STATE OF NEW JERSEY
OFFICE OF ADMINISTRATIVE LAW
BEFORE THE HONORABLE IRENE JONES

IN THE MATTER OF THE VERIFIED PETITION OF ROCKLAND ELECTRIC COMPANY FOR APPROVAL OF CHANGES IN ELECTRIC RATES, ITS TARIFF FOR ELECTRIC SERVICE, AND ITS DEPRECIATION RATES, AND FOR OTHER RELIEF	**)))))))**	**BPU DOCKET NO. ER19050552** **OAL DOCKET NO. PUC07548-2019**

DIRECT TESTIMONY OF
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ON BEHALF OF THE
DIVISION OF RATE COUNSEL

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I. QUALIFICATIONS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Matthew I. Kahal. I am employed as an independent consultant retained in this matter by the Division of Rate Counsel (Rate Counsel). My business address is 1108 Pheasant Crossing, Charlottesville, Virginia 22901.

Q. PLEASE STATE YOUR EDUCATIONAL BACKGROUND.

A. I hold B.A. and M.A. degrees in economics from the University of Maryland and have completed course work and examination requirements for the Ph.D. degree in economics. My areas of academic concentration included industrial organization, economic development and econometrics.

Q. WHAT IS YOUR PROFESSIONAL BACKGROUND?

A. I have been employed in the area of energy, utility and telecommunications consulting for the past 35 years working on a wide range of topics. Most of my work has focused on electric utility integrated planning, plant licensing, environmental issues, mergers and financial issues. I was a co-founder of Exeter Associates, and from 1981 to 2001 I was employed at Exeter Associates as a Senior Economist and Principal. During that time, I took the lead role at Exeter in performing cost of capital and financial studies. In recent years, the focus of much of my professional work has shifted to electric utility markets, power procurement and industry restructuring.

Prior to entering consulting, I served on the Economics Department faculties at the University of Maryland (College Park) and Montgomery College teaching courses on economic principles, development economics and business.

A complete description of my professional background is provided in Appendix A.

Q. HAVE YOU PREVIOUSLY TESTIFIED AS AN EXPERT WITNESS BEFORE UTILITY REGULATORY COMMISSIONS?

A. Yes. I have testified before approximately two-dozen state and federal utility commissions, federal courts and the U.S. Congress in more than 430 separate regulatory cases. My testimony has addressed a variety of subjects including fair rate of return, resource planning, financial assessments, load forecasting, competitive restructuring, rate design, purchased power contracts, merger economics and other regulatory policy issues. These cases have involved electric, gas, water and telephone utilities. A list of these cases is set forth in Appendix A, with my statement of qualifications.

Q. WHAT PROFESSIONAL ACTIVITIES HAVE YOU ENGAGED IN SINCE LEAVING EXETER AS A PRINCIPAL IN 2001?

A. Since 2001, I have worked on a variety of consulting assignments pertaining to electric restructuring, purchase power contracts, environmental controls, cost of capital and other regulatory issues. Current and recent clients include the U.S. Department of Justice, U.S. Air Force, U.S. Department of Energy, Connecticut Attorney General, Pennsylvania Office of Consumer Advocate, New Jersey Division of Rate Counsel, Rhode Island Division of Public Utilities, Louisiana Public Service Commission, Arkansas Public Service Commission, New Hampshire Consumer Advocate, the Maryland Public Service Commission, the Maine Public Advocate, Maryland Department of Natural Resources and Energy Administration, the New Mexico Attorney General, the Ohio Consumers' Counsel and the California Public Utilities Commission.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE NEW JERSEY BOARD OF PUBLIC UTILITIES?

A. Yes. I have testified on cost of capital and other matters before the Board of Public Utilities (Board or BPU) in gas, water and electric cases (both rate cases and merger-approval cases) during the past 25 years. A listing of those cases is provided in my attached Statement of Qualifications. This includes the submission of testimony on rate of return issues in the electric and gas service rate cases of New Jersey Natural Gas Company (BPU Docket No. GR07110889), Elizabethtown Gas (BPU Docket No. GR09030195), Jersey Central Power and Light Company (BPU Docket No. ER12111052), Public Service Electric and Gas Company (BPU Docket Nos. GR05100845, GR09050422, E013020155, ER18010029 and GR18010030), and United Water New Jersey, Inc. (BPU Docket No. WR09120987). I participated in Atlantic City Electric Company rate cases on rate of return issues, including submitting testimony in BPU Docket Nos. ER09080664, ER11080469 and ER17030308. In all of these cases, my testimony and other work was on behalf of the Division of Rate Counsel ("Rate Counsel").

Q. ARE YOU FAMILIAR WITH ROCKLAND ELECTRIC COMPANY ("RECO" OR "COMPANY")?

A. Yes. I submitted testimony in RECO's base rate cases in 2009 and 2013, and I served as Rate Counsel's consultant in the 2016 rate case, all of which cases were resolved in Board-approved settlements. (BPU Docket Nos. ER09080668, ER130111135 and ER16050428) My testimony and other assistance to Rate Counsel addressed the subject of fair rate of return for all of these cases.

II. OVERVIEW

A. Summary of Recommendation

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

A. I have been asked by the Division of Rate Counsel ("Rate Counsel") to develop a recommendation concerning the fair rate of return on the electric distribution utility rate base of Rockland Electric Company ("RECO" or "the Company"). This includes both a review of the Company's proposal concerning rate of return and the preparation of an independent study of the cost of common equity. I am providing my recommendation to Rate Counsel consultant Andrea Crane Cotton for use in calculating the test year annual revenue requirement in this case.

RECO is not an independent company, nor is it publically traded. It is wholly-owned by Orange and Rockland Utilities, Inc. ("O&R") which, in turn, is owned by Consolidated Edison, Inc., ("Con Ed"), one of the nation's largest delivery service ("wires and pipes") utilities.

Q. WHAT IS THE COMPANY'S RATE OF RETURN PROPOSAL IN THIS CASE?

A. The Company's overall rate of return, capital structure and debt costs are sponsored by RECO witness Saegusa. The Company's filed case requests a return on jurisdictional rate base of 7.51 percent, as shown on Table 1 below. This is based on the projected and adjusted actual capital structure of consolidated O&R at September 30, 2019, based on the Company's recently filed 9 + 3 update. (Exhibit P-4, Schedule 2, 9 + 3 update.)

Table 1.
RECO Proposed Rate of Return – at September 30, 2019

Capital Type	% Total	Cost Rate	Weighted Cost
Long-Term Debt	50.96%	5.13%	2.61%
Short-Term Debt	0.00	--	0.00
Common Equity	49.04	10.00	4.90
Total	100%	--	7.51%

The 10.0 percent return on equity ("ROE") request is supported by RECO's outside consultant, Dr. James Vander Weide. Dr. Vander Weide actually estimates a cost of equity that he asserts to be appropriate for RECO of 10.4 percent, but the Company has limited its request to a lower figure of 10.0 percent, "in order to minimize the contested issues in this proceeding and to facilitate a settlement"[1]. The capital structure and embedded cost of long-term debt are based on the projected capital structure and cost of debt of the consolidated O&R (with certain adjustments) at September 30, 2019. The requested rate of return includes a 5.13 percent embedded cost of long-term debt and does not include any short-term debt.

Q. HOW DOES THE COMPANY'S RETURN ON EQUITY REQUEST OF 10.0 PERCENT COMPARE TO RECO'S CURRENTLY-AUTHORIZED RATE OF RETURN?

A. RECO's currently-authorized rate of return on equity ("ROE") is 9.60 percent and was set by a Board-approved settlement agreement in the 2016 rate case in Docket No. ER16050428. Thus, the Company in this case is requesting an ROE increase of 0.40 percent (40 basis points) compared to its currently authorized return. Dr. Vander

[1] Testimony of Yukari Saegusa, pages 4-5.

Weide's recommendation, based on his testimony studies, is 0.80 percent above the currently-authorized ROE.

As my testimony explains, the market cost of equity for high quality utilities (such as RECO and O&R) does not support a cost of equity finding of 10.0 percent or 10.4 percent. In fact, even the currently-authorized return of 9.60 percent is well above the utility cost of equity.

Q. WHAT IS YOUR RATE OF RETURN RECOMMENDATION AT THIS TIME?

A. As summarized on page one of Schedule MIK-1, I am recommending a provisional authorized overall rate of return of 6.79 percent. It is provisional because final and actual capitalization and debt cost data at September 30, 2019 are not yet available and presumably will be provided by the Company in its 12 + 0 update. At this time, my overall rate of return recommendation includes a return on common equity of 8.90 percent, and a capital structure of 52.86 percent long-term debt, no short-term debt and 47.14 percent common equity. My provisional cost of long-term debt at this time is 4.90 percent compared to the Company's provisional value of 5.13 percent, and my capital structure includes somewhat more debt than that of the Company. The largest difference is that my ROE recommendation is about a percentage point lower than the Company's request.

Q. DO YOU ACCEPT RECO'S GENERAL APPROACH TO CAPITAL STRUCTURE?

A. To a large degree, I do agree with the Company's general approach. Under the circumstances, it is reasonable to use the O&R consolidated capitalization for setting the ratemaking capital structure, and this is consistent with past practice for RECO, and has been accepted by the Board. As a practical matter, O&R serves as both the source of debt and equity capital for RECO.

I note that the Company has excluded short-term debt from its ratemaking capital structure even though it has on some occasions included it in the past. It has excluded all of that debt in this case because the short-term debt is directly assigned to construction work in progress ("CWIP") for purposes of calculating its Allowance for Funds Used During Construction ("AFUDC") rate. In this case, it is excluded because for the test year the CWIP average balances exceed the short-term debt average balance. Based on data provided by the Company (response to RCR ROR-14), I have confirmed this assertion, and this treatment is correct. Thus, I have no objection in this case to the short-term debt exclusion.

Q. WHAT IS THE BASIS OF YOUR 8.90 PERCENT RECOMMENDATION FOR THE RETURN ON EQUITY?

A. I am relying primarily upon the standard discounted cash flow ("DCF") model applied to Dr. Vander Weide's industry-wide group of electric utility proxy companies. This is conservative because the industry-wide group is likely to be somewhat riskier and therefore has a higher cost of capital than O&R/RECO, which is an exceedingly low-risk delivery service electric utility with no generation or merchant plant risk. My DCF study uses market data from the six months ending August 2019, obtaining a range of 8.4 to 8.9 percent, inclusive of a 0.1 percent flotation expense adder. My recommendation of 8.9 percent slightly exceeds the midpoint of my DCF results and reasonably reflects this range of evidence. In addition, I have confirmed my DCF results and ROE recommendation using the Capital Asset Pricing Model ("CAPM") as a check. While the CAPM tends to produce a very wide range of cost of equity results, in my opinion, a reasonable application of this methodology using current market data provides estimates in approximately the 5.7 to 8.1 percent range when a reasonable range of data inputs is used. The CAPM midpoint of this range is about 7.0 percent. As my testimony explains, the CAPM currently produces cost of equity results that are somewhat lower than in past cases and should not be given as much weight as the DCF studies in establishing the Company's authorized ROE.

Dr. Vander Weide employs variants of both the DCF and CAPM, along with what he characterizes as a "comparable earnings" ("CE") analysis, a method that does not even attempt to measure either the market cost of equity or investor return requirements. Finally, he references "Risk Premium" ("RP") evidence but only as a check on his three primary methods. In my opinion, his CAPM and DCF studies significantly overstate the cost of equity for both electric utilities generally and even more so for RECO. My testimony identifies the reasons for the over estimates of the cost of equity.

Q. DO YOU INCLUDE AN ADJUSTMENT FOR FLOTATION EXPENSE ASSOCIATED WITH COMMON STOCK ISSUANCE?

A. Yes. While neither RECO nor O&R directly incur flotation expense (since neither company is publicly traded and cannot issue common stock to the public), such expenses have and will be incurred by ultimate parent Con Ed, which serves as the source of equity for its corporate subsidiaries. It is therefore proper that RECO customers be allocated its proportionate share of these expenses. I have determined that this would support an adder of about 0.1 percent to the ROE. Witness Vander Weide incorporates a somewhat higher adder which appears to be about 0.2 percent. However, that higher figure appears to be a generic estimate and not specific to Con Ed's actually incurred expense of stock issuance. Thus, while Dr. Vander Weide and

I concur that an adder for flotation expense is proper, I believe that his proposed adder is too high.

Q. DO YOU CONSIDER RECO'S ELECTRIC DISTRIBUTION UTILITY BUSINESS TO HAVE FAVORABLE RISK CHARACTERISTICS?

A. Yes, very much so. RECO provides monopoly electric distribution utility service in its New Jersey service territory, subject to the regulatory oversight of this Board. I believe that RECO's utility business risk profile in New Jersey benefits from the Board's regulatory framework. The credit rating reports (discussed briefly in Section III B of my testimony) make clear that RECO (and its direct parent O&R) are financially strong and very low risk. Moreover, as discussed below, RECO at present operates in a very low capital cost environment, as described below.

B. <u>Capital Cost Trends</u>

Q. HAVE YOU EXAMINED GENERAL TRENDS IN CAPITAL COSTS IN RECENT YEARS?

A. Yes. I show the capital cost trends since 2002, through the calendar year 2018, on page one of Schedule MIK-1. Pages 2 through 8 of that schedule show monthly data for January 2007 through August 2019. The indicators provided include the annualized inflation rate (as measured by the Consumer Price Index), 10-year Treasury yields, 3- month Treasury bill yields and Moody's single A and triple B yields on long-term utility bonds. While there is some year-to-year fluctuation, these data series show a general declining trend in capital costs over the past decade. For example, in the very early part of this more than 10-year period, utility bond yields averaged about 7 to 8 percent, with 10-year Treasury yields of 4 to 5 percent. By 2016, single A utility bond yields had fallen to an average of 3.9 percent, with 10-year Treasury yields declining to an average of 1.8 percent. During 2017 and 2018, capital costs remained very low by historical standards but moved up somewhat compared to the historic lows of 2016. Notably, in 2018, 10-year Treasury and single A averaged about 2.9 percent and 4.3 percent, respectively. Inflation (as measured by the CPI increased from 1.3 percent in 2016 to 2.5 percent in 2018.

As shown on page 1 of Schedule MIK-2, during 2009 – 2015, short-term Treasury rates were close to zero, with three-month Treasury bills averaging about 0.1 percent. These extraordinarily low rates (which were also reflected in non-Treasury debt instruments) were the result of an intentional policy of the Federal Reserve Board of Governors ("the Fed") to make liquidity available to the U.S. economy and to promote economic recovery from the financial crisis and deep recession of 2009.[2]

The Fed has also sought to exert downward pressure on long-term interest rates through its ongoing policy of "quantitative easing," although that program effectively ended in 2015. This is a policy whereby the Fed engages on an ongoing basis in the purchase of financial assets (such as Treasury bonds or agency mortgage-backed debt), both to support the market prices of financial assets and to increase the U.S. money supply. The intent of quantitative easing is to support economic recovery by keeping the cost of capital low and provide credit expansion. The policies of near zero interest rates and quantitative easing were ended by the Fed due to the post 2015 strengthening of labor markets and the U.S. economy and judged no longer to be needed.

Q. HAS THE FED ISSUED ANY MORE RECENT INFORMATION ON ITS POLICY INTENT?

[2] By law, the Fed has a "dual mandate" to pursue policies both to ensure price stability (i.e., low inflation) and to promote full employment.

A. Yes, it has. Due to positive progress in strengthening labor markets (with the U.S. unemployment rate falling to below 4 percent), real economic growth accelerating, and inflation moving up to the Fed's 2 percent symmetric target range, the Fed has moved away from its near zero interest rates to a broad policy of monetary "normalization". This began after 2015 and continued through 2018, with several interest rate increases and the unwinding of quantitative easing occurring last year. Note that in 2018 short-term Treasury rates moved up from near zero in 2016 to about 2 percent in 2018. It was expected that the normalization and further Fed interest rates would continue into 2018. But this has not happened. During 2019, economic growth has slowed, fears of a potential U.S. and global recession have arisen, and inflation has remained below the Fed's 2 percent target. In response, instead of increasing interest rates in 2019 as expected, the Fed has decided to reduce short-term rates on two occasions in response to this perceived economic weakness.[3] The Fed lowered the federal funds rate to a range of 1.75 to 2.0 percent. There may be further interest rate decreases later this year and in 2020 in response to these concerns.

Q. ARE THERE FORCES CONTRIBUTING TO LOW INTEREST RATES OTHER THAN FED POLICY?

A. Yes. While the decline in short-term rates prior to 2018 is largely attributable to Fed policy decisions, the behavior of long-term rates reflects more fundamental economic forces. Factors that determine long-term bond interest rates include the ongoing strength or weakness of the U.S. and global macro economy, the inflation outlook and even international events. A weak or only moderately growing economy exerts downward pressure on long-term rates and capital costs in general because the

[3] The most recent rate cut was announced after the Fed's Federal Open Market Committee meeting of September 18, 2019. This is described in the press release following that meeting. See www.federalreserve.gov/newevents/pressreleases/monetary20190918a.htm.

demand for investment capital is low and inflationary pressures are not present. This is the case today and is expected to continue at least in the near term. While inflation can fluctuate from month to month, inflation and long-term inflationary expectations remain subdued – at or below the Fed's 2 percent target rate. Another very important factor contributing to the 2019 very low capital costs is global financial conditions. After all, capital markets are global in nature, and financial capital is attracted to where it can receive its highest returns. With sluggish economic conditions overseas and near zero or even negative long-term interest rates in such large economies as Japan and Germany, this tends to hold down U.S. long-term interest rates, at least for low-risk assets such as U.S. Treasuries and utility securities.

Quite simply, there is a massive amount of surplus savings or funds worldwide seeking and competing for returns, and in 2019 this has caused long-term interest rates to move down toward historic lows. As of this writing in mid September 2019, 30-year U.S. Treasury yields have been about 2 percent and single A utility bond yields have fallen below 4 percent. I show the 2019 month-by-month trend in interest rates through August on page 8 of Schedule MIK-2.

Q. DO LOW LONG-TERM INTEREST RATES IMPLY A LOW COST OF EQUITY FOR UTILITIES?

A. In a very general sense and over time, that is normally the case, although the utility cost of equity and cost of debt need not move together precisely in lock step or necessarily in the short run. The economic forces mentioned above (and Fed policy) that lead to lower interest rates also tend to exert downward pressure on the utility cost of equity. After all, many investors tend to view utility stocks and bonds as alternative investment vehicles for portfolio allocation purposes, and in that sense utility stocks and long-term bonds are closely related by market forces. As noted above, bond yields have moved sharply downward in 2019, making utility stocks more attractive. As a result, most utility share prices have moved upward during the course of 2019, as utility stocks are viewed as very attractive by investors, consistent with a declining cost of equity for utilities. The cost of equity capital is quite low for utilities in general and particularly for high quality, delivery service electrics such as O&R and RECO.

Q. HAVE YOU BEEN ABLE TO INCORPORATE THESE RECENT CHANGES IN FINANCIAL MARKETS INTO YOUR COST OF CAPITAL ANALYSIS IN THIS CASE?

A. Yes. Specifically, I present DCF evidence that relies on utility stock market data from the six months ending August 2019. Such market data directly incorporate the economic forces, monetary policy choices, and market behavior described above. The use of a recent six months of market data is reasonable for assessing RECO's current cost of equity capital as it reflects recent market and economic trends. In addition, my ROE recommendation is somewhat above my DCF midpoint which provides a "cushion" in the event capital costs increase in the near term.

I must note that Dr. Vander Weide's analyses reflect utility cost of equity market data (i.e., share prices and interest rates) from much earlier this year and late 2018 when capital costs were considerably higher than currently. His use of those data is, of course, merely the result of the timing of when he filed his testimony. However, he also improperly employs projected long-term interest rates that exceed even the actual prevailing rates as of the time of his testimony filing. For example, his CAPM study employs a long-term Treasury yield of 3.8 percent compared to today's actual Treasury yield of about 2 percent. If Dr. Vander Weide were to update his DCF and CAPM studies using more current and actual (instead of projected) capital market data, his ROE finding would decline significantly.

C. <u>Testimony Organization</u>

Q. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?

A. In Section III, I present my provisional capital structure and cost of debt recommendations and briefly discuss RECO's risk profile, drawing on information from credit rating reports. I present my DCF and CAPM studies in Section IV of my testimony. In Section V, I provide a review of the cost of equity studies set forth by the Company witness Vander Weide. Finally, Section VI is a brief summary of my conclusions and recommendations.

III. CAPITAL STRUCTURE AND INVESTMENT RISK

A. Ratemaking Capital Structure and Cost of Debt

Q. WHY IS IT APPROPRIATE TO USE THE O&R CONSOLIDATED CAPITAL STRUCTURE IN SETTING RECO'S AUTHORIZED RATE OF RETURN?

A. RECO does not secure its financing to fund its capital investment separate from its parent, O&R. Rather, O&R issues long-term debt and directly or indirectly serves as RECO's source of capital. This results in RECO having a stand-alone balance sheet that is primarily equity and therefore inappropriate for ratemaking purposes. The O&R consolidated balance sheet effectively incorporates RECO, but its mix of capital is typical of electric utility industry. For these reasons, it is entirely proper to use the O&R consolidated balance sheet as the basis for RECO's ratemaking capital structure.

Q. HAS THIS METHOD BEEN ACCEPTED BY THE BOARD IN PAST RECO RATE CASES?

A. Yes, that is my understanding.

Q. HOW DID THE COMPANY DEVELOP ITS PROJECTED SEPTEMBER 30, 2019 CAPITAL STRUCTURE?

A. For the 9 + 3 update, the Company began with the actual O&R June 30, 2019 capital structure (excluding short-term debt), but with two important adjustments. First, the equity associated with O&R's nonutility subsidiaries (about $21.8 million) is removed, which reduces the equity balance. Second, Other Comprehensive Income ("OCI"), which is a $8.9 million credit amount, is also removed from equity, which has the effect of modifying slightly the equity balance used for capital structure purposes. Finally, the Company estimates the changes to both O&R's long-term debt and common equity over the three-month period June 30, 2019 to September 30, 2019. The June to September projected change to common equity (i.e., due to increased retained earnings) is relatively minor, and is based on assumptions regarding O&R's earnings over those three months. The Company's 9 + 3 update also incorporates O&R's plan to issue $125 million in new long-term (presumably 30-year) debt during September 2019 at an assumed interest rate of 4.0 percent.

The Company's 9 + 3 update projected capital structure at September 30, 2019 includes 49.04 percent equity and 50.96 percent long-term debt, and the projected embedded cost of long-term debt is 5.13 percent. (Exhibit P-4, Schedule 2)

Q. DOES THE CAPITAL STRUCTURE APPROVED IN THE LAST CASE INCLUDE SHORT-TERM DEBT?

A. No, it was not included.

Q. DOES THE COMPANY PROVIDE AN EXPLANATION FOR EXCLUDING SHORT-TERM DEBT?

A. Yes. The response to RCR-ROR-14 states that the Company's average monthly balance of construction work in progress ("CWIP") that is AFUDC eligible during the test year exceeds average monthly short-term debt balances, and the (smaller) shorter-term debt balance will be directly applied ("directly assigned") to CWIP for AFUDC purposes. Since under this method all short-term debt is fully accounted for in the AFUDC rate (at least for the test year), the Company reasons that it need not be included in capital structure. The Company's response further states that if short-term debt (on average) exceeds CWIP, this "excess" amount would be reflected in capital structure. In this case, however, there is no excess that need be included in the ratemaking capital structure.

Q. DO YOU AGREE WITH THE COMPANY'S RATIONALE AND EVIDENCE ON THIS ISSUE?

A. Yes, I do. The Company's data response adequately demonstrates that AFUDC eligible CWIP exceeds short-term debt for the test year. Therefore, its inclusion in the AFUDC rate at this time would fully capture the benefit of this low-cost financing. Therefore, the Company's exclusion of short-term debt from the RECO ratemaking capital structure is fair to ratepayers. Consequently, my recommended rate of return also excludes short-term debt. This recommendation is contingent upon O&R continuing to directly assign short-term debt to the calculation of its AFUDC rate, as it does now, going forward.

Q. WHAT IS YOUR CAPITAL STRUCTURE RECOMMENDATION?

A. My Schedule MIK-1, page 1 of 2, presents my recommended capital structure of 47.14 percent common equity, 0.00 percent short-term debt and 52.86 percent long-term debt. This is based on the Company's 9+3 filing (Exhibit P-4, Schedule 2), with three important changes to the Company's capital structure proposal. First, the Company's September 30. 2019 debt balance (shown on Schedule 4 of Exhibit P-4) identifies a December 2018 long-term debt issue with an amount outstanding of $25.0 million, but only $19.8 million is reflected in the capital structure debt balance. In other words, about $5 million of this debt issue is missing and excluded from capital structure. My capital structure restores this missing $5 million amount. Second, the Company's projected capital structure includes a planned long-term debt issue of $125 million scheduled to take place in September 2019. However, the Company chose to include only $10.4 million of this debt issue in the ratemaking capital structure. My capital structure properly includes the full $125 million of debt outstanding.[4] These two adjustments add about $120 million of debt actually or assumed to be outstanding at the end of the test year that is missing from the Company's capital structure. Third, O&R has a $60 million debt issue coming due on December 1, 2019, or about 60 days after the end of the test year. Since it is reasonable to assume that the new $125 million debt issue proceeds would assist in redeeming the debt issue maturing just two months later, it is appropriate to remove this maturing debt from capital structure. Doing so benefits the Company in this case because it reduces the overall net effect of my debt balance increase from about $120 million to $60 million. I provide my calculations showing this $60 million net change to the debt balance and the capital structure ratios on page 2 of Schedule MIK-1. My changes increase the debt ratio and reduce the equity ratio compared to the Company's position by about 2 percentage points

Based on my experience in New Jersey and elsewhere, the Company's proposal to include only a portion of its 2018 and 2019 debt issue outstanding amounts is highly unusual and it is not identified or explained in Company testimony. RCR-ROR–7 inquired as to why the $120 million of missing debt outstanding was excluded from the ratemaking capital structure. The response stated that the Company chose to include only the **average** monthly amount that would be outstanding during the test year, not year end. In particular, since the $125 million debt issue is to occur in the last month of the test year (September 2019), only one-twelve of that balance or a mere $10.4 million is included in capital structure. Stated another way, the debt balance is not really end of test year (September 30, 2019 as stated) but is essentially a test year monthly average.

[4] At a September 13, 2019 discovery conference, the Company confirmed O&R's plans to complete this $125 million issuance in September, but as of this writing, I have no further information.

The Company's exclusion of this actual or projected long-term debt outstanding is highly objectionable for several reasons. First and foremost, it is simply inconsistent with the rest of the Company's case. While long-term debt is apparently a test year average, common equity is end of test year (the estimated September 30, 2019 balance.) Moreover, it is my understanding that the rate base proposed to be used in this case is the end of test year rate base, not the average monthly rate base. The purpose of both the debt and equity amounts in a utility's capital structure is presumably to finance its rate base. Hence, the methods used to determine the ratemaking debt balance (monthly average) and rate base (end of test year) are inconsistent. In addition to these glaring inconsistencies, the rate of return (inclusive of capital structure) should reflect the cost of capital going forward as measured at the end of the test year. The decision to exclude $120 million of actual long-term debt distorts the measure of the Company's (or in this case O&R's) prospective cost of capital. Third, based on my experience, this is inconsistent with rate of return practice in New Jersey for electric, gas and water utilities. The Company's exclusion of some or most of its 2018 and 2019 debt issue amounts should not be accepted, and I have corrected that error.

Q. HOW DOES YOUR PROVISIONAL CAPITAL STRUCTURE RECOMMENDATION COMPARE TO THAT OF DR. VANDER WEIDE'S PROXY GROUP?

A. My roughly 53/47 debt versus equity capital structure is fully consistent with that of Dr. Vander Weide's proxy group. Dr. Vander Weide uses a broad industry group of over 30 electric companies for purposes of his cost of capital studies, and according to the *Value Line Investment Survey*, the average equity ratio for that group (estimated for year-end 2019) is 47.7 percent. When the current maturities of long-term debt and short-term debt are included, that industry average equity ratio falls to 45.7 percent. See Schedule MIK-3 for details.

Q. ARE YOU ADOPTING THE COMPANY'S PROPOSED 5.13 PERCENT EMBEDDED COST OF LONG-TERM DEBT?

A. No. I have revised the Company's calculated 5.13 percent embedded cost of long-term debt to account for the three corrections to debt balance as described above. Specifically, I have removed the debt maturing in December 2019 which carries a 4.96 percent cost rate (very close to the Company's 5.13 percent). I add back the approximately $5 million excluded from the December 2018 debt issuance, which has a cost rate of 4.35 percent. Finally, I add back the $120 million estimated to have a cost rate of 4.0 percent. However, single A utility long-term debt issued at this time (September 2019) probably would carry a cost rate lower than 4.0 percent, a figure that was probably a reasonable estimate at the time of the preparation of the 9+3 filing. On a provisional basis, I have assumed a slightly lower 3.5 percent cost rate. This provisionally assumed cost rate should be updated to the actual when that becomes available. I show my cost of debt calculations on page 2 of Schedule MIK-1 pertaining to these three changes. The inclusion of this additional low-cost debt (and lowering the Company's assumption on new debt to a 3.5 percent cost rate), have the combined effect of lowering the September 30, 2019 embedded cost of debt to 4.90 percent. I have used this figure in my provisional weighted average cost of capital.

This correction lowers the embedded cost of debt from 5.13 percent to 4.90 percent, as shown on Schedule MIK-1, page 2 of 2.

B. <u>Discussion of RECO's Risk Profile</u>

Q. WHAT ARE THE CURRENT RECO AND O&R CREDIT RATINGS?

A. The Company has provided the credit ratings for RECO and its parent, O&R, in response to RCR-ROR-2. Ratings reports have been prepared by FitchRatings, Standard & Poor's ("S&P") and Moody's Investors Service ("Moody's"). Only issuer or corporate ratings are available for RECO since it does not issue its own debt, and the ratings agencies appear to make little or no distinction between RECO and O&R for ratings purposes.

RECO has issuer or corporate ratings of BBB+ from FitchRatings and A- from S&P, but is not currently rated by Moody's. Both FitchRatings and S&P designate this rating as "Stable". O&R's unsecured debt is rated as being A- by both S&P and FitchRatings and Baa1 by Moody's (a one notch downgrade from A3 by Moody's in October 2018). All three agencies designate the O&R ratings as "Stable". I regard these as strong and favorable ratings. As a general matter, the ratings are a reflection of the subject company's business risk profile, including regulatory risk and credit metrics, i.e., what the ratings agencies regard as the key financial ratios. While credit ratings are specifically intended to address a company's credit worthiness (i.e., risk of default on existing or new debt), it also can provide useful insight regarding business risk for equity investment evaluation purposes.

Q. HOW DO THE RECO/O&R CREDIT RATINGS COMPARE TO THOSE OF DR. VANDER WEIDE'S PROXY COMPANIES?

A. As a general matter, they are similar or stronger. Most electric utilities are rated low single A, high triple B or some combination (e.g., often low single A by one agency and high triple B by another, referred to as a split rating). O&R's unsecured debt is rated low single A by two of the three major rating agencies and high triple B by a third. By this measure, I believe that O&R (and by extension RECO) compares favorably with the electric utility industry and the industry proxy group used by Dr. Vander Weide.

Q. HAVE YOU REVIEWED RECENT CREDIT RATING REPORTS FOR O&R AND RECO?

A. Yes, I have. These reports, prepared by S&P, Moody's and FitchRatings, were provided to Rate Counsel in response to RCR-ROR-3, but unfortunately are designated as being confidential. My understanding is that such reports are available publicly from the individual credit rating agencies but only on a paid subscription basis, not because they include confidential Company data. Consequently, in my public testimony I cannot reproduce the information or analysis in those reports but will only refer to them generally. The reports provided are as of 2018 – March 23, 2018 for FitchRatings, September 21, 2018 for S&P and November 2, 2018 for Moody's. I note that the S&P report is for Consolidated Edison parent generally since S&P takes an "umbrella" approach to rating the entire consolidated corporation as a single entity, whereas FitchRatings and S&P tend to look at O&R on more of a stand-alone basis. None of the three agencies makes a significant distinction between O&R and RECO, and they recognize that RECO is only a small percentage consolidated O&R.

In describing the business risk profile of O&R, all three credit rating agencies are quite consistent. Specifically, all three find that O&R (and by extension RECO) is a very low risk utility. They recognize that the utility's electric transmission and distribution ("T&D") operations provide relatively predictable cash flows with generally supportive regulatory treatment. The credit rating reports also note that O&R is able to recover on a full and timely basis its commodity costs incurred in serving utility customers. The O&R/RECO credit profile undoubtedly benefits from the fact that they are T&D only utilities, and do not provide generation service to their utility customers from their own cost of service regulated generation assets.

Q. THE ULTIMATE PARENT OF RECO IS CON ED. CAN YOU COMMENT ON CON ED'S RISK PROFILE?

A. Yes. Con Ed is primarily a delivery service electric and gas utility although it does have some unregulated operations which are regarded as being riskier than its regulated operations. It is principally regulated by the New York Public Service Commission ("NYPSC"), and its credit ratings are quite similar to O&R and RECO. I show certain Con Ed risk indicators on Schedule MIK-3 as published by Value Line. This shows a Safety Rating of "1" (Value Line's highest rating) as compared to a proxy group average of 1.9, a Financial Strength rating of A+, which is superior to the ratings of all but about a half dozen of the proxy electric companies listed, and a beta of 0.45 (compared to a proxy group average of 0.60 indicating Con Ed is less risky than average). Taken together, this information would suggest that Con Ed, as rated by Value Line, has a better risk profile (less risky) compared to the overall industry proxy group used by myself and Dr. Vander Weide.

Q. CON ED AND O&R ARE REGULATED BY THE NYPSC. WHAT RATES OF RETURN HAVE THEY BEEN AWARDED?

A. According to responses to RCR-ROR-16 and 29, the ROEs currently authorized for both Con Ed and O&R by the NYPSC is 9.0 percent and includes a 48 percent common equity ratio. The responses note that for both utilities the ROE and capital structure determinations were part of settlements in those cases. I believe these awards are notable, notwithstanding that they are the result of comprehensive rate case settlements, because they are close to my recommendation on rate of return in this case. Moreover, as will be discussed later in Section VI, Con Ed has been very successful at this 9.0 percent rate of return in attracting capital and has experienced very favorable market valuations. Given the very favorable risk profile and capital market conditions, there seems little doubt that a ROE of 9.0 percent or even lower for O&R/RECO is consistent with meeting the crucial capital attraction standard.

IV. COST OF COMMON EQUITY

A. Using the DCF Model

Q. WHAT STANDARD ARE YOU USING TO DEVELOP YOUR RETURN ON EQUITY RECOMMENDATION?

A. As a general matter, the ratemaking process is designed to provide the utility an opportunity to recover its prudently-incurred costs of providing utility service to its customers, including the reasonable costs of financing its used and useful investment. Consistent with this "cost-based" approach, the fair and appropriate return on equity award for a utility is its cost of equity. The utility's cost of equity is the return required by investors (i.e., the "market return") to acquire or hold that company's common stock. A return award greater than the market return would be excessive and would overcharge customers for utility service and may even incent excessive investment or "goldplating". Similarly, an insufficient return could unduly weaken the utility and impair incentives to invest which could harm service quality.

Although the *concept* of the cost of equity may be precisely stated, its quantification poses challenges to regulators. The market cost of equity, unlike most other utility costs, cannot be directly observed (i.e., investors do not directly, unambiguously state their return requirements), and it therefore must be estimated using analytic techniques. The DCF model is one such prominent technique familiar to analysts, this Board and other utility regulators.

Q. IS THE COST OF EQUITY A FAIR RETURN AWARD FOR THE UTILITY AND ITS CUSTOMERS?

A. Generally speaking, I believe it is. A return award commensurate with the cost of equity generally provides fair and reasonable compensation to utility equity investors and normally should allow efficient utility management to successfully finance utility operations on reasonable terms. Setting the authorized return on equity equal to a reasonable estimate of the cost of equity also is generally fair to ratepayers.

I recognize that there can be exceptions to this general rule. For example, in some instances, utilities have obtained rate of return adders as a reward for asserted good management performance or lowered returns where performance is subpar. In this case, the Company is making no explicit request to raise its authorized equity return above Dr. Vander Weide's cost of equity range of results and even requests an award lower than his recommendation.

Q. WHAT DETERMINES A COMPANY'S COST OF EQUITY?

A. It should be understood that the cost of equity is essentially a market price, and as such, it is ultimately determined by the forces of supply and demand operating in financial markets. In that regard, there are two key factors that determine this price. First, a company's cost of equity is determined by the fundamental conditions in capital markets as discussed in Section II B (e.g., outlook for inflation, monetary policy, changes in investor behavior, investor asset preferences, the general business environment, etc.). The second factor (or set of factors) is the business and financial risks of the company (the utility in this case) in question. For example, the fact that a utility company operates as a regulated monopoly protected from competition, dedicated to providing an essential service (in this case electric utility distribution service), typically would imply very low business risk and therefore a relatively low cost of equity. RECO's (or alternatively, O&R's) balance sheet or financial strength and the favorable business risk profile, as assessed by credit rating agencies (i.e., Moody's, FitchRatings and S&P), also contribute to its relatively low cost of equity. I discuss the RECO/O&R business risk attributes in Section III B of my testimony.

Q. DOES DR. VANDER WEIDE INCORPORATE THESE PRINCIPLES IN HIS TESTIMONY?

A. By and large, Dr. Vander Weide does attempt to incorporate these principles. His various studies purport to estimate the market-based cost of capital using the DCF and CAPM methods, and he uses those results as the basis to support the Company's ROE request in this case. However, I take issue with some of his data inputs, assumptions and methods in his application of those two methods. Unfortunately, Dr. Vander Weide then goes on to introduce and partly rely upon a third method that is not market-based and fails to even attempt to measure investor expectations or requirements – the comparable earnings method. This is an accounting-based method that removes both market data and the central role of the investor from the determination of the ROE. It simply is not a cost of equity method, and should not be given any weight.

Q. WHAT METHODS ARE YOU USING IN THIS CASE?

A. I employ both the DCF and CAPM models, applied to a proxy group of electric utility companies. This proxy group is broadly representative of the electric utility industry, and is very similar to the proxy group used by Dr. Vander Weide. It has been my experience that most utility regulatory commissions (federal and state), including New Jersey, heavily emphasize the use of the DCF model to determine the cost of equity and setting the fair return. While Dr. Vander Weide's proxy group is certainly not a perfect risk proxy for O&R/RECO (i.e., it probably is somewhat riskier), it does reflect electric utility industry wide risks, and my use of his broad group moots disputes over proxy group sample selection. It also facilitates a direct comparison of our respective study results without the proxy company sample selection process obscuring the comparison.

Q. PLEASE DESCRIBE THE DCF MODEL.

A. As mentioned, this model has been widely relied upon by the regulatory community, including this Board. Its widespread acceptance among regulators is due to the fact that the model is market-based and is derived from standard economic/financial theory. The model, as typically used, is also transparent and generally understandable. I do not believe that an obscure or highly arcane model would receive the same degree of regulatory acceptance. For example, Dr. Vander Weide also employs a far more complex "quarterly compounding" DCF model, an approach that has received far less regulatory acceptance and is not widely used.

The theory begins by recognizing that any publicly-traded common stock (utility or otherwise) will sell at a price reflecting the discounted stream of cash flows *expected by investors*. The objective is to estimate that investor discount rate.

Using certain simplifying assumptions that I believe are generally reasonable for stable utility companies, the DCF model for dividend paying stocks can be distilled down as follows:

$K_e = (Do/Po)(1 + 0.5g) + g$, where:

K_e = cost of equity;

Do = the current annualized dividend;

Po = stock price at the current time; and

g = the long-term annualized dividend growth rate.

This is referred to as the constant growth DCF model because for mathematical simplicity it is assumed that the growth rate is constant for an indefinitely long time period. While this assumption may be unrealistic in many cases, for traditional utilities (which tend to be more stable than most unregulated companies) the assumption generally is reasonable, particularly when applied to a large group of companies.

Q. HOW HAVE YOU APPLIED THIS MODEL?

A. Strictly speaking, the model can be applied only to publicly-traded companies, i.e., companies whose market prices (and therefore market valuations) are transparently revealed. Consequently, the model cannot be applied to RECO which is a wholly-owned subsidiary of O&R parent, which in turn is owned by Con Ed. Therefore, a market proxy is needed. In theory, Con Ed, RECO's ultimate parent, could serve as that market proxy, and I have included it as a member of my electric utility proxy group. Dr. Vander Weide has also elected to include Con Ed in his proxy group and set of studies. More importantly, I am reluctant to rely upon a single-company DCF study (nor does Dr. Vander Weide), although in theory that approach could be used.

In any case, I believe that an appropriately selected proxy group is likely to be far more reliable than a single company study. This is because there is "noise" or fluctuations in stock price or other data that cannot always be readily and fully accounted for in a simple DCF study. The use of an appropriate and robust proxy group helps to allow such "data anomalies" to cancel out in the averaging process.

For the same reason, I prefer to use market data that are relatively current but averaged over a period of six months rather than purely relying upon "spot" market data. It is important to recall that this is not an academic exercise but involves the setting of "permanent" utility rates that are likely to be in effect for several years. The practice of averaging market data over a period of several months also can add stability to the results. I note that Dr. Vander Weide also uses market data averaged over a period of several months, in this case the three months ending January 2019.

Q. IN EMPLOYING THE DCF MODEL, HOW DID YOU SELECT YOUR PROXY GROUP?

A. For purposes of my testimony in this case, I am using the proxy group of electric companies selected by Dr. Vander Weide, but removing two of his proxy companies, El Paso Electric and FirstEnergy. El Paso Electric must be removed because it is now in the process of being acquired by a group of equity investors, which would distort its share price and any DCF analysis. It is standard practice to eliminate companies in the process of being acquired by another company or engaging in a "transformative" merger. I also have eliminated FirstEnergy Corporation due to the fact that it has recently gone through a major bankruptcy and is transitioning from being a diversified energy company with extensive unregulated operations to primarily a regulated utility. Thus, I believe that at this time it is best to exclude FirstEnergy. I note that Dr. Vander Weide includes FirstEnergy in his proxy group but excludes it from his DCF study.

At page 20 of his testimony, Dr. Vander Weide selects his industry proxy group using all companies classified as electric utilities by Value Line but excluding companies (1) lacking an investment grade credit rating, (2) that have failed to pay dividends (or that reduced their dividends) during the past two years, (3) lacking a positive IBES earnings per share growth rate, and (4) that are subject to acquisition in a pending merger. Using these screening criteria, he assembles a group of 36 companies, but does not attempt to tailor the group to the O&R/RECO risk profile. I believe that O&R/RECO are, on average, less risky than this group due to the fact that most of these companies have either regulated generation or unregulated operations which tend to be viewed by investors as riskier than pure T&D operations which is the O&R/RECO investment base. Consequently, I regard my adoption of

Dr. Vander Weide's proxy group (with my two minor modifications) as producing a conservative result.

Q. DOES DR. VANDER WEIDE SHARE YOUR BELIEF THAT GENERATION OPERATIONS MAY, ON AVERAGE, BE RISKIER THAN PURE UTILITY T&D OPERATIONS?

A. This question was posed to Dr. Vander Weide in RCR-ROR-5. While he acknowledges that unregulated operations would in general be riskier than regulated T&D, he does not necessarily agree that a vertically-integrated utility with fully regulated generation assets would be riskier than regulated T&D. It appears that he takes this view because he believes both utility generation and T&D are regulated in a similar way, subject to the same legal standard for cost recovery and return. While I am not claiming the difference is large, I believe that investors and credit rating agencies, all else equal, tend to regard regulated generation as somewhat riskier than regulated T&D. Moreover, this point was conceded by the Company's ROE witness in its 2013 case, by Mr. Robert Hevert.

Q. DO THE PROXY COMPANIES HAVE ANY RELATIVELY RISKY NON-REGULATED OPERATIONS?

A. Yes, there are some, but they are relatively modest. Some of the proxy companies do have merchant generation, energy services or resources, and other types of nonregulated operations that add to business risk. These non-regulated operations tend to increase the cost of equity relative to being a pure delivery service utility, but only modestly. Despite the presence of unregulated operations, the DCF and CAPM studies can provide reasonable estimates of the cost of equity, recognizing the existence of a small upward bias.

B. DCF Study Using Dr. Vander Weide's Electric Utility Proxy Group

Q. PLEASE IDENTIFY THE COMPANIES INCLUDED IN YOUR ELECTRIC UTILITY PROXY GROUP.

A. These 34 proxy companies are listed on Schedule MIK-3, pages 1 and 2, along with several risk indicators. While there are no listed risk indicators for O&R or RECO, this schedule shows clearly that Con Ed parent is less risky than the proxy group as a whole.

Q. HAVE EITHER YOU OR DR. VANDER WEIDE PROPOSED A SPECIFIC BUSINESS RISK ADJUSTMENT TO THE DCF COST OF EQUITY BETWEEN THE PROXY COMPANY AVERAGE AND RECO?

A. I have not reflected an explicit adjustment for risk differences even though RECO is probably less risky than the average proxy company. I also do not interpret Dr. Vander Weide's testimony as proposing a risk adjustment, positive or negative.

Q. HOW HAVE YOU APPLIED THE DCF MODEL TO THIS GROUP?

A. I have elected to use a six-month time period to measure the dividend yield component (Do/Po) of the DCF formula. Using daily closing share price data and quarterly dividends from the YahooFinance! web site, I compiled and computed the month-ending dividend yields for the six months ending August 2019, the most recent data available to me as of this writing. This covers almost all of the Spring and Summer 2019. As a general matter, this six months has been a time period of some volatility but also an improving stock market, both for utilities and the broader markets.

I show these dividend yield data on pages 2 and 3 of Schedule MIK-4 for each month and each proxy company, March 2019 through August 2019. Over this six-month period the proxy group average dividend yields indicate a very gradual declining trend from a high of 3.29 percent in May to a low of 3.09 percent in August 2019, averaging 3.21 percent for the full six months and 34 companies.

For DCF purposes and at this time, I am using as a starting point a proxy group dividend yield of 3.21 percent.

Q. IS 3.21 PERCENT YOUR FINAL DIVIDEND YIELD?

A. Not quite. Strictly speaking, the dividend yield used in the model should be the value the investor expects to receive over the next 12 months. Using the standard and widely-accepted "half year" growth rate adjustment technique, the DCF adjusted yield becomes 3.3 percent. This is based on assuming that half of a year growth is 2.75 percent (i.e., a full year growth is an upper bound of 5.5 percent).

Q. DOES DR. VANDER WEIDE EMPLOY THE SAME GROWTH RATE ADJUSTMENT?

A. No. He instead uses a highly complex quarterly compounding method in order to recognize that dividends are actually paid quarterly and investors holding utility stock can invest those quarterly dividends to earn additional return. This adds considerable computational complexity to the DCF model, and based on my experience this dividend yield calculation method is not widely used by investors or investor service publications (or web sites). I believe this convoluted method should not be employed, but as a practical matter it has little effect on the DCF results – roughly about an additional 0.1 percent relative to using the more standard "1+0.5g" method that I have used. Because it is of little practical importance, I will not belabor this technical but ultimately minor issue.

Q. HOW HAVE YOU DEVELOPED YOUR GROWTH RATE COMPONENT?

A. Unlike the dividend yield, the investor growth rate cannot be directly observed but instead must be inferred through a review of available evidence. The growth rate in question is the *long-run* dividend per share growth rate, but analysts frequently use earnings growth as a proxy for (long-term) dividend growth. This is because in the long-run earnings are the ultimate source of dividend payments to shareholders, and this is likely to be particularly true for a large group of utility companies.

One possible approach is to examine historical growth as a guide to investor expected future growth, for example the recent five-year or ten-year growth in earnings, dividends and book value per share. However, my experience with utilities in recent years is that these historic measures have been somewhat volatile and are not necessarily reliable as prospective measures. I note that Dr. Vander Weide does not rely upon historical growth rates as an indicator of long-term growth for his proxy companies for DCF purposes. The DCF growth rate should be prospective, and one useful source of information on prospective growth is the projections of earnings per share growth rates (typically five years) prepared by securities analysts and reported in public surveys. It appears that Dr. Vander Weide places exclusive weight on this information for his "constant growth" DCF studies, and while I agree that it warrants substantial emphasis, it can be useful to consider other corroborative information.

Q. PLEASE DESCRIBE THE ANALYST EARNINGS GROWTH RATE EVIDENCE.

A. Schedule MIK-4, pages 4 and 5 presents four available and well-known public sources of analyst earnings growth rate projections. Three of these four sources – YahooFinance!, Zacks, and CNNfn -- provide averages from securities analyst surveys conducted by or for these organizations (typically they report the mean or median value). YahooFinance! obtains its growth rates from IBES. The fourth, Value Line, is that organization's own estimates and is available publically on a subscription basis. Value Line publishes its own projections using annual average earnings per share for a base period of 2016-2018 compared to the annual average for the forecast period of 2022-2024. By comparison, Dr. Vander Weide chose to obtain his growth rates from a single source, IBES (as provided by Refinitiv).

As this schedule shows, the growth rates for individual companies vary somewhat among the four sources but the group averages are rather consistent. These proxy group averages are 5.1 percent for CNNfn, 4.6 percent for YahooFinance, 5.3 percent for Zacks, and 5.9 percent for Value Line. Thus, the range of growth rates among the five sources is a narrow 4.6 to 5.9 percent. The average of these four sources is 5.15 percent, and I have used these results (along with other evidence) in obtaining a reasonable DCF growth range for the group of 5.0 to 5.5 percent.

Q. IS THERE ANY OTHER EVIDENCE THAT SHOULD BE CONSIDERED?

A. Yes. There are a number of reasons why investor expectations of long-run growth could differ from the limited, five-year earnings growth rate projections prepared by securities analysts. Consequently, while securities analyst estimates should be considered and given significant weight, these growth rates should be subject to a reasonableness test and corroboration, to the extent feasible.

On Schedule MIK-4, page 6 and 7, I have compiled three other measures of growth published by Value Line, i.e., growth rates of dividends and book value per share and the long-run retained earnings growth. (Retained earnings growth reflects the growth over time one would expect from the reinvestment of retained earnings, i.e., earnings not paid out as dividends.) As shown on this schedule, these growth measures for the 34 proxy companies tend to be somewhat less (on average) than analyst growth projections. For the 34 companies, projected dividend growth averages 5.13 percent, book value growth averages 4.8 percent, and earnings retention growth averages 3.85 percent.

Some analysts and regulators favor the use of earnings retention growth (often referred to as "sustainable growth"), which Value Line indicates to be 3.9 percent. However, at least in theory, the sustainable growth rate also should include "an adder" to reflect potential future earnings growth from issuing new common stock at prices above book value (referred to as "external growth" or the "s x v" factor). In practice, this is difficult to estimate since future stock issuances of companies over the long-term are an unknown and rarely discussed by analysts. Nonetheless, I have estimated this "external growth" factor using Value Line projections for these five companies of the growth rate (through 2022-2024) in shares outstanding, along with the current stock price premium over book value. This is a common method for calculating the external growth factor. For these 34 companies, the external growth rate calculated in this manner averages about 1.3 percent. The sum of "internal" or earnings retention growth (i.e., 3.9 percent) and the "external" growth rate (i.e., 1.3 percent) is 5.2 percent. (See pages 8 and 9 of Schedule MIK-4.)

Given this estimate of 5.2 percent for the sustainable growth rate and 4.6 to 5.9 percent for analyst earnings projections, a reasonable DCF growth rate range is approximately 5.0 to 5.5 percent.

Q. ARE THERE ANY OTHER FACTORS TO CONSIDER?

A. Yes. Dr. Vander Weide includes in his DCF analysis a generic-type flotation expense adjustment that is equal to 5 percent of each proxy company's stock price. Since these dividend yields in his study seem to be, on average, in the range of about 3 to 4 percent (he does not actually identify the dividend yields in testimony), this would imply that his DCF estimates implicitly include a flotation expense adder for the RECO ROE of 0.2 percent.

I agree with Dr. Vander Weide that if a utility (or the utility's parent on behalf of the utility) has or will incur flotation expense in order to raise new equity capital, this should be appropriately reflected in rates, specifically in the ROE. The Company's response to ROR-RCR-35 documents that such expense for Con Ed parent has averaged about 3 percent of equity issuance proceeds rather than the 5 percent generic figure used by Dr. Vander Weide. Over the past five years, this has averaged about $20 million per year, and RECO should share in this cost. Given that Con Ed's equity balance is about $17 billion, this implies an appropriate flotation expense adjustment to ROE would be about 0.1 percent (i.e., $20 million/$17,000 million = 0.1 percent). I have included this adder in my final ROE recommendation.

Q. WHAT IS YOUR DCF CONCLUSION?

A. I summarize my DCF analysis on page 1 of Schedule MIK-4. The adjusted dividend yield for the six months ending August 2019 is 3.3 percent for this group. Available evidence would support a long-run growth rate in the range of approximately 5.0 to 5.5 percent, as explained above. Summing the adjusted yield and growth rate range, with a 0.1 percent flotation adjustment, produces a total return of 8.4 to 8.9 percent, and a midpoint result of 8.7 percent. Reliance on analyst earnings projections would tend to support a result toward the upper end of that range, while the sustainable growth rate produces the lower end DCF result. My recommendation at this time emphasizes the use of analyst projections and therefore a ROE award of 8.9 percent. I believe this result is conservative because I have not included a downward risk adjustment factor for RECO as compared to the proxy group companies.

Q. HOW DOES YOUR 8.9 PERCENT DCF RESULT COMPARE TO DR. VANDER WEIDE'S DCF ESTIMATE FOR HIS PROXY GROUP?

A. Dr. Vander Weide reports a very high DCF estimate for his proxy group of 10.1, which is about a percentage point higher than my estimate. About 0.2 percentage points of difference can be attributed to his quarterly compounding formula and his higher flotation adjustment. Another important factor is that his three months ending January 2019 for market data was a time when the cost of capital was considerably higher than my more recent time period. This would be corrected by Dr. Vander Weide providing an update. The final reason is that Dr. Vander Weide, for his DCF study, decided to exclude several of his proxy companies that contribute to a low DCF outcome. His DCF study only incorporates 28 of his 36 proxy companies. As I demonstrate later in my testimony, there is no reason to exclude these companies.

C. <u>The CAPM Analysis</u>

Q. PLEASE DESCRIBE THE CAPM MODEL.

A. The CAPM is a form of the "risk premium" approach and is based on modern portfolio theory. Based on my experience, the CAPM is the cost of equity method most often used in rate cases after the DCF method, and it is one of Dr. Vander Weide's three basic ROE methods.

According to this model, the cost of equity (Ke) is equal to the yield on a risk-free asset plus an equity risk premium multiplied by a firm's "beta" statistic. "Beta" is a firm-specific risk measure which is computed as the movements in a company's stock price (or market return) relative to contemporaneous movements in the broadly defined stock market (e.g., the S&P 500 or the New York Stock Exchange Composite). This measures the investment risk that cannot be reduced or eliminated through asset diversification (i.e., holding a broad portfolio of assets). The overall market, by definition, has a beta of 1.0, and a company with lower than average investment risk (e.g., a utility company) would have a beta below 1.0. The "risk premium" is defined as the expected return on the overall stock market minus the yield or return on a risk-free asset.

The CAPM formula is:

K_e = $R_f + \beta\ (R_m - R_f)$, where:

K_e = the firm's cost of equity

R_m = the expected return on the overall market

R_f = the yield on the risk free asset

β = the firm (or group of firms) risk measure.

Two of the three principal variables in the model are directly observable—the yield on a risk-free asset (e.g., a Treasury security yield) and the beta. For example, Value Line publishes estimated betas for each of the companies that it covers, and Dr. Vander Weide (as well as many other analysts) uses those betas. The greatest difficulty, however, is in the measurement of the expected stock market return (and therefore the equity risk premium), since that variable cannot be directly observed.

While the beta itself also is "observable," different investor services provide differing calculations of betas depending on the specific procedures and methods that they use. These differences can potentially have large impacts on the CAPM results. In this case, the betas that Dr. Vande Weide and I use are similar, with betas for our respective proxy groups averaging 0.60. As I discuss in Section V of my testimony, Dr. Vander Weide does not just use the Value Line published betas. He also performs an unusual and unwarranted procedure to substantially increase those betas from the actual 0.60 to what he refers to as a "historical beta" averaging 0.89.

Q. HOW HAVE YOU APPLIED THIS MODEL?

A. For purposes of my CAPM analysis, I have used a long-term (i.e., 30-year) Treasury yield as the risk-free return (as has Dr. Vander Weide) along with the average beta for the electric utility proxy group. (See Schedule MIK-3 for the company-by-company betas.) In the last six months, long-term (i.e., 30-year) Treasury yields have averaged approximately 2.7 percent, although it has declined in recent weeks to about 2.1 percent. I note that Dr. Vander Weide has elected to use a risk-free rate (the 20-year Treasury yield) in his CAPM studies of 3.80 percent, with his much higher figure based on a forecast and not actual data. I comment on why this reliance on a forecast is incorrect in Section V of my testimony. Finally, and as explained below, I am using an equity risk premium range of 5 to 8 percent, although I also provide calculations using a higher risk premium as a sensitivity test on my Schedule MIK-5.

Using these data inputs, the CAPM calculation results are shown on page 1 of Schedule MIK-5. My low-end cost of equity estimate uses a risk-free rate of 2.7 percent, a proxy group beta of 0.60 and an equity risk premium of 5 percent.

$$Ke = 2.7\% + 0.60\ (5.0\%) = 5.7\%$$

The upper-end estimate uses a risk-free rate of 2.7 percent, a proxy group beta of 0.60 and an equity risk premium of 8.0 percent.

$$Ke = 2.7\% + 0.60\ (8.0\%) = 7.5\%$$

Thus, with these inputs the CAPM provides a cost of equity range of 5.7 to 7.5 percent, with a midpoint of 6.6 percent. Additionally, I calculate the CAPM cost of equity using a high sensitivity risk premium of 9.0 percent (along with the Treasury rate of 2.7 percent and the utility group beta of 0.60). This produces a cost of equity estimate of 8.1 percent (before flotation cost adjustment). This sensitivity calculation is shown on Schedule MIK-5, page 1 of 2.

The CAPM analyses produce estimates significantly lower than the range of results obtained for my electric utility group DCF analysis, but I have not placed reliance on the CAPM returns in formulating my return on equity recommendation in this case. This is due to the uncertainties concerning the key CAPM inputs, particularly the market equity risk premium. I discuss this further in Section V of my testimony.

Q. IT APPEARS THAT A KEY ELEMENT IN YOUR CAPM STUDY IS YOUR EQUITY MARKET RETURN RISK PREMIUM OF 5 TO 8 PERCENT. HOW DID YOU DERIVE THAT RANGE?

A. There is a great deal of disagreement among analysts regarding the reasonably expected market return on the stock market as a whole and therefore the risk premium. In my opinion, a reasonable overall stock market risk premium to use would be about 6 to 7 percent, which today would imply a stock market rate of return of about 9 to 10 percent. Due to uncertainty concerning the true market return value, I am employing a broad range of 5 to 8 percent as the overall market rate of return, which would imply a market equity return of roughly 8 to 11 percent for the overall stock market. I note that Dr. Vander Weide has utilized two alternative risk premium estimates for his CAPM study. The first, based on historical average market return data is 7.1 percent, a figure within my reasonable range. His second is 10.4 percent, which is based on a DCF analysis of a subset of the S&P 500 companies, a figure I consider to be unrealistically high. The average of these two measures is about 8.8 percent. Had I used the average of Dr. Vander Weide's two risk premium figures, along with the Value Line betas for the proxy group and the recent actual 30-year Treasury rate (2.7 percent), this would produce a CAPM estimate roughly equal to 8 percent (i.e., 2.7% + 0.6 x 8.8% = 8.0%).

Q. DO YOU HAVE A SOURCE FOR THAT 5 TO 8 PERCENT RANGE?

A. Yes. The well-known finance textbook by Brealey, Myers and Allen (Principles of Corporate Finance) reviews a broad range of evidence on the equity risk premium. The authors of the risk premium literature conclude:

> Brealey, Myers and Allen have no official position on the issue, but we believe that a range of 5 to 8 percent is reasonable for the risk premium in the United States. (Page 154.)

I would note that Dr. Vander Weide's DCF-based market risk premium value of 10.4 percent exceeds the upper end of that plausible range by a wide margin. My "midpoint" risk premium of roughly 6.5 percent falls well within that 5 to 8 range.

There is one important caveat to consider here regarding the 5 to 8 percent range that the authors believe is supported by the literature. It appears that the 5 to 8 percent range is specified relative to short-term Treasury yields, not relative to long-term (i.e., 30-year) Treasury yields. It therefore could be argued that the 5 to 8 percent range of Brealey, et al. is overstated if a long-term Treasury yield is used as the risk-free rate, i.e., the practice followed by both Dr. Vander Weide and me.

V. <u>REVIEW OF DR. VANDER WEIDE'S ANALYSIS</u>

Q. PLEASE PROVIDE A SUMMARY AND OVERVIEW OF THE METHODS USED BY DR. VANDER WEIDE TO ESTIMATE THE COST OF EQUITY AND DERIVE HIS ROE RECOMMENDATION.

A. Dr. Vander Weide employs three ROE methods. He employs the DCF model (the standard, constant growth DCF but using the more complex, quarterly compounding version), the CAPM and a method referred to as the Comparable Earnings ("CE"). While not directly factored into his recommendation, he also performs a type of Risk Premium study based on his own DCF studies from past years and historic returns data. His three main methods utilize his 36-company proxy group, although for various reasons he removes some of the companies from the analyses. His ROE recommendation places equal weight on the three methods, resulting in 10.4 percent inclusive of 0.2 percent for stock issuance flotation expense. (Direct Testimony, page 31)

His constant growth DCF study obtains an average cost of equity of 10.1 percent, or 9.9 percent before flotation expense. As I mentioned earlier, his quarterly compounding model adds about another 0.1 percent as compared to the more standard "0.5g" adjustment to the dividend yield. He presents at page 31 of his testimony a summary range for his CAPM studies of 9.3 to 11.7 percent (averaging to 10.5 percent). His third method is the CE which he claims produces an ROE for his proxy group of 10.7 percent – his highest result. As I explain later in this section, the CE method does not and cannot measure the cost of equity, as recognized by even its most ardent proponents. Finally, he performs a Risk Premium study which provide a range of 9.9 to 10.5 percent (see page 40 of his testimony), which he asserts support his recommendation but is not used to derive his recommendation. The Risk Premium uses two approaches which he refers to as *Ex Ante* and *Ex Poste*.

Q. ARE THESE STUDIES REASONABLE?

A. No, they are not, although his DCF is probably the most valid of all of his studies. His CAPM is greatly overstated because he uses an unrealistically high (and at best speculative) measure of the risk-free rate, an unreasonably high market risk premium and a contrived adjustment to the actual published Value Line betas for the electric proxy companies. His CE study must be summarily rejected because it does not even attempt to (nor can it) estimate the utility cost of equity (i.e., the return on investment that the investment community expects prospectively and therefore requires), as even he admits. The CE method unquestionably overstates investor return requirements. The CE study, which is neither an analysis nor a "model", has no credibility. Finally, the Risk Premium results are presented to support the three main methods identified above. The main problem with his Risk Premium evidence is that it relies and is based upon a projected utility cost of long-term debt that greatly exceeds market levels – by more than a full percentage point.

A. <u>Dr. Vander Weide's DCF Studies</u>

Q. WHAT ARE THE PROBLEMS WITH DR. VANDER WEIDE'S CONSTANT GROWTH DCF STUDY?

A. Setting aside the quarterly compounding feature (which adds an extra 0.1 percent) and inclusion of a 0.2 percent flotation adjustment, his DCF result is 9.8 percent, which is about 1.0 percentage point higher than my DCF estimate. We used similar industry proxy groups which facilitates a direct comparison. A large portion of the difference is due simply to the timing of the market data that each of us used. He employed share price data from the three months ending January 2019, whereas I used the six months ending August 2019. During that time interval, utility stocks have performed very well, and the cost of capital has declined substantially. I would expect that an update by Dr. Vander Weide of his DCF study would produce a much lower result than that 9.8 percent referenced above.

Q. ARE THERE ANY OTHER PROBLEMS THAT LEAD TO AN OVERSTATEMENT OF HIS DCF STUDY?

A. Yes, there is another fundamental problem that seriously biases upwards his DCF result. He strenuously argues that the DCF study must use securities analyst projections of earnings per share as the growth rate measure, and I do not object to that. He uses IBES survey data as his growth rate source, as do I – but unlike his approach I also use it with other sources. However, he then proceeds to throw out nine of his proxy companies from the analysis. (See the notes on his JHV Schedule 1, page 2 for a listing of his exclusions.) Four companies are excluded because IBES does not provide a growth rate for those companies. Five others are excluded because their IBES growth rates are, in his judgment, too low, i.e., and therefore their inclusion would lower the proxy group average DCF estimate. In some cases the growth rates are negative, and in others they result in a company-specific DCF (the dividend yield plus IBES growth rate) that he simply finds to be lower than it should be. I find that these exclusions are both unnecessary, and they bias upward his DCF analysis. As I mentioned earlier, there will always be statistical “noise” or fluctuations in any financial analysis of the cost of equity, which is why it is desirable to use a large proxy group. With a large group, abnormally or anomalously high and low observations tend to cancel out, and only the mean or average result for the group really matters – not the individual observations. Dr. Vander Weide’s exclusion practice would be much more defensible if he excluded both the anomalously high and low observations. But he chose not to do that, instead excluding only the low observations thereby biasing upward his DCF study finding.

Q. WHY DO YOU STATE THAT THESE EXCLUSIONS OF LOW OR MISSING OBSERVATIONS ARE NOT NEEDED?

A. I have demonstrated in my DCF study that there is simply no need to arbitrarily exclude the so-called “missing” growth rate or low growth rate companies. This is because I have employed three other sources of DCF growth rates in addition to IBES – Value Line (a data source used extensively by Dr. Vander Weide), Zacks which is a well-known and public source of company growth rates, and CNNfn. I weight each of these four sources equally to obtain my company-by-company growth rates. Please refer to my Schedule MIK-4, pages 4 and 5 which presents the growth rate data and results. While there are a very small number of missing observations, every one of my 34 proxy companies has at least three growth rate observations. There is simply no need to eliminate any proxy company due to a missing data item when multiple growth rate sources are used.

Moreover, Dr. Vander Weide throws out five companies (OGE, Entergy, FirstEnergy, IdaCorp and Northwestern) because he finds their growth rates to be too low thereby producing DCF results that he finds are too low. When multiple growth rate sources are used, as I have done, this problem disappears. Using my dividend yields and average growth rates, I obtain the following results for these four excluded companies (I exclude FirstEnergy as noted earlier): OGE – 8.05 percent; Entergy – 5.64 percent; IdaCorp – 5.79 percent; and Northwestern – 6.34 percent. Dr. Vander Weide states that his standard for low DCF exclusion is 100 basis points above the utility bond yield. At the present time, this cut off would be around 5 percent or less.

Thus, even by his arbitrary criterion for exclusion all of his "low-DCF" excluded companies warrant inclusion. Including the companies that he improperly threw out would significantly lower his overall DCF result. Dr, Vander Weide in his update should endeavor to include either all proxy companies or perform a more even handed procedure of also excluding the anomalously high DCF observations (e.g., his 14.8 percent for Centerpoint or 13.4 percent for Avangrid). These anomalously high results are shown on page 1 of his JVW Schedule 1.

Q. WITH UPDATING AND THE PROPER TREATMENT OF THE EXCLUDED, LOW DCF PROXY COMPANIES, DO YOU BELIEVE THAT YOUR DCF STUDY AND THAT OF DR. VANDER WEIDE WOULD PRODUCE SIMILAR RESULTS?

A. Yes, I do.

B. <u>Dr. Vander Weide's CAPM Study</u>

Q. DR. VANDER WEIDE OBTAINED CAPM COST OF EQUITY ESTIMATES THAT VARY WIDELY BUT AVERAGE ABOUT 10.5 PERCENT. WHY DO YOU DISAGREE WITH HIS ESTIMATES?

A. Dr. Vander Weide obtains CAPM values that are as low as about 8 percent and as high as 13.3 percent, averaging to about 10.5 percent. The problem is with his data inputs to the formula. First, he uses a forecast value of 3.8 percent for the risk-free rate (20-year Treasury yield) instead of an actual observed Treasury yield. As I show on Schedule MIK-5, page 2, the recent six month average value is 2.5 percent (2.7 percent if the 30-year Treasury is used). In response to RCR-ROR-22, Dr. Vander Weide states that his forecast of the Treasury yield pertains to the year 2022. Thus, his study is a hypothetical 2022 CAPM study. He does not explain why it is proper in this case to be estimating the cost of equity for the year 2022. The second and even more troubling problem is that Dr. Vander Weide begins with the published proxy group average beta of 0.60 and then proceeds to arbitrarily increase it to 0.89 – a figure only slightly below the overall stock market beta of 1.0. In order for this adjustment to make any sense, one would have to believe that very low risk, fully regulated utilities (insulated from competition) are nearly as risky as the overall stock market which is comprised mostly of companies operating in competitive, often global markets. Dr. Vander Weide performs his CAPM calculations using both the actual betas published by Value Line and his modified and artificially increased beta of 0.89 in order to derive a range. The third problem is with his market risk premium values. He uses two approaches. The first, or historical method, obtains a figure of about 7.1 percent, which is a figure that I believe falls in the plausible range. The second is derived from his DCF analysis of a subset of the S&P 500 companies that he selected. This produces a market annualized rate of return of over 14 percent (an extraordinarily high estimate) and a risk premium of 10.4 percent. This DCF-based risk premium is I believe unrealistically high. However, averaging together his two estimates produces a market risk premium of about 8.8 percent, which is only marginally higher than the top end of the Brealey et. al. consensus range of about 5 to 8 percent that I discussed in Section IV C.

Dr.. Vander Weide's various CAPM results can be summarized using his 3.8 percent forecast Treasury yield, his 8.8 percent average market risk premium and his average beta (averaging the actual 0.60 and his modified 0.89, or 0.745).

Ke = 3.8% + 0.745 x 8.8% = **10.4%.** (before flotation)

This matches closely with his conclusion on the CAPM method of 10.5 percent that he presents in his summary on page 31 of his testimony. If we merely use the actual 20-year Treasury yield as of August 2019 (2.5 percent) in place of his speculative and unrealistic Treasury yield of 2022 of 3.8 percent that he proposes to use (keeping all other aspects of his CAPM studies), we obtain: Ke = 2.5% + 0.745 x 8.8% = **9.06%.** While this estimate is only marginally higher than my ROE recommendation, I still strongly object to the use of a 0.745 average beta and an 8.8 percent risk premium. Clearly, the credible CAPM evidence supports a utility cost of equity estimate well below 9 percent.

Q. IT APPEARS THAT A KEY DIFFERENCE BETWEEN DR. VANDER WEIDE'S 10.5 PERCENT CAPM AND YOUR REVISION TO HIS ANALYSIS OF 9.06 PERCENT IS JUST BASED ON ONE CHANGE – THE TREASURY YIELD. WHY DO YOU BELIEVE HIS 3.8 PERCENT IS WRONG?

A. I am not saying that it is wrong as a forecast of Treasury yields in the year 2022 because no one has a crystal ball and can say for sure what the yields will be in that year or in any future year. It is pure speculation, and it appears to be unrealistic speculation at that. Interest rate forecasters in recent years do not have a good record of success, and the errors have typically been on the high side. The more salient point is that we know for certain that 3.8 percent is not in any way reflective of the actually observed long-term Treasury yields in mid to late 2019 as I show on my Schedule MIK-5. The actual observed 2019 Treasury yields should be used to derive a 2019 cost of equity – not some speculative and not very credible forecast years in the future. A second and crucial point is that the 3.8 percent does not and cannot reflect market requirements and expectations going forward. Dr. Vander Weide's use of the forecast yield is inconsistent with one of the pillars of financial theory – the notion that capital markets are efficient and investors are rational.

The principal is very simple but powerful. Today, 20-year Treasuries are yielding about 2.5 percent (or even somewhat less). This means that investors are actively buying and selling those bonds at that yield and find that yield to be adequate to incent them to acquire or hold Treasury bonds. Do those bond investors purchasing Treasury bonds today with a 2 to 2.5 percent yield expect that over the next two to three years the yield to rise to 3.8 percent? Of course not. If, as Dr. Vander Weide suggests, investors expect an upward movement in the yield by about 1.5 percentage points (about a 50 percent yield increase), then that means they would also expect the price of bonds to fall sharply over that time period. That is, an increase in the yield means the price of the bond falls – very substantially in this case. Investors simply do not purchase financial assets that they expect will fall sharply in price over the near term. That would be irrational behavior by bond investors. Yet that is what Dr. Vander Weide assumes. The rational investor holding the expectation that interest rates would rise substantially over time would instead sell his long-term bonds at today's high price and buy short-term Treasury bills (e.g., three months), which have virtually no price risk, and wait for long-term rates to rise as forecast (i.e., wait for Treasury bond prices to fall). But the very act of investors expecting rates to rise and therefore selling the now expensive Treasury bonds immediately drives down the price of those bonds and the rates up. It is therefore impossible, if rationality and efficiency are assumed, for a 2.5 percent actual Treasury bond yield and a near term 3.8 percent market-expected near term-future bond yield to co-exist. Efficient Treasury bond markets would arbitrage away any such difference. The best that can be said in defense of Dr. Vander Weide's rate assumption is that someone (e.g., Value Line) believes Treasury rates will rise to 3.8 percent, but it is clear that the bond investors do not believe that. Otherwise, they would not accept and lock themselves into long-term bonds yielding only 2.5 percent. Dr. Vander Weide's use of the speculative future 3.8 percent yield is inconsistent with accepted financial theory and indefensible when measuring today's cost of equity.

Q. DO YOU HAVE ANY COMMENT ON THE 10.4 PERCENT RISK PREMIUM ESTIMATE?

A. Yes. Dr. Vander Weide obtained this estimate using a DCF application applied to subset of the S&P 500 companies. I note that at the present time, YahooFinance! publishes a five-year earnings growth rate for the S&P 500, based on a survey of securities analysts, to be 8.0 percent. As the S&P 500 current dividend yield is about 2 percent, this implies a total return on the S&P 500 of about 10 percent. With a risk-free rate of 2.5 percent, the stock market risk premium using this earnings growth rate would be about 7.5 percent, a more realistic risk premium figure that approximates the upper end of my range and Dr. Vander Weide's historical estimate.

I believe that for CAPM purposes, it would be unreasonably optimistic to assume a risk premium significantly exceeding 8 percent.

C. <u>Dr. Vander Weide's Comparable Earnings and Risk Premium</u>

Q. HOW HAS DR. VANDER WEIDE CALCULATED THE COST OF EQUITY USING HIS COMPARABLE EARNINGS METHOD?

A. Dr. Vander Weide merely compiles the accounting ROEs, as forecast by Value Line, for each of his proxy electric utility companies for the period 2022 – 2024.[5] This method, which cannot really be called either a model or an analysis – merely a data listing – produces an ROE of 10.7 percent. This data listing involves no market data or investor behavior whatsoever and is merely a recitation of Value Line projections

[5] His method includes a very small adjustment to the Value Line reported figures to "correct" for average year versus end of year book equity.

of accounting data. Dr. Vander Weide readily concedes that this method does not measure (or in any way attempt to measure) the cost of equity. Specifically, in response to RCR-ROR-23, he concedes, "Dr. Vander Weide does not contend that his comparable earnings study measures the market cost of equity." Rather, his defense of this method is that it satisfies the *Hope Natural Gas Company* legal standard that the return provided by regulators must be commensurate with returns available in other enterprises with similar risks.

Notwithstanding the fact that the method is entirely based on accounting data with no market data, the method also makes a very questionable assumption. It assumes that Value Line's projection about future accounting ROEs for the proxy utility companies is accepted by investors as what actually will or is very likely to happen, and that investors would regard this as important information. There is no evidence to support these practical assumptions and much reason to doubt that it is true.

Q. IS THIS METHODOLOGY REASONABLE?

A. No, it is not for a number of conceptual and practical reasons. To begin with I offer no legal opinion on what return or rate of return method can and/or must be used by regulators. However, based on my years of regulatory experience, I note that regulators generally find that the cost of equity is a reasonable benchmark for providing the utility a fair authorized return, as I discussed earlier in my testimony. Although Dr. Vander Weide certainly does offer a legal opinion on this subject, he does not assert that the cost of equity fails to meet the Supreme Court's legal standard, but merely that the comparable earnings finding (as he has done) could be an acceptable alternative or supplemental method that meets that standard.

As a matter of economics and regulatory policy I strongly disagree with this method, and in fact, I believe it to be dangerously misguided. This is because the correct standard as a matter of economic and regulatory policy is that the authorized return must meet but should not unduly exceed that capital attraction standard, which I believe is what regulators normally use. Comparable earnings does not and cannot measure the return that is just sufficient to attract capital because it totally ignores investor requirements. It literally removes the investor from the equation. We know this to be true because it uses no market data, such as interest rates or share prices, which is the means by which investors reveal their return requirements. To be specific, the Value Line accounting returns overstate investor return expectations **on their investment funds** because we can observe that market-to-book ratios are in almost all cases in excess of 1.0. I show this on Schedule MIK-6 for the electric utility company proxy group. For example, Value Line may project that a company will earn in the future 12 percent on equity -- $12 per share in annual earnings on a book value per share of $100. I do not question the fact that investors prefer high profits to low profits for the companies whose shares they own. That said, the 12 percent accounting ROE in this example is a return figure that does not mean much to the investor. If the investor must pay $150 for a share of the stock (a market premium of 50 percent), then the investor would compare the $12 earnings per share to his stock purchase price of $150, or an 8 percent return on his or her investment. When Dr. Vander Weide references the returns on investment, it is the investor's own market return that matters, not the firm's accounting return (12 percent in this example) which is not available to the investor, and clearly is a return the investor does not require. Because the market-to-book ratios for utilities consistently and substantially exceed 1.0, it is clear that the comparable earnings method will greatly overstate the return investors require to invest in and provide capital to utilities.

It is simply not in the public interest to use an ROE method (such as comparable earnings) that utterly disregards investor return requirements and the capital attraction standard. It is true that awarding returns to utilities that unreasonably exceed the investor return requirements will certainly succeed in attracting abundant capital, but it will do so by overcharging utility customers and providing unwarranted monopoly profits. In addition, it will incent uneconomic and excessive capital spending further harming utility customers. On the other hand, a method that ignores investor requirements and produces an inadequate return estimate also would be harmful by failing to attract sufficient capital to the utility or discouraging management from needed capital spending. Comparable Earnings is a fatally flawed method that should not be used, and it should be recognized that given current market valuations for utilities it overstates the cost of equity and the return needed for capital attraction.

There are also practical, measurement concerns with this method. Dr. Vander Weide uses the Value Line projections to employ this method. Value Line is, of course, a useful and credible source of financial data. However, I believe he is forced to use Value Line as a single source because no other investor service-type organization, among the myriad of such organizations, provides projections of future accounting ROEs. The only conclusion that one can reasonably draw is that this information (unlike say dividend yields, interest rates, earnings growth rates, betas, etc.) is really not of that much interest to investors. This lack of relevance is not surprising for the reasons discussed above. The projected accounting ROE does not have much relevance to the investor return prospects because the investor cannot purchase the utility company's stock at book value.

I must also question whether the Value Line ROE projections are consistent with market expectations of even the accounting ROEs. This is because Value Line tends to be more bullish than other sources for utility earnings growth. As I show on pages 4 and 5 of Schedule MIK-4, Value Line, on average projects earnings growth of about 5.9 percent annually as compared to 4.6 to 5.3 percent for the other three sources. This implies that other sources would not necessarily share in Value Line's optimism for future accounting ROEs. Dr. Vander Weide simply assumes that what Value Line publishes for future accounting earnings is what investors expect.

Q. DR. VANDER WEIDE EMPLOYS THE RISK PREMIUM ANALYSIS AS A CHECK ON HIS THREE PRIMARY METHODS, STATING THAT IT SUPPORTS HIS 10.4 PERCENT RECOMMENDATION. DO YOU AGREE?

A. No, his Risk Premium studies support a result much lower than that, primarily because he has used a utility bond yield value that is too high. His *Ex Ante* method estimates the risk premium based on the difference between utility DCF studies that he has performed (similar to his DCF study in this case) and the contemporaneous Single A utility bond yield. He then estimates an econometric-type model in which the historical risk premium (measured as described above) is a function of the contemporaneous interest rate. The estimated model is RP = 0.0851 – 0.6238 (bond yield). Using this equation and assuming a **forecasted** utility bond yield of 5.4 percent, he calculates a risk premium of 5.14 percent and a cost of equity (apparently inclusive of flotation expense) of 10.5 percent (i.e., 5.14% + 5.4% = 10.5%). His second or *Ex Poste* approach is a long-term analysis of historic returns, which produces a risk premium range of 4.0 to 4.6 percent (midpoint of about 4.3 percent). Adding in the forecasted utility bond yield of 5.4 percent, produces a cost of equity of 4.3% + 5.4% = 9.7% (or 9.9 percent after adding 0.2 percent for flotation).

The most obvious problem with these studies is that they assume an excessively high utility bond yield. As I demonstrate on Schedule MIK-2, a more realistic value for the Single A utility bond yield at this time would be about 3.7 percent, which is far lower than the forecast value of 5.4 percent. I have already explained why it is wrong and in violation of accepted financial theory to use the forecasted value in place of the actual, observed yield. Inserting 3.7 percent into his regression model produces a Risk Premium ROE of 9.9 percent, or 9.7 percent before the flotation adder. However, even that lower estimate is problematic because it is based on Dr. Vander Weide's own historical DCF calculations which I have found to be suspect and over stated. Thus, the true Risk Premium cost of equity may be well below 9.7 or 9.9 percent. It is difficult to tell without being able to evaluate his historically performed DCF calculations.

Correcting the *Ex Poste* Risk Premium cost of equity appears to be much simpler. If the midpoint 4.3 percent is combined with the current Single A utility bond yield of 3.7 percent, this produces a 8.0 percent cost of equity (before flotation expense). Thus, the corrected Risk Premium evidence would range from about 8.0 percent to something less than 9.7 percent, perhaps averaging about 9 percent or lower. This does not confirm his 10.4 percent recommendation.

VI. <u>CONCLUSIONS AND RECOMMENDATIONS</u>

Q. PLEASE SUMMARIZE YOUR CONCLUSION AND RECOMMENDATIONS ON THE FAIR RATE OF RETURN.

A. I recommend provisionally a 6.79 percent overall rate of return including a return on common equity of 8.90 percent. This includes a 47.14 percent common equity ratio and a 52.86 percent long-term debt ratio, with no short-term debt. I also have modified the Company's proposed embedded cost of long-term debt from the proposed of 5.13 percent to 4.90 percent. These recommendations are provisional pending the 12+0 update that will contain the actual common equity ratio at September 30, 2019 and the results of the planned September 2019 $125 million long-term debt issue. My capital structure/cost of debt differ from the Company's filing due to the fact that the Company has omitted some of its actual and planned outstanding long-term debt. I also have removed a $60 million long-term debt issue scheduled to mature in December 2019 based on the assumption that the planned debt issue proceeds will be in part used to redeem that maturing debt. I note that my capital structure ratios are similar to the proxy group average and what the NYPSC has approved for O&R.

The 8.9 percent ROE recommendation is based primarily upon my DCF study using a proxy group similar to that of Company witness Dr. Vander Weide. I have also performed a CAPM analysis which produces results somewhat lower than the DCF study. Dr. Vander Weide recommends 10.4 percent, and the Company requests a lower figure of 10.0. Given RECO's very low business risk and the very low and declining market capital costs, there is certainly no reason to increase the Company's currently-authorized return of 9.60 percent. In fact, that authorized ROE overstates investor requirements at this time for low-risk delivery service electric utilities and should be lowered significantly to avoid overcharging RECO customers.

Q. WOULD A REDUCTION TO RECO'S CURRENTLY AUTHORIZED ROE OF 9.6 PERCENT BE UNREASONABLE OR PUNITIVE TO SHAREHOLDERS?

A. No, not at all. The central question is whether a lowering of the authorized ROE is consistent with cost of capital evidence and adequately meets the capital attraction standard. I have shown that the utility cost of capital (even before considering RECO's very low business risk compared to the industry) is well below the current 9.6 percent. The NYPSC has awarded (in approved settlements) an ROE to RECO's corporate affiliates O&R and Con Ed of 9.0 percent, similar to my recommendation. As shown on Schedule MIK-6, Con Ed stock has performed well in light of these ROE awards and is well regarded by investors. Its shares have been selling at a 64 percent premium to book value, the five-year cumulative market return on investment has been 82.7 percent (nearly a 13 percent annualized rate of return (dividends plus capital gains), and over the next five years the Company expects to increase net plant (after accounting for depreciation) of 27 percent. Clearly, this authorized 9.0 percent ROE meets the capital attraction standard.

I have also examined the ROEs authorized by state commissions.[6] During the past five years state rate case ROE awards have averaged about 9.6 to 9.7 percent for all electric utilities and 9.2 to 9.4 percent for delivery service electric utilities (such as RECO) lacking regulated generation. The lower ROEs for delivery service electric utilities (about 0.25 percent or so lower) may reflect the lower perceived business risk for these companies, as discussed earlier in my testimony. An important question

[6] This information is compiled by S&P Global Market Intelligence, "RRA Regulatory Focus Major Rate Case Decisions – January – June 2019", July 22, 2019.

is how have investors and utility management responded to these ROE awards that are in the mid or even low 9s.

I have addressed this question by compiling data on Schedule MIK-6 for the 34 proxy electric utility companies using three investor metrics. The market/book premium measures directly how investors value these companies, i.e., are investors willing to pay a material premium over book value recognizing that regulation is largely cost based. The data on this schedule show that investors are willing to pay a healthy premium for utility stock over the net asset or book value for nearly all of the companies, with the average premium exceeding 100 percent. Investors obviously place a very high premium on utility share prices. The second metric measures the market return received by investors over the past five years (dividends plus capital gains). While there is considerable company-by-company variation, the five year cumulative return averages over 80 percent, or nearly 13 percent annualized.[7] Again, this shows a very positive investor reaction and that investors are not at all discouraged from bidding up utility share prices in light of the state ROE awards noted above.

The third metric measures the projected increase in net plant over the next five years for each of the proxy companies. I have used projected rather than historical growth because historical growth in net plant can be distorted by such factors as mergers and the massive write downs for unregulated generation experienced by some companies. Note that net plant would include cumulative new investment over the next five years after netting out depreciation of existing and new plant. This metric is an indication of utility management's willingness to invest in new plant and their confidence about the ability to attract investment capital from markets, given

[7] Note that a 10 percent annual rate of return compounded over five years would be a cumulative return of about 61 percent. Most of the utility companies in the proxy group have exceeded this rate of return.

state commission ROE awards. The projected five year total growth relative to 2018 net plant averages 26 percent.

Q. HAVE YOU SEEN OTHER EVIDENCE ON UTILITY COMPANIES' WILLINGNESS TO INVEST?

A. Yes. The Edison Electric Institute ("EEI") has been reporting very strong levels of plant and equipment investment by electric utilities both in recent years and going forward. This has occurred even as some companies have been exiting or curtailing activity in the wholesale generation market. Quoting from EEI statements, SNL reports, "Industry Cap Ex in 2017 totaled $117.6 billion, marking the sixth consecutive year in which we've set a record . . .the industry plans to maintain an elevated level of capital spending for at least the near term."[8] Clearly, the state commission ROE awards discussed above in the mid to low 9s for delivery service electrics have not discouraged or impaired utility investment. While the ROE awards may have declined from earlier years, utility stocks remain attractive to investors seeking return because the cost of capital has declined so sharply.

Q. WHAT DO YOU CONCLUDE?

A. The message from capital markets for electric utilities is clear: The ROEs awarded by state commissions have not impaired the attractiveness to investors of utility stocks or managements' willingness to invest aggressively in new plant and equipment. This demonstrates that there is room to lower the RECO ROE below the currently authorized 9.6 percent and still meet investor requirements/expectations and the capital attraction standard.

[8] SNL "EEI boosts Cap Ex Estimates in 2018, 2019", July 17, 2018.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does, subject to the receipt of further information and updates from the Company.

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STATE OF NEW JERSEY
OFFICE OF ADMINISTRATIVE LAW
BEFORE THE HONORABLE IRENE JONES

IN THE MATTER OF THE VERIFIED PETITION OF ROCKLAND ELECTRIC COMPANY FOR APPROVAL OF CHANGES IN ELECTRIC RATES, ITS TARIFF FOR ELECTRIC SERVICE, AND ITS DEPRECIATION RATES, AND FOR OTHER RELIEF	**)))))))**	**BPU DOCKET NO. ER19050552** **OAL DOCKET NO. PUC07548-2019**

SCHEDULES ACCOMPANYING THE
DIRECT TESTIMONY OF

MATTHEW I. KAHAL

ON BEHALF OF THE
DIVISION OF RATE COUNSEL

STEFANIE A. BRAND, ESQ.
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FILED: October 11, 2019

ROCKLAND ELECTRIC COMPANY

Cost of Capital Summary
at September 30, 2019

Capital Type	Balance (million $)	% Total	Cost Rate	Weighted Cost
Long-Term Debt[(1)]	$816.8	52.86%	4.90%[(2)]	2.59%
Short-Term	0.0	0.00	--	0.00
Common Equity[(3)]	728.5	47.14	8.90[(4)]	4.20
Total	**$1,545.3**	**100.00%**	--	**6.79%**

(1) Exhibit P-4, Schedule 2, 9 + 3 update and page 2 of Schedule MIK-1.
(2) See Schedule MIK-1, page 2 of 2.
(3) Company estimate of equity balance per Exhibit P-4, Schedule 2, 9 + 3 update.
(4) See Schedule MIK-4, page 1 of 5 and testimony.

ROCKLAND ELECTRIC COMPANY

Preliminary Adjustments to
Debt Balance and Cost of Debt

Debt Balance at 9/30/19	(9 + 3 update)
Per Co. Schedule 4:	$756,985,971
Matures 12/1/19	(60,000,000)
12/20/18 issue	+ 25,000,000
12/20/18 issue included	(19,791,667)
9/1/19 issue	+ 125,000,000
9/1/19 issue included	(10,416,667)
As Revised	**$816,777,637**

Interest Expense at 9/30/19	(9 + 3 update)
Per Co. Schedule 4:	$38,835,588*
Maturity 12/1/19	(2,976,000)
12/20/18 issue	+ 1,087,500
12/20/18 issue included	(860,938)
9/1/19 issue	+ 4,375,000
9/1/19 issue included	(416,667)
As Revised	**$40,044,483**

Cost Rate $40,044,483 / $816,777,637 = 4.90%

*Inclusive of amortization of debt issuance costs, debt discount and call premium expense. Note that the Company in its 9+3 update has included the planned 9/1/2019 $125 million due issue at an interest rate of 4.00%. This has been revised based on current market conditions to 3.5%.

ROCKLAND ELECTRIC COMPANY

Trends in Capital Costs

	Annualized Inflation (CPI)	10-Year Treasury Yield	3-Month Treasury Yield	Single A Utility Yield
2001	2.9%	5.0%	3.5%	7.8%
2002	1.6	4.6	1.6	7.4
2003	1.9	4.1	1.0	6.6
2004	2.7	4.3	1.4	6.2
2005	3.4	4.3	3.0	5.6
2006	2.5	4.8	4.8	6.1
2007	2.8	4.6	4.5	6.3
2008	3.8	3.4	1.6	6.5
2009	(0.4)	3.2	0.2	6.0
2010	1.6	3.2	0.1	5.5
2011	3.1	2.8	0.0	5.1
2012	2.1	1.8	0.1	4.1
2013	1.5	2.3	0.1	4.5
2014	1.7	2.5	0.0	4.3
2015	0.1	2.2	0.0	4.1
2016	1.3	1.8	0.0	3.9
2017	2.1	2.3	1.0	4.0
2018	2.5	2.9	2.0	4.3

ROCKLAND ELECTRIC COMPANY

U.S. Historic Trends in Capital Costs
(Continued)

	Annualized Inflation (CPI)	10-Year Treasury	3-Month Treasury	Single A Utility Yield
2007				
January	2.1%	4.8%	5.1%	6.0%
February	2.4	4.7	5.2	5.9
March	2.8	4.6	5.1	5.9
April	2.6	4.7	5.0	6.0
May	2.7	4.8	5.0	6.0
June	2.7	5.1	5.0	6.3
July	2.4	5.0	5.0	6.3
August	2.0	4.7	4.3	6.2
September	2.8	4.5	4.0	6.2
October	3.5	4.5	4.0	6.1
November	4.3	4.2	3.4	6.0
December	4.1	4.1	3.1	6.2
2008				
January	4.3%	3.7%	2.8%	6.0%
February	4.0	3.7	2.2	6.2
March	4.0	3.5	1.3	6.2
April	3.9	3.7	1.3	6.3
May	4.2	3.9	1.8	6.3
June	5.0	4.1	1.9	6.4
July	5.6	4.0	1.7	6.4
August	5.4	3.9	1.8	6.4
September	4.9	3.7	1.2	6.5
October	3.7	3.8	0.7	7.6
November	1.1	3.5	0.2	7.6
December	0.1	2.4	0.0	6.5

ROCKLAND ELECTRIC COMPANY

U.S. Historic Trends in Capital Costs
(Continued)

	Annualized Inflation (CPI)	10-Year Treasury	3-Month Treasury	Single A Utility Yield
2009				
January	0.0%	2.5%	0.1%	6.4%
February	0.2	2.9	0.3	6.3
March	(0.4)	2.8	0.2	6.4
April	(0.7)	2.9	0.2	6.5
May	(1.3)	2.9	0.2	6.5
June	(1.4)	3.7	0.2	6.2
July	(2.1)	3.6	0.2	6.0
August	(1.5)	3.6	0.2	5.7
September	(1.3)	3.4	0.1	5.5
October	(0.2)	3.4	0.1	5.6
November	1.8	3.4	0.1	5.6
December	2.5	3.6	0.1	5.8
2010				
January	2.6%	3.7%	0.1%	5.8%
February	2.1	3.7	0.1	5.9
March	2.3	3.7	0.2	5.8
April	2.2	3.9	0.2	5.8
May	2.0	3.4	0.2	5.5
June	1.1	3.2	0.1	5.5
July	1.2	3.0	0.2	5.3
August	1.1	2.7	0.2	5.0
September	1.1	2.7	0.2	5.0
October	1.2	2.5	0.1	5.1
November	1.1	2.8	0.1	5.4
December	1.2	3.3	0.1	5.6

ROCKLAND ELECTRIC COMPANY

U.S. Historic Trends in Capital Costs
(Continued)

	Annualized Inflation (CPI)	10-Year Treasury Yield	3-Month Treasury Yield	Single A Utility Yield
2011				
January	1.6%	3.4%	0.1%	5.6%
February	2.1	3.6	0.1	5.7
March	2.7	3.4	0.1	5.6
April	2.2	3.5	0.1	5.6
May	3.6	3.2	0.0	5.3
June	3.6	3.0	0.0	5.3
July	3.6	3.0	0.0	5.3
August	3.8	2.3	0.0	4.7
September	3.9	2.0	0.0	4.5
October	3.5	2.2	0.0	4.5
November	3.0	2.0	0.0	4.3
December	3.0	2.0	0.0	4.3
2012				
January	2.9%	2.0%	0.0%	4.3%
February	2.9	2.0	0.0	4.4
March	2.7	2.2	0.1	4.5
April	2.3	2.1	0.1	4.4
May	1.7	1.8	0.1	4.2
June	1.7	1.6	0.1	4.1
July	1.4	1.5	0.1	3.9
August	1.7	1.7	0.1	4.0
September	2.0	1.7	0.1	4.0
October	2.2	1.8	0.1	3.9
November	1.8	1.7	0.1	3.8
December	1.7	1.7	0.1	4.0

ROCKLAND ELECTRIC COMPANY

U.S. Historic Trends in Capital Costs
(Continued)

	Annualized Inflation (CPI)	10-Year Treasury Yield	3-Month Treasury Yield	Single A Utility Yield
2013				
January	1.6%	1.9%	0.1%	4.2%
February	2.0	2.0	0.1	4.2
March	1.5	2.0	0.1	4.2
April	1.1	1.8	0.1	4.0
May	1.4	1.9	0.0	4.2
June	1.8	2.3	0.1	4.5
July	2.0	2.6	0.0	4.7
August	1.5	2.7	0.0	4.7
September	1.2	2.8	0.0	4.8
October	1.0	2.6	0.1	4.7
November	1.2	2.7	0.1	4.8
December	1.5	2.9	0.1	4.8
2014				
January	1.6%	2.9%	0.0%	4.6%
February	1.1	2.7	0.1	4.5
March	1.5	2.7	0.1	4.5
April	2.0	2.7	0.0	4.4
May	2.1	2.6	0.0	4.3
June	2.1	2.6	0.1	4.3
July	2.0	2.5	0.0	4.2
August	1.7	2.4	0.0	4.1
September	1.7	2.5	0.0	4.2
October	1.7	2.3	0.0	4.1
November	1.3	2.3	0.0	4.1
December	0.8	2.2	0.0	4.0

ROCKLAND ELECTRIC COMPANY

U.S. Historic Trends in Capital Costs
(Continued)

	Annualized Inflation (CPI)	10-Year Treasury	3-Month Treasury	Single A Utility Yield
2015				
January	(0.1)%	1.9%	0.0%	3.6%
February	0.0	2.0	0.0	3.7
March	(0.1)	2.0	0.0	3.7
April	(0.2)	1.9	0.0	3.8
May	0.0	2.2	0.0	4.2
June	0.1	2.4	0.0	4.4
July	0.2	2.3	0.0	4.4
August	0.2	2.2	0.1	4.3
September	0.0	2.3	0.0	4.4
October	0.2	2.1	0.0	4.3
November	0.5	2.3	0.1	4.4
December	0.7	2.2	0.2	4.4
2016				
January	1.4%	2.1%	0.3%	4.3%
February	1.0	1.8	0.3	4.1
March	0.9	1.9	0.3	4.2
April	1.1	1.8	0.2	4.2
May	1.0	1.8	0.3	4.2
June	1.0	1.6	0.3	4.1
July	0.8	1.5	0.3	3.6
August	1.1	1.6	0.3	3.6
September	1.5	1.6	0.3	3.7
October	1.6	1.8	0.3	3.8
November	1.7	2.1	0.5	4.1
December	2.1	2.5	0.5	4.3

ROCKLAND ELECTRIC COMPANY

U.S. Historic Trends in Capital Costs
(Continued)

	Annualized Inflation (CPI)	10-Year Treasury Yield	3-Month Treasury	Single A Utility Yield
2017				
January	2.5%	2.4%	0.5%	4.1%
February	2.7	2.4	0.5	4.2
March	2.4	2.5	0.8	4.2
April	2.2	2.3	0.8	4.1
May	1.9	2.3	0.9	4.1
June	1.6	2.2	1.0	3.9
July	1.7	2.3	1.1	4.0
August	1.9	2.2	1.0	3.9
September	2.2	2.2	1.1	3.9
October	2.0	2.4	1.1	3.9
November	2.2	2.4	1.3	3.8
December	2.1	2.4	1.3	3.8
2018				
January	2.1	2.6	1.4	3.9
February	2.2	2.9	1.6	4.1
March	2.4	2.8	1.7	4.2
April	2.5	2.9	1.8	4.2
May	2.8	3.0	1.9	4.3
June	2.9	2.9	1.9	4.3
July	2.9	2.9	2.0	4.3
August	2.7	2.9	2.1	4.3
September	2.3	3.0	2.2	4.3
October	2.5	3.2	2.3	4.5
November	2.2	3.1	2.4	4.5
December	1.9	2.8	2.4	4.4

ROCKLAND ELECTRIC COMPANY

U.S. Historic Trends in Capital Costs
(Continued)

	Annualized Inflation (CPI)	10-Year Treasury Yield	3-Month Treasury	Single A Utility Yield
2019				
January	1.6%	2.7%	2.4%	4.4%
February	1.5	2.7	2.4	4.3
March	1.9	2.6	2.5	4.2
April	2.0	2.5	2.4	4.1
May	1.8	2.4	2.4	4.0
June	1.6	2.1	2.2	3.8
July	1.8	2.1	2.2	3.7
August	--	1.6	2.0	3.4(p)

Source: *Economic Report of the President, Mergent's Bond Record*, *Federal Reserve Statistical Release* (H. 15), Consumer Price Index Summary (BLS).

ROCKLAND ELECTRIC COMPANY

List of the Electric Utility Proxy Companies

	Company	Safety Rating	Financial Strength	Beta	2019 Common Equity Ratio*
1.	Allete	2	A	0.65	61.5
2.	Alliant Energy	2	A	0.60	48.0
3.	Ameren Corp	2	A	0.60	48.5
4.	Am Electric Power	1	A+	0.55	44.0
5.	AVANGRID	2	B++	0.40	71.5
6.	Avista Corp.	2	A	0.60	50.0
7.	Black Hills Corp.	2	A	0.75	43.5
8.	Centerpoint	3	B+	0.80	42.5
9.	CMS Energy	2	B++	0.55	32.0
10.	Consolidated Ed	1	A+	0.45	48.5
11.	Dominion Energy	2	B++	0.55	39.5
12.	DTE Energy	2	B++	0.55	47.0
13.	Duke Energy	2	A	0.50	44.5
14.	Edison Int.	3	B+	0.60	39.5
15.	Entergy Corp.	3	B++	0.60	37.5
16.	Eversource Res.	1	A	0.60	46.5
17.	Exelon Corp.	2	B++	0.70	50.0
18.	Fortis, Inc.	2	B++	0.65	38.0
19.	Hawaiian Ind.	2	A	0.55	52.0
20.	IdaCorp, Inc.	2	A	0.60	58.5
21.	MGE Energy	1	A	0.55	62.0
22.	NextEra Energy	1	A+	0.55	54.5
23.	Northwestern Corp.	2	B++	0.60	48.5
24.	OGE Energy	2	A	0.80	56.5
25.	Otter Tail Corp.	2	A	0.70	50.5
26.	Pinnacle West	1	A+	0.55	53.0
27.	PNM Resources	3	B+	0.60	38.0
28.	Portland General	2	B++	0.60	50.5
29.	PPL Corp.	2	B++	0.65	41.0
30.	P.S. Enterprise	1	A++	0.65	51.5

ROCKLAND ELECTRIC COMPANY

List of the Electric Utility Proxy Companies
(Continued)

	Company	Safety Rating	Financial Strength	Beta	2019 Common Equity Ratio*
31.	Sempra Energy	2	A	0.75	40.5
32.	Southern Co.	2	A	0.50	39.5
33.	WEC Energy	1	A+	0.50	50.0
34.	Xcel Energy	1	A+	0.50	42.5
	Average	**1.9**	**--**	**0.60**	**47.7%**

*The common equity ratio excludes short-term debt (and current maturities of long-term debt). Actual 2018 equity ratio including short-term debt and current maturities averages 45.7 percent.
Source: *Value Line Investment Survey*, June 14, 2019, July 26, 2019, and August 16, 2019.

ROCKLAND ELECTRIC COMPANY

DCF Summary for the
Electric Company Proxy Group

1.	Dividend Yield (March – August 2019)[1]	3.21%
2.	Adjusted Yield ((1) x 1.0275)	3.3%
3.	Long-Term Growth Rate[2]	5.0 – 5.5%
4.	Total Return ((2) + (3))	8.3 – 8.8%
5.	Flotation Expense	0.1%
6.	Cost of Equity ((4) + (5))	8.4 – 8.9%
7.	Midpoint	8.7%
	Recommendation	**8.9%**

[1] Schedule MIK-4, page 2 of 5.
[2] Schedule MIK-4, pages 3 through 9..

ROCKLAND ELECTRIC COMPANY

Dividend Yields for the Electric Company Proxy Group
(March – August 2019)

	Company	March	April	May	June	July	August	Average
1.	Allete	2.86%	2.89%	2.87%	2.82%	2.70%	2.74%	2.81%
2.	Alliant Energy	3.01	3.01	2.99	2.89	2.87	2.71	2.91
3.	Ameren Corp	2.58	2.61	2.59	2.53	2.51	2.46	2.55
4.	Am Electric Power	3.20	3.13	3.11	3.05	3.05	2.94	3.08
5.	AVANGRID	3.50	3.44	3.52	3.49	3.48	3.48	3.49
6.	Avista Corp.	3.82	3.59	3.71	3.48	3.37	3.30	3.55
7.	Black Hills Corp.	2.73	2.78	2.65	2.61	2.55	2.63	2.66
8.	Centerpoint	3.75	3.71	4.04	4.02	3.96	4.15	3.94
9.	CMS Energy	2.75	2.75	2.73	2.64	2.63	2.43	2.66
10.	Consolidated Ed	3.49	3.44	3.43	3.38	3.48	3.33	3.43
11.	Dominion Energy	4.79	4.71	4.88	4.75	4.94	4.73	4.80
12.	DTE Energy	3.03	3.01	3.01	2.96	2.97	2.92	2.98
13.	Duke Energy	4.20	4.15	4.42	4.28	4.36	4.08	4.25
14.	Edison Int.	3.96	3.84	4.13	3.63	3.29	3.39	3.71
15.	Entergy Corp	3.81	3.76	3.75	3.54	3.45	3.23	3.59
16.	Eversource Res.	3.02	2.99	2.90	2.82	2.82	2.67	2.87
17.	Exelon Corp.	2.89	2.85	3.02	3.02	3.22	3.07	3.01
18.	Fortis, Inc.	3.70	3.70	3.62	3.48	3.34	3.32	3.53
19.	Hawaiian Ind.	3.14	3.09	3.08	2.94	2.86	2.88	3.00
20.	IdaCorp, Inc.	2.53	2.54	2.51	2.51	2.47	2.29	2.48
21.	MGE Energy	1.99	1.99	2.04	1.85	1.82	1.78	1.91
22.	NextEra Energy	2.59	2.57	2.52	2.44	2.41	2.28	2.47
23.	Northwestern Corp.	3.27	3.29	3.24	3.19	3.29	3.18	3.24
24.	OGE Energy	3.39	3.45	3.51	3.43	3.40	3.40	3.43
25.	Otter Tail Corp.	2.81	2.73	2.82	2.65	2.62	2.77	2.73
26.	Pinnacle West	3.09	3.10	3.14	3.14	3.23	3.10	3.13
27.	PNM Resources	2.45	2.50	2.46	2.28	2.34	2.27	2.38
28.	Portland General	2.97	2.94	2.91	2.84	2.81	2.71	2.86

ROCKLAND ELECTRIC COMPANY

Dividend Yields for the Electric Company Proxy Group
(March – August 2019)
(Continued)

	Company	March	April	May	June	July	August	Average
29.	PPL Corp.	5.20	5.29	5.54	5.32	5.57	5.58	5.42
30.	P.S. Enterprise	3.16	3.15	3.20	3.20	3.29	3.11	3.19
31.	Sempra Energy	3.07	3.02	2.94	2.82	2.86	2.73	2.91
32.	Southern Co.	4.80	4.66	4.64	4.49	4.41	4.26	4.54
33.	WEC Energy	2.98	3.01	2.96	2.83	2.76	2.46	2.83
34.	Xcel Energy	2.88	2.87	2.83	2.72	2.72	2.52	2.76
	Average	**3.28%**	**3.26%**	**3.29%**	**3.18%**	**3.18%**	**3.09%**	**3.21%**

Source: YahooFinance! Historical price/dividend data. August 2019. Dividend yields based on month closing share prices and quarterly dividends.

ROCKLAND ELECTRIC COMPANY

Projection of Earnings Per Share
Five-Year Growth Rates for the
Electric Company Proxy Group

	Company	Value Line	Yahoo	Zacks	CNN	Average
1.	Allete	5.0%	6.00%	7.20%	7.20%	6.35%
2.	Alliant Energy	6.5	5.05	5.54	4.62	5.43
3.	Ameren Corp	6.5	4.90	6.49	6.50	6.10
4.	Am Electric Power	4.0	6.10	5.66	5.49	5.31
5.	AVANGRID	10.0	6.60	7.53	7.29	7.86
6.	Avista Corp.	3.5	3.40	3.32	3.46	3.42
7.	Black Hills Corp.	5.0	2.96	4.16	3.48	3.30
8.	Centerpoint	12.5	5.11	5.13	5.39	7.03
9.	CMS Energy	7.0	7.14	6.40	7.21	6.94
10.	Consolidated Ed	3.0	3.45	2.00	2.00	2.61
11.	Dominion Energy	6.5	4.62	4.84	4.76	5.18
12.	DTE Energy	5.5	4.45	6.00	6.50	5.61
13.	Duke Energy	6.0	7.27	4.91	5.00	5.80
14.	Edison Int.	--	3.80	5.46	5.69	4.38
15.	Entergy Corp	0.5	(1.50)	7.00	2.20	2.05
16.	Eversource Res.	5.5	5.63	5.64	6.00	5.69
17.	Exelon Corp.	9.0	(1.56)	3.81	2.34	3.40
18.	Fortis, Inc.	5.5	--	5.08	4.50	5.03
19.	Hawaiian Ind	4.5	6.10	5.56	5.56	5.43
20.	IdaCorp, Inc.	3.5	2.40	3.85	3.50	3.31
21.	MGE Energy	9.0	4.00	--	1.90	4.97
22.	NextEra Energy	10.5	7.99	8.01	8.02	8.63
23.	Northwestern Corp.	3.0	3.24	2.65	3.50	3.10
24.	OGE Energy	6.5	3.10	4.37	4.50	4.62
25.	Otter Tail Corp.	5.0	9.00	7.00	7.00	7.00
26.	Pinnacle West	5.5	5.05	6.09	5.08	5.43
27.	PNM Resources	7.0	6.18	5.48	5.85	6.13
28.	Portland General	4.5	5.20	4.78	4.83	4.83
29.	PPL Corp.	1.5	0.59	--	4.00	2.03
30.	P.S. Enterprise	6.0	3.65	2.27	4.13	4.01

ROCKLAND ELECTRIC COMPANY

Projection of Earnings Per Share
Five-Year Growth Rates for the
Electric Company Proxy Group
(Continued)

	Company	Value Line	Yahoo	Zacks	CNN	Average
31.	Sempra Energy	11.0	10.10	7.77	8.00	9.22
32.	Southern Co.	3.5	1.37	5.00	4.65	3.63
33.	WEC Energy	6.0	5.91	5.91	5.91	5.93
34.	Xcel Energy	5.5	5.80	4.92	5.77	5.50
	Average	**5.88%**	**4.64%**	**5.31%**	**5.05%**	**5.15%**

Source: *Value Line Investment Survey*, June 14, 2019, July 26 and August 16, 2019. YahooFinance.com, Zacks.com, CNNMoney.com, Reuters.com, public websites, August 2019.

ROCKLAND ELECTRIC COMPANY

Other *Value Line* Measures of Growth
for the Electric Company Proxy Group

	Company	Dividend per Share	Book Value per Share	Earnings Retention
1.	Allete	5.0%	3.0%	3.0%
2.	Alliant Energy	5.5	7.5	4.0
3.	Ameren Corp	6.0	5.0	4.0
4.	Am Electric Power	6.0	4.5	3.5
5.	AVANGRID	3.0	1.5	2.0
6.	Avista Corp.	4.0	3.5	2.5
7.	Black Hills Corp.	6.5	5.5	3.5
8.	Centerpoint	2.5	13.5	4.0
9.	CMS Energy	7.0	7.5	6.0
10.	Consolidated Ed	3.5	3.0	2.5
11.	Dominion Energy	5.0	7.0	2.5
12.	DTE Energy	6.0	5.5	4.0
13.	Duke Energy	2.5	2.5	2.5
14.	Edison Int.	3.5	4.5	6.0
15.	Entergy Corp	2.5	5.0	3.5
16.	Eversource Res.	5.5	4.5	3.5
17.	Exelon Corp.	5.5	5.0	3.5
18.	Fortis, Inc.	6.0	5.0	4.0
19.	Hawaiian Ind	3.0	4.0	4.0
20.	IdaCorp, Inc.	6.0	4.0	4.0
21.	MGE Energy	4.5	6.0	6.5
22.	NextEra Energy	10.0	6.0	5.5
23.	Northwestern Corp.	4.5	3.0	3.0
24.	OGE Energy	7.5	3.5	3.0
25.	Otter Tail Corp.	4.0	4.5	3.5
26.	Pinnacle West	6.0	4.0	4.0
27.	PNM Resources	7.0	4.0	4.0
28.	Portland General	6.5	3.0	3.0
29.	PPL Corp.	2.0	5.5	4.5

ROCKLAND ELECTRIC COMPANY

Other *Value Line* Measures of Growth
for the Electric Company Proxy Group
(Continued)

	Company	Dividend per Share	Book Value per Share	Earnings Retention
30.	P.S. Enterprise	5.0	4.5	4.5
31.	Sempra Energy	8.0	6.5	5.0
32.	Southern Co.	3.0	3.5	3.0
33.	WEC Energy	6.0	3.5	4.0
34.	Xcel Energy	6.0	4.5	4.0
	Average	**5.13%**	**4.80%**	**3.85%**

Source: *Value Line Investment Survey*, June 14, 2019, July 26, 2019 and August 16, 2019.
The earnings retention figures are projections for 2022-2024.

ROCKLAND ELECTRIC COMPANY

Fundamental Growth Rate Analysis for
Electric Company Proxy Group

	Company	Shares 2018-2023[(1)]	% Premium[(2)]	sv[(3)]	br[(4)]	sv + br
1.	Allete	0.1%	92.2%	0.1%	3.0%	3.1%
2.	Alliant Energy	1.2	120.0	1.4	4.0	5.4
3.	Ameren Corp	0.8	125.9	1.1	4.0	5.1
4.	Am Electric Power	1.0	117.4	1.2	3.5	4.7
5.	AVANGRID	Negative	N/A	0.0	2.0	2.0
6.	Avista Corp.	1.6	59.9	0.9	2.5	3.4
7.	Black Hills Corp.	0.8	107.2	0.9	3.5	4.4
8.	Centerpoint	1.5	55.8	0.8	4.0	4.8
9.	CMS Energy	0.9	216.1	2.0	6.0	8.0
10.	Consolidated Ed	1.4	63.8	0.9	2.5	3.4
11.	Dominion Energy	4.8	122.5	5.9	2.5	8.4
12.	DTE Energy	1.9	108.9	2.1	4.0	6.1
13.	Duke Energy	0.8	44.1	0.3	2.5	2.8
14.	Edison Int.	1.7	101.4	1.8	6.0	7.8
15.	Entergy Corp	2.1	89.8	1.9	3.5	5.4
16.	Eversource Res.	2.0	105.4	2.1	3.5	5.6
17.	Exelon Corp.	0.4	35.4	0.1	4.5	4.6
18.	Fortis, Inc.	1.2	40.9	0.5	4.0	4.5
19.	Hawaiian Ind	0.7	116.6	0.9	4.0	4.9
20.	IdaCorp, Inc.	Negative	N/A	0.0	4.0	4.0
21.	MGE Energy	0.8	181.3	1.4	6.5	7.9
22.	NextEra Energy	2.3	205.1	4.7	5.5	10.2
23.	Northwestern Corp.	0.3	82.6	0.3	3.0	3.3
24.	OGE Energy	0.0	107.5	0.0	3.0	3.0
25.	Otter Tail Corp.	1.0	166.8	1.7	3.5	5.2
26.	Pinnacle West	0.5	92.4	0.5	4.0	4.5
27.	PNM Resources	1.3	137.5	1.8	4.0	5.8
28.	Portland General	0.2	90.7	0.1	3.0	3.1
29.	PPL Corp.	1.6	70.5	1.1	4.5	5.6
30.	P.S. Enterprise	0.0	90.5	0.0	4.5	4.5

ROCKLAND ELECTRIC COMPANY

Fundamental Growth Rate Analysis for
Electric Company Proxy Group
(Continued)

	Company	Shares 2018-2023[1]	% Premium[2]	sv[3]	br[4]	sv + br
31.	Sempra Energy	3.2	132.1	4.2	5.0	9.2
32.	Southern Co.	1.1	117.7	1.3	3.0	4.3
33.	WEC Energy	Negative	N/A	0.0	4.0	4.0
34.	Xcel Energy	0.4	146.0	0.6	4.0	4.6
	Average			**1.3%**	**3.9%**	**5.2%**

[1] Projected growth rate in shares outstanding; 2018-2023.
[2] % Premium of share price ("Recent Price") over 2019 Book Value per share.
[3] sv is growth rate in shares x % premium.
[4] br is Value Line projection as of 2022-2024.
Source: *Value Line Investment Survey*, June 14, 2019, July 26, 2019, and August 16, 2019.

ROCKLAND ELECTRIC COMPANY

Capital Asset Pricing Model Study
Illustrative Calculations

A. Model Specification

$K_e = R_F + \beta\ (R_m - R_F)$, where

K_e = cost of equity

R_F = return on risk free asset

Rm = expected stock market return

B. Data Inputs

R_F = 2.7% (Long-term Treasury bond yield for the most recent six months)

Rm = 7.7 – 10.7% (equates to equity risk premium of 5.0 - 8.0%)

Beta = 0.60 (See Schedule MIK-3)

C. Model Calculations

Low end: K_e = 2.7% + 0.60 (5.0) = 5.7%

Midpoint: K_e = 2.7% + 0.60 (6.5) = 6.6%

Upper End: K_e = 2.7% + 0.60 (8.0) = 7.5%

High Sensitivity: K_e = 2.7% + 0.60 (9.0) = 8.1%

ROCKLAND ELECTRIC COMPANY

Long-Term U.S. Treasury Yields
(March - August 2019)

Month	30-Year	20-Year	10-Year
March	2.98%	2.80%	2.57%
April	2.94	2.76	2.53
May	2.82	2.63	2.40
June	2.57	2.36	2.07
July	2.57	2.36	2.06
August	2.12	1.91	1.63
Average	**2.67%**	**2.48%**	**2.22%**

Source: Federal Reserve, www.federalreserve.gov website, September 2019.

ROCKLAND ELECTRIC COMPANY

Capital Attraction Measures
for the Electric Company Proxy Group

	Company	Market/Book Premium	5-Year Mkt Return	Projected Net Plant Increase
1.	Allete	92.2%	95.4%	16.5%
2.	Alliant Energy	120.0	91.9	36.4
3.	Ameren Corp	125.9	121.6	30.2
4.	Am Electric Power	117.4	93.3	34.9
5.	AVANGRID	2.1	NA	40.7
6.	Avista Corp.	59.9	59.2	21.5
7.	Black Hills Corp.	107.2	48.6	33.9
8.	Centerpoint	55.8	46.5	22.2
9.	CMS Energy	216.1	120.1	31.3
10.	Consolidated Ed	63.8	82.7	27.2
11.	Dominion Energy	122.5	34.3	19.7
12.	DTE Energy	108.9	94.7	30.7
13.	Duke Energy	44.1	49.1	24.7
14.	Edison Int.	101.4	34.4	33.3
15.	Entergy Corp	89.8	60.9	22.6
16.	Eversource Res.	105.4	103.2	26.1
17.	Exelon Corp.	35.4	73.4	7.2
18.	Fortis, Inc.	40.9	89.4	30.5
19.	Hawaiian Ind	116.6	108.6	19.1
20.	IdaCorp, Inc.	214.0	99.4	16.0
21.	MGE Energy	181.3	98.1	49.1
22.	NextEra Energy	205.1	154.1	44.3
23.	Northwestern Corp.	82.6	65.0	13.4
24.	OGE Energy	107.5	35.3	10.5
25.	Otter Tail Corp.	166.8	108.0	40.7
26.	Pinnacle West	92.4	93.8	17.6
27.	PNM Resources	137.5	98.8	35.6
28.	Portland General	90.7	82.5	6.0
29.	PPL Corp.	70.5	13.9	21.3

ROCKLAND ELECTRIC COMPANY

Capital Attraction Measures
for the Electric Company Proxy Group
(Continued)

	Company	Market/Book Premium	5-Year Mkt Return	Pro. Net Plant Increase
30.	P.S. Enterprise	90.5	95.3	19.9
31.	Sempra Energy	132.14	50.7	19.9
32.	Southern Co.	117.7	62.8	17.5
33.	WEC Energy	253.6	108.5	40.7
34.	Xcel Energy	146.0	118.0	22.9
	Average	**112.1%**	**81.5%**	**26.0%**

Source: *Value Line Investment Survey*, June 14, 2019, July 26, 2019 and August 16, 2019. The net plant increase figures are projections for 2018 to 2022-2024. For Centerpoint and Dominion the projected time period is from (year end) 2019 to 2022-2024 due to the completion of major mergers in 2019 for those two companies. The market return is for the 5-year period ending mid 2019 and includes dividends and capital gains. Market premium over book value is Value Line's "Recent Price" divided by 2019 book value per share.

APPENDIX A

QUALIFICATIONS OF MATTHEW I. KAHAL

MATTHEW I. KAHAL

Since 2001, Mr. Kahal has worked as an independent consulting economist, specializing in energy economics, public utility regulation, and utility financial studies. Over the past three decades, his work has encompassed electric utility integrated resource planning (IRP), power plant licensing, environmental compliance, and utility financial issues. In the financial area, he has conducted numerous cost of capital studies and addressed other financial issues for electric, gas, telephone, and water utilities. Mr. Kahal's work in recent years has expanded to electric power markets, mergers, and various aspects of regulation.

Mr. Kahal has provided expert testimony in more than 400 cases before state and federal regulatory commissions, federal courts, and the U.S. Congress. His testimony has covered need for power, integrated resource planning, cost of capital, purchased power practices and contracts, merger economics, industry restructuring, and various other regulatory and public policy issues.

Education

B.A. (Economics) – University of Maryland, 1971

M.A. (Economics) – University of Maryland, 1974

Ph.D. candidacy – University of Maryland, completed all course work and qualifying examinations.

Previous Employment

1981-2001 Founding Principal, Vice President, and President
Exeter Associates, Inc.
Columbia, MD

1980-1981 Member of the Economic Evaluation Directorate
The Aerospace Corporation
Washington, D.C.

1977-1980 Consulting Economist
Washington, D.C. consulting firm

1972-1977 Research/Teaching Assistant and Instructor (part time)
Department of Economics, University of Maryland (College Park)
Lecturer in Business and Economics
Montgomery College (Rockville and Takoma Park, MD)

Professional Experience

Mr. Kahal has more than thirty-five years' experience managing and conducting consulting assignments relating to public utility economics and regulation. In 1981, he and five colleagues founded the firm of Exeter Associates, Inc., and for the next 20 years he served as a Principal and corporate officer of the firm. During that time, he supervised multi-million dollar support contracts with the State of Maryland and directed the technical work conducted by both Exeter professional staff and numerous subcontractors. Additionally, Mr. Kahal took the lead role at Exeter in consulting to the firm's other governmental and private clients in the areas of financial analysis, utility mergers, electric restructuring, and utility purchase power contracts.

At the Aerospace Corporation, Mr. Kahal served as an economic consultant to the Strategic Petroleum Reserve (SPR). In that capacity, he participated in a detailed financial assessment of the SPR, and developed an econometric forecasting model of U.S. petroleum industry inventories. That study has been used to determine the extent to which private sector petroleum stocks can be expected to protect the U.S. from the impacts of oil import interruptions.

Before entering consulting, Mr. Kahal held faculty positions with the Department of Economics at the University of Maryland and with Montgomery College, teaching courses on economic principles, business, and economic development.

Publications and Consulting Reports

Projected Electric Power Demands of the Baltimore Gas and Electric Company, Maryland Power Plant Siting Program, 1979.

Projected Electric Power Demands of the Allegheny Power System, Maryland Power Plant Siting Program, January 1980.

An Econometric Forecast of Electric Energy and Peak Demand on the Delmarva Peninsula, Maryland Power Plant Siting Program, March 1980 (with Ralph E. Miller).

A Benefit/Cost Methodology of the Marginal Cost Pricing of Tennessee Valley Authority Electricity, prepared for the Board of Directors of the Tennessee Valley Authority, April 1980.

An Evaluation of the Delmarva Power and Light Company Generating Capacity Profile and Expansion Plan, (Interim Report), prepared for the Delaware Office of the Public Advocate, July 1980 (with Sharon L. Mason).

Rhode Island-DOE Electric Utilities Demonstration Project, Third Interim Report on Preliminary Analysis of the Experimental Results, prepared for the Economic Regulatory Administration, U.S. Department of Energy, July 1980.

Petroleum Inventories and the Strategic Petroleum Reserve, The Aerospace Corporation, prepared for the Strategic Petroleum Reserve Office, U.S. Department of Energy, December 1980.

Alternatives to Central Station Coal and Nuclear Power Generation, prepared for Argonne National Laboratory and the Office of Utility Systems, U.S. Department of Energy, August 1981.

"An Econometric Methodology for Forecasting Power Demands," Conducting Need-for-Power Review for Nuclear Power Plants (D.A. Nash, ed.), U.S. Nuclear Regulatory Commission, NUREG-0942, December 1982.

State Regulatory Attitudes Toward Fuel Expense Issues, prepared for the Electric Power Research Institute, July 1983 (with Dale E. Swan).

"Problems in the Use of Econometric Methods in Load Forecasting," Adjusting to Regulatory, Pricing and Marketing Realities (Harry Trebing, ed.), Institute of Public Utilities, Michigan State University, 1983.

Proceedings of the Maryland Conference on Electric Load Forecasting (editor and contributing author), Maryland Power Plant Siting Program, PPES-83-4, October 1983.

"The Impacts of Utility-Sponsored Weatherization Programs: The Case of Maryland Utilities" (with others), in Government and Energy Policy (Richard L. Itteilag, ed.), 1983.

Power Plant Cumulative Environmental Impact Report, contributing author (Paul E. Miller, ed.) Maryland Department of Natural Resources, January 1984.

Projected Electric Power Demands for the Potomac Electric Power Company, three volumes (with Steven L. Estomin), prepared for the Maryland Power Plant Siting Program, March 1984.

"An Assessment of the State-of-the-Art of Gas Utility Load Forecasting" (with Thomas Bacon, Jr. and Steven L. Estomin), published in the Proceedings of the Fourth NARUC Biennial Regulatory Information Conference, 1984.

"Nuclear Power and Investor Perceptions of Risk" (with Ralph E. Miller), published in The Energy Industries in Transition: 1985-2000 (John P. Weyant and Dorothy Sheffield, eds.), 1984.

The Financial Impact of Potential Department of Energy Rate Recommendations on the Commonwealth Edison Company, prepared for the U.S. Department of Energy, October 1984.

"Discussion Comments," published in Impact of Deregulation and Market Forces on Public Utilities: The Future of Regulation (Harry Trebing, ed.), Institute of Public Utilities, Michigan State University, 1985.

An Econometric Forecast of the Electric Power Loads of Baltimore Gas and Electric Company, two volumes (with others), prepared for the Maryland Power Plant Siting Program, 1985.

A Survey and Evaluation of Demand Forecast Methods in the Gas Utility Industry, prepared for the Public Utilities Commission of Ohio, Forecasting Division, November 1985 (with Terence Manuel).

A Review and Evaluation of the Load Forecasts of Houston Lighting & Power Company and Central Power & Light Company – Past and Present, prepared for the Texas Public Utility Commission, December 1985 (with Marvin H. Kahn).

Power Plant Cumulative Environmental Impact Report for Maryland, principal author of three of the eight chapters in the report (Paul E. Miller, ed.), PPSP-CEIR-5, March 1986.

"Potential Emissions Reduction from Conservation, Load Management, and Alternative Power," published in Acid Deposition in Maryland: A Report to the Governor and General Assembly, Maryland Power Plant Research Program, AD-87-1, January 1987.

Determination of Retrofit Costs at the Oyster Creek Nuclear Generating Station, March 1988, prepared for Versar, Inc., New Jersey Department of Environmental Protection.

Excess Deferred Taxes and the Telephone Utility Industry, April 1988, prepared on behalf of the National Association of State Utility Consumer Advocates.

Toward a Proposed Federal Policy for Independent Power Producers, comments prepared on behalf of the Indiana Consumer Counselor, FERC Docket EL87-67-000, November 1987.

Review and Discussion of Regulations Governing Bidding Programs, prepared for the Pennsylvania Office of Consumer Advocate, June 1988.

A Review of the Proposed Revisions to the FERC Administrative Rules on Avoided Costs and Related Issues, prepared for the Pennsylvania Office of Consumer Advocate, April 1988.

Review and Comments on the FERC NOPR Concerning Independent Power Producers, prepared for the Pennsylvania Office of Consumer Advocate, June 1988.

The Costs to Maryland Utilities and Ratepayers of an Acid Rain Control Strategy – An Updated Analysis, prepared for the Maryland Power Plant Research Program, October 1987, AD-88-4.

"Comments," in New Regulatory and Management Strategies in a Changing Market Environment (Harry M. Trebing and Patrick C. Mann, editors), Proceedings of the Institute of Public Utilities Eighteenth Annual Conference, 1987.

Electric Power Resource Planning for the Potomac Electric Power Company, prepared for the Maryland Power Plant Research Program, July 1988.

Power Plant Cumulative Environmental Impact Report for Maryland (Thomas E. Magette, ed.), authored two chapters, November 1988, PPRP-CEIR-6.

Resource Planning and Competitive Bidding for Delmarva Power & Light Company, October 1990, prepared for the Maryland Department of Natural Resources (with M. Fullenbaum).

Electric Power Rate Increases and the Cleveland Area Economy, prepared for the Northeast Ohio Areawide Coordinating Agency, October 1988.

An Economic and Need for Power Evaluation of Baltimore Gas & Electric Company's Perryman Plant, May 1991, prepared for the Maryland Department of Natural Resources (with M. Fullenbaum).

The Cost of Equity Capital for the Bell Local Exchange Companies in a New Era of Regulation, October 1991, presented at the Atlantic Economic Society 32nd Conference, Washington, D.C.

A Need for Power Review of Delmarva Power & Light Company's Dorchester Unit 1 Power Plant, March 1993, prepared for the Maryland Department of National Resources (with M. Fullenbaum).

The AES Warrior Run Project: Impact on Western Maryland Economic Activity and Electric Rates, February 1993, prepared for the Maryland Power Plant Research Program (with Peter Hall).

An Economic Perspective on Competition and the Electric Utility Industry, November 1994, prepared for the Electric Consumers' Alliance.

PEPCO's Clean Air Act Compliance Plan: Status Report, prepared for the Maryland Power Plant Research Plan, January 1995 (w/Diane Mountain, Environmental Resources Management, Inc.).

The FERC Open Access Rulemaking: A Review of the Issues, prepared for the Indiana Office of Utility Consumer Counselor and the Pennsylvania Office of Consumer Advocate, June 1995.

A Status Report on Electric Utility Restructuring: Issues for Maryland, prepared for the Maryland Power Plant Research Program, November 1995 (with Daphne Psacharopoulos).

Modeling the Financial Impacts on the Bell Regional Holding Companies from Changes in Access Rates, prepared for MCI Corporation, May 1996.

The CSEF Electric Deregulation Study: Economic Miracle or the Economists' Cold Fusion?, prepared for the Electric Consumers' Alliance, Indianapolis, Indiana, October 1996.

Reducing Rates for Interstate Access Service: Financial Impacts on the Bell Regional Holding Companies, prepared for MCI Corporation, May 1997.

The New Hampshire Retail Competition Pilot Program: A Preliminary Evaluation, July 1997, prepared for the Electric Consumers' Alliance (with Jerome D. Mierzwa).

Electric Restructuring and the Environment: Issue Identification for Maryland, March 1997, prepared for the Maryland Power Plant Research Program (with Environmental Resource Management, Inc.).

An Analysis of Electric Utility Embedded Power Supply Costs, prepared for Power-Gen International Conference, Dallas, Texas, December 1997.

Market Power Outlook for Generation Supply in Louisiana, December 2000, prepared for the Louisiana Public Service Commission (with others).

A Review of Issues Concerning Electric Power Capacity Markets, prepared for the Maryland Power Plant Research Program, December 2001 (with B. Hobbs and J. Inon).
The Economic Feasibility of Air Emissions Controls at the Brandon Shores and Morgantown Coal-fired Power Plants, February 2005 (prepared for the Chesapeake Bay Foundation).

The Economic Feasibility of Power Plant Retirements on the Entergy System, September 2005, with Phil Hayet (prepared for the Louisiana Public Service Commission).

Expert Report on Capital Structure, Equity and Debt Costs, prepared for the Edmonton Regional Water Customers Group, August 30, 2006.

Maryland's Options to Reduce and Stabilize Electric Power Prices Following Restructuring, with Steven L. Estomin, prepared for the Power Plant Research Program, Maryland Department of Natural Resources, September 2006.

Expert Report of Matthew I. Kahal, on behalf of the U. S. Department of Justice, August 2008, Civil Action No. IP-99-1693C-MIS.

Conference and Workshop Presentations

Workshop on State Load Forecasting Programs, sponsored by the Nuclear Regulatory Commission and Oak Ridge National Laboratory, February 1982 (presentation on forecasting methodology).

Fourteenth Annual Conference of the Michigan State University Institute for Public Utilities, December 1982 (presentation on problems in forecasting).

Conference on Conservation and Load Management, sponsored by the Massachusetts Energy Facilities Siting Council, May 1983 (presentation on cost-benefit criteria).

Maryland Conference on Load Forecasting, sponsored by the Maryland Power Plant Siting Program and the Maryland Public Service Commission, June 1983 (presentation on overforecasting power demands).

The 5th Annual Meetings of the International Association of Energy Economists, June 1983 (presentation on evaluating weatherization programs).

The NARUC Advanced Regulatory Studies Program (presented lectures on capacity planning for electric utilities), February 1984.

The 16th Annual Conference of the Institute of Public Utilities, Michigan State University (discussant on phase-in and excess capacity), December 1984.

U.S. Department of Energy Utilities Conference, Las Vegas, Nevada (presentation of current and future regulatory issues), May 1985.

The 18th Annual Conference of the Institute of Public Utilities, Michigan State University, Williamsburg, Virginia, December 1986 (discussant on cogeneration).

The NRECA Conference on Load Forecasting, sponsored by the National Rural Electric Cooperative Association, New Orleans, Louisiana, December 1987 (presentation on load forecast accuracy).

The Second Rutgers/New Jersey Department of Commerce Annual Conference on Energy Policy in the Middle Atlantic States, Rutgers University, April 1988 (presentation on spot pricing of electricity).

The NASUCA 1988 Mid-Year Meeting, Annapolis, Maryland, June 1988, sponsored by the National Association of State Utility Consumer Advocates (presentation on the FERC electricity avoided cost NOPRs).

The Thirty-Second Atlantic Economic Society Conference, Washington, D.C., October 1991 (presentation of a paper on cost of capital issues for the Bell Operating Companies).

The NASUCA 1993 Mid-Year Meeting, St. Louis, Missouri, sponsored by the National Association of State Utility Consumer Advocates, June 1993 (presentation on regulatory issues concerning electric utility mergers).

The NASUCA and NARUC annual meetings in New York City, November 1993 (presentations and panel discussions on the emerging FERC policies on transmission pricing).

The NASUCA annual meetings in Reno, Nevada, November 1994 (presentation concerning the FERC NOPR on stranded cost recovery).

U.S. Department of Energy Utilities/Energy Management Workshop, March 1995 (presentation concerning electric utility competition).

The 1995 NASUCA Mid-Year Meeting, Breckenridge, Colorado, June 1995 (presentation concerning the FERC rulemaking on electric transmission open access).

The 1996 NASUCA Mid-Year Meeting, Chicago, Illinois, June 1996 (presentation concerning electric utility merger issues).

Conference on "Restructuring the Electric Industry," sponsored by the National Consumers League and Electric Consumers Alliance, Washington, D.C., May 1997 (presentation on retail access pilot programs).

The 1997 Mid-Atlantic Conference of Regulatory Utilities Commissioners (MARUC), Hot Springs, Virginia, July 1997 (presentation concerning electric deregulation issues).

Power-Gen '97 International Conference, Dallas, Texas, December 1997 (presentation concerning utility embedded costs of generation supply).

Consumer Summit on Electric Competition, sponsored by the National Consumers League and Electric Consumers' Alliance, Washington, D.C., March 2001 (presentation concerning generation supply and reliability).

National Association of State Utility Consumer Advocates, Mid-Year Meetings, Austin, Texas, June 16-17, 2002 (presenter and panelist on RTO/Standard Market Design issues).

Louisiana State Bar Association, Public Utility Section, Baton Rouge, Louisiana, October 2, 2002 (presentation on Performance-Based Ratemaking and panelist on RTO issues).

Virginia State Corporation Commission/Virginia State Bar, Twenty-Second National Regulatory Conference, Williamsburg, Virginia, May 10, 2004 (presentation on Electric Transmission System Planning).

Expert Testimony
of Matthew I. Kahal

	Docket Number	Utility	Jurisdiction	Client	Subject
1.	27374 & 27375 October 1978	Long Island Lighting Company	New York Counties	Nassau & Suffolk	Economic Impacts of Proposed Rate Increase
2.	6807 January 1978	Generic	Maryland	MD Power Plant Siting Program	Load Forecasting
3.	78-676-EL-AIR February 1978	Ohio Power Company	Ohio	Ohio Consumers' Counsel	Test Year Sales and Revenues
4.	17667 May 1979	Alabama Power Company	Alabama	Attorney General	Test Year Sales, Revenues, Costs, and Load Forecasts
5.	None April 1980	Tennessee Valley Authority	TVA Board	League of Women Voters	Time-of-Use Pricing
6.	R-80021082	West Penn Power Company	Pennsylvania	Office of Consumer Advocate	Load Forecasting, Marginal Cost pricing
7.	7259 (Phase I) October 1980	Potomac Edison Company	Maryland	MD Power Plant Siting Program	Load Forecasting
8.	7222 December 1980	Delmarva Power & Light Company	Maryland	MD Power Plant Siting Program	Need for Plant, Load Forecasting
9.	7441 June 1981	Potomac Electric Power Company	Maryland	Commission Staff	PURPA Standards
10.	7159 May 1980	Baltimore Gas & Electric	Maryland	Commission Staff	Time-of-Use Pricing
11.	81-044-E-42T	Monongahela Power	West Virginia	Commission Staff	Time-of-Use Rates
12.	7259 (Phase II) November 1981	Potomac Edison Company	Maryland	MD Power Plant Siting Program	Load Forecasting, Load Management
13.	1606 September 1981	Blackstone Valley Electric and Narragansett	Rhode Island	Division of Public Utilities	PURPA Standards
14.	RID 1819 April 1982	Pennsylvania Bell	Pennsylvania	Office of Consumer Advocate	Rate of Return
15.	82-0152 July 1982	Illinois Power Company	Illinois	U.S. Department of Defense	Rate of Return, CWIP

Expert Testimony
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16.	7559 September 1982	Potomac Edison Company	Maryland	Commission Staff	Cogeneration
17.	820150-EU September 1982	Gulf Power Company	Florida	Federal Executive Agencies	Rate of Return, CWIP
18.	82-057-15 January 1983	Mountain Fuel Supply Company	Utah	Federal Executive Agencies	Rate of Return, Capital Structure
19.	5200 August 1983	Texas Electric Service Company	Texas	Federal Executive Agencies	Cost of Equity
20.	28069 August 1983	Oklahoma Natural Gas	Oklahoma	Federal Executive Agencies	Rate of Return, deferred taxes, capital structure, attrition
21.	83-0537 February 1984	Commonwealth Edison Company	Illinois	U.S. Department of Energy	Rate of Return, capital structure, financial capability
22.	84-035-01 June 1984	Utah Power & Light Company	Utah	Federal Executive Agencies	Rate of Return
23.	U-1009-137 July 1984	Utah Power & Light Company	Idaho	U.S. Department of Energy	Rate of Return, financial condition
24.	R-842590 August 1984	Philadelphia Electric Company	Pennsylvania	Office of Consumer Advocate	Rate of Return
25.	840086-EI August 1984	Gulf Power Company	Florida	Federal Executive Agencies	Rate of Return, CWIP
26.	84-122-E August 1984	Carolina Power & Light Company	South Carolina	South Carolina Consumer Advocate	Rate of Return, CWIP, load forecasting
27.	CGC-83-G & CGC-84-G October 1984	Columbia Gas of Ohio	Ohio	Ohio Division of Energy	Load forecasting
28.	R-842621 October 1984	Western Pennsylvania Water Company	Pennsylvania	Office of Consumer Advocate	Test year sales
29.	R-842710 January 1985	ALLTEL Pennsylvania Inc.	Pennsylvania	Office of Consumer Advocate	Rate of Return
30.	ER-504 February 1985	Allegheny Generating Company	FERC	Office of Consumer Advocate	Rate of Return

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31.	R-842632 March 1985	West Penn Power Company	Pennsylvania	Office of Consumer Advocate	Rate of Return, conservation, time-of-use rates
32.	83-0537 & 84-0555 April 1985	Commonwealth Edison Company	Illinois	U.S. Department of Energy	Rate of Return, incentive rates, rate base
33.	Rulemaking Docket No. 11, May 1985	Generic	Delaware	Delaware Commission Staff	Interest rates on refunds
34.	29450 July 1985	Oklahoma Gas & Electric Company	Oklahoma	Oklahoma Attorney General	Rate of Return, CWIP in rate base
35.	1811 August 1985	Bristol County Water Company	Rhode Island	Division of Public Utilities	Rate of Return, capital Structure
36.	R-850044 & R-850045 August 1985	Quaker State & Continental Telephone Companies	Pennsylvania	Office of Consumer Advocate	Rate of Return
37.	R-850174 November 1985	Philadelphia Suburban Water Company	Pennsylvania	Office of Consumer Advocate	Rate of Return, financial conditions
38.	U-1006-265 March 1986	Idaho Power Company	Idaho	U.S. Department of Energy	Power supply costs and models
39.	EL-86-37 & EL-86-38 September 1986	Allegheny Generating Company	FERC	PA Office of Consumer Advocate	Rate of Return
40.	R-850287 June 1986	National Fuel Gas Distribution Corp.	Pennsylvania	Office of Consumer Advocate	Rate of Return
41.	1849 August 1986	Blackstone Valley Electric	Rhode Island	Division of Public Utilities	Rate of Return, financial condition
42.	86-297-GA-AIR November 1986	East Ohio Gas Company	Ohio	Ohio Consumers' Counsel	Rate of Return
43.	U-16945 December 1986	Louisiana Power & Light Company	Louisiana	Public Service Commission	Rate of Return, rate phase-in plan
44.	Case No. 7972 February 1987	Potomac Electric Power Company	Maryland	Commission Staff	Generation capacity planning, purchased power contract
45.	EL-86-58 & EL-86-59 March 1987	System Energy Resources and Middle South Services	FERC	Louisiana PSC	Rate of Return

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46.	ER-87-72-001 April 1987	Orange & Rockland	FERC	PA Office of Consumer Advocate	Rate of Return
47.	U-16945 April 1987	Louisiana Power & Light Company	Louisiana	Commission Staff	Revenue requirement update phase-in plan
48.	P-870196 May 1987	Pennsylvania Electric Company	Pennsylvania	Office of Consumer Advocate	Cogeneration contract
49.	86-2025-EL-AIR June 1987	Cleveland Electric Illuminating Company	Ohio	Ohio Consumers' Counsel	Rate of Return
50.	86-2026-EL-AIR June 1987	Toledo Edison Company	Ohio	Ohio Consumers' Counsel	Rate of Return
51.	87-4 June 1987	Delmarva Power & Light Company	Delaware	Commission Staff	Cogeneration/small power
52.	1872 July 1987	Newport Electric Company	Rhode Island	Commission Staff	Rate of Return
53.	WO 8606654 July 1987	Atlantic City Sewerage Company	New Jersey	Resorts International	Financial condition
54.	7510 August 1987	West Texas Utilities Company	Texas	Federal Executive Agencies	Rate of Return, phase-in
55.	8063 Phase I October 1987	Potomac Electric Power Company	Maryland	Power Plant Research Program	Economics of power plant site selection
56.	00439 November 1987	Oklahoma Gas & Electric Company	Oklahoma	Smith Cogeneration	Cogeneration economics
57.	RP-87-103 February 1988	Panhandle Eastern Pipe Line Company	FERC	Indiana Utility Consumer Counselor	Rate of Return
58.	EC-88-2-000 February 1988	Utah Power & Light Co. PacifiCorp	FERC	Nucor Steel	Merger economics
59.	87-0427 February 1988	Commonwealth Edison Company	Illinois	Federal Executive Agencies	Financial projections
60.	870840 February 1988	Philadelphia Suburban Water Company	Pennsylvania	Office of Consumer Advocate	Rate of Return

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61.	870832 March 1988	Columbia Gas of Pennsylvania	Pennsylvania	Office of Consumer Advocate	Rate of Return
62.	8063 Phase II July 1988	Potomac Electric Power Company	Maryland	Power Plant Research Program	Power supply study
63.	8102 July 1988	Southern Maryland Electric Cooperative	Maryland	Power Plant Research Program	Power supply study
64.	10105 August 1988	South Central Bell Telephone Co.	Kentucky	Attorney General	Rate of Return, incentive regulation
65.	00345 August 1988	Oklahoma Gas & Electric Company	Oklahoma	Smith Cogeneration	Need for power
66.	U-17906 September 1988	Louisiana Power & Light Company	Louisiana	Commission Staff	Rate of Return, nuclear power costs Industrial contracts
67.	88-170-EL-AIR October 1988	Cleveland Electric Illuminating Co.	Ohio	Northeast-Ohio Areawide Coordinating Agency	Economic impact study
68.	1914 December 1988	Providence Gas Company	Rhode Island	Commission Staff	Rate of Return
69.	U-12636 & U-17649 February 1989	Louisiana Power & Light Company	Louisiana	Commission Staff	Disposition of litigation proceeds
70.	00345 February 1989	Oklahoma Gas & Electric Company	Oklahoma	Smith Cogeneration	Load forecasting
71.	RP88-209 March 1989	Natural Gas Pipeline of America	FERC	Indiana Utility Consumer Counselor	Rate of Return
72.	8425 March 1989	Houston Lighting & Power Company	Texas	U.S. Department of Energy	Rate of Return
73.	EL89-30-000 April 1989	Central Illinois Public Service Company	FERC	Soyland Power Coop, Inc.	Rate of Return
74.	R-891208 May 1989	Pennsylvania American Water Company	Pennsylvania	Office of Consumer Advocate	Rate of Return

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75.	89-0033 May 1989	Illinois Bell Telephone Company	Illinois	Citizens Utility Board	Rate of Return
76.	881167-EI May 1989	Gulf Power Company	Florida	Federal Executive Agencies	Rate of Return
77.	R-891218 July 1989	National Fuel Gas Distribution Company	Pennsylvania	Office of Consumer Advocate	Sales forecasting
78.	8063, Phase III Sept. 1989	Potomac Electric Power Company	Maryland	Depart. Natural Resources	Emissions Controls
79.	37414-S2 October 1989	Public Service Company of Indiana	Indiana	Utility Consumer Counselor	Rate of Return, DSM, off-system sales, incentive regulation
80.	October 1989	Generic	U.S. House of Reps. Comm. on Ways & Means	N/A	Excess deferred income tax
81.	38728 November 1989	Indiana Michigan Power Company	Indiana	Utility Consumer Counselor	Rate of Return
82.	RP89-49-000 December 1989	National Fuel Gas Supply Corporation	FERC	PA Office of Consumer Advocate	Rate of Return
83.	R-891364 December 1989	Philadelphia Electric Company	Pennsylvania	PA Office of Consumer Advocate	Financial impacts (surrebuttal only)
84.	RP89-160-000 January 1990	Trunkline Gas Company	FERC	Indiana Utility Consumer Counselor	Rate of Return
85.	EL90-16-000 November 1990	System Energy Resources, Inc.	FERC	Louisiana Public Service Commission	Rate of Return
86.	89-624 March 1990	Bell Atlantic	FCC	PA Office of Consumer Advocate	Rate of Return
87.	8245 March 1990	Potomac Edison Company	Maryland	Depart. Natural Resources	Avoided Cost
88.	000586 March 1990	Public Service Company of Oklahoma	Oklahoma	Smith Cogeneration Mgmt.	Need for Power

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89.	38868 March 1990	Indianapolis Water Company	Indiana	Utility Consumer Counselor	Rate of Return
90.	1946 March 1990	Blackstone Valley Electric Company	Rhode Island	Division of Public Utilities	Rate of Return
91.	000776 April 1990	Oklahoma Gas & Electric Company	Oklahoma	Smith Cogeneration Mgmt.	Need for Power
92.	890366 May 1990, December 1990	Metropolitan Edison Company	Pennsylvania	Office of Consumer Advocate	Competitive Bidding Program Avoided Costs
93.	EC-90-10-000 May 1990	Northeast Utilities	FERC	Maine PUC, et al.	Merger, Market Power, Transmission Access
94.	ER-891109125 July 1990	Jersey Central Power & Light	New Jersey	Rate Counsel	Rate of Return
95.	R-901670 July 1990	National Fuel Gas Distribution Corp.	Pennsylvania	Office of Consumer Advocate	Rate of Return Test year sales
96.	8201 October 1990	Delmarva Power & Light Company	Maryland	Depart. Natural Resources	Competitive Bidding, Resource Planning
97.	EL90-45-000 April 1991	Entergy Services, Inc.	FERC	Louisiana PSC	Rate of Return
98.	GR90080786J January 1991	New Jersey Natural Gas	New Jersey	Rate Counsel	Rate of Return
99.	90-256 January 1991	South Central Bell Telephone Company	Kentucky	Attorney General	Rate of Return
100.	U-17949A February 1991	South Central Bell Telephone Company	Louisiana	Louisiana PSC	Rate of Return
101.	ER90091090J April 1991	Atlantic City Electric Company	New Jersey	Rate Counsel	Rate of Return
102.	8241, Phase I April 1991	Baltimore Gas & Electric Company	Maryland	Dept. of Natural Resources	Environmental controls

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103.	8241, Phase II May 1991	Baltimore Gas & Electric Company	Maryland	Dept. of Natural Resources	Need for Power, Resource Planning
104.	39128 May 1991	Indianapolis Water Company	Indiana	Utility Consumer Counselor	Rate of Return, rate base, financial planning
105.	P-900485 May 1991	Duquesne Light Company	Pennsylvania	Office of Consumer Advocate	Purchased power contract and related ratemaking
106.	G900240 P910502 May 1991	Metropolitan Edison Company Pennsylvania Electric Company	Pennsylvania	Office of Consumer Advocate	Purchased power contract and related ratemaking
107.	GR901213915 May 1991	Elizabethtown Gas Company	New Jersey	Rate Counsel	Rate of Return
108.	91-5032 August 1991	Nevada Power Company	Nevada	U.S. Dept. of Energy	Rate of Return
109.	EL90-48-000 November 1991	Entergy Services	FERC	Louisiana PSC	Capacity transfer
110.	000662 September 1991	Southwestern Bell Telephone	Oklahoma	Attorney General	Rate of Return
111.	U-19236 October 1991	Arkansas Louisiana Gas Company	Louisiana	Louisiana PSC Staff	Rate of Return
112.	U-19237 December 1991	Louisiana Gas Service Company	Louisiana	Louisiana PSC Staff	Rate of Return
113.	ER91030356J October 1991	Rockland Electric Company	New Jersey	Rate Counsel	Rate of Return
114.	GR91071243J February 1992	South Jersey Gas Company	New Jersey	Rate Counsel	Rate of Return
115.	GR91081393J March 1992	New Jersey Natural Gas Company	New Jersey	Rate Counsel	Rate of Return
116.	P-870235, et al. March 1992	Pennsylvania Electric Company	Pennsylvania	Office of Consumer Advocate	Cogeneration contracts

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117.	8413 March 1992	Potomac Electric Power Company	Maryland	Dept. of Natural Resources	IPP purchased power contracts
118.	39236 March 1992	Indianapolis Power & Light Company	Indiana	Utility Consumer Counselor	Least-cost planning Need for power
119.	R-912164 April 1992	Equitable Gas Company	Pennsylvania	Office of Consumer Advocate	Rate of Return
120.	ER-91111698J May 1992	Public Service Electric & Gas Company	New Jersey	Rate Counsel	Rate of Return
121.	U-19631 June 1992	Trans Louisiana Gas Company	Louisiana	PSC Staff	Rate of Return
122.	ER-91121820J July 1992	Jersey Central Power & Light Company	New Jersey	Rate Counsel	Rate of Return
123.	R-00922314 August 1992	Metropolitan Edison Company	Pennsylvania	Office of Consumer Advocate	Rate of Return
124.	92-049-05 September 1992	US West Communications	Utah	Committee of Consumer Services	Rate of Return
125.	92PUE0037 September 1992	Commonwealth Gas Company	Virginia	Attorney General	Rate of Return
126.	EC92-21-000 September 1992	Entergy Services, Inc.	FERC	Louisiana PSC	Merger Impacts (Affidavit)
127.	ER92-341-000 December 1992	System Energy Resources	FERC	Louisiana PSC	Rate of Return
128.	U-19904 November 1992	Louisiana Power & Light Company	Louisiana	Staff	Merger analysis, competition competition issues
129.	8473 November 1992	Baltimore Gas & Electric Company	Maryland	Dept. of Natural Resources	QF contract evaluation
130.	IPC-E-92-25 January 1993	Idaho Power Company	Idaho	Federal Executive Agencies	Power Supply Clause

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131.	E002/GR-92-1185 February 1993	Northern States Power Company	Minnesota	Attorney General	Rate of Return
132.	92-102, Phase II March 1992	Central Maine Power Company	Maine	Staff	QF contracts prudence and procurements practices
133.	EC92-21-000 March 1993	Entergy Corporation	FERC	Louisiana PSC	Merger Issues
134.	8489 March 1993	Delmarva Power & Light Company	Maryland	Dept. of Natural Resources	Power Plant Certification
135.	11735 April 1993	Texas Electric Utilities Company	Texas	Federal Executives Agencies	Rate of Return
136.	2082 May 1993	Providence Gas Company	Rhode Island	Division of Public Utilities	Rate of Return
137.	P-00930715 December 1993	Bell Telephone Company of Pennsylvania	Pennsylvania	Office of Consumer Advocate	Rate of Return, Financial Projections, Bell/TCI merger
138.	R-00932670 February 1994	Pennsylvania-American Water Company	Pennsylvania	Office of Consumer Advocate	Rate of Return
139.	8583 February 1994	Conowingo Power Company	Maryland	Dept. of Natural Resources	Competitive Bidding for Power Supplies
140.	E-015/GR-94-001 April 1994	Minnesota Power & Light Company	Minnesota	Attorney General	Rate of Return
141.	CC Docket No. 94-1 May 1994	Generic Telephone	FCC	MCI Comm. Corp.	Rate of Return
142.	92-345, Phase II June 1994	Central Maine Power Company	Maine	Advocacy Staff	Price Cap Regulation Fuel Costs
143.	93-11065 April 1994	Nevada Power Company	Nevada	Federal Executive Agencies	Rate of Return
144.	94-0065 May 1994	Commonwealth Edison Company	Illinois	Federal Executive Agencies	Rate of Return
145.	GR94010002J June 1994	South Jersey Gas Company	New Jersey	Rate Counsel	Rate of Return

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146.	WR94030059 July 1994	New Jersey-American Water Company	New Jersey	Rate Counsel	Rate of Return
147.	RP91-203-000 June 1994	Tennessee Gas Pipeline Company	FERC	Customer Group	Environmental Externalities (oral testimony only)
148.	ER94-998-000 July 1994	Ocean State Power	FERC	Boston Edison Company	Rate of Return
149.	R-00942986 July 1994	West Penn Power Company	Pennsylvania	Office of Consumer Advocate	Rate of Return, Emission Allowances
150.	94-121 August 1994	South Central Bell Telephone Company	Kentucky	Attorney General	Rate of Return
151.	35854-S2 November 1994	PSI Energy, Inc.	Indiana	Utility Consumer Counsel	Merger Savings and Allocations
152.	IPC-E-94-5 November 1994	Idaho Power Company	Idaho	Federal Executive Agencies	Rate of Return
153.	November 1994	Edmonton Water	Alberta, Canada	Regional Customer Group	Rate of Return (Rebuttal Only)
154.	90-256 December 1994	South Central Bell Telephone Company	Kentucky	Attorney General	Incentive Plan True-Ups
155.	U-20925 February 1995	Louisiana Power & Light Company	Louisiana	PSC Staff	Rate of Return Industrial Contracts Trust Fund Earnings
156.	R-00943231 February 1995	Pennsylvania-American Water Company	Pennsylvania	Consumer Advocate	Rate of Return
157.	8678 March 1995	Generic	Maryland	Dept. Natural Resources	Electric Competition Incentive Regulation (oral only)
158.	R-000943271 April 1995	Pennsylvania Power & Light Company	Pennsylvania	Consumer Advocate	Rate of Return Nuclear decommissioning Capacity Issues
159.	U-20925 May 1995	Louisiana Power & Light Company	Louisiana	Commission Staff	Class Cost of Service Issues

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160.	2290 June 1995	Narragansett Electric Company	Rhode Island	Division Staff	Rate of Return
161.	U-17949E June 1995	South Central Bell Telephone Company	Louisiana	Commission Staff	Rate of Return
162.	2304 July 1995	Providence Water Supply Board	Rhode Island	Division Staff	Cost recovery of Capital Spending Program
163.	ER95-625-000, et al. August 1995	PSI Energy, Inc.	FERC	Office of Utility Consumer Counselor	Rate of Return
164.	P-00950915, et al. September 1995	Paxton Creek Cogeneration Assoc.	Pennsylvania	Office of Consumer Advocate	Cogeneration Contract Amendment
165.	8702 September 1995	Potomac Edison Company	Maryland	Dept. of Natural Resources	Allocation of DSM Costs (oral only)
166.	ER95-533-001 September 1995	Ocean State Power	FERC	Boston Edison Co.	Cost of Equity
167.	40003 November 1995	PSI Energy, Inc.	Indiana	Utility Consumer Counselor	Rate of Return Retail wheeling
168.	P-55, SUB 1013 January 1996	BellSouth	North Carolina	AT&T	Rate of Return
169.	P-7, SUB 825 January 1996	Carolina Tel.	North Carolina	AT&T	Rate of Return
170.	February 1996	Generic Telephone	FCC	MCI	Cost of capital
171.	95A-531EG April 1996	Public Service Company of Colorado	Colorado	Federal Executive Agencies	Merger issues
172.	ER96-399-000 May 1996	Northern Indiana Public Service Company	FERC	Indiana Office of Utility Consumer Counselor	Cost of capital
173.	8716 June 1996	Delmarva Power & Light Company	Maryland	Dept. of Natural Resources	DSM programs
174.	8725 July 1996	BGE/PEPCO	Maryland	Md. Energy Admin.	Merger Issues

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175.	U-20925 August 1996	Entergy Louisiana, Inc.	Louisiana	PSC Staff	Rate of Return Allocations Fuel Clause
176.	EC96-10-000 September 1996	BGE/PEPCO	FERC	Md. Energy Admin.	Merger issues competition
177.	EL95-53-000 November 1996	Entergy Services, Inc.	FERC	Louisiana PSC	Nuclear Decommissioning
178.	WR96100768 March 1997	Consumers NJ Water Company	New Jersey	Ratepayer Advocate	Cost of Capital
179.	WR96110818 April 1997	Middlesex Water Co.	New Jersey	Ratepayer Advocate	Cost of Capital
180.	U-11366 April 1997	Ameritech Michigan	Michigan	MCI	Access charge reform/financial condition
181.	97-074 May 1997	BellSouth	Kentucky	MCI	Rate Rebalancing financial condition
182.	2540 June 1997	New England Power	Rhode Island	PUC Staff	Divestiture Plan
183.	96-336-TP-CSS June 1997	Ameritech Ohio	Ohio	MCI	Access Charge reform Economic impacts
184.	WR97010052 July 1997	Maxim Sewerage Corp.	New Jersey	Ratepayer Advocate	Rate of Return
185.	97-300 August 1997	LG&E/KU	Kentucky	Attorney General	Merger Plan
186.	Case No. 8738 August 1997	Generic (oral testimony only)	Maryland	Dept. of Natural Resources	Electric Restructuring Policy
187.	Docket No. 2592 September 1997	Eastern Utilities	Rhode Island	PUC Staff	Generation Divestiture
188.	Case No.97-247 September 1997	Cincinnati Bell Telephone	Kentucky	MCI	Financial Condition

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189.	Docket No. U-20925 November 1997	Entergy Louisiana	Louisiana	PSC Staff	Rate of Return
190.	Docket No. D97.7.90 November 1997	Montana Power Co.	Montana	Montana Consumers Counsel	Stranded Cost
191.	Docket No. EO97070459 November 1997	Jersey Central Power & Light Co.	New Jersey	Ratepayer Advocate	Stranded Cost
192.	Docket No. R-00974104 November 1997	Duquesne Light Co.	Pennsylvania	Office of Consumer Advocate	Stranded Cost
193.	Docket No. R-00973981 November 1997	West Penn Power Co.	Pennsylvania	Office of Consumer Advocate	Stranded Cost
194.	Docket No. A-1101150F0015 November 1997	Allegheny Power System DQE, Inc.	Pennsylvania	Office of Consumer Advocate	Merger Issues
195.	Docket No. WR97080615 January 1998	Consumers NJ Water Company	New Jersey	Ratepayer Advocate	Rate of Return
196.	Docket No. R-00974149 January 1998	Pennsylvania Power Company	Pennsylvania	Office of Consumer Advocate	Stranded Cost
197.	Case No. 8774 January 1998	Allegheny Power System DQE, Inc.	Maryland	Dept. of Natural Resources MD Energy Administration	Merger Issues
198.	Docket No. U-20925 (SC) March 1998	Entergy Louisiana, Inc.	Louisiana	Commission Staff	Restructuring, Stranded Costs, Market Prices
199.	Docket No. U-22092 (SC) March 1998	Entergy Gulf States, Inc.	Louisiana	Commission Staff	Restructuring, Stranded Costs, Market Prices
200.	Docket Nos. U-22092 (SC) and U-20925(SC) May 1998	Entergy Gulf States and Entergy Louisiana	Louisiana	Commission Staff	Standby Rates
201.	Docket No. WR98010015 May 1998	NJ American Water Co.	New Jersey	Ratepayer Advocate	Rate of Return
202.	Case No. 8794 December 1998	Baltimore Gas & Electric Co.	Maryland	MD Energy Admin./Dept. Of Natural Resources	Stranded Cost/ Transition Plan

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203.	Case No. 8795 December 1998	Delmarva Power & Light Co.	Maryland	MD Energy Admin./Dept. Of Natural Resources	Stranded Cost/ Transition Plan
204.	Case No. 8797 January 1998	Potomac Edison Co.	Maryland	MD Energy Admin./Dept. Of Natural Resources	Stranded Cost/ Transition Plan
205.	Docket No. WR98090795 March 1999	Middlesex Water Co.	New Jersey	Ratepayer Advocate	Rate of Return
206.	Docket No. 99-02-05 April 1999	Connecticut Light & Power	Connecticut	Attorney General	Stranded Costs
207.	Docket No. 99-03-04 May 1999	United Illuminating Company	Connecticut	Attorney General	Stranded Costs
208.	Docket No. U-20925 (FRP) June 1999	Entergy Louisiana, Inc.	Louisiana	Staff	Capital Structure
209.	Docket No. EC-98-40-000, et al. May 1999	American Electric Power/ Central & Southwest	FERC	Arkansas PSC	Market Power Mitigation
210.	Docket No. 99-03-35 July 1999	United Illuminating Company	Connecticut	Attorney General	Restructuring
211.	Docket No. 99-03-36 July 1999	Connecticut Light & Power Co.	Connecticut	Attorney General	Restructuring
212.	WR99040249 Oct. 1999	Environmental Disposal Corp.	New Jersey	Ratepayer Advocate	Rate of Return
213.	2930 Nov. 1999	NEES/EUA	Rhode Island	Division Staff	Merger/Cost of Capital
214.	DE99-099 Nov. 1999	Public Service New Hampshire	New Hampshire	Consumer Advocate	Cost of Capital Issues
215.	00-01-11 Feb. 2000	Con Ed/NU	Connecticut	Attorney General	Merger Issues
216.	Case No. 8821 May 2000	Reliant/ODEC	Maryland	Dept. of Natural Resources	Need for Power/Plant Operations

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217.	Case No. 8738 July 2000	Generic	Maryland	Dept. of Natural Resources	DSM Funding
218.	Case No. U-23356 June 2000	Entergy Louisiana, Inc.	Louisiana	PSC Staff	Fuel Prudence Issues Purchased Power
219.	Case No. 21453, et al. July 2000	SWEPCO	Louisiana	PSC Staff	Stranded Costs
220.	Case No. 20925 (B) July 2000	Entergy Louisiana	Louisiana	PSC Staff	Purchase Power Contracts
221.	Case No. 24889 August 2000	Entergy Louisiana	Louisiana	PSC Staff	Purchase Power Contracts
222.	Case No. 21453, et al. February 2001	CLECO	Louisiana	PSC Staff	Stranded Costs
223.	P-00001860 and P-0000181 March 2001	GPU Companies	Pennsylvania	Office of Consumer Advocate	Rate of Return
224.	CVOL-0505662-S March 2001	ConEd/NU	Connecticut Superior Court	Attorney General	Merger (Affidavit)
225.	U-20925 (SC) March 2001	Entergy Louisiana	Louisiana	PSC Staff	Stranded Costs
226.	U-22092 (SC) March 2001	Entergy Gulf States	Louisiana	PSC Staff	Stranded Costs
227.	U-25533 May 2001	Entergy Louisiana/ Gulf States	Louisiana Interruptible Service	PSC Staff	Purchase Power
228.	P-00011872 May 2001	Pike County Pike	Pennsylvania	Office of Consumer Advocate	Rate of Return
229.	8893 July 2001	Baltimore Gas & Electric Co.	Maryland	MD Energy Administration	Corporate Restructuring
230.	8890 September 2001	Potomac Electric/Connectivity	Maryland	MD Energy Administration	Merger Issues

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231.	U-25533 August 2001	Entergy Louisiana / Gulf States	Louisiana	Staff	Purchase Power Contracts
232.	U-25965 November 2001	Generic	Louisiana	Staff	RTO Issues
233.	3401 March 2002	New England Gas Co.	Rhode Island	Division of Public Utilities	Rate of Return
234.	99-833-MJR April 2002	Illinois Power Co.	U.S. District Court	U.S. Department of Justice	New Source Review
235.	U-25533 March 2002	Entergy Louisiana/ Gulf States	Louisiana	PSC Staff	Nuclear Uprates Purchase Power
236.	P-00011872 May 2002	Pike County Power & Light	Pennsylvania	Consumer Advocate	POLR Service Costs
237.	U-26361, Phase I May 2002	Entergy Louisiana/ Gulf States	Louisiana	PSC Staff	Purchase Power Cost Allocations
238.	R-00016849C001, et al. June 2002	Generic	Pennsylvania	Pennsylvania OCA	Rate of Return
239.	U-26361, Phase II July 2002	Entergy Louisiana/ Entergy Gulf States	Louisiana	PSC Staff	Purchase Power Contracts
240.	U-20925(B) August 2002	Entergy Louisiana	Louisiana	PSC Staff	Tax Issues
241.	U-26531 October 2002	SWEPCO	Louisiana	PSC Staff	Purchase Power Contract
242.	8936 October 2002	Delmarva Power & Light	Maryland	Energy Administration Dept. Natural Resources	Standard Offer Service
243.	U-25965 November 2002	SWEPCO/AEP	Louisiana	PSC Staff	RTO Cost/Benefit
244.	8908 Phase I November 2002	Generic	Maryland	Energy Administration Dept. Natural Resources	Standard Offer Service
245.	02S-315EG November 2002	Public Service Company of Colorado	Colorado	Fed. Executive Agencies	Rate of Return

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246.	EL02-111-000 December 2002	PJM/MISO	FERC	MD PSC	Transmission Ratemaking
247.	02-0479 February 2003	Commonwealth Edison	Illinois	Dept. of Energy	POLR Service
248.	PL03-1-000 March 2003	Generic	FERC	NASUCA	Transmission Pricing (Affidavit)
249.	U-27136 April 2003	Entergy Louisiana	Louisiana	Staff	Purchase Power Contracts
250.	8908 Phase II July 2003	Generic	Maryland	Energy Administration Dept. of Natural Resources	Standard Offer Service
251.	U-27192 June 2003	Entergy Louisiana and Gulf States	Louisiana	LPSC Staff	Purchase Power Contract Cost Recovery
252.	C2-99-1181 October 2003	Ohio Edison Company	U.S. District Court	U.S. Department of Justice, et al.	Clean Air Act Compliance Economic Impact (Report)
253.	RP03-398-000 December 2003	Northern Natural Gas Co.	FERC	Municipal Distributors Group/Gas Task Force	Rate of Return
254.	8738 December 2003	Generic	Maryland	Energy Admin Department of Natural Resources	Environmental Disclosure (oral only)
255.	U-27136 December 2003	Entergy Louisiana, Inc.	Louisiana	PSC Staff	Purchase Power Contracts
256.	U-27192, Phase II October/December 2003	Entergy Louisiana & Entergy Gulf States	Louisiana	PSC Staff	Purchase Power Contracts
257.	WC Docket 03-173 December 2003	Generic	FCC	MCI	Cost of Capital (TELRIC)
258.	ER 030 20110 January 2004	Atlantic City Electric	New Jersey	Ratepayer Advocate	Rate of Return
259.	E-01345A-03-0437 January 2004	Arizona Public Service Company	Arizona	Federal Executive Agencies	Rate of Return
260.	03-10001 January 2004	Nevada Power Company	Nevada	U.S. Dept. of Energy	Rate of Return

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261.	R-00049255 June 2004	PPL Elec. Utility	Pennsylvania	Office of Consumer Advocate	Rate of Return
262.	U-20925 July 2004	Entergy Louisiana, Inc.	Louisiana	PSC Staff	Rate of Return Capacity Resources
263.	U-27866 September 2004	Southwest Electric Power Co.	Louisiana	PSC Staff	Purchase Power Contract
264.	U-27980 September 2004	Cleco Power	Louisiana	PSC Staff	Purchase Power Contract
265.	U-27865 October 2004	Entergy Louisiana, Inc. Entergy Gulf States	Louisiana	PSC Staff	Purchase Power Contract
266.	RP04-155 December 2004	Northern Natural Gas Company	FERC	Municipal Distributors Group/Gas Task Force	Rate of Return
267.	U-27836 January 2005	Entergy Louisiana/ Gulf States	Louisiana	PSC Staff	Power plant Purchase and Cost Recovery
268.	U-199040 et al. February 2005	Entergy Gulf States/ Louisiana	Louisiana	PSC Staff	Global Settlement, Multiple rate proceedings
269.	EF03070532 March 2005	Public Service Electric & Gas	New Jersey	Ratepayers Advocate	Securitization of Deferred Costs
270.	05-0159 June 2005	Commonwealth Edison	Illinois	Department of Energy	POLR Service
271.	U-28804 June 2005	Entergy Louisiana	Louisiana	LPSC Staff	QF Contract
272.	U-28805 June 2005	Entergy Gulf States	Louisiana	LPSC Staff	QF Contract
273.	05-0045-EI June 2005	Florida Power & Lt.	Florida	Federal Executive Agencies	Rate of Return
274.	9037 July 2005	Generic	Maryland	MD. Energy Administration	POLR Service
275.	U-28155 August 2005	Entergy Louisiana Entergy Gulf States	Louisiana	LPSC Staff	Independent Coordinator of Transmission Plan

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276.	U-27866-A September 2005	Southwestern Electric Power Company	Louisiana	LPSC Staff	Purchase Power Contract
277.	U-28765 October 2005	Cleco Power LLC	Louisiana	LPSC Staff	Purchase Power Contract
278.	U-27469 October 2005	Entergy Louisiana Entergy Gulf States	Louisiana	LPSC Staff	Avoided Cost Methodology
279.	A-313200F007 October 2005	Sprint (United of PA)	Pennsylvania	Office of Consumer Advocate	Corporate Restructuring
280.	EM05020106 November 2005	Public Service Electric & Gas Company	New Jersey	Ratepayer Advocate	Merger Issues
281.	U-28765 December 2005	Cleco Power LLC	Louisiana	LPSC Staff	Plant Certification, Financing, Rate Plan
282.	U-29157 February 2006	Cleco Power LLC	Louisiana	LPSC Staff	Storm Damage Financing
283.	U-29204 March 2006	Entergy Louisiana Entergy Gulf States	Louisiana	LPSC Staff	Purchase power contracts
284.	A-310325F006 March 2006	Alltel	Pennsylvania	Office of Consumer Advocate	Merger, Corporate Restructuring
285.	9056 March 2006	Generic	Maryland	Maryland Energy Administration	Standard Offer Service Structure
286.	C2-99-1182 April 2006	American Electric Power Utilities	U. S. District Court Southern District, Ohio	U. S. Department of Justice	New Source Review Enforcement (expert report)
287.	EM05121058 April 2006	Atlantic City Electric	New Jersey	Ratepayer Advocate	Power plant Sale
288.	ER05121018 June 2006	Jersey Central Power & Light Company	New Jersey	Ratepayer Advocate	NUG Contracts Cost Recovery
289.	U-21496, Subdocket C June 2006	Cleco Power LLC	Louisiana	Commission Staff	Rate Stabilization Plan
290.	GR0510085 June 2006	Public Service Electric & Gas Company	New Jersey	Ratepayer Advocate	Rate of Return (gas services)

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291.	R-000061366 July 2006	Metropolitan Ed. Company Penn. Electric Company	Pennsylvania	Office of Consumer Advocate	Rate of Return
292.	9064 September 2006	Generic	Maryland	Energy Administration	Standard Offer Service
293.	U-29599 September 2006	Cleco Power LLC	Louisiana	Commission Staff	Purchase Power Contracts
294.	WR06030257 September 2006	New Jersey American Water Company	New Jersey	Rate Counsel	Rate of Return
295.	U-27866/U-29702 October 2006	Southwestern Electric Power Company	Louisiana	Commission Staff	Purchase Power/Power Plant Certification
296.	9063 October 2006	Generic	Maryland	Energy Administration Department of Natural Resources	Generation Supply Policies
297.	EM06090638 November 2006	Atlantic City Electric	New Jersey	Rate Counsel	Power Plant Sale
298.	C-2000065942 November 2006	Pike County Light & Power	Pennsylvania	Consumer Advocate	Generation Supply Service
299.	ER06060483 November 2006	Rockland Electric Company	New Jersey	Rate Counsel	Rate of Return
300.	A-110150F0035 December 2006	Duquesne Light Company	Pennsylvania	Consumer Advocate	Merger Issues
301.	U-29203, Phase II January 2007	Entergy Gulf States Entergy Louisiana	Louisiana	Commission Staff	Storm Damage Cost Allocation
302.	06-11022 February 2007	Nevada Power Company	Nevada	U.S. Dept. of Energy	Rate of Return
303.	U-29526 March 2007	Cleco Power	Louisiana	Commission Staff	Affiliate Transactions
304.	P-00072245 March 2007	Pike County Light & Power	Pennsylvania	Consumer Advocate	Provider of Last Resort Service
305.	P-00072247 March 2007	Duquesne Light Company	Pennsylvania	Consumer Advocate	Provider of Last Resort Service

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306.	EM07010026 May 2007	Jersey Central Power & Light Company	New Jersey	Rate Counsel	Power Plant Sale
307.	U-30050 June 2007	Entergy Louisiana Entergy Gulf States	Louisiana	Commission Staff	Purchase Power Contract
308.	U-29956 June 2007	Entergy Louisiana	Louisiana	Commission Staff	Black Start Unit
309.	U-29702 June 2007	Southwestern Electric Power Company	Louisiana	Commission Staff	Power Plant Certification
310.	U-29955 July 2007	Entergy Louisiana Entergy Gulf States	Louisiana	Commission Staff	Purchase Power Contracts
311.	2007-67 July 2007	FairPoint Communications	Maine	Office of Public Advocate	Merger Financial Issues
312.	P-00072259 July 2007	Metropolitan Edison Co.	Pennsylvania	Office of Consumer Advocate	Purchase Power Contract Restructuring
313.	EO07040278 September 2007	Public Service Electric & Gas	New Jersey	Rate Counsel	Solar Energy Program Financial Issues
314.	U-30192 September 2007	Entergy Louisiana	Louisiana	Commission Staff	Power Plant Certification Ratemaking, Financing
315.	9117 (Phase II) October 2007	Generic (Electric)	Maryland	Energy Administration	Standard Offer Service Reliability
316.	U-30050 November 2007	Entergy Gulf States	Louisiana	Commission Staff	Power Plant Acquisition
317.	IPC-E-07-8 December 2007	Idaho Power Co.	Idaho	U.S. Department of Energy	Cost of Capital
318.	U-30422 (Phase I) January 2008	Entergy Gulf States	Louisiana	Commission Staff	Purchase Power Contract
319.	U-29702 (Phase II) February, 2008	Southwestern Electric Power Co.	Louisiana	Commission Staff	Power Plant Certification
320.	March 2008	Delmarva Power & Light	Delaware State Senate	Senate Committee	Wind Energy Economics

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321.	U-30192 (Phase II) March 2008	Entergy Louisiana	Louisiana	Commission Staff	Cash CWIP Policy, Credit Ratings
322.	U-30422 (Phase II) April 2008	Entergy Gulf States - LA	Louisiana	Commission Staff	Power Plant Acquisition
323.	U-29955 (Phase II) April 2008	Entergy Gulf States - LA Entergy Louisiana	Louisiana	Commission Staff	Purchase Power Contract
324.	GR-070110889 April 2008	New Jersey Natural Gas Company	New Jersey	Rate Counsel	Cost of Capital
325.	WR-08010020 July 2008	New Jersey American Water Company	New Jersey	Rate Counsel	Cost of Capital
326.	U-28804-A August 2008	Entergy Louisiana	Louisiana	Commission Staff	Cogeneration Contract
327.	IP-99-1693C-M/S August 2008	Duke Energy Indiana	Federal District Court	U.S. Department of Justice/ Environmental Protection Agency	Clean Air Act Compliance (Expert Report)
328.	U-30670 September 2008	Entergy Louisiana	Louisiana	Commission Staff	Nuclear Plant Equipment Replacement
329.	9149 October 2008	Generic	Maryland	Department of Natural Resources	Capacity Adequacy/Reliability
330.	IPC-E-08-10 October 2008	Idaho Power Company	Idaho	U.S. Department of Energy	Cost of Capital
331.	U-30727 October 2008	Cleco Power LLC	Louisiana	Commission Staff	Purchased Power Contract
332.	U-30689-A December 2008	Cleco Power LLC	Louisiana	Commission Staff	Transmission Upgrade Project
333.	IP-99-1693C-M/S February 2009	Duke Energy Indiana	Federal District Court	U.S. Department of Justice/EPA	Clean Air Act Compliance (Oral Testimony)
334.	U-30192, Phase II February 2009	Entergy Louisiana, LLC	Louisiana	Commission Staff	CWIP Rate Request Plant Allocation
335.	U-28805-B February 2009	Entergy Gulf States, LLC	Louisiana	Commission Staff	Cogeneration Contract

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336.	P-2009-2093055, et al. May 2009	Metropolitan Edison Pennsylvania Electric	Pennsylvania	Office of Consumer Advocate	Default Service
337.	U-30958 July 2009	Cleco Power	Louisiana	Commission Staff	Purchase Power Contract
338.	EO08050326 August 2009	Jersey Central Power Light Co.	New Jersey	Rate Counsel	Demand Response Cost Recovery
339.	GR09030195 August 2009	Elizabethtown Gas	New Jersey	New Jersey Rate Counsel	Cost of Capital
340.	U-30422-A August 2009	Entergy Gulf States	Louisiana	Staff	Generating Unit Purchase
341.	CV 1:99-01693 August 2009	Duke Energy Indiana	Federal District Court – Indiana	U. S. DOJ/EPA, et al.	Environmental Compliance Rate Impacts (Expert Report)
342.	4065 September 2009	Narragansett Electric	Rhode Island	Division Staff	Cost of Capital
343.	U-30689 September 2009	Cleco Power	Louisiana	Staff	Cost of Capital, Rate Design, Other Rate Case Issues
344.	U-31147 October 2009	Entergy Gulf States Entergy Louisiana	Louisiana	Staff	Purchase Power Contracts
345.	U-30913 November 2009	Cleco Power	Louisiana	Staff	Certification of Generating Unit
346.	M-2009-2123951 November 2009	West Penn Power	Pennsylvania	Office of Consumer Advocate	Smart Meter Cost of Capital (Surrebuttal Only)
347.	GR09050422 November 2009	Public Service Electric & Gas Company	New Jersey	Rate Counsel	Cost of Capital
348.	D-09-49 November 2009	Narragansett Electric	Rhode Island	Division Staff	Securities Issuances
349.	U-29702, Phase II November 2009	Southwestern Electric Power Company	Louisiana	Commission Staff	Cash CWIP Recovery
350.	U-30981 December 2009	Entergy Louisiana Entergy Gulf States	Louisiana	Commission Staff	Storm Damage Cost Allocation

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351.	U-31196 (ITA Phase) February 2010	Entergy Louisiana	Louisiana	Staff	Purchase Power Contract
352.	ER09080668 March 2010	Rockland Electric	New Jersey	Rate Counsel	Rate of Return
353.	GR10010035 May 2010	South Jersey Gas Co.	New Jersey	Rate Counsel	Rate of Return
354.	P-2010-2157862 May 2010	Pennsylvania Power Co.	Pennsylvania	Consumer Advocate	Default Service Program
355.	10-CV-2275 June 2010	Xcel Energy	U.S. District Court Minnesota	U.S. Dept. Justice/EPA	Clean Air Act Enforcement
356.	WR09120987 June 2010	United Water New Jersey	New Jersey	Rate Counsel	Rate of Return
357.	U-30192, Phase III June 2010	Entergy Louisiana	Louisiana	Staff	Power Plant Cancellation Costs
358.	31299 July 2010	Cleco Power	Louisiana	Staff	Securities Issuances
359.	App. No. 1601162 July 2010	EPCOR Water	Alberta, Canada	Regional Customer Group	Cost of Capital
360.	U-31196 July 2010	Entergy Louisiana	Louisiana	Staff	Purchase Power Contract
361.	2:10-CV-13101 August 2010	Detroit Edison	U.S. District Court Eastern Michigan	U.S. Dept. of Justice/EPA	Clean Air Act Enforcement
362.	U-31196 August 2010	Entergy Louisiana Entergy Gulf States	Louisiana	Staff	Generating Unit Purchase and Cost Recovery
363.	Case No. 9233 October 2010	Potomac Edison Company	Maryland	Energy Administration	Merger Issues
364.	2010-2194652 November 2010	Pike County Light & Power	Pennsylvania	Consumer Advocate	Default Service Plan
365.	2010-2213369 April 2011	Duquesne Light Company	Pennsylvania	Consumer Advocate	Merger Issues

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366.	U-31841 May 2011	Entergy Gulf States	Louisiana	Staff	Purchase Power Agreement
367.	11-06006 September 2011	Nevada Power	Nevada	U. S. Department of Energy	Cost of Capital
368.	9271 September 2011	Exelon/Constellation	Maryland	MD Energy Administration	Merger Savings
369.	4255 September 2011	United Water Rhode Island	Rhode Island	Division of Public Utilities	Rate of Return
370.	P-2011-2252042 October 2011	Pike County Light & Power	Pennsylvania	Consumer Advocate	Default service plan
371.	U-32095 November 2011	Southwestern Electric Power Company	Louisiana	Commission Staff	Wind energy contract
372.	U-32031 November 2011	Entergy Gulf States Louisiana	Louisiana	Commission Staff	Purchased Power Contract
373.	U-32088 January 2012	Entergy Louisiana	Louisiana	Commission Staff	Coal plant evaluation
374.	R-2011-2267958 February 2012	Aqua Pa.	Pennsylvania	Office of Consumer Advocate	Cost of capital
375.	P-2011-2273650 February 2012	FirstEnergy Companies	Pennsylvania	Office of Consumer Advocate	Default service plan
376.	U-32223 March 2012	Cleco Power	Louisiana	Commission Staff	Purchase Power Contract and Rate Recovery
377.	U-32148 March 2012	Entergy Louisiana Energy Gulf States	Louisiana	Commission Staff	RTO Membership
378.	ER11080469 April 2012	Atlantic City Electric	New Jersey	Rate Counsel	Cost of capital
379.	R-2012-2285985 May 2012	Peoples Natural Gas Company	Pennsylvania	Office of Consumer Advocate	Cost of capital
380.	U-32153 July 2012	Cleco Power	Louisiana	Commission Staff	Environmental Compliance Plan

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381.	U-32435 August 2012	Entergy Gulf States Louisiana LLC	Louisiana	Commission Staff	Cost of equity (gas)
382.	ER-2012-0174 August 2012	Kansas City Power & Light Company	Missouri	U. S. Department of Energy	Rate of return
383.	U-31196 August 2012	Entergy Louisiana/ Entergy Gulf States	Louisiana	Commission Staff	Power Plant Joint Ownership
384.	ER-2012-0175 August 2012	KCP&L Greater Missouri Operations	Missouri	U.S. Department of Energy	Rate of Return
385.	4323 August 2012	Narragansett Electric Company	Rhode Island	Division of Public Utilities and Carriers	Rate of Return (electric and gas)
386.	D-12-049 October 2012	Narragansett Electric Company	Rhode Island	Division of Public Utilities and Carriers	Debt issue
387.	GO12070640 October 2012	New Jersey Natural Gas Company	New Jersey	Rate Counsel	Cost of capital
388.	GO12050363 November 2012	South Jersey Gas Company	New Jersey	Rate Counsel	Cost of capital
389.	R-2012-2321748 January 2013	Columbia Gas of Pennsylvania	Pennsylvania	Office of Consumer Advocate	Cost of capital
390.	U-32220 February 2013	Southwestern Electric Power Co.	Louisiana	Commission Staff	Formula Rate Plan
391.	CV No. 12-1286 February 2013	PPL et al.	Federal District Court	MD Public Service Commission	PJM Market Impacts (deposition)
392.	EL13-48-000 February 2013	BGE, PHI subsidiaries	FERC	Joint Customer Group	Transmission Cost of Equity
393.	EO12080721 March 2013	Public Service Electric & Gas	New Jersey	Rate Counsel	Solar Tracker ROE
394.	EO12080726 March 2013	Public Service Electric & Gas	New Jersey	Rate Counsel	Solar Tracker ROE
395.	CV12-1286MJG March 2013	PPL, PSEG	U.S. District Court for the District of Md.	Md. Public Service Commission	Capacity Market Issues (trial testimony)

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396.	U-32628 April 2013	Entergy Louisiana and Gulf States Louisiana	Louisiana	Staff	Avoided cost methodology
397.	U-32675 June 2013	Entergy Louisiana and Entergy Gulf States	Louisiana	Staff	RTO Integration Issues
398.	ER12111052 June 2013	Jersey Central Power & Light Company	New Jersey	Rate Counsel	Cost of capital
399.	PUE-2013-00020 July 2013	Dominion Virginia Power	Virginia	Apartment & Office Building Assoc. of Met. Washington	Cost of capital
400.	U-32766 August 2013	Cleco Power	Louisiana	Staff	Power plant acquisition
401.	U-32764 September 2013	Entergy Louisiana and Entergy Gulf States	Louisiana	Staff	Storm Damage Cost Allocation
402.	P-2013-237-1666 September 2013	Pike County Light and Power Co.	Pennsylvania	Office of Consumer Advocate	Default Generation Service
403.	E013020155 and G013020156 October 2013	Public Service Electric and Gas Company	New Jersey	Rate Counsel	Cost of capital
404.	U-32507 November 2013	Cleco Power	Louisiana	Staff	Environmental Compliance Plan
405.	DE11-250 December 2013	Public Service Co. New Hampshire	New Hampshire	Consumer Advocate	Power plant investment prudence
406.	4434 February 2014	United Water Rhode Island	Rhode Island	Staff	Cost of Capital
407.	U-32987 February 2014	Atmos Energy	Louisiana	Staff	Cost of Capital
408.	EL 14-28-000 February 2014	Entergy Louisiana Entergy Gulf States	FERC	LPSC	Avoided Cost Methodology (affidavit)
409.	ER13111135 May 2014	Rockland Electric	New Jersey	Rate Counsel	Cost of Capital

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410.	13-2385-SSO, et al. May 2014	AEP Ohio	Ohio	Ohio Consumers' Counsel	Default Service Issues
411.	U-32779 May 2014	Cleco Power, LLC	Louisiana	Staff	Formula Rate Plan
412.	CV-00234-SDD-SCR June 2014	Entergy Louisiana Entergy Gulf	U.S. District Court Middle District Louisiana	Louisiana Public Service Commission	Avoided Cost Determination Court Appeal
413.	U-32812 July 2014	Entergy Louisiana	Louisiana	Louisiana Public Service Commission	Nuclear Power Plant Prudence
414.	14-841-EL-SSO September 2014	Duke Energy Ohio	Ohio	Ohio Consumer' Counsel	Default Service Issues
415.	EM14060581 November 2014	Atlantic City Electric Company	New Jersey	Rate Counsel	Merger Financial Issues
416.	EL15-27 December 2014	BGE, PHI Utilities	FERC	Joint Complainants	Cost of Equity
417.	14-1297-EL-SSO December 2014	First Energy Utilities	Ohio	Ohio Consumer's Counsel and NOPEC	Default Service Issues
418.	EL-13-48-001 January 2015	BGE, PHI Utilities	FERC	Joint Complainants	Cost of Equity
419.	EL13-48-001 and EL15-27-000 April 2015	BGE and PHI Utilities	FERC	Joint Complainants	Cost of Equity
420.	U- 33592 November 2015	Entergy Louisiana	Louisiana Public Service Commission	Commission Staff	PURPA PPA Contract
421.	GM15101196 April 2016	AGL Resources	New Jersey	Rate Counsel	Financial Aspects of Merger
422.	U-32814 April 2016	Southwestern Electric Power	Louisiana	Staff	Wind Energy PPAs
423.	A-2015-2517036, et.al. April 2016	Pike County	Pennsylvania	Office of Consumer Advocate	Merger Issues

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424.	EM15060733 August 2016	Jersey Central Power & Light Company	New Jersey	Rate Counsel	Transmission Divestiture
425.	16-395-EL-SSO November 2016	Dayton Power & Light Company	Ohio	Ohio Consumer's Counsel	Electric Security Plan
426.	PUE-2016-00001 January 2017	Washington Gas Light	Virginia	AOBA	Cost of Capital
427.	U-34200 April 2017	Southwestern Electric Power Co.	Louisiana	Commission Staff	Design of Formula Rate Plan
428.	ER-17030308 August 2017	Atlantic City Electric Co.	New Jersey	Rate Counsel	Cost of Capital
429.	U-33856 October 2017	Southwestern Electric Power Co.	Louisiana	Commission Staff	Power Plant Prudence
430.	4:11 CV77RWS December 2017	Ameren Missouri	U.S. District Court	U.S. Department of Justice	Expert Report FGD Retrofit
431.	D-17-36 January 2018	Narragansett Electric Co.	Rhode Island	Division Staff	Debt Issuance Authority
432.	4770 April 2018	Narragansett Electric Co.	Rhode Island	Division Staff	Cost of Capital
433.	4800 June 2018	Suez Water	Rhode Island	Division Staff	Cost of Capital
434.	17-32-EL-AIR et.al. June 2018	Duke Ohio	Ohio	Ohio Consumer's Counsel	Electric Security Plan
435.	Docket No. ER18010029/ GR18010030 August 2018	Public Service Electric & Gas Co.	New Jersey	Division of Rate Counsel	Rate of Return
436.	4:11 CV77RWS April 2019	Ameren Missouri	U.S. District Court	U.S. Department of Justice	Oral Trial Testimony— Environmental Compliance
437.	A-2018-3006061 April 2019	Aqua American Peoples Gas	Pennsylvania	Office of Consumer Advocate	Merger Issues

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438.	4929 April 2019	Narragansett Electric	Rhode Island	Division Staff	Wind Energy PPA