

**COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION**

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**PUBLIC SERVICE  
COMMISSION**

**In the Matter of:**

**AN ADJUSTMENT OF THE )  
RATES OF DELTA NATURAL )  
GAS COMPANY, INC. )**

**CASE NO. 2004-00067**

**REBUTTAL TESTIMONY OF**

**MARTIN J. BLAKE**

**August 9, 2004**

AFFIDAVIT

The affiant, Martin J. Blake, being duly sworn, deposes and states that the prepared testimony attached hereto and made a part hereof, constitutes the prepared rebuttal testimony of this affiant in Case No. 2004-00067, in the Matter of: An Adjustment of Rates of Delta Natural Gas Company, Inc. and that if asked the questions propounded therein, this affiant would make the answers set forth in the attached prepared rebuttal testimony.

Affiant further states that he will be present and available for cross-examination and for such additional direct examination as may be appropriate at the hearing in Case No. 2004-00067 scheduled by the Commission, at which time affiant will further reaffirm the attached prepared testimony as his rebuttal testimony in such case.

Martin J. Blake  
MARTIN J. BLAKE

STATE OF KENTUCKY            )  
  )  
COUNTY OF JEFFERSON        )

Subscribed and sworn to before me by Martin J. Blake, this the 3<sup>rd</sup> day of August, 2004.

My Commission Expires: 4-29-08

Dulcie Day  
Notary Public, State at Large, Kentucky

1 Q: PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

2 A: My name is Martin J. Blake. My business address is 6435 W. Highway 146, Suite 2,  
3 Crestwood, Kentucky 40014.

4 Q: ARE YOU THE SAME MARTIN BLAKE THAT PREVIOUSLY FILED DIRECT  
5 TESTIMONY IN THIS PROCEEDING?

6 A: Yes, I am.

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

8 A. The purpose of my testimony is to review and rebut the Direct Testimony filed by  
9 Charles W. King in this proceeding.

10 Q. DO YOU AGREE WITH MR. KING'S RECOMMENDATION THAT THE  
11 APPROPRIATE RETURN ON EQUITY FOR DELTA NATURAL GAS IN THIS  
12 PROCEEDING IS 10.3%?

13 A. No, I do not agree with Mr. King's recommendation of a 10.3% return on equity for Delta  
14 or with his analysis. Mr. King has made a number of errors in his analysis which when  
15 corrected support my recommendation of a 12.5% return on equity for Delta that I made  
16 in my Direct Testimony.

17 Q. DO YOU AGREE WITH MR. KING'S ARGUMENT THAT A SIZE ADJUSTMENT  
18 MAY NOT BE APPROPRIATE FOR DELTA?

19 A. No. On page 11 of his Direct Testimony, Mr. King admits that research shows that small  
20 companies have earned higher rates of return on equity over time than large companies  
21 and that the variation in those rates of return has been higher as well – implying greater  
22 risk. However, on pages 12 and 13 of his testimony, Mr. King attempts to show that a  
23 size adjustment that recognizes this fact may not be appropriate for Delta. On page 12 of

1 his Direct Testimony, Mr. King states that Delta's earnings have remained within a band  
2 of \$.75 to \$1.49 per share over the last 10 years. This is a difference of about 100%  
3 which simply cannot be regarded as small. Furthermore, Mr. King has ignored and has  
4 not rebutted the point that I made in my Direct Testimony that Delta has not earned a  
5 return on shareholder equity as high as the allowed rate of return in any of the last nine  
6 years. For the last nine years, Delta has averaged a 9.16% return on shareholder equity  
7 with the return on equity in any single year never equaling or exceeding 11.6%. On page  
8 13 of his Direct Testimony, Mr. King tries to make a counter-argument for a size  
9 adjustment for Delta stating that:

10 A number of analysts have recommended Delta to investors because of its high  
11 dividend yield. The high dividend yield suggests that the Company's stock is  
12 under-priced relative to other companies of comparable risk. (emphasis added)  
13

14 However, the dividend yield could also be higher because Delta is riskier and  
15 shareholders demand a higher rate of return for bearing this risk. Given Delta's small size  
16 and the fact that Delta has not earned its allowed rate of return in any of the past nine  
17 years, I believe that this second explanation of the high dividend yield is more plausible.  
18 In his analysis, Mr. King has not demonstrated that Delta has a higher dividend yield  
19 compared to "other companies of comparable risk". Thus, I believe that his counter-  
20 argument fails due to lack of evidence supporting this argument.

21 Q. CAN YOU PROVIDE ADDITIONAL EVIDENCE THAT A SIZE ADJUSTMENT  
22 WOULD BE APPROPRIATE FOR DELTA?

23 A. Yes. I believe that there is considerably less controversy regarding the appropriateness of  
24 a size adjustment for small capitalization companies than Mr. King suggests on page 11

1 of his Direct Testimony. In an article published in Business Valuation Review, Michael  
2 Annin states that:

3 There are many areas in the field of finance that are open to debate. One of the  
4 few areas where there seems to be a general consensus is the relationship between  
5 company size, as measured by equity capitalization, and return. Historically, small  
6 capitalization companies have outperformed large capitalization companies over  
7 an extended time period. The relationship between size and return was first noted  
8 by Banz (1981). Other studies have been performed that have concluded that over  
9 long periods of time, small companies will out-perform large companies. If this is  
10 the case, then smaller companies should have higher betas than larger companies  
11 in a general sense. If one looks at long periods of time, this is the case. ("Fama-  
12 French and Small Company Cost of Equity Calculations", Business Valuation  
13 Review, March 1997)

14  
15 Mr. Annin goes on to state that :

16  
17 Using this rationale, one should expect smaller firms to have higher cost of equity  
18 than larger firms. Exhibit 2 shows the portfolio betas for NYSE deciles where  
19 betas are computed back to 1926. Exhibit 2 shows a relationship between size and  
20 expected return on a historical basis. Over this time period CAPM indicates that  
21 small companies should have higher costs of equity than large companies. On an  
22 actual basis, small companies have outperformed large companies. In fact, CAPM  
23 actually under-predicts small company returns over this time period. It is this type  
24 of analysis that has led to the development of the small stock premium that is used  
25 as an additional term for CAPM cost of equity calculations. Data for the most  
26 recent time period shows a completely different result. If decile betas are  
27 calculated for the most recent sixty month period, the deciles containing the  
28 smaller NYSE companies actually have the lowest betas. In short, the far right  
29 column of Exhibit 2 shows CAPM results that are the opposite one would expect  
30 with betas declining with company size for the sixty month time period ending  
31 with December, 1995. Because CAPM is a single factor model, low betas  
32 translate into low CAPM costs of equity. ("Fama-French and Small Company  
33 Cost of Equity Calculations", Business Valuation Review, March 1997)

34  
35 Exhibit 2 referred to in the above quote is attached to this Rebuttal Testimony as Exhibit  
36 MJB-12. This exhibit shows the marked difference in beta values calculated for  
37 companies of different sizes over a long period of time compare to beta values calculated  
38 over a short period of time. It helps to explain the low beta value for Delta reported by  
39 Value Line that is calculated using a short time series and shows that a size adjustment is

1 appropriate for small firms such as Delta. It is important to remember that cost of capital  
2 is a long-term concept and that the goal is to identify a cost of capital that will adequately  
3 compensate shareholders over a long period of time. In his article, Mr. Annin concluded  
4 that:

5 The most alarming result of this analysis is that practitioners using betas for all  
6 but the largest capitalization companies will be potentially understating the cost of  
7 equity using CAPM. In the aggregate, CAPM is understating cost of equity for  
8 small companies. For the period ended December 1995, the smaller the company,  
9 the greater the mismeasurement. Clearly, CAPM is failing to account for size in a  
10 stable fashion. ("Fama-French and Small Company Cost of Equity Calculations",  
11 Business Valuation Review, March 1997)

12  
13 This clearly shows the need to make size adjustments to the cost of capital calculations  
14 for small companies in order to correct for this mismeasurement.

15  
16 Q. DO YOU AGREE WITH THE SIZE ADJUSTMENT MADE BY MR. KING TO HIS  
17 DCF RESULTS?

18 A. No. There are two problems with the way that Mr. King attempted to adjust his DCF  
19 analysis for the size of the firms in his analysis. First, Mr. King utilized the geometric  
20 mean in making the size adjustment rather than the arithmetic mean. Use of the  
21 arithmetic mean is the correct way to make the size adjustment that he is attempting.  
22 Second, Mr. King applied the size adjustment in the aggregate rather than on a company  
23 by company basis based on the actual capitalization of each company.

24 Q. PLEASE EXPLAIN WHY YOU BELIEVE THAT MR. KING SHOULD HAVE USED  
25 THE ARITHMETIC MEAN IN ADJUSTING FOR SIZE RATHER THAN THE  
26 GEOMETRIC MEAN.

27 A. The SBB1 2003 Yearbook, which is published by the same group that Mr. King cites as  
28 the source of the size adjustment on page 13 of his Direct Testimony, states that:

1 The geometric mean is backward-looking, measuring the changes in wealth over  
2 more than one period. On the other hand, the arithmetic mean better represents a  
3 typical performance over single periods and serves as the correct rate for  
4 forecasting, discounting and estimating the cost of capital. (SBBI 2003 Yearbook,  
5 Ibbotson Associates, p. 100)  
6

7 The SBBI 2003 Yearbook goes on to state that:

8 The arithmetic mean is the rate of return which, when compounded over multiple  
9 periods, gives the mean of the probability distribution of ending wealth values. ...  
10 This makes the arithmetic mean return appropriate for forecasting, discounting  
11 and computing the cost of capital. (SBBI 2003 Yearbook, Ibbotson Associates, p.  
12 100)  
13

14 The SBBI 2003 Yearbook concluded that:

15 Therefore, in the investment markets, where returns are described by a probability  
16 distribution, the arithmetic mean is the measure that accounts for uncertainty, and  
17 is the appropriate one for estimating discount rates and the cost of capital. (SBBI  
18 2003 Yearbook, Ibbotson Associates, p. 101)  
19

20 Mr. King provided no rationale for using the geometric mean rather than arithmetic mean  
21 and may have been drawn to the use of the geometric mean because it was lower than the  
22 arithmetic mean and helped him make the case that he was trying make. However, his use  
23 of the geometric mean is inconsistent with the recommendations contained in the SBBI  
24 2003 Yearbook which was the source of the size adjustment that Mr. King used in his  
25 Direct Testimony. Clearly, Mr. King should have used the differences in arithmetic  
26 means rather than the differences in geometric means in making the appropriate size  
27 adjustment.

28 Q. PLEASE EXPLAIN WHY YOU BELIEVE THAT MR. KING'S APPLICATION OF  
29 THE SIZE ADJUSTMENT ON AN AGGREGATE BASIS IS INAPPROPRIATE?

30 A. Mr. King applied the size adjustment in the aggregate rather than on a company by  
31 company basis based on the actual capitalization of each company. On page 13 of his  
32 Direct Testimony, Mr. King stated that:

1 Most of the gas distribution companies that I have used for comparison purposes  
2 are classified as “mid-cap,” with market capitalization in the range of \$1.5 to \$5  
3 billion. Delta, with a market capitalization of about \$75 million, is in the “micro-  
4 cap” range. The University of Chicago study reveals that the historical difference  
5 between the geometric means of the earnings of these two categories of  
6 companies is 1.4 percentage points.  
7

8 In Exhibit CWK-1, Mr. King applies this 1.4% adjustment to the average of the  
9 calculated DCFs for his panel of fifteen companies. In Mr. King's panel, there are 9 mid-  
10 cap companies (companies with a capitalization between \$1,167,040,000 and  
11 \$4,794,027,000), 4 low-cap companies (companies with a capitalization between  
12 \$330,797,000 and \$1,166,799,000), one large-cap company (companies with a  
13 capitalization greater than \$4,794,027,000) and one micro-cap company (companies with  
14 a capitalization less than \$330,797,000). Rather than make a sweeping generalization and  
15 applying the size adjustment to the average of the DCF results, a more accurate result  
16 would have been obtained from making the appropriate size adjustments on a company  
17 by company basis.

18 Q. HAVE YOU CALCULATED THE DIFFERENCE IN THE DCF RESULTS  
19 PRESENTED BY MR. KING IF THE SIZE ADJUSTMENT WERE MADE ON A  
20 COMPANY BY COMPANY BASIS RATHER THAN ON AN AGGREGATE BASIS?

21 A. Yes. As noted above, the use of the geometric mean was incorrect and Mr. King should  
22 have used the difference in the arithmetic means that were reported on page 128 of the  
23 SBBI 2004 Yearbook. Furthermore, rather than generalizing that most companies in the  
24 panel are mid-cap companies, Mr. King should have applied the proper size adjustment  
25 for each company, calculated as the difference in the arithmetic means between large-cap  
26 companies and the other size categories. Calculated in this manner and using the same  
27 data source as Mr. King, the proper size adjustment would be 1.8% for mid-cap



1 companies, 3.3% for low cap companies and 6.6% for micro-cap companies. Exhibit  
2 MJB-13 makes the size appropriate adjustments on an individual company basis to Mr.  
3 King's Exhibit CWK-1. This is more accurate than the sweeping generalization which  
4 Mr. King uses in making his size adjustment. Exhibit MJB-13 shows that, when size  
5 adjustments are made to DCF results on an individual company basis and using the  
6 proper differences in arithmetic means, the average return on equity based on the DCF  
7 methodology using Mr. King's panel would be 12.4%.

8 Q. WHAT WOULD THE RESULT BE FOR DELTA IF THE APPROPRIATE SIZE  
9 ADJUSTMENT HAD BEEN MADE TO DELTA'S DCF RESULTS?

10 A. As shown in Exhibit MJB-13, Delta's estimated return on equity using the appropriate  
11 size adjustment would be 14.5%.

12 Q. IS THIS SIZE ADJUSTED RETURN ON EQUITY REASONABLE FOR DELTA?

13 A. Yes, I believe that it is. The arithmetic mean of annual returns for micro-cap companies  
14 of the NYSE, AMEX and NASDAQ for the period 1926-2003 that is reported on page  
15 128 of the SBBI 2004 Yearbook is 19.0%. This is the same source that Mr. King cited on  
16 page 13 of his Direct Testimony. The 14.5% size adjusted DCF results for Delta are very  
17 reasonable given the average annual returns for micro-cap companies over this long  
18 period of time which includes a number of business cycles, a depression and several  
19 wars.

20 Q. IS THE SIZE PREMIUM ADJUSTMENT THAT MR. KING USED IN HIS DIRECT  
21 TESTIMONY, AND WHICH YOU HAVE CORRECTED ABOVE, THE SAME AS  
22 THE SIZE ADJUSTMENT THAT YOU USED IN YOUR DIRECT TESTIMONY?

1 A. No. The difference between the two types of size adjustments is explained in an excellent  
2 paper by Michael E. Barad titled "Technical Analysis of the Size Premium" that is  
3 available on the Ibbotson website at [http://www.ibbotson.com/content/kc\\_lv11.asp](http://www.ibbotson.com/content/kc_lv11.asp). The  
4 size adjustment that Mr. King used in his testimony and that I corrected above is known  
5 as the "small stock premium". The size adjustment that I used in my Direct Testimony is  
6 known as the "size premium".

7 The "small stock premium" is the difference in arithmetic means between large-cap  
8 stocks and mid-cap, low-cap and micro-cap stocks over the period 1926-2003. It  
9 measures the excess return of mid-cap, low-cap and micro-cap stocks over large-cap  
10 stocks and includes all types of factors contributing to this difference which manifest  
11 themselves based on size.

12 The "size premium" that I used in my Direct Testimony is calculated using a process that  
13 removes the return due to beta and isolates the return attributable solely to size. The "size  
14 premium" provides a size adjustment that can be added to CAPM in estimating the cost  
15 of capital, since the returns due to beta have been removed in deriving this "size  
16 premium". I only used the size premium in my Direct Testimony in adjusting calculated  
17 CAPM results for different sized companies, as is appropriate. Using the "small stock  
18 premium" to adjust DCF results for size is also an appropriate methodology for  
19 calculating the cost of capital using a panel of companies with very different levels of  
20 capitalization.

21 Interestingly, using the small stock premium to adjust the DCF results and the size  
22 premium to adjust the CAPM results produces very similar results as shown in Exhibit  
23 MJB-14. The range for the DCF results for the panel that I used in my Direct Testimony

1 adjusted using the small stock premium is from a high of 16.43% to a low of 9.16% with  
2 a midpoint of 12.8%. The CAPM results range from a high of 14.15% to a low of 10.69%  
3 with a midpoint of 12.4%. One of the things that has concerned a number of return on  
4 equity analysts is the unrealistically low results that are typically produced by the CAPM  
5 model. My analysis shows that the DCF and CAPM models produce consistent results  
6 when the effects of size are properly accounted for. I believe that it has been the lack of  
7 proper accounting for size effects that has caused these differences that have been  
8 observed between CAPM and DCF results.

9 Q. DO YOU THINK THAT THE PANEL MR. KING HAS USED IN HIS ANALYSIS  
10 PROVIDE AN APPROPRIATE "PEER GROUP" FOR DELTA?

11 A. No. The only way that Mr. King's panel can be used to derive meaningful results is if a  
12 size adjustment is made to his calculations. On page 4 of his Direct Testimony, Mr. King  
13 states that:

14 Because of Delta's small size, it has not been as intensively studied by investment  
15 analysts as have other, larger gas distribution companies. For this test, I will  
16 therefore examine a "peer group" of companies in addition to Delta. (emphasis  
17 supplied)

18  
19 It is important to note that there are no companies smaller than Delta included in Mr.  
20 King's panel. In fact, the smallest company in Mr. King's "peer group" is more than twice  
21 as large as Delta based on total capitalization, while the largest company is 85 times as  
22 large as Delta. Even though Mr. King admits that Delta is small, he is reluctant to admit  
23 that a size adjustment is necessary to meaningfully compare this panel to Delta. Given the  
24 considerable size disparity between Delta and the members of Mr. King's "peer group", I  
25 believe that is essential to make the appropriate size adjustments in order to get  
26 comparable results. Without a proper size adjustment, the DCF results for Delta of 7.9%

1 in Exhibit CWK-1 are just 160 basis points above the interest rate of 6.27% for A rated  
2 public utility bonds in December 2003 reported in the April 2004 Mergent Bond Record,  
3 which is a ridiculous result. When the proper size adjustment is added to the DCF results  
4 for Delta, a return on equity of 14.5% is obtained as shown in Exhibit MJB-13. This is a  
5 better reflection of Delta's size and risk. Clearly, because of the significant size difference  
6 between Delta and all of the companies that Mr. King has included in his panel, a size  
7 adjustment is essential if meaningful comparisons are to be made.

8 Q. DO YOU AGREE WITH THE COMPANIES THAT MR. KING HAS INCLUDED IN  
9 THE PANEL SHOULD BE USED IN HIS DCF ANALYSIS?

10 A. No. On page 8 of his Direct Testimony, Mr. King states that;

11 The enterprises likely to have business risks most comparable to Delta are those  
12 engaged in the same business, that is, the distribution of gas to retail customers  
13 under rate base/rate-of-return regulation.  
14

15 However, after making this statement, he includes five companies in his panel that have  
16 significant earnings that are not derived from natural gas distribution. These five  
17 companies are more properly classified as diversified companies, which is how the  
18 Edward Jones report classifies them. If these five companies are eliminated from the  
19 panel, the remaining ten companies in Mr. King's panel are all classified by the Edward  
20 Jones report as gas distribution companies. The five companies that Edward Jones  
21 classified as diversified companies and which should have been excluded from Mr.

22 King's panel are:

23 Energen  
24 KeySpan  
25 NICOR  
26 Southwest Gas  
27 UGI Corp.  
28

1 Q. PLEASE ELABORATE ON WHY YOU BELIEVE THAT THESE FIVE COMPANIES  
2 SHOULD HAVE BEEN EXCLUDED FROM MR. KING'S PANEL.

3 A. Standard & Poor's Stock Report for June 2004 states that Energen is a diversified energy  
4 holding company engaged primarily in the acquisition, development, exploration and  
5 production of oil, natural gas, and natural gas liquids in the continental U.S. and in the  
6 purchase, distribution and sale of natural gas.

7  
8 Standard & Poor's Stock Report for June 2004 states that KeySpan derives only about  
9 52.4% of its operating profit from gas distribution and is also engaged in electric services,  
10 gas exploration and production, and other investments.

11  
12 Standard & Poor's Stock Report for June 2004 states that NICOR has an affiliate named  
13 Tropical Shipping that is one of the largest containerized cargo carriers in the Caribbean  
14 and is also involved in non-traditional natural gas storage and transportation activities  
15 through its Chicago hub.

16  
17 Standard & Poor's Stock Report for June 2004 states that Southwest Gas has two business  
18 segments: natural gas operations and construction services. The Northern Pipeline  
19 Construction Co. subsidiary is a full-service underground piping contractor that provides  
20 utility companies with trenching and installation, replacement and maintenance services  
21 for energy distribution systems.

22  
23 Standard & Poor's Stock Report for June 2004 states that UGI Corp. is a holding  
24 company with two principal business units: AmeriGas Partners, LP which distributes

1 propane throughout the U.S. and UGI Utilities Inc. which owns and operates gas  
2 distribution and electric utilities in eastern Pennsylvania.

3  
4 Although all of these companies do distribute gas as a part of their business, they are  
5 diversified companies which are not similar to Delta. These five companies should have  
6 been excluded from Mr. King's panel.

7  
8 Q. DOES ELIMINATING THESE FIVE COMPANIES FROM THE PANEL MAKE A  
9 DIFFERENCE IN THE DCF RESULTS?

10 A. Yes it does. Exhibit MJB-15 shows the DCF results with the five diversified companies  
11 eliminated from Mr. King's panel and with the size adjustment made correctly on a  
12 company by company basis. The average DCF for the revised panel without adjusting for  
13 size is 10.2%. The average DCF for the revised panel with the size adjustment made on a  
14 company by company basis is 13.1%. This is consistent with the results that I reported in  
15 my Direct Testimony.

16 Q. DO YOU AGREE WITH MR. KING'S USE OF AN AVERAGE STOCK PRICE IN  
17 DETERMINING THE DIVIDEND YIELD IN HIS DCF ANALYSIS?

18 A. Although I do not necessarily disagree with Mr. King's approach, I believe that the use of  
19 the high stock price and low stock price in calculating a range for dividend yield, as I  
20 have done in my Direct Testimony, gives the Commission a better feel for the full range  
21 of DCF results. An average is a point of central tendency which does not adequately  
22 convey the underlying variability in a set of data. I prefer to use the high and low stock

1 price during the test year in calculating the range for dividend yield because I believe that  
2 it provides useful information about the underlying variability of DCF results.

3 Q. DO YOU AGREE WITH MR. KING'S ASSERTION THAT DELTA IS NOT MORE  
4 LEVERAGED THAN OTHER COMPANIES?

5 A. No. When proper comparisons are made, Mr. King's own exhibit does not support his  
6 assertion. It is not clear what data source that Mr. King used to construct Exhibit CWK-2  
7 as this information was not provided in his testimony. Exhibit CWK-2 does not appear to  
8 use the same Edward Jones data that I used in preparing Exhibit MJB-2 as there are  
9 significant differences in the data that I used and the data that Mr. King used. However,  
10 even using the data in Exhibit CWK-2, for the year ending September 30, 2003, Delta is  
11 15th out of the 19 companies in Mr. King's panel. Furthermore, if the five diversified gas  
12 utilities identified above are removed from the panel (as discussed above), Delta would  
13 be the 13th lowest out of 14 companies with respect to its equity ratio (see Exhibit MJB-  
14 16). Mr. King goes on to compare Delta's equity ratio on December 31, 2003 and March  
15 30, 2004 to the equity ratios calculated for the other companies on September 30, 2003,  
16 but these comparisons are not valid. Just as Delta's equity ratio may have changed during  
17 the year, so might the equity ratio change for the other companies. A valid comparison  
18 would involve comparing Delta's equity ratio calculated on December 31, 2003 to the  
19 equity ratio for the other companies calculated on the same date, and Mr. King has not  
20 made such a comparison. Both the data that I provided in MJB-2 and the revision to Mr.  
21 King's Exhibit CWK-2 that is contained in my Exhibit MJB-16 show that Delta has one  
22 of the lowest equity ratios in the panel of natural gas distribution companies.  
23 Furthermore, the only gas distribution company with a lower equity ratio than Delta in

1 Exhibit MJB-15 (AGL Resources) is 17 times larger than Delta with regard to its total  
2 capitalization. I strongly disagree with Mr. King's assertion that Delta is not more highly  
3 leveraged than other companies.

4 Q. DO YOU STILL BELIEVE THAT A LEVERAGE ADJUSTMENT IS APPROPRIATE  
5 FOR DELTA?

6 A. Yes, I do based on the low equity ratio that Delta has relative to other natural gas  
7 distribution companies. As I demonstrated in my Direct Testimony, this low equity ratio  
8 is probably one reason that Delta has consistently under-earned its allowed rate of return.

9 Q. HAS MR. KING ATTEMPTED TO REBUT THE DISCUSSION IN YOUR DIRECT  
10 TESTIMONY ABOUT HOW DELTA'S LOW EQUITY RATIO ADVERSELY  
11 AFFECTS ITS ABILITY TO EARN ITS ALLOWED RATE OF RETURN?

12 A. No, he has not. Rather than try to refute the argument that I made in my Direct Testimony  
13 that Delta's low equity ratio has adversely affected its ability to earn its allowed rate of  
14 return, Mr. King has tried unsuccessfully to support a position that Delta does not have a  
15 low equity ratio.

16 Q. DO YOU AGREE WITH MR. KING'S CAPM CALCULATIONS?

17 A. No, I do not. I disagree with Mr. King's use of a one-year Treasury fixed maturity bond  
18 for the risk free rate, and I disagree with the size adjustment that he uses in his  
19 calculations. As noted above, there are two adjustments that can be made to account for  
20 size effects, the small stock premium and the size premium. The size premium is  
21 calculated using a process that removes the return due to beta and isolates the return  
22 attributable solely to size. The size premium provides a size adjustment that can be added  
23 to CAPM in estimating the cost of capital, since the returns due to beta have been



1 removed in deriving this size premium. The proper size premium for adjusting the CAPM  
2 results of a micro-cap company for size is 4.01% as reported on page 6 of the Risk  
3 Premia Over Time Report: 2004 by Ibbotson Associates, which I used in my Direct  
4 Testimony. The 2.6% that Mr. King uses to adjust for size results from the difference of  
5 geometric means of total returns and is not the correct size adjustment as discussed  
6 above. The proper size premium for micro-cap companies is 4.01% and the proper small  
7 stock premium for micro-cap companies is 6.6% which is the difference of arithmetic  
8 means of total returns between large-cap and micro-cp companies. I believe that the size  
9 premium of 4.01% is the proper adjustment to make with CAPM calculations.

10 I also believe that the interest rate on 20-Year U.S. Treasury bonds is a more appropriate  
11 measure of the risk free rate to use in CAPM calculations. Cost of capital is a long-term  
12 concept and the goal is to identify a rate that will adequately compensate shareholders  
13 over a long period of time. The 1-Year Treasury used by Mr. King is not a long period of  
14 time. Mr. King's observation that the NYSE has an annual turnover rate of over 100  
15 percent does not negate the fact that stocks exist in perpetuity and that cost of capital is a  
16 long-term concept. If Mr. King had used the 5.1% on 20-Year U.S. Treasury bonds on  
17 December 31, 2003 that I used in my Direct Testimony and properly adjusted for size, the  
18 result of the CAPM calculation would be 12.8% as shown in Exhibit MJB-17. It is  
19 interesting to note that the 7.3% risk premium calculated on line 8 of Exhibit MJB-17 is  
20 very close to the reported long horizon expected risk premium of 7.2% reported on page  
21 6 of the Risk Premia Over Time Report: 2004 by Ibbotson Associates. This provides a  
22 further indication that the 20-Year Treasury is the appropriate risk free rate to use in the  
23 CAPM calculation.

1 Q. MR. KING CLAIMS THAT YOU HAVE USED AN IMPROPER GROWTH RATE OF  
2 6.5% IN PERFORMING YOUR ANALYSIS. DO YOU AGREE WITH HIS  
3 ASSERTION?

4 A. Yes and no. On page 7 of his Direct Testimony, Mr. King correctly notes that I  
5 inadvertently used the historic earnings growth rate of 6.5% as the forecasted growth rate.  
6 However, after reviewing pages 14 -16 of Mr. King's Direct Testimony, the growth rate  
7 that I used in error appears to be very reasonable. On pages 14 through 16, Mr. King  
8 calculates a growth rate for use in DCF calculations using the formula:

$$g = (R*B) + (S*V)$$

9 where:

10 R = the fraction of earnings retained by the company, i.e. the retention ratio

11 B = the return on the book value of common equity

12 S = the increase in common shares outstanding that have been sold at market  
13 value, and

14 V = the per-share premium or discount on the shares sold

15  
16 For the five years of data that he used in his growth rate calculation, Mr. King obtained a  
17 value for the first term in the equation of 1.1% annually (Exhibit CWK-3). This 1.1%  
18 growth is the growth that can be expected from retained earnings. For the five years of  
19 data that he used in his growth rate calculation and using the straight, unadjusted  
20 calculation resulting from the formula, Mr. King obtained a value for the second term in  
21 the equation of 7.34% annually (Exhibit CWK-3). This 7.34% annual growth rate  
22 represents the increase in book value per share from issuing new shares. Adding these  
23 two terms together results in an overall earnings growth rate of 8.4% which is well above

1 the 6.5% that I used in my DCF calculations. So in this sense, I would say that the 6.5%  
2 historic growth rate that I inadvertently used is indeed reasonable, and it is proper to use  
3 this 6.5% historic growth rate in my DCF calculations. The historic growth rate is less  
4 than Mr. King's calculated growth rate. Furthermore, Mr. King has provided no reason  
5 why this historic growth rate is unlikely to repeat.

6 Mr. King tries to dismiss the 7.34% average annual growth rate representing the increase  
7 in book value per share from issuing new shares by stating that:

8 The 7.34 percent average for the past five years is not particularly relevant as an  
9 indicator of future growth from new stock issues, as it was heavily influenced by  
10 the sale of 600,000 new shares in 2003. (King Direct Testimony, Page 16, lines  
11 7-9)

12 In his Direct Testimony, Mr. King arbitrarily reduces this component of growth to 3% to  
13 4%. He admits that he assumed this 3% to 4% growth rate and makes no effort to explain  
14 or defend this assumption. Given Delta's low equity ratio, I would say that it is indeed  
15 likely that Delta will issue additional stock in the future in an effort to improve its equity  
16 ratio and that this component of growth should not be arbitrarily adjusted downward.

17 Even using Mr. King's assumed adjustments to this calculated growth rate, the result is a  
18 growth rate of 5.2% to 6.2%. The 6.5% growth rate that I used in my DCF calculations is  
19 closer to this range of growth rates than the 3% growth rate that Mr. King used in his  
20 DCF calculations. Thus, even though I inadvertently used a historic growth rate of 6.5%  
21 in performing my DCF calculations, this 6.5% growth rate seems reasonable for use in  
22 DCF calculations for Delta. I believe that Mr. King's growth rate calculation in Exhibit  
23 CWK-3 supports this conclusion.  
24

1 Q. WHAT WOULD MR. KING'S DCF BOOK VALUE GROWTH RESULTS HAVE  
2 BEEN IF HE HAD REPORTED THE RESULTS OF THE CALCULATION RATHER  
3 THAN MAKING ARBITRARY ADJUSTMENTS?

4 A. Exhibit MJB-18 contains the results of the DCF model using the results calculated from  
5 applying the book value growth formula without making the arbitrary adjustments that  
6 Mr. King made. The result of this straight application of the book value growth formula  
7 for Delta is a 13.3% DCF return.

8 Q. DO YOU AGREE WITH THE WEIGHTING THAT MR. KING USED IN  
9 CALCULATING HIS RECOMMENDED RETURN ON EQUITY FOR DELTA?

10 A. No. On page 20 of his Direct Testimony, Mr. King uses an arbitrary weighting to  
11 calculate his recommended rate of return for Delta. Mr. King does not provide support for  
12 why this arbitrary weighting is appropriate or necessary. I believe that this weighting was  
13 necessary because the results of Mr. King's analysis were either not size adjusted or were  
14 improperly adjusted for size, and some of these results are unreasonably low. The results  
15 that are unreasonably low appear to be given a lower weight. However, if Mr. King had  
16 properly adjusted his results for size, such a weighting would not be necessary.

17 Q. PLEASE SUMMARIZE WHAT MR. KING'S RESULTS WOULD BE IF THEY WERE  
18 PROPERLY SIZE ADJUSTED AND HE HAD USED THE PROPER PEER GROUP  
19 PANEL.

20 A. If Mr. King had used the proper adjustments for size and the proper peer group panel, the  
21 results would have been as follows:

22	DCF Peer Group (Exhibit MJB-15)	13.1%
23	DCF Book Value Growth (Exhibit MJB-18)	13.3%
24	Capital Asset Pricing Model (Exhibit MJB-17)	12.8%

1	DCF Delta <u>Value Line</u> Forecast (Exhibit MJB-15)	<u>14.5%</u>
2	Average	13.4%

3

4 Q. WHAT RETURN ON EQUITY DO YOU RECOMMEND BE UTILIZED IN  
5 CALCULATING THE REVENUE REQUIREMENT IN THIS PROCEEDING?

6 A. I recommend using a 12.5% return on equity in this proceeding. This is well within the  
7 reasonable range as indicated by the analysis in my Direct Testimony and by making the  
8 proper revisions to Mr. King's analysis.

9 Q. DOES THE RETURN ON EQUITY THAT YOU RECOMMEND PRODUCE A  
10 REASONABLE RESULT?

11 A. Yes. As explained in my Direct Testimony, I believe that the use of a 12.5% return on  
12 equity for Delta produces a reasonable result. The arithmetic mean of annual returns for  
13 micro-cap companies of the NYSE, AMEX and NASDAQ for the period 1926-2003 that  
14 is reported on page 128 of the SBBI 2004 Yearbook is 19.0%. Use of a 12.5% return on  
15 equity for Delta is well below this long-run historic average for micro-cap companies.

16 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

17 A. Yes it does.

Exhibit 2

<b>Decile</b>	<b>Largest Co. Capitalization (000)</b>	<b>70 Year Beta</b>	<b>60 Month Beta</b>
<b>1</b>	<b>\$ 107,254,721</b>	<b>0.90</b>	<b>.97</b>
<b>2</b>	<b>\$ 6,351,973</b>	<b>1.04</b>	<b>.99</b>
<b>3</b>	<b>\$ 3,015,265</b>	<b>1.09</b>	<b>.98</b>
<b>4</b>	<b>\$ 1,681,777</b>	<b>1.13</b>	<b>.94</b>
<b>5</b>	<b>\$ 1,045,385</b>	<b>1.17</b>	<b>.97</b>
<b>6</b>	<b>\$ 696,319</b>	<b>1.19</b>	<b>.92</b>
<b>7</b>	<b>\$ 472,301</b>	<b>1.24</b>	<b>.87</b>
<b>8</b>	<b>\$ 300,274</b>	<b>1.29</b>	<b>.83</b>
<b>9</b>	<b>\$ 170,708</b>	<b>1.36</b>	<b>.77</b>
<b>10</b>	<b>\$ 86,222</b>	<b>1.47</b>	<b>.78</b>



Exhibit MJB-11 Revised to Include Small Stock Adjustment for DCF Results

Company Data Source	Beta 1	Dividend 1	Growth Rate		High Stock Price		Low Stock Price		Small Stock premium	DCF High		DCF Low		Size Adjusted DCF Low
			1	2	1	1	1	2		1	2	1	2	
AGL	0.75	\$ 1.11	6.50%	\$ 29.00	\$ 21.90	0.91%	1.80%	11.57%	13.37%	10.33%	12.13%			
Aimos	0.65	\$ 1.20	7.50%	\$ 25.50	\$ 20.80	0.91%	1.80%	13.27%	15.07%	12.21%	14.01%			
Cascade	0.70	\$ 0.96	4.50%	\$ 21.00	\$ 18.00	4.01%	6.60%	9.83%	16.43%	9.07%	15.67%			
Energy South	0.50	\$ 1.14	4.50%	\$ 37.14	\$ 24.59	4.01%	6.60%	9.14%	15.74%	7.57%	14.17%			
Energy West	0.40	\$ 0.41	-2.00%	\$ 9.00	\$ 4.74	4.01%	6.60%	6.65%	13.25%	2.56%	9.16%			
Laclede	0.70	\$ 1.34	5.00%	\$ 29.90	\$ 21.80	1.70%	3.30%	11.15%	14.45%	9.48%	12.78%			
New Jersey Resources	0.70	\$ 1.23	8.00%	\$ 39.30	\$ 30.00	0.91%	3.30%	12.10%	15.40%	11.13%	14.43%			
Northwest Natural Gas	0.60	\$ 1.27	5.00%	\$ 30.80	\$ 24.00	1.70%	1.80%	10.29%	12.09%	9.12%	10.92%			
Peoples	0.75	\$ 2.12	4.00%	\$ 45.30	\$ 34.90	0.91%	1.80%	10.07%	11.87%	8.68%	10.48%			
Piedmont	0.70	\$ 1.66	7.50%	\$ 41.80	\$ 33.20	0.91%	1.80%	12.50%	14.30%	11.47%	13.27%			
RGC	0.50	\$ 1.14	-1.50%	\$ 20.75	\$ 16.99	4.01%	6.60%	5.21%	11.81%	3.99%	10.59%			
South Jersey	0.55	\$ 1.56	6.50%	\$ 39.60	\$ 30.50	1.70%	3.30%	11.61%	14.91%	10.44%	13.74%			
Southern Union	0.90	none												
WGL Holdings	0.70	\$ 1.28	4.00%	\$ 28.80	\$ 23.20	0.91%	1.80%	9.52%	11.32%	8.44%	10.24%			
						High Range		13.27%	16.43%	12.21%	15.67%			
						Low Range		5.21%	11.81%	2.56%	9.16%			

Data Sources:

1. The Value Line Investment Survey - Small and Mid-Cap Edition, Dec. 19, 2003
2. Risk Premium Over Time Report : 2004, Ibbotson Associates, 2004

Size Adjusted Midpoints

12.8%



**CAPM**

11.41%  
10.69%  
14.15%  
12.71%  
11.99%  
11.84%  
11.05%  
11.12%  
11.41%  
11.05%  
12.71%  
10.76%

11.05%

14.15%  
10.69%

**12.4%**

Revised Exhibit CWK-1  
 DCF Results with Diversified Gas Utilities Eliminated and With Size Adjustments Made on a Company by Company Basis

Company	A	B	C	D	E	F	G	H	I	J	Small	Adjusted
	Value Line Dividend 2004	Value Line Dividend 2005	Average Dividend	2004 High	2004 Low	Stock Price Current	Average	Dividend Yield	Value Line Growth Forecast	Indicated DCF Return	Stock Premium	DCF
Delta Natural Gas (000)	1.20	1.22	1.21	27.78	23.00	23.31	24.70	4.9%	3.0%	7.9%	6.6%	14.5%
AGL Resources (2002)	1.12	1.12	1.12	30.60	27.90	28.85	29.12	3.8%	6.5%	10.3%	1.8%	12.1%
Atmos Energy	1.22	1.24	1.23	27.00	24.30	24.98	25.43	4.8%	5.0%	9.8%	1.8%	11.6%
Cascade Natural Gas	0.96	0.96	0.96	23.00	21.00	21.52	21.84	4.4%	9.0%	13.4%	6.6%	20.0%
Laclede Group	1.36	1.36	1.36	31.90	28.30	27.06	29.09	4.7%	5.0%	9.7%	3.3%	13.0%
New Jersey Resources	1.28	1.32	1.30	40.00	36.80	39.80	38.87	3.3%	8.0%	11.3%	3.3%	14.6%
Northwest Natural Gas	1.30	1.33	1.32	33.00	30.00	30.20	31.07	4.2%	4.5%	8.7%	3.3%	12.0%
People's Energy	2.16	2.20	2.18	46.00	41.40	42.38	43.26	5.0%	4.0%	9.0%	1.8%	10.8%
Piedmont Natural Gas	1.72	1.78	1.75	43.80	40.40	42.75	42.32	4.1%	7.5%	11.6%	1.8%	13.4%
South Jersey Industries	1.62	1.67	1.65	42.30	40.20	43.30	41.93	3.9%	6.0%	9.9%	3.3%	13.2%
WGL Holdings	1.30	1.30	1.30	30.10	27.20	29.21	28.84	4.5%	3.5%	8.0%	1.8%	9.8%
Average										<b>10.2%</b>		<b>13.1%</b>

**Revised CWK-2**  
**Diversified Companies Eliminated From the Panel in CWK-2**  
(Dollars in Millions)

	A	B	C	D	E	F	G
	Short-term Debt	Long-term Debt	Preferred Stock	Common Equity	Capital Including S-T Debt	Equity/ Total Capital	Equity/ Capital - S-T Debt
<b>9/30/2003</b>							
AGL Resources	306.4	956.1		710.1	1,972.6	36.0%	42.6%
Atmos Energy	118.6	863.9		857.5	1,840.0	46.6%	49.8%
Cascade Natural Gas Energy West	3.8	142.9		112.6	259.3	43.4%	44.1%
Laclede Group	6.1	14.8		15.3	36.2	42.3%	50.8%
New Jersey Resources	218.2	259.6	1.3	345.3	824.4	41.9%	57.0%
Northwest Natural Gas	185.8	257.9		418.9	862.6	48.6%	61.9%
People's Energy	85.2	500.3		506.3	1,091.8	46.4%	50.3%
Piedmont National	55.9	744.4		862.6	1,662.9	51.9%	53.7%
RGC Resources	555.1	460.0		630.2	1,645.3	38.3%	57.8%
Southern Union	13.0	30.2		33.9	77.1	43.9%	52.9%
South Jersey Industries	251.5	1,611.7		1,176.5	3,039.7	38.7%	42.2%
WGL Holdings	112.8	308.8		299.7	721.3	41.5%	49.3%
Average	166.7	636.7		842.7	1,646.1	51.2%	57.0%
						<b>43.9%</b>	<b>51.5%</b>
Delta Natural Gas (\$000)							
September 30, 2003	17,708	54,824		44,030	116,562	37.8%	44.5%
December 31, 2003	19,358	53,174		44,030	116,562	37.8%	45.3%
March 30, 2004	7,658	53,133		47,080	107,871	43.6%	47.0%

**Revised Exhibit CWK-4  
Revised to Use 20-Year Treasury and Proper Size Premium**

	Source	
3	Yield on 20-year Treasury Bonds, December 2003	5.10%
4	Value Line Median Estimate Dividend Yield, Next 12 Mos.	1.7%
5	Value Line Median Appreciation Potential 3 to 5 Years Hence	50.0%
6	Value Line Appreciation Potential Annualized at 4 Years	10.7%
7	Total Market DCF Return	12.4%
8	CAPM Market Risk Premium	7.3%
9	Delta's beta as per Value Line	0.50
10	Delta's Risk Premium	3.7%
11	Delta's Raw CAPM Return	8.8%
13	Small-size Premium	4.0%
14	Delta's Size-Adjusted CAPM Return	12.8%

5.10%

1.7%

50.0%

10.7%

12.4%

7.3%

0.50

3.7%

8.8%

4.0%

12.8%

Line 5 to 4th Root  
Line 4 + Line 6

Line 7- Line 3

Line 8\*Line 9  
Line 3+Line 10

Line 13-Line 12

Line 11+Line 13

**Revised Exhibit CWK-3**  
**Revised to Use Calculated Growth Rate in DCF Calculation Rather Than Assumed Growth Rate**

	1999	2000	2001	2002	2003	Historical Average
1 Dividend per Share	1.14	1.14	1.14	1.16	1.18	1.18
2 Earnings per Share	0.90	1.42	1.47	1.45	1.46	1.46
3 Earnings Retention Ratio	(0.267)	0.197	0.224	0.200	0.192	0.109
4 Shareholders' Equity	29,912,007	31,297,418	32,754,560	34,182,277	45,892,597	
5 No of Shares Outstanding	2,394,181	2,433,397	2,477,983	2,513,804	2,641,829	
6 Book Value per Share	12.49	12.86	13.22	13.60	17.37	
7 Return on Book Equity	7.20%	11.04%	11.12%	10.66%	8.40%	9.69%
8 Growth from Retained Earnings						1.1%
9 Premium on new shares issued	641,067	652,801	618,313	673,022	13,132,103	
10 Per-share growth from premiums	2.14%	2.09%	1.89%	1.97%	28.61%	7.34%
11 Growth Potential per Share						8.40%
12 Dividend Yield						4.9%
13 DCF Return						<b>13.3%</b>