**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.**

**TABLE OF CONTENTS**

**PREPARED DIRECT TESTIMONY**

**OF**

**DYLAN W. D’ASCENDIS**

**ON BEHALF OF PEOPLES GAS SYSTEM, INC.**

[I. Introduction 1](#_Toc129962198)

[II. General Principles 7](#_Toc129962199)

[A. Business Risk 13](#_Toc129962200)

[B. Financial Risk 15](#_Toc129962201)

[III. Peoples and the Utility Proxy Group 17](#_Toc129962202)

[IV. Capital Structure 21](#_Toc129962203)

[V. Common Equity Cost Rate Model 25](#_Toc129962204)

[A. Discounted Cash Flow Model 28](#_Toc129962205)

[B. The Risk Premium Model 32](#_Toc129962206)

[The Predictive Risk Premium Model 33](#_Toc129962207)

[The Total Market Approach Risk Premium Model (RPM) 37](#_Toc129962208)

[C. The Capital Asset Pricing Model 49](#_Toc129962209)

[D. Common Equity Cost Rates for a Proxy Group of Domestic, Non-Price Regulated Companies Based on the DCF, RPM, and CAPM 55](#_Toc129962210)

[VI. Range of Common Equity Cost Rates Before Adjustments 60](#_Toc129962211)

[VII. Adjustments to the Common Equity Cost Rate 61](#_Toc129962212)

[A. Flotation Costs 61](#_Toc129962213)

[B. Business Risk Adjustment 65](#_Toc129962214)

[VIII. Conclusion 77](#_Toc129962215)

[EXHIBIT 79](#_Toc129962216)

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**PREPARED DIRECT TESTIMONY**

**OF**

**DYLAN W. D’ASCENDIS**

**ON BEHALF OF PEOPLES GAS SYSTEM, INC.**

# Introduction

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

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

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

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

 I have offered expert testimony on behalf of investor-owned utilities before more than 35 state regulatory commissions in the United States, the Federal Energy Regulatory Commission, the Alberta Utility Commission, an American Arbitration Association panel, and the Superior Court of Rhode Island on issues including, but not limited to, common equity cost rate, rate of return, valuation, capital structure, class cost of service, and rate design.

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

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

I am also a member of the National Association of Certified Valuation Analysts (“NACVA”) and was awarded the professional designation “Certified Valuation Analyst” by the NACVA in 2015.

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

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

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

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

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

 Document No. 1 Summary of Common Equity Cost Rate

 Document No. 2 Financial Profile of the Utility Proxy Group

 Document No. 3 Application of the Discounted Cash Flow Model

 Document No. 4 Application of the Risk Premium Model

 Document No. 5 Application of the Capital Asset Pricing Model

 Document No. 6 Basis of Selection for the Non-Price Regulated Companies Comparable in Total Risk to the Utility Proxy Group

 Document No. 7 Application of Cost of Common Equity Models to the Non-Price Regulated Proxy Group

 Document No. 8 Derivation of the Flotation Cost Adjustment to the Cost of Common Equity

 Document No. 9 Derivation of the Indicated Size Premium for Peoples Relative to the Utility Proxy Group

 Document No. 10 Comparison of Projected Capital Expenditures Relative to Net Plant

 Document No. 11 Fama & French – Figure 2

 Document No. 12 Referenced Endnotes for the Prepared Direct Testimony of Dylan W. D’Ascendis

 Document No. 13 Resume and Testimony Listing of Dylan W. D’Ascendis

**Q.** What is your recommended common equity cost rate?

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

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

**A.** My recommended ROE of 11.00 percent is summarized on page 2 of Document No. 1. I have assessed the market-based common equity cost rates of companies of relatively similar, but not necessarily identical, risk to Peoples. Using companies of relatively comparable risk as proxies is consistent with the principles of fair rate of return established by the U.S. Supreme Court in two cases: (1) *Federal Power Comm’n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) *(“Hope”)*; and (2) *Bluefield Water Works Improvement Co. v. Public Serv. Comm’n*, 262 U.S. 679 (1923) *(“Bluefield”)*. No proxy group can be identical in risk to any single company. Consequently, there must be an evaluation of relative risk between the company and the proxy group to determine if it is appropriate to adjust the proxy group’s indicated rate of return.

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

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

 To reflect Peoples’ specific business risks, I adjusted the indicated common equity cost rate model results to reflect the company’s smaller relative size, as well as high level of customer growth, overall performance, and capital investment plans, as compared to the Utility Proxy Group. I also adjusted the indicated range of common equity cost rate upward to reflect flotation costs.[[1]](#endnote-2) These adjustments resulted in a company-specific indicated range of common equity cost rates between 10.32 percent and 11.70 percent. Given the Utility Proxy Group and company-specific ranges of common equity cost rates, I recommend the Commission adopt an ROE of 11.00 percent for ratemaking purposes in this case.

# General Principles

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

**A.** In unregulated industries, marketplace competition is the principal determinant of the price of products or services. For regulated public utilities, regulation must act as a substitute for marketplace competition. Assuring that the utility can fulfill its obligations to the public, while providing safe and reliable service at all times, requires a level of earnings sufficient to maintain the integrity of presently invested capital. Sufficient earnings also permit the attraction of needed new capital at a reasonable cost, for which the utility must compete with other companies of comparable risk, consistent with the fair rate of return standards established by the U.S. Supreme Court in the previously cited *Hope* and *Bluefield* cases.

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

 The rate-making process under the Act, *i.e.,* the fixing of ‘just and reasonable’ rates, involves a balancing of the investor and the consumer interests.

Thus we stated in the *Natural Gas Pipeline Co*. Case that ‘regulation does not insure that the business shall produce net revenues.’ 315 U.S. at page 590, 62 S.Ct. at page 745. But such considerations aside, the investor interest has a legitimate concern with the financial integrity of the company whose rates are being regulated. From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. *Cf. Chicago & Grand Trunk R. Co. v. Wellman*, 143 U.S. 339, 345, 346 12 S.Ct. 400,402. By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.[[2]](#endnote-3)

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

 Lastly, the required return for a regulated public utility is established on a stand-alone basis, *i.e.,* for the utility operating company at issue in a rate case. Parent entities, like other investors, have capital constraints and must look at the attractiveness of the expected risk-adjusted return of each investment alternative in their capital budgeting process. That is, utility holding companies that own many utility operating companies have choices as to where they will invest their capital within the holding company family. Therefore, the opportunity cost concept applies regardless of the source of the funding, public funding or corporate funding.

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

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

**A.** Regulated utilities primarily use common stock and long-term debt to finance their permanent property, plant, and equipment (*i.e*., rate base). The fair rate of return for a regulated utility is based on its weighted average cost of capital, in which, as noted earlier, the costs of the individual sources of capital are weighted by their respective book values.

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

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

 Whereas the cost of debt is contractually defined and can be directly observed as the interest rate or yield on debt securities, the cost of common equity must be estimated based on market data and various financial models. Because the cost of common equity is premised on opportunity costs, the models used to determine it are typically applied to a group of “comparable” or “proxy” companies.

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

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

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

## 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]](#endnote-4)

 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.

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

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

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

## Financial Risk

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

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

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

**A.** Yes, similar bond ratings/issuer credit ratings reflect, and are representative of, similar combined business and financial risks (*i.e.*, total risk) faced by bond investors.[[4]](#endnote-5) Although specific business or financial risks may differ between companies, the same bond/credit rating indicates that the combined risks are roughly similar from a debtholder perspective. The caveat is that these debtholder risk measures do not translate directly to risks for common equity.

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

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

# Peoples and the Utility Proxy Group

**Q.** Are you familiar with Peoples’ operations?

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

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

**A.** Because the company is not publicly traded and does not have publicly traded equity securities, it is necessary to develop groups of publicly traded, comparable companies to serve as “proxies” for the company. In addition to the analytical necessity of doing so, the use of proxy companies is consistent with the *Hope* and *Bluefield* comparable risk standards, as discussed above. I have selected two proxy groups that, in my view, are fundamentally risk-comparable to the company: a Utility Proxy Group, and a Non-Price Regulated Proxy Group that is comparable in total risk to the Utility Proxy Group.[[8]](#endnote-9)

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

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

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

* They were included in the Natural Gas Utility Group of *Value Line’s Standard Edition* (November 25, 2022) (“*Value Line*”);
* They have 60 percent or greater of fiscal year 2021 total operating income derived from, and 60 percent or greater of fiscal year 2021 total assets attributable to, regulated gas distribution operations;
* At the time of preparation of this testimony, they had not publicly announced that they were involved in any major merger or acquisition activity (*i.e.*, one publicly-traded utility merging with or acquiring another) or any other major development;
* They have not cut or omitted their common dividends during the five years ended 2021 or through the time of preparation of this testimony;
* They have *Value Line* and Bloomberg Professional Services (“Bloomberg”) adjusted Beta coefficients (“beta”);
* They have positive *Value Line* five-year dividends per share (“DPS”) growth rate projections; and
* They have *Value Line*, Zacks, or Yahoo! Finance consensus five-year earnings per share (“EPS”) growth rate projections.

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

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

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

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

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

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

# Capital Structure

**Q.** What is Peoples’ requested capital structure?

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

**Q.** What are the typical sources of capital commonly considered in establishing a utility’s capital structure?

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

**Q.** Please explain.

**A.** Long-lived assets are typically financed with long-lived securities, so that the overall term structure of the utility’s long-term liabilities (both debt and equity) closely match the life of the assets being financed. As stated by Brigham and Houston:

 In practice, firms don’t finance each specific asset with a type of capital that has a maturity equal to the asset’s life. However, academic studies do show that most firms tend to finance short-term assets from short-term sources and long-term assets from long-term sources.[[9]](#endnote-10)

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

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

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

 Safe and reliable service cannot be maintained at a reasonable cost if utilities do not have the financial flexibility and strength to access competitive financing markets on reasonable terms. The authorization of a capital structure that understates the company’s actual common equity will weaken the financial condition of its operations and adversely impact the company’s ability to address expenses and investments, to the detriment of customers and shareholders. Safe and reliable service for customers cannot be sustained over the long term if the interests of shareholders and bondholders are minimized such that the public interest is not optimized.

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

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

 As shown on page 2 of Document No. 2, common equity ratios for the Utility Proxy Group range from 33.36 percent to 60.65 percent for fiscal year 2021.[[10]](#endnote-11) I also considered *Value Line* projected capital structures for the Utility Proxy Group for 2025-2027. That analysis showed a range of projected common equity ratios between 39.50 percent and 60.00 percent for the Utility Proxy Group (*see*, pages 2 through 7 of Document No. 3).

 In addition to comparing the company’s proposed common equity ratio with common equity ratios currently and expected to be maintained by the Utility Proxy Group, I also compared the company’s proposed common equity ratio with the equity ratios maintained by the operating subsidiaries of the Utility Proxy Group. As shown on page 3 of Document No. 2, common equity ratios of the operating utility subsidiaries of the companies in the Utility Proxy Group range from 38.74 percent to 58.48 percent for fiscal year 2021.

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

**A.** Yes, it is.

# Common Equity Cost Rate Model

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

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

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

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

**Q.** What analytical approaches did you use to determine the company’s ROE?

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

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

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

**A.** Yes. In Docket No. 20080318-GU, the Commission stated that there are several models which satisfy the terms for determining a fair rate of return as laid out by *Hope* and *Bluefield*:

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

## Discounted Cash Flow Model

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

**A.** The theory underlying the DCF model is that the present value of an expected future stream of net cash flows during the investment holding period can be determined by discounting those cash flows at the cost of capital, or the investors’ capitalization rate. DCF theory indicates that an investor buys a stock for an expected total return rate, which is derived from the cash flows received from dividends and market price appreciation. Mathematically, the dividend yield on market price plus a growth rate equals the capitalization rate (*i.e*., the total common equity return rate expected by investors), as depicted in the formula below:

 *Ke* = (*D*0 (1+*g*))/*P* + *g*

 Where:

 *Ke* = the required return on common equity;

 *D*0 = the annualized dividend per share;

 *P =* thecurrent stock price; and

 *g* = the growth rate.

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

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

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

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

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

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

 DCF theory calls for using the full growth rate, or D1, in calculating the model’s dividend yield component. Since the companies in the Utility Proxy Group increase their quarterly dividends at various times during the year, a reasonable assumption is to reflect one-half the annual dividend growth rate in the dividend yield component, or D1/2. Because the dividend should be representative of the next 12-month period, this adjustment is a conservative approach that does not overstate the dividend yield. Therefore, the actual average dividend yields in Column 1, page 1 of Document No. 3 have been adjusted upward to reflect one-half the average projected growth rate shown in Column 5.

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

**A.** Investors are likely to rely on widely available financial information services, such as *Value Line*, Zacks, and Yahoo! Finance. Investors realize that analysts have significant insight into the dynamics of the industries and individual companies they analyze, as well as companies’ abilities to effectively manage the effects of changing laws and regulations, and ever-changing economic and market conditions. For these reasons, I used analysts’ five-year forecasts of earnings per share growth in my DCF analysis.

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

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

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

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

## The Risk Premium Model

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

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

 While it is possible to directly observe bond returns and yields, common equity returns required by investors cannot be directly determined or observed. According to RPM theory, one can estimate a common equity risk premium over bonds (either historically or prospectively) and use that premium to derive a cost rate of common equity. The cost of common equity equals the expected cost rate for long-term debt capital, plus a risk premium over that cost rate, to compensate common shareholders for the added risk of being unsecured and last-in-line for any claim on the corporation’s assets and earnings upon liquidation.

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

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

### The Predictive Risk Premium Model

**Q.** Please explain the PRPM.

**A.** The PRPM, published in the *Journal of Regulatory Economics*,[[12]](#endnote-13) was developed from the work of Robert F. Engle, who shared the Nobel Prize in Economics in 2003 “for methods of analyzing economic time series with time-varying volatility” or ARCH.[[13]](#endnote-14) Engle found that volatility changes over time and is related from one period to the next, especially in financial markets. Engle discovered that volatility of prices and returns clusters over time and is, therefore, highly predictable and can be used to predict future levels of risk and risk premiums.

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

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

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

* Shannon Pratt and Roger Grabowski, Cost of Capital: Applications and Examples, (Fifth Edition), Wiley & Sons, 2015;
* Shannon Pratt and Roger Grabowski, The Lawyer’s Guide to Cost of Capital: Understanding Risk and Return for Valuing Businesses and Other Investments, ABA Publishing, 2015; and
* Roger A. Morin, Modern Regulatory Finance, PUR Books, 2021.

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

**A.** The inputs to the model are the historical returns on the common shares of each of the Utility Proxy Group’s companies minus the historical monthly yield on long-term U.S. Treasury securities through December 2022. Using GARCH, I calculated each of the Utility Proxy Group’s companies’ projected equity risk premium using Eviews© statistical software. When the GARCH model is applied to the historical return data, it produces a predicted GARCH variance series (as illustrated on Columns 1 and 2, page 2 of Document No. 4) and a GARCH coefficient (as illustrated on Column 4, page 2 of Document No. 4). Multiplying the predicted monthly variance by the GARCH coefficient and then annualizing it[[18]](#endnote-19) produces the predicted annual equity risk premium. I then added the forecasted 30-year U.S. Treasury bond yield of 3.91 percent (*see*, Column 6, page 2 of Document No. 4) to each company’s PRPM-derived equity risk premium to arrive at an indicated cost of common equity. The 30-year U.S. Treasury bond yield is a consensus forecast derived from *Blue Chip Financial Forecasts* (“*Blue Chip*”).[[19]](#endnote-20)

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

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

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

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

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

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

### The Total Market Approach Risk Premium Model (RPM)

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

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

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

**A.** The first step in the total market approach RPM analysis is to determine the expected bond yield. Because both ratemaking and the cost of capital, including the common equity cost rate, are prospective in nature, a prospective yield on similarly rated long-term debt is essential. I relied on a consensus forecast of about 50 economists of the expected yield on Aaa-rated corporate bonds for the six calendar quarters ending with the first calendar quarter of 2024, and *Blue Chip’s* long-term projections for 2024 to 2028 and 2029 to 2033. As shown on line 1, page 3 of Document No. 4, the average expected yield on Moody’s Aaa-rated corporate bonds is 5.05 percent. In order to adjust the expected Aaa-rated corporate bond yield to an equivalent A2-rated public utility bond yield, I made an upward adjustment of 0.83 percent, which represents a recent spread between Aaa-rated corporate bonds and A2-rated public utility bonds, as shown on line 2 and explained in note 2, page 3 of Document No. 4. Adding that recent 0.83 percent spread to the expected Aaa-rated corporate bond yield of 5.05 percent results in an expected A2-rated public utility bond yield of 5.88 percent, as shown on page 3 of Document No. 4. This corresponds to the average Moody’s long-term issuer rating of the Utility Proxy Group of A2.

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

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

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

**A.** To derive an historical market equity risk premium, I used the most recent holding period returns for the large company common stocks from the Stocks, Bonds, Bills, and Inflation (SBBI) Yearbook 2022 (“SBBI-2022”)[[20]](#endnote-21) less the average historical yield on Moody’s Aaa/Aa-rated corporate bonds for the period 1928 to 2021. Using holding period returns over a very long time is appropriate because it is consistent with the long-term investment horizon presumed by investing in a going concern, *i.e.*, a company expected to operate in perpetuity.

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

 I used the arithmetic mean monthly total return rates for the large company stocks and yields (income returns) for the Moody’s Aaa/Aa-rated corporate bonds, because they are appropriate for the purpose of estimating the cost of capital as noted in SBBI-2022.[[21]](#endnote-22) Using the arithmetic mean return rates and yields is appropriate because historical total returns and equity risk premiums provide insight into the variance and standard deviation of returns needed by investors in estimating future risk when making a current investment. If investors relied on the geometric mean of historical equity risk premiums, they would have no insight into the potential variance of future returns; the geometric mean relates the change over many periods to a constant rate of change, thereby obviating the year-to-year fluctuations, or variance, which is critical to risk analysis*.*

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

**A.** To derive the regression-based market equity risk premium of 7.26 percent shown on line 2, page 8 of Document No. 4, I used the same monthly annualized total returns on large company common stocks relative to the monthly annualized yields on Moody’s Aaa/Aa-rated corporate bonds as mentioned above. I modeled the relationship between interest rates and the market equity risk premium using the observed monthly market equity risk premium as the dependent variable, and the monthly yield on Moody’s Aaa/Aa-rated corporate bonds as the independent variable. I then used a linear Ordinary Least Squares (“OLS”) regression, in which the market equity risk premium is expressed as a function of the Moody’s Aaa/Aa-rated corporate bond yield:

 RP = α + β (RAaa/Aa)

 Where:

RP = the market equity risk premium;

α = the regression intercept coefficient;

β *=* the regression slope coefficient; and

 RAaa/Aa = the Moody’s Aaa/Aa-rated corporate bond yield.

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

**A.** I used the same PRPM approach described above to the PRPM equity risk premium. The inputs to the model are the historical monthly returns on large company common stocks minus the monthly yields on Moody’s Aaa/Aa-rated corporate bonds during the period from January 1928 through December 2022.[[22]](#endnote-23) Using the previously discussed GARCH method, the projected equity risk premium is determined using Eviews© statistical software. The resulting PRPM predicted a market equity risk premium of 9.76 percent (as shown on line 3, page 8 of Document No. 4).

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

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

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

**Q.** Please explain the derivation of an equity risk premium based on the S&P 500 companies.

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

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

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

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

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

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

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

**A.** I estimated three equity risk premiums based on S&P Utility Index holding period returns, and two equity risk premiums based on the expected returns of the S&P Utilities Index, using *Value Line* and Bloomberg data, respectively. Turning first to the S&P Utility Index holding period returns, I derived a long-term monthly arithmetic mean equity risk premium between the S&P Utility Index total returns of 10.74 percent and monthly Moody’s A2-rated public utility bond yields of 6.46 percent from 1928 to 2021, to arrive at an equity risk premium of 4.28 percent (as shown on line 1, page 12 of Document No. 4). I then used the same historical data to derive an equity risk premium of 4.80 percent based on a regression of the monthly equity risk premiums. The final S&P Utility Index holding period equity risk premium involved applying the PRPM using the historical monthly equity risk premiums from January 1928 to December 2022 to arrive at a PRPM-derived equity risk premium of 5.56 percent for the S&P Utility Index.

 I then derived expected total returns on the S&P Utilities Index of 9.50 percent and 9.20 percent using data from *Value Line* and Bloomberg, respectively, and subtracted the prospective Moody’s A2-rated public utility bond yield of 5.88 percent (derived on line 3, page 3 of Document No. 4). This resulted in equity risk premiums of 3.62 percent and 3.32 percent, respectively. As with the market equity risk premiums, I averaged each risk premium based on each source (*i.e.*, historical, *Value Line*, and Bloomberg) to arrive at my utility-specific equity risk premium of 4.32 percent, as shown on page 12 of Document No. 4.

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

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

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

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

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

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

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

**A.** As shown on page 1 of Document No. 4, the indicated RPM-derived common equity cost rate is 11.54 percent, which gives equal weight to the results of the PRPM (12.02 percent) and the adjusted-market approach (11.06 percent).

## The Capital Asset Pricing Model

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

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

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

 Rs = Rf + β (Rm - Rf)

 Where:

 Rs = Return rate on the common stock;

 Rf = Risk-free rate of return;

 Rm = 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]](#endnote-25)

 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]](#endnote-26)

 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 that … low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn less than predicted.[[26]](#endnote-27)

*\* \* \**

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

 K = RF + x (RM - RF) + (1-x) β(RM - RF)

 where x is a fraction to be determined empirically. The value of x that best explains the observed relationship [is] Return = 0.0829 + 0.0520 β is between 0.25 and 0.30. If x = 0.25, the equation becomes:

 K = RF + 0.25(RM - RF) + 0.75 β(RM - RF)[[27]](#endnote-28)

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

 The early tests firmly reject the Sharpe-Lintner version of the CAPM. There is a positive relation between beta and average return, but it is too 'flat.'… The regressions consistently find that the intercept is greater than the average risk-free rate… and the coefficient on beta is less than the average excess market return… This is true in the early tests… as well as in more recent cross-section regressions tests, like Fama and French (1992).[[28]](#endnote-29)

 Finally, Fama & French further note:

 Confirming earlier evidence, the relation between beta and average return `for the ten portfolios is much flatter than the Sharpe-Linter CAPM predicts. The returns on low beta portfolios are too high, and the returns on the high beta portfolios are too low. For example, the predicted return on the portfolio with the lowest beta is 8.3 percent per year; the actual return as 11.1 percent. The predicted return on the portfolio with the t beta is 16.8 percent per year; the actual is 13.7 percent.[[29]](#endnote-30)

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

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

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

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

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

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

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

 The long-term income return on U.S. Government securities of 5.02 percent was deducted from the SBBI-2022 monthly historical total market return of 12.37 percent, which results in an historical market equity risk premium of 7.35 percent.[[30]](#endnote-31) I applied a linear OLS regression to the monthly annualized historical returns on the S&P 500 relative to historical yields on long-term U.S. Government securities from SBBI-2022. That regression analysis yielded a market equity risk premium of 8.71 percent. The PRPM market equity risk premium is 10.86 percent and is derived using the PRPM relative to the yields on long-term U.S. Treasury securities from January 1926 through December 2022, as shown on page 2 of Document No. 5.

 The *Value Line*-derived forecasted total market equity risk premium is derived by deducting the forecasted risk-free rate of 3.91 percent, discussed above, from the *Value Line* projected total annual market return of 16.58 percent, resulting in a forecasted total market equity risk premium of 12.67 percent. The S&P 500 projected market equity risk premium using *Value Line* data is derived by subtracting the projected risk-free rate of 3.91 percent from the projected total return of the S&P 500 of 15.67 percent. The resulting market equity risk premium is 11.76 percent.

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

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

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

## Common Equity Cost Rates for a Proxy Group of Domestic, Non-Price Regulated Companies Based on the DCF, RPM, and CAPM

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

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

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

**A.** In order to select a proxy group of domestic, non-price regulated companies similar in total risk to the Utility Proxy Group, I relied on betas and related statistics derived from *Value Line* regression analyses of weekly market prices over the most recent 260 weeks (*i.e.*, five years). As shown on Document No. 6, these selection criteria resulted in a proxy group of 39 domestic, non-price regulated firms comparable in total risk to the Utility Proxy Group. Total risk is the sum of non-diversifiable market risk and diversifiable company-specific risks. The criteria used in selecting the domestic, non-price regulated firms were:

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

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

**Q.** Did you calculate the common equity cost rate using the DCF model, the RPM, and the CAPM for the Non-Price Regulated Proxy Group?

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

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

 Pages 3 through 5 of Document No. 7 contain the data and calculations that support the 13.30 percent RPM common equity cost rates. As shown on line 1, page 3 of Document No. 7, the consensus prospective yield on Moody’s Baa2-rated corporate bonds for the six quarters ending in the first quarter of 2024, and for the years 2024 to 2028 and 2029 to 2033, is 6.05 percent.[[31]](#endnote-32) Since the Non-Price Regulated Proxy Group has an average Moody’s long-term issuer rating of Baa1, a downward adjustment of 0.17 percent to the projected Baa2-rated corporate bond yield is necessary to reflect a difference in ratings which results in a projected Baa1-rated corporate bond yield of 5.88 percent.

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

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

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

**A.** As shown on page 1 of Document No. 7, the results of the common equity models applied to the Non-Price Regulated Proxy Group – which group is comparable in total risk to the Utility Proxy Group – are as follows: 11.57 percent (DCF), 13.30 percent (RPM), and 12.32 percent (CAPM).

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

# Range of Common Equity Cost Rates Before Adjustments

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

**A.** By applying multiple cost of common equity models to the Utility Proxy Group and the Non-Price Regulated Proxy Group, the indicated range of common equity cost rates attributable to the Utility Proxy Group before any relative risk adjustments is between 10.00 percent and 11.62 percent, as shown on Document No. 1, page 2. I used multiple cost of common equity models as primary tools in arriving at my recommended common equity cost rate, because no single model is so inherently precise that it can be relied on to the exclusion of other theoretically sound models. Using multiple models adds reliability to the estimated common equity cost rate, with the prudence of using multiple cost of common equity models supported in both the financial literature and regulatory precedent.

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

# Adjustments to the Common Equity Cost Rate

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

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

## Flotation Costs

**Q.** What are flotation costs?

**A.** Flotation costs are those costs associated with the sale of new issuances of common stock. They include market pressure and the mandatory unavoidable costs of issuance (*e.g.*, underwriting fees and out-of-pocket costs for printing, legal, registration, etc.). For every dollar raised through debt or equity offerings, the company receives less than one full dollar in financing.

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

**A.** Yes. In Peoples’ 2008 rate proceedings, the Commission did not make a specific adjustment for flotation costs but recognized that “[t]his Commission has traditionally recognized a reasonable adjustment for flotation costs in the determination of the investor-required ROE.”[[32]](#endnote-33)

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

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

 The costs of issuing these securities are just as real as operating and maintenance expenses or costs incurred to build utility plants, and fair regulatory treatment must permit the recovery of 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]](#endnote-34)

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

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

**A.** No. All of these models assume no transaction costs. The literature is quite clear that these costs are not reflected in the market prices paid for common stocks. For example, Brigham and Daves confirm this and provide the methodology utilized to calculate the flotation adjustment.[[34]](#endnote-35) In addition, Morin confirms the need for such an adjustment even when no new equity issuance is imminent.[[35]](#endnote-36) Consequently, it is proper to include a flotation cost adjustment when using cost of common equity models to estimate the common equity cost rate.

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

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

## Business Risk Adjustment

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

**A.** Yes. Peoples’ smaller size relative to the Utility Proxy Group companies indicates greater relative business risk for the company because, all else being equal, size has a material bearing on risk.

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

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

 The size effect is based on the empirical observation that companies of smaller size are associated with greater risk and, therefore, have greater cost of capital [sic]. The “size” of a company is one of the most important risk elements to consider when developing cost of equity capital estimates for use in valuing a business simply because size has been shown to be a *predictor* of equity returns. In other words, there is a significant (negative) relationship between size and historical equity returns – as size *decreases*, returns tend to *increase*, and vice versa. [Footnote omitted] [Emphasis in original].[[36]](#endnote-37)

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

 . . . the higher average returns on small stocks and high book-to-market stocks reflect unidentified state variables that produce undiversifiable risks (covariances) in returns not captured in the market return and are priced separately from market betas.[[37]](#endnote-38)

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

 Also, it is a basic financial principle that the use of funds invested, and not the source of funds, is what gives rise to the risk of any investment.[[38]](#endnote-39) Eugene Brigham, a well-known authority, states:

 A number of researchers have observed that portfolios of small-firms (sic) have earned consistently higher average returns than those of large-firm stocks; this is called the “small-firm effect.” On the surface, it would seem to be advantageous to the small firms to provide average returns in a stock market that are higher than those of larger firms. In reality, it is bad news for the small firm; what the small-firm effect means is that the capital market demands higher returns on stocks of small firms than on otherwise similar stocks of the large firms*.* [Emphasis added][[39]](#endnote-40)

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

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

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

 As shown in page 1 of Document No. 9, Peoples’ estimated market capitalization is approximately $2.180 billion, compared with the market capitalization of the average companies in the Utility Proxy Group of approximately $6.634 billion as of December 30, 2022. The average companies in the Utility Proxy Group have a market capitalization of three times the size of Peoples’ estimated market capitalization. As a proxy for the business risk adjustment, I used the SBBI-2022 size study. The determination is based on the size premiums for portfolios of New York Stock Exchange, American Stock Exchange, and NASDAQ listed companies ranked by deciles for the 1926 to 2021 period. The average size premium for the Utility Proxy Group with a market capitalization of approximately $6.634 billion falls in the 4th decile, while the company’s estimated market capitalizations of $2.180 billion places it in the 6th decile. The size premium spread between the 4th decile and the 6th decile is 0.62 percent.

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

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

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

**A.** Yes, I have. In addition to the company’s smaller relative size, I have also considered the company’s high level of customer growth, overall performance, and capital expenditure plans compared to the Utility Proxy Group companies in the company-specific business risk adjustment.

**Q.** Please describe the company’s customer growth.

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

**Q.** Please discuss the company’s high level of overall performance.

**A.** Based upon the metrics of J.D. Power, which are the industry standard for reliability and service, Peoples is a consistently high performing gas utility. Peoples received the first, second, or third highest J.D. Power Customer Satisfaction Index Score amongst their entire industry for both their Residential and Business Gas Customer groups every year for the past 10 years.[[40]](#endnote-41) The J.D. Power Gas Customer Satisfaction Score is a comprehensive analysis of how gas utilities are performing from a customer standpoint. For 10 consecutive years, Residential Customers have given the company the top J.D. Power Customer Satisfaction score amongst mid-size natural gas utilities in the south region.[[41]](#endnote-42) The company’s industry leading satisfaction scores are based upon excellence in areas such as Safety & Reliability, Price, Billing & Payment, Communication, Customer Care and Corporate Citizenship.[[42]](#endnote-43)

**Q.** Please briefly summarize the company’s capital investment plans.

**A.** Peoples currently plans to invest over $1.0 billion of capital from January 1, 2022 to December 31, 2024,[[43]](#endnote-44) which represents approximately 60.00 percent of its 2021 year-end net utility plant.[[44]](#endnote-45) That amount includes investments in its distribution facilities, which are necessary to support growth and to maintain safe, sufficient, and reliable service. As discussed by witnesses McOnie and Parsons, the company will require continued access to the capital markets, at reasonable terms, to finance its capital spending plan. As Peoples moves forward with its capital spending plan, timely recovery of its capital costs is critical to mitigate the delay of capital recovery and execute its capital spending program.

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

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

 The ratemaking process is predicated on the principle that, for investors and companies to commit the capital needed to provide safe and reliable utility services, the utility must have the opportunity to recover the return of, and the market-required return on, invested capital. Regulatory commissions recognize that since utility operations are capital intensive, regulatory decisions should enable the utility to attract capital at reasonable terms; doing so balances the long-term interests of the utility and its ratepayers.

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

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

**A.** Yes, they do. From a credit perspective, the additional pressure on cash flows associated with high levels of capital expenditures exerts corresponding pressure on credit metrics and, therefore, credit ratings. S&P has noted several long-term challenges for utilities’ financial health including heavy construction programs to address demand growth, declining capacity margins, aging infrastructure, and regulatory responsiveness to mounting requests for rate increases.[[45]](#endnote-46) More recently, S&P noted:

 We assume that capital spending will remain a focus of most utility managements and strain credit metrics. It provides growth when sales are diminished by ongoing demanded efficiency from regulators and other trends, and it is welcomed by policymakers that appreciate the economic stimulus and the benefits of safer, more reliable service. The speed with which the regulatory process turns the new spending into higher rates to begin to pay for it is an important factor in our assumptions and the forecast. Any extended lag between spending and recovery can exacerbate the negative effect on credit metrics and therefore ratings.[[46]](#endnote-47)

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

**Q.** How do the company’s expected capital expenditures compare to the Utility Proxy Group?

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

**Q.** What are your conclusions regarding the effect of Peoples’ capital investment plans on its risk profile and cost of capital?

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

**Q.** What is your conclusion regarding an adjustment for the company’s specific business risks?

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

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

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

# Conclusion

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

**A.** Given the indicated ROE range applicable to the company of 10.32 percent to 11.70 percent, I conclude that an appropriate ROE for the company is 11.00 percent.

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

**A.** Yes, it is.

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

**A.** Yes, it is.

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

**A.** Yes.

# EXHIBIT

**OF**

**DYLAN W. D’ASCENDIS**

**ON BEHALF OF PEOPLES GAS SYSTEM, INC.**

**Table of Contents**

| **DOCUMENT NO.** | **TITLE** | **PAGE** |
| --- | --- | --- |
| 1 | Summary of Common Equity Cost Rate | 82 |
| 2 | Financial Profile of the Utility Proxy Group | 84 |
| 3 | Application of the Discounted Cash Flow Model  | 87 |
| 4 | Application of the Risk Premium Model | 94 |
| 5 | Application of the Capital Asset Pricing Model | 107 |
| 6 | Basis of Selection for the Non-Price Regulated Companies Comparable in Total Risk to the Utility Proxy Group | 109 |
| 7 | Application of Cost of Common Equity Models to the Non-Price Regulated Proxy Group | 112 |
| 8 | Derivation of the Flotation Cost Adjustment to the Cost of Common Equity | 118 |
| 9 | Derivation of the Indicated Size Premium for Peoples Relative to the Utility Proxy Group | 119 |
| 10 | Comparison of Projected Capital Expenditures Relative to Net Plant | 121 |
| 11 | Fama & French – Figure 2 | 122 |
| 12 | Referenced Endnotes for the Prepared Direct Testimony of Dylan W. D’Ascendis | 123 |
| 13 | Resume and Testimony Listing of Dylan W. D’Ascendis | 126 |

**Fama & French - Figure 2**

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**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. [↑](#endnote-ref-2)
2. *Hope*, 320 U.S. 591 (1944), at 603. [↑](#endnote-ref-3)
3. As will be discussed later in this testimony, another definition of total risk is systematic risk plus unsystematic risk. [↑](#endnote-ref-4)
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. [↑](#endnote-ref-5)
5. Company provided data. [↑](#endnote-ref-6)
6. Florida Public Service Commission, Undocketed, Document No. 00107-2023, RE: Peoples System, Inc. (formerly Peoples System, a division of Tampa Electric Company, at 1-2 (January 6, 2023). [↑](#endnote-ref-7)
7. Emera Incorporated, U.S. SEC Form 40-F for the year ended December 31, 2021. [↑](#endnote-ref-8)
8. The development of the Non-Price Regulated Proxy Group is explained in more detail in Section V. [↑](#endnote-ref-9)
9. Eugene F. Brigham and Joel F. Houston, Fundamentals of Financial Management, Concise 4th Ed., Thomson South-Western, 2004, at 574. [↑](#endnote-ref-10)
10. Excluding securitized debt. [↑](#endnote-ref-11)
11. *In re: Petition for rate increase by Peoples*, Docket No. 080318-GU, Final Order Granting in Part and Denying in Part Petition for Rate Increase, at 12 (June 9, 2009). [↑](#endnote-ref-12)
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. [↑](#endnote-ref-13)
13. Autoregressive conditional heteroscedasticity; see also, [www.nobelprize.org](http://www.nobelprize.org). [↑](#endnote-ref-14)
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. [↑](#endnote-ref-15)
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. [↑](#endnote-ref-16)
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. [↑](#endnote-ref-17)
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. [↑](#endnote-ref-18)
18. Annualized Return = (1 + Monthly Return) ^12 - 1. [↑](#endnote-ref-19)
19. *Blue Chip Financial Forecasts, January 1, 2023, at 2 and December 2, 2022, at 14.* [↑](#endnote-ref-20)
20. *See,* SBBI-2022, at 256-258, 274-276. [↑](#endnote-ref-21)
21. *See,* SBBI-2022, at 201. [↑](#endnote-ref-22)
22. Data from January 1926 to December 2021 is from SBBI-2022. Data from January 2022 to December 2022 is from Bloomberg. [↑](#endnote-ref-23)
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. [↑](#endnote-ref-24)
24. Roger A. Morin, Modern Regulatory Finance, (2021) at 205-209 (“Morin”). [↑](#endnote-ref-25)
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>. [↑](#endnote-ref-26)
26. Morin, at 207. [↑](#endnote-ref-27)
27. Morin, at 221. [↑](#endnote-ref-28)
28. Fama & French, at 32. [↑](#endnote-ref-29)
29. Fama & French, at 33. [↑](#endnote-ref-30)
30. SBBI-2022, at 256-258, 274-276. [↑](#endnote-ref-31)
31. *Blue Chip Financial Forecasts*, January 1, 2023, at 2 and December 2, 2022, at 14. [↑](#endnote-ref-32)
32. Order No. PSC-09-041-FOF-GU, Docket No. 080318-GU, at 13. [↑](#endnote-ref-33)
33. Morin, at 329. [↑](#endnote-ref-34)
34. Eugene F. Brigham and Phillip R. Daves, Intermediate Financial Management, 9th Edition, Thomson/Southwestern, at 342. [↑](#endnote-ref-35)
35. Morin, at 337-339. [↑](#endnote-ref-36)
36. Kroll, Cost of Capital Navigator: U.S. Cost of Capital Module, Size as a Predictor of Equity Returns, at 1. [↑](#endnote-ref-37)
37. Fama & French, at 25-43. [↑](#endnote-ref-38)
38. Richard A. Brealey and Steward C. Myers, Principles of Corporate Finance (McGraw-Hill Book Company, 1996), at 204-205, 229. [↑](#endnote-ref-39)
39. Eugene F. Brigham, Fundamentals of Financial Management, Fifth Edition (The Dryden Press, 1989), at 623. [↑](#endnote-ref-40)
40. Company provided data. [↑](#endnote-ref-41)
41. JD Power Press Release, November 30, 2022. [↑](#endnote-ref-42)
42. Gas Utility Business Customer Satisfaction Study. [↑](#endnote-ref-43)
43. Peoples System, Inc. – Test Year Notification Pursuant to Rule
25-7.140, Florida Administrative Code, February 3, 2023. [↑](#endnote-ref-44)
44. Peoples System, Annual Report of Natural Gas Utilities for the year ended December 31, 2021, at 6. [↑](#endnote-ref-45)
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. [↑](#endnote-ref-46)
46. Standard & Poor’s, *Industry Top Trends 2017: Utilities*, RatingsDirect, February 16, 2017, at 4. [↑](#endnote-ref-47)