BEFORE THE STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES

IN THE MATTER OF THE RATE UNBUNDLING	**)**	**BPU Docket Nos.**
FILINGS BY GAS PUBLIC UTILITIES	**)**	**GX99030121**
PURSUANT TO SECTION 10, SUBSECTION A	**)**	**GO99030122**
OF THE ELECTRIC DISCOUNT AND	**)**	**GO99030123**
ENERGY COMPETITION ACT OF 1999	**)**	**GO99030124**
	)	**GO99030125**
ELIZABETHTOWN GAS COMPANY	**)**	
NEW JERSEY NATURAL GAS COMPANY	**)**	
PUBLIC SERVICE ELECTRIC & GAS COMPANY	**)**	
SOUTH JERSEY GAS COMPANY	**)**	

DIRECT TESTIMONY OF

JOHN ROHRBACH AND JAMES A. ROTHSCHILD

ON

DETERMINATION OF SHOPPING CREDIT

Filed on Behalf of

THE NEW JERSEY DIVISION OF THE RATEPAYER ADVOCATE

Blossom A. Peretz, Esq.
Director and Ratepayer Advocate
31 Clinton Street, 11th Floor
P.O. Box 46005
Newark, New Jersey 07101
(973) 648-2690 - Phone
(973) 624-1047 - Fax
www.njin.net/rpa
njratepayer@rpa.state.nj.us

Filed: July 26, 1999

STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES

In the Matter of the Rate Unbundling) BPU Docket No. GX99030121
Filings by Gas Public Utilities Pursuant to Section 10,)
Subsection A, Of The Electric Discount)
And Energy Competition Act of 1999)

Elizabethtown Gas Company) BPU Docket No. GO99030122
New Jersey Natural Gas Company) BPU Docket No. GO99030123
Public Service Electric and Gas Company) BPU Docket No. GO99030124
South Jersey Gas Company) BPU Docket No. GO99030125

DIRECT TESTIMONY OF JOHN ROHRBACH
ON BEHALF OF
THE STATE OF NEW JERSEY
DIVISION OF RATEPAYER ADVOCATE

I. INTRODUCTION

Q. Please state your name, address and for whom you are testifying?

A. My name is John Rohrbach. I am Chief Economist at PennFuture, a public-interest energy and environmental organization. My business address is 212 Locust Street, Suite 410, Harrisburg, PA 17101. I am filing this testimony on behalf of the New Jersey Division of the Ratepayer Advocate (Ratepayer Advocate).

Q. Please describe your qualifications and background.

A. I received a Bachelor of Arts from Rutgers University in 1982 and a Master of Science from Carnegie Mellon University in 1984. From 1985 to 1989 I was a research economist at the New Jersey Board of Public Utilities (Board), working in the areas of rate of return, waste-to-energy project analysis, and special projects in financial economics. I worked as an analyst for ECONorthwest in Eugene, Oregon from 1989 to 1990, and as an economist and expert witness for the New Hampshire Office of Consumer Advocate (OCA) from 1990 to 1993. While at the New Hampshire OCA I testified before the New Hampshire PUC on rate of return, restructuring policy cases and nuclear issues on behalf of New Hampshire residential consumers. From 1993 to December 1998 I worked for Commissioners John Hanger and Nora Mead Brownell of the Pennsylvania Public Utility Commission. Among other tasks, I advised

Commissioner Hanger and the Pennsylvania Department of Revenue on natural gas restructuring issues.

Q. Please Summarize your Testimony

A. Since the enactment of the Electric Discount and Energy Competition Act (Act) the Board has laid the groundwork for establishing the most competitive electric marketplace in the country.

The Board did this by setting the shopping credits in the electric industry closer to the unbundled cost of generation than any other state in the country to date. The Board, in setting these shopping credits, understood that only by making shopping credits (sometimes referred to as the 'price to compare') meaningful does the intent of the Act to establish a competitive electric marketplace become reality for ALL New Jersey electric consumers.

Similarly, the Board is charged under the Act with facilitating genuine competition for all New Jersey natural gas consumers. There is no reason that the Board cannot use the very same concepts it is using to open the electric business to make the New Jersey retail natural gas industry as consumer friendly and competitively promising, consistent with necessary concerns for reliability and safety. Indeed, the Board appears to have embraced the principle underlying the shopping credit conceptually for natural gas, as stated in the Board's Order of Clarification in this proceeding:

> *Accordingly, the prime overall purpose of the gas rate unbundling filing is to commence proceedings which will ultimately result in Board decisions to adopt rates to implement retail choice by December 31, 1999.*
>
> *the primary purpose is to establish for each gas utility the appropriate charge for basic gas supply service, applicable to each customer class as that term is defined and utilized in the Act, and <u>the appropriate amount to be deducted from the bill of a gas public utility customer who chooses a competitive supplier to reflect the fact that such customer no longer takes basic gas supply service</u>. (Emphasis added.) (Order page 2)*

The Board's cited language essentially reflects, without stating so directly, the concept of a shopping credit, so successfully used in electric unbundling in Pennsylvania and the creation of a competitive electric marketplace. The Ratepayer Advocate believes that establishment of a natural gas shopping credit will allow natural gas providers to compete on a level playing field and provide New Jersey consumers with an incentive to compare offers from competitive providers. A shopping credit for natural gas will enhance the development of a truly competitive natural gas market, and as such my testimony focuses on developing an appropriate shopping credit for the gas industry, similar to what was done on the electric side. The unbundling process and setting of shopping credits appears, at first blush to be easier than it is in electric. There are little if any stranded cost claims at this stage of the restructuring process, and many commercial and industrial natural gas customers are already shopping. The only obstacle to genuine robust natural gas competition is the setting of an appropriate shopping credit, especially for residential customers, and establishing appropriate rules regarding upstream and downstream capacity assignment, municipal aggregation and reasonable rules regarding marketers - all issues that will be addressed by other witnesses in this proceeding.

II. SHOPPING CREDITS AND BGSS SERVICE

Q. Please describe the shopping credit concept as it applies to natural gas in New Jersey.

A. As the Board is well aware, the shopping credit has become the tool chosen by the Board to ensure a successful transition from monopoly to competition in the electric industry. To my knowledge, no state has as yet embraced the shopping credit concept in the natural gas industry, and the Act has no specific reference to it in relationship to gas. However, the Board has an opportunity to do so in this proceeding, consistent with the quoted language from its original Order establishing these proceedings. New Jersey's just introduced electricity consumer education program can provide the means for the shopping credit concept to have vitality in both electric and gas. In addition, the lack of a guaranteed rate cut, which is present in electric but not in gas, makes it imperative that market-viable shopping credits are established in this case. This, in conjunction with the Board's progress in laying the groundwork for a competitive electric market, will lead to a competitive energy marketplace for all New Jersey consumers.

In the gas industry, and in the presence of no stranded costs charge, the shopping credit would generally be the sum of properly unbundled gas commodity and capacity costs. Thus it is essential that rates are first properly unbundled, so that distribution rates do not include gas costs. Gas service costs should include costs of current city gate gas supplies and the costs of any on-system peak shaving facilities such as LNG or propane-air plants currently in base rates. According to Ratepayer Advocate witness Miller, Public Service and South Jersey have broken out those costs, but Elizabethtown and New Jersey Natural Gas have not. It is also appropriate that the utilities identify the administrative and general (A&G) costs incurred to provide gas supply service.

Again, according to Mr. Miller, Public Service and South Jersey have done so, and Elizabethtown and New Jersey Natural Gas have not. It is essential to the creation of an appropriate shopping credit, that in the first instance, those costs must be properly broken out, and the utilities should be required to supply this information when they file their rebuttal testimony. I have used the information supplied by Public Service to demonstrate a properly unbundled rate, wherein all gas costs have been unbundled from the distribution rate. This results in increasing the gas costs for Public Service from 39.298 cents/therm to 40.95 cents/therm for Rate RSG, but lowering PSE&G's distribution rates by an equal amount.

Q. How do you propose to establish an appropriate shopping credit for each of the utilities at this stage of this proceeding?

A. While the data necessary to compute shopping credits for some of the utilities is not available, the method I am proposing can be followed for all the gas utilities, once the gas costs are properly unbundled from the distribution rates. In the case for Public Service, as I demonstrated above, we do have the data to establish a properly unbundled gas rate. However, this unbundled gas supply rate may not result in a sufficiently high enough shopping credit to create a competitive market in 2000. I am therefore proposing that 15% of the utilities' margins on off-system sales and capacity releases, including both the ratepayer and company shares under the utilities' existing margin sharing mechanisms, be used to create a higher shopping credit. My proposal would work as follows:

The 15% of the utilities margins on off-system sales and capacity releases would now be credited to the charges on the distribution side of the customers' gas bills, equally and proportionally coming from the ratepayers' and companies' shares of the margins. The BGSS would now be increased by the same amount.

In the case of Public Service, this would result in approximately a one cent per therm decrease to the distribution rates, and a corresponding one cent increase in the BGSS rate. The total shopping credit would be approximately 42 cents per therm, consisting of the 40.95 cent per therm

rate calculated by Mr. Miller based on his analysis of Public Service cost data, plus the one cent per therm adjustment.

Q. Why should margin sharing revenues be used to fund the shopping credit when, the revenues from margin sharing arrangements for off-system sales and capacity release lower gas costs?

A. Currently the gas costs established in the LGAC proceedings include an offset from revenues earned from off-system sales and capacity release programs. Some of these revenues have been used as incentives for the companies to market their upstream capacity and storage assets when not needed by the firm sales customers. These are called "off system sales". Typically, the utilities have been allowed to retain up to 20% of these revenues, with the remainder credited to the LGAC to lower gas costs to firm sales customers.

When FERC authorized capacity release and off-system sales programs on the interstate pipeline system, it did so to flow reduced gas costs to the local distribution companies to benefit their ratepayers. The Board in this state authorized incentive mechanisms for the utilities to share in these benefits, so that they would exert maximum effort to bring the benefits of competition on the interstate level to their local ratepayers.

We are now in a similar situation, where the intent is, as expressed by the Act, to bring competition directly into the local distribution company's service territory. It is therefore the recommendation of the Ratepayer Advocate that we change the focus of the revenues collected by the utilities for off-system sales and capacity release, from the direct reduction of costs in the LGAC to foster the development of a competitive gas marketplace in New Jersey that will ultimately bring lower costs to all gas consumers. I therefore recommend the establishment of a gas shopping credit, comprised of the costs included in the BGSS as determined in the LGAC and as further developed in this proceeding (see, for example, the testimony of Mr. Miller on behalf of the Ratepayer Advocate) as well as a portion of the margins realized from off-system sales and capacity releases. This will result in a meaningful shopping credit for all consumers.

The development of a viable shopping credit is important. If no consumers shop, the intent of the Act is thwarted and consumers do not receive the benefits of a competitive marketplace. Over time, the benefits of a competitive gas market-place will surely exceed the benefits of continuation of the monopoly model, so it is in the interest of the Board to set up the correct platform for competition at the beginning. Even at this early stage of the development of competitive energy markets, it is clear that shopping credits make a difference. In states that have adopted robust electric generation shopping credits, such as Pennsylvania, competition for residential consumers exist; where shopping credits are low, such as California and Massachusetts, suppliers have shown little interest in the residential market and there is little choice for customers. (See Exhibits supplied by the Pennsylvania Office of Consumer Advocate in Attachment A).

It is important to recognize that the early stages of setting a shopping credit are critical. If consumers perceive no value-added to shopping, BGSS service made available by the monopoly utility will retain most if not all of its current market share. This would not be in the long-run interests of this state, which has clearly stated that its policy is to create a competitive gas market place.

Q. Is it unfair to the gas utilities if they are forced to forgo a portion of their share of the credit in order to make the shopping credit meaningful?

A. No. First, as described elsewhere, two utilities' sharing of these revenues will end by the end of the year 2001. Secondly, except for South Jersey Gas, these revenues were not included as part of the utilities revenue requirement, and there is thus no entitlement to these revenues or any portion of them. Finally, the creation of a competitive gas market place will create economic opportunities for the utilities' marketing affiliates, to pursue customers and not only recapture any foregone revenues, but to exceed them, as they will be allowed to profit directly from the sale of gas in the competitive market place. While I would expect the market to deliver to consumers most of the margins (as they received in the monopoly model), clearly the gas utility is not harmed by this proposal on a corporate basis.

Q. Please describe the role of BGSS service in New Jersey over the next several years?

A. Each gas utility's BGSS service will define the standard against which gas suppliers and marketers will compete. It is imperative that BGSS service not be perceived as anything else than a default service for consumers, --

just as it is on the electric side.

III. CONCLUSION

Q. Does this conclude your direct testimony?

A. Yes, however I reserve my right to update my testimony as more accurate numbers become available regarding unbundling and shopping credits for each natural gas utility.

BEFORE THE STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES

IN THE MATTER OF THE RATE UNBUNDLING	**)**	**BPU Docket Nos.**
FILINGS BY GAS PUBLIC UTILITIES	**)**	**GX99030121**
PURSUANT TO SECTION 10, SUBSECTION A	**)**	**GO99030122**
OF THE ELECTRIC DISCOUNT AND	**)**	**GO99030123**
ENERGY COMPETITION ACT OF 1999	**)**	**GO99030124**
	)	**GO99030125**
ELIZABETHTOWN GAS COMPANY	**)**	
NEW JERSEY NATURAL GAS COMPANY	**)**	
PUBLIC SERVICE ELECTRIC & GAS COMPANY	**)**	
SOUTH JERSEY GAS COMPANY	**)**	

DIRECT TESTIMONY OF

JAMES A. ROTHSCHILD

ON

DETERMINATION OF SHOPPING CREDIT

Filed on Behalf of

THE NEW JERSEY DIVISION OF THE RATEPAYER ADVOCATE

Blossom A. Peretz, Esq.
Director and Ratepayer Advocate
31 Clinton Street, 11th Floor
P.O. Box 46005
Newark, New Jersey 07101
(973) 648-2690 - Phone
(973) 624-1047 - Fax
www.njin.net/rpa
njratepayer@rpa.state.nj.us

Filed: July 26, 1999

DIRECT TESTIMONY OF
JAMES A. ROTHSCHILD

ON

DETERMINATION OF SHOPPING CREDIT

TABLE OF CONTENTS

I. STATEMENT OF QUALIFICATIONS OF JAMES A. ROTHSCHILD

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is James A. Rothschild and my address is 115 Scarlet Oak Drive, Wilton, Connecticut 06897.

Q. WHAT IS YOUR OCCUPATION?

A. I am a financial consultant specializing in utility regulation. I have experience in the regulation of electric, gas, telephone, sewer, and water utilities throughout the United States.

Q. PLEASE SUMMARIZE YOUR UTILITY REGULATORY EXPERIENCE.

A. I am President of Rothschild Financial Consulting and have been a consultant since 1972. From 1979 through January 1985, I was President of Georgetown Consulting Group, Inc. From 1976 to 1979, I was the President of J. Rothschild Associates. Both of these firms specialized in utility regulation. From 1972 through 1976, Touche Ross & Co., a major international accounting firm, employed me as a management consultant. Touche Ross & Co. later merged to form Deloitte Touche. Much of my consulting at Touche Ross was in the area of utility regulation. While associated with the above firms, I have worked for various state utility commissions, attorneys general, and public advocates on regulatory matters relating to regulatory and financial issues. These have included rate of return, financial issues, and accounting issues. (See Appendix A.)

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I received an MBA in Banking and Finance from Case Western University (1971) and a BS in Chemical Engineering from the University of Pittsburgh (1967).

II. PURPOSE

Q. WHAT IS THE PURPOSE OF THIS TESTIMONY?

A. The purpose of this testimony is to provide a method for the Board to jump-start competition in the provision of gas service while still providing each of the gas distribution utilities to continue to earn no less than its current cost of equity.

Unlike the electric industry, there is no requirement for gas utilities to implement any rate reduction. Absent any minimum rate reduction, the only way for residential customers to benefit from this legislation is for competition to be encouraged to the maximum practical extent.

III. FINDINGS AND RECOMMENDATIONS

Q. PLEASE SUMMARIZE YOUR RECOMMENDATION.

A. I recommend that each of the utilities be given the option to choose to transfer the revenue requirement associated with a 1% (100 basis point) return on equity from each gas distribution utility's distribution cost to its commodity cost of gas. Any transfers that the utility should decide to make would have to be made solely within a customer class, so that the impact on each customer class will be revenue neutral. It is hoped that the utility companies would select the higher commodity cost of gas because it will help to stimulate competition. It is easier for independent marketers to establish or expand their businesses if the commodity cost of gas is high and if the distribution cost of gas is relatively low than if the distribution cost of gas is high and the commodity cost of gas is low.

I recommend that the Board give the gas distribution companies an opportunity to keep their shares of margins on off-system sales and capacity releases at the existing 15% or 20%. In order to continue to keep the 15% or 20%, all the company should be required to do is to choose the option to move the revenue requirement associated with a 100 basis point return on its equity from the distribution cost rate to the commodity cost of gas charge.

Q. WHY DID YOU CHOOSE 100 BASIS POINTS AS THE AMOUNT OF REVENUE REQUIREMENTS TO TRANSFER?

A. I examined how long-term interest rates have changed since the last rate case of each of the four gas distribution companies in New Jersey. As shown on Schedule JAR 1, the level of interest rates on long-term U.S. treasury bonds that was available to witnesses during the time of the gas distribution utility's last rate case is estimated to be 7.54%. The current interest rate on long-term treasury bonds is less than 6%, or more than 150 basis points below the average level that prevailed during the last rate case of the gas distribution utilities. A drop in the interest rate on long-term treasury bonds is a generally accepted indication that the cost of equity has probably also dropped.

The cost of equity has dropped by a greater amount than interest rates have dropped. But, the overall level of rates require a rate case for re-evaluation. Until such time as there is a rate case, it is preferable to move the potentially excess earnings from the distribution charge where they do nothing to help stimulate competition to the commodity cost of gas charge where they can promote competition. Switching 100 basis points of revenue requirement from the distribution cost of gas is conservative because interest rates have dropped, on average, by more than 150 basis points.

Q. JUST BECAUSE THE COST OF EQUITY HAS DROPPED SINCE THE LAST CASE, DOES THIS NECESSARILY MEAN THAT A RATE DECREASE IS NEEDED?

A. No. Either operating expenses or rate base levels could have changed. However, as shown on Schedule JAR 2, at least on a consolidated basis, the gas companies in New Jersey are expected by both Value Line and, on average, other Wall Street analysts, to have prospective earnings that average to be higher than the average allowed return on equity. Schedule JAR 2 shows that, on average, the gas distribution companies in New Jersey were authorized to earn 11.79% on equity, but on a consolidated basis, are expected to earn 12.64%. On the basis of this expectational analysis of the entire company, it is reasonable for the Board to allow those gas distribution companies that voluntarily elect to transfer the revenue requirement associated with 100 basis points of return on equity from the distribution cost of gas to the commodity cost of gas.

Q. PLEASE EXPLAIN YOUR BASIS FOR CONCLUDING THAT THE COST OF EQUITY HAS DROPPED MORE THAN THE DROP IN THE COST OF DEBT?

A. The cost of equity has dropped by more than the cost of debt because the risk premium (the difference between the cost of equity and the cost of debt) has dropped.

Q. CAN YOU PROVIDE SUPPORT TO SHOW THAT THE RISK PREMIUM HAS DROPPED?

A. Yes. One good source is an article that appeared in the April 5, 1999 issue of *Business Week*:

> The risk premium is the difference between the risk-free interest rate, usually the return on U.S. Treasury bills, and the return on a diversified stock portfolio. Over more than 70 years, the return to stocks averaged 11.2%, and T-bills, just 3.8%. The difference between the two returns, 7.4%, is the risk premium. Economists explain this extra return as an investors' reward for taking on the greater risk of owning stocks. **Most market watchers believe that in recent years, the premium has fallen to somewhere between 3% and 4% because of lower inflation and a long business upswing that makes corporate earnings less variable.**
> [emphasis added]

A copy of the Business Week article is included with this testimony as Appendix B.

CAN YOU POINT TO ANY OTHER RECENT ARTICLES THAT ARE CONSISTENT WITH THE ABOVE-QUOTED BUSINESS WEEK ARTICLE?

Yes. Page C1 of the March 23, 1999 issue of the *Wall Street Journal* contains an article entitled "Dow 10000? Prepare for the Hangover" also makes the point that risk premiums are lower now than in the past. A copy of the Wall Street Journal article is included with this testimony as Appendix C.

A book entitled *Stocks for the Long Run*[1] examined the real returns achieved by common stocks from 1802 through 1997.

The book says on page 12:

> Note the extraordinary stability of the real return on stocks over all major subperiods: 7.0 percent per year from 1802-1870, 6.6 percent from 1871 through 1925, and 7.2 percent per year since 1926. Ever since World War II, during which all the inflation in the U.S. has experienced over the past two hundred years has occurred, the average real rate of return on stocks as been 7.5 percent per year. This is virtually identical to the previous 125 years, which saw no overall inflation. This remarkable stability of long-term real returns is a characteristic of mean reversion, a property of a variable to offset its short-term fluctuations so as to produce far more stable long-term returns.

Continuing on page 14, the book says:

> As stable as the long-term real returns have been for equities, the same cannot be said of fixed-income assets. Table 1-2 reports the nominal and real returns on both short-term and long-term bonds over the same time periods as in Table 1-1.

[1] Stocks for the Long Run by Jeremy J. Siegel, Professor at Wharton. McGraw Hill, 1998. According to the book cover, Professor Siegel was "… hailed by Business Week as the top business school professor in the country…".

The real returns on bills has dropped precipitously from 5.1 percent in the early part of the nineteenth century to a bare 0.6 percent since 1926, a return only slightly above inflation.

The real return on long-term bonds as shown a similar pattern. Bond returns fell from a generous 4.8 percent in the first subperiod to 3.7 percent in the second, and then to only 2.0 percent in the third.

The book explains some of the reasons why bond returns have been especially unstable. Page 16 says:

> The stock collapse of the early 1930's caused a whole generation of investors to shun equities and invest in government bonds and newly-insured bank deposits, driving their return downward. Furthermore, the increase in the financial assets of the middle class, whose behavior towards risk was far more conservative than that of the wealthy of the nineteenth century, likely played a role in depressing bond and bill returns**.**
>
> Moreover, during World War II and the early postwar years, interest rates were kept low by the stated bond support policy of the Federal Reserve. Bondholders had bought these bonds because of the widespread predictions of depression after the war. This support policy was abandoned in 1951 because low interest rates fostered inflation. But interest rate controls, particularly on deposits, lasted much longer.

The book then provides a conclusion on page 16 that:

> Whatever the reason for the decline in the return on fixed-income assets over the past century, it is almost certain that the real returns on bonds will be higher in the future than they have been over the last 70 years. As a result of the inflation shock of the 1970', bondholders have incorporated a significant inflation premium in the coupon on long-term bonds.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Appendix A- Testifying Experience of James A. Rothschild

THROUGH MAY 31, 1999

ALABAMA

Continental Telephone of the South; Docket No. 17968, Rate of Return, January, 1981

ARIZONA

Southwest Gas Corporation; Rate of Return, Docket No. U-1551-92-253, March, 1993
Sun City West Utilities; Accounting, January, 1985

CONNECTICUT

Connecticut American Water Company; Docket No. 800614, Rate of Return, September, 1980
Connecticut American Water Company, Docket No. 95-12-15, Rate of Return, February, 1996
Connecticut Light & Power Company; Docket No. 85-10-22, Accounting and Rate of Return, February, 1986
Connecticut Light & Power Company; Docket No. 88-04-28, Gas Divestiture, August, 1988
Connecticut Light & Power Company, Docket No. 97-05-12, Rate of Return, September, 1997
Connecticut Light & Power Company, Docket No. 98-01-02, Rate of Return, July, 1998
Connecticut Light & Power Company, Docket No. 99-02-05, Rate of Return, April, 1999
Connecticut Natural Gas; Docket No. 780812, Accounting and Rate of Return, March, 1979
Connecticut Natural Gas; Docket No. 830101, Rate of Return, March, 1983
Connecticut Natural Gas; Docket No. 87-01-03, Rate of Return, March, 1987
Connecticut Natural Gas, Docket No. 95-02-07, Rate of Return, June, 1995
Southern Connecticut Gas, Docket No. 97-12-21, Rate of Return, May, 1998
United Illuminating Company; Docket No. 89-08-11:ES:BBM, Financial Integrity and Financial Projections, November, 1989.
United Illuminating Company; Docket No. 99-02-04, Rate of Return, April, 1999

DELAWARE

Artesian Water Company, Inc.; Rate of Return, December, 1986
Artesian Water Company, Inc.; Docket No. 87-3, Rate of Return, August, 1987
Diamond State Telephone Company; Docket No. 82-32, Rate of Return, November, 1982
Diamond State Telephone Company; Docket No. 83-12, Rate of Return, October, 1983
Wilmington Suburban Water Company; Rate of Return Report, September, 1986
Wilmington Suburban Water Company; Docket No. 86-25, Rate of Return, February, 1987

FEDERAL ENERGY REGULATORY COMMISSION (FERC)

Koch Gateway Pipeline Company, Docket No. RP97-373-000 Cost of Capital, December, 1997

Maine Yankee Atomic Power Company, Docket No. EL93-22-000, Cost of Capital, July, 1993
New England Power Company; CWIP, February, 1984. Rate of return.

New England Power Company; Docket No.ER88-630-000 & Docket No. ER88-631-000, Rate of Return, April, 1989
New England Power Company; Docket Nos. ER89-582-000 and ER89-596-000, Rate of Return, January, 1990
New England Power Company: Docket Nos. ER91-565-000, ER91-566-000 , FASB 106, March, 1992. Rate of Return.
Philadelphia Electric Company - Conowingo; Docket No. EL-80-557/588, July, 1983. Rate of Return.
Ocean State Power Company, Ocean States II Power Company, Docket No. ER94-998-000 and ER94-999-000, Rate of Return, July, 1994.
Ocean State Power Company, Ocean States II Power Company, Docket No ER 95-533-001 and Docket No. ER-530-001, Rate of Return, June, 1995 and again in October, 1995.
Ocean State Power Company, Ocean State II Power Company, Docket No. ER96-1211-000 and ER96-1212-000, Rate of Return, March, 1996.
Southern Natural Gas, Docket No. RP93-15-000. Rate of Return, August, 1993, and revised testimony December, 1994.
Transco, Docket No. RP95-197-000, Phase I, August, 1995. Rate of Return.

Transco, Docket Nos. RP-97-71-000 and RP97-312-000, June, 1997, Rate of Return.

FLORIDA

Alltel of Florida; Docket No. 850064-TL, Accounting, September, 1985
Florida Power & Light Company; Docket No. 810002-EU, Rate of Return, July, 1981
Florida Power & Light Company; Docket No. 82007-EU, Rate of Return, June, 1982
Florida Power & Light Company; Docket No. 830465-EI, Rate of Return and CWIP, March, 1984
Florida Power Corporation; Docket No. 830470-EI, Rate Phase-In, June, 1984
Florida Power Corp.; Rate of Return, August, 1986
Florida Power Corp.; Docket No. 870220-EI, Rate of Return, October, 1987
GTE Florida, Inc.; Docket No. 890216-TL, Rate of Return, July, 1989
Gulf Power Company; Docket No. 810136-EU, Rate of Return, October, 1981
Gulf Power Company; Docket No. 840086-EI, Rate of Return, August, 1984
Gulf Power Company; Docket No. 881167-EI, Rate of Return, 1989
Gulf Power Company; Docket No. 891345-EI, Rate of Return, 1990
Rolling Oaks Utilities, Inc.; Docket No. 850941-WS, Accounting, October, 1986
Southern Bell Telephone Company; Docket No. 880069-TL, Rate of Return, January, 1992
Southern Bell Telephone Company, Docket No. 920260-TL, Rate of Return, November, 1992
Southern Bell Telephone Company, Docket No. 90260-TL, Rate of Return, November, 1993
Southern States Utilities, Docket No. 950495-WS, Rate of Return, April, 1996
Tampa Electric Company; Docket No. 820007-EU, Rate of Return, June, 1982
Tampa Electric Company; Docket No. 830012-EU, Rate of Return, June, 1983
United Telephone of Florida; Docket No. 891239-TL, Rate of Return, November, 1989
United Telephone of Florida; Docket No. 891239-TL, Rate of Return, August, 1990

Water and Sewer Utilities, Docket No 880006-WS, Rate of Return, February, 1988.

GEORGIA

Georgia Power Company; Docket No. 3397-U, Accounting, July, 1983

ILLINOIS

Ameritech Illinois, Rate of Return and Capital Structure, Docket 96-0178, January and July, 1997.
Central Illinois Public Service Company; ICC Docket No. 86-0256, Financial and Rate of Return, October, 1986.
Central Telephone Company of Illinois, ICC Docket No. 93-0252, Rate of Return, October, 1993.
Commonwealth Edison Company; Docket No. 85CH10970, Financial Testimony, May, 1986.
Commonwealth Edison Company; Docket No. 86-0249, Financial Testimony, October, 1986.
Commonwealth Edison Company; ICC Docket No. 87-0057, Rate of Return and Income Taxes, April 3, 1987.
Commonwealth Edison Company; ICC Docket No. 87-0043, Financial Testimony, April 27, 1987.
Commonwealth Edison Company; ICC Docket Nos. 87-0169, 87-0427,88-0189,880219,88-0253 on Remand, Financial Planning Testimony, August, 1990.
Commonwealth Edison Company; ICC Docket Nos. 91-747 and 91-748; Financial Affidavit, March, 1991.
Commonwealth Edison Company; Financial Affidavit, December, 1991.
Commonwealth Edison Company, ICC Docket No. 87-0427, Et. Al., 90-0169 (on Second Remand), Financial Testimony, August, 1992.
Genesco Telephone Company, Financial Testimony, July, 1997.
GTE North, ICC Docket 93-0301/94-0041, Cost of Capital, April, 1994
Illinois Power Company, Docket No. 92-0404, Creation of Subsidiary, April, 1993
Illinois Bell Telephone Company, Dockets No. ICC 92-0448 and ICC ______, Rate of Return, July, 1993
Northern Illinois Gas Company; Financial Affidavit, February, 1987.
Northern Illinois Gas Company; Docket No. 87-0032, Cost of Capital and Accounting Issues, June, 1987.
Peoples Gas Light and Coke Company; Docket No. 90-0007, Accounting Issues, May, 1990.

KENTUCKY

Kentucky- American Water Company, Case No. 97-034, Rate of Return, June, 1997.
Kentucky Power Company; Case No. 8429, Rate of Return, April, 1982.
Kentucky Power Company; Case No. 8734, Rate of Return and CWIP, June, 1983.
Kentucky Power Company; Case No. 9061, Rate of Return and Rate Base Issues, September, 1984.
West Kentucky Gas Company, Case No. 8227, Rate of Return, August, 1981.

MAINE

Bangor Hydro-Electric Company; Docket No. 81-136, Rate of Return, January, 1982.
Bangor Hydro-Electric Company; Docket No. 93-62, Rate of Return, August, 1993
Maine Public Service Company; Docket No. 90-281, Accounting and Rate of Return, April, 1991.

MARYLAND

C & P Telephone Company; Case No. 7591, Fair Value, December, 1981

MASSACHUSETTS

Boston Edison Company; Docket No. DPU 906, Rate of Return, December, 1981
Fitchburg Gas & Electric; Accounting and Finance, October, 1984
Southbridge Water Company; M.D.P.U., Rate of Return, September, 1982

MINNESOTA

Minnesota Power & Light Company; Docket No. EO15/GR-80-76, Rate of Return, July, 1980

NEW JERSEY

Atlantic City Sewage; Docket No. 774-315, Rate of Return, May, 1977
Atlantic City Electric Company, Docket Nos. ER 8809 1053 and ER 8809 1054, Rate of Return, April, 1990
Atlantic City Electric Company, Docket Nos. EO97070455 and EO97070456, Cost of Capital, Capital Cost Allocation, and Securitization, December, 1997.
Elizabethtown Gas Company. BRC Docket No. GM93090390. Evaluation of proposed merger with Pennsylvania & Southern Gas Co. April, 1994
Elizabethtown Water Company; Docket No. 781-6,Accounting, April, 1978
Elizabethtown Water Company; Docket No. 802-76, Rate of Return, January, 1979
Elizabethtown Water Company; Docket No. PUC 04416-90, BPU Docket No. WR90050497J, Rate of Return and Financial Integrity, November, 1990.
Elizabethtown Water Company; Docket No. WR 9108 1293J, and PUC 08057-91N, Rate of Return and Financial Integrity, January, 1992.
Elizabethtown Water Company, Docket No. WR 92070774J, and PUC 06173-92N, Rate of Return and Financial Integrity, January, 1993.
Elizabethtown Water Company, Docket No. BRC WR93010007, OAL No. PUC 2905-93, Regulatory treatment of CWIP. May, 1993.
Elizabethtown Water Company, BPU Docket No. WR 95110557, OAL Docket No. PUC 12247-95, Rate of Return, March, 1996.

Essex County Transfer Stations; OAL Docket PUC 03173-88, BPU Docket Nos. SE 87070552 and SE 87070566, Rate of Return, October, 1989.

Hackensack Water Company; Docket No. 776-455, October, 1977 and Accounting, February, 1979

Hackensack Water Company; Docket No. 787-847, Accounting and Interim Rate Relief, September, 1978

Hackensack Water Company; AFUDC & CWIP, June, 1979

Hackensack Water Company; Docket No. 804-275, Rate of Return, September, 1980

Hackensack Water Company; Docket No. 8011-870, CWIP, January, 1981

Inquiry Into Methods of Implementation of FASB-106, Financial Issues, BPU Docket No. AX96070530, September, 1996

Jersey Central Power & Light Company, Docket No. EO97070459 and EO97070460, Cost of Capital, Capital Cost Allocation, and Securitization, November 1997

Middlesex Water Company; Docket No. 793-254, Tariff Design, September, 1978

Middlesex Water Company; Docket No. 793-269, Rate of Return, June, 1979

Middlesex Water Company; Docket No. WR890302266-J, Accounting and Revenue Forecasting, July, 1989

Middlesex Water Company; Docket No. WR90080884-J, Accounting, Revenue Forecasting, and Rate of Return, February, 1991

Middlesex Water Company, Docket No. WR92070774-J, Rate of Return, January, 1993

Mount Holly Water Company; Docket No. 805-314, Rate of Return, August, 1980

National Association of Water Companies; Tariff Design, 1977

New Jersey American Water Company, BPU Docket No. WR9504, Rate of Return, September, 1995

New Jersey Bell Telephone; Docket No. 7711-1047, Tariff Design, September, 1978

New Jersey Land Title Insurance Companies, Rate of Return and Accounting, August and November, 1985

New Jersey Natural Gas; Docket No. 7812-1681, Rate of Return, April, 1979

New Jersey Water Supply Authority, Ratemaking Issues, February, 1995

Nuclear Performance Standards; BPU Docket No. EX89080719, Nuclear Performance Standards policy testimony

Public Service Electric & Gas Company, Docket No. EX9412058Y and EO97070463, Cost of Capital, Capital Cost Allocation, and Securitization, November 1997

Rockland Electric Company; Docket No. 795-413, Rate of Return, October, 1979

Rockland Electric Company, Docket Nos. EO97070464 and EO97070465, Cost of Capital, Capital Cost Allocation, and Securitization, January, 1998

Salem Nuclear Power Plant, Atlantic City Electric Company and Public Service Electric & Gas Company, Docket No. ES96030158 & ES96030159, Financial Issues, April, 1996.

South Jersey Gas Company; Docket No. 769-988, Accounting, February, 1977

South Jersey Gas Company, BRC Docket No. GU94010002, June, 1994

United Artists Cablevision; Docket No. CTV-9924- 83, Rate of Return, April, 1984

West Keansburg Water Company; Docket No. 838-737, Rate of Return, December, 1983

NEW YORK

Consolidated Edison Company; Case No.27353, Accounting and Rate of Return, October, 1978

Consolidated Edison Company; Case No. 27744, Accounting and Rate of Return, August 1980
Generic Financing Case for Electric & Gas Companies; Case No. 27679, May, 1981
Long Island Lighting Company; Case No. 27136, Accounting and Rate of Return, June, 1977
Long Island Lighting Company; Case No. 27774, Rate of Return, November, 1980
Long Island Lighting Company; Case No. 28176 and 28177, Rate of Return and Revenue Forecasting, June, 1982
Long Island Lighting Company, Case No. 28553, Rate of Return and Finance, March, 1984
Long Island Lighting Company, Case No. 93-E-1123, Rate of Return and Finance, May, 1994
New York Telephone, Case No. 27469, April, 1979
New York Telephone, Case No. 27710, Accounting, September, 1981

OHIO

Columbia Gas Company of Ohio; Case No. 77-1428-GA-AIR, March, 1979
Columbia Gas Company of Ohio; Case No. 78-1118-GA-AIR, Accounting and Rate of Return, May, 1979
Ohio Utilities Company; Case No. 78-1421-WS-AIR, Rate of Return, September, 1979

OKLAHOMA

Oklahoma Natural Gas Company, Case PUD No. 94000047, Rate of Return, May, 1995

OREGON

Portland General Electric Company, Case UE 102, Rate of Return, July, 98

PENNSYLVANIA

Allied Gas, Et. Al., Docket No. R-932952, Rate of Return, May, 1994
ATTCOM - Pennsylvania; Docket No. P-830452, Rate of Return, April, 1984
Borough of Media Water Fund; Docket No. R-901725, Rate of Return, November 1990
Bethel and Mt. Aetna Telephone Company; Docket No. LR-770090452, Accounting and Rate of Return, January, 1978
Big Run Telephone Company; Docket No. R-79100968, Accounting and Rate of Return, November, 1980.
Bloomsburg Water Company; Docket Nos. R-912064 and R-912064C001-C003, Rate of Return, December, 1991.
Citizens Utilities Water Company of Pennsylvania and Citizens Utilities Home Water Company; Docket No. R-901663 and R-901664, Rate of Return, September, 1990
Citizens Utilities Water Company of Pennsylvania, Docket No. R-00953300, Rate of Return, September, 1995
City of Bethlehem, Bureau of Water, Docket No. R-943124, Rate of Return, October, 1994
City of Lancaster-Water Fund, Docket R-00984567, Rate of Return, May, 1999

Columbia Gas of Pennsylvania; Docket No. R-78120724, Rate of Return, May, 1979
Dallas Water Co., Harvey's Lake Water Co., Noxen Water Co., Inc. & Shavertown Water Co. Inc., Docket Nos R-922326, R-922327, R-922328, R-922329, Rate of Return, September, 1992
Dauphin Consolidated Water Company; Docket No. R-780-50616, Rate of Return, August, 1978
Dauphin Consolidated Water Company; Docket No. R-860350, Rate of Return, July, 1986
Dauphin Consolidated Water Company; Docket No. R-912000, Rate of Return, September, 1991
Duquesne Light Company; Docket No. RID-373, Accounting and Rate of Return,
Duquesne Light Company; Docket No. R-80011069, Accounting and Rate of Return, June, 1979
Duquesne Light Company; Docket No. R-821945, Rate of Return, August, 1982
Duquesne Light Company; Docket No. R-850021, Rate of Return, August, 1985
Equitable Gas Company; Docket No. R-780040598, Rate of Return, September, 1978
General Telephone Company of Pennsylvania; Docket No. R-811512, Rate of Return
Mechanicsburg Water Company; Docket No. R-911946; Rate of Return, July, 1991
Mechanicsburg Water Company, Docket No. R-922502, Rate of Return, February, 1993
Metropolitan Edison and Pennsylvania Electric Company; Rate of Return, December, 1980
National Fuel Gas Company; Docket No. R-77110514, Rate of Return, September, 1978
National Fuel Gas Company, Docket No. R-953299, Rate of Return, June, 1995
North Penn Gas Company, Docket No. R-922276, Rate of Return, September, 1992
North Penn Gas Company, Docket No. R-00943245, Rate of Return, May, 1995
Pennsylvania American Water Company, Docket R-922428, Rate of Return, October, 1992
Pennsylvania Electric Company; Rate of Return, September, 1980
Pennsylvania Gas & Water Company, Docket No. R-80071265, Accounting and Rate of Return
Pennsylvania Gas & Water Company; Docket No. R-78040597, Rate of Return, August, 1978
Pennsylvania Gas & Water Company; Docket No. R-911966; Rate of Return, August, 1991
Pennsylvania Gas & Water Company, Docket No. R-922404; Rate of Return, October, 1992
Pennsylvania Gas & Water Company; Docket No. R-922482; Rate of Return, January, 1993
Pennsylvania Gas & Water Company; Docket No. R-932667; Rate of Return, July, 1993
Pennsylvania Power Company; Docket No. R-78040599, Accounting and Rate of Return, May, 1978
Pennsylvania Power Company; Docket No. R-811510, Accounting, August, 1981
Pennsylvania Power Company; Case No. 821918, Rate of Return, July, 1982
Pennsylvania Power & Light Company; Docket No. R-80031114, Accounting and Rate of Return

Pennsylvania Power & Light Company; Docket No. R-822169, Rate of Return, March, 1983
Peoples Natural Gas Company; Docket No. R-78010545, Rate of Return, August, 1978
Philadelphia Electric Company; Docket No. R-850152, Rate of Return, January, 1986
Philadelphia Suburban Water Company; Docket No. R-79040824, Rate of Return, September, 1979
Philadelphia Suburban Water Company; Docket No. R-842592, Rate of Return, July, 1984
Philadelphia Suburban Water Company; Docket No. R-911892, Rate of Return, May, 1991
Philadelphia Suburban Water Company, Docket No. R-00922476, Rate of Return, March, 1993
Philadelphia Suburban Water Company, Docket No. R-932868, Rate of Return, April, 1994
Philadelphia Suburban Water Company, Docket No. R-00953343, Rate of Return, August, 1995.
Roaring Creek Water Company, Docket No. R-911963, Rate of Return, August, 1991
Roaring Creek Water Company, Docket No. R-00932665, Rate of Return, September, 1993
Sewer Authority of the City of Scranton; Financial Testimony, March, 1991
UGI Luzerne Electric; Docket No. R-78030572, Accounting and Rate of Return, October, 1978

United Water, Pennsylvania Inc., Docket No. R-00973947, Rate of Return, August, 1997
West Penn Power, Docket No. R-78100685, July, 1979
West Penn Power; Docket No. R-80021082, Accounting and Rate of Return
Williamsport vs. Borough of S. Williamsport re Sewage Rate Dispute
York Water Company, Docket No. R-850268, Rate of Return, June, 1986
York Water Company, Docket No. R-922168, Rate of Return, June, 1992

RHODE ISLAND

Blackstone Valley Electric Company; Rate of Return, February, 1980
Blackstone Valley Electric Company; Docket No. 1605, Rate of Return, February, 1982
Blackstone Valley Electric Company, Docket No. 2016, Rate of Return, October, 1991
Block Island Power Company, Docket No. 1998, Interim Relief, Oral testimony only, March, 1991, Permanent relief accounting testimony , August, 1991
Bristol & Warren Gas Company; Docket No. 1395, Rate of Return, February, 1980
Bristol & Warren Gas Company; Docket No. 1395R, Rate of Return, June, 1982
FAS 106 Generic Hearing; Docket No. 2045, Financial Testimony, July, 1992
Narragansett Electric Corporation; Docket No. 1591, Accounting, November, 1981
Narragansett Electric Corporation; Docket No. 1719, Rate of Return, December, 1983
Narragansett Electric Corporation; Docket No. 1938, Rate of Return, October, 1989.
Narragansett Electric Corporation; Docket No. 1976, Rate of Return, October, 1990
Newport Electric Corporation; Docket No. 1410, Accounting, July, 1979
Newport Electric Corporation; Docket No. 1510, Rate of Return
Newport Electric Corporation; Docket No. 1801, Rate of Return, June, 1985
Newport Electric Corporation; Docket 2036, Rate of Return, April, 1992
Providence Gas Company; Docket No. 1971, Rate of Return, October, 1990
Providence Gas Company, Docket No. 2286, Rate of Return, May, 1995
South County Gas Company, Docket No. 1854, Rate of Return, December, 1986
Valley Gas and Bristol & Warren Gas Co., Docket No. 2276, April, 1995
Wakefield Water Company, Docket No. 1734, Rate of Return, April, 1984

SOUTH CAROLINA

Small Power Producers & Cogeneration Facilities; Docket No. 80-251-E, Cogeneration Rates, August, 1984
South Carolina Electric & Gas Company; Docket No. 79-196E, 79-197-G, Accounting, November, 1979

VERMONT

Green Mountain Power Company, Docket No. 4570, Accounting, July, 1982
New England Telephone Company; Docket No. 3806/4033, Accounting, November, 1979
New England Telephone Company; Docket No. 4366, Accounting

WASHINGTON, D.C.

PEPCO/BGE Merger Case, Formal Case No. 951, Rate of Return, September, 1996
Bell Atlantic- DC, Formal Case No. 814, Phase IV, Rate of Return, September, 1995
Chesapeake and Potomac Telephone Company; Formal Case No. 850; Rate of Return, July, 1991.
Chesapeake and Potomac Telephone Company, Formal Case No. 814-Phase III, Financial Issues, October, 1992.
Chesapeake and Potomac Telephone Company, Formal Case 926, Rate of Return, July, 1993.
PEPCO; Formal Case No. 889, Rate of Return, January, 1990.
PEPCO; Formal Case No. 905, Rate of Return, June, 1991.
PEPCO; Formal Case No. 912, Rate of Return, March, 1992.
PEPCO; Formal Case No. 929, Rate of Return, October, 1993.
PEPCO; Formal Case No. 951, Rate of Return, September, 1996
Washington Gas Light Company, Case No. 922, Rate of Return, April, 1993.
Washington Gas Light Company, Case No. 934, Rate of Return, April, 1994.

OTHER

Railroad Cost of Capital, Ex Parte No. 436, Rate of Return, January 17, 1983 (Submitted to the Interstate Commerce Commission)
Report on the Valuation of Nemours Corporation, filed on behalf of IRS, October, 1983 (Submitted to Tax Court)

APPENDIX B – BUSINESS WEEK ARTICLE

APPENDIX C – WALL STREET JOURNAL ARTICLE