

**NATIONAL GRID
RHODE ISLAND – GAS**

**PAUL R. MOUL
REBUTTAL TESTIMONY
DOCKET No. 3943
AUGUST 15, 2008**

REBUTTAL TESTIMONY

OF

PAUL R. MOUL

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1 **I. INTRODUCTION AND SCOPE OF TESTIMONY**

2 **Q. PLEASE STATE YOUR NAME, OCCUPATION AND BUSINESS**
3 **ADDRESS.**

4 A. My name is Paul R. Moul and I am Managing Consultant of the firm P. Moul &
5 Associates. My business address is 251 Hopkins Road, Haddonfield, NJ 08033-
6 3062.

7 **Q. MR. MOUL, HAVE YOU PREVIOUSLY SUBMITTED DIRECT**
8 **TESTIMONY IN THIS PROCEEDING?**

9 A. Yes. My direct testimony was submitted with the Company's filing on April 12,
10 2008.

11 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

12 A. National Grid ("National Grid" or the "Company") has requested that I comment
13 on and rebut the testimony presented by Mr. James A. Rothschild, a witness
14 appearing on behalf of the Division of Public Utilities and Carriers. However, my
15 silence on any issues should not be construed as agreement with any particular
16 recommendation.

II. REBUTTAL SUMMARY

Q. WILL YOU IDENTIFY THE AREAS OF CONTROVERSY CONCERNING THE RATE OF RETURN ISSUE IN THIS PROCEEDING?

A. The central areas of dispute in this case involve: (i) the appropriate capital structure ratios that should be used to calculate the overall rate of return, (ii) whether the cost of equity proposed by Mr. Rothschild, if adopted, will be adequate to satisfy investor expectations, (iii) the selection of comparable companies to measure the Company's cost of equity, (iv) the determination of a reasonable Discounted Cash Flow cost rate, (v) whether other methods provide a reasonable measure of the Company's cost of equity, and (vi) whether adjustments to the Company's cost of equity are necessary if the Commission adopts the proposed Revenue Decoupling Mechanism ("RDM").

Q. PLEASE OUTLINE THE DEFICIENCIES IN MR. ROTHSCHILD'S PROPOSAL RELATED TO CAPITAL STRUCTURE?

A. For the reasons that follow, it is my opinion that Mr. Rothschild's proposed capital structure ratios are unreasonable and that the equity level proposed by Mr. Rothschild is extreme. Furthermore, his adjustment to the rate of return on common equity associated with his common equity ratio proposal is deficient because a 0.45% adjustment is inadequate to compensate investors for the financial risk associated with the extraordinarily low common equity ratio of 37.77% that he is proposing in comparison to the 47.71% that I have

recommended. As I will demonstrate later in my rebuttal testimony, the financial risk associated with a 37.77% common equity ratio requires a higher cost of equity. The actual adjustment would be 0.67% (10.17% - 9.50%) using the DCF model and 1.29% (0.18% x 7.15%) using the CAPM. The average of these adjustments to recognize the higher financial risk of a 37.77% common equity ratio is 0.98% (0.67% + 1.29% = 1.96% ÷ 2) rather than the 0.45% proposed by Mr. Rothschild.

Q. PLEASE OUTLINE THE DEFICIENCIES IN MR. ROTHSCCHILD'S PROPOSALS RELATED TO RETURN ON EQUITY?

The 9.50% rate of return on common equity recommended by Mr. Rothschild that is based on the 47.71% common equity ratio that I have proposed does not come close to the returns actually expected by investors for natural gas distribution utilities and is entirely inadequate to reflect the current risk of common stocks. Rates of return established in other ratesetting proceedings also show that the return proposed by Mr. Rothschild is too low.

Q. WHY IS IT IMPORTANT THAT THE COMMISSION PROVIDE THE COMPANY WITH A RATE OF RETURN THAT ACCOMMODATES INVESTORS' REQUIREMENTS?

A. The return on equity set by the Commission embodies in a single numerical value a clear signal of regulatory support for the utilities that it regulates. While cost allocations, rate design issues, and regulatory policies relative to the cost of service are important considerations, the opportunity to achieve a reasonable

1 return on equity represents a direct signal to the investment community of
2 regulatory support. In a single figure, the authorized return on equity provides a
3 common and widely understood benchmark that can be compared from one firm
4 to another and is the basis by which returns on all financial assets (stocks – both
5 utility and non-regulated, bonds, money market instruments, etc.) can be
6 measured. So, while varying degrees of sophistication are required to interpret
7 the meaning of specific Commission policies on technical matters such as the test
8 period, rate design issues, cost of service items, etc., the return on equity figure is
9 universally understood and communicates to investors the types of returns that
10 they can reasonably expect from an investment in utilities operating in Rhode
11 Island. To obtain new capital and retain existing capital, the rate of return on
12 common equity must be high enough to satisfy investors' requirements. The
13 recommendation of Mr. Rothschild, which proposes an equity return of 9.50%
14 relative to a 47.71% common equity ratio, would send a negative signal of
15 regulatory support in Rhode Island.

16 **Q. CAN YOU DEMONSTRATE HOW A RETURN ON EQUITY BELOW**
17 **10% IS UNUSUAL IN PUBLIC UTILITY RATESETTING?**

18 A. Yes. From my experience, single digit returns (i.e. those less than 10%) are
19 unusual. According to the PUR Utility Regulatory News ("URN") issue dated
20 December 28, 2007, regulatory authorized rates of return on common equity over
21 the period October 1, 2006 through August 31, 2007 were as follows:

	Electric & Gas		Gas Only	
	Number	Percent	Number	Percent
Less than 10%	11	19%	7	24%
10% to 10.9%	39	68%	19	66%
11 to 11.9%	5	9%	2	7%
12% and Higher	2	4%	1	3%

The average authorized rate of return on common equity for natural gas utilities was 10.27%, the median return was 10.25%, and the midpoint return was 10.42%.¹ These data show that returns below 10% are unusual in rate case decisions.

Q. DO YOU HAVE ANY EVIDENCE THAT SHOWS THAT THE RATES OF RETURN ON COMMON EQUITY PROPOSED BY MR. ROTHCHILD ARE TOO LOW?

A. Yes. The forecast returns on equity for the natural gas utility industry, as published in the June 13, 2008 edition of Value Line, are as follows:

<u>Years</u>	<u>Composite</u>
2008	11.5%
2009	12.0%
2011-2013	12.5%

Knowledgeable investors are aware of these returns and price the stocks of the natural gas utilities accordingly.

¹ The 8.84% return for Lawrenceburg Gas Company was for a company with no debt in its capital structure.

1 **Q. APART FROM THE VALUE LINE FORECASTS, ARE THERE OTHER**
2 **FACTORS THAT LEAD YOU TO BELIEVE THAT MR. ROTHSCHILD**
3 **HAS UNDERSTATED THE COMPANY’S COST OF EQUITY?**

4 A. Yes in my judgment, Mr. Rothschild has failed to adequately take into account the
5 tremendous volatility in the capital markets today. Recent volatility can be traced
6 to turmoil in the credit markets caused initially by the collapse of the sub-prime
7 mortgage market, which prompted central banks throughout the world to inject
8 enormous amounts of reserves into the banking system to increase liquidity in
9 reaction to the credit crunch. Valuation uncertainties for asset-backed securities
10 linked to sub-prime mortgages caused liquidity concerns for many hedge funds,
11 investment banks, and financial institutions, including the near collapse of a major
12 investment bank (i.e., The Bear Stearns Companies). This turmoil has continued
13 recently with the third-largest banking failure in U.S. history after a “run on the
14 bank” by depositors. In addition, the Treasury and Federal Reserve recently
15 developed contingency plans to support the government-sponsored enterprises
16 (“GSE”) -- Federal National Mortgage Association (Fannie Mae) and Freddie
17 Mac. It is clear that the future course of the financial markets continues to be
18 highly uncertain today.

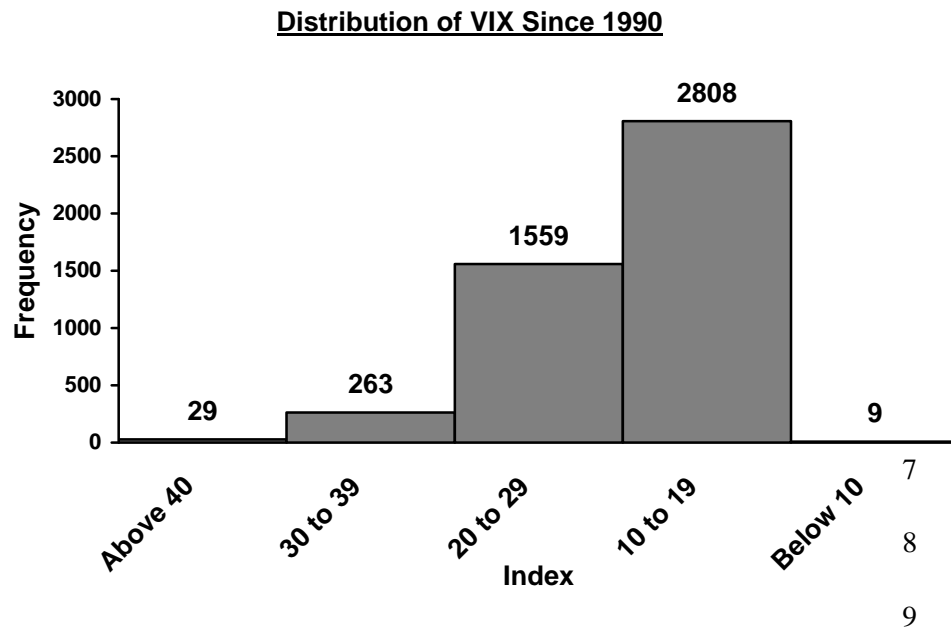
19 **Q. IS THERE AN OBJECTIVE MEASURE OF VOLATILITY IN THE**
20 **STOCK MARKET THAT REFLECTS THIS UNCERTAINTY?**

21 A. Yes. The Chicago Board Options Exchange (“CBOE”) Volatility Index (i.e.,
22 “VIX”) can be used in this regard. The VIX is based on real-time prices of

1 options on the S&P 500 Index, and is designed to reflect investors' consensus
2 view of future (30-day) expected stock market volatility.

3 **Q. CAN YOU PRESENT THE VIX IN AN HISTORICAL CONTEXT?**

4 **A.** Yes. Presented below is the distribution of the entire history of the VIX.



10 This histogram represents the VIX daily closing index sorted into five groupings
11 over the period from January 2, 1990 to July 11, 2008. The higher the index
12 values, the more volatility investors expect in the S&P 500. For 2008 through
13 July 11, the VIX has averaged 23.44, or above its historic average. Such volatility

1 is not surprising given investor concerns about the inflationary impact of high
2 commodity prices and financial market uncertainties. Indeed, the recently
3 reported annual rate of inflation of 5% has not been seen for seventeen years.

4 **Q. WHAT HAS LED TO AN UNDULY LOW (I.E., SINGLE DIGIT) RETURN**
5 **ON EQUITY THAT HAS BEEN PROPOSED BY MR. ROTHSCHILD?**

6 A. For a variety of technical reasons that I will cover later in my rebuttal testimony,
7 the rate of return testimony submitted by Mr. Rothschild contains various
8 misspecifications in the models used to measure the cost of equity. In general, the
9 infirmities in his analyses include:

- 10 • A DCF growth rate employed by Mr. Rothschild that understates investor
11 expected growth because that growth rate has failed to reflect additional
12 factors important to investors when developing their total return
13 requirements for a gas utility.
- 14 • A failure to adjust the market determined cost rate when it is to be applied
15 to the book value capitalization.
- 16 • A failure to reflect flotation costs as part of the rate of return on common
17 equity.
- 18 • CAPM results that fail to adequately measure investor requirements of the
19 required returns for public utilities.

20 As such, the recommendation of Mr. Rothschild fails to meet the accepted
21 standards of a fair rate of return.

III. CAPITAL STRUCTURE RATIOS

Q. BEFORE PROCEEDING WITH YOUR DISCUSSION OF THE COST OF EQUITY, DO YOU AGREE WITH THE CAPITAL STRUCTURE RATIOS THAT MR. ROTHSCHILD HAS PROPOSED IN THIS CASE?

A. No. Mr. Rothschild has taken an extreme position concerning the capital structure ratios for the Company. His adjustments have resulted in a capital structure that is significantly over-weighted with debt. In his proposal, Mr. Rothschild made some significant errors including: (i) his proposal to base his capital structure ratios on National Grid plc, (ii) an improper calculation of the capital structure ratios for National Grid, plc, which when corrected produces a significantly higher common equity ratio, and (iii) improperly ignoring the Company's proposal to use the capital structure of the proxy group (i.e., the Gas Group) because it is closely aligned with the capital structure that investors expect for a natural gas distribution utility.

Q. BEFORE ADDRESSING THE SPECIFIC ITEMS ENUMERATED ABOVE, CAN YOU PROVIDE THE GENERAL FRAMEWORK REGARDING CAPITAL STRUCTURE RATIOS FOR PUBLIC UTILITY RATESETTING?

A. In the selection of capital structure ratios for public utility ratesetting, the procedure that is typically followed is: (i) the use of the utility's own capitalization when it issues debt directly in the capital markets; (ii) the use of the parent company's capitalization when the parent company engages in the long-

term borrowings on behalf of the utility; and (iii) the use of hypothetical capital structure ratios when the parent company's capitalization is atypical of the industry in which the applicant does business. These guidelines have been developed by the Federal Energy Regulatory Commission ("FERC") over a long series of cases, as first established in Kentucky West Virginia Gas Co. (2 FERC ¶61,139 (1978)) and re-affirmed in Transcontinental Gas Pipe Line Corporation (85 FERC ¶61,323 (1998)). In this case, the parent company's unadjusted capital structure proposed by Mr. Rothschild is atypical for the natural gas distribution industry in the U.S. and should either be modified or abandoned in favor of a hypothetical, i.e., proxy group capital structure. Generally speaking, the Value Line publication indicates that investors generally expect common equity ratios of 46% to 48% for the natural gas industry (see composite statistics for the Natural Gas Utility industry dated June 13, 2008). Mr. Rothschild's proposal clearly fails to comply with the requirement that for it to be used, the parent company's capital structure ratios must not be atypical of the natural gas distribution business.

Q. DOES THE COMPANY HAVE AN ACTUAL CAPITAL STRUCTURE?

A. Yes. In Rhode Island, the Commission's policy is to use a utility's actual capital structure, if there is one, and to use a proxy capital structure in cases where there is none, or the capital structure that does exist is not reasonable for ratesetting purposes. In this case, the Company is a division of The Narragansett Electric Company (d/b/a/ National Grid Rhode Island -- Electric). Narragansett Electric is an "independent" stand-alone corporate entity within a holding company structure

1 with actual common equity and its own credit quality rating. Specifically,
2 Narragansett Electric has an actual capital structure, as defined under Commission
3 policy, which is shown below.

The Narragansett Electric Company

Capital Structure
as of September 30, 2007

	<u>Amount Outstanding</u>	<u>Percent of Total</u>
	(Amounts in thousands)	
Long Term Debt	\$ 76,286	
Short Term Debt	65,975	
	<u>142,261</u>	8.16%
Preferred stock	5,307	0.30%
Common stockholders' equity	<u>1,596,729</u>	<u>91.54%</u>
Total	<u><u>\$ 1,744,297</u></u>	<u><u>100.00%</u></u>

4
5 It seems obvious that a capital structure that contains over 90% common equity
6 would not be reasonable from the Commission's perspective.

7 The next step would involve consideration of the parent company of The
8 Narragansett Electric Company, which is National Grid USA. National Grid
9 USA is also a stand-alone corporate entity with actual common equity and its own
10 credit quality rating. The capital structure of National Grid USA is:

National Grid USA and Subsidiary Companies

Capital Structure
as of March 31, 2007

	Amount Outstanding	Percent of Total
	(Amounts in thousands)	
Long Term Debt	\$ 3,387,401	
Short Term Debt	1,028,866	
	4,416,267	33.37%
Preferred stock	52,317	0.40%
Minority interest in subsidiaries	16,397	0.12%
Common stockholders' equity	8,747,285	66.11%
Total	\$ 13,232,266	100.00%

1
2 Rather than proposing a capital structure with a high proportion of common
3 equity, the Company is proposing to use a proxy group capital structure in place
4 of the actual capital structure because of the relatively high equity ratio of 91.54%
5 based on the Company's actual capital structure or its immediate parent company,
6 which has a 66.11% common equity ratio. Therefore, because the actual capital
7 structure of The Narragansett Electric Company and its parent company --
8 National Grid USA have high equity components, the Company is proposing to
9 use a proxy group capital structure.

10 Mr. Rothschild's proposal clearly fails to comply with Commission
11 policy and generally accepted ratesetting practice because (i) it is taken from a
12 remote non-domestic corporate entity that is not the Company's immediate parent,
13 and (ii) the capital structure is atypical of the natural gas distribution business, and
14 is not reasonable for ratesetting purposes.

Q. IS THERE PRECEDENT FOR USING A PROXY GROUP CAPITAL STRUCTURE IN INSTANCES WHERE A COMPANY DOES NOT HAVE A SEPARATELY IDENTIFIABLE OR REASONABLE CAPITAL STRUCTURE?

A. Yes. In the last rate case involving the New England Gas Division of the Southern Union Company (Docket No. 3401), the Division of Public Utilities and Common Carriers ("Division") recommended use of the average capital structure of a proxy group of comparative gas companies to set rates. The New England Gas Division consisted of the Rhode Island gas distribution businesses formerly known as Providence Gas Company, Valley Gas Company, and the Bristol & Warren Gas Company that were owned by Southern Union. Just as today, New England Gas was an operating division of Southern Union and therefore did not have a separately identifiable capital structure. The choice in that case was to either use the capital structure of Southern Union to calculate the weighted average cost of capital for the New England Gas Division or to use a proxy group to establish capital structure ratios. In the last case, the Division decided it would be inappropriate to use the capital structure of Southern Union because its common equity ratio was very low in comparison to the common equity ratios of Providence Gas Company and Valley Gas Company that existed prior to the merger, and by reference to most other natural gas distribution companies. The Division therefore chose to use a capital structure based upon the average of the proxy group of companies it used to determine its cost of equity. This process synchronized the financial risk of the proxy group with the determination of the

1 cost of equity for the same companies. The capital structure proposed by the
2 Division was accepted by Southern Union in the settlement of the issues in the
3 case that was approved by the Commission.

4 **Q. MR. ROTHSCHILD HAS PROPOSED THAT THE CAPITAL**
5 **STRUCTURE RATIOS OF NATIONAL GRID PLC BE USED TO SET**
6 **RATES IN THIS PROCEEDING RATHER THAN THE AVERAGE**
7 **CAPITAL STRUCTURE OF YOUR PROXY GROUP OF GAS**
8 **COMPANIES. DO YOU BELIEVE IT IS APPROPRIATE FOR THE**
9 **COMMISSION TO APPLY NATIONAL GRID PLC'S CAPITAL**
10 **STRUCTURE TO RHODE ISLAND – GAS TO SET RATES IN THIS**
11 **PROCEEDING?**

12 A. No. As previously described, the unadjusted capital structure ratios of National
13 Grid plc are atypical of the natural gas distribution business. Indeed, it is just as
14 unreasonable to use the National Grid plc capital structure, as it would be
15 unreasonable to use The Narragansett Electric Company or National Grid USA
16 capital structure. Mr. Rothschild's proposal is unreasonable for several additional
17 reasons that I explain below. First, National Grid plc's consolidated capital
18 structure includes significant investments in non-regulated businesses that have
19 different business risks, which make it inappropriate for calculating the weighted
20 average cost of capital in this proceeding. National Grid plc's unregulated
21 operations currently include the installation, maintenance and reading of electric
22 and gas meters in the United Kingdom ("UK"), the construction and operation of
23 liquefied natural gas ("LNG") terminals and storage facilities and LNG
24 transportation services, and the construction and operation of a sub-sea electric

transmission link between the UK and the Netherlands. Second, National Grid plc's capital structure has and will be significantly impacted by transactions that have no impact on Rhode Island – Gas. These transactions include the National Grid/KeySpan merger that was completed in August 2007, the sale of National Grid's unregulated wireless communications business that was completed in April 2007, and the recently announced sale of the Ravenswood generating station that is expected to be completed in the summer of 2008. It would be inappropriate for the Commission to reflect the impact of any of these transactions in the Company's revenue requirements through the imputation of the capital structure of National Grid, plc. Finally, as I will discuss below, differences between the methodologies used to set rates in the UK and in Rhode Island make it inappropriate to use National Grid plc's capital structure in this case.

Q. IF THE COMMISSION SHOULD DECIDE TO USE NATIONAL GRID PLC'S CAPITAL STRUCTURE TO SET RATES IN THIS PROCEEDING, HOW SHOULD THE CAPITAL STRUCTURE RATIOS BE DETERMINED?

A. It should certainly not use the ratios proposed by Mr. Rothschild. First, they do not accurately state National Grid plc's ratios in accordance with U.S. Generally Accepted Accounting Principles ("US GAAP"). In calculating the parent company's capital structure Mr. Rothschild failed to take into account the £3.704 billion (or approximately \$7.3 billion U.S. dollars) of cash, cash equivalents and marketable securities that were carried on its fiscal 2007 balance sheet. Mr. Rothschild should have subtracted these balances from National Grid plc's

1 outstanding debt balances to arrive at its capital structure ratios.

2 **Q. WHAT CAPITAL STRUCTURE RATIOS ARE INDICATED FOR**
3 **NATIONAL GRID, PLC AFTER REFLECTING THE ADJUSTMENTS**
4 **YOU DESCRIBE ABOVE?**

5 A. Those ratios are shown below:

National Grid plc
Capital Structure
as of March 31, 2007

	<u>Amount in British Pounds</u>	<u>Percent of Total</u>
	(Amounts in millions)	
Long Term Debt	£ 14,586	
Short Term Debt	£ 783	
Less Cash and Cash Equivalents	-£ 1,606	
Less Marketable Securities	-£ 2,098	
	<u>£ 11,665</u>	55.46%
Cumulative preferred stock issued by subsidiary undertakings	£ 26	0.12%
Minority interest in subsidiaries	£ 11	0.05%
Common stockholders' equity	<u>£ 9,330</u>	<u>44.36%</u>
Total	<u><u>£ 21,032</u></u>	<u><u>100.00%</u></u>

6 Although not precisely aligned with the capital structure ratios of the proxy group
7 of gas distribution utilities, the adjusted National Grid, plc common equity ratio of
8 44.36% is more similar to the 49.12% common equity ratio of Mr. Rothschild's
9 proxy group (see JAR Schedule 7), and is closer to the 47.71% common equity

ratio that the Company has proposed in this case then is the unadjusted capital structure.

Q. ARE THERE FURTHER ADJUSTMENTS THAT SHOULD BE MADE TO NATIONAL GRID PLC'S CAPITALIZATION RATIOS IF THE COMMISSION DECIDES TO USE THEM TO SET RATES IN THIS PROCEEDING?

A. Yes. Differences in the methodology used to set rates for National Grid's regulated businesses in the UK and in Rhode Island make it inappropriate to use National Grid plc's capital structure, even with restatement in accordance with US GAAP. The regulator of National Grid's UK businesses does not utilize the capital structure represented by its US GAAP accounts when setting rates. Rather, rates are set in the UK based on a Regulatory Asset Value ("RAV"), rather than a rate base based on book value as revealed by US GAAP. RAV has no direct relationship to the book value of these businesses and was derived initially from a combination of replacement cost and market value of the UK regulated assets. Under the UK regulatory framework, the RAV is increased by inflation every year. Thus, if the Commission were to apply National Grid plc's capital structure to the Company, its equity component as determined in accordance with US GAAP must be adjusted to recognize the difference between the RAV and the US GAAP book value of the UK regulated businesses. This procedure is necessary to ensure that National Grid's consolidated capital structure as applied to the Company reflects the regulatory value of assets in both the US and UK. This adjustment increases National Grid's consolidated common

1 equity ratio determined in accordance with US GAAP by approximately eight
2 percentage points. As shown below, the common equity ratio of 44.36% becomes
3 52.19% after reflecting the RAV of National Grid plc's regulated UK businesses.

National Grid plc

Capital Structure
as of March 31, 2007

	Amount in British Pounds	Percent of Total
	(Amounts in millions)	
Long Term Debt	£ 14,586	
Short Term Debt	£ 783	
Less Cash and Cash Equivalents	-£ 1,606	
Less Marketable Securities	-£ 2,098	
	£ 11,665	47.66%
Cumulative preferred stock issued by subsidiary undertakings	£ 26	0.11%
Minority interest in subsidiaries	£ 11	0.04%
Common stockholders' equity	£ 12,775	52.19%
Total	£ 24,477	100.00%
RAV of NG plc's Regulated UK Assets	£ 16,187	
US GAAP Book Value of UK Assets	£ 12,742	
Difference	£ 3,445	

4 **Q. WILL THE CAPITAL STRUCTURE RATIOS PROPOSED BY MR.**
5 **ROTHSCHILD AID THE COMPANY IN ITS GOAL OF MAINTAINING**
6 **A REASONABLE CREDIT QUALITY RATING?**

7 A. No. Even a superficial review of the capital structure ratios proposed by Mr.
8 Rothschild indicates that they will not support reasonable credit quality. The
9 current credit quality rating of The Narragansett Electric Company is A- and

1 reflects S&P's assessment of an "excellent" business profile and an
2 "intermediate" financial profile. Based upon the credit matrix published by S&P,
3 it expects debt leverage of 35% to 50% for a utility with an "intermediate"
4 financial profile, such as The Narragansett Electric Company. Mr. Rothschild's
5 proposed 62.23% debt ratio far exceeds the expectations of S&P and would not
6 support reasonable credit quality for the Company.

7 **Q. ARE THERE ANY OTHER ISSUES IN MR. ROTHSCHILD'S**
8 **TESTIMONY THAT SHOULD BE ADDRESSED?**

9 A. Yes. Mr. Rothschild has misinterpreted the Company's response to Division Data
10 Response DIV 10-2 as a representation of its projected cost of short-term debt for
11 the rate year. The Company's response indicates that its current cost of short-
12 term debt is 2.58%, which is not the same as the projection for the rate year.
13 Based on current projections of future market conditions, the Company now
14 projects its cost of short-term debt during rate year will average 3.91% in the rate
15 year. Due to the ongoing volatility in short-term borrowing rates resulting from
16 the sub-prime mortgage crisis, which I described previously, I recommend that
17 the short-term debt rate be updated at the time of the Commission decision in this
18 case based on the latest available market information at that time.

COMPARABLE COMPANIES

Q. MR. ROTHSCHILD CLAIMS THAT HE EMPLOYED THE SAME GAS COMPANIES THAT YOU USED IN YOUR DIRECT TESTIMONY. IS HIS CLAIM CORRECT?

A. No. Mr. Rothschild used six of my seven companies, he eliminated New Jersey Resources for no apparent reason, and he included four additional companies (i.e., Equitable Resources, Laclede Group, Nicor, and Southwest Gas) with no stated rationale for the inclusion of these companies in his group. Mr. Rothschild provides no reasoning for the selection process he used to assemble his group.

IV. DISCOUNTED CASH FLOW

Q. SHOULD ONLY A SINGLE APPROACH, SUCH AS DCF, BE USED TO MEASURE THE COST OF EQUITY IN THIS CASE?

A. No. No single approach is sufficiently reliable to adequately establish the cost of equity without further verification. This is particularly true today given the wide swings in share values and the overall financial market uncertainty experienced over the past several years.

Q. WHAT FORM OF THE DCF MODEL HAS BEEN EMPLOYED IN THIS CASE?

A. The constant growth or "Gordon" form of the DCF model has been used by Mr. Rothschild and me in this case. In this case, Mr. Rothschild has declined to use his version of a multi-stage DCF model although he has done so on many

1 previous occasions. However, it must be recognized that this version of the DCF
2 model is not without its limitations because many of the assumptions which must
3 be made to utilize this model are simply not realistic. According to the theory of
4 the constant growth form of the DCF model, future earnings per share, dividends
5 per share, book value per share, and price per share will all appreciate at the same
6 constant rate absent any change in price-earnings multiple. There is no evidence
7 that these conditions actually prevail in the equity market. As I will subsequently
8 show, the forecasts of the dividend payout ratios for the natural gas companies
9 indicate that they will not remain constant.

10 **Q. DO YOU HAVE ANY OTHER CONCERNS REGARDING THE DCF**
11 **MODEL?**

12 A. There is an element of circularity in the DCF model when applied in public utility
13 rate cases. This is because investors' expectations for the future depend upon
14 regulatory decisions. Therefore, the use of the DCF model in rate cases ensures
15 that regulators will continue to provide high growth utilities with a return which
16 sustains that performance. On the other hand, the use of the DCF model for low
17 growth companies perpetuates that performance and hinders any improvement.
18 This then will reinforce investors' expectations that regulators will grant returns
19 which guarantee low growth. Due to this circularity, the DCF model may not
20 fully reflect the true risk of a utility because the model may not deal with the high
21 risk traits of a utility with low growth caused by poor accounting returns. If the
22 DCF approach cannot cope with general capital market fundamentals, then either

1 the assumptions underlying the DCF method are incomplete or the approach is not
2 being properly implemented.

3
4 **Q. IN HIS DIRECT TESTIMONY, MR. ROTHSCILD RELIES**
5 **PRINCIPALLY ON RETENTION GROWTH IN HIS DCF MODEL.**
6 **PLEASE DISCUSS THE LIMITATIONS OF THIS APPROACH?**

7 A. Retention growth, along with external financing growth, is another means of
8 describing book value per share growth. As I explained in my direct testimony,
9 other factors also contribute to earnings growth. These factors are not accounted
10 for by the retention growth formula. In my view, book value per share growth, or
11 its surrogate retention growth, does not represent the proper financial variable to
12 be considered when selecting the DCF growth component. This is because utility
13 stocks do not typically trade at book value.

14 **Q. PLEASE ILLUSTRATE THE INFIRMITIES IN MR. ROTHSCILD'S**
15 **DCF APPROACH?**

16 A. The major infirmity of the DCF method becomes apparent when viewing the
17 model in its retention growth rate form. Mr. Rothschild indicates that his
18 preferred method for selecting the growth rate component of the DCF is the "b x
19 r" approach, i.e., the retention growth method. This special form of the DCF, as
20 described by Mr. Rothschild, merely adjusts his assumed return on book common
21 equity by the difference between the dividend yield on book value and the
22 dividend yield on market value. The table of figures provided below shows how

1 his DCF result (using average and year-end market prices) can be expressed from
2 the values shown on JAR Schedule 3:

	Year Ending 05/31/08	As of 05/31/08
Return on Equity (Line 2c)	12.00%	12.00%
Dividend Yield on Book Value (Line 2b)	-8.78%	-8.80%
Dividend Yield on Market Value (Line 1)	3.70%	3.60%
Result	6.92%	6.80%
Additional factors (Lines 4 & 6)	2.51%	2.63%
Average DCF return	9.43% ²	9.43%

3 A key component of retention growth is his assumed return on book common
4 equity. In his testimony, Mr. Rothschild acknowledges that the Value Line Group
5 will earn a 12.00% return on equity, but instead he proposes a DCF return of just
6 9.42% or 9.43%. The key to Mr. Rothschild's analysis is the set of values that he
7 presents in footnote [A] on JAR Schedule 3. It is clear that Mr. Rothschild
8 gravitates to the lower values that he presents there. As shown below, the returns
9 on book value are arrayed from lowest to highest.

² Difference attributed to rounding.

	<u>Return on Equity</u>
in 2005 (median)	11.89%
Value Line (median)	12.00%
in 2006 (median)	12.03%
in 2007 (median)	12.18%
in 2007 (mean)	12.40%
Value Line (mean)	12.80%
to Achieve Zacks' (median)	13.11%
in 2005 (mean)	13.44%
to Achieve Zacks' (mean)	13.72%
in 2006 (mean)	14.60%
Average	12.82%
Median	12.60%
Midpoint	13.25%

1 In selecting 12.00% as his key input value to the DCF model, Mr. Rothschild has
2 introduced a significant downward bias through his selection of the second lowest
3 value from the table shown above. If he had objectively selected the average,
4 median, or midpoint values from his range of inputs, his DCF result would move
5 up to 10.25% (12.82% - 8.80% + 3.60% + 2.63%), or 10.03% (12.60% - 8.80% +
6 3.60% + 2.63%), or 10.68% (13.25% - 8.80% + 3.60% + 2.63%). Each of these
7 returns computed using May 31, 2008 data clearly show that Mr. Rothschild's
8 DCF results are biased and unreasonably low.

1 **Q. IN YOUR PRIOR ILLUSTRATION WHICH DEMONSTRATES THAT**
2 **THE DCF RETURN IS HIGHLY SENSITIVE TO THE ASSUMED**
3 **RETURN ON EQUITY, YOU SHOW THAT THE "B X R" FORM OF THE**
4 **DCF IS MERELY AN ADJUSTED EARNINGS/BOOK RATIO. DOES**
5 **MR. ROTHSCILD ATTEMPT TO RATIONALIZE THIS**
6 **DISCREPANCY?**

7 A. Yes. However, Mr. Rothschild's justification is inconsistent and contradictory.
8 For example, Mr. Rothschild suggests that the cost of equity would not change
9 because increases (or decreases) in the return on book common equity will be
10 offset by decreases (or increases) in the price of stock as it affects the variables
11 within his form of the DCF model. Mr. Rothschild offers no proof of his
12 assertion that higher (or lower) dividend yields would be offset by lower (or
13 higher) growth rates. Under this theory, the cost of equity is always the same.
14 Essentially, his highly structured DCF analysis provides an overly simplified
15 expression of the cost of equity that is significantly dependent upon Mr.
16 Rothschild's selection of the value that he assigns to the Return on Equity of his
17 companies. As clearly shown, his selection in this regard is biased. Further, Mr.
18 Rothschild never explains how his group could earn a 12.00% return on book
19 value if his DCF cost rates are 9.42% or 9.43% which are used to set their allowed
20 returns in rate cases.

1 **Q. IN ORDER TO IMPLEMENT THE CONSTANT GROWTH DCF MODEL**
2 **USING THE RETENTION GROWTH RATE FORMULA, ONE MUST**
3 **ASSUME A CONSTANT DIVIDEND PAYOUT RATIO. IS THIS**
4 **ASSUMPTION REASONABLE?**

5 A. No. With forecasts showing higher earnings growth rates than dividend growth
6 rates, the expectation is that dividend payout ratios will decline in the future.
7 Indeed, Value Line projects declining dividend payout ratios for the natural gas
8 companies, which means that earnings per share and price appreciation (i.e., the
9 capital gains yield, or growth component of the DCF) can be expected to grow at
10 a higher rate than dividends in the future. This is shown below based on the
11 Value Line forecasts for each of the natural gas utility companies covered by
12 Value Line.

<u>Company</u>	<u>2008</u>	<u>2009</u>	<u>2011-13</u>
AGL Resources, Inc.	60.0%	58.0%	57.0%
Atmos Energy Corporation	64.0%	62.0%	58.0%
Laclede Group, Inc.	56.0%	61.0%	56.0%
New Jersey Resources Corp.	53.0%	54.0%	54.0%
Nicor Inc.	79.0%	71.0%	52.0%
Northwest Natural Gas Co.	57.0%	57.0%	56.0%
Piedmont Natural Gas Company	66.0%	67.0%	64.0%
South Jersey Industries, Inc.	49.0%	47.0%	43.0%
Southwest Gas Corporation	44.0%	44.0%	41.0%
UGI Corp.	38.0%	36.0%	38.0%
WGL Holdings, Inc.	<u>58.0%</u>	<u>59.0%</u>	<u>61.0%</u>
Average	<u>56.7%</u>	<u>56.0%</u>	<u>52.7%</u>

13 These forecasts as of June 13, 2008 show that dividend payout ratios will not be

1 constant, hence, a critical element of the retention growth formulation of the DCF
2 model is unrealistic.

3 **Q. AS TO THE DCF GROWTH COMPONENT, WHAT FINANCIAL**
4 **VARIABLES SHOULD BE GIVEN GREATEST WEIGHT WHEN**
5 **ASSESSING INVESTOR EXPECTATIONS?**

6 A. The theory of DCF suggests that, absent a change in price-earnings multiple, the
7 value of a firm's equity (i.e., share price) will grow at the same rate as earnings
8 per share. Hence, earnings per share form the basis for investors' capital gains
9 yield, and earnings are the source of dividend payments to investors. As shown
10 above, a constant dividend payout ratio does not reflect the reality of the equity
11 markets, nor investor expectations. Therefore, to properly reflect investor
12 expectations within the limitations of the DCF model, earnings per share growth,
13 which is the basis for the capital gains yield and the source of dividend payments,
14 must be emphasized. Moreover, it is instructive to note that Professor Gordon,
15 the foremost proponent of the DCF model in rate cases (and the individual whose
16 name is most commonly associated with the DCF model), has determined that the
17 best measure of growth in the DCF model is analysts' forecasted earnings per
18 share growth. Hence, to follow Professor Gordon's findings, earnings per share
19 forecasts must be given primary weight.³

³ "Choice Among Methods of Estimating Share Yield," The Journal of Portfolio Management,
Spring 1989 by Gordon, Gordon & Gould.

Q. HOW WOULD THE USE OF ANALYSTS' FORECASTS OF EARNINGS GROWTH IMPACT THE DCF?

A. Mr. Rothschild provided analysts earnings growth rates, but declined to use them directly in his DCF model. The Zack's earnings growth rates for his gas group are shown on page 3 of JAR Schedule 3 and revealed by footnote [B]. There the gas group average growth rate is 7.53% and the median is 7.60%. Using the Zacks average growth rate, the DCF result is:

<i>Discounted Cash Flow (DCF)</i>	D_0/P_0	\times	$(1+0.5g)$	$+$	g	$=$	k
Gas Group	3.65%	\times	1.03765	$+$	7.53%	$=$	11.32%

The DCF results shown above are calculated using an average of Mr. Rothschild's two dividend yields (i.e., $3.70\% + 3.60\% = 7.30\% \div 2 = 3.65\%$). Further, the DCF returns do not reflect the financial risk adjustment to make them applicable to a book value capital structure, nor for flotation costs.

Q. MR. ROTHSCCHILD HAS FAILED TO MODIFY HIS DCF RESULTS FOR FLOTATION COSTS. HAS THE OMISSION OF THIS ADJUSTMENT RESULTED IN AN UNDERSTATEMENT OF THE REQUIRED RATE OF RETURN ON COMMON EQUITY?

A. Yes. I should note that Mr. Rothschild's position concerning flotation costs is inconsistent with the Value Line forecasts that show that the gas companies will be issuing new common stock in the future. Indeed, Mr. Rothschild acknowledges that there will be a 1.75% annual increase in shares outstanding for his gas group (see JAR Schedule 5). It is obvious that issuance costs will be associated with these common stock financings, which was ignored by Mr.

1 Rothschild. Moreover, the industry has issued considerable amounts of new
2 equity historically (see NG-PRM-18).

3 **Q. MR. ROTHSCCHILD CRITICIZED THE LEVERAGE ADJUSTMENT**
4 **THAT YOU PROPOSE TO ACCOUNT FOR THE DIVERGENCE OF**
5 **MARKET CAPITALIZATION AND BOOK VALUE CAPITALIZATION.**
6 **PLEASE COMMENT.**

7 A. It must be recognized that, in order to make the DCF results relevant in the
8 ratesetting context, the market-derived cost rate cannot be used without
9 modification. The importance of the leverage modification to the DCF results
10 was fully supported in my direct testimony, wherein it was shown that the market
11 value of the equity in the Gas Group's capitalization was much higher than its
12 book value. That is to say, the market value common equity ratio was 68.29%
13 compared to a book value common equity ratio of 54.44% (see page 13 of
14 Attachment NG-PRM-5). To make the market-derived DCF results applicable in
15 the ratesetting context, it is necessary to account for the higher financial risk that
16 arises from the lower common equity ratio measured by book value capitalization
17 as compared to the higher common equity ratio measured by market
18 capitalization. Because book value capital structures are used to set rates, my
19 adjustment procedure is required.

1 **Q. MR. ROTHSCILD NOTES THAT THE RETURN THAT AN INVESTOR**
2 **CARES ABOUT IS MEASURED AS THE RETURN ON MARKET PRICE.**
3 **DOES THAT RETURN REFLECT ALL THE RISK ASSOCIATED WITH**
4 **APPLYING IT TO A BOOK VALUE CAPITAL STRUCTURE?**

5 A. No. In order to make the market return applicable to the book value capitalization
6 that is used in the ratesetting process, it is necessary to adjust for financial risk
7 difference that arises in this application. The leverage adjustment that I have used
8 accommodates the financial risk disparity between the market capitalization and
9 the book value capitalization. The formulas developed by Nobel laureates
10 Modigliani and Miller are designed to account for differences in financial risk
11 among varying capital structures (i.e., related to the proportions of debt and equity
12 in the capital structure). The issue addressed by my adjustment is related solely to
13 financial risk (i.e., the percentage of borrowed funds in the capital structure). The
14 DCF formula is derived from the standard valuation model: $P = D / (k - g)$, where P
15 = price, D = dividend, k = the cost of equity, and g = growth in cash flows. The
16 assumptions implicit in the model were described in my direct testimony. By
17 rearranging the terms, we obtain the familiar DCF equation: $k = D/P + g$. All of
18 the terms in the DCF equation represent investors' assessments of expected future
19 cash flows that they will receive in relation to the value that they set for a share of
20 stock ("P"). The need for the leverage adjustment arises when the results of the
21 DCF model ("k") are to be applied to an equity ratio that is different than the one
22 shown by the market price ("P"), i.e., in this instance, the equity ratio calculated

1 from the book value capitalization. My leverage adjustment is not intended, nor
2 was it designed, to address the reasons that stock prices vary from book value.

3 **V. CAPITAL ASSET PRICE MODEL/RISK PREMIUM METHOD**

4 **Q. MR. ROTHSCHILD HAS SUBMITTED A COST OF EQUITY THAT IS**
5 **LOOSELY BASED ON THE CAPM. PLEASE COMMENT ON HIS**
6 **CAPM APPROACH?**

7 A. Mr. Rothschild submits a cost of equity that is loosely tied to the CAPM. He
8 employs a convoluted process to apply his version of the CAPM. Rather than
9 using a straight-forward approach to the CAPM, Mr. Rothschild essentially
10 reduces the historical return on the S&P Composite published by Ibbotson
11 Associates (now Morningstar) downward for change in inflation that occurred
12 historically and the inflation rate that he calculates. The problem with Mr.
13 Rothschild's approach rests primarily on his measurement of the historical returns
14 using the geometric mean rather than the correct arithmetic mean.

15 **Q. WHY IS IT INCORRECT TO USE THE GEOMETRIC MEAN FOR**
16 **COMPUTING THE MARKET PREMIUM COMPONENT OF THE**
17 **CAPM?**

18 A. Fundamentally, the arithmetic mean must be used to the exclusion of the
19 geometric mean in the CAPM. It has been established that the arithmetic mean
20 best describes expected future returns -- the objective of the CAPM. The
21 arithmetic mean provides the correct representation of all probable outcomes and

1 has a measurable variance. The geometric mean, which Mr. Rothschild
2 advocates, consists merely of a rate of return taken from two data points which
3 would have no measurable variance (i.e., the dispersion of the returns cannot be
4 calculated with a geometric mean). So while a geometric mean will capture the
5 growth from an initial to a terminal value, it cannot provide a reasonable
6 representation of the market premium in the context of the CAPM because the
7 model requires a single period return expectation of investors. The arithmetic
8 mean provides an unbiased estimate, provides the correct representation of all
9 probable outcomes, and has a measurable variance.

10 As stated by Ibbotson:

11 *Arithmetic Versus Geometric Differences*

12 For use as the expected equity risk premium in the CAPM,
13 the arithmetic or simple difference of the arithmetic means of
14 stock market returns and riskless rates is the relevant number.
15 This is because the CAPM is an additive model where the
16 cost of capital is the sum of its parts. Therefore, the CAPM
17 expected equity risk premium must be derived by arithmetic,
18 not geometric, subtraction.

Arithmetic Versus Geometric Means

The expected equity risk premium should always be calculated using the arithmetic mean. The arithmetic mean is the rate of return which, when compounded over multiple periods, gives the mean of the probability distribution of ending wealth values....This makes the arithmetic mean return appropriate for computing the cost of capital. The discount rate that equates expected (mean) future values with the present value of an investment is that investment's cost of capital. The logic of using the discount rate as the cost of capital is reinforced by noting that investors will discount their (mean) ending wealth values from an investment back to the present using the arithmetic mean, for the reason given above. They will therefore require such an expected (mean) return prospectively (that is, in the present looking toward the future) in order to commit their capital to the investment. (Stocks, Bonds, Bills and Inflation - 1996 Yearbook, pages 153-154

As such, the geometric mean should not be used in the CAPM as noted above.

Q. HOW WOULD THE USE OF THE ARITHMETIC MEAN AFFECT MR. ROTHSCHILD'S CAPM RESULT?

A. To begin, the correct arithmetic mean historical return is 12.3% according to the 2008 Ibbotson Associates Yearbook. The arithmetic mean historical inflation rate was 3.1% during that period. To adjust the historical returns for changes in inflation as proposed by Mr. Rothschild, the market return would become 11.85% (i.e., 2.65% - 3.1% + 12.3%) using his other inputs from page 1 of JAR Schedule 6. Correcting Mr. Rothschild's analysis to reflect an 11.85% market return, the result would be:

$$\begin{array}{l} \text{Capital Asset Pricing Model (CAPM)} \\ \text{Gas Group} \end{array} \quad R_f + \beta \times (R_m - R_f) = k$$
$$4.70\% + 0.88 \times (11.85\% - 4.70\%) = 10.99\%$$

1 **Q. DOES AN 11.85% MARKET RETURN SEEM REASONABLE IN THE**
2 **CURRENT INVESTMENT ENVIRONMENT?**

3 A. No, it is too low. Mr. Rothschild has substantially understated the total return for
4 the market in today's environment. To bring some perspective to the market
5 return approach advocated by Mr. Rothschild, the DCF return can be calculated
6 for the Value Line Composite of 583 industrial, retail and transportation
7 companies, which includes 72 of Value Line's 98 industry groups and excludes
8 financial services, utilities and non-North American companies. In its semi-
9 annual forecast dated May 9, 2008, Value Line forecasts growth for the Industrial
10 Composite of 11.0% for earnings per share, 10.0% for dividends per share, 6.0%
11 for book value per share, and 16.5% for percent retained to common equity. An
12 average of these four growth rates is 10.9% (11.0% + 10.0% + 6.0% + 16.5% =
13 43.5% ÷ 4), which is very close to the earnings forecast. The resulting DCF
14 return is 12.7% (1.8% dividend yield plus 10.9% growth rate for the Value Line
15 composite). This DCF return shows that Mr. Rothschild's market return of
16 11.85% is far too low.

17 **Q. WHAT WOULD THE CAPM RESULTS LOOK LIKE IF THE VALUE**
18 **LINE DCF RETURN FOR THE INDUSTRIAL COMPOSITE WERE**
19 **USED?**

20 A. Those results are:

$$\begin{array}{l} \text{Capital Asset Pricing Model (CAPM)} \\ \text{Gas Group} \end{array} \quad R_f + \beta \times (R_m - R_f) = k$$
$$4.70\% + 0.88 \times (12.7\% - 4.70\%) = 11.74\%$$

1 **Q. DO YOU AGREE WITH THE BETAS THAT MR. ROTHSCILD USED**
2 **IN HIS CAPM CALCULATION?**

3 A. Only in part. While I agree that the Value Line betas can be used as a starting
4 point, they must be un-levered and re-levered for the same reasons indicated
5 above regarding the leverage difference between the market and book value
6 capitalization. I should note that I have not used an inflated beta, as asserted by
7 Mr. Rothschild. Rather, my adjustment to the beta was made using the Hamada
8 formula to recognize financial risk differences.

9 **Q. DO YOU BELIEVE THE RISK PREMIUM METHOD PROVIDES**
10 **SIGNIFICANT EVIDENCE OF THE COST OF EQUITY?**

11 A. Yes. In my opinion, the Risk Premium results should be given serious
12 consideration. The Risk Premium method is straight-forward, understandable and
13 has intuitive appeal because it is based on a company's own borrowing rate. The
14 utility's borrowing rate provides the foundation for its cost of equity which must
15 be higher than the cost of debt in recognition of the higher risk of equity that
16 exceeds investors' expected risk of lending capital to a firm. It is an approach that
17 provides a direct and complete reflection of a utility's risk and return because it
18 considers additional factors not reflected in the beta measure of systematic risk.

19 **VI. COMPARABLE EARNINGS**

1 **Q. MR. ROTHSCHILD DISAGREES WITH YOUR COMPARABLE**
2 **EARNINGS APPROACH. PLEASE COMMENT.**

3 A. The Comparable Earnings approach was established in the landmark Bluefield &
4 Hope decisions, which set forth the two principal standards of a fair return,
5 namely, comparability and capital attraction. In the Hope decision, the United
6 States Supreme Court defined these requirements as: "...by that standard the
7 return to the equity owner should be commensurate with returns on investments in
8 other enterprises having corresponding risks. That return, moreover, should be
9 sufficient to assure confidence in the financial integrity of the enterprise, so as to
10 maintain its credit and attract capital." The Comparable Earnings approach
11 satisfies the comparability standard. This approach has been used by me in
12 connection with the other market models (i.e., DCF, Risk Premium, and CAPM).
13 As indicated on pages 7 and 9 of my pre-filed direct testimony, the results of the
14 Comparable Earnings method were not used directly in the cost of equity that I
15 propose for the Company in this case. Rather, the market models provided the
16 foundation for my recommended rate of return on common equity. The
17 Comparable Earnings approach was used merely as another method to confirm
18 that the results of the market models were reasonable.

19 **Q. MR. ROTHSCHILD RAISES THE ISSUE OF MARKET RETURNS**
20 **VERSUS BOOK RETURNS IN HIS CRITIQUE OF YOUR**
21 **COMPARABLE EARNINGS APPROACH. PLEASE COMMENT.**

22 A. The introduction of the market returns versus book returns, as part of his critique

of my Comparable Earnings method, highlights the factors I discussed above regarding the DCF and CAPM. As noted in my direct testimony, the problem with an unadjusted DCF and CAPM arises when those returns are applied to a book value capital structure, rather than market capitalization. Unless we use the market values in the calculation of the weighted average cost of capital, then other methods, such as Comparable Earnings, that focus on book values should also be used.

**VII. ADJUSTMENT TO THE COST OF EQUITY APPLICABLE TO THE
NATIONAL GRID PLC CAPITAL STRUCTURE**

Q. MR. ROTHSCHILD ADJUSTS HIS 9.50% RECOMMENDED COST OF EQUITY FOR HIS PROXY GROUP OF GAS COMPANIES UPWARD BY 0.45% WHEN IT IS TO BE APPLIED TO THE NATIONAL GRID PLC CAPITAL STRUCTURE. IS THIS ADJUSTMENT CORRECT?

A. No. Mr. Rothschild makes the unsupported assumption that the cost of equity changes by 0.04% for each one percentage point change in common equity ratio (see footnote [C] on JAR Schedule 2). Rather than making an arbitrary adjustment for the change in the cost of equity for a change in the common equity ratio, the Modigliani and Miller and the Hamada formulas provide an objective adjustment in this regard. Here, the Modigliani and Miller calculation is:

$$k_u = k_e - ((k_u - i) (1-t) D / E)$$

$$\text{Gas Group} \quad 8.16\% = 9.50\% - (((8.16\%-6.28\%) .65) 52.29\%/47.71\%)$$

$$\text{National Grid, plc} \quad 10.17\% = 8.16\% + (((8.16\%-6.28\%) .65) 62.23\%/37.77\%)$$

The leverage formula shown above indicates that the DCF return increases by 0.67% (10.17% - 9.50%) when it is fit to the National Grid plc capital structure as proposed by Mr. Rothschild.

For the CAPM, the beta would increase by 0.18, or from 0.88 to 1.06 as shown below:

$$\begin{array}{lcl} Bl & = & Bu \quad [1 + \quad (1 - t) \quad D/E] \\ \text{Gas Group} & 0.88 = & 0.51 \quad [1 + \quad (1-0.35) \quad 1.0960] \\ \text{National Grid, plc} & 1.06 = & 0.51 \quad [1 + \quad (1-0.35) \quad 1.6476] \end{array}$$

In this situation, the CAPM results would then increase by 1.29% (0.18 x 7.15% = 1.29%) when the result is applied to a National Grid plc capital structure.

VIII. RESPONSE TO REBUTTAL BY MR. ROTHSCILD

Q. OVER ONE-THIRD OF HIS DIRECT TESTIMONY WAS DEVOTED TO REBUTTAL OF YOUR DIRECT TESTIMONY. MR. ROTHSCILD ATTACKS YOUR DCF GROWTH RATE BECAUSE YOU HAVE NOT FOLLOWED HIS PROCEDURE FOR ASSESSING SUSTAINABLE GROWTH. PLEASE COMMENT?

A. In previous sections of my rebuttal, I have responded to many of the criticisms leveled at my testimony by Mr. Rothschild. As I previously indicated, investor expectations are primarily influenced by analysts' forecasts of earnings per share growth. Whether or not Mr. Rothschild views concerning analysts' forecast are valid, it has been demonstrated that these forecasts influence investors' expectations. As such, the market price of stock reflects those forecasts, and as

1 such, they must be used to accurately measure the DCF return. Indeed, actual
2 market prices are affected more by these forecasts than Mr. Rothschild would lead
3 one to believe. To reject, or seriously alter, analysts' forecasts would be a
4 repudiation of the factors that influence investors when they price common
5 stocks. There is no need to adjust these forecasts in the manner suggested by Mr.
6 Rothschild because this is not the type of analysis undertaken by investors.

7 **Q. MR. ROTHSCCHILD ALSO QUARRELS WITH YOUR RISK PREMIUM**
8 **APPROACH. PLEASE COMMENT?**

9 A. My use of the Risk Premium method is based upon a comprehensive analysis of
10 actual capital market performance. My selection of historical time frames is fully
11 supported in that it considers all reliable historical data. Furthermore, the sub-
12 periods which I examined were representative of specific investment
13 fundamentals. The 1952 to 2006 time frame occurred subsequent to the historic
14 1951 Treasury-Federal Reserve Accord; the 1974 to 2006 time frame was
15 subsequent to the historic 1973 Arab Oil Embargo; and the 1979 to 2006 time
16 frame occurred subsequent to the advent of monetarism as a Fed policy. As a
17 consequence, I reviewed data for more recent periods to develop a Risk Premium
18 which conforms with current and prospective investment fundamentals. These
19 more recent periods fully capture the changes in Federal Reserve policy which
20 Mr. Rothschild contends should be considered.

IX. REVENUE DECOUPLING

Q. MR. ROTHSCHILD ASSERTS THAT IF THE COMMISSION WERE TO ADOPT THE COMPANY'S PROPOSED RDM THEN COST OF EQUITY SHOULD BE REDUCED BY 0.75%. IS THIS PROPOSAL REASONABLE?

A. No. Mr. Rothschild's proposal is unreasonable on many levels. First, his analogy of an RDM to securitization of costs is entirely without foundation. The two concepts are not comparable in any sense. Second, the magnitude of his adjustment is excessive, because no regulatory agency to my knowledge has made a deduction to the equity return of this magnitude for the RDM. Third, no adjustment is warranted in the case because implementation of the RDM affects unsystematic risk which receives no compensation in the CAPM. And fourth, no adjustment is necessary because a majority of Mr. Rothschild's proxy group companies already have RDMs or RDM-like features in their tariffs. Indeed, the companies in his group that already have RDM-type features include AGL Resources, Atmos Energy, Northwest Natural, Piedmont Natural, South Jersey Industries, and WGL Holdings. Of the remaining companies, Laclede has a seasonally differentiated tariff that deals with abnormal weather conditions in the months of December to May, Nicor is proposing decoupling in its current rate case, and Southwest Gas has an RDM in its California jurisdiction. As such, most of the companies in Mr. Rothschild's proxy group already have the benefits of a RDM and investors value their stocks accordingly. If the cost of equity for those

1 companies already reflect any perceived risk reducing benefits of an RDM, no
2 further adjustment can be made in this case for the Company's proposed RDM.
3 To do otherwise as proposed by Mr. Rothschild would be double-counting for the
4 benefit of an RDM. Stated another way, if the Commission were to deny the
5 Company's request for an RDM, then the cost of equity obtained from the proxy
6 group must be increased because the Company's risk would then be higher than
7 the proxy group, which generally has an RDM.

8 **X. REBUTTAL SUMMARY**

9 **Q. WHAT CONCLUSIONS DO YOU REACH REGARDING THE RETURN**
10 **ON COMMON EQUITY AND CAPITAL STRUCTURE**
11 **RECOMMENDATIONS SPONSORED BY MR. ROTHSCHILD IN THIS**
12 **PROCEEDING?**

13 A. The Commission should adopt my proposed return on common equity of 11.50%
14 and proxy group capital structure recommendation and reject those sponsored by
15 of Mr. Rothschild. Mr. Rothschild's proposed cost of equity is far too low in
16 comparison to allowed returns for other gas utilities, investor expectations and
17 other objective measures, and thus understates the cost of equity of National Grid
18 – Rhode Island Gas. In my rebuttal, I have pointed out numerous shortcomings
19 with the DCF and CAPM approaches as applied by Mr. Rothschild and have
20 shown that his criticisms of my analyses are unwarranted. Finally, the
21 Commission should not adopt the very low common equity ratio recommended by
22 Mr. Rothschild. This low equity ratio was determined and applied in an

1 inappropriate manner and when combined with his low return on equity
2 recommendation produces a weighted return on equity well below the types of
3 returns that investors expect for natural gas distribution utilities.

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

5 A. Yes.