3.30		
													Div's Decl'd per sh B	1.96		

LEGENDS
0.60 x Dividends p sh divided by Interest Rate
Relative Price Strength
Options: Yes
Shaded area indicates recession

Institutional Decisions
402021 102022 202022
to Buy 104 161 139
to Sell 93 74 107
Hld's(000) 21695 24444 26050

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	© VALUE LINE PUB. LLC		25-27
37.20	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	27.45	27.60	90	980	1250
4.76	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	5.75	6.25	100.0	10.0	10.0
2.35	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	2.60	2.75	91.0	9.5	9.5
1.39	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	1.94	350.0	35.0	38.00

Pension Assets-12/21 \$399.2 mill. Oblig. \$569.8 mill.
Prd Stock None
Common Stock 35,099,161 shares as of 10/27/22

MARKET CAP \$1.7 billion (Mid Cap)
CURRENT POSITION (SMILL.)
Cash Assets 30.2 18.6 108.6
Other 293.0 418.7 373.2
Current Assets 323.2 437.3 481.8
Accts Payable 97.9 133.5 118.3
Debt Due 399.9 389.8 191.6
Other 129.3 201.5 241.5
Current Liab. 627.1 724.8 551.4
Fix. Chg. Cov. 335% 335% 312%

ANNUAL RATES
of change (per sh)
Revenues -2.5%
"Cash Flow" 1.0%
Earnings -1.0%
Dividends 1.5%
Book Value 1.0%

Shares of Northwest Natural Holding Company have followed the trend of the broader utilities sector, dropping 11% in value since our August review.
Looking forward, we expect continued strong and stable growth for the company based on key expansion initiatives.
The fundamentals of the business remain strong, as indicated by third-quarter results.
However, it appears the market has priced in much of the stock's upside at the current valuation.
Earl B. Humes November 25, 2022

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2019	285.4	123.4	90.3	247.3	746.4
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	297.9	960
2023	365	160	115	340	980

Business: Northwest Natural Holding Co. distributes natural gas to 1,000 communities, 775,000 customers, in Oregon (89% 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 1,167. BlackRock Inc. owns 17.2% of shares; Vanguard, 11.8%; Off./Dir., .92% (4/22 proxy). CEO: David H. Anderson, Inc. Oregon. Address: 220 NW 2nd Ave., Portland, OR 97209. Tel.: 503-226-4211. Internet: www.nwnatural.com.

Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2018	.4725	.4725	.4725	.475	1.89
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	

QUARTERLY DIVIDENDS PAID B
2018 .4725 2019 .475 2020 .4775 2021 .48 2022 .483

(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 late February.
(B) Dividends historically paid in mid-February, May, August, and November.
(C) In millions.
(D) Includes intangibles. In 2021: \$70.6 million, \$2.27/share.

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

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ONE GAS, INC. NYSE-OGS			RECENT PRICE	81.47	P/E RATIO	19.8 (Trailing: 20.5 Median: NMF)	RELATIVE P/E RATIO	1.22	DIV'D YLD	3.2%	VALUE LINE																																				
TIMELINESS 3	Raised 5/13/22	High: 44.3	51.8	67.4	79.5	87.8	96.7	97.0	81.9	92.3	Target Price	Range																																			
SAFETY 2	New 6/2/17	Low: 31.9	38.9	48.0	61.4	62.2	75.8	63.7	62.5	68.9	2025	2026	2027																																		
TECHNICAL 3	Lowered 11/11/22	LEGENDS — 39.00 x Dividends p sh divided by Interest Rate Relative Price Strength Options: Yes Shaded area indicates recession																																													
BETA .80	(1.00 = Market)	18-Month Target Price Range Low-High \$64-\$108 Midpoint (% to Mid) \$86 (5%)																																													
2025-27 PROJECTIONS Price Gain Ann'l Total High 145 (+80%) 18% Low 105 (+30%) 10%																																															
Institutional Decisions 402021 102022 202022 to Buy 148 146 171 to Sell 119 118 112 Hid's(000) 43769 44094 45263 Percent shares traded 21 14 7																																															
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 9/30/22 Total Debt \$3102.5 mill. Due in 5 Yrs \$2900.0 mill. LT Debt \$2429.1 mill. LT Interest \$140.0 mill. (LT interest earned: 5.1x; total interest coverage: 5.1x) Leases, Uncapitalized Annual rentals \$7.5 mill. Pfd Stock None Pension Assets-12/21 \$1245.2 mill. Oblig. \$1272.8 mill. Common Stock 54,141,036 shs. as of 10/25/22 MARKET CAP: \$4.4 billion (Mid Cap)																																															
CURRENT POSITION 2020 2021 9/30/22 (\$MILL.) Cash Assets 8.0 8.9 10.4 Other 531.9 2215.7 948.0 Current Assets 539.9 2224.6 958.4 Accts Payable 152.3 258.6 191.1 Debt Due 418.2 494.0 673.4 Other 226.6 227.9 240.2 Current Liab. 797.1 980.5 1104.7 Fix. Chg. Cov. 587% 625% 638%																																															
ANNUAL RATES Past Past Est'd '19-'21 of change (per sh) 10 Yrs. 5 Yrs. to '25-'27 Revenues -- .5% 12.0% "Cash Flow" -- 8.5% 6.5% Earnings -- 9.5% 6.5% Dividends -- 13.5% 6.5% Book Value -- 3.5% 8.0%																																															
QUARTERLY REVENUES (\$ mill.) <table border="1"> <thead> <tr> <th>Cal-endar</th> <th>Mar.31</th> <th>Jun.30</th> <th>Sep.30</th> <th>Dec.31</th> <th>Full Year</th> </tr> </thead> <tbody> <tr> <td>2019</td> <td>661.0</td> <td>290.6</td> <td>248.6</td> <td>452.5</td> <td>1652.7</td> </tr> <tr> <td>2020</td> <td>528.2</td> <td>273.3</td> <td>244.6</td> <td>484.2</td> <td>1530.3</td> </tr> <tr> <td>2021</td> <td>625.3</td> <td>315.6</td> <td>273.9</td> <td>593.8</td> <td>1808.6</td> </tr> <tr> <td>2022</td> <td>971.5</td> <td>428.9</td> <td>359.4</td> <td>625.2</td> <td>2385</td> </tr> <tr> <td>2023</td> <td>1019</td> <td>470</td> <td>376</td> <td>655</td> <td>2520</td> </tr> </tbody> </table>												Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year	2019	661.0	290.6	248.6	452.5	1652.7	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	625.2	2385	2023	1019	470	376	655	2520
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EARNINGS PER SHARE ^A <table border="1"> <thead> <tr> <th>Cal-endar</th> <th>Mar.31</th> <th>Jun.30</th> <th>Sep.30</th> <th>Dec.31</th> <th>Full Year</th> </tr> </thead> <tbody> <tr> <td>2019</td> <td>1.76</td> <td>.46</td> <td>.33</td> <td>.96</td> <td>3.51</td> </tr> <tr> <td>2020</td> <td>1.72</td> <td>.48</td> <td>.39</td> <td>1.09</td> <td>3.68</td> </tr> <tr> <td>2021</td> <td>1.79</td> <td>.56</td> <td>.38</td> <td>1.12</td> <td>3.85</td> </tr> <tr> <td>2022</td> <td>1.83</td> <td>.59</td> <td>.44</td> <td>1.14</td> <td>4.00</td> </tr> <tr> <td>2023</td> <td>1.88</td> <td>.65</td> <td>.50</td> <td>1.17</td> <td>4.20</td> </tr> </tbody> </table>												Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year	2019	1.76	.46	.33	.96	3.51	2020	1.72	.48	.39	1.09	3.68	2021	1.79	.56	.38	1.12	3.85	2022	1.83	.59	.44	1.14	4.00	2023	1.88	.65	.50	1.17	4.20
Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year																																										
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Cal-endar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year																																										
2018	.46	.46	.46	.46	1.84																																										
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																																										
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 164 Bcf of natural gas supply in 2021, compared to 153 Bcf in 2020. Total volumes delivered by customer (fiscal 2021): transportation, 59.3%; residential, 30.4%; commercial & industrial, 9.7%; other, .6%. ONE Gas has around 3,600 employees. BlackRock owns 12.2% of common stock; The Vanguard Group, 10.9%; American Century Investment, 8.0%; officers and directors, 1.5% (4/22 Proxy). CEO: Robert S. McAnnally. Incorporated: Oklahoma. Address: 15 East Fifth Street, Tulsa, Oklahoma 74103. Tel.: 918-947-7000. Internet: www.onegas.com.																																															
Higher profits appear to be in store for ONE Gas in 2022. During the first nine months, earnings per share stood at \$2.86, which marked a nearly 5% increase from last year's \$2.73 tally. That was brought about partially by new rates. Another contributing factor was an increase in residential sales attributable mainly to net customer growth in Oklahoma and Texas. A decrease in both bad-debt expense and COVID-19-related costs helped, too. So, if the fourth quarter goes fairly well for the company, the bottom line stands to advance some 4% for the full year, to \$4.00 a share, versus 2021's \$3.85 total. Turning to 2023, we expect per-share profits to rise at a similar percentage rate, to \$4.20, although the economic climate bears watching.																																															
This year's capital expenditures, including asset removal costs, are anticipated to be around \$650 million. (That would be nearly 20% higher than the 2021 figure of \$544.3 million.) More than 65% of the budget is devoted to system integrity and pipeline replacement projects. It's worth mentioning that the energy firm projects total spending to be about \$3.5 billion (\$650 million—\$750 million annually) between 2022 and 2026, with roughly the same percentage of funds allocated to where they are presently. Those objectives seem achievable assuming, of course, that corporate finances remain in healthy condition.																																															
Businesses are concentrated in just three states. Furthermore, it seems that leadership is content with maintaining the status quo, given that some units are in metropolitan areas, such as Tulsa, Oklahoma; Wichita, Kansas; and Austin, Texas. Nevertheless, this lack of geographic diversity leaves the company somewhat more vulnerable to regional economic downturns and regulations.																																															
Income-oriented accounts may be drawn to these good-quality shares. The dividend yield looks decent compared to the average of the Value Line Natural Gas Utility group. Too, we expect steady hikes in the distribution out to 2025-2027. The payout ratio over that span ought to be in the vicinity of 60%, which is quite manageable. Meanwhile, the equity is neutrally ranked for Timeliness.																																															
<i>Frederick L. Harris, III November 25, 2022</i>																																															

(A) Diluted EPS. Excludes nonrecurring gain: 2017, \$0.06. Next earnings report due early February
 (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 95
 Price Growth Persistence 50
 Earnings Predictability 100

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Peoples Gas System
Summary of Risk Premium Models for the
Utility Proxy Group

	<u>Proxy Group of Six Natural Gas Companies</u>
Predictive Risk Premium Model (PRPM) (1)	12.02 %
Risk Premium Using an Adjusted Total Market Approach (2)	<u>11.06 %</u>
Average	<u><u>11.54 %</u></u>

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)

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
<u>Proxy Group of Six Natural Gas Companies</u>	<u>LT Average Predicted Variance</u>	<u>Spot Predicted Variance</u>	<u>Recommended Variance (2)</u>	<u>GARCH Coefficient</u>	<u>Predicted Risk Premium (3)</u>	<u>Risk-Free Rate (4)</u>	<u>Indicated ROE (5)</u>
Atmos Energy Corporation	0.34%	0.56%	0.34%	2.2555	9.66%	3.91%	13.57%
New Jersey Resources Corporation	0.39%	0.66%	0.39%	2.1388	10.47%	3.91%	14.38%
NiSource Inc.	0.49%	0.64%	0.49%	0.8300	4.94%	3.91%	8.85%
Northwest Natural Holding Company	0.33%	0.53%	0.33%	1.4846	6.08%	3.91%	9.99%
ONE Gas, Inc.	0.37%	0.63%	0.37%	3.2914	15.72%	3.91%	NMF
Spire Inc.	0.71%	0.50%	0.71%	0.9465	8.32%	3.91%	12.23%
						Average	<u>11.80%</u>
						Median	<u>12.23%</u>
						Average of Mean and Median	<u>12.02%</u>

NMF = Non-Meaningful Figure

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 Services.
- (2) In view of current volatility, Mr. D'Ascendis recommends using the long-term predicted variance at this time.
- (3) $(1 + (\text{Column [3]} * \text{Column [4]})^{12}) - 1$.
- (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

<u>Line No.</u>		<u>Proxy Group of Six Natural Gas Companies</u>
1.	Prospective Yield on Aaa Rated Corporate Bonds (1)	5.05 %
2.	Adjustment to Reflect Yield Spread Between Aaa Rated Corporate Bonds and A2 Rated Public Utility Bonds (2)	<u>0.83</u>
3.	Adjusted Prospective Yield on A2 Rated Public Utility Bonds	5.88 %
4.	Equity Risk Premium (3)	<u>5.18</u>
5.	Risk Premium Derived Common Equity Cost Rate	<u><u>11.06 %</u></u>

- Notes: (1) Consensus forecast of Moody's Aaa Rated Corporate bonds from Blue Chip Financial Forecasts (see pages 10 and 11 of this Document).
- (2) The average yield spread of A2 rated public utility bonds over Aaa rated corporate bonds of 0.83% 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]	[2]	[3]
	<u>Aaa Rated Corporate Bond</u>	<u>A2 Rated Public Utility Bond</u>	<u>Baa2 Rated Public Utility Bond</u>
Dec-2022	4.41 %	5.27 %	5.56 %
Nov-2022	4.90	5.75	6.05
Oct-2022	5.10	5.88	6.18
Average	<u>4.80 %</u>	<u>5.63 %</u>	<u>5.93 %</u>

Selected Bond Spreads

A2 Rated Public Utility Bonds Over Aaa Rated Corporate Bonds:

0.83 % (1)

Baa2 Rated Public Utility Bonds Over A2 Rated Public Utility Bonds:

0.30 % (2)

Notes:

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

Source of Information:
 Bloomberg Professional Services.

Peoples Gas System
Comparison of Long-Term Issuer Ratings for the
Utility Proxy Group

	<u>Moody's</u>		<u>Standard & Poor's</u>	
	<u>Long-Term Issuer Rating</u>		<u>Long-Term Issuer Rating</u>	
	<u>December 2022</u>		<u>December 2022</u>	
<u>Proxy Group of Six Natural Gas Companies</u>	<u>Long-Term Issuer Rating (1)</u>	<u>Numerical Weighting (2)</u>	<u>Long-Term Issuer Rating (1)</u>	<u>Numerical Weighting (2)</u>
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 Services.
Standard & Poor's Global Utilities Rating Services.

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

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

Peoples Gas System
 Judgment of Equity Risk Premium for the
Utility Proxy Group

Line No.		Proxy Group of Six Natural Gas Companies
1.	Calculated equity risk premium based on the total market using the beta approach (1)	6.50 %
2.	Mean equity risk premium based on a study using the holding period returns of public utilities with A rated bonds (2)	4.32
3.	Predicted Equity Risk Premium Based on Regression Analysis of 818 Fully-Litigated Natural Gas Cases (3)	4.71
4.	Average equity risk premium	5.18 %

Notes: (1) From page 8 of this Document.
 (2) From page 12 of this Document.
 (3) From page 13 of this Document.

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

<u>Line No.</u>	<u>Equity Risk Premium Measure</u>	<u>Proxy Group of Six Natural Gas Companies</u>
<u>Kroll-Based Equity Risk Premiums:</u>		
1.	Kroll Equity Risk Premium (1)	6.13 %
2.	Regression on Kroll Risk Premium Data (2)	7.26
3.	Kroll Equity Risk Premium based on PRPM (3)	9.76
4.	Equity Risk Premium Based on Value Line Summary and Index (4)	11.53
5.	Equity Risk Premium Based on Value Line S&P 500 Companies (5)	10.62
6.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	<u>6.01</u>
7.	Conclusion of Equity Risk Premium	8.55 %
8.	Adjusted Beta (7)	<u>0.76</u>
9.	Forecasted Equity Risk Premium	<u><u>6.50 %</u></u>

Notes provided on page 9 of this Document.

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

Notes:

- (1) Based on the arithmetic mean historical monthly returns on large company common stocks from Kroll 2022 SBBI® Yearbook minus the arithmetic mean monthly yield of Moody's average Aaa and Aa corporate bonds from 1928-2021.
- (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 1928-2021 referenced in note 1 above.
- (3) The Predictive Risk Premium Model (PRPM) is discussed in the accompanying direct testimony. The SBBI equity risk premium based on the PRPM is derived by applying the PRPM to the monthly risk premiums between SBBI large company common stock monthly returns and average Aaa and Aa corporate monthly bond yields, from January 1928 through December 2022.
- (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 5.05% (from page 3 of this Document) from the projected 3-5 year total annual market return of 16.58% (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 15.67% was derived based upon expected dividend yields and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the average consensus forecast of Aaa corporate bonds of 5.05% results in an expected equity risk premium of 10.62%.
- (6) Using data from Bloomberg for the S&P 500, an expected total return of 11.06% was derived based upon expected dividend yields and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the average consensus forecast of Aaa corporate bonds of 5.05% results in an expected equity risk premium of 6.01%.
- (7) Average of mean and median beta from Document No. 5.

Sources of Information:

Stocks, Bonds, Bills, and Inflation - 2022 SBBI Yearbook, Kroll.
Value Line Summary and Index.
Blue Chip Financial Forecasts December 2, 2022 and January 1, 2022.
Bloomberg Professional Services.

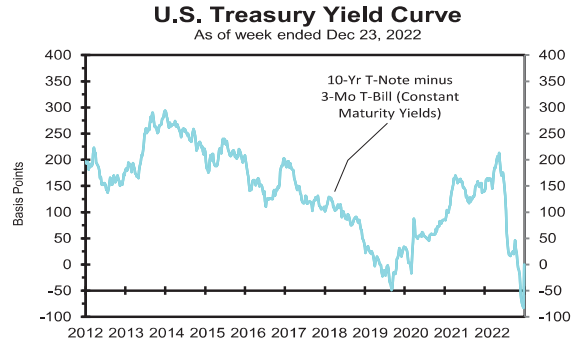
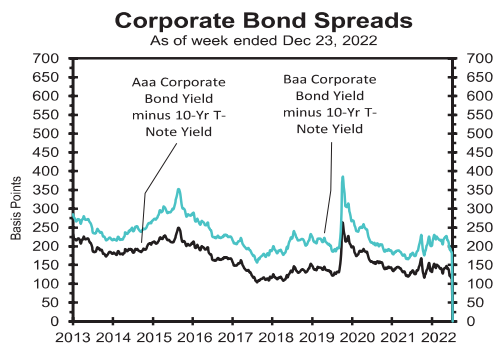
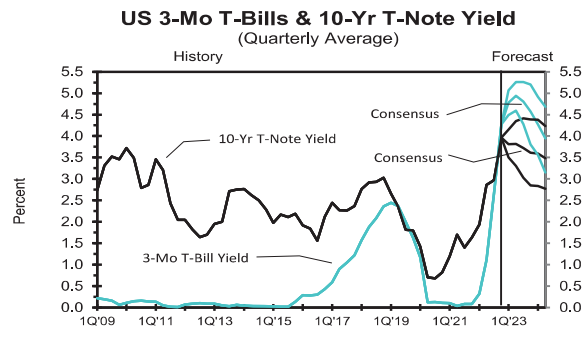
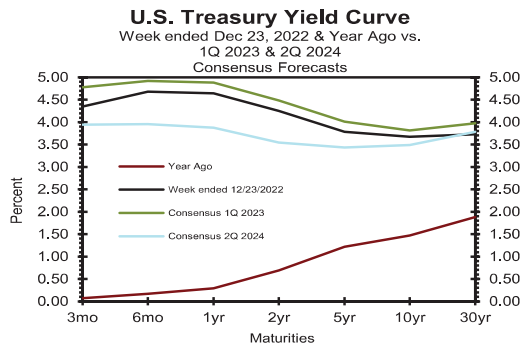
2 ■ BLUE CHIP FINANCIAL FORECASTS ■ JANUARY 1, 2023

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

Interest Rates	History								Consensus Forecasts-Quarterly Avg.						
	Average For Week Ending				Average For Month				Latest Qtr	1Q 2023	2Q 2023	3Q 2023	4Q 2023	1Q 2024	2Q 2024
	Dec 23	Dec 16	Dec 9	Dec 2	Nov	Oct	Sep	4Q 2022*	2023	2023	2023	2023	2024	2024	
Federal Funds Rate	4.33	3.83	3.83	3.83	3.78	3.08	2.56	3.59	4.7	5.0	4.9	4.7	4.4	4.0	
Prime Rate	7.50	7.00	7.00	7.00	6.95	6.25	5.73	6.76	7.8	8.1	8.0	7.8	7.5	7.2	
SOFR	4.30	4.01	3.80	3.81	3.73	3.04	2.50	3.55	4.6	4.9	4.8	4.6	4.4	4.1	
Commercial Paper, 1-mo.	4.28	4.23	4.15	4.00	3.88	3.28	2.80	3.71	4.8	5.1	4.9	4.6	4.4	4.0	
Treasury bill, 3-mo.	4.35	4.34	4.32	4.37	4.32	3.87	3.22	4.17	4.8	4.9	4.8	4.6	4.3	3.9	
Treasury bill, 6-mo.	4.68	4.71	4.72	4.69	4.61	4.31	3.71	4.53	4.9	5.0	4.8	4.5	4.3	4.0	
Treasury bill, 1 yr.	4.64	4.66	4.72	4.73	4.73	4.43	3.89	4.61	4.9	4.9	4.7	4.4	4.2	3.9	
Treasury note, 2 yr.	4.25	4.25	4.33	4.37	4.50	4.38	3.86	4.39	4.5	4.4	4.2	3.9	3.8	3.5	
Treasury note, 5 yr.	3.78	3.67	3.72	3.79	4.06	4.18	3.70	4.00	4.0	4.0	3.9	3.7	3.6	3.4	
Treasury note, 10 yr.	3.67	3.51	3.52	3.63	3.89	3.98	3.52	3.82	3.8	3.8	3.7	3.6	3.6	3.5	
Treasury note, 30 yr.	3.73	3.53	3.51	3.71	4.00	4.04	3.56	3.89	4.0	4.0	3.9	3.9	3.8	3.8	
Corporate Aaa bond	4.88	4.66	4.68	4.87	5.23	5.41	4.87	5.15	5.1	5.2	5.2	5.1	4.9	4.8	
Corporate Baa bond	5.56	5.34	5.38	5.57	5.95	6.22	5.64	5.90	6.1	6.3	6.2	6.1	5.9	5.8	
State & Local bonds	4.24	4.18	4.19	4.26	4.50	4.62	4.31	4.46	4.3	4.4	4.3	4.3	4.3	4.2	
Home mortgage rate	6.27	6.31	6.33	6.49	6.81	6.90	6.11	6.69	6.5	6.5	6.3	6.2	6.0	5.8	

Key Assumptions	History								Consensus Forecasts-Quarterly					
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q
	2021	2021	2021	2021	2022	2022	2022	2022**	2023	2023	2023	2023	2024	2024
Fed's AFE \$ Index	103.4	102.9	105.0	107.0	108.4	113.7	119.0	120.6	118.7	118.1	117.6	117.1	116.8	116.9
Real GDP	6.3	7.0	2.7	7.0	-1.6	-0.6	3.2	1.0	-0.2	-0.7	0.3	0.9	1.3	1.7
GDP Price Index	5.2	6.3	6.2	6.8	8.3	9.0	4.4	4.3	3.6	3.0	2.7	2.5	2.3	2.2
Consumer Price Index	4.1	8.2	6.7	7.9	9.2	10.5	5.7	4.5	3.4	3.1	2.9	2.6	2.4	2.3
PCE Price Index	4.5	6.4	5.6	6.2	7.5	7.3	4.3	4.2	3.2	2.8	2.6	2.5	2.4	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. *Interest rate data for 4Q 2022 based on historical data through the week ended December 23. **Data for 4Q 2022 for the Fed's AFE \$ Index based on data through the week ended December 23. Figures for 4Q 2022 Real GDP, GDP Chained Price Index, Consumer Price Index, and PCE Price Index are consensus forecasts from the December 2022 survey.



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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 2028 and averages for the five-year periods 2024-2028 and 2029-2033. 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	2024-2028	2029-2033
1. Federal Funds Rate	CONSENSUS	3.7	2.9	2.8	2.8	2.7	3.0	2.8
	Top 10 Average	4.5	3.7	3.6	3.5	3.4	3.7	3.4
	Bottom 10 Average	2.7	2.2	2.2	2.2	2.2	2.3	2.3
2. Prime Rate	CONSENSUS	6.8	6.1	5.9	5.9	5.9	6.1	5.9
	Top 10 Average	7.6	6.8	6.7	6.6	6.5	6.8	6.5
	Bottom 10 Average	5.9	5.3	5.3	5.3	5.3	5.4	5.3
3. SOFR	CONSENSUS	3.7	2.9	2.8	2.8	2.7	3.0	2.8
	Top 10 Average	4.4	3.6	3.4	3.3	3.2	3.6	3.3
	Bottom 10 Average	3.0	2.3	2.2	2.2	2.2	2.4	2.2
4. Commercial Paper, 1-Mo	CONSENSUS	3.7	3.1	3.0	2.9	2.9	3.1	2.9
	Top 10 Average	4.4	3.6	3.5	3.4	3.3	3.6	3.3
	Bottom 10 Average	3.2	2.6	2.5	2.4	2.4	2.6	2.5
5. Treasury Bill Yield, 3-Mo	CONSENSUS	3.7	3.0	2.9	2.8	2.8	3.0	2.8
	Top 10 Average	4.4	3.7	3.6	3.5	3.4	3.7	3.4
	Bottom 10 Average	2.9	2.2	2.3	2.2	2.2	2.4	2.3
6. Treasury Bill Yield, 6-Mo	CONSENSUS	3.7	3.0	3.0	3.0	2.9	3.1	3.0
	Top 10 Average	4.4	3.7	3.7	3.6	3.5	3.8	3.5
	Bottom 10 Average	3.1	2.4	2.4	2.4	2.4	2.5	2.4
7. Treasury Bill Yield, 1-Yr	CONSENSUS	3.8	3.1	3.1	3.1	3.0	3.2	3.1
	Top 10 Average	4.4	3.8	3.7	3.6	3.5	3.8	3.6
	Bottom 10 Average	3.1	2.5	2.5	2.5	2.5	2.6	2.6
8. Treasury Note Yield, 2-Yr	CONSENSUS	3.6	3.2	3.2	3.1	3.1	3.2	3.1
	Top 10 Average	4.4	3.9	3.8	3.8	3.7	3.9	3.8
	Bottom 10 Average	2.7	2.5	2.6	2.6	2.6	2.6	2.6
9. Treasury Note Yield, 5-Yr	CONSENSUS	3.6	3.3	3.4	3.4	3.3	3.4	3.4
	Top 10 Average	4.4	4.0	4.0	4.0	3.9	4.1	3.9
	Bottom 10 Average	2.9	2.7	2.7	2.8	2.8	2.8	2.9
10. Treasury Note Yield, 10-Yr	CONSENSUS	3.7	3.5	3.6	3.6	3.6	3.6	3.7
	Top 10 Average	4.4	4.2	4.4	4.4	4.3	4.3	4.3
	Bottom 10 Average	3.0	2.9	2.8	2.9	3.0	2.9	3.0
11. Treasury Bond Yield, 30-Yr	CONSENSUS	4.0	3.9	3.9	4.0	3.9	3.9	4.0
	Top 10 Average	4.6	4.5	4.7	4.6	4.6	4.6	4.7
	Bottom 10 Average	3.4	3.3	3.3	3.3	3.3	3.3	3.3
12. Corporate Aaa Bond Yield	CONSENSUS	5.1	4.9	5.0	5.0	5.0	5.0	5.1
	Top 10 Average	5.7	5.5	5.6	5.6	5.6	5.6	5.7
	Bottom 10 Average	4.6	4.4	4.4	4.4	4.5	4.4	4.5
13. Corporate Baa Bond Yield	CONSENSUS	6.2	5.9	5.9	6.0	5.9	6.0	6.0
	Top 10 Average	6.6	6.4	6.5	6.5	6.5	6.5	6.6
	Bottom 10 Average	5.7	5.3	5.3	5.4	5.4	5.4	5.5
14. State & Local Bonds Yield	CONSENSUS	4.4	4.2	4.3	4.3	4.3	4.3	4.4
	Top 10 Average	4.8	4.7	4.8	4.7	4.7	4.7	4.8
	Bottom 10 Average	3.9	3.7	3.8	3.9	3.9	3.9	3.9
15. Home Mortgage Rate	CONSENSUS	5.9	5.5	5.5	5.5	5.5	5.6	5.5
	Top 10 Average	6.6	6.2	6.2	6.2	6.2	6.3	6.2
	Bottom 10 Average	5.3	4.8	4.8	4.8	4.8	4.9	4.9
A. Fed's AFE Nominal \$ Index	CONSENSUS	117.6	116.0	114.5	113.5	112.2	114.8	110.7
	Top 10 Average	120.7	119.3	118.5	118.0	117.9	118.9	116.7
	Bottom 10 Average	115.1	112.9	110.7	109.2	107.2	111.0	105.4
		----- Year-Over-Year, % Change -----					Five-Year Averages	
		2024	2025	2026	2027	2028	2024-2028	2029-2033
B. Real GDP	CONSENSUS	1.4	2.2	2.1	2.0	2.0	1.9	1.9
	Top 10 Average	2.2	2.6	2.6	2.4	2.4	2.5	2.3
	Bottom 10 Average	0.5	1.8	1.7	1.7	1.7	1.5	1.6
C. GDP Chained Price Index	CONSENSUS	2.3	2.1	2.1	2.1	2.1	2.1	2.1
	Top 10 Average	2.7	2.4	2.3	2.3	2.3	2.4	2.2
	Bottom 10 Average	2.0	1.9	1.9	1.9	1.9	1.9	1.9
D. Consumer Price Index	CONSENSUS	2.4	2.2	2.2	2.2	2.2	2.2	2.1
	Top 10 Average	2.8	2.5	2.4	2.3	2.3	2.5	2.3
	Bottom 10 Average	2.0	2.0	2.0	2.0	2.0	2.0	2.0
E. PCE Price Index	CONSENSUS	2.3	2.1	2.1	2.1	2.1	2.1	2.1
	Top 10 Average	2.6	2.4	2.4	2.3	2.2	2.4	2.2
	Bottom 10 Average	1.9	1.9	1.9	1.9	2.0	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

<u>Line No.</u>	<u>Equity Risk Premium based on S&P Utility Index Holding Period Returns (1):</u>	<u>Implied Equity Risk Premium</u>
1.	Historical Equity Risk Premium	4.28 %
2.	Regression of Historical Equity Risk Premium (2)	4.80
3.	Forecasted Equity Risk Premium Based on PRPM (3)	5.56
4.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Value Line Data) (4)	3.62
5.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Bloomberg Data) (5)	<u>3.32</u>
6.	Average Equity Risk Premium (6)	<u><u>4.32 %</u></u>

Notes: (1) Based on S&P Public Utility Index monthly total returns and Moody's Public Utility Bond average monthly yields from 1928-2021. 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 - 2021 referenced in note 1 above.

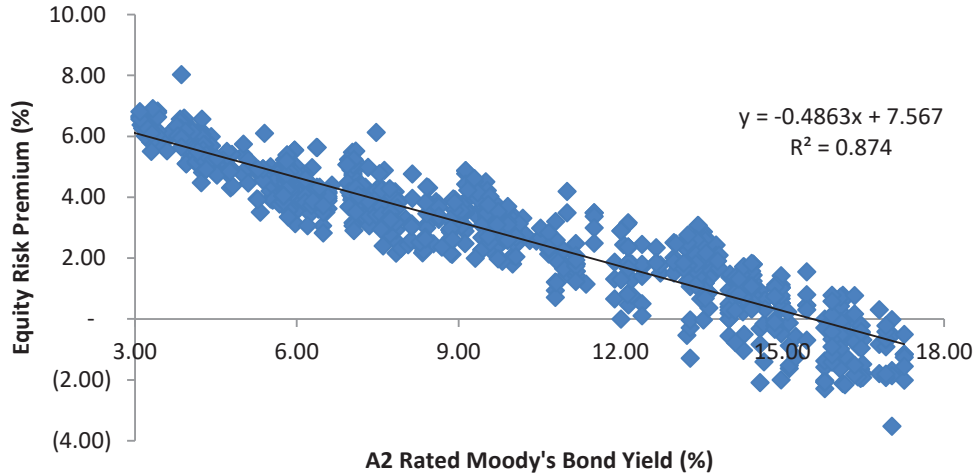
(3) The Predictive Risk Premium Model (PRPM) is applied to the risk premium of the monthly total returns of the S&P Utility Index and the monthly yields on Moody's A2 rated public utility bonds from January 1928 - December 2022.

(4) Using data from Value Line for the S&P Utilities Index, an expected return of 9.50% 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 5.88%, calculated on line 3 of page 3 of this Schedule results in an equity risk premium of 3.62%. (9.50% - 5.88% = 3.62%)

(5) Using data from Bloomberg Services for the S&P Utilities Index, an expected return of 9.20% 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 5.88%, calculated on line 3 of page 3 of this Schedule results in an equity risk premium of 3.32%. (9.20% - 5.88% = 3.32%)

(6) Average of lines 1 through 5.

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



		Prospective A2 Rated Utility Bond (1)	Prospective Equity Risk Premium
<u>Constant</u>	<u>Slope</u>		
7.5670 %	-0.4863	5.88 %	4.71 %

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)

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Six Natural Gas Companies	Value Line Adjusted Beta	Bloomberg Adjusted Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (3)
Atmos Energy Corporation	0.80	0.73	0.77	9.75 %	3.91 %	11.42 %	11.98 %	11.70 %
New Jersey Resources Corporation	0.95	0.71	0.83	9.75	3.91	12.00	12.42	12.21
NiSource Inc.	0.85	0.74	0.79	9.75	3.91	11.61	12.12	11.87
Northwest Natural Holding Company	0.80	0.53	0.66	9.75	3.91	10.34	11.17	10.76
ONE Gas, Inc.	0.80	0.58	0.69	9.75	3.91	10.64	11.39	11.02
Spire Inc.	0.85	0.69	0.77	9.75	3.91	11.42	11.98	11.70
Mean			0.75			11.24 %	11.84 %	11.54 %
Median			0.77			11.42 %	11.98 %	11.70 %
Average of Mean and Median			0.76			11.33 %	11.91 %	11.62 %

Notes on page 2 of this Document.

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 EXHIBIT NO. DWD-1
 WITNESS: D'ASCENDIS
 DOCUMENT NO. 5
 PAGE 1 OF 2
 FILED: 04/04/2023

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 (1926-2021)

Arithmetic Mean Monthly Returns for Large Stocks 1926-2021:	12.37 %
Arithmetic Mean Income Returns on Long-Term Government Bonds:	5.02
MRP based on Kroll Historical Data:	7.35 %

Measure 2: Application of a Regression Analysis to Kroll Historical Data (1926-2021)

8.71 %

Measure 3: Application of the PRPM to Kroll Historical Data: (January 1926 - December 2022)

10.86 %

Value Line MRP Estimates:

Measure 4: Value Line Projected MRP (Thirteen weeks ending December 30, 2022)

Total projected return on the market 3-5 years hence*:	16.58 %
Projected Risk-Free Rate (see note 2):	3.91
MRP based on Value Line Summary & Index:	12.67 %
*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:	15.67 %
Projected Risk-Free Rate (see note 2):	3.91
MRP based on Value Line data	11.76 %

Measure 6: Bloomberg Projected MRP

Total return on the Market based on the S&P 500:	11.06 %
Projected Risk-Free Rate (see note 2):	3.91
MRP based on Bloomberg data	7.15 %
Average of Value Line, Kroll, and Bloomberg MRP:	9.75 %

- (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 10 and 11 of Document No. 4) The projection of the risk-free rate is illustrated below:

First Quarter 2023	4.00 %
Second Quarter 2023	4.00
Third Quarter 2023	3.90
Fourth Quarter 2023	3.90
First Quarter 2024	3.80
Second Quarter 2024	3.80
2024-2028	3.90
2029-2033	4.00
	3.91 %

- (3) Average of Column 6 and Column 7.

Sources of Information:

Value Line Summary and Index.
Blue Chip Financial Forecasts December 2, 2022 and January 1, 2022.
Stocks, Bonds, Bills, and Inflation - 2022 SBBI Yearbook, Kroll.
Bloomberg Professional Services.

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

The criteria for selection of the proxy group of non-price regulated companies comparable in total risk to the Utility Proxy Group was 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 0.60 – 0.88 and residual standard error of the regression range of 2.5615 – 3.0551 of the Proxy Group of Six Natural Gas Companies.

These ranges are based upon plus or minus two standard deviations of the unadjusted beta and standard error of the regression. Plus or minus three 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 error of the regression is 0.1234. 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

$$\text{Thus, } 0.1234 = \frac{2.8083}{\sqrt{518}} = \frac{2.8083}{22.7596}$$

Source of Information: Value Line, Inc., December 2022.
Value Line Investment Survey (Standard Edition).

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

	[1]	[2]	[3]	[4]
<u>Proxy Group of Six Natural Gas Companies</u>	<u>Value Line Adjusted Beta</u>	<u>Unadjusted Beta</u>	<u>Residual Standard Error of the Regression</u>	<u>Standard Deviation of Beta</u>
Atmos Energy Corporation	0.80	0.68	2.7458	0.0684
New Jersey Resources Corporation	1.00	0.94	2.9752	0.0741
NiSource Inc.	0.85	0.71	2.4801	0.0617
Northwest Natural Holding Company	0.85	0.70	3.1228	0.0777
ONE Gas, Inc.	0.80	0.66	2.7001	0.0672
Spire Inc.	0.85	0.72	2.8255	0.0703
Average	<u>0.86</u>	<u>0.74</u>	<u>2.8083</u>	<u>0.0699</u>
Beta Range (+/- 2 std. Devs. of Beta)	0.60	0.88		
2 std. Devs. of Beta	0.14			
Residual Std. Err. Range (+/- 2 std. Devs. of the Residual Std. Err.)	2.5615	3.0551		
Std. dev. of the Res. Std. Err.	0.1234			
2 std. devs. of the Res. Std. Err.	0.2468			

Source of Information: Value Line Proprietary Database, December 2022.

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

	[1]	[2]	[3]	[4]
Proxy Group of Thirty Nine Non-Price Regulated Companies	Value Line Adjusted Beta	Unadjusted Beta	Residual Standard Error of the Regression	Standard Deviation of Beta
Agilent Technologies	0.85	0.77	2.6442	0.0658
Abbott Labs.	0.90	0.81	2.7622	0.0688
Analog Devices	0.95	0.87	2.8417	0.0707
Assurant Inc.	0.95	0.85	2.7366	0.0681
Smith (A.O.)	0.85	0.76	2.7272	0.0679
Air Products & Chem.	0.90	0.79	2.6237	0.0653
Brown-Forman 'B'	0.90	0.80	2.6915	0.0670
Bristol-Myers Squibb	0.85	0.76	3.0330	0.0755
Broadridge Fin'l	0.85	0.70	2.7610	0.0687
CACI Int'l	0.90	0.84	2.9846	0.0743
Chemed Corp.	0.85	0.70	2.7215	0.0677
CSW Industrials	0.90	0.80	2.9127	0.0725
Quest Diagnostics	0.80	0.69	3.0218	0.0752
Exponent, Inc.	0.90	0.80	2.8742	0.0715
Ingredion Inc.	0.90	0.85	2.8617	0.0712
J&J Snack Foods	0.95	0.87	2.9766	0.0741
Henry (Jack) & Assoc	0.85	0.70	2.8821	0.0717
McCormick & Co.	0.80	0.66	2.8331	0.0705
Merck & Co.	0.80	0.64	2.6540	0.0661
MSCI Inc.	0.95	0.85	3.0171	0.0751
Motorola Solutions	0.90	0.79	2.6757	0.0666
NewMarket Corp.	0.75	0.61	2.6489	0.0659
Northrop Grumman	0.85	0.74	2.9186	0.0727
Old Dominion Freight	0.95	0.85	2.9677	0.0739
Oracle Corp.	0.75	0.61	2.6634	0.0663
Progressive Corp.	0.75	0.60	2.8617	0.0712
Post Holdings	0.95	0.86	2.9244	0.0728
RLI Corp.	0.80	0.66	2.8575	0.0711
Rollins, Inc.	0.85	0.72	2.9831	0.0743
Sherwin-Williams	0.90	0.84	2.5643	0.0638
Selective Ins. Group	0.90	0.81	2.9464	0.0733
Sirius XM Holdings	0.95	0.86	2.9589	0.0737
Sensient Techn.	0.90	0.82	2.6393	0.0657
Thermo Fisher Sci.	0.85	0.70	2.6279	0.0654
Texas Instruments	0.85	0.75	2.6590	0.0662
VeriSign Inc.	0.90	0.78	2.5863	0.0644
Waters Corp.	0.95	0.87	2.8032	0.0698
Watsco, Inc.	0.85	0.75	2.6936	0.0671
Western Union	0.80	0.65	2.7094	0.0674
Average	0.87	0.76	2.8013	0.0697
Proxy Group of Six Natural Gas Companies	0.86	0.74	2.8083	0.0699

Source of Information:

Value Line Proprietary Database, December 2022.

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

<u>Principal Methods</u>	<u>Proxy Group of Thirty Nine Non-Price Regulated Companies</u>
Discounted Cash Flow Model (DCF) (1)	11.57 %
Risk Premium Model (RPM) (2)	13.30
Capital Asset Pricing Model (CAPM) (3)	12.32
Mean	12.40 %
Median	12.32 %
Average of Mean and Median	12.36 %

Notes:

- (1) From pages 2-3 of this Document.
- (2) From page 4 of this Document.
- (3) From pages 8-9 of this Document.

Peoples Gas SystemDCF Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the
Utility Proxy Group

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Proxy Group of Thirty Nine 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)
Agilent Technologies	0.63 %	12.00 %	10.00 %	11.97 %	11.32 %	0.67 %	11.99 %
Abbott Labs.	1.97	7.00	5.10	8.30	6.80	2.04	8.84
Analog Devices	1.94	11.50	12.30	14.87	12.89	2.07	14.96
Assurant Inc.	2.12	15.50	12.70	17.40	15.20	2.28	17.48
Smith (A.O.)	2.14	11.50	9.00	8.00	9.50	2.24	11.74
Air Products & Chem.	2.28	11.00	12.20	10.65	11.28	2.41	13.69
Brown-Forman 'B'	1.21	14.50	NA	8.62	11.56	1.28	12.84
Bristol-Myers Squibb	3.02	NA	5.60	4.14	4.87	3.09	7.96
Broadridge Fin'l	2.05	9.50	NA	11.80	10.65	2.16	12.81
CACI Int'l	-	7.00	6.70	2.40	5.37	-	NA
Chemed Corp.	0.31	7.00	6.90	6.95	6.95	0.32	7.27
CSW Industrials	0.57	11.50	NA	12.00	11.75	0.60	12.35
Quest Diagnostics	1.83	4.00	NA	-15.60	4.00	1.87	5.87
Exponent, Inc.	0.98	10.50	NA	15.00	12.75	1.04	13.79
Ingredion Inc.	3.06	8.00	NA	9.90	8.95	3.20	12.15
J&J Snack Foods	1.88	9.00	NA	73.10	9.00	1.96	10.96
Henry (Jack) & Assoc	1.06	8.00	9.00	9.00	8.67	1.11	9.78
McCormick & Co.	1.93	5.00	5.30	5.10	5.13	1.98	7.11
Merck & Co.	2.84	8.00	10.40	11.89	10.10	2.98	13.08
MSCI Inc.	1.07	14.50	NA	12.53	13.52	1.14	14.66
Motorola Solutions	1.40	10.50	9.00	11.18	10.23	1.47	11.70
NewMarket Corp.	2.73	-1.50	NA	7.70	7.70	2.84	10.54
Northrop Grumman	1.32	6.50	3.30	3.00	4.27	1.35	5.62
Old Dominion Freight	0.42	10.50	14.10	14.54	13.05	0.45	13.50
Oracle Corp.	1.67	10.00	8.00	10.25	9.42	1.75	11.17
Progressive Corp.	0.32	6.50	19.90	27.12	13.20	0.34	13.54
Post Holdings	-	5.00	NA	32.40	18.70	-	NA
RLI Corp.	0.83	12.00	NA	9.80	10.90	0.88	11.78
Rollins, Inc.	1.33	10.50	NA	8.20	9.35	1.39	10.74
Sherwin-Williams	1.03	11.50	12.80	11.46	11.92	1.09	13.01
Selective Ins. Group	1.31	9.50	6.60	13.40	9.83	1.37	11.20
Sirius XM Holdings	1.57	32.50	7.00	3.54	5.27	1.61	6.88
Sensient Techn.	2.29	2.50	NA	3.80	3.15	2.33	5.48
Thermo Fisher Sci.	0.23	10.50	12.50	3.51	8.84	0.24	9.08
Texas Instruments	2.97	7.50	9.30	10.00	8.93	3.10	12.03
VeriSign Inc.	-	11.00	NA	8.00	9.50	-	NA
Waters Corp.	-	6.00	7.20	8.34	7.18	-	NA
Watsco, Inc.	3.35	11.50	NA	15.00	13.25	3.57	16.82
Western Union	6.82	8.00	NA	-11.05	8.00	7.09	15.09
NA= Not Available						Mean	11.36 %
						Median	11.78 %
						Average of Mean and Median	11.57 %

Notes:

(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 Groups. The dividend yield is derived by using the 60 day average price and the spot indicated dividend as of December 30, 2022. 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 12/30/2022.
www.yahoo.com, Downloaded on 12/30/2022.

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

<u>Line No.</u>		<u>Proxy Group of Thirty Nine Non- Price Regulated Companies</u>
1.	Prospective Yield on Baa2 Rated Corporate Bonds (1)	6.05 %
2	Adjustment to Reflect Bond rating Difference of Non-Price Regulated Companies (2)	<u>(0.17)</u>
3	Adjusted Prospective Bond Yield	5.88
4.	Equity Risk Premium (3)	<u>7.42</u>
5.	Risk Premium Derived Common Equity Cost Rate	<u><u>13.30</u></u> %

Notes: (1) Average forecast of Baa corporate bonds based upon the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts dated December 2, 2022 and January 1, 2023 (see pages 10 and 11 of Document No. 5). The estimates are detailed below.

First Quarter 2023	6.10 %
Second Quarter 2023	6.30
Third Quarter 2023	6.20
Fourth Quarter 2023	6.10
First Quarter 2024	5.90
Second Quarter 2024	5.80
2024-2028	6.00
2029-2033	<u>6.00</u>
Average	<u><u>6.05</u></u> %

(2) The average yield spread of Baa rated corporate bonds over A corporate bonds for the three months ending December 2022 . To reflect the Baa1 average rating of the Gas Non-Utility proxy groups, the prospective yield on Baa1 corporate bonds must be adjusted by 1/3 of the spread between A and Baa corporate bond yields as shown below:

	<u>A Corp. Bond Yield</u>	<u>Baa Corp. Bond Yield</u>	<u>Spread</u>
Dec-22	5.10 %	5.58 %	0.48 %
Nov-22	5.58	6.07	0.49
Oct-22	5.74	6.26	<u>0.52</u>
		Average yield spread	<u>0.50</u>
		1/3 of spread	<u><u>0.17</u></u>

(3) From page 7 of this Document.

Peoples Gas System
Comparison of Long-Term Issuer Ratings for the
Utility Proxy Group

Proxy Group of Thirty Nine Non-Price Regulated Companies	Moody's Long-Term Issuer Rating December 2022		Standard & Poor's Long-Term Issuer Rating December 2022	
	Long-Term Issuer Rating	Numerical Weighting (1)	Long-Term Issuer Rating	Numerical Weighting (1)
Agilent Technologies	Baa2	9.0	BBB+	8.0
Abbott Labs.	A1	5.0	AA-	4.0
Analog Devices	A3	7.0	A-	7.0
Assurant Inc.	Baa2	9.0	BBB	9.0
Smith (A.O.)	NA	--	NA	--
Air Products & Chem.	A2	6.0	A	6.0
Brown-Forman 'B'	A1	5.0	A-	7.0
Bristol-Myers Squibb	A2	6.0	A+	5.0
Broadridge Fin'l	Baa1	8.0	BBB+	8.0
CACI Int'l	NA	--	BB+	11.0
Chemed Corp.	WR	--	NR	--
CSW Industrials	NA	--	NA	--
Quest Diagnostics	Baa2	9.0	BBB+	8.0
Exponent, Inc.	NA	--	NA	--
Ingredion Inc.	Baa1	8.0	BBB	9.0
J&J Snack Foods	NA	--	NA	--
Henry (Jack) & Assoc	NA	--	NA	--
McCormick & Co.	Baa2	9.0	BBB	9.0
Merck & Co.	A1	5.0	A+	5.0
MSCI Inc.	Ba1	11.0	BB+	11.0
Motorola Solutions	Baa3	10.0	BBB-	10.0
NewMarket Corp.	Baa2	9.0	BBB+	8.0
Northrop Grumman	Baa1	8.0	BBB+	8.0
Old Dominion Freight	NA	--	NA	--
Oracle Corp.	Baa2	9.0	BBB	9.0
Progressive Corp.	A2	6.0	A	6.0
Post Holdings	B2	15.0	B+	14.0
RLI Corp.	Baa2	9.0	BBB	9.0
Rollins, Inc.	NA	--	NA	--
Sherwin-Williams	Baa2	9.0	BBB	9.0
Selective Ins. Group	Baa2	9.0	BBB	9.0
Sirius XM Holdings	NA	--	NA	--
Sensient Techn.	WR	--	NR	--
Thermo Fisher Sci.	A3	7.0	A-	7.0
Texas Instruments	Aa3	4.0	A+	5.0
VeriSign Inc.	Baa3	10.0	BBB	9.0
Waters Corp.	NA	--	NA	--
Watsco, Inc.	NA	--	NA	--
Western Union	Baa2	9.0	BBB	9.0
Average	Baa1	8.1	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
Non-Price Regulated Companies of Comparable risk to the
Utility Proxy Group

<u>Line No.</u>	<u>Equity Risk Premium Measure</u>	<u>Proxy Group of Thirty Nine Non-Price Regulated Companies</u>
1.	Kroll Equity Risk Premium (1)	6.13 %
2.	Regression on Kroll Risk Premium Data (2)	7.26
3.	Kroll Equity Risk Premium based on PRPM (3)	11.46
4.	Equity Risk Premium Based on <u>Value Line</u> Summary and Index (4)	11.53
5.	Equity Risk Premium Based on <u>Value Line</u> S&P 500 Companies (5)	10.62
6.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	<u>6.01</u>
7.	Conclusion of Equity Risk Premium	8.83 %
8.	Adjusted Beta (7)	<u>0.84</u>
9.	Forecasted Equity Risk Premium	<u><u>7.42 %</u></u>

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 - 2022 SBBI Yearbook, Kroll.
Value Line Summary and Index.
Blue Chip Financial Forecasts December 2, 2022 and January 1, 2022.
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
Utility Proxy Group

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Thirty Nine 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)
Agilent Technologies	0.85	1.07	0.96	9.75 %	3.91 %	13.27 %	13.37 %	13.32 %
Abbott Labs.	0.90	0.76	0.83	9.75	3.91	12.00	12.42	12.21
Analog Devices	1.00	1.02	1.01	9.75	3.91	13.76	13.73	13.75
Assurant Inc.	0.90	0.72	0.81	9.75	3.91	11.81	12.27	12.04
Smith (A.O.)	0.90	1.04	0.97	9.75	3.91	13.37	13.44	13.40
Air Products & Chem.	0.90	0.81	0.85	9.75	3.91	12.20	12.56	12.38
Brown-Forman 'B'	0.85	0.79	0.82	9.75	3.91	11.90	12.34	12.12
Bristol-Myers Squibb	0.80	0.50	0.65	9.75	3.91	10.25	11.10	10.67
Broadridge Fin'l	0.90	0.98	0.94	9.75	3.91	13.07	13.22	13.15
CACI Int'l	0.90	0.74	0.82	9.75	3.91	11.90	12.34	12.12
Chemed Corp.	0.80	0.72	0.76	9.75	3.91	11.32	11.90	11.61
CSW Industrials	0.85	0.77	0.81	9.75	3.91	11.81	12.27	12.04
Quest Diagnostics	0.80	0.70	0.75	9.75	3.91	11.22	11.83	11.53
Exponent, Inc.	0.90	1.00	0.95	9.75	3.91	13.17	13.29	13.23
Ingredion Inc.	0.90	0.69	0.79	9.75	3.91	11.61	12.12	11.87
J&J Snack Foods	0.90	0.58	0.74	9.75	3.91	11.12	11.76	11.44
Henry (Jack) & Assoc	0.85	0.76	0.80	9.75	3.91	11.71	12.20	11.95
McCormick & Co.	0.75	0.72	0.74	9.75	3.91	11.12	11.76	11.44
Merck & Co.	0.75	0.47	0.61	9.75	3.91	9.86	10.81	10.33
MSCI Inc.	1.05	1.37	1.21	9.75	3.91	15.71	15.20	15.45
Motorola Solutions	0.90	0.97	0.93	9.75	3.91	12.98	13.15	13.06
NewMarket Corp.	0.90	0.62	0.76	9.75	3.91	11.32	11.90	11.61
Northrop Grumman	0.75	0.66	0.70	9.75	3.91	10.73	11.47	11.10
Old Dominion Freight	0.80	1.13	0.97	9.75	3.91	13.37	13.44	13.40
Oracle Corp.	0.95	0.99	0.97	9.75	3.91	13.37	13.44	13.40
Progressive Corp.	0.80	0.75	0.78	9.75	3.91	11.51	12.05	11.78
Post Holdings	0.75	0.66	0.70	9.75	3.91	10.73	11.47	11.10
RLI Corp.	NMF	0.78	0.78	9.75	3.91	11.51	12.05	11.78
Rollins, Inc.	0.80	0.88	0.84	9.75	3.91	12.10	12.49	12.29
Sherwin-Williams	0.85	1.00	0.93	9.75	3.91	12.98	13.15	13.06
Selective Ins. Group	0.95	0.69	0.82	9.75	3.91	11.90	12.34	12.12
Sirius XM Holdings	0.85	0.72	0.78	9.75	3.91	11.51	12.05	11.78
Sensient Techn.	0.90	0.96	0.93	9.75	3.91	12.98	13.15	13.06
Thermo Fisher Sci.	0.95	0.92	0.94	9.75	3.91	13.07	13.22	13.15
Texas Instruments	0.85	0.97	0.91	9.75	3.91	12.78	13.00	12.89
VeriSign Inc.	0.90	1.05	0.98	9.75	3.91	13.46	13.51	13.49
Waters Corp.	0.95	0.98	0.96	9.75	3.91	13.27	13.37	13.32
Watsco, Inc.	0.95	1.02	0.99	9.75	3.91	13.56	13.59	13.57
Western Union	0.85	0.81	0.83	9.75	3.91	12.00	12.42	12.21
		Mean	0.85			12.24 %	12.59 %	12.42 %
		Median	0.83			12.00 %	12.42 %	12.21 %
		Average of Mean and Median	0.84			12.12 %	12.51 %	12.32 %

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)

		[Column 1]	[Column 2]	[Column 3]	[Column 4]	[Column 5]	[Column 6]	[Column 7]	[Column 8]	[Column 9]	[Column 10]
Date	Issuing Company	Shares Issued (1)	Market Price per Share (1)	Average Offering Price per Share (1)	Underwriting Discount (1)	Total Offering Expense per Share (1)	Net Proceeds per Share (2)	Total Flotation Costs (3)	Gross Equity Issue before Costs (4)	Net Proceeds (5)	Flotation Cost Percentage (6)
At-The-Market 7/11/2019	Emera Incorporated	2,782,982	NA	NA	NA	\$ 0.755	\$ 56.31	\$ 2,100,000	\$ 158,800,000	\$ 156,700,000	1.32%
12/18/2017	Emera Incorporated	15,659,000	47.980	47.900	1.916	\$ 0.029	\$ 45.96	\$ 31,705,364	\$ 751,318,820	\$ 719,613,456	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							<u>\$ 40,507,454</u>	<u>\$ 1,247,579,190</u>	<u>\$ 1,207,071,736</u>	<u>3.25%</u>
<u>Flotation Cost Adjustment</u>											
		[Column 11]	[Column 12]	[Column 13]	[Column 14]	[Column 15]	[Column 16]				
	Average Dividend Yield (7)	Average Projected EPS Growth Rate (7)	Adjusted Dividend Yield (8)	Average DCF Cost Rate Unadjusted for Flotation (9)	DCF Cost Rate Adjusted for Flotation (10)	Flotation Cost Adjustment (11)					
Proxy Group of Six Natural Gas Companies		<u>3.54 %</u>	<u>6.47 %</u>	<u>3.65 %</u>	<u>10.12 %</u>	<u>10.24 %</u>	<u>0.12 %</u>				

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

DOCKET NO. 20230023-GU
EXHIBIT NO. DWD-1
WITNESS: D'ASCENDIS
DOCUMENT NO. 8
PAGE 1 OF 1
FILED: 04/04/2023

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]		[2]	[3]	[4]
	Market Capitalization on December 30, 2022 (1) (millions)	(times larger)	Applicable Decile of the NYSE/AMEX/NASDAQ (2)	Applicable Size Premium (3)	Spread from Applicable Size Premium (4)
a. <u>Peoples Gas System - based on the Gas Proxy Group</u>	\$ 2,179.663		6	1.37%	
a. <u>Proxy Group of Six Natural Gas Companies</u>	\$ 6,634.060	3.0 x	4	0.75%	0.62%

	[A]	[B]	[C]	[D]
	Decile	Market Capitalization of Smallest Company (millions)	Market Capitalization of Largest Company (millions)	Size Premium (Return in Excess of CAPM)*
Largest	1	\$ 36,160.584	\$ 2,324,390.219	-0.22%
	2	16,759.390	36,099.221	0.49%
	3	8,216.356	16,738.364	0.71%
	4	5,019.883	8,212.638	0.75%
	5	3,281.009	5,003.747	1.09%
	6	2,170.315	3,276.553	1.37%
	7	1,306.402	2,164.524	1.54%
	8	629.118	1,306.038	1.46%
	9	290.002	627.803	2.29%
	Smallest	10	10.588	289.007

*From 2022 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 0.62% in Column [4], Line No. 2 is derived as follows $0.62\% = 1.37\% - 0.75\%$.

Peoples Gas System
Market Capitalization of Peoples Gas System and the
Utility Proxy Group

Company	Exchange	[1] Common Stock Shares Outstanding at Fiscal Year End 2021 (millions)	[2] Book Value per Share at Fiscal Year End 2021 (1)	[3] Total Common Equity at Fiscal Year End 2021 (millions)	[4] Closing Stock Market Price on December 30, 2022	[5] Market-to-Book Ratio on December 30, 2022 (2)	[6] Market Capitalization on December 30, 2022 (3) (millions)
Peoples Gas System		NA	NA	1,124.117 (4)	NA		
Based upon Proxy Group of Six Natural Gas Companies						193.9 (5)	\$ 2,179.663 (6)
<u>Proxy Group of Six Natural Gas Companies</u>							
Atmos Energy Corporation	NYSE	132.420	\$ 59.71	\$ 7,906.89	\$ 112.07	187.7 %	\$ 14,840.282
New Jersey Resources Corporation	NYSE	95.710	\$ 17.04	\$ 1,630.86	\$ 49.62	291.2	4,749.11
NiSource Inc.	NYSE	405.303	\$ 13.33	\$ 5,400.80	\$ 27.42	205.8	11,113.41
Northwest Natural Holding Company	NYSE	31.129	\$ 30.04	\$ 935.15	\$ 47.59	158.4	1,481.43
ONE Gas, Inc.	NYSE	53.633	\$ 43.81	\$ 2,349.53	\$ 75.72	172.8	4,061.11
Spire Inc.	NYSE	51.685	\$ 46.75	\$ 2,416.20	\$ 68.86	147.3	3,559.02
Average		128.313	\$ 35.112	\$ 3,439.905	\$ 63.547	193.9 %	\$ 6,634.060

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.

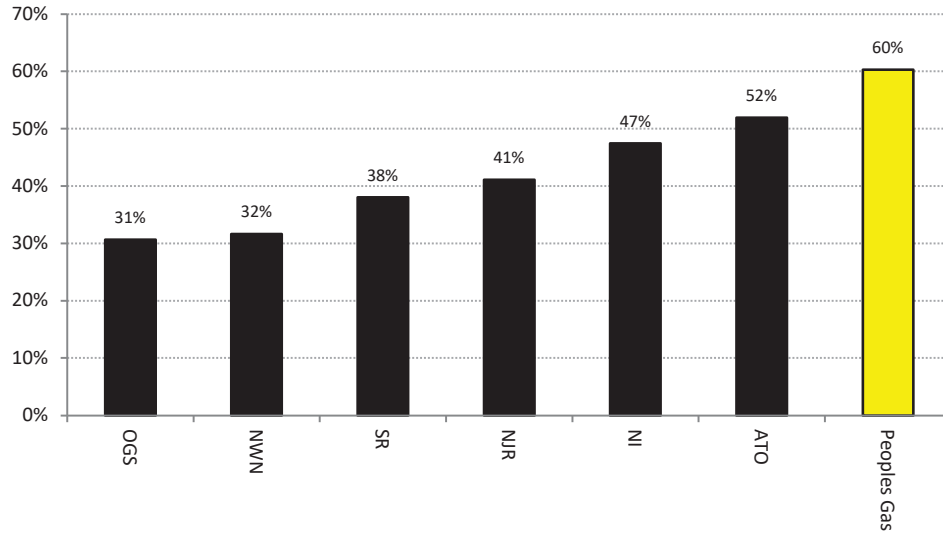
(5) The market-to-book ratio of Peoples Gas System on December 30, 2022 is assumed to be equal to the market-to-book ratio of on December 30, 2022 as appropriate.

(6) Column [3] multiplied by Column [5].

Source of Information: 2021 Annual Forms 10K.
yahoo.finance.com.
Bloomberg Professional Services.

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

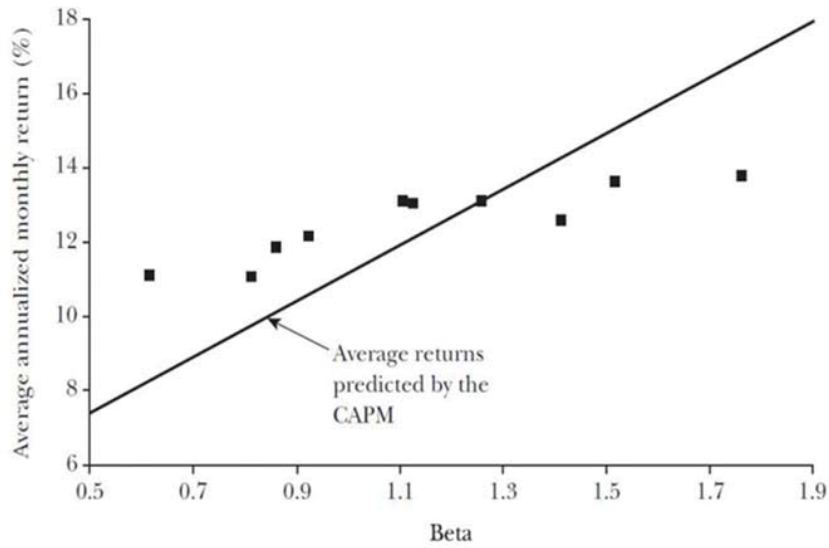


Sources of Information:

Value Line
Peoples Gas, 2021 Annual Report
Company provided data

Fama & French - Figure 2

Average Annualized Monthly Return versus Beta for Value Weight Portfolios Formed on Prior Beta, 1928-2003



Referenced Endnotes
for the
Prepared Direct Testimony
of
Dylan W. D'Ascendis

- ¹ I have applied adjustments to the Company's common equity cost rate of 0.20 percent to reflect the Company's greater relative business risk relative to the Utility Proxy Group. Additionally, I applied adjustments to account for flotation cost expenses of 0.12 percent for the Utility Proxy Group.
- ² *Hope*, 320 U.S. 591 (1944), at 603.
- ³ As will be discussed later in this testimony, another definition of total risk is systematic risk plus unsystematic risk.
- ⁴ Risk distinctions within S&P's bond rating categories are recognized by a plus or minus, e.g., an S&P rating can be an A+, A, or A-. Similarly, risk distinction for Moody's ratings are distinguished by numerical rating gradations, e.g., a Moody's rating can be A1, A2 and A3.
- ⁵ Company provided data.
- ⁶ Florida Public Service Commission, Undocketed, Document No. 00107-2023, RE: Peoples Gas System, Inc. (formerly Peoples Gas System, a division of Tampa Electric Company, at 1-2 (January 6, 2023).
- ⁷ Emera Incorporated, U.S. SEC Form 40-F for the year ended December 31, 2021.
- ⁸ The development of the Non-Price Regulated Proxy Group is explained in more detail in Section V.
- ⁹ Eugene F. Brigham and Joel F. Houston, Fundamentals of Financial Management, Concise 4th Ed., Thomson South-Western, 2004, at 574.
- ¹⁰ Excluding securitized debt.
- ¹¹ *In re: Petition for rate increase by Peoples Gas*, Docket No. 080318-GU, Final Order Granting in Part and Denying in Part Petition for Rate Increase, at 12 (June 9, 2009).

- ¹² Pauline M. Ahern, Frank J. Hanley, and Richard A. Michelfelder, *A New Approach for Estimating the Equity Risk Premium for Public Utilities*, The Journal of Regulatory Economics (August 2011), 40:261-278.
- ¹³ Autoregressive conditional heteroscedasticity; see also, www.nobelprize.org.
- ¹⁴ See, Eugene A. Pilotte, and Richard A. Michelfelder, *Treasury Bond Risk and Return, the Implications for the Hedging of Consumption and Lessons for Asset Pricing*, Journal of Economics and Business, June 2011, 582-604. See also, Richard A. Michelfelder, *Empirical Analysis of the Generalized Consumption Asset Pricing Model: Estimating the Cost of Capital*, Journal of Economics and Business, April 2015, 37-50.
- ¹⁵ See, Pauline M. Ahern, Frank J. Hanley, and Richard A. Michelfelder, *New Approach to Estimating the Equity Risk Premium for Public Utilities*, The Journal of Regulatory Economics, August 2011, at 40:261-278.
- ¹⁶ See, Richard A. Michelfelder, Pauline M. Ahern, Dylan W. D'Ascendis, and Frank J. Hanley, *Comparative Evaluation of the Predictive Risk Premium Model, the Discounted Cash Flow Model and the Capital Asset Pricing Model for Estimating the Cost of Common Equity*, The Electricity Journal, April 2013, at 84-89; see also, Richard A. Michelfelder, Pauline M. Ahern, and Dylan W. D'Ascendis, *Decoupling, Risk Impacts and the Cost of Capital*, The Electricity Journal, January 2020.
- ¹⁷ See, Richard A. Michelfelder, Pauline M. Ahern, and Dylan W. D'Ascendis, *Decoupling Impact and Public Utility Conservation Investment*, Energy Policy, April 2019, 311-319.
- ¹⁸ Annualized Return = $(1 + \text{Monthly Return})^{12} - 1$.
- ¹⁹ *Blue Chip Financial Forecasts*, January 1, 2023, at 2 and December 2, 2022, at 14.
- ²⁰ See, SBBI-2022, at 256-258, 274-276.
- ²¹ See, SBBI-2022, at 201.
- ²² Data from January 1926 to December 2021 is from SBBI-2022. Data from January 2022 to December 2022 is from Bloomberg.
- ²³ See, e.g., Robert S. Harris and Felicia C. Marston, *The Market Risk Premium: Expectational Estimates Using Analysts' Forecasts*, Journal of Applied Finance, Vol. 11, No. 1, 2001, at 11-12; Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility's Cost of Equity*, Financial Management, Spring 1985, at 33-45.
- ²⁴ Roger A. Morin, Modern Regulatory Finance, (2021) at 205-209 ("Morin").

- 25 Eugene F. Fama and Kenneth R. French, *The Capital Asset Pricing Model: Theory and Evidence*, Journal of Economic Perspectives, Vol. 18, No. 3, Summer 2004 at 33 ("Fama & French"). See also, <https://pubs.aeaweb.org/doi/pdfplus/10.1257/0895330042162430>.
- 26 Morin, at 207.
- 27 Morin, at 221.
- 28 Fama & French, at 32.
- 29 Fama & French, at 33.
- 30 SBBI-2022, at 256-258, 274-276.
- 31 *Blue Chip Financial Forecasts*, January 1, 2023, at 2 and December 2, 2022, at 14.
- 32 Order No. PSC-09-041-FOF-GU, Docket No. 080318-GU, at 13.
- 33 Morin, at 329.
- 34 Eugene F. Brigham and Phillip R. Daves, Intermediate Financial Management, 9th Edition, Thomson/Southwestern, at 342.
- 35 Morin, at 337-339.
- 36 Kroll, Cost of Capital Navigator: U.S. Cost of Capital Module, Size as a Predictor of Equity Returns, at 1.
- 37 Fama & French, at 25-43.
- 38 Richard A. Brealey and Steward C. Myers, Principles of Corporate Finance (McGraw-Hill Book Company, 1996), at 204-205, 229.
- 39 Eugene F. Brigham, Fundamentals of Financial Management, Fifth Edition (The Dryden Press, 1989), at 623.
- 40 Company provided data.
- 41 JD Power Press Release, November 30, 2022.
- 42 Gas Utility Business Customer Satisfaction Study.
- 43 Peoples Gas System, Inc. - Test Year Notification Pursuant to Rule 25-7.140, Florida Administrative Code, February 3, 2023.
- 44 Peoples Gas System, Annual Report of Natural Gas Utilities for the year ended December 31, 2021, at 6.
- 45 Standard & Poor's, Industry Report Card: Utility Sectors in the Americas Remain Stable, While Challenges Beset European, Australian, and New Zealand Counterparts, RatingsDirect, June 27, 2008, at 4.
- 46 Standard & Poor's, *Industry Top Trends 2017: Utilities*, RatingsDirect, February 16, 2017, at 4.



Resume & Testimony Listing of:
Dylan W. D'Ascendis, CRRA, CVA
Partner

Summary

Dylan is an experienced consultant and a Certified Rate of Return Analyst (CRRA) and Certified Valuation Analyst (CVA). Dylan joined ScottMadden in 2016 and has become a leading expert witness with respect to cost of capital and capital structure. He has served as a consultant for investor-owned and municipal utilities and authorities for 14 years. Dylan has testified as an expert witness on over 125 occasions regarding rate of return, cost of service, rate design, and valuation before more than 35 regulatory jurisdictions in the United States and Canada, an American Arbitration Association panel, and the Superior Court of Rhode Island. He also maintains the benchmark index against which the Hennessy Gas Utility Mutual Fund performance is measured. Dylan holds a B.A. in economic history from the University of Pennsylvania and an M.B.A. with concentrations in finance and international business from Rutgers University.

Areas of Specialization

- Regulation and Rates
- Rate of Return
- Valuation
- Mutual Fund Benchmarking
- Capital Market Risk
- Regulatory Strategy
- Cost of Service

Recent Expert Testimony Submission/Appearance

- Regulatory Commission of Alaska – Capital Structure
- Federal Energy Regulatory Commission – Rate of Return
- Public Utility Commission of Texas – Return on Equity
- Hawaii Public Utilities Commission – Cost of Service / Rate Design
- Pennsylvania Public Utility Commission - Valuation

Recent Assignments

- Provided expert testimony on the cost of capital for ratemaking purposes before numerous state utility regulatory agencies
- Sponsored valuation testimony for a large municipal water company in front of an American Arbitration Association Board to justify the reasonability of their lease payments to the City
- Co-authored a valuation report on behalf of a large investor-owned utility company in response to a new state regulation which allowed the appraised value of acquired assets into rate base

Recent Articles and Speeches

- Co-Author of: "Decoupling, Risk Impacts and the Cost of Capital", co-authored with Richard A. Michelfelder, Ph.D., Rutgers University and Pauline M. Ahern. The Electricity Journal, March, 2020
- Co-Author of: "Decoupling Impact and Public Utility Conservation Investment", co-authored with Richard A. Michelfelder, Ph.D., Rutgers University and Pauline M. Ahern. Energy Policy Journal, 130 (2019), 311-319
- "Establishing Alternative Proxy Groups", before the Society of Utility and Regulatory Financial Analysts: 51st Financial Forum, April 4, 2019, New Orleans, LA
- "Past is Prologue: Future Test Year", Presentation before the National Association of Water Companies 2017 Southeast Water Infrastructure Summit, May 2, 2017, Savannah, GA.
- Co-author of: "Comparative Evaluation of the Predictive Risk Premium Model™, the Discounted Cash Flow Model and the Capital Asset Pricing Model", co-authored with Richard A. Michelfelder, Ph.D., Rutgers University, Pauline M. Ahern, and Frank J. Hanley, The Electricity Journal, May, 2013
- "Decoupling: Impact on the Risk and Cost of Common Equity of Public Utility Stocks", before the Society of Utility and Regulatory Financial Analysts: 45th Financial Forum, April 17-18, 2013, Indianapolis, IN



Resume and Testimony Listing of:
Dylan W. D'Ascendis, CRRA, CVA
Partner

Sponsor	Date	Case/Applicant	Docket No.	Subject
Regulatory Commission of Alaska				
ENSTAR Natural Gas Company	08/22	ENSTAR Natural Gas Company	Docket No. TA334-4	Rate of Return
Cook Inlet Natural Gas Storage Alaska, LLC	07/21	Cook Inlet Natural Gas Storage Alaska, LLC	Docket No. TA45-733	Capital Structure
Alaska Power Company	09/20	Alaska Power Company; Goat Lake Hydro, Inc.; BBL Hydro, Inc.	Tariff Nos. TA886-2; TA6-521; TA4-573	Capital Structure
Alaska Power Company	07/16	Alaska Power Company	Docket No. TA857-2	Rate of Return
Alberta Utilities Commission				
AltaLink, L.P., and EPCOR Distribution & Transmission, Inc.	01/20	AltaLink, L.P., and EPCOR Distribution & Transmission, Inc.	2021 Generic Cost of Capital, Proceeding ID. 24110	Rate of Return
Arizona Corporation Commission				
Arizona Water Company	12/22	Arizona Water Company – Eastern Group	Docket No. W-01445A-22-0286	Rate of Return
EPCOR Water Arizona, Inc.	08/22	EPCOR Water Arizona, Inc.	Docket No. WS-01303A-22-0236	Rate of Return
EPCOR Water Arizona, Inc.	06/20	EPCOR Water Arizona, Inc.	Docket No. WS-01303A-20-0177	Rate of Return
Arizona Water Company	12/19	Arizona Water Company – Western Group	Docket No. W-01445A-19-0278	Rate of Return
Arizona Water Company	08/18	Arizona Water Company – Northern Group	Docket No. W-01445A-18-0164	Rate of Return
Arkansas Public Service Commission				
Southwestern Electric Power Co.	07/21	Southwestern Electric Power Co.	Docket No. 21-070-U	Return on Equity
CenterPoint Energy Resources Corp.	05/21	CenterPoint Arkansas Gas	Docket No. 21-004-U	Return on Equity
Colorado Public Utilities Commission				
Atmos Energy Corporation	08/22	Atmos Energy Corporation	Docket No. 22AL-0348G	Rate of Return
Summit Utilities, Inc.	04/18	Colorado Natural Gas Company	Docket No. 18AL-0305G	Rate of Return
Atmos Energy Corporation	06/17	Atmos Energy Corporation	Docket No. 17AL-0429G	Rate of Return
Delaware Public Service Commission				
Delmarva Power & Light Co.	01/22	Delmarva Power & Light Co.	Docket No. 22-002 (Gas)	Return on Equity
Delmarva Power & Light Co.	11/20	Delmarva Power & Light Co.	Docket No. 20-0149 (Electric)	Return on Equity
Delmarva Power & Light Co.	10/20	Delmarva Power & Light Co.	Docket No. 20-0150 (Gas)	Return on Equity
Tidewater Utilities, Inc.	11/13	Tidewater Utilities, Inc.	Docket No. 13-466	Capital Structure
Public Service Commission of the District of Columbia				
Washington Gas Light Company	04/22	Washington Gas Light Company	Formal Case No. 1169	Rate of Return
Washington Gas Light Company	09/20	Washington Gas Light Company	Formal Case No. 1162	Rate of Return
Federal Energy Regulatory Commission				
LS Power Grid California, LLC	10/20	LS Power Grid California, LLC	Docket No. ER21-195-000	Rate of Return
Florida Public Service Commission				
Tampa Electric Company	04/21	Tampa Electric Company	Docket No. 20210034-EI	Return on Equity
Peoples Gas System	09/20	Peoples Gas System	Docket No. 20200051-GU	Rate of Return
Utilities, Inc. of Florida	06/20	Utilities, Inc. of Florida	Docket No. 20200139-WS	Rate of Return
Hawaii Public Utilities Commission				
Launiupoko Irrigation Company, Inc.	12/20	Launiupoko Irrigation Company, Inc.	Docket No. 2020-0217 / Transferred to 2020-0089	Capital Structure



Resume and Testimony Listing of:
Dylan W. D'Ascendis, CRRA, CVA
Partner

Sponsor	Date	Case/Applicant	Docket No.	Subject
Lanai Water Company, Inc.	12/19	Lanai Water Company, Inc.	Docket No. 2019-0386	Cost of Service / Rate Design
Manele Water Resources, LLC	08/19	Manele Water Resources, LLC	Docket No. 2019-0311	Cost of Service / Rate Design
Kaupulehu Water Company	02/18	Kaupulehu Water Company	Docket No. 2016-0363	Rate of Return
Aqua Engineers, LLC	05/17	Puhi Sewer & Water Company	Docket No. 2017-0118	Cost of Service / Rate Design
Hawaii Resources, Inc.	09/16	Laie Water Company	Docket No. 2016-0229	Cost of Service / Rate Design
Illinois Commerce Commission				
Utility Services of Illinois, Inc.	02/21	Utility Services of Illinois, Inc.	Docket No. 21-0198	Rate of Return
Ameren Illinois Company d/b/a Ameren Illinois	07/20	Ameren Illinois Company d/b/a Ameren Illinois	Docket No. 20-0308	Return on Equity
Utility Services of Illinois, Inc.	11/17	Utility Services of Illinois, Inc.	Docket No. 17-1106	Cost of Service / Rate Design
Aqua Illinois, Inc.	04/17	Aqua Illinois, Inc.	Docket No. 17-0259	Rate of Return
Utility Services of Illinois, Inc.	04/15	Utility Services of Illinois, Inc.	Docket No. 14-0741	Rate of Return
Indiana Utility Regulatory Commission				
Aqua Indiana, Inc.	03/16	Aqua Indiana, Inc. Aboite Wastewater Division	Docket No. 44752	Rate of Return
Twin Lakes, Utilities, Inc.	08/13	Twin Lakes, Utilities, Inc.	Docket No. 44388	Rate of Return
Kansas Corporation Commission				
Atmos Energy Corporation	07/19	Atmos Energy Corporation	19-ATMG-525-RTS	Rate of Return
Kentucky Public Service Commission				
Water Service Corporation of KY	06/22	Water Service Corporation of KY	2022-00147	Rate of Return
Atmos Energy Corporation	07/21	Atmos Energy Corporation	2021-00304	PRP Rider Rate
Atmos Energy Corporation	06/21	Atmos Energy Corporation	2021-00214	Rate of Return
Duke Energy Kentucky, Inc.	06/21	Duke Energy Kentucky, Inc.	2021-00190	Return on Equity
Bluegrass Water Utility Operating Company	10/20	Bluegrass Water Utility Operating Company	2020-00290	Return on Equity
Louisiana Public Service Commission				
Utilities, Inc. of Louisiana	05/21	Utilities, Inc. of Louisiana	Docket No. U-36003	Rate of Return
Southwestern Electric Power Company	12/20	Southwestern Electric Power Company	Docket No. U-35441	Return on Equity
Atmos Energy	04/20	Atmos Energy	Docket No. U-35535	Rate of Return
Louisiana Water Service, Inc.	06/13	Louisiana Water Service, Inc.	Docket No. U-32848	Rate of Return
Maine Public Utilities Commission				
Summit Natural Gas of Maine, Inc.	03/22	Summit Natural Gas of Maine, Inc.	Docket No. 2022-00025	Rate of Return
The Maine Water Company	09/21	The Maine Water Company	Docket No. 2021-00053	Rate of Return
Maryland Public Service Commission				
Washington Gas Light Company	08/20	Washington Gas Light Company	Case No. 9651	Rate of Return
FirstEnergy, Inc.	08/18	Potomac Edison Company	Case No. 9490	Rate of Return
Massachusetts Department of Public Utilities				
Unitil Corporation	12/19	Fitchburg Gas & Electric Co. (Elec.)	D.P.U. 19-130	Rate of Return
Unitil Corporation	12/19	Fitchburg Gas & Electric Co. (Gas)	D.P.U. 19-131	Rate of Return
Liberty Utilities	07/15	Liberty Utilities d/b/a New England Natural Gas Company	Docket No. 15-75	Rate of Return
Minnesota Public Utilities Commission				



Resume and Testimony Listing of:
Dylan W. D'Ascendis, CRRA, CVA
Partner

Sponsor	Date	Case/Applicant	Docket No.	Subject
Northern States Power Company	11/01	Northern States Power Company	Docket No. G002/GR-21-678	Return on Equity
Northern States Power Company	10/21	Northern States Power Company	Docket No. E002/GR-21-630	Return on Equity
Northern States Power Company	11/20	Northern States Power Company	Docket No. E002/GR-20-723	Return on Equity
Mississippi Public Service Commission				
Great River Utility Operating Co.	07/22	Great River Utility Operating Co.	Docket No. 2022-UN-86	Rate of Return
Atmos Energy	03/19	Atmos Energy	Docket No. 2015-UN-049	Capital Structure
Atmos Energy	07/18	Atmos Energy	Docket No. 2015-UN-049	Capital Structure
Missouri Public Service Commission				
Spire Missouri, Inc.	12/20	Spire Missouri, Inc.	Case No. GR-2021-0108	Return on Equity
Indian Hills Utility Operating Company, Inc.	10/17	Indian Hills Utility Operating Company, Inc.	Case No. SR-2017-0259	Rate of Return
Raccoon Creek Utility Operating Company, Inc.	09/16	Raccoon Creek Utility Operating Company, Inc.	Case No. SR-2016-0202	Rate of Return
Public Utilities Commission of Nevada				
Southwest Gas Corporation	09/21	Southwest Gas Corporation	Docket No. 21-09001	Return on Equity
Southwest Gas Corporation	08/20	Southwest Gas Corporation	Docket No. 20-02023	Return on Equity
New Hampshire Public Utilities Commission				
Aquarion Water Company of New Hampshire, Inc.	12/20	Aquarion Water Company of New Hampshire, Inc.	Docket No. DW 20-184	Rate of Return
New Jersey Board of Public Utilities				
Middlesex Water Company	05/21	Middlesex Water Company	Docket No. WR21050813	Rate of Return
Atlantic City Electric Company	12/20	Atlantic City Electric Company	Docket No. ER20120746	Return on Equity
FirstEnergy	02/20	Jersey Central Power & Light Co.	Docket No. ER20020146	Rate of Return
Aqua New Jersey, Inc.	12/18	Aqua New Jersey, Inc.	Docket No. WR18121351	Rate of Return
Middlesex Water Company	10/17	Middlesex Water Company	Docket No. WR17101049	Rate of Return
Middlesex Water Company	03/15	Middlesex Water Company	Docket No. WR15030391	Rate of Return
The Atlantic City Sewerage Company	10/14	The Atlantic City Sewerage Company	Docket No. WR14101263	Cost of Service / Rate Design
Middlesex Water Company	11/13	Middlesex Water Company	Docket No. WR1311059	Capital Structure
New Mexico Public Regulation Commission				
Southwestern Public Service Co.	01/21	Southwestern Public Service Co.	Case No. 20-00238-UT	Return on Equity
North Carolina Utilities Commission				
Carolina Water Service, Inc.	07/22	Carolina Water Service, Inc.	Docket No. W-354 Sub 400	Rate of Return
Aqua North Carolina, Inc.	06/22	Aqua North Carolina, Inc.	Docket No. W-218 Sub 573	Rate of Return
Carolina Water Service, Inc.	07/21	Carolina Water Service, Inc.	Docket No. W-354 Sub 384	Rate of Return
Piedmont Natural Gas Co., Inc.	03/21	Piedmont Natural Gas Co., Inc.	Docket No. G-9, Sub 781	Return on Equity
Duke Energy Carolinas, LLC	07/20	Duke Energy Carolinas, LLC	Docket No. E-7, Sub 1214	Return on Equity
Duke Energy Progress, LLC	07/20	Duke Energy Progress, LLC	Docket No. E-2, Sub 1219	Return on Equity
Aqua North Carolina, Inc.	12/19	Aqua North Carolina, Inc.	Docket No. W-218 Sub 526	Rate of Return
Carolina Water Service, Inc.	06/19	Carolina Water Service, Inc.	Docket No. W-354 Sub 364	Rate of Return
Carolina Water Service, Inc.	09/18	Carolina Water Service, Inc.	Docket No. W-354 Sub 360	Rate of Return
Aqua North Carolina, Inc.	07/18	Aqua North Carolina, Inc.	Docket No. W-218 Sub 497	Rate of Return
North Dakota Public Service Commission				
Northern States Power Company	09/21	Northern States Power Company	Case No. PU-21-381	Rate of Return
Northern States Power Company	11/20	Northern States Power Company	Case No. PU-20-441	Rate of Return
Public Utilities Commission of Ohio				
Duke Energy Ohio, Inc.	10/21	Duke Energy Ohio, Inc.	Case No. 21-887-EL-AIR	Return on Equity



Resume and Testimony Listing of:
Dylan W. D'Ascendis, CRRA, CVA
Partner

Sponsor	Date	Case/Applicant	Docket No.	Subject
Aqua Ohio, Inc.	07/21	Aqua Ohio, Inc.	Case No. 21-0595-WW-AIR	Rate of Return
Aqua Ohio, Inc.	05/16	Aqua Ohio, Inc.	Case No. 16-0907-WW-AIR	Rate of Return
Pennsylvania Public Utility Commission				
Borough of Ambler	06/22	Borough of Ambler – Bureau of Water	Docket No. R-2022-3031704	Rate of Return
Citizens' Electric Company of Lewisburg	05/22	C&T Enterprises	Docket No. R-2022-3032369	Rate of Return
Valley Energy Company	05/22	C&T Enterprises	Docket No. R-2022-3032300	Rate of Return
Community Utilities of Pennsylvania, Inc.	04/21	Community Utilities of Pennsylvania, Inc.	Docket No. R-2021-3025207	Rate of Return
Vicinity Energy Philadelphia, Inc.	04/21	Vicinity Energy Philadelphia, Inc.	Docket No. R-2021-3024060	Rate of Return
Delaware County Regional Water Control Authority	02/20	Delaware County Regional Water Control Authority	Docket No. A-2019-3015173	Valuation
Valley Energy, Inc.	07/19	C&T Enterprises	Docket No. R-2019-3008209	Rate of Return
Wellsboro Electric Company	07/19	C&T Enterprises	Docket No. R-2019-3008208	Rate of Return
Citizens' Electric Company of Lewisburg	07/19	C&T Enterprises	Docket No. R-2019-3008212	Rate of Return
Steelton Borough Authority	01/19	Steelton Borough Authority	Docket No. A-2019-3006880	Valuation
Mahoning Township, PA	08/18	Mahoning Township, PA	Docket No. A-2018-3003519	Valuation
SUEZ Water Pennsylvania Inc.	04/18	SUEZ Water Pennsylvania Inc.	Docket No. R-2018-000834	Rate of Return
Columbia Water Company	09/17	Columbia Water Company	Docket No. R-2017-2598203	Rate of Return
Veolia Energy Philadelphia, Inc.	06/17	Veolia Energy Philadelphia, Inc.	Docket No. R-2017-2593142	Rate of Return
Emporium Water Company	07/14	Emporium Water Company	Docket No. R-2014-2402324	Rate of Return
Columbia Water Company	07/13	Columbia Water Company	Docket No. R-2013-2360798	Rate of Return
Penn Estates Utilities, Inc.	12/11	Penn Estates, Utilities, Inc.	Docket No. R-2011-2255159	Capital Structure / Long-Term Debt Cost Rate
South Carolina Public Service Commission				
Blue Granite Water Co.	12/19	Blue Granite Water Company	Docket No. 2019-292-WS	Rate of Return
Carolina Water Service, Inc.	02/18	Carolina Water Service, Inc.	Docket No. 2017-292-WS	Rate of Return
Carolina Water Service, Inc.	06/15	Carolina Water Service, Inc.	Docket No. 2015-199-WS	Rate of Return
Carolina Water Service, Inc.	11/13	Carolina Water Service, Inc.	Docket No. 2013-275-WS	Rate of Return
United Utility Companies, Inc.	09/13	United Utility Companies, Inc.	Docket No. 2013-199-WS	Rate of Return
Utility Services of South Carolina, Inc.	09/13	Utility Services of South Carolina, Inc.	Docket No. 2013-201-WS	Rate of Return
Tega Cay Water Services, Inc.	11/12	Tega Cay Water Services, Inc.	Docket No. 2012-177-WS	Capital Structure
South Dakota Public Service Commission				
Northern States Power Company	06/22	Northern States Power Company	Docket No. EL22-017	Rate of Return
Tennessee Public Utility Commission				
Piedmont Natural Gas Company	07/20	Piedmont Natural Gas Company	Docket No. 20-00086	Return on Equity
Public Utility Commission of Texas				
Oncor Electric Delivery Co. LLC	05/22	Oncor Electric Delivery Co. LLC	Docket No. 53601	Return on Equity
Southwestern Public Service Co.	02/21	Southwestern Public Service Co.	Docket No. 51802	Return on Equity
Southwestern Electric Power Co.	10/20	Southwestern Electric Power Co.	Docket No. 51415	Rate of Return
Virginia State Corporation Commission				
Washington Gas Light Company	06/22	Washington Gas Light Company	PUR-2022-00054	Return on Equity
Virginia Natural Gas, Inc.	04/21	Virginia Natural Gas, Inc.	PUR-2020-00095	Return on Equity



Resume and Testimony Listing of:
Dylan W. D'Ascendis, CRRA, CVA
Partner

Sponsor	Date	Case/Applicant	Docket No.	Subject
Massanutten Public Service Corporation	12/20	Massanutten Public Service Corporation	PUE-2020-00039	Return on Equity
Aqua Virginia, Inc.	07/20	Aqua Virginia, Inc.	PUR-2020-00106	Rate of Return
WGL Holdings, Inc.	07/18	Washington Gas Light Company	PUR-2018-00080	Rate of Return
Atmos Energy Corporation	05/18	Atmos Energy Corporation	PUR-2018-00014	Rate of Return
Aqua Virginia, Inc.	07/17	Aqua Virginia, Inc.	PUR-2017-00082	Rate of Return
Massanutten Public Service Corp.	08/14	Massanutten Public Service Corp.	PUE-2014-00035	Rate of Return / Rate Design
<i>Public Service Commission of West Virginia</i>				
Monongahela Power Company and The Potomac Edison Company	12/21	Monongahela Power Company and The Potomac Edison Company	Case No. 21-0857-E-CN (ELG)	Return on Equity
Monongahela Power Company and The Potomac Edison Company	11/21	Monongahela Power Company and The Potomac Edison Company	Case No. 21-0813-E-P (Solar)	Return on Equity