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August 29, 2008

Via Electronic Delivery and Regular Mail

Luly E. Massaro, Commission Clerk
Public Utilities Commission
89 Jefferson Boulevard
Warwick RI 02889-1046

In Re: National Grid – Request for Change in Gas Distribution Rates
Docket No. 3943

Dear Luly:

On behalf of the Division of Public Utilities and Carriers, I enclose an original and (9) copies of the surrebuttal testimony of James A. Rothschild.

Thank you for your attention to this matter. If you have any questions or concerns, please do not hesitate to contact me.

Very truly yours,

Paul J. Roberti
Assistant Attorney General
Chief, Regulatory Unit

PJR/kz
Enclosures

cc: Thomas F. Ahern, Administrator
Service List

**STATE OF RHODE ISLAND
BEFORE THE
PUBLIC UTILITIES COMMISSION**

IN THE MATTER OF:)
)
National Grid – Request for Change in Gas Distribution Rates)

DOCKET No. 3943

**SURREBUTTAL TESTIMONY
AND SCHEDULES
OF
JAMES A. ROTHSCHILD
ON BEHALF OF THE
DIVISION OF PUBLIC UTILITIES AND CARRIERS**

August 2008

1 **Q. HAVE YOU REVIEWED THE REBUTTAL TESTIMONY FILED BY**
2 **COMPANY WITNESS MR. PAUL MOUL IN THIS PROCEEDING?**

3 A. Yes.

4

5 **Q. PLEASE SUMMARIZE THE CONCLUSIONS FROM THE REVIEW OF HIS**
6 **REBUTTAL TESTIMONY.**

7 A. Mr. Moul has demonstrated his fundamental lack of understanding of the Discounted
8 Cash Flow ("DCF") and Capital Asset Pricing Model ("CAPM") methods, and he
9 improperly developed the capital structure that should be used for rate making purposes.

10

11 **Q. WERE YOU ABLE TO FULLY EVALUATE MR. MOUL'S REBUTTAL**
12 **TESTIMONY WITHIN THE TIME ALLOTTED TO PREPARE THIS**
13 **SURREBUTTAL TESTIMONY?**

14 A. No. There was no time to obtain answers to interrogatories. Those answers might reveal
15 additional areas where further comment is appropriate. I reserve the right to supplement my
16 testimony at the hearings depending on those outstanding discovery responses.

17

18

1

2 **CAPITAL STRUCTURE**

3

4 **Q. WHAT HAS MR. MOUL SAID ABOUT CAPITAL STRUCTURE IN HIS**
5 **REBUTTAL TESTIMONY?**

6 A. Although page 2 of Mr. Moul's direct testimony states that "...today, as in the recent
7 past, the company does not have an identifiable capital structure", on pages 10 to 12 of
8 his rebuttal testimony, Mr. Moul states that the capital structure of Narragansett Electric
9 has a common equity ratio of 91.54% and National Grid USA and Subsidiaries has a
10 common equity ratio of 66.11%. In his rebuttal testimony, he recommends rejecting both
11 the National Grid USA and the Narragansett Electric capital structures because they have
12 considerably more equity than the level used by his comparative group. Mr. Moul argues
13 that since National Grid, PLC is atypical of the natural gas distribution business a
14 hypothetical, i.e., proxy group capital structure should be used. See page 10 of Mr.
15 Moul's rebuttal testimony. His recommended common equity ratio for the calculation of
16 the overall cost of capital is 47.71%¹ which is a much higher common equity ratio than
17 the 37.77% common equity ratio actually being used by National Grid, PLC.

18

19 **Q. MR. MOUL CLAIMS THAT THE LAST RATE CASE INVOLVING THE**
20 **NEW ENGLAND GAS DIVISION OF THE SOUTHERN UNION COMPANY**
21 **(DOCKET NO. 3401) SETS A PRECEDENT FOR USING A PROXY GROUP**
22 **CAPITAL STRUCTURE. DO YOU AGREE?**

¹ See page 5, line 10 or Mr. Moul's direct testimony.

1 A. No. Docket 3401 resulted in a settlement of the entire case by the parties. Many
2 issues were encompassed in the settlement. Any settlement of the cost of capital issues
3 was part of a much larger agreement and certainly was not precedent setting for the case
4 presently in front of the Commission.

5

6 **Q. HOW DOES GOOD MANAGEMENT DECIDE WHAT CAPITAL**
7 **STRUCTURE TO USE?**

8 A. A company has to finance its assets with a mixture of debt and equity financing.
9 Each kind of financing has its own unique advantages and disadvantages. Debt is
10 generally cheaper than equity, especially after considering that interest costs on debt are
11 tax deductible. However, if business conditions of a company become sufficiently weak
12 that it cannot fully meet its financial obligations to its debt holders, it can be forced into
13 bankruptcy. Also, unless a company has an adequate amount of common equity, it will
14 not be able to find investors willing to purchase its debt. Furthermore, as the percentage
15 of debt financing a company's assets increases, its cost of debt goes up. Therefore, even
16 though debt costs less than equity, these other considerations make it necessary for a
17 company to finance with at least some equity, and to keep the cost of debt at reasonable
18 levels, it generally makes economic sense for a company to use more than the bare
19 minimum level of common equity.

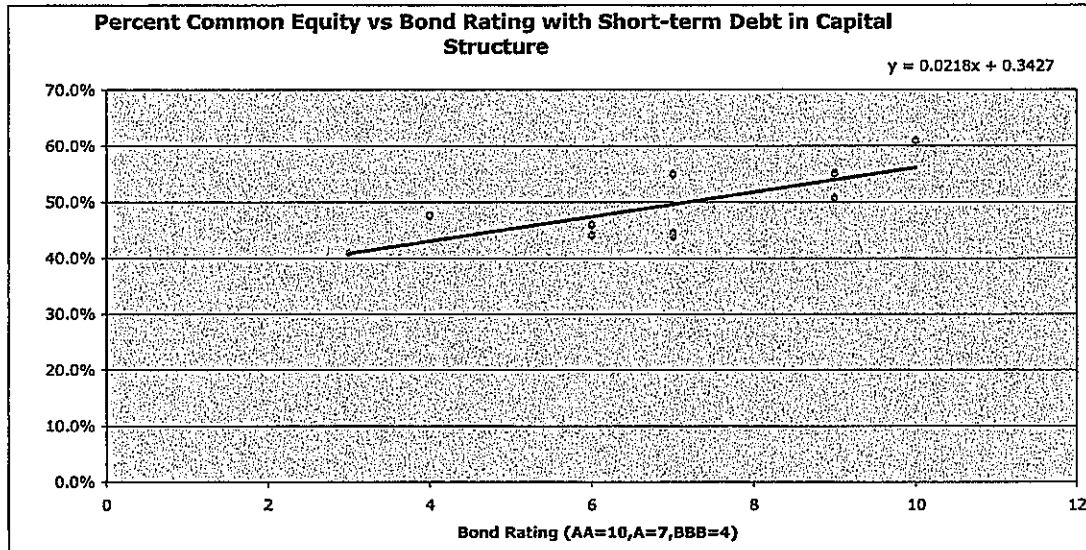
20

21 **Q. DO CHANGES IN THE CAPITAL STRUCTURE OF A COMPANY CHANGE**
22 **THEIR BOND RATING AND COST OF DEBT?**

1 A. Yes. As can be seen in the graph below, the higher the common equity ratio the lower
2 the bond rating and thus the higher the cost of debt.

3

4



5 The above graph is based on the capital structure and bond rating of the same 10 gas
6 companies covered by Value Line that I used to compute the cost of capital in my direct
7 testimony.

8

9 **Q. SINCE THE ACTUAL CAPITAL STRUCTURE BEING USED BY**
10 **NATIONAL GRID, PLC IS SO MUCH LESS THAN THE AVERAGE CAPITAL**
11 **STRUCTURE OF THE COMPARATIVE GROUP, DOES THIS SUGGEST THAT**
12 **THE ACTUAL CAPITAL STRUCTURE FINANCING NATIONAL GRID'S**
13 **OPERATIONS IS TOO LOW?**

14 A. No. National Grid, PLC has a corporate credit rating of A-. A- is a rating that is
15 solidly in the investment grade category.

16

1 **Q. IF, HYPOTHETICALLY, THE COMMISSION WERE DETERMINING**
2 **RATES FOR A COMPANY THAT WAS USING AN INADEQUATELY LOW**
3 **COMMON EQUITY RATIO, WHAT SHOULD THE COMMISSION DO?**

4 A. A company using an inadequate amount of common equity in its capital structure
5 would be a company that, due to its poor capital structure management, would have a
6 higher overall cost of capital than one using the correct capital structure. Under such
7 circumstances, a commission should do whatever it reasonably can to encourage the
8 company to increase its common equity ratio and also protect ratepayers from
9 overpaying for that inadequate capital structure by allowing a lower cost of capital than
10 the one derived from the actual capital structure.

11

12 **Q. FOR A COMPANY THAT WAS USING AN INADEQUATE AMOUNT OF**
13 **COMMON EQUITY IN ITS CAPITAL STRUCTURE, WOULD MERELY**
14 **IMPUTING MORE COMMON EQUITY INTO THE CAPITAL STRUCTURE**
15 **SOLVE THE PROBLEM?**

16 A. No. Unless a hypothetical company that was using an inadequate amount of common
17 equity in its capital structure were to actually implement a capital structure with more
18 equity, its cost of debt would remain approximately as high. Because the cost of debt
19 would remain high, unless a commission that imputed extra equity to the capital structure
20 also made a corresponding pro-forma adjustment to impute the lower cost of debt that the
21 actual implementation of the higher common equity ratio would achieve, the imputation
22 of the phantom common equity into the capital structure would leave ratepayers with the
23 worst of both worlds: the burden of paying for a higher percentage of common equity in

1 the capital structure without obtaining the benefits of the lower cost of debt that would
2 occur if the higher percentage of common equity were really there.

3

4 **Q. HOW DOES THIS HYPOTHETICAL COMPARE TO THE ACTUAL**
5 **SITUATION IN THIS CASE?**

6 A. In this case, it appears that National Grid, PLC has implemented a highly efficient
7 capital structure for its operations. It is able to maintain a high bond rating with a lower
8 common equity ratio than is being used, on average, by other gas companies. Yet, by
9 requesting rates that are based on the computation of the overall cost of capital with
10 considerably more common equity in it than is actually being used, the Company is
11 effectively requesting that it earn the much higher equity return on a significant portion of
12 its debt. Providing an equity return on a portion of its debt is nothing more than a trick
13 that, if approved, would allow the Company to earn considerably more than its actual cost
14 of equity.

15

16 **Q. HOW DOES THE PERCENTAGE OF COMMON EQUITY IN THE**
17 **CAPITAL STRUTURE INFLUENCE THE COST OF DEBT?**

18 A. Every dollar of assets that is financed by equity instead of debt causes the total debt
19 expense to decline. As the total debt expense declines, the percentage of pre-interest
20 earnings that must be dedicated to making interest payments also declines. The smaller
21 the percentage of income that has to be used to pay debt, the larger the decline in the
22 company's business could be before it would no longer have the funds to make its
23 interest payments. Therefore, as the debt payments become smaller and smaller, the

1 likelihood of a company being able to meet its debt obligations goes up and up. As the
2 company's ability to meet its debt obligations goes up, its bond ratings tend to improve.

3

4 **Q. IF THE COMMISSION WERE TO USE THE MORE EQUITY RICH**
5 **CAPITAL STRUCTURE REQUESTED BY THE COMPANY INSTEAD OF THE**
6 **ACTUAL CAPITAL STRUCTURE YOU HAVE RECOMMENDED, WOULD**
7 **THIS HELP THE BOND RATING BY LOWERING INTEREST EXPENSE?**

8 A. No. The actual interest expense the Company has to pay is based on its actual amount
9 and actual cost of debt, not the debt component merely used for ratemaking purposes.
10 Ratemaking based upon a capital structure with a higher than actual common equity ratio
11 would not only be counterproductive because it would be unnecessarily charging
12 ratepayers for capital costs that would not have been incurred, but would also tempt the
13 company to continue to use less equity so it could continue to earn an excessive equity
14 return even if it incurred higher debt costs as a result. When company witnesses such as
15 Mr. Moul make a capital structure recommendation that contains more common equity
16 than actually is being used without making the corresponding adjustment to lower the
17 cost of debt to bring debt costs into synchronization with the cost of debt that would have
18 been obtained if the higher amount of common equity had been used, it harms
19 ratepayers, and not the Company, from the excessive interest costs. Therefore, using a
20 capital structure for ratemaking purposes that contains more common equity than actual
21 produces the perverse incentive of encouraging a company to use less and less actual
22 common equity thereby driving up both excessive equity returns and at the same time
23 driving interest costs up even more.

1

2 **Q. IS IT DESIRABLE FOR A COMPANY TO HAVE THE HIGHEST POSSIBLE**
3 **BOND RATING?**

4 A. No, not necessarily. A company can generally put upward pressure on its bond rating
5 by actually increasing its common equity ratio, since equity costs more than debt. To
6 have the highest possible bond rating, a company would have to increase its equity to
7 such a high level and decrease its debt to such a small amount, that a very high bond
8 rating could easily cost more in the form of an incremental revenue requirement to
9 service equity that the increase in the revenue requirements for equity would exceed the
10 cost saving benefits achieved by the lower cost of debt.

11

12 **Q. SHOULD THE COMMISSION BE CONCERNED THAT THE EQUITY**
13 **LEVEL OF NARRAGANSETT ELECTRIC IS TOO HIGH?**

14 A. While the 91.54% common equity ratio reported on the books of Narragansett
15 Electric would be uneconomically high if that was how Narragansett Electric were truly
16 financed with such a high percentage of common equity, the accounting procedures used
17 to report the capital structure of subsidiary companies is commonly not a reflection of the
18 true way that a company is financed. In reality, Narragansett Electric's assets are
19 financed by a capital structure that contains only 37.77% equity. This is because the
20 majority of the actual debt financing Narragansett's assets are reflected somewhere else
21 on the books of National Grid, PLC.

22

23

1 **Q. DOES NARRAGANSETT ELECTRIC HAVE A BOND RATING AND**
2 **ASSOCIATED COST OF DEBT REFLECTIVE OF ITS EXCEEDINGLY LOW**
3 **RISK CAPITAL STRUCTURE?**

4 A. No. As a wholly owned subsidiary of National Grid, PLC, the cost of debt issued for
5 the Rhode Island gas operations comes under the umbrella of the bond rating issued by
6 Standard and Poor's for "National Grid, PLC and Subsidiaries". In other words, this
7 tradeoff between using enough equity to keep the cost of debt reasonable but using no
8 more equity than necessary to keep the sum of the revenue requirements for debt and
9 equity at a combined reasonable level all occurs at the consolidated capital structure
10 level.

11

12 **Q. WHY DOES STANDARD AND POORS GIVE SO MUCH WEIGHT TO THE**
13 **CORPORATE CAPITAL STRUCTURE AND GIVE NATIONAL GRID AND**
14 **SUBSIDIARIES' BOND RATING OF "A" EVEN THOUGH, IN THIS CASE,**
15 **NATIONAL GRID, PLC HAS A SO MUCH SMALLER PERCENTAGE OF**
16 **COMMON EQUITY IN ITS CAPITAL STRUTURE THAN DOES**
17 **NARRAGANSETT ELECTRIC?**

18 A. If National Grid, PLC should need extra funds to service its debt it could turn to its
19 subsidiaries such as Narragansett Electric to obtain the necessary cash. Therefore, the
20 debt holders of Narragansett Electric share much of the same risks that are borne by the
21 other debt holders of the National Grid, PLC system.

22

1 **Q. MR. MOUL PRESENTS A COMPUTATION OF THE CAPITAL**
2 **STRUCTURE OF NATIONAL GRID, PLC IN WHICH HE ARRIVES AT A**
3 **HIGHER PERCENTAGE OF COMMON EQUITY THAN YOU HAVE SHOWN.**
4 **WHAT IS DIFFERENT ABOUT MR. MOUL'S CAPITAL STRUCTURE**
5 **COMPUTATION?**

6 A. Instead of computing capital structure in the traditional way, Mr. Moul has proposed
7 an adjustment to the level of debt before making the capital structure computation.
8 Instead of simply using actual debt and actual equity as reported on the books of National
9 Grid, PLC, Mr Moul adjusts the level of debt down by subtracting the balance of cash
10 and cash equivalents from debt.

11

12 **Q. IS THIS ADJUSTMENT TO THE ACTUAL CAPITAL STRUCTURE**
13 **APPROPRIATE?**

14 A. No. Cash and cash equivalents are financed by a mix of debt and equity just as are all
15 the other assets of National Grid, PLC. Furthermore, the track record of National Grid
16 PLC has been to use its cash to make acquisitions. For example, it used \$7.3 billion of its
17 cash to purchase Keyspan and another \$0.575 billion of cash to purchase the Rhode
18 Island gas operations of Southern Union.

19

20 **Q. DO UTILITY COMMISSIONS GENERALLY SUBTRACT THE CASH**
21 **BALANCE FROM THE DEBT BALANCE WHEN COMPUTING CAPITAL**
22 **STRUCTURE?**

1 A. No. While it might be possible that there are some rare instances where a
2 commission made such a computation, I do not remember ever seeing such a computation
3 either proposed to or adopted by any utility commission.

4
5 **Q. MR. MOUL SAYS THAT YOUR 0.45% UPWARD ADJUSTMENT TO YOUR**
6 **COST OF EQUITY WHEN APPLIED TO NATIONAL GRID PLC'S CAPITAL**
7 **STRUCTURE IS "UNSUPPORTED." DO YOU HAVE SUPPORT FOR YOUR**
8 **0.45% UPWARD ADJUSTMENT?**

9 A. Yes. The substantial support for this adjustment was requested by the Company in its
10 interrogatory NGRID-12. The requested material was provided. What I did to arrive at
11 the recommended adjustment was to perform a regression analysis that calculated the
12 DCF-indicated cost of equity to the respective capital structure for all the electric utilities
13 covered by Value Line (more than 100 companies) over a 5 year period and the
14 conclusion of this analysis was that the cost of equity increased by about 0.04% for every
15 1% decrease in the common equity ratio.

16
17 **Q. MR. MOUL RELIES ON MODIGLIANI AND MILLER AS A COMPONENT**
18 **OF HIS RECOMMENDATION THAT THE COST OF EQUITY INCREASES BY**
19 **0.98%. IF THE ACTUAL CAPITAL STRUCTURE OF NATIONAL GRID PLC**
20 **IS USED INSTEAD OF THE AVERAGE CAPITAL STRUCTURE OF THE**
21 **PROXY GROUP IS THE FORMULA THAT MR. MOUL USES VALID?**

22 A. No. His computations are invalid because they are based on the incorrect assumption
23 that capital structure does not influence the overall cost of capital. In fact the more

1 complete teachings of Professors Modigliani and Miller explain that in fact the overall

2 cost of capital changes in response to variations in capital structure.

3

4

1 **DCF METHOD**

2

3 **Q. ON PAGE 20, LINE 13 OF MR. MOUL'S REBUTTAL TESTIMONY HE**
4 **SAYS, "NO SINGLE APPROACH IS SUFFICIENTLY RELIABLE TO**
5 **ADEQUATELY ESTABLISH THE COST OF EQUITY. HAS THE RHODE**
6 **ISLAND PUC FAVORED THE DCF METHOD IN THE PAST?**

7 A. Yes. I have reviewed this Commission's decisions in both the last case in Rhode
8 Island in which I testified (Valley Gas) and the last case in Rhode Island in which both
9 Mr. Moul and I testified (Providence Gas). In both of these cases, the Rhode Island PUC
10 stated its preference for the DCF method.

11 Specifically, on page 12 of the Report and Order regarding Valley Gas Company
12 and Bristol & Warren Gas Company (Docket No. 2276) dated January 19, 1995 this
13 Commission stated:

14 In determining the cost of common equity over the last several years, this
15 Commission has consistently stated its preference for the use of the
16 discounted cash flow (DCF) methodology with the expected growth rate
17 determined through the 'bxr' or retention growth rate method.
18

19 Page 12 of the Report and Order regarding Providence Gas Company (Docket No. 1971)
20 on May 17, 1990 says:

21 This commission has stated with considerable clarity its position on the
22 risk premium analysis, and the general approach to be taken with regard to
23 the discounted cash flow (DCF) methodology. With regard to the risk
24 premium methodology, we have repeatedly rejected it as a viable means of
25 determining the cost of equity. Re: Providence Gas Company, Docket
26 1741 (1984), p.24; Re: Providence Gas Company, Docket 1914 (1989),
27 and p.14. It is again rejected here.
28

29

1 **Q. MR. MOUL DESCRIBES THE BXR METHOD AS A SPECIAL FORM OF**
2 **THE DCF. ARE YOU AWARE OF ANY DECISION IN RHODE ISLAND**
3 **IS THERE ANYTHING "SPECIAL" ABOUT THE B X R FORM OF THE DCF**
4 **MODEL?**

5 A. Yes. What makes it special is its applicability to the constant growth form of the
6 DCF model. The "b x r" form of estimating growth is the only form of the DCF model
7 that is part of the mathematical derivation of this constant growth form of the model. The
8 constant growth form of the DCF model was obtained from a mathematical derivation
9 from the complex form of the DCF model. This constant form only produces an answer
10 with mathematical integrity if the user of the constant growth model believes that both
11 dividends and stock price will grow at the same rate for a very long time into the future.
12 If the user believes that either dividends are more likely to grow at a more rapid rate than
13 stock price or stock price is more likely to be growing at a more rapid rate than dividends,
14 then the resulting answer from applying the constant growth form of the DCF model is
15 entirely unreliable.

16

17 **Q. IS THERE AN EASY WAY TO SEE WHY THE CONSTANT GROWTH**
18 **FORM OF THE DCF MODEL WOULD BE UNRELIABLE IF STOCK PRICE**
19 **WERE EXPECTED TO BE GROWING FASTER THAN DIVIDENDS?**

20 A. Yes. If stock price were expected to be growing faster than dividends, then the
21 dividend yield would decline as time passes. Yet, the constant growth form of the DCF
22 model evaluates the cost of equity by taking only one dividend yield and adding that to
23 the growth rate. Suppose, for example, investors expected the stock price of a company

1 to be able to, on average, grow at 5% per year at a time when the dividend yield were 4%.
2 In this example, the investor would only earn the constant growth DCF-derived cost of
3 equity if the dividend yield remained at 4% and the stock price continued to grow at 5%.
4 But, if an investor expected that dividends would be growing at a lower rate than stock
5 price, the dividend yield would gradually decline. This has to be true because dividend
6 yield is dividends divided by stock price. The resulting decline in the dividend yield
7 would make the total return in each subsequent year lower than the starting 9% because a
8 number lower than 4% would be added to the constant 5% stock price growth. In this
9 example, the constant growth form of the DCF model would overstate the true cost of
10 equity being demanded by investors.

11

12 **Q. WOULD IT BE POSSIBLE TO PROPERLY IMPLEMENT THE DCF**
13 **MODEL IF AN INVESTOR DID EXPECT EARNINGS TO BE GROWING AT A**
14 **LOWER RATE THAN STOCK PRICE?**

15 A. Yes. However, under such conditions the user of the DCF model should reject the
16 constant growth form in favor of a complex form of the DCF model. The complex form
17 of the DCF model is not thrown off by variations in the rate of future cash flows because
18 the present value of each future expected cash flow is independently discounted.

19

20 **Q. ON PAGE 23, LINES 4-6 OF MR. MOUL'S REBUTTAL TESTIMONY HE**
21 **STATES THAT "IN HIS TESTIMONY, MR. ROTHSCHILD ACKNOWLEDGES**
22 **THAT THE VALUE LINE GROUP WILL EARN A 12.00% RETURN ON**
23 **EQUITY, BUT INSTEAD HE PROPOSES A DCF RETURN OF JUST 9.42% OR**

1 **9.43%.” IS THE COST OF EQUITY SUPPOSED TO BE THE SAME AS THE**
2 **FUTURE EXPECTED RETURN ON BOOK EQUITY?**

3 Q. No. The future expected return on book equity reflects the actual return investors
4 expect a company will be able to achieve on its book value. If investors perceive that
5 return to be higher than they are willing to accept, the stock price is bid up so that the
6 investor's expected return on the market price becomes equal to the cost of equity. For
7 example, if a company develops a unique opportunity such that it is perceived by
8 investors to be able to consistently earn a very high 20% on its equity but is in a business
9 where investors would be content with an annual total return of 9.0%, then the stock price
10 of such a company would rise to the point where the return on market price is 9%, not
11 20%. While this process requires a more indirect evaluation in the context of evaluating
12 a common stock investment, the exact same process occurs in a directly observable way
13 for bonds. Currently, there are U.S. treasury bonds that were issued at a time when
14 interest rates were higher than today. By contractual agreement, these bonds continue to
15 pay interest at the higher rate even though current interest rates are lower. All investors
16 interested in purchasing a U.S. treasury bond would prefer to earn the higher interest.
17 Therefore, the price of the bonds paying the higher interest rate is bid up to the point
18 where the interest rate the investor would earn is equal to market interest rates. A DCF
19 method is required to determine exactly what price the bond paying the higher interest
20 rate would grow to so that the interest rate it was paying on market price was equal to
21 current market interest rates. The exact same thing is true when a common stock is
22 earning a return on book that is higher than the return on market.

- 1 In fact, the whole reason that the DCF model is used to evaluate common stocks is
- 2 because virtually always the return on book equity is different than the cost of equity.
- 3

1 **CAPM MODEL**

2

3 **Q. MR MOUL CLAIMS THAT YOU HAVE USED A NON-STANDARD**
4 **VERSION OF THE CAPM MODEL. PLEASE COMMENT.**

5 A. So far, there is no such thing as a generally accepted way to apply the CAPM model.

6 In general, I have found that commissions have tended to be skeptical over the use of the
7 CAPM model. This Commission has expressed its reluctance to use the CAPM in the
8 decisions I cited earlier in this testimony. The reasons underlying the reluctance of
9 commissions to use the CAPM method in the past include 1) the instability of risk
10 premiums if the risk premiums are measured from the cost of debt, 2) the strange results
11 that are obtained if the arithmetic mean instead of the geometric mean is used to quantify
12 historic actual returns, 3) confusion over whether to apply the risk premium to short-term
13 interest rates that are truly risk free but highly volatile or long-term rates that are more
14 stable but not truly risk free, and 4) uncertainties about the true relationship between
15 “beta” and the cost of equity. The CAPM approach I have presented provides solutions
16 to each of those problems.

17

18

1

2 **COMPARATIVE GROUP**

3

4 **Q. IS MR. MOUL'S CLAIM THAT YOU DID NOT USE HIS COMPARATIVE**
5 **GROUP CORRECT?**

6 A. Yes. In my direct testimony, I used the same group of gas companies that I used in
7 my recent testimony in the Florida Leverage Graph proceedings rather than the group
8 used by Mr. Moul.

9

10 **Q. IF YOU HAD USED MOUL'S GROUP OF 7 GAS COMPANIES WHAT COST**
11 **OF EQUITY RESULTS WOULD YOU HAVE SEEN FOR YOU DCF AND CAPM**
12 **METHODS?**

13 A. The DCF-indicated cost of equity for the 7 gas companies in Mr. Moul's group is
14 between 8.89% and 9.09% or about 40 basis points lower than my recommendation
15 where I used the same 10 gas companies as in the Florida Leverage Graph proceedings.
16 In my DCF calculations on Mr. Moul's group, just as I did in my original analysis, I used
17 the median future expected return book equity from Value Line as the value for "r" in the
18 growth rate computation. (See JAR Surrebuttal 1)

19 My CAPM for the 7 gas companies in Mr. Moul's group would be 9.19% or
20 about 20 basis points lower than the recommendation contained in my direct testimony.

21 (See JAR Surrebuttal 2)

22

23

1

2 **FLOTATION COSTS**

3

4 **Q. ON PAGES 28 AND 29 OF MR. MOUL'S REBUTTAL TESTIMONY HE**
5 **CLAIMS THAT YOU ERRONEOUSLY DID NOT INCLUDE FLOTATION**
6 **COSTS IN YOUR DCF ANALYSIS. WHY DID YOU NOT INCLUDE**
7 **FLOTATION COSTS IN YOUR ANALYSIS?**

8 A. When the market to book ratio of a regulated utility is above 1.0 then issuing new
9 stock becomes a profit center and not a cost. For example, if a company has one share
10 outstanding with a book value of \$10 and a market value of \$20 when it goes to issue a
11 new share of stock, the existing stock holders would add \$20 (66% increase) to book
12 value and rate base. Therefore, in the current environment, any costs incurred from
13 issuing new common stock are more than offset by the book value growth benefits that
14 also occur as a result of issuing common stock.

15

16 **Q. ON PAGE 29 OF HIS REBUTTAL TESTIMONY, MR. MOUL ARGUES IN**
17 **FAVOR OF INCREASING THE COST OF EQUITY IF IT IS TO BE APPLIED**
18 **TO A COMPANY'S BOOK VALUE CAPITAL STRUCTURE. IS THERE ANY**
19 **VALIDITY TO MR. MOUL'S PROPOSED ADJUSTMENT?**

20 A. No. While Mr. Moul is correct that the cost of equity is influenced by financial risk,
21 that financial risk does not go up simply because a book value capital structure currently
22 contains a smaller percentage of common equity than if the capital structure were
23 computed using market values instead of book values. Market value capital structure and

1 book value capital structure are two completely different ways of measuring the same
2 thing. Concluding that a market value capital structure is lower in risk because it
3 contains more equity than the book value based capital structure for the same company is
4 as inconsistent and illogical as claiming that a person who weighs 150 pounds could lose
5 weight simply by stepping on a scale that measures weight in kilos instead of pounds.

6 Financial risk is determined by a company's ability to meet its cash flow obligations.
7 The most common and perhaps most important single measure of financial risk is the
8 pretax interest coverage ratio. The interest coverage ratio is computed by dividing the
9 sum of interest expense and pre-tax income by interest expense. This number is useful
10 because it gives bondholders a sense of how far earnings would have to decline before a
11 company would not be able to meet its interest payments. For example, if a company has
12 an interest coverage ratio of 3.0, this means that at its current earnings rate, its earnings
13 available for both payment of interest and pre-tax earnings is three times as much as is
14 needed to make its interest payments. The coverage ratio number that a company
15 achieves is influenced by the following factors:

16

17 1. The interest rate it pays on its debt. For any given level of debt that a company has,
18 the higher the rate of interest it has to pay, the higher the interest expense. Given the
19 formula for computing coverage ratio, the higher the interest expense, the lower the
20 coverage ratio will be.

21 2. The book value capital structure a company implements. The greater the percentage of
22 assets that are financed with equity capital, the less debt financing a company will use.
23 This helps the coverage ratio in two ways. First, the less debt a company has, the lower

1 the total interest expense will be. Second, the greater amount of equity that a company
2 automatically has when it uses less debt to finance its assets, the higher its pre tax
3 earnings available if its earned rate of return on equity remains about the same.

4
5 **3. The earned rate of return on book equity.** With any given capital structure and cost of
6 debt, the higher the earned return on book equity, the higher the interest coverage ratio
7 will be. This is because a higher earned return on equity increases the numerator of the
8 interest coverage formula without causing any change to the denominator.

9
10 **Q. DOES A DECLINE IN MARKET PRICE LOWER THE COVERAGE RATIO?**

11 A. As can be seen from reviewing the above parameters, a lowering of the market value
12 does not directly influence any of the above factors and therefore does not, in and of
13 itself, cause a change in the coverage ratio computation. Therefore, changing from a
14 market value orientation to a book value orientation does no more to change a company's
15 financial risk than the weight of a person was influenced by switching to a scale
16 calibrated in kilos instead of pounds.

17
18 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

19 A. Yes.

JAR SURREBUTTAL 1

DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY

		BASED ON MONTHLY MIDPOINT MARKET PRICE FOR Year Ending 5/31/08	BASED ON MARKET PRICE AS OF 5/31/2008
1 Dividend Yield On Market Price	[B]	<u>3.60%</u>	<u>3.61%</u>
2 Retention Ratio:			
a) Market-to-book	[B]	2.19	2.08
b) Div. Yld on Book	[C]	7.89%	7.50%
c) Return on Equity	[A]	11.00%	11.00%
d) Retention Rate	[D]	<u>28.28%</u>	<u>31.83%</u>
3 Reinvestment Growth	[E]	3.11%	3.50%
4 New Financing Growth	[F]	<u>2.08%</u>	<u>1.88%</u>
5 Total Estimate of Investor Anticipated Growth	[G]	5.19%	5.39%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.09%	0.10%
7 Indicated Cost of Equity	[I]	<u>8.89%</u>	<u>9.09%</u>

Some of the Considerations for Determining Future Expected Return on Equity:

Sources:	Median	Mean	Source:
[A] Value Line Expectation	11.00%	11.71%	JAR SURREBUTTAL 3, Page 2
Return on Equity to Achieve Zacks' Growth	12.73%	12.48%	JAR SURREBUTTAL 3, Page 3
Earned Return on Equity 2007	11.75%	11.53%	JAR SURREBUTTAL 3, Page 2
Earned Return on Equity 2006	10.96%	12.57%	JAR SURREBUTTAL 3, Page 2
Earned Return on Equity 2005	12.14%	12.23%	JAR SURREBUTTAL 3, Page 2
[B] JAR SURREBUTTAL 3, Page 1			
[C] Line 1 x Line 2a			
[D] 1- Line 2b/Line 2c			
[E] Line 2c x Line 2d			
[F] S X V			
$[M/B \times (\text{Ext. Fin Rate} + 1) / (M/B + \text{Ext. Fin. Rate} - 1)]$	Ext. Fin. rate used =	1.75%	[J]
[G] Line 3 + Line 4			
[H] Line 1 x one-half of line 5			

JAR SURREBUTTAL 2, Page 1

**CAPITAL ASSET PRICING MODEL
BASED ON HISTORICAL ACTUAL COMPOUND ANNUAL RETURNS**

1	Historical Actual Return - beta = 1	10.40% [A]
2	Historical Actual Return - beta = 0.85	9.54% [B]
3	Interest Rate on 30-Year Treasury Bonds	4.70% [C]
4	Interest Rate on Long-Term Inflation Indexed Treasury Bonds	<u>2.05% [C]</u>
5	Current Market Inflation Expectation	2.65% Line 3 minus Line 4
6	Historical Actual Inflation	3.00% [D]
7	Difference From Historical Actual Inflation	0.35%
8	Adjusted Returns For Current Market Inflation Expectation Beta = 1	10.05%

CAPITAL ASSET PRICING MODEL

7	Indicated Cost of Equity for Portfolio of Companies with a beta of 0.88	9.19%
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Sources:

- [A] Ibbotson Associates 2008 Yearbook, page 295
- [B] JAR SURREBUTTAL 2, Page 2
- [C] www.bloomberg.com/markets/rates/index.html, 5/29/08
- [D] Ibbotson Associates 2008 Yearbook, page 331

JAR SUJAR SURREBUTTAL 2, Page 2
GAS COMPANIES

**CAPITAL ASSET PRICING MODEL
HISTORIC ACTUAL COMPOUND RETURNS
and HISTORIC ACTUAL COMPOUND ANNUAL RETURNS ADJUSTED FOR
DIFFERENCE BETWEEN CURRENT AND HISTORICAL ACTUAL INFLATION RATE**

	1	2	3	4	5	6	7	8	9	10
[A] Portfolio by Size Decile										
[A] Beta	0.91%	1.03%	1.10%	1.12%	1.16%	1.18%	1.24%	1.30%	1.35%	1.41%
[B] Historic Actual Compounded Annual Return	9.60%	10.90%	11.30%	11.10%	11.70%	11.70%	11.60%	11.80%	11.90%	13.60%
[C] Reduced Compounded Annual Returns	9.25%	10.55%	10.95%	10.75%	11.35%	11.35%	11.25%	11.45%	11.55%	13.25%

[D] Least Squared Line derived from compounded annual returns per decile
Beta
0.85
Slope
5.9922
Y-Intercept
4.45
Return
9.54%
See graph on JAR Schedule 6, page 4

[E] Least Squared Line
Beta
0.85
Slope
5.9922
Y-Intercept
4.1
Return
9.19%
See graph on JAR Schedule 6, page 5

- [A] Ibbotson Associates 2008 Yearbook, page 142
- [B] Ibbotson Associates 2008 Yearbook, page 130
- [C] by 0.35% actual difference between 3.00% historical and 2.65% current expected long-term inflation rate.
- [D] Least Squared Line derived from Historical Actual Compounded Annual Return
- [E] Least Squared Line derived from Reduced Compounded Annual Return

COMPARATIVE COMPANIES
SELECTED FINANCIAL DATA

Company	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
	Book Per Sh. Dec. 04	Book Per Sh. Dec. 05	Book Per Sh. Dec. 06	Book Per Sh. Dec. 07	At 05/31/08	Market High for Year	Low for Year	Market to Book At 05/31/08	Avg. for Year	Div. Rate	Dividend Yield At 5/31/2008	Avg. for Year
VL Issue	[A]	[A]	[A]	[A]	[B]	[B]	[B]	[C]	[C]	[A]	[D]	[D]
COMPANY WITNESS ELECTRIC GROUP EXCLUDING TXU												
ATG	\$18.06	\$19.29	\$20.71	\$21.74	\$35.70	\$42.80	\$33.45	1.64	1.80	\$1.68	4.71%	4.41%
ATMOS Energy Corp.	\$18.05	\$19.90	\$20.16	\$22.01	\$27.39	\$32.60	\$25.00	1.24	1.37	\$1.30	4.75%	4.51%
New Jersey Res.	\$11.25	\$10.60	\$15.00	\$15.50	\$50.48	\$76.14	\$46.79	3.26	4.03	\$0.88	1.74%	1.43%
N. W. National Gas	\$20.64	\$21.28	\$21.97	\$22.52	\$45.59	\$50.89	\$40.98	2.02	2.06	\$1.50	3.29%	3.27%
Piedmont National Gas	\$11.15	\$11.53	\$11.83	\$11.99	\$27.03	\$27.98	\$22.00	2.25	2.10	\$1.04	3.85%	4.16%
South Jersey Inds.	\$12.41	\$13.50	\$15.11	\$16.25	\$38.25	\$39.28	\$31.20	2.35	2.25	\$1.08	2.82%	3.06%
WGL Holdings	\$16.95	\$17.80	\$18.28	\$19.83	\$34.89	\$35.91	\$29.79	1.76	1.72	\$1.44	4.13%	4.38%
AVERAGE	\$15.50	\$16.27	\$17.58	\$18.55	\$37.05	\$43.66	\$32.74	2.08	2.19	\$1.27	3.61%	3.60%
MEDIAN								2.02	2.06		3.85%	4.16%

e= Estimated by Value Line

Sources:

- [A] Most current Value Line at time of prep. of schedule. Most current quarterly dividend rate X 4
Note: For South Jersey Inds. There is no dividend for Q1 2008 so used 3Q 2007 X 1.10 X 4 (Note: never pay dividend in Q1, Q3 dividend have been increasing at an increasing rate (a bout 8% btw 2006 and 2007) Q4 has been about 2 X Q3
- [B] Yahoo Finance -- Historical Prices, 2/15/07
- [C] Market price divided by book value
- [D] Dividend rate divided by market price

**COMPARATIVE COMPANIES
EARNINGS PER SHARE AND RETURN ON EQUITY**

JAR SURREBUTTAL 3, Page 2

	[1] EPS 2005	[2] EPS 2006	[3] EPS 2007	[4] Return on Eq. 2006	[5] Return on Eq. 2007	[6] Value Line Future Exp. Return on Eq.	[7] Return on Equity 2005
	[A]	[A]	[A]	[B]	[B]	[A]	[B]
AGL	\$2.48	\$2.72	\$2.72	13.60%	12.82%	13.00%	13.28%
ATMOS Energy Corp.	\$1.72	\$2.00	\$1.94	9.99%	9.20%	9.50%	9.06%
New Jersey Resources Corp.	\$1.77	\$1.87	\$1.55	14.61%	10.16%	11.00%	16.20%
N. W. National Gas	\$2.11	\$2.35	\$2.76	10.87%	12.41%	11.00%	10.07%
Piedmont National Gas	\$1.32	\$1.28	\$1.40	10.96%	11.75%	12.50%	11.64%
South Jersey Incls.	\$1.71	\$2.46	\$2.09	17.20%	13.33%	14.50%	13.20%
WGL Holdings	\$2.11	\$1.94	\$2.10	10.75%	11.02%	10.50%	12.14%
	\$1.89	\$2.09	\$2.08	12.57%	11.53%	11.71%	12.23%
				10.96%	11.75%	11.00%	12.14%

COMPANY WITNESS ELECTRIC GROUP EXCLUDING TXU

e= Estimated by Value Line

Source: [A] Most current Value Line at time of prep. of schedule.

[B] Earnings Per Share divided by average book value. Book value shown on JAR SURREBUTTAL 3, Page 1

RETURN ON EQUITY IMPLIED IN
YAHOO FINANCE COVERING BROKER'S GROWTH RATES

COMPANY	Dec. 07 Y/E Book	Earnings 2007	Dividends	Analyst 5 Year Growth Rate 10/	Y/E Book in 2011 at Zack's Growth	Y/E Book in 2012 at Zack's Growth	Earnings 2012 at Zack's Growth	Return on Equity to achieve Analysts' Growth	VALUE LINE BETA
	[3]	[A]	[A]	[B]	[C]	[C]	[C]	[C]	[A]
COMPANY WITNESS ELECTRIC GROUP EXCLUDING TXU									
AGL	\$21.74	\$2.72	\$1.68	4.80%	\$26.42	\$27.74	\$3.44	12.70%	0.85
ATMOS Energy Corp.	\$22.01	\$1.94	\$1.30	5.30%	\$24.93	\$25.76	\$2.51	9.91%	0.85
New Jersey Resources Corp.	\$15.50	\$1.55	\$0.88	8.00%	\$18.76	\$19.75	\$2.28	11.83%	0.85
N. W. National Gas	\$22.52	\$2.76	\$1.50	6.20%	\$28.39	\$30.09	\$3.73	12.75%	0.80
Piedmont National Gas	\$11.99	\$1.40	\$1.04	6.00%	\$13.66	\$14.14	\$1.87	13.48%	0.85
South Jersey Inds.	\$16.25	\$2.09	\$1.08	7.90%	\$21.16	\$22.64	\$3.06	13.96%	0.85
WGL Holdings	\$19.83	\$2.10	\$1.44	7.30%	\$22.99	\$23.93	\$2.99	12.73%	0.90
		\$18.55	\$2.08	6.50%	\$22.33	\$23.43	\$2.84	12.48%	0.85
				6.20%				12.73%	0.85

[A] Must Current Value Line at time of prep of schedule
 [B] Zacks.com, 5/29/08
 [C] Projected return on equity is obtained by escalating both dividends and earnings per share by the stated growth rate, and adding earnings and subtracting dividends in each year to determine the book value.

JAR SURREBUTTAL 4

EXTERNAL FINANCING RATE (Millions of Shares)

S&P DISTRIBUTION ELECTRIC UTILITIES COMPANY WITNESS GROUP	Common Stock Outstanding		Compound Annual
	2007	2011-13	
AGL	76.40	80.00	1.16%
ATMOS Energy Corp.	89.33	115.00	6.52%
New Jersey Res.	122.16	119.00	-0.65%
N. W. National Gas	26.41	28.00	1.47%
Piedmont National Gas	73.23	72.00	-0.42%
South Jersey Inds.	29.61	32.00	1.96%
WGL Holdings	49.45	50.00	0.28%
		Average	1.47%
		Median	1.16%
		Round to	1.75%

External financing rate adjusted for change in common equity ratio

Source: Most current Value Line at time of prep. of schedule.