**STATE OF NEW JERSEY**
**BOARD OF PUBLIC UTILITIES**

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| **I/M/O THE PETITION OF PUBLIC SERVICE ELECTRIC & GAS COMPANY FOR APPROVAL OF THE SECOND ENERGY STRONG PROGRAM (ENERGY STRONG II)** | **)** | **BPU Docket Nos. EO18060629 and GO18060630** |

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# DIRECT TESTIMONY OF KEVIN O'DONNELL
# ON BEHALF OF THE
# DIVISION OF RATE COUNSEL

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1

# Table of Contents

## I. INTRODUCTION

**Q. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS FOR THE RECORD.**

A. My name is Kevin W. O'Donnell. I am President of Nova Energy Consultants, Inc. My business address is 1350 Maynard Rd., Suite 101, Cary, North Carolina 27511.

**Q. ON WHOSE BEHALF ARE YOU PRESENTING TESTIMONY IN THIS PROCEEDING?**

A. I am testifying on behalf of the New Jersey Division of Rate Counsel ("Rate Counsel"), which represents consumers before the New Jersey Board of Public Utilities ("Board" or "BPU").

**Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND RELEVANT EMPLOYMENT EXPERIENCE.**

A. I have a Bachelor of Science in Civil Engineering from North Carolina State University and a Master of Business Administration from the Florida State University. I earned the designation of Chartered Financial Analyst ("CFA") in 1988. I have worked in utility regulation since September 1984, when I joined the Public Staff of the North Carolina Utilities Commission ("NCUC"). I left the NCUC Public Staff in 1991 and have worked continuously in utility consulting since that time, first with Booth & Associates, Inc. (until 1994), then as Director of Retail Rates for the North Carolina Electric Membership Corporation (1994-1995), and since then in my own consulting firm. I have been accepted as an expert witness on rate of return, cost of capital, capital structure, cost of service, rate design, and other regulatory issues in general rate cases, fuel cost proceedings, and other proceedings before the North Carolina Utilities Commission, the South Carolina Public Service Commission, the Wisconsin Public Service Commission, the Virginia State Commerce Commission, the Minnesota Public Service Commission, the New Jersey Board of Public Utilities,

the Public Utility Commission of Texas, the Colorado Public Utilities Commission, the District of Columbia Public Service Commission, and the Florida Public Service Commission. In 1996, I testified before the U.S. House of Representatives' Committee on Commerce and Subcommittee on Energy and Power, concerning competition within the electric utility industry. Additional details regarding my education and work experience are set forth in Appendix A.

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?**

A. The purpose of my testimony in this proceeding is to present my findings and recommendations to the Board as to the proper rate of return to Public Service Electric & Gas ("PSE&G" or "Company") in its Petition for approval of the Company's Energy Strong II Plan ("Energy Strong II").

**Q. WHAT RATE OF RETURN DID PSE&G ASK THE BOARD TO GRANT THE COMPANY IN THIS PROCEEDING?**

A. According to paragraph 15 of the Petition in this case, PSE&G is requesting revenues be based on the same weighted average cost of capital (WACC) allowed in its most recent general base rate case filing.

The PSE&G rate case, which was BPU Docket No. ER18010029 for electric and GR18010030 for natural gas involved a settlement which was approved by the Board on October 29, 2018, with the following capital structure and cost rates:

Table 1: Requested Capital Structure and Cost Rates

| Component | Ratio (%) | Cost Rate (%) | Wgtd. Cost Rate (%) |
|---|---|---|---|
| Customer Deposits | 0.47% | 0.00% | 0.00% |
| Other Capital | 45.53% | 3.96% | 1.80% |
| Common Equity | 54.00% | 9.60% | 5.18% |
| Total Capitalization | 100.00% | | 6.99% |

**Q. DO YOU AGREE WITH PSE&G'S REQUEST?**

A. No. I disagree with PSE&G's requested return on equity (ROE). The requested ROE is excessive and unwarranted given the current financial market conditions and the lower risk associated with the accelerated cost recovery sought by the Company in this matter.

**Q. PLEASE SUMMARIZE YOUR PRIMARY RECOMMENDATIONS IN THIS CASE.**

A. My recommendations in this case are as follows:

- the requested ROE does not reflect the lower risk and automatic nature of cost recovery as proposed in Energy Strong II;
- the proper return on equity for the Energy Strong II program, based on current capital market conditions, for PSE&G in this proceeding is 8.50%, which reflects a 50 basis point reduction for the lower risk associated with the fast and automatic cost recovery associated with the Energy Strong II program from PSE&G's cost of equity that I calculate at 9.0%;

- I will agree with the requested capital structure to use in this proceeding, but I recommend that the Board instruct the Company to cap the common equity ratio used in future ratemaking proceedings at no more than 54.0%;
- for ratemaking purposes, the proper cost of long-term debt is 3.96%; and
- the overall rate of return that should be granted PSE&G in this case is 6.39%, based on a 8.50% ROE.

## II. OVERVIEW

**Q. MR. O'DONNELL, PLEASE EXPLAIN PSE&G's ENERGY STRONG II PETITION**

A. On June 8, 2018, PSE&G filed its petition requesting that it be allowed to make annual investments to its infrastructure, in compliance with the Board's rule on Infrastructure Investment Programs ("IIP") N.J.A.C. 14:3-2A. Energy Strong II proposes $1.503 billion in electric infrastructure investments and $0.999 billion in natural gas infrastructure investments over the next 5 years. [1]

Table 2 below provides the specific investment categories and associated costs to the PSE&G electric grid.

Table 2: PSE&G Energy Strong II Electric Investment Totals

| Project Category | Capital Investment 2019-2022[2] |
|---|---|
| | ($ millions) |
| Substation Program | $906 |
| Outside Plant Higher Design and Construction Standards Subprogram | $345 |
| Contingency Reconfiguration Subprogram | $145 |
| Grid Modernization | $107 |
| Total Program Cost | $1,503 |

[1] Petition, page 2, para 4.
[2] Petition, page 2-6

Table 3 provides the specific investments for the PSE&G natural gas system.

Table 3: PSE&G Energy Strong II Natural Gas Investment Totals

| Project Category | Capital Investment 2019-2022[3] |
|---|---|
| | ($ millions) |
| Curtailment Resiliency | $863 |
| Metering and Regulation Upgrade | $136 |
| Total Program Cost | $999 |

**Q. HOW DOES PSE&G PROPOSE TO CHANGE RATES IN ORDER FOR THE COMPANY TO RECOVER THE COSTS ASSOCIATED WITH THE PSE&G ENERGY STRONG II PROGRAM?**

A. The Company is proposing to recover its costs for Energy Strong II through twice a year filings with the Board.[4]

**Q. MR. O'DONNELL, HOW HAVE THE FINANCIAL MARKETS PERFORMED IN THE RECENT PAST?**

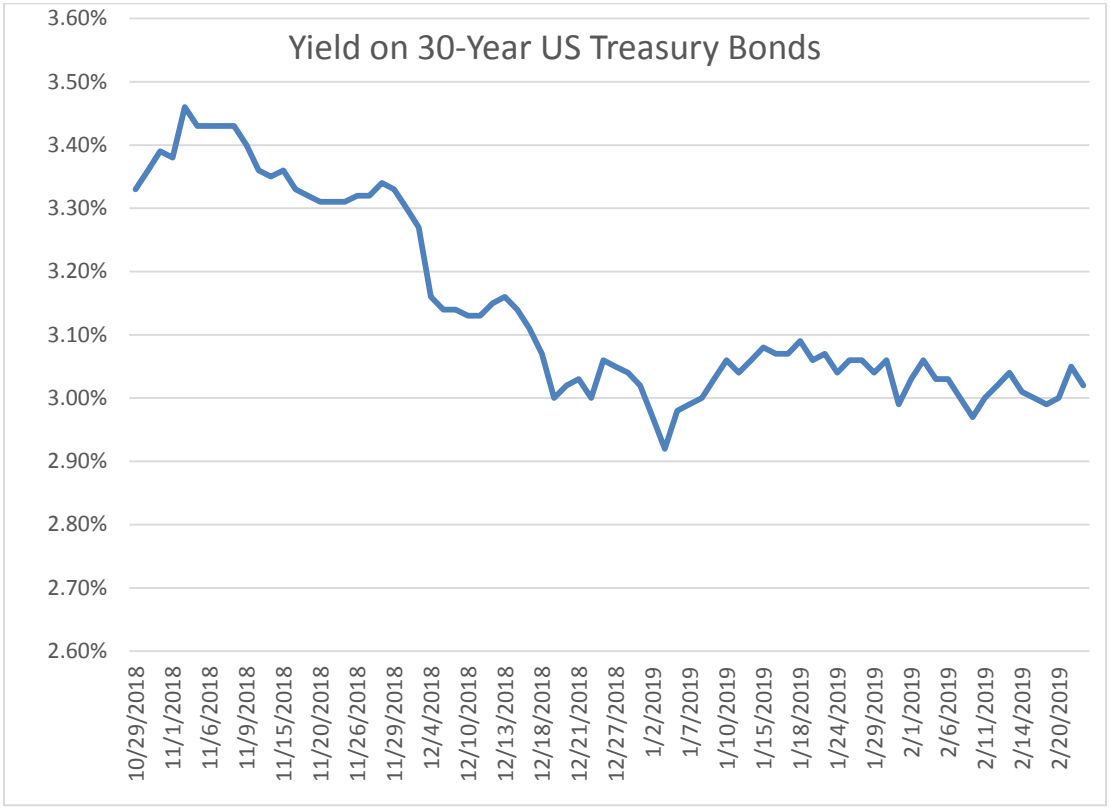
A. Interest rates have fallen and then risen over the past two years while the stock market continues to churn higher reflecting strong underlying economic growth.

**Q. PLEASE PROVIDE EVIDENCE TO SHOW HOW INTEREST RATES HAVE CHANGED SINCE THE BOARD'S DECISION IN THE COMPANY'S 2018 BASE RATE CASE.**

A. In Chart 1 below, I have provided the change in the 30-year US Treasury bonds since the Board's final order in PSE&G's last base rate case on October 29, 2018. On that date, the yield on 30-year US Treasury bonds was 3.33%. As of February 21, 2019, the yield on 30-year US Treasury bonds was 3.02%, a roughly 30 basis point decrease in the yield on 30-year US Treasury bonds.

[3] Petition, page 6-8
[4] Petition, page 9

Chart 1: Yield on 30-Year US Treasury Bonds

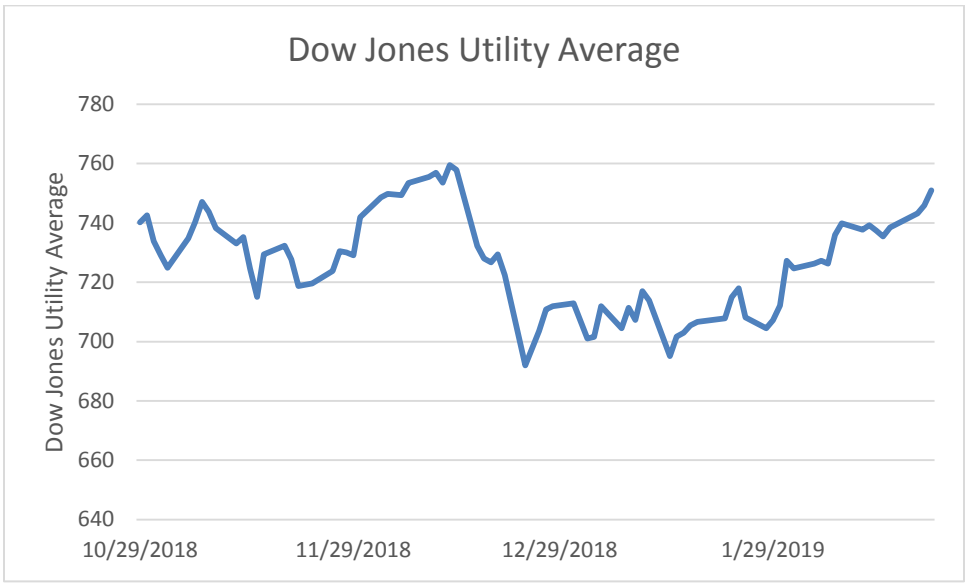



Source for raw data: https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yieldYear&year=2018, 2019

**Q. HOW HAVE EQUITY MARKETS CHANGED SINCE PSE&G'S LAST RATE CASE?**

A. The Dow Jones Utility Average has been essentially flat since the Board's order in the last PSE&G rate case. Chart 2 below shows the strength of the utility sector since the Board's October 29, order in the PSE&G 2018 base rate case.

Chart 2: Dow Jones Utility Average Since Last PSE&G Base Rate Case




Source for chart: Yahoo Finance accessed on February 22, 2019

The utility market over the past two years has been very strong. While the S&P 500 index has risen approximately 20% over the past two years, the utility index has, likewise, risen approximately 15%. When utility stock prices increase, the corresponding expected return falls as investors are willing to pay more for a given level of income from utility stocks. Failing to recognize the lower expected return on utility investments will result in the economy of New Jersey being harmed by unnecessarily high and punitive utility rates.

**Q. DIDN'T THE FEDERAL RESERVE JUST RAISE INTEREST RATES?**

A. Yes, on December 19, 2018, the Federal Reserve increased the Federal Funds rates from 2.25% to 2.50%. [5]

[5] https://www.cnbc.com/2018/12/19/fed-hikes-rates-by-a-quarter-point-.html

**Q. DOES THIS MEAN THAT THE COST OF CAPITAL HAS INCREASED FOR COMPANIES LIKE PSE&G?**

A. No. The interest rate increase represents only the interest rate at which banks borrow short-term money. The interest rate hike from the Federal Reserve does not always result in an increase in long-term rates. As noted in Chart 1 above, the yield on 30-year US Treasury rates has been flat since the announcement of the Federal Reserve rate hike.

For 2019, the Federal Reserve has indicated that it may raise interest rates two more times but, again, such increases do not mean that long-term interest rates will increase correspondingly. Short-term interest rates are ticking slightly upward but long-term rates are stubbornly flat. This situation is known as a flattening of the yield curve and, often times, is a harbinger of slow economic times ahead. Layering a utility rate hike on top of a slowing New Jersey economy may hurt growth prospects for the region going forward.

## III. ECONOMIC AND REGULATORY POLICY GUIDELINES FOR A FAIR RATE OF RETURN

**Q. PLEASE BRIEFLY DESCRIBE THE ECONOMIC AND REGULATORY POLICY CONSIDERATIONS YOU HAVE TAKEN INTO ACCOUNT IN DEVELOPING YOUR RECOMMENDATION CONCERNING THE FAIR RATE OF RETURN THAT UTILITY COMPANIES SHOULD BE ALLOWED THE OPPORTUNITY TO EARN.**

A. The theory of utility regulation assumes that public utilities perform functions that are natural monopolies. Historically, it was believed or assumed that it was more efficient for a single firm to provide a particular utility service than multiple firms. Even though deregulation for the procurement of natural gas and generation of electricity is spreading, delivery of these products to end-use customers is still a monopoly business and will, for the foreseeable future, be regulated. On this basis, state legislatures or Boards grant exclusive franchised territories to public utilities or determine territorial boundaries where disputes arise, in order for these utilities to provide services more efficiently and at the lowest reasonable cost. In exchange for the protection within its monopoly service area, the utility is obligated to provide adequate service at fair, regulated rates.

This naturally raises the question - what constitutes a just and reasonable rate? The generally accepted answer is that a prudently managed electric utility should be allowed to charge prices that allow the utility the opportunity to recover the reasonable and prudent costs of providing utility service and the opportunity to earn a fair rate of return on invested capital. This just and reasonable rate of return on capital should allow the utility, under prudent management, to provide adequate service and attract capital to meet future expansion needs in its service area. Since public utilities are capital-intensive businesses, the cost of capital is a crucial issue for utility companies, their customers, and regulators. If the allowed rate of return is set too high, then consumers are burdened with excessive costs,

current investors receive a windfall, and the utility has an incentive to overinvest. If the return is set too low, adequate service is jeopardized because the utility will not be able to raise new or working capital on reasonable terms.

Since every equity investor faces a risk-return tradeoff, the issue of risk is an important element in determining the fair rate of return for a utility.

Regulatory law and policy recognize that utilities compete with other firms in the market for investor capital. In the often-cited case of *Federal Power Commission v. Hope Natural Gas Company*, 320 U.S. 591 (1944), the U.S. Supreme Court recognized that utilities compete with other firms in the market for investor capital. Historically, this case has provided legal and policy guidance concerning the return which public utilities should be allowed to earn.

In *Hope Natural Gas*, the U.S. Supreme Court stated that the return to equity owners (or shareholders) of a regulated public utility should be "commensurate" to returns on investments in *other* enterprises whose *risks* correspond to those of the utility being examined:

> [T]he 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 credit and attract capital. (320 U.S. at 603)

## IV. CURRENT COST OF COMMON EQUITY

### A. Overview of Cost of Equity Analyses

**Q. PLEASE EXPLAIN HOW THE ISSUE OF DETERMINING AN APPROPRIATE RETURN ON A UTILITY'S COMMON EQUITY INVESTMENT FITS INTO A REGULATORY AUTHORITY'S DETERMINATION OF JUST AND REASONABLE RATES FOR THE UTILITY.**

A. In New Jersey, as in virtually all regulatory jurisdictions, a utility's rates generally must be "just and reasonable." Thus, regulation recognizes that utilities are entitled to an opportunity to recover the reasonable and prudent costs of providing service, and the opportunity to earn a fair rate of return on the capital invested in the utility's facilities, such as electric or gas distribution equipment, buildings, vehicles, and similar long-lived capital assets.

Q. **HOW DOES THE MANNER IN WHICH UTILITIES OBTAIN CAPITAL FUNDING RELATE TO THE BOARD'S DETERMINATION OF THE APPROPRIATE COST OF CAPITAL FOR A SPECIFIC UTILITY?**

A. Utilities obtain capital funding through a combination of borrowing (debt financing) and issuing stock (equity financing). Unless in the very rare event a company's borrowing is determined to be imprudent, the determination of ratepayer reimbursement for debt financing is generally uncontroversial, as the amount is simply the principal and interest repaid by the company to bondholders.

In contrast, the determination of the allowed ROE is where disputes often arise. The allowed ROE is the amount that is determined to be appropriate for the utility's common stockholders to earn on the capital that they invest in the utility when they buy its stock. If the regulatory authority sets the ROE too low, the stockholders will not have the opportunity to earn a fair return and this may either cause existing shareholders to sell their shares or deter new investors from buying shares. If, on the other hand, the regulatory authority sets the ROE too high, the

ratepayers will pay too much. Because ratepayers cannot choose a different utility due to the monopolistic service territory restrictions, countervailing competitive market forces are absent and the resulting rates will be unjust and unreasonable to the ratepayers.

**Q. HOW IS THE ESTIMATED SHARE PRICE USED IN DETERMINING THE LEVEL OF A UTILITY'S ALLOWED EARNINGS?**

A. The required equity return, which is based on the market value of a utility's stock, is combined with the cost of debt to produce the Company's "overall rate of return" which is then applied to the net book value of the utility's investment, otherwise known as the rate base. Under this procedure, the market price of a stock is used only to determine the return that investors expect from that stock. That expectation is then applied to the book value of the utility's investment to identify the level of earnings that regulation should allow the utility the opportunity to earn.

**Q. WHAT IS THE "COMPARABLE EARNINGS" TEST AND HOW DOES THAT FACTOR IN TO DETERMINING THE APPROPRIATE RETURN ON EQUITY?**

A. The "comparable earnings" standard, i.e., that the earnings must be "commensurate with the returns on investments in other enterprises having corresponding risks," is derived from the Supreme Court's ruling in the *Hope Natural Gas* case to which I earlier referred. In my opinion, enterprises of "corresponding" or comparable risk are companies that are engaged in the same activities as PSE&G and are also regulated like PSE&G.

**Q. HOW DO REGULATORY AUTHORITIES GO ABOUT DETERMINING A JUST AND REASONABLE RATE OF RETURN ON EQUITY FOR A UTILITY COMPANY?**

A. Regulatory commissions and boards, as well as financial industry analysts, institutional investors, and individual investors, use different analytical models and methodologies to estimate/calculate reasonable rates of return on equity. Among the measures used are Discounted Cash Flow ("DCF") analysis, the Capital Asset Pricing Model ("CAPM"), and Comparable Earnings Analysis. I believe the most useful methodology is the DCF Analysis, but I am also presenting the CAPM and the Comparable Earnings Model as checks for my DCF results.

**Q. CAN YOU EXPLAIN WHY REGULATORY AUTHORITIES AND FINANCIAL ANALYSTS NEED TO USE THESE METHODOLOGIES TO DERIVE A COMPANY'S ESTIMATED RATE OF RETURN ON EQUITY?**

A. Yes. There is no direct, observable way to determine the rate of return required by equity investors in any company or group of companies. Instead, investors must make do with indications from market data and analysts' predictions to estimate the appropriate price of a share. The principal and most reliable methodology for obtaining these indications is the DCF procedure. Other procedures, such as the CAPM and the comparable earnings method, are less reliable than the DCF procedure.

**Q. PLEASE EXPLAIN WHY YOU BELIEVE THE DCF MODEL IS SUPERIOR TO THE CAPM AND COMPARABLE EARNINGS APPROACHES.**

A. The DCF is a pure investor-driven model that incorporates current investor expectations based on daily and ongoing market prices. When a situation develops in a company that affects its earnings and/or perceived risk level, the

price of the stock adjusts immediately. Since the stock price is a major component in the DCF model, the change in risk level and/or earnings expectations is captured in the investor return requirement with either an upward or downward movement to account for the change in the company.

The comparable earnings model is based on earned returns from book equity, not market equity. There is no direct and immediate stockholder input into the comparable earnings model and, as a fault, that model lacks a clear and unmistaken link to stockholder expectations.

The CAPM suffers, to a degree, from the same problem as the comparable earnings model in that there is not a direct and immediate link from stock market prices to the CAPM result. The beta in the CAPM can reflect changes in the ROE, but the delay can, sometimes, make the CAPM results meaningless.

### B. Selection of Proxy Companies

**Q. DID YOU PEFORM AN ANALYSIS DIRECTLY ONPSE&G?**

A. I was not able to perform a DCF analysis directly on Public Service Electric & Gas (PSE&G) since it is a subsidiary of Public Service Enterprise Group, Inc. ("PSEG") and not separately tracked by analysts. However, since PSEG is publicly traded, I was able to perform a rate of return analysis on the parent company. As the owner of PSE&G, PSEG provides useful information that is directly applicable to its subsidiary, PSE&G.

**Q. PLEASE DESCRIBE HOW YOU SELECTED YOUR PROXY GROUPS FOR ESTIMATING PSE&G'S RETURN ON EQUITY.**

A. PSEG is a holding company with electric and natural gas subsidiaries. As a result, my first criterion was that inclusion in the comparable group required that the

company be followed by *The Value Line Investment Survey* and the comparable companies owned electric and natural gas subsidiaries.

Secondly, I screened companies for the S&P Global Market Intelligence's Quality Ranking ("SPGMI"), which is a measure of growth and stability of earnings and dividends. Since PSEG has a SPGMI rating of B+, I included only companies with a SPGMI rating of A-, B+ or B.

Another criterion was that none of the companies in the comparable group could be involved in a merger. For this reason, I removed SCANA and Dominion Resources.

The last criterion was that I removed any company that is under current financial distress. I removed PG&E Corp. from the comparable group due to the recent fires in California that may have started from a PG&E power line and its resulting bankruptcy filing.

The list of companies in my comparable group can be seen in Exhibit KWO-1.

### C. Discounted Cash Flow (DCF) Model

**Q. PLEASE EXPLAIN THE DISCOUNTED CASH FLOW MODEL.**

A. The DCF method is a widely used method for estimating an investor's required return on a firm's common equity. In my thirty-three years of experience, first with the Public Staff of the North Carolina Utilities Commission and later as a consultant, I have seen the DCF method used much more often than any other method for estimating the appropriate return on common equity. Witnesses from utilities, consumer advocates and other intervenors have used the DCF method, either by itself or in conjunction with other methods such as the Comparable Earnings Method or the CAPM, in their analyses.

The DCF method is based on the concept that the price which the investor is willing to pay for a stock is the discounted present value (i.e. its present worth) of what the investor *expects* to receive in the future as a result of purchasing that stock. This return to the investor is in the form of future dividends and price appreciation. However, price appreciation is only realized when the investor sells the stock, and a subsequent purchaser presumably is also focused on dividend growth following his or her purchase of the stock. Mathematically, the relationship is:

Let D = dividends per share in the initial future period
g = expected growth rate in dividends
k = cost of equity capital
P = price of asset (or present value of a future stream of dividends)

$$\text{then } P = \frac{D}{(1+k)} + \frac{D(1+g)}{(1+k)^2} + \frac{D(1+g)}{(1+k)^3} + \ldots\ldots + \frac{D(1+g)}{(1+k)^t}$$

This equation represents the amount (P) an investor will be willing to pay *today* for a share of common equity with a given dividend stream over (t) periods.

Reducing the formula to an infinite geometric series, we have:

$$P = \frac{D}{k-g}$$

Solving for k yields:

$$k = \frac{D}{P} + g$$

**Q. DO INVESTORS IN UTILITY COMMON STOCKS REALLY USE THE DCF MODEL IN MAKING INVESTMENT DECISIONS?**

A. Yes, I believe that to be so. There are three primary reasons for my conclusion. First, there is much literature that supports the fact that, while emotional or so-called "irrational" behavior in the short term may affect (and has affected) share

prices, over the long term a company's financial fundamentals drives the market.[6] Second, analysts give great weight to earnings, dividend, and book value growth in formulating their recommendations to clients. Finally, even a casual search on the internet produces hundreds of pages discussing the definition of the DCF methodology and how to apply it for investment decisions, from which I infer that general investor interest in DCF analysis is significant and widespread.

Thus, in today's investment environment, a stock investor will likely calculate the amount of funds he/she will receive in the future relative to the initial investment. These future funds include the current dividend yield, as well as the amount of funds that the investor can expect in the future from the growth in the dividend. The combination of the current dividend yield and the future growth in dividends is the basic tenet of the DCF model.

**Q. IS THE DCF FORMULA EASY TO UNDERSTAND?**

A. Yes. While the DCF formula stated above may appear complicated, it is intuitively a very simple model to understand. To determine the total rate of return one expects from investing in a particular equity security, the investor adds the dividend yield, which he or she expects to receive in the future, to the expected growth in dividends over time. If the regulatory authority sets the rate at a fair level, the utility will be able to attract capital at a reasonable cost, without forcing the utility's customers to pay more than necessary to attract needed capital.

**Q. CAN YOU GIVE AN EXAMPLE?**

[6] See, for example, "Valuation: Measuring and Managing the Value of Companies," 4th Edition, McKinsey & Company Inc., Tim Koller, Marc Goedhart, David Wessels ("Provided that a company's share price eventually returns to its intrinsic value in the long run, managers would benefit from using a discounted-cash-flow approach for strategic decisions. What should matter is the long-term behavior of the share price of a company, not whether it is undervalued by 5 or 10 percent at any given time.") http://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/do-fundamentalsor-emotionsdrive-the-stock-market (accessed March 2, 2016). See also, for example, http://www.businessinsider.com/what-drives-the-stock-market-2012-8 (Accessed March 2, 2016).

A. Yes. For example, if investors expect a current dividend yield (D/P) of 5%, and also expect that dividends will grow (g) at 4%, then the Constant Growth DCF model indicates that investors would buy the utility's common stock if it provided a return on equity (k) of 9%, where k = (D/P) + g.

**Q PLEASE EXPLAIN HOW YOU DEVELOPED THE DIVIDEND YIELD RANGES.**

A. I developed the dividend yield range for the comparable group and PSEG by averaging each Company's Value Line forecasted 12-month dividend yield over the above-stated 13-week, and 4-week periods as well as examining the most recent forecasted 12-month dividend yield reported by Value Line for each company. I examined the dividend yield over three different time frames to minimize the possibility of short-term price movements unnecessarily influencing the model results. To further ensure the validity of the model results and to minimize the possibility of an isolated event skewing the DCF results, I also averaged the dividend yield over multiple time periods.

**Q. HOW DID YOU DERIVE THE EXPECTED GROWTH RATE?**

A. I used several methods in determining the growth in dividends that investors expect. The first method I used was an analysis commonly referred to as the "plowback ratio" method. If a company is earning a rate of return (r) on its common equity, and it retains a percentage of these earnings (b), then each year the earnings per share ("EPS") are expected to increase by the product (br) of its earnings per share in the previous year. Therefore, br is a good measure of growth in dividends per share. For example, if a company earns 10% on its equity and retains 50% (the other 50% being paid out in dividends), then the expected growth (g) rate in earnings and dividends is 5% (50% of 10%). To

calculate a plowback for the comparable group, I used the following formula:

$$g = \frac{br(2017) + br(2018E) + br(2019E) + br(2022E\text{-}2024E\ Avg)}{4}$$

The plowback estimates for all companies in the comparable group can be obtained from The Value Line Investment Survey under the title "percent retained to common equity." Schedule KWO-2 lists the plowback ratios for each company in the comparable group as well as PSEG.

A key component in the DCF Method is the expected growth in dividends. In analyzing the proper dividend growth rate to use in the DCF Method, the analyst must consider how dividends are created. Since over the long-term dividends cannot be paid out without a corporation first earning the funds to be paid out, earnings growth is a key element in analyzing what if any growth can be expected in dividends. Similarly, what remains in a corporation after it pays its dividend is reinvested, or “plowed back” into a corporation in order to generate future growth. As a result, book value growth is another element that, in my opinion, must be considered in analyzing a corporation’s expected dividend growth. To analyze the expected growth in dividends, I believe the analyst should first examine the historical record of past earnings, dividends, and book value. Hence, the second method I used to estimate the expected growth rate was to analyze the historical 10-year and 5-year historical compound annual rates of change for earnings per share (EPS), dividends per share (DPS), and book value per share (BPS) as reported by Value Line for each of the relevant corporations.

Value Line is the most recognized investment publication in the industry and, as such, is used by professional money managers, financial analysts, and individual investors worldwide. A prudent investor tries to examine all aspects of an enterprise’s performance when making a capital investment decision. As such, it is only practical to examine historical growth rates for the corporation for which

the analysis is being performed. The historical growth rates for the comparable group and PSEG can be seen in Schedule KWO-1.

The third method I used was the Value Line forecasted compound annual rates of change for earnings per share, dividends per share, and book value per share.

The fourth method I used was the forecasted rate of change for earnings per share as recorded by CFRA Equity Research.

The last method was another forecasted earnings growth rate as supplied to Charles Schwab & Co. This forecasted rate of change is not a forecast supplied by Charles Schwab & Co. but is, instead, a compilation of forecasts by industry analysts.

The details of my constant growth DCF analysis can be seen in Schedule KWO-1 for the comparable group and PSEG.

**Q. HOW ARE THE ELECTRIC AND NATURAL GAS UTILITY INDUSTRIES CHANGING AND HOW IS THAT CHANGE BEING REFLECTED IN THE RESULTS FOUND IN SCHEDULE KWO-1?**

**A.** As a whole, the United States is becoming more efficient in the manner in which it uses electricity and natural gas. As a result, load growth for electric and natural gas utilities is essentially flat and utility executives are looking at other ways to grow earnings. Distribution modernization efforts are underway around the country as a means to address infrastructure needs as well as to grow utility earnings.

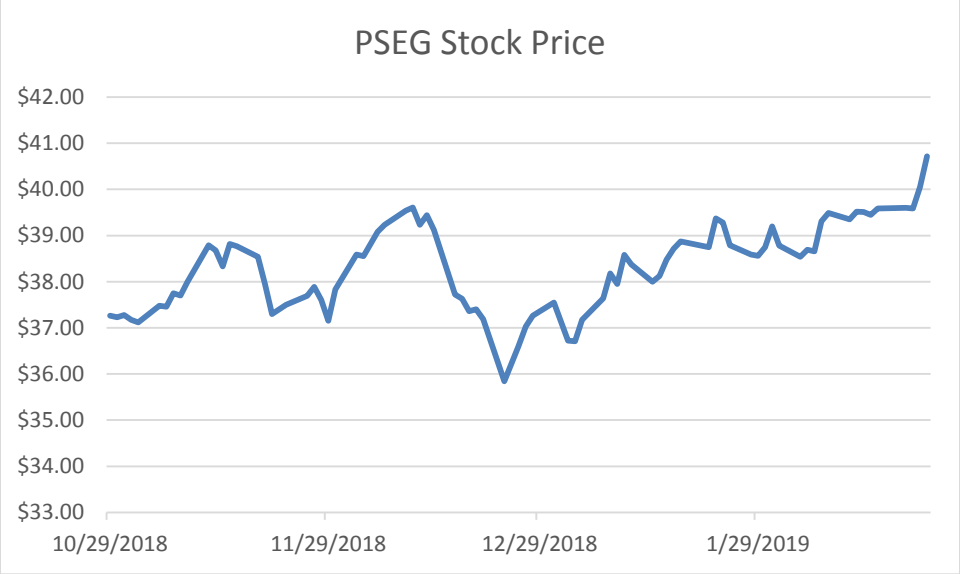
**Q. PLEASE EXPLAIN HOW PSEG'S GROWTH COMPARES TO COMPANIES IN THE COMPARABLE GROUP.**

A. PSEG has sustained growth rates that are very similar to those of the comparable group. The only exception is the historical 5-year EPS growth rate, which PSEG has trailed a bit from the average of the comparable group. The Value Line forecasted EPS for the comparable group is markedly higher than that of PSEG but, on the other hand, the reverse is true for the Schwab forecasted EPS growth rate.

**Q. HOW HAS THE STOCK PRICE OF PSEG PERFORMED SINCE THE SETTLEMENT OF THE COMPANY'S LAST RATE CASE IN LATE OCTOBER, 2018?**

A. The price of PSEG has performed quite well since the Board's order accepting the stipulation in late October of last year. The stock price has risen a bit less than 10% thereby showing the market's belief in strong future growth by PSEG.

Chart 3: PSEG Stock Price




Source for data: https://www.macrotrends.net/stocks/charts/FE/PSEG/stock-price-history

**Q. WHAT IS THE INVESTOR RETURN REQUIREMENT FROM THE DCF ANALYSIS?**

A. As can be seen on Schedule KWO-1, the dividend yield for the three time-frames are fairly tight for PSEG and the comparable group: 3.5% to 3.6% for PSEG; and 3.6% to 3.8% for the comparable group.

The comparable group has grown at a solid and steady pace. Over the past 10-years, the comparable group has grown in the range of approximately 3.7% (Value Line 10-year EPS) to 4.5% (Value Line 10-year DPS). The forecasted growth rates for the comparable are higher than its historical growth rates and are in the range of 4.5% (Schwab forecasted EPS) to 6.2% (Value Line forecasted EPS).

With the exception of the 5-year historical earnings growth rate of 1.0% (Value Line 5-year EPS) PSEG's growth rates (meaning EPS, DPS, and BPS) have similarly been strong with a range of 3.5% (Value Line 10-year EPS) to 7.0% (Value Line 10-year BPS). Forecasted growth rates for PSEG are very strong with a range of 4.5% (Value Line EPS) to 7.2% (Schwab EPS).

In terms of the proper dividend growth rate to employ for the comparable group in the DCF analysis, it is appropriate to examine the recent history of earnings and dividend growth to assess and provide the best estimate of the dividend growth that investors expect in the future. An examination of the 10-year and 5-year historical growth rates for the comparable group show that dividends have been growing slightly faster than earnings. Over the past 10 years, dividends, as reported by Value Line, have been growing at 4.5% (Value Line 10-year DPS) whereas earnings have grown at a rate of only 3.7% (Value Line 10-year EPS). For the most recent 5-year period, dividends have growth at a rate of 3.9% (Value Line 5-year DPS) as compared to the earnings growth rate of 3.7% (Value Line 5-year EPS). Dividends cannot, however, sustain a higher growth rate than

earnings over the long-term as eventually there will not be sufficient earnings to pay dividends. The market expects this situation to right itself in the future as the Value Line forecasted dividends for the group is forecasted to be 5.3% (Value Line DPS) whereas the earnings growth is expected to be in the range of 4.5% (Schwab EPS) to 6.2% (Value Line EPS and CFRA EPS). Book value growth is expected to be 5.0% (Value Line forecasted BPS).

Based on these results, I believe the proper growth rate range to use in the DCF model for the combination utility group is 4.0% to 6.0%. The low-end (4.0%) of this range is close to the midpoint of the 10-year and 5-year historical growth in dividends whereas the high end (6.0%) of the range is approximately equal to the high end of the range for the forecasted growth in earnings for the comparable group.

Given that the dividend yield of PSEG is only slightly lower than that of the comparable group, the market is expecting the growth prospects of PSEG to be similar to the growth rate of the comparable group. Based on the results as found in Exhibit KWO-1 as well as the similar dividend yields, I believe the growth rate range to use in the DCF model for PSEG is also in the range of 4.0% to 6.0%. The low-end of the range reflects the historically lower growth rates of PSEG whereas the high end of the range is in the middle of the forecasted EPS growth rates for the Company.

**Q. SHOULD ONLY EARNINGS GROWTH RATES IN THE DCF METHODOLOGY BE USED? IF NOT, WHAT DID YOU DO TO MITIGATE THIS PROBLEM?**

**A.** No. Since the DCF formula is dependent on future dividend growth, it would be inaccurate to use only earnings growth rates in the DCF. Doing so produces unrealistically high return on equity numbers that cannot be sustained in real life. To mitigate this problem, I have presented earnings per share (EPS), dividends

per share (DPS), and book value per share (BPS) figures in my testimony and systematically explained my rationale for arriving at the above stated growth rates. I believe it is incumbent upon every analyst presenting testimony in this case to present such a robust analysis to the Board.

**Q. WHAT IS THE DCF RANGE THAT YOUR ANALYSES PRODUCED?**

**A.** Combining the dividend yields of the comparable group members and PSEG produces the results as stated below:

Table 4: DCF Results

| | Forecasted Div. Yld | | Exp Growth Rate Range | | DCF Results | |
|---|---|---|---|---|---|---|
| | Low | High | Low | High | Low | High |
| Comparable Group | 3.6% | 3.8% | 4.0% | 6.0% | 7.6% | 9.8% |
| PSEG | 3.5% | 3.6% | 4.0% | 6.0% | 7.5% | 9.6% |

**Q. WHAT DO YOU CONCLUDE IS THE DCF RESULT FOR PSE&G TO BE USED IN THIS CASE?**

A. The DCF results as found in Table 4 above show a relatively wide range of results for the comparable group and PSEG, I believe the range of results from the DCF model is 8.0% to 9.0%, which is right in the middle of the above-stated results. Specifically, the 8.0% is slightly above the low-end of the range of DCF results for the comparable group (7.6%) and PSEG (7.5%) and the 9.0% high end of the range is below the 9.8% DCF result for the comparable group and the 9.6% DCF result for PSEG. The crux of my recommendation is to establish a midpoint range for my DCF results.

## D. Comparable Earnings Analysis

**Q. PLEASE EXPLAIN HOW YOU PERFORMED THE COMPARABLE EARNINGS ANALYSIS?**

A. Schedule KWO-3 presents a list of the earned returns on equity of the comparable group and PSEG over the period of 2017 through 2024. I picked this range to provide the Board with at least two historical returns and five years of forecasted returns. As can be seen in Schedule KWO-3, the range of results are summarized as follows:

Table 5: Earned Returns on Equity

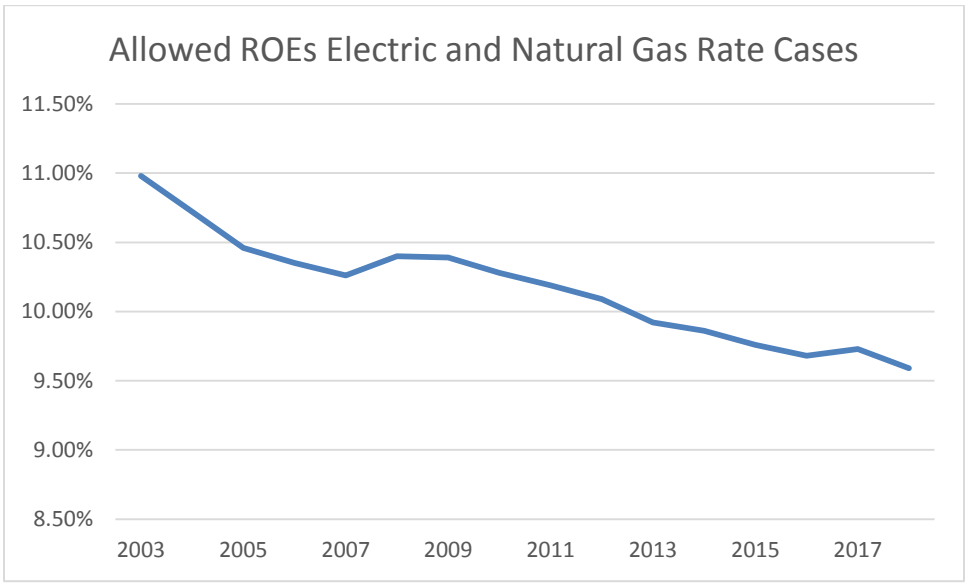
| | % Return on Common Equity | |
|---|---|---|
| Comparable Group | Low | High |
| Comparable Group | 9.8% | 10.5% |
| PSEG | 10.3% | 11.5% |

**Q. DO YOU HAVE ANOTHER COMPARABLE EARNINGS METHODOLOGY TO PRESENT IN THIS CASE?**

A. Yes. We can also examine allowed ROEs from state regulators across the country as another comparable earnings methodology.

As this Board is likely aware, regulated ROEs have trended down over the past 10 years. In Chart 4 below, I have provided a graph that shows the ROEs allowed for electric and natural gas utilities by state regulators across the United States from 2003 through 2017.

Chart 4: Allowed ROEs 2003 - 2018




Source for raw data: S&P Global Market Intelligence, RRA Regulatory Focus Major Rate Case Decisions – January – December 2018, Jan. 31, 2019

The average allowed ROE for electric utilities in 2018 was 9.57% and the average allowed ROE for natural gas utilities in 2018 was 9.59%[7]

**Q. WHAT CONCLUSIONS DO YOU DRAW FROM THE COMPARABLE EARNINGS ANALYSIS?**

A. Regulators across the United States have continued to recognize the decrease in capital cost and, as found in Chart 4 above, steadily reduced the allowed returns of utilities over the past 10 years.

Based on the above-stated findings, I believe the proper rate of return using a comparable earnings analysis is in the range of 9.5% to 10.5%. The lower end of this range recognizes the unmistakable downward trend of the average allowed ROE allowed by state regulators for electric and natural gas utilities dating back to 2003 and the higher end of the range recognizes high forecasted earned returns

[7] S&P Global Market Intelligence, RRA Regulatory Focus Major Rate Case Decisions – January – December 2018, Jan. 31, 2019

on equity as noted by the 10.5% forecasted ROE for the comparable group in Exhibit KWO-3.

### E. Capital Asset Pricing Model (CAPM)

**Q. HAVE YOU PREVIOUSLY PRESENTED THE CAPM IN COST OF EQUITY TESTIMONIES?**

A. Yes, but I have not given it much weight. I have long maintained the application of the CAPM can lead one to erroneous results when applied in an inaccurate manner, such as when "forecasted" risk premiums or "forecasted" interest rates are employed. For this reason, I have historically not used the CAPM in cost of equity analyses. However, I do recognize the Federal Energy Regulatory Commission ("FERC") has recently expressed an interest in reviewing additional models in the cost of equity analysis, and I am aware that the Maryland PSC[8] welcomes several different methods. As a result of the FERC and Maryland decisions, I am adding the CAPM in my analysis to supplement my DCF analysis as well as my Comparable Earnings analysis.

**Q. PLEASE EXPLAIN THE CAPITAL ASSET PRICING MODEL.**

A. The CAPM is a risk premium model that determines a firm's ROE relative to the overall market return on equity. The formula for the CAPM is as follows:

ROE = Rf + Beta [E(RM) – Rf]

where ROE is the return on equity;

Rf is the risk-free rate;

Beta is the risk of the studied company relative to the overall market; and

[8] *In the Matter of the Petition of Delmarva Power & Light Co. for Adjustments to Its Retail Rates for the Distribution of Elec. Energy*, __ Md. PSC __2017 WL 661351, at *15 (Feb. 15, 2017); I/M/O the Application of Delmarva Power & Light Company for Adjustments to its Retail Rates for the Distribution of Electric Energy, Md. PSC, Order No. 88033, p. 22-25, February 15, 2017 (https://www.psc.state.md.us/commission-orders/ ).

E(RM) is the expected return on the market.

To be specific, the CAPM is a measure of firm-specific risk, known as unsystematic risk and measured by beta, as well as overall market risk, otherwise known as systematic risk and measured by the expected return on the market.

The CAPM calculates ROE based on a company's risk and can be restated as follows:

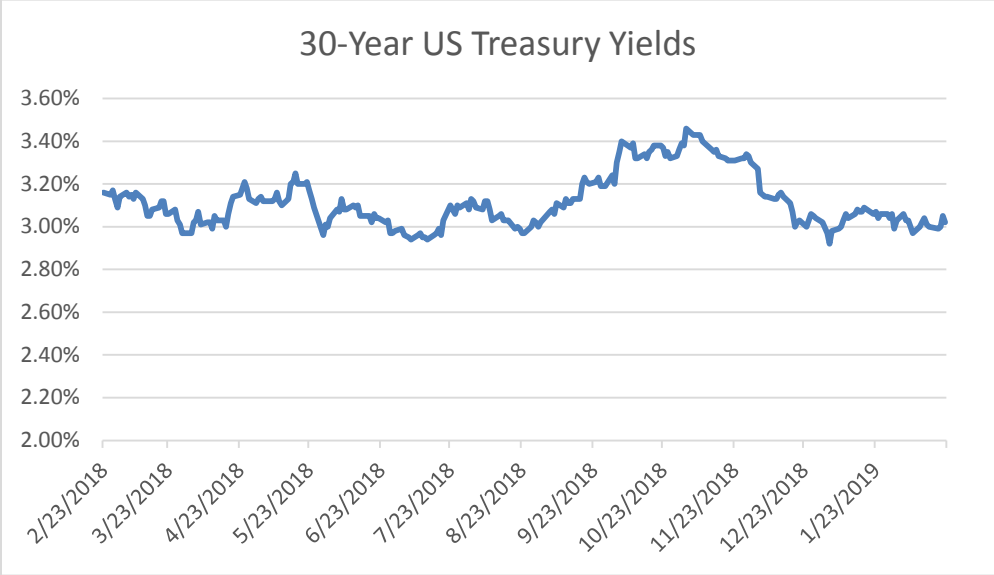
ROE = Rf + (Beta * Risk Premium)

where Beta * Risk Premium represents the adjusted company-specific risk of the company.

**Q. HOW IS THE RISK-FREE RATE MEASURED?**

A. The risk-free rate is designated as the yield on United States government bonds, but the term of those bonds is often debated by investment professionals. In my analysis for this case, I have developed risk premiums relative to the 30-year US Treasury bonds. Chart 5 below provides the yield on 30-year US Treasury bonds over the past year.

Chart 5: Historic Yields on 30-Year US Treasury Bonds




Source for raw data: United States Department of Treasury, https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yieldYear&year=2017, 2018

As can be seen in this chart, current yields have been relatively flat over the past year. These low yields are in spite of the fact that the Federal Reserve hiked its overnight rate three times in 2018.

**Q. IS THE CURRENT LEVEL OF INTEREST RATES EXPECTED TO CHANGE MATERIALLY IN THE FORESEEABLE FUTURE?**

A. No. Economic forecasters as well as the Federal Reserve all believe that the current interest rate environment is expected to remain relatively stable for many years to come. In fact, in June 16, 2016, Bloomberg published an article entitled "Yellen Says Forces Holding Down Rates May Be Long Lasting." The key takeaway from the article is the following statement:

> In a press conference after the Fed held policy steady, Yellen spoke of a sense that rates may be depressed by "factors that are

not going to be rapidly disappearing, but will be part of the new normal. [9]

The statement above adds more evidence to the long-term forecast of lower financing costs for years into the future. Indeed, even though this statement by former Chairperson Yellen is over two years old, long-term interest rates are simply not showing much movement.

**Q. HOW IS BETA MEASURED IN THE CAPM?**

A. Beta is a statistical calculation of a company's stock price movement relative to the overall stock movement. A company whose stock price is less volatile than the overall market will have a beta less than 1.0. A company whose stock price is more volatile than the overall market will have a beta more than 1.0. Since utilities are generally conservative equity investments, utility betas are almost always less than 1.0.

**Q. WHAT IS THE CURRENT MARKET RISK PREMIUM APPROPRIATE FOR USE IN THE CAPM?**

A. The development of the current market risk premium is, undoubtedly, the most controversial aspect of the CAPM calculations. To gauge the historical risk premium, I turned to the Ibbotson database published by Morningstar. The long-term geometric and arithmetic returns for both equities and fixed income securities and the resulting risk premiums are as follows:

[9] https://www.bloomberg.com/news/articles/2016-06-15/yellen-seems-to-sign-on-to-summers-view-of-lingering-low-rates

Table 6: Equity Risk Premium Calculations

| Asset Class | Geometric Mean | Arithmetic Mean |
|---|---|---|
| Large Company Stocks | 10.10% | 12.10% |
| Long-Term Govt. Bonds | 5.50% | 5.90% |
| Resulting Risk Premium | 4.60% | 6.20% |

Source: Ibbotson® SBBI®, 2014 Classic Yearbook: Market Results for Stocks, Bonds, Bills, and Inflation, 1926–2013 (Chicago: Morningstar, 2014).

**Q. WHAT MARKET RETURNS ARE WELL-KNOWN PROFESSIONAL INVESTORS EXPECTING FOR THE FORESEEABLE FUTURE?**

A. On January 14, 2016, Morningstar.com published an article entitled "What Market Experts are Saying About Future Returns".[10] By future returns, these market experts are discussing total market returns, and not just the equity risk premium. Below are some of the market return forecasts from this article:

John Bogle, Founder of Vanguard Group
6% nominal (non-inflation adjusted) equity returns during the next decade

Josh Peters, Morningstar Director of Equity-Income Strategy and Morningstar Dividend Investor Editor
6-7% (nominal 4-5%) returns for the S&P 500 over the next few decades

Matt Coffina, Morningstar Equity Strategist and Morningstar Stock Investor Editor
6% to 8% over the long-run

Morningstar Investment Management
4.5% 10-year nominal returns for US stocks

[10] http://news.morningstar.com/articlenet/article.aspx?id=736083

Charles Schwab
6.3% nominal returns for US large caps (the S&P 500) during the next 10 years

Vanguard
Nominal equity market returns of 6% to 8% during the next decade

The above-stated equity returns are consistently in the 6% to 8% range. When the current yield of 2.74%, which is the one-year average of 30-year US Treasuries, is deducted from this expected return, the resulting equity risk premium is between 3.26% and 5.26%.

In 2018, Duke University finance professors published their annual equity risk premium estimates that stated the expected average risk premium exhibited by a survey of U.S. Chief Financial Officers (CFOs) around the country is 4.42%. [11] The article states as follows:

> During the past 18 years, we have collected almost 25,000 responses to the survey. Panel A of Table 1 presents the date that the survey window opened, the number of responses for each survey, the 10-year Treasury bond rate, as well as the average and median expected excess returns. There is relatively little time variation in the risk premium. This is confirmed in Fig. 1a, which displays the historical risk premiums contained in Table 1. The current premium, 4.42%, is above the historical average of 3.64%. The December 2017 survey shows that the expected annual S&P 500 return is 6.79% (=4.42%+2.37%) which is slightly below the overall average of 7.11%. The total return forecasts are presented in Fig. 1b.2 [12]

**Q. WHAT IS YOUR CONCLUSION AS TO THE ESTIMATED EQUITY RISK PREMIUM FOR USE IN THE CAPM?**

A. Using historical data as well as ex ante (forecasts) data, the evidence suggests the equity risk premium is clearly within the range of 4% to 6%.

[11] "The Equity Risk Premium in 2018", John R. Graham and, Campbell R. Harvey, Duke University, March 28, 2018.
[12] Id, p. 3-4

**Q. HOW DID YOU DETERMINE THE BETA YOU USED IN THE CAPM?**

A. I used the Value Line derived beta that I found in the most recent Value Line editions for each company in the comparable groups as well as PSEG, the parent holding company of PSE&G.

**Q. WHAT WERE YOUR CAPM RESULTS?**

A. The actual calculations for the CAPM can be seen in Schedule KWO-4. The yield on 30-year US Treasury yields (Rf) has ranged from 2.92% to 3.46% in the past year. The average beta for the comparable group is 0.59 which, when multiplied by the risk premium range of 4.0% to 6.0%, produces a beta-adjusted risk premium of 2.36% to 3.54%. The 30-year US Treasury yield (Rf) range of 2.92% to 3.46% is next added to the beta-adjusted risk premium range of 2.36% to 3.54% to arrive at the comparable group CAPM result range of 5.3% (2.92% + 2.36% = 5.28%, rounded to 5.3%) to 7.0% (3.46% + 3.54% = 7.0%).

For PSEG, the beta is 0.65 which, when multiplied by the 4.0% to 6.0% equity risk premium range produces a beta-adjusted risk premium range of 2.60% to 3.90%. When this beta-adjusted risk premium is added to the 30-year US Treasury yield (Rf) range of 2.92% to 3.46%, the CAPM results for PSEG ranges from 5.5% (2.92% + 2.60% = 5.52%, rounded to 5.5%) to 7.4% (3.46% + 3.90% - 7.36%, rounded to 7.4%).

Based on this range of results for the CAPM, I find the proper ROE derived from the CAPM is in the range of 5.5% to 7.5%. The low-end (5.5%) of this range is equal to the low-end of the PSEG CAPM result and is slightly higher than the low-end of the comparable group CAPM results. The high end (7.5%) of the range is approximately equal to the high end of the PSEG CAPM result.

## V. RETURN ON EQUITY RECOMMENDATIONS

**Q. WHAT IS THE CURRENT COST OF EQUITY FOR PSE&G?**

A. Based upon the analysis performed in this case, I believe the current cost of equity for PSE&G is 9.0%.

**Q. IS 9.0% YOUR RECOMMENDED ROE FOR PSE&G IN THIS PROCEEDING?**

A. No, it is not. As noted previously, the current proceeding involves a shifting of risk from PSE&G/PSEG stockholders to consumers. As a result, the ROE found appropriate for use in this case must recognize the lower risk to stockholders and the higher risk for consumers.

**Q. PLEASE EXPLAIN HOW THE CURRENT ENERGY STRONG II CASE INVOLVES A SHIFT FROM STOCKHOLDERS TO CONSUMERS.**

A. The current PSE&G Energy Strong II case is not a typical rate case proceeding. This proceeding involves a rate recovery mechanism far different than a traditional rate base/rate of return case. In such a traditional rate case, all of the utility's costs are examined in detail and, in time, the state regulator renders a decision in regard to cost recovery. In the proposed Energy Strong II case, only the costs associated with the Energy Strong II investments will be reviewed in abbreviated rate proceedings to occur twice a year. As a result, a large portion of the risk of cost recovery shifts from stockholders to consumers. In essence, the proposed cost recovery mechanism significantly lowers the risk of PSE&G.

**Q. DO YOU HAVE ANY EVIDENCE TO SUPPORT YOUR RECOMMENDATION THAT THE ALLOWED ROE SHOULD BE REDUCED TO ACCOUNT FOR THE AUTOMATIC NATURE OF THE ENERGY STRONG II RATE RECOVERY MECHANISM?**

A. Yes. As part of this case, I examined the rate recovery mechanisms of all 50 state regulatory jurisdictions as well as the District of Columbia PSC. My results can be seen in Appendix B.

While many states have automatic cost recovery mechanism for items such as fuel, energy efficiency ("EE"), and demand side management ("DSM"), few have automatic cost recovery mechanism for transmission or distribution-related plant investment. Of the 51 regulatory jurisdictions I examined as part of this analysis, only 6 jurisdictions allowed for any periodic rate recovery for fixed plant distribution investment.

**Q. HAS THIS BOARD PREVIOUSLY RULED ON THIS ISSUE OF RATE OF RETURN IN A CASE SIMILAR IN NATURE TO THE CURRENT PSE&G ENERGY STRONG II PROCEEDING?**

A. Yes. In the Company's previous Energy Strong I filing, which was Board Docket Nos. EO13020155 and GO13020156, the Board stated:

> The Board is also persuaded that the reduced return on common equity from that approved by the Board in the Company's 2009 Base Rate Case is reasonable in light of the recovery of costs from ratepayers on a more contemporaneous basis which reduces the risk of recovery of capital invested during the time between rate cases.

**Q. PLEASE SUMMARIZE THE RESULTS OF YOUR ROE ANALYSIS IN THIS CASE.**

A. The table below lists the results of my DCF analysis, the comparable earnings analysis and the CAPM analysis.

Table 7: ROE Method Results

| Model | Range | |
|---|---|---|
| | Low | High |
| DCF | 8.0% | 9.0% |
| Comparable Earnings | 9.5% | 10.5% |
| CAPM | 5.5% | 7.5% |

**Q. WHAT IS YOUR RECOMMENDED ROE IN THIS PROCEEDING?**

A. My recommendation in this proceeding is to allow PSE&G a ROE of 8.5%. This recommended ROE incorporates a 50 basis point reduction associated with the automatic nature of the Energy Strong II rate recovery mechanisms that shifts risk from stockholders to consumers.

**Q. WOULD YOU PLEASE PROVIDE THE REASONS FOR YOUR RECOMMENDATIONS?**

**A.** In making these recommendations, I recognize the strength of the stock market over the past two years and recommend a ROE at the very top of my DCF results which, in my opinion, is the most indicative model for investor expectations for earned returns of PSE&G and similar utilities.

As the Board is aware, interest rates remain quite low relative to historic levels. Individuals seeking an income stream see utility dividends as good alternatives at the present time with the lack of adequate fixed income (bond) opportunities. As a result, utility stock prices have soared in the past five years. When stock prices increase, dividend *yields* decrease even though the dollar amount of the dividend remains the same or even increases. Hence, since the Board's decision in the last PSE&G rate case late last year, the increase in utility stock prices has driven dividend yields of utility stocks downward. Thus, we cannot ignore the current

low cost of capital environment. If a utility's rates are set too high, the economy in its service territory will suffer and stockholders will receive a windfall at the expense of captive ratepayers.

**Q. PLEASE DESCRIBE CURRENT ECONOMIC CONDITIONS AND THE GENERAL STATE OF EQUITY MARKETS.**

A. Overall, the United States economy is strong. The U.S. Gross Domestic Product ("GDP") is hovering right around a three percent (3%) growth rate, which implies slow and steady growth. Unemployment has fallen as more and more Americans are bouncing back from the financial meltdown of 2008.

Proving direct causal links between macroeconomic conditions and stock market prices is difficult due to the complexity of the world's now linked economies. Stock prices rise and fall based on future corporate earnings reports, intrinsic values, investor risk tolerances and a large number of other factors. It is thought, however, that because during an economic expansion the prices of commodities such as oil and steel rise as a result of competition for those commodities due to increased construction activity and consumption, the reverse might also be true; that is, extremely low oil prices are an indicator of the same or increased production in a slowing economy.

**Q. HOW WILL EXPECTED LOWER STOCK MARKET RETURNS AFFECT ROEs SET BY STATE UTILITY REGULATORS ACROSS THE COUNTRY?**

A. It is important to note that stock market returns and rate base returns as set by state regulators, are two different items. Stocks go up and down with sometimes little influence from state regulators. However, there is no doubt that state regulators have noticed the tremendous increase in the stock market and correspondingly lower debt costs over the past six years and have lowered the allowed rate of return granted to utilities over this time period.

If market returns are in the single-digits for years to come and the U.S. economy continues its present slow expansion in the years ahead, allowed returns on equity for regulated utilities should either decrease or stay roughly at current levels for the foreseeable future.

## VI. CAPITAL STRUCTURE

**Q. WHAT IS A CAPITAL STRUCTURE AND HOW WILL IT IMPACT THE REVENUES THAT PSE&G OR ANY OTHER UTILITY IS SEEKING IN A RATE CASE?**

A. The term "capital structure" refers to the relative percentage of debt, equity, and other financial components that are used to finance a company's investments. For simplicity, there are three financing methods. The first method is to finance an investment with common equity, which essentially represents ownership in a company and its investments. Returns on common equity, which in part take the form of dividends to stockholders, are not tax deductible which, on a pre-tax basis alone, makes this form of financing about 40% more expensive than debt financing. The second form of corporate financing is preferred stock, which is normally used to a much smaller degree in capital structures. Dividend payments associated with preferred stock are not tax deductible. Corporate debt is the third major form of financing used in the corporate world. There are two basic types of corporate debt: long-term and short-term. Long-term debt is generally understood to be debt that matures in a period of more than one year. Short-term debt is debt that matures in a year or less. Both long-term debt and short-term debt represent liabilities on the company's books that must be repaid prior to any common stockholders or preferred stockholders receiving a return on their investment

**Q. HOW IS A UTILITY'S TOTAL RETURN CALCULATED?**

A. A utility's total return is developed by multiplying the component percentages of its capital structure represented by the percentage ratios of the various forms of

capital financing relative to the total financing on the company's books by the cost rates associated with each form of capital and then totaling the results over all of the capital components. When these percentage ratios are applied to various cost rates, a total after-tax rate of return is developed. Because the utility must pay dividends associated with common equity and preferred stock with after-tax funds, the post-tax returns are then converted to pre-tax returns by grossing up the common equity and preferred stock dividends for taxes. The final pre-tax return is then multiplied by the Company's rate base in order to develop the amount of money that customers must pay to the utility for return on investment and tax payments associated with that investment.

**Q. HOW DOES CAPITAL STRUCTURE IMPACT THIS CALCULATION?**

A. Costs to consumers are greater when the utility finances a higher proportion of its rate base investment with common equity and preferred stock versus long-term debt. However, long-term debt, which is first in line for repayment, imposes a contractual obligation to make fixed payments on a pre-established schedule, as opposed to common equity where no similar obligations exist.

**Q. WHY SHOULD THE BOARD BE CONCERNED ABOUT HOW PSE&G FINANCES ITS RATE BASE INVESTMENT?**

A. There are two reasons that the Board should be concerned about how PSE&G finances its rate base investment. First, PSE&G's cost of common equity is higher than the cost of long-term debt, meaning that an equity percentage above an optimal level will translate into higher costs to PSE&G's customers without any corresponding improvement in quality of service. Long-term debt is a financial promise made by the company and is carried as a liability on the company's books. Common stock is ownership in the company. Due to the nature of this investment, common stockholders require higher rates of return to compensate them for the extra risk involved in owning part of the company versus having a more senior claim against the company's assets.

The second reason the Board should be concerned about PSE&G's capital structure is due to the tax treatment of debt versus common equity. Public corporations, such as PSE&G, can deduct payments associated with debt financing. Corporations are not, however, allowed to deduct common stock dividend payments for tax purposes. All dividend payments must be made with after-tax funds, which are more expensive than pre-tax funds. Because the regulatory process allows utilities to recover reasonable and prudent expenses, including taxes, rates must be set so that the utility pays all its taxes and has enough left over to pay its common stock dividend. If a utility is allowed to use a capital structure for ratemaking purposes that is top-heavy in common stock, customers will be forced to pay the associated income tax burden, resulting in unjust, unreasonable, and unnecessarily high rates. Setting rates through the use of capital structure that is top-heavy in common equity violates the fundamental principles of utility regulation that rates must be just and reasonable and only high enough to support the utility's provision of safe, adequate, and reliable service at a fair price.

**Q. HOW IS SETTING A CAPITAL STRUCTURE FOR A RATE-REGULATED UTILITY COMPANY DIFFERENT THAN SETTING A CAPITAL STRUCTURE FOR A NON-REGULATED COMPANY THAT OPERATES IN A COMPETITIVE ENVIRONMENT?**

A. Unregulated companies in competitive markets must carefully weigh the risk of using lower cost debt that can be used to leverage profits versus the use of the more expensive common equity that dilutes profits. Such a capital sourcing decision is based, in large part, on the competitive nature of the business in which the entity operates.

In the case of a rate-regulated utility with a licensed service territory that has little-to-no competition in its service territory, there is a strong incentive for the

company to use common equity to build assets that can be placed in rate base. The utility is guaranteed the opportunity to earn its allowed rate of return on plant investment and, as such, can maximize profits by building plant and receiving favorable regulatory treatment from state regulators. In essence, normal competitive markets serve to lower capital costs through efficient capital cost decisions whereas utility rate regulation can act as an incentive for plant investment.

**Q. PLEASE EXPLAIN HOW ONGOING CONSTRUCTION NEEDS ARE IMPACTING UTILITIES AND THEIR CUSTOMERS.**

A. Utilities finance construction with three primary sources of capital: retained earnings; common equity issuances; and long-term debt issuances. Financing construction with retained earnings is preferable to the utility because using funds from ongoing operations does not dilute common equity (as would an equity issuance) and does not add debt leverage to the utility's balance sheet. However, in most cases, financing a large asset with only retained earnings may not be possible due to sheer size of the plant investment. As a result, utilities undergoing large construction projects often issue common equity or long-term debt to finance these projects.

Selecting the ratio of equity to debt is important. Entities in more competitive markets have a profit motive that provides an incentive for such entities to select the most efficient capitalization ratio. However, electric and natural gas utilities operating in exclusive, rate-regulated service territories have an incentive to maximize the amount of common equity in their capital structure so as to increase rates and, correspondingly, the utility profit. Rate-regulated electric and natural gas utilities should only be allowed to recover in rates a revenue requirement derived from a capitalization ratio that allows the utility to provide reliable service at the least cost. Finding the right balance between debt and equity is critical.

**Q. PLEASE EXPLAIN THE RAMIFICATIONS OF RATES BEING SET AT AN UNBALANCED DEBT/EQUITY LEVEL.**

A. If a utility issues too much common equity and not enough debt for a certain project, the consuming public pays higher rates to support a capital structure that is neither prudent nor reasonable. It is also important to recognize how rate levels affect economic development. A utility with high rates will, all else being equal, cause its service territory to lose out on economic development opportunities.

If, on the other hand, the utility incurs too much debt, the utility's capitalization ratios presents excess financial risk to the capital markets, thereby driving up the costs required by the markets to compensate them for the added risk. In this case, the consumer would also lose because the cost it must pay the utility for accessing the capital markets is higher than it would pay using a less debt-leveraged capital structure.

One role of regulation is to balance the needs of the capital markets, including utility stockholders, with the needs of ratepayers. Too much equity or too much debt can harm both the stockholders of the corporation as well as the consuming public. Careful study of the risks and costs of various capitalization ratios is important.

**Q. HAVE YOU REVIEWED THE CAPITAL STRUCTURE REQUESTED BY THE COMPANY IN THIS PROCEEDING?**

A. Yes, I have.

**Q. WHAT CAPITAL STRUCTURE IS PSE&G SEEKING IN THIS CASE?**

A. According to the Petition, the Company is seeking approval of the same capital structure as approved in the Company's 2018 base rate case. That capital structure is as follows:

Table 8: PSE&G Requested Capital Structure

| Component | Ratio (%) |
|---|---|
| Customer Deposits | 0.47% |
| Other Capital | 45.53% |
| Common Equity | 54.00% |
| Total Capitalization | 100.00% |

The above-stated capital structure is the same capital structure granted to the Company by this Board in PSE&G's 2018 base rate case.

**Q. WHAT IS THE AVERAGE COMMON EQUITY RATIO OF THE COMPANIES IN YOUR COMPARABLE GROUP?**

A. Tables 9 below shows the average common equity ratio of each company in the comparable group.

Table 9: Comparable Group Equity Ratio

| Company | 2018E Ratio |
|---|---|
| Alliant Energy Corp | 48.0% |
| Ameren Corp | 49.0% |
| Avista Corp | 50.5% |
| Black Hills Corp | 42.0% |
| CMS Energy Corp | 35.5% |
| Consolidated Edison Inc | 48.5% |
| Dominion Resources Inc | 39.0% |
| DTE Energy Co | 42.5% |
| Duke Energy Corp | 46.0% |
| Entergy Corp | 35.0% |
| Exelon Corp | 47.0% |
| Fortis | 38.5% |
| MGE Energy Inc | 62.5% |
| Sempra Energy | 41.0% |
| Southern Co (The) | 36.5% |
| Xcel Energy Inc | 43.0% |
| **Average** | **44.0%** |

As can be seen in the table above, the average common equity ratio in the comparable group is 44.0%, which is well below the requested equity ratio in this case of 54.0%.

**Q. WHAT IS THE AVERAGE COMMON EQUITY RATIO GRANTED BY UTIILTY REGULATORS ACROSS THE UNITED STATES IN 2018?**

A. The average common equity ratio granted by regulators in 2018 to electric utilities was 48.95% and for gas utilities the average equity ratio granted by regulators was 50.09%.[13]

[13] S&P Global Market Intelligence, RRA Regulatory Focus Major Rate Case Decisions – January – December 2018, Jan. 31, 2019

**Q. PLEASE SUMMARIZE YOUR FINDINGS IN REGARD TO THE REQUESTED EQUITY RATO IN THIS CASE RELATIVE TO THE EQUITY RATIO OF OTHER ELECTRIC UTILITIES.**

A. Table 10 below provides a summary of how PSE&G's request in this case compared to the following equity ratios: the equity ratio requested by the Company, the equity ratio of the comparable group, and the average allowed equity ratio by state regulators across the country in 2018.

Table 10: Common Equity Comparison

| | |
|---|---|
| PSE&G Request | 54.0% |
| Comparable Group Average | 44.0% |
| 2018 Average Regulatory Eq Ratio for Electric Utilities | 48.95% |
| 2018 Average Regulatory Eq Ratio for Gas Utilities | 50.09% |

**Q. GIVEN THE ABOVE, DO YOU BELIEVE THAT THE CAPITAL STRUCTURE BEING PROPOSED BY PSE&G IN THIS CASE IS APPROPRIATE FOR RATEMAKING PURPOSES?**

A. I am concerned that PSE&G's equity ratio is "equity thick" for ratemaking purposes. While I will accept the equity ratio in this case, I recommend the Commission instruct the Company to reduce this equity ratio for ratemaking purposes in future filings. My specific recommendation is found in the table below.

Table 11: O'Donnell Recommended Weighted Cost of Capital

| Component | Capital Structure Ratio (%) | Cost Rate (%) | Wgtd. Cost Rate (%) |
|---|---|---|---|
| Customer Deposits | 0.47% | 0.00% | 0.00% |
| Other Capital | 45.53% | 3.96% | 1.80% |
| Common Equity | 54.00% | 8.50% | 4.59% |
| Total Capitalization | 100.00% | | 6.39% |

## VII. SUMMARY

**Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

A. PSE&G's requested 9.60% ROE for the Energy Strong II is excessive, unnecessary, and burdensome on the ratepayers of New Jersey. My specific recommendations in this case are as follows:

- the Company's Energy Strong II cost recovery mechanism significantly reduces the risk of PSE&G's investments;
- the allowed return on equity should be set at 8.5% to reflect the cost of capital in current market conditions as well as to recognize the lower risk of the Energy Strong II cost recovery mechanism.;
- the capital structure used for ratemaking purposes should consist of 0.47% in customer deposits, 45.53% other capital, and 54.0% common equity;
- the overall rate of return PSE&G should be allowed in this case is 6.39%.

**Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

A. Yes. However, I reserve the right to supplement my direct testimony in response to relevant new information presented subsequent to the filing date.

# Appendix A

# Kevin W. O'Donnell, CFA

*Nova Energy Consultants, Inc. (Nova)*

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Cary, NC

919-461-0270

919-461-0570 (fax)

kodonnell@novaenergyconsultants.com


Kevin W. O'Donnell, is the founder of Nova Energy Consultants, Inc. in Cary, NC. Mr. O'Donnell's academic credentials include a B.S. in Civil Engineering - Construction Option from North Carolina State University as well as a MBA in Finance from Florida State University. Mr. O'Donnell is also a Chartered Financial Analyst (CFA).

Mr. O'Donnell has over thirty-four years of experience working in the electric, natural gas, and water/sewer industries. He is very active in municipal power projects and has assisted numerous southeastern U.S. municipalities cut their wholesale cost of power by as much as 67%. On Dec. 12, 1998, ***The Wilson Daily Times*** made the following statement about O'Donnell.

> **Although we were skeptical of O'Donnell's efforts at first, he has shown that he can deliver on promises to cut electrical rates.**

Through 2018, Mr. O'Donnell has completed over 26 wholesale power projects for municipal and university-owned electric systems throughout North and South Carolina. In May of 1996 Mr. O'Donnell testified before the U.S. House of Representatives, Committee on Commerce, Subcommittee on Energy and Power regarding the restructuring of the electric utility industry.

Mr. O'Donnell has appeared as an expert witness in 100 regulatory proceedings before the North Carolina Utilities Commission, the South Carolina Public Service Commission, the Virginia Corporation Commission, the Minnesota Public Service Commission, the New Jersey Board of Public Utilities, the Colorado Public Service Commission, Public Service Commission of the District of Columbia, the Maryland Public Service Commission, the Public Utility Commission of Texas, the Wisconsin Public Service Commission, and the Florida Public Service Commission. His area of expertise has included rate design, cost of service, rate of return, capital structure, natural gas expansion feasibility studies, fuel adjustments, merger transactions, cogeneration studies, holding company applications, as well as numerous other accounting, financial, and utility rate-related issues.

Mr. O'Donnell is the author of the following two articles: "Aggregating Municipal Loads: The Future is Today" which was published in the Oct. 1, 1995 edition of *Public Utilities Fortnightly;* and "Worth the Wait, But Still at Risk" which was published in the May 1, 2000 edition of *Public Utilities Fortnightly.* Mr. O'Donnell is also the co-author of "Small Towns, Big Rate Cuts" which was published in the January, 1997 edition of *Energy Buyers Guide.* All of these articles discuss how rural electric systems can use the wholesale power markets to procure wholesale power supplies.

# Regulatory Cases of Kevin W. O'Donnell, CFA
## Nova Energy Consultants, Inc.

| Year | Name of Applicant | State Jusrisdiction | Docket No. | Client/ Employer | Case Issues |
|---|---|---|---|---|---|
| 1985 | Public Service Company of NC | NC | G-5, Sub 200 | Public Staff of NCUC | Return on equity, capital structure |
| 1985 | Piedmont Natural Gas Company | NC | G-9, Sub 251 | Public Staff of NCUC | Return on equity, capital structure |
| 1986 | General Telephone of the South | NC | P-19, Sub 207 | Public Staff of NCUC | Return on equity, capital structure |
| 1987 | Public Service Company of NC | NC | G-5, Sub 207 | Public Staff of NCUC | Return on equity, capital structure |
| 1988 | Piedmont Natural Gas Company | NC | G-9, Sub 278 | Public Staff of NCUC | Return on equity, capital structure |
| 1989 | Public Service Company of NC | NC | G-5, Sub 246 | Public Staff of NCUC | Return on equity, capital structure |
| 1990 | North Carolina Power | NC | E-22, Sub 314 | Public Staff of NCUC | Return on equity, capital structure |
| 1991 | Duke Energy | NC | E-7, Sub 487 | Public Staff of NCUC | Return on equity, capital structure |
| 1992 | North Carolina Natural Gas | NC | G-21, Sub 306 | Public Staff of NCUC | Natural gas expansion fund |
| 1992 | North Carolina Natural Gas | NC | G-21, Sub 307 | Public Staff of NCUC | Natural gas expansion fund |
| 1995 | Penn & Southern Gas Company | NC | G-3, Sub 186 | Public Staff of NCUC | Return on equity, capital structure |
| 1995 | North Carolina Natural Gas | NC | G-21, Sub 334 | Carolina Utility Customers Assoc. | Return on equity, capital structure, rate design, cost of service |
| 1995 | Carolina Power & Light Company | NC | E-2, Sub 680 | Carolina Utility Customers Assoc. | Fuel adjustment proceeding |
| 1995 | Duke Power | NC | E-7, Sub 559 | Carolina Utility Customers Assoc. | Fuel adjustment proceeding |
| 1996 | Piedmont Natural Gas Company | NC | G-9, Sub 378 | Carolina Utility Customers Assoc. | Return on equity, capital structure, rate design, cost of service |
| 1996 | Piedmont Natural Gas Company | NC | G-9, Sub 382 | Carolina Utility Customers Assoc. | Return on equity, capital structure, rate design, cost of service |
| 1996 | Public Service Company of NC | NC | G-5, Sub 356 | Carolina Utility Customers Assoc. | Return on equity, capital structure, rate design, cost of service |
| 1996 | Cardinal Extension Company | NC | G-39, Sub 0 | Carolina Utility Customers Assoc. | Capital structure, cost of capital |
| 1997 | Public Service Company of NC | NC | G-5, Sub 327 | Carolina Utility Customers Assoc. | Return on equity, capital structure, rate design, cost of service |
| 1998 | Public Service Company of NC | NC | G-5, Sub 386 | Carolina Utility Customers Assoc. | Return on equity, capital structure, rate design, cost of service |
| 1998 | Public Service Company of NC | NC | G-5, Sub 386 | Carolina Utility Customers Assoc. | Natural gas transporation rates |
| 1999 | Public Service Company of NC/SCANA | NC | G-5, Sub 400 | Carolina Utility Customers Assoc. | Merger case |
| 1999 | Public Service Company of NC/SCANA | NC | G-43 | Carolina Utility Customers Assoc. | Merger Case |
| 1999 | Carolina Power & Light Company | NC | E-2, Sub 753 | Carolina Utility Customers Assoc. | Holding company application |
| 1999 | Carolina Power & Light Company | NC | G-21, Sub 387 | Carolina Utility Customers Assoc. | Holding company application |
| 1999 | Carolina Power & Light Company | NC | P-708, Sub 5 | Carolina Utility Customers Assoc. | Holding company application |
| 2000 | Piedmont Natural Gas Company | NC | G-9, Sub 428 | Carolina Utility Customers Assoc. | Return on equity, capital structure, rate design, cost of service |
| 2000 | NUI Corporation | NC | G-3, Sub 224 | Carolina Utility Customers Assoc. | Holding company application |
| 2000 | NUI Corporation/Virginia Gas Compan | NC | G-3, Sub 232 | Carolina Utility Customers Assoc. | Merger application |
| 2001 | Duke Power | NC | E-7, Sub 685 | Carolina Utility Customers Assoc. | Emission allowances and environmental compliance costs |
| 2001 | NUI Corporation | NC | G-3, Sub 235 | Carolina Utility Customers Assoc. | Tariff change request. |
| 2001 | Carolina Power & Light Company/Prog | NC | E-2, Sub 778 | Carolina Utility Customers Assoc. | Asset transfer case |
| 2001 | Duke Power | NC | E-7, Sub 694 | Carolina Utility Customers Assoc. | Restructuring application |
| 2002 | Piedmont Natural Gas Company | NC | G-9, Sub 461 | Carolina Utility Customers Assoc. | Return on equity, capital structure, rate design, cost of service |
| 2002 | Cardinal Pipeline Company | NC | G-39, Sub 4 | Carolina Utility Customers Assoc. | Cost of capital, capital structure |
| 2002 | South Carolina Public Service Commiss | SC | 2002-63-G | South Carolina Energy Users Committee | Rate of return, accounting, rate design, cost of service |
| 2003 | Piedmont Natural Gas/North Carolina N | NC | G-9, Sub 470 | Carolina Utility Customers Assoc. | Merger application |
| 2003 | Piedmont Natural Gas/North Carolina N | NC | G-9, Sub 430 | Carolina Utility Customers Assoc. | Merger application |
| 2003 | Piedmont Natural Gas/North Carolina N | NC | E-2, Sub 825 | Carolina Utility Customers Assoc. | Merger application |
| 2003 | Carolina Power & Light Company | NC | E-2, Sub 833 | Carolina Utility Customers Assoc. | Fuel case |
| 2004 | South Carolina Electric & Gas | SC | 2004-178-E | South Carolina Energy Users Committee | Return on equity, capital structure, rate design, cost of service |
| 2005 | Carolina Power & Light Company | NC | E-2, Sub 868 | Carolina Utility Customers Assoc. | Fuel case |

# Regulatory Cases of Kevin W. O'Donnell, CFA
## Nova Energy Consultants, Inc.

| Year | Name of Applicant | State Jusrisdiction | Docket No. | Client/ Employer | Case Issues |
|---|---|---|---|---|---|
| 2005 | Piedmont Natural Gas Company | NC | G-9, Sub 499 | Carolina Utility Customers Assoc. | Return on equity, capital structure, rate design, cost of service |
| 2005 | South Carolina Electric & Gas | SC | 2005-2-E | South Carolina Energy Users Committee | Fuel application |
| 2005 | Carolina Power & Light Company | SC | 2006-1-E | South Carolina Energy Users Committee | Fuel application |
| 2006 | IRP in North Carolina | NC | E-100, Sub 103 | Carolina Utility Customers Assoc. | Submitted rebuttal testimony in investigation of IRP in NC. |
| 2006 | Piedmont Natural Gas Company | NC | G-9, Sub 519 | Carolina Utility Customers Assoc. | Creditworthiness issue |
| 2006 | Public Service Company of NC | NC | G-5, Sub 481 | Carolina Utility Customers Assoc. | Return on equity, capital structure, rate design, cost of service |
| 2006 | Duke Power | NC | E-7, 751 | Carolina Utility Customers Assoc. | App to share net revenues from certain wholesale pwr trans |
| 2006 | South Carolina Electric & Gas | SC | 2006-192-E | South Carolina Energy Users Committee | Fuel application |
| 2007 | Duke Power | NC | E-7, Sub 790 | Carolina Utility Customers Assoc. | Application to construct generation |
| 2007 | South Carolina Electric & Gas | SC | 2007-229-E | South Carolina Energy Users Committee | Rate of return, accounting, rate design, cost of service |
| 2008 | South Carolina Electric & Gas | SC | 2008-196-E | South Carolina Energy Users Committee | Base load review act proceeding |
| 2009 | Western Carolina University | NC | E-35, Sub 37 | Western Carolina University | Rate of return, accounting, rate design, cost of service |
| 2009 | Duke Power | NC | E-7, Sub 909 | Carolina Utility Customers Assoc. | Cost of service, rate design, return on equity, capital structure |
| 2009 | South Carolina Electric & Gas | SC | 2009-261-E | South Carolina Energy Users Committee | DSM/EE rate filing |
| 2009 | Duke Power | SC | 2009-226-E | South Carolina Energy Users Committee | Return on equity, capital structure, rate design, cost of service |
| 2009 | Tampa Electric | FL | 080317-EI | Florida Retail Federation | Return on equity, capital structure |
| 2010 | Duke Power | SC | 2010-3-E | South Carolina Energy Users Committee | Fuel application - assisted in settlement |
| 2010 | South Carolina Electric & Gas | SC | 2009-489-E | South Carolina Energy Users Committee | Return on equity, capital structure, rate design, cost of service |
| 2010 | Virginia Power | VA | PUE-2010-00006 | Mead Westvaco | Rate design |
| 2011 | Duke Energy | SC | 2011-20-E | South Carolina Energy Users Committee | Nuclear construction financing |
| 2011 | Northern States Power | MN | E002/GR-10-971 | Xcel Large Industrials | Return on equity, capital structure |
| 2011 | Virginia Power | VA | PUE-2011-0027 | Mead Westvaco | Capital structure, revenue requirement |
| 2011 | Duke Energy | NC | E-7, Sub 989 | Carolina Utility Customers Assoc. | Accounting, cost of service, rate design, ROE, capital structure |
| 2011 | Duke Energy | SC | 2011-271-E | South Carolina Energy Users Committee | Accounting, cost of service, rate design, ROE, capital structure |
| 2011 | Dominion Virginia Power | VA | PUE-2011-00073 | Mead Westvaco | Rate design |
| 2012 | Town of Smithfield/Partners Equity Gr | NC | ES-160, Sub 0 | Partners Equity Group | Rate design, asset valuation |
| 2012 | Florida Power & Light | FL | 120015-EI | Florida Office of Public Counsel | Capital structure |
| 2012 | South Carolina Electric & Gas | SC | 2012-218-E | South Carolina Energy Users Committee | Accounting, cost of service, rate design, ROE, capital structure |
| 2013 | Progress Energy Carolinas | NC | E-2, Sub 1023 | Carolina Utility Customers Assoc. | Accounting, cost of service, rate design, ROE, capital structure |
| 2013 | Duke Energy Carolinas | NC | E-7, Sub 1026 | Carolina Utility Customers Assoc. | Rate design |
| 2013 | Jersey Central Power & Light | NJ | BPU ER12111052 | Gerdau Ameristeel | Return on equity, capital structure |
| 2013 | Duke Energy Carolinas | SC | 2013-59-E | South Carolina Energy Users Committee | Accounting, cost of service, rate design, ROE, capital structure |
| 2013 | Tampa Electric | FL | 130040-EI | Florida Office of Public Counsel | Capital structure and financial integrity |
| 2013 | Piedmont Natural Gas | NC | G-9, Sub 631 | Carolina Utility Customers Assoc. | Accounting, cost of service, rate design, ROE, capital structure |
| 2014 | Dominion Virginia Power | VA | PUE-2014-00033 | Mead Westvaco | Recoverable fuel costs, hedging strategies |
| 2014 | Public Service Company of Colorado | CO | 14AL-0660E | Colorado Healthcare Electric Coordinating Council | Return on equity, capital structure |
| 2015 | WEC Acquisition of Integrys | WI | 9400-YO-100 | Staff of Wisconsin Public Service Commission | Merger analysis |
| 2015 | Dominion Virginia Power | VA | PUE-2015-00027 | Federal Executive Agencies | Return on equity |
| 2015 | South Carolina Electric & Gas | SC | 2015-103-E | South Carolina Energy Users Committee | Return on equity |
| 2015 | Western Carolina University | NC | E-35, Sub 45 | Western Carolina University | Accounting, cost of service, rate design, ROE, capital structure |
| 2016 | Sandpiper Energy | MD | 9410 | Maryland Office of People's Counsel | Return on equity, capital structure |
| 2016 | Washington Gas Light | DC | FC 1137 | Washington, DC Office of People's Counsel | Return on equity, capital structure |

# Regulatory Cases of Kevin W. O'Donnell, CFA
## Nova Energy Consultants, Inc.

| Year | Name of Applicant | State Jusrisdiction | Docket No. | Client/ Employer | Case Issues |
|---|---|---|---|---|---|
| 2016 | Florida Power & Light | FL | 160021-EI | Florida Office of Public Counsel | Capital Structure |
| 2016 | Jersey Central Power & Light | NJ | EM15060733 | NJ Division of Rate Counsel | Asset valuation |
| 2016 | Rockland Electric Company | NJ | ER16050428 | NJ Division of Rate Counsel | Rate design |
| 2016 | Dominon NC Power | NC | E-22, Sub 532 | Carolina Utility Customers Assoc. | Accounting, cost of service, rate design, ROE, capital structure |
| 2017 | Potomac Electric Power | DC | FC 1139 | Healthcare Council of the National Capitol Area (HCNCA) | ROE and capital structure |
| 2017 | Columbia Gas of Maryland | MD | FC 9447 | Maryland Office of People's Counsel | ROE and capital structure |
| 2017 | Washington Gas Light | DC | FC 1142 | Washington, DC Office of People's Counsel | Merger analysis |
| 2017 | Duke Energy Progress | NC | E-2, Sub 1142 | Carolina Utility Customers Assoc. | Accounting, cost of service, rate design, ROE, capital structure |
| 2018 | Public Service Electric & Gas | NJ | GR17070776 | NJ Division of Rate Counsel | ROE and capital structure |
| 2018 | Duke Energy Carolinas | NC | E-7, Sub 1146 | Carolina Utility Customers Assoc. | Accounting, cost of service, rate design, ROE, capital structure |
| 2018 | Elkton Gas/SJI | MD | FC 9475 | Maryland Office of People's Counsel | Merger analysis |
| 2018 | Entergy Texas | TX | PUC 48371 | Public Utilities Commission of Texas | ROE |
| 2018 | Duke Energy Carolinas | SC | 2018-3-E | South Carolina Energy Users Committee | Fuel case |
| 2018 | Elkton Gas Company | MD | FC 9488 | Maryland Office of People's Counsel | Accounting, ROE, capital structure |
| 2018 | Baltimore Gas & Electric | MD | FC9484 | Maryland Office of People's Counsel | ROE, capital structure |
| 2018 | South Carolina Electric & Gas | SC | 2017-370-E | South Carolina Energy Users Committee | Creditworthiness issue |
| 2018 | Jersey Central Power & Light | NJ | EO18070728 | NJ Division of Rate Counsel | ROE and capital structure |

# Appendix B

# State Reviews

Source for all information: snl.com

Alaska – only commodity recovery

Alabama – Al Power has a certificated new plant adjustment for capital and op costs

Arizona – econ dev clauses, DSM, fuel, purchased power, public purpose, transmission flow-through

Arkansas – storm recovery, fuel/PP, transmission cost

California – purchase power, weather, conservation, tied to customer count

Colorado – fuel/PP, transmission rider, gen. rider for BHCE

Connecticut – transmission flow-through, conservation, PP

District of Columbia – in 2012, PEOPCO requested a Reliability Investment Recovery Mechanism (RIM), which the Commission rejected. Legislation in 2014 allowed for a surcharge for securitization of underground facilities.

Florida – fuel

Georgia – fuel and BLRA

Hawaii – fuel/PP, load mgmt.

Idaho – electric power cost adjustment, including fixed costs

New Jersey – storm hardening rider

North Carolina – fuel/PP, GRIM failed in leg. And at NCUC.

Illinois – fuel/PP, EE, RTO, bad debt, taxes, zero emissions

Indiana – fuel/PP, enviro/infrastructure upgrades federally mandated, transmission recovery of RTO, EE, gen, trans/dist costs are recovered in TPSIC charge

Iowa – generation, fuel, DSM

Kansas – fuel, EE, transmission

Kentucky – fuel/PP, EE, enviro cost, retirement of plant, taxes and franchise fees

Louisiana – fuel/PP, one time gen charge, enviro, EE

New Orleans – fuel/PP, rate formula, conservation, EE, ISO rider

Maine – noted the transmission or risk section for rate adj. mechanism to ROE

Maryland – grid resiliency charge adopted in 2013 that is now expired for all electrics. PEPCO request for a GRC was denied in 2016. Delmarva was denied in 2017. BGE now expired. Pot Edison request now ongoing.

Massachusetts – fuel/PP, solar, FG&E has a $5.7 million (1% of revenue) for distribution investment. Mas Electric also has a capital cost adjustment mechanism (CCAM) for dist that is capped at 1% of revenue

Michigan – fuel/commodity

Minnesota – fuel, weather norm, transmission, conservation, renewable energy, emissions

Mississippi – fuel/PP, storm damage rider

Missouri – fuel/PP, enviro, renewable energy

Montana – fuel/PP

Nebraska – franchise fees

Nevada – fuel/PP, EE

New Hampshire – reliability enhancement and vegetation mgmt. programs.

New Mexico – underground distribution rider for PSNM for Rio Rancho and Albequerqe

New York – fuel/PP, REPS

North Dakota – fuel/PP, cash for CWIP on trans. And MISO costs

Ohio – rider for distribution no on rate base.

Oklahoma – rider for transmission approved by FERC. Up until Nov. 16, PS of OK had a rider for grid resiliency costs

Oregon – fuel/PP

Pennsylvania – long-term infrastructure investment plans for inbetween rate cases, trans rider.

Rhode Island – 2016 leg. Allowed PSC to change the ROE for approval of ratemaking mechanisms. Generic infrastructure program is annual rate change for inspection, maint., and vegetation mgmt.. program

South Carolina – fuel

South Dakota – transmission is an annual adj.

Tennessee – fuel/PP

Texas – periodic distribution recovery factors limited to once per year and no more than 4 between rate cases.

Utah – fuel/PP, DSM

Vermont – power cost adj.

Virginia – recovery of line replacements of 69 kV or less capped at 5% of dist rate base.. VEPCO Rider U, phase 2 for $175 million per year to move lines underground. SCC approved a scaled down version. READ SCC ORDER – DEC. 16 FILING OF RIDER U

Washington – fuel/PP

West Virginia – trans, fuel/PP, enviro

Wisconsin – fuel/PP

Wyoming – fuel/PP

# PSE&G Energy Strong II
# Docket Nos. EO18060629/GO18060630
## DCF Summary

| Company | DCF Results | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 13 Wk. Avg. Dividend Yield | 4 Wk. Avg. Dividend Yield | Current Dividend Yield | Value Line | | | | | | | | | Plowback Growth Rate | CFRA Forecasted EPS | Schwab Forecasted EPS |
| | | | | 10 Year | | | 5 Year | | | Forecasted | | | | | |
| | | | | EPS | DPS | BPS | EPS | DPS | BPS | EPS | DPS | BPS | | | |
| Alliant Energy Corp | 3.1% | 3.1% | 3.2% | 5.0% | 7.5% | 4.0% | 6.5% | 6.5% | 4.5% | 6.5% | 6.0% | 5.0% | 4.0% | 7.0% | 7.3% |
| Ameren Corp | 2.9% | 2.9% | 3.0% | -1.0% | -4.0% | -1.0% | 0.5% | 2.0% | -1.0% | 7.5% | 5.5% | 4.5% | 4.4% | 7.0% | 7.7% |
| Avista Corp | 3.2% | 3.6% | 3.6% | 7.0% | 9.0% | 4.0% | 5.0% | 5.0% | 4.5% | 5.5% | 4.0% | 3.0% | 2.1% | NA | NA |
| Black Hills Corp | 3.2% | 3.2% | 3.2% | 2.5% | 2.5% | 2.5% | 14.0% | 3.0% | 1.5% | 6.5% | 6.0% | 6.0% | 4.3% | 15.0% | 3.6% |
| CMS Energy Corp | 3.0% | 3.1% | 3.1% | 10.0% | NA | 4.0% | 7.0% | 8.5% | 5.0% | 7.0% | 7.0% | 7.0% | 5.4% | 7.0% | 6.9% |
| Consolidated Edison Inc | 3.8% | 3.8% | 3.9% | 2.5% | 1.5% | 4.0% | 2.0% | 2.0% | 3.5% | 3.0% | 3.5% | 3.5% | 2.8% | 3.0% | 2.9% |
| Dominion Resources Inc | 5.0% | 5.0% | 5.1% | 5.5% | 7.5% | 3.5% | 4.0% | 7.5% | 4.0% | 6.5% | 7.0% | 8.0% | 2.1% | 7.0% | 5.7% |
| DTE Energy Co | 3.3% | 3.4% | 3.5% | 6.0% | 4.0% | 4.0% | 6.0% | 6.0% | 4.0% | 7.5% | 6.5% | 5.5% | 4.4% | 4.0% | 4.2% |
| Duke Energy Corp | 4.4% | 4.4% | 4.4% | 2.5% | 10.0% | 0.5% | 0.5% | 2.5% | 2.0% | 5.5% | 4.0% | 2.0% | 1.7% | 5.0% | 4.4% |
| Entergy Corp | 4.3% | 4.3% | 4.3% | 1.5% | 4.0% | 2.0% | -2.5% | 1.0% | -1.0% | 1.0% | 2.0% | 3.0% | 3.8% | NM | -3.7% |
| Exelon Corp | 3.2% | 3.2% | 5.0% | -4.0% | -3.0% | 7.0% | -5.5% | -9.5% | 5.5% | 7.5% | 5.0% | 5.5% | 4.3% | 2.0% | 3.1% |
| Fortis | 4.1% | 4.0% | 4.0% | 5.5% | 8.5% | 8.5% | 6.0% | 6.0% | 9.0% | 9.0% | 6.0% | 5.0% | 8.3% | NA | NA |
| MGE Energy Inc | 2.1% | 2.2% | 2.3% | 6.0% | 2.5% | 6.0% | 6.0% | 3.5% | 6.0% | 7.5% | 5.0% | 9.5% | 4.7% | NA | NA |
| Sempra Energy | 3.3% | 3.4% | 3.5% | 1.5% | 9.5% | 6.0% | 2.0% | 9.0% | 4.5% | 9.5% | 8.5% | 5.0% | 3.8% | 10.0% | 7.6% |
| Southern Co (The) | 5.4% | 5.5% | 5.6% | 3.0% | 4.0% | 4.5% | 3.0% | 3.5% | 3.5% | 3.5% | 3.0% | 3.0% | 3.0% | 1.0% | 2.7% |
| Xcel Energy Inc | 3.2% | 3.2% | 3.2% | 5.5% | 4.5% | 4.5% | 5.0% | 5.5% | 4.5% | 5.5% | 5.5% | 4.5% | 4.0% | 6.0% | 6.6% |
| Average | 3.6% | 3.6% | 3.8% | 3.7% | 4.5% | 4.0% | 3.7% | 3.9% | 3.8% | 6.2% | 5.3% | 5.0% | 3.9% | 6.2% | 4.5% |
| Public Service Enterprise Group Inc | 3.5% | 3.6% | 3.6% | 3.5% | 3.5% | 7.0% | 1.0% | 3.5% | 5.5% | 4.5% | 5.0% | 4.5% | 4.5% | 6.0% | 7.2% |

Source: The Value Line Investment Survey, Dec. 14, 2018, Jan. 25, 2019, and Feb. 15, 2019

Exhibit KWO-1

# PSE&G Energy Strong II
# Docket Nos. EO18060629/GO18060630
## Plowback Analysis

| Company | % Retained to Common Equity | | | | |
|---|---|---|---|---|---|
| | 2017 | 2018E | 2019E | 2022E/2024E | Average |
| | | | Value Line Note 4 | | |
| ALLETE Inc | 2.4% | 2.5% | 3.0% | 3.0% | **2.7%** |
| Ameren Corp | 3.4% | 5.0% | 4.5% | 4.5% | **4.4%** |
| Avista Corp | 1.9% | 1.5% | 2.0% | 3.0% | **2.1%** |
| Black Hills Corp | 5.3% | 4.0% | 4.0% | 4.0% | **4.3%** |
| CMS Energy Corp | 5.2% | 5.5% | 5.5% | 5.5% | **5.4%** |
| Consolidated Edison Inc | 3.0% | 3.5% | 2.0% | 2.5% | **2.8%** |
| Dominion Resources Inc | 1.8% | NMF | 2.5% | 2.0% | **2.1%** |
| DTE Energy Co | 4.6% | 4.5% | 4.0% | 4.5% | **4.4%** |
| Duke Energy Corp | 1.2% | 1.5% | 2.0% | 2.0% | **1.7%** |
| Entergy Corp | 3.9% | 3.0% | NIL | 4.5% | **3.8%** |
| Exelon Corp | 4.7% | 2.0% | 5.0% | 5.5% | **4.3%** |
| Fortis | 8.3% | 8.0% | 8.0% | 9.0% | **8.3%** |
| MGE Energy Inc | 4.2% | 4.5% | 5.0% | 5.0% | **4.7%** |
| Sempra Energy | 3.3% | 3.5% | 4.0% | 4.5% | **3.8%** |
| Southern Co (The) | 3.9% | 2.0% | 2.5% | 3.5% | **3.0%** |
| Xcel Energy Inc | 3.9% | 4.0% | 4.0% | 4.0% | **4.0%** |
| | | | | Average | **3.9%** |
| Public Service Enterprise Group Inc | 4.1% | 4.5% | 4.5% | 5.0% | **4.5%** |

Source: The Value Line Investment Survey, Dec. 14, 2018, Jan. 25, 2019, and Feb. 15, 2019

# PSE&G Energy Strong II
# Docket Nos. EO18060629/GO18060630
## Comparable Earnings

| Company | % Return on Common Equity | | | |
|---|---|---|---|---|
| | 2017 | 2018E | 2019E | 2022E/2024E |
| Alliant Energy Corp | 10.9% | 10.5% | 10.5% | 10.5% |
| Ameren Corp | 9.4% | 11.0% | 10.0% | 10.5% |
| Avista Corp | 7.3% | 7.0% | 7.5% | 8.5% |
| Black Hills Corp | 10.9% | 9.0% | 9.5% | 10.0% |
| CMS Energy Corp | 13.7% | 14.0% | 14.0% | 14.0% |
| Consolidated Edison Inc | 8.2% | 9.0% | 7.5% | 8.5% |
| Dominion Resources Inc | 13.1% | 11.0% | 12.0% | 13.0% |
| DTE Energy Co | 10.8% | 11.0% | 10.0% | 11.0% |
| Duke Energy Corp | 7.1% | 7.0% | 8.0% | 8.5% |
| Entergy Corp | 11.7% | 10.5% | 7.5% | 11.0% |
| Exelon Corp | 8.8% | 6.5% | 9.5% | 9.5% |
| Fortis | 8.3% | 8.0% | 8.0% | 9.0% |
| MGE Energy Inc | 9.8% | 10.5% | 10.5% | 9.0% |
| Sempra Energy | 9.2% | 9.5% | 10.5% | 12.0% |
| Southern Co (The) | 13.4% | 12.0% | 12.0% | 13.0% |
| Xcel Energy Inc | 10.2% | 10.5% | 10.5% | 10.5% |
| Average | 10.2% | 9.8% | 9.8% | 10.5% |
| Public Service Enterprise Group Inc | 10.3% | 10.5% | 11.0% | 11.5% |

Source: The Value Line Investment Survey, Dec. 14, 2018, Jan. 25, 2019, and Feb. 15, 2019

# CAPM Results

**Comparable Group**

| | Risk Premium Using 4% | | | |
|---|---|---|---|---|
| | **Risk-Free Rate** | **Beta** | **Equity Risk Premium** | **Equity Cost Rate** |
| | col. 1 | col. 2 | col. 3 | col.1+(col. 2 * col.3) |
| Treasury - Maximum | 3.46% | 0.59 | 4.0% | 5.8% |
| Treasury - Average | 3.12% | 0.59 | 4.0% | 5.5% |
| Treasury - Minimum | 2.92% | 0.59 | 4.0% | 5.3% |

| | Risk Premium Using 6% | | | |
|---|---|---|---|---|
| | **Risk-Free Rate** | **Beta** | **Equity Risk Premium** | **Equity Cost Rate** |
| | col. 1 | col. 2 | col. 3 | col.1+(col. 2 * col.3) |
| Treasury - Maximum | 3.46% | 0.59 | 6.0% | 7.0% |
| Treasury - Average | 3.12% | 0.59 | 6.0% | 6.6% |
| Treasury - Minimum | 2.92% | 0.59 | 6.0% | 6.4% |

**PSEG Enterprises**

| | Risk Premium Using 4% | | | |
|---|---|---|---|---|
| | **Risk-Free Rate** | **Beta** | **Equity Risk Premium** | **Equity Cost Rate** |
| | col. 1 | col. 2 | col. 3 | col.1+(col. 2 * col.3) |
| Treasury - Maximum | 3.46% | 0.65 | 4.0% | 6.1% |
| Treasury - Average | 3.12% | 0.65 | 4.0% | 5.7% |
| Treasury - Minimum | 2.92% | 0.65 | 4.0% | 5.5% |

| | Risk Premium Using 6% | | | |
|---|---|---|---|---|
| | **Risk-Free Rate** | **Beta** | **Equity Risk Premium** | **Equity Cost Rate** |
| | col. 1 | col. 2 | col. 3 | col.1+(col. 2 * col.3) |
| Treasury - Maximum | 3.46% | 0.65 | 6.0% | 7.4% |
| Treasury - Average | 3.12% | 0.65 | 6.0% | 7.0% |
| Treasury - Minimum | 2.92% | 0.65 | 6.0% | 6.8% |