BEFORE THE
TENNESSEE REGULATORY AUTHORITY

IN RE: PETITION OF THE CONSUMER ADVOCATE TO OPEN AN INVESTIGATION TO

DETERMINE WHETHER ATMOS ENERGY CORP. SHOULD BE REQUIRED BY THE

TENNESSEE REGULATORY AUTHORITY TO APPEAR AND SHOW CAUSE THAT

ATMOS ENERGY CORP. IS NOT OVEREARNING IN VIOLATION OF TENNESSEE LAW

AND THAT IT IS CHARGING RATES THAT ARE JUST AND REASONABLE

DOCKET 05-00258

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PREFILED REBUTTAL TESTIMONY

OF

JERRY KETTLES

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AUGUST 18, 2006

1 **Q: Please describe the contents of your rebuttal testimony.**

2 A: First, I will discuss the capital structures proposed by witnesses Dr. Brown

3 and Dr. Murry. I will then discuss elements of the Capital Asset Pricing Model

4 testimony presented by Dr. Brown and Dr. Murry. Specifically, I will address

5 two claims advanced by Dr. Brown as they impact my analysis. First, I will

6 discuss Dr. Brown's claim that arithmetic averages overstate market returns.

7 Secondly, I will discuss Dr. Brown's claim that only returns on short term

8 treasury notes are acceptable for use as the risk free return component of the

9 CAPM model. In each case, I will show that my implementation of the CAPM is

10 acceptable. I will close my testimony by discussing elements of the witnesses'

11 discounted cash flow model results.

12

13 **Q: Please summarize the recommendations for overall allowed returns**

14 **presented in this case?**

15 A: Dr. Murry proposes a return on total capital of 9.01% based upon a 12%

16 equity return and a 6.03% cost of long-term debt. Dr. Murry's overall return is

17 based upon a capital structure composed of 50% equity and 50% long-term debt.

18 Dr. Brown proposes an overall return of 6.6% based upon his comparable

19 companies capital structure of 44.3% equity, 43.1% long-term debt, and 12.6%

20 short-term debt. Dr. Brown proposes an equity return of 8%, long-term debt cost

21 of 5.52% and short-term debt cost of 5.09%. I propose an overall return of 7.91%

22 based off a capital structure of 56.91% long-term debt and 43.09% equity. I

23 propose an equity return of 10.75% and long-term debt cost of 5.77%.

1   **Capital Structure**

2   **Q: Please describe Dr. Murry's proposed hypothetical capital structure?**

3   A: On pages 12-14 of his Direct Testimony, Dr. Murry proposes a hypothetical

4   capital structure comprised of 50% equity and 50% long-term debt. His

5   justification for proposing a hypothetical structure is that the current capital

6   structure (i) temporarily has a lower equity percentage due to the debt incurred in

7   a corporate acquisition, (ii) has a lower equity percentage than his selected

8   comparable companies and (iii) is temporary because the company plans to

9   increase its equity ratio.

10

11   **Q: On page 14 of his testimony, Dr. Murry cites Value Line as a source for**

12   **data on Atmos' 2006 equity ratio of 43%, what other forecast values for**

13   **Atmos' equity ratio does Value Line provide?**

14   A: Value Line forecasts Atmos' equity ratio for 2007 to be 43%, the same value

15   as their 2006 estimate. For the years 2009-2011, Value Line projects that Atmos

16   will achieve an equity ratio of 45%.

17

18   **Q: What does Atmos project for its equity ratio over the next five years?**

19   A: In response to discovery requests, Atmos projects that it will have an equity

20   ratio of 41.8% in 2007, 43.1% in 2008, 44.4% in 2009 and reach 45.5% equity

21   relative to total capital in 2010. Atmos provided this data in response to MFR 81

22   and a copy is provided as Rebuttal Exhibit JLK-1.

23

1   **Q: What equity ratio can be calculated from data in Atmos' latest 10-Q**

2   **filings?**

3   A: Atmos released its SEC 10-Q filing containing unaudited data for June 30,

4   2006. The filing shows an equity ratio of 43.3% based of shareholder equity of

5    $1,664,556,000, long-term debt of $2,180,752,000 and a total capitalization of

6    $3,845,308,000. This calculation also shows that Atmos' capital structure

7   contains 56.7% long-term debt.

8

9   **Q: How does the June 30, 2006 data from Atmos' most recent 10-Q filing**

10   **compare to its 10-Q filing containing March 31, 2006 data?**

11   A: The June 30, 2006 data shows that Atmos' equity ratio has decreased relative

12   to March 31, 2006 data.   On March 31, 2006 the company reported

13   $1,706,291,000 in shareholder equity and long-term debt of $2,181,120,000

14   resulting in a total capitalization of $3,887,411,000. The March 31, 2006 equity

15   ratio was 43.9%.

16

17   **Q: Does Dr. Murry provide evidence or analysis to show that it is feasible for**

18   **Atmos to achieve a 50% equity ratio in a reasonable period of time?**

19   A: No. I did not find a discussion where he shows that the target equity ratio will

20   be achieved in the near term.

21

22

1 **Q: Do you believe that Dr. Brown's approach to estimating capital structure**

2 **produced results consistent with your recommended capital structure?**

3 A: Yes. While I disagree with the inclusion of short-term debt in the capital

4 structure of Atmos, Dr. Brown's calculations show an equity ratio of 44.3%,

5 which is comparable to my result of 43%.

6

7 **Q: Please summarize your discussion of Dr. Murry's proposed hypothetical**

8 **capital structure.**

9 A: A 50% equity ratio is not supportable given the company's own projections,

10 analyst projections and the ruling of another regulatory agency. The Value Line

11 forecast has Atmos reaching a maximum equity ratio of 43% in 2007 which is

12 consistent with my calculations presented in my direct testimony. In any event,

13 the company's and Value Line projections show that the company will not

14 achieve a 45% equity ratio until between 2009 and 2011.

15

16 **Return on Equity – CAPM Estimates**

17 **Q: What differences exist between the CAPM estimate presented in your**

18 **testimony and the Size Adjusted CAPM calculations presented by Dr.**

19 **Murry?**

20 A: Dr. Murry adds 1.02% to his CAPM estimate to reflect a size premium. We

21 utilize the same measure of β. I use a risk free return of 5.5% compared to his

22 risk free return of 5.35%. The risk premium used in my CAPM formulation is 7%

1   while Dr. Murry uses 7.1%. My CAPM estimates provides an equity return of

2   10.75% compared to size adjusted figure CAPM return of 11.7%

3

4   **Q: What would Dr. Murry's size adjusted CAPM calculation be if he did not**

5   **perform the size adjustment?**

6   A: Simply subtracting the size adjustment of 1.02% from his 11.7% return yields

7   a non-size adjusted CAPM measure of 10.68%. This number is very close to my

8   CAPM result of a 10.75% equity return.

9

10   **Q: On page 19 of his testimony, Dr. Brown characterizes calculations of**

11   **market returns using arithmetic averages as "fool's gold calculations," do**

12   **you agree with this statement?**

13   A: No. For the purpose of implementing the CAPM, the arithmetic average is the

14   preferred technique to measure market returns. For example, Ibbotson Associates

15   notes that arithmetic averages are an appropriate way to measure market returns.

16   Ibbotson Associates write:

17

18   "The arithmetic average equity risk premium can be demonstrated

19   to be most appropriate when discounting future cash flows. For

20   use as the expected equity risk premium in either the CAPM or the

21   building block approach, the arithmetic mean or the simple

22   difference of the arithmetic means of stock market returns and

23   riskless rates is the relevant number. This is because both the

1   CAPM and the building block approach are additive models, in

2   which the cost of capital is the sum of its parts. The geometric

3   average is more appropriate for reporting past performance, since it

4   represents the compound average return."

5

6 I have provided a copy of relevant text from Ibbotson Associates as Rebuttal

7 Exhibit JLK-2.

8

9 **Q: Are you aware of other witnesses before the Authority that have**

10 **supported the use of arithmetic averages to measure market returns.**

11 A: Yes. It is my understanding that Dr. Murry rebutted a similar argument

12 advanced by Dr. Brown in Docket 03-00313. Dr. Roger Morin provided

13 testimony rebutting Dr. Brown's claim that arithmetic averages are inappropriate

14 in Docket 04-00034.

15

16 **Q: On pages 23-24 of Dr. Brown's testimony, he answers the question "Is**

17 **there a way to use long term bonds as a riskless rate?" in the negative, do you**

18 **agree?**

19 A: No. In fact, long term bond rates are often recommended for use as the proxy

20 for risk free return.

21

22 **Q: What sources suggest using rates associated with long-term bonds as the**

23 **risk-free rate used in CAPM analysis?**

1   A: The Ibbotson Associates Valuation Edition 2002 Yearbook notes that U.S.

2   Treasury securities are perceived by investors to lack default risk.   Ibbotson's

3   further suggest that that the term of Treasury security should be chosen to

4   approximate the life of the asset being valued.   Since we are trying to value the

5   equity of a corporate entity, which is expected to have a long time horizon, the

6   appropriate term for the corresponding Treasury bond is long-term.   Ibbotson's

7   notes that either 20 or 30 year Treasury bonds are appropriate.   Copies of the

8   relevant text are found in Rebuttal Exhibit JLK-2.

9

10 **Return on Equity – DCF Estimates**

11 **Q: Please compare the results of your DCF analysis compared to Dr.**

12 **Murry's DCF results.**

13 A: I believe that the results stemming from my use of the DCF model are similar

14 to those produced by Dr. Murry.   For example, I choose to use the known full

15 year dividend paid for 2005 of $1.25 in my yield calculations.   Dr. Murry utilized

16 a value of $1.26, which appears in his schedules in columns labeled 2006

17 dividend or current dividend.   As our dividends differ by only $0.01, our yield

18 calculations, when looking at the same time period of stock prices, are very

19 similar.

20

21 Some differences, though not significant, arise from using different growth rates.

22 With respect to our DCF estimates using earnings per share growth, I utilized the

23 estimated growth rate for 2003-2005 to 2009-2011 provided by Value Line of 7%.

1   While Dr. Murry utilizes the 7% Value Line statistic, several of his calculations

2   utilize a growth rate for earnings per share of 7.38%. As shown on his schedules

3   DAM-19 and DAM-20, the 7.38% growth rate is derived using a longer time

4   period, 2000-2002 to 2009-2011, than the time period used to develop the 7%

5   growth rate.

6

7   **Q: Does this conclude your testimony?**
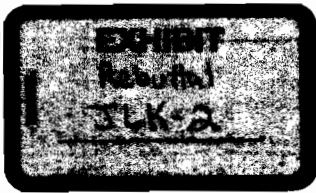
8   A: Yes.

81. Provide copies of the LDC's projected annual equity ratio for the next five (5) fiscal years.

Response:

Atmos Energy Corporation
Projected Equity Ratio

	2006	**2007**	**2008**	**2009**	**2010**	
Equity to Total Capital	40.5%	41.8%	43.1%	44.4%	45.5%	

Bryan Stroud

decrease, causing its yield to increase correspondingly, as its coupon payment remains the same. The newly priced outstanding bond will subsequently attract purchasers who will benefit from the shift in price and yield; however, those investors who already held the bond will suffer a capital loss due to the fall in price.

Anticipated changes in yields are assessed by the market and figured into the price of a bond. Future changes in yields that are not anticipated will cause the price of the bond to adjust accordingly. Price changes in bonds due to unanticipated changes in yields introduce price risk into the total return. Therefore, the total return on the bond series does not represent the riskless rate of return. There is no evidence that investors expect the historical trend of bond capital losses to be repeated in the future (otherwise, bond prices would be adjusted accordingly). Therefore, historical total returns are biased downward as indicators of future expectations. The income return better represents the unbiased estimate of the purely riskless rate of return, since an investor can hold a bond to maturity and be entitled to the income return with no capital loss.

Arithmetic versus Geometric Means

The equity risk premium data presented in this book are arithmetic average risk premia as opposed to geometric average risk premia. The arithmetic average equity risk premium can be demonstrated to be most appropriate when discounting future cash flows. For use as the expected equity risk premium in either the CAPM or the building block approach, the arithmetic mean or the simple difference of the arithmetic means of stock market returns and riskless rates is the relevant number. This is because both the CAPM and the building block approach are additive models, in which the cost of capital is the sum of its parts. The geometric average is more appropriate for reporting past performance, since it represents the compound average return.

The argument for using the arithmetic average is quite straightforward. In looking at projected cash flows, the equity risk premium that should be employed is the equity risk premium that is expected to actually be incurred over the future time periods. Graph 5-3 shows the realized equity risk premium for each year based on the returns of the S&P 500 and the income return on long-term government bonds. (The actual, observed difference between the return on the stock market and the riskless rate is known as the realized equity risk premium.) There is considerable volatility in the year-by-year statistics. At times the realized equity risk premium is even negative.

Since the CAPM has only three variables—the expected return on the riskless asset, the beta of the stock, and the expected equity risk premium—it is one of the easiest models to implement in practice. However, an estimate of each of the above three variables must be formed. Like all components of the cost of capital, these variables should be measured on a forward-looking basis. Chapters 5 and 6 are devoted to estimating the equity risk premium and beta, respectively. Factors to consider in estimating the riskless rate are covered below.

Risk-Free Rate

The CAPM implicitly assumes the presence of a single riskless asset, that is, an asset perceived by all investors as having no risk. A common choice for the nominal riskless rate is the yield on a U.S. Treasury security. The ability of the U.S. government to create money to fulfill its debt obligations under virtually any scenario makes U.S. Treasury securities practically default-free. While interest rate changes cause government obligations to fluctuate in price, investors face essentially no default risk as to either coupon payment or return of principal.

The horizon of the chosen Treasury security should match the horizon of whatever is being valued. When valuing a business that is being treated as a going concern, the appropriate Treasury yield should be that of a long-term Treasury bond. Note that the horizon is a function of the investment, not the investor. If an investor plans to hold stock in a company for only five years, the yield on a five-year Treasury note would not be appropriate since the company will continue to exist beyond those five years.

In February of 1977 the Treasury began to issue 30-year Treasury securities. Prior to this date, the longest-term Treasury security was 20 years. To remain consistent with Ibbotson's historical data series, the *Stocks, Bonds, Bills, and Inflation Yearbook* continues to base the yield for its long-term government bond on one with close to 20 years to maturity. Differences in the yields of these long-term instruments tend to be very small. Therefore, it would be appropriate to use either maturity bond to represent a long-term riskless rate. Table 4-1 shows the current yields for several different horizons.

Table 4-1

Current Yields or Expected Riskless Rates
December 31, 2001

	Yield (Riskless Rate)*
Long-Term (30-year) U.S. Treasury Coupon Bond Yield	5.5%
Long-Term (20-year) U.S. Treasury Coupon Bond Yield	5.8%
Intermediate-Term (5-year) U.S. Treasury Coupon Note Yield	4.4%
Short-term (30-day) U.S. Treasury Bill Yield	1.6%

*Maturities are approximate.

Should the yield on a Treasury bond or a Treasury strip be used to represent the riskless rate? In most cases the yield on a Treasury coupon bond is most appropriate. If the asset being measured spins off cash periodically, the Treasury bond most closely replicates this characteristic. On the other hand, if the asset being measured provides a single payoff at the end of a specified term, the yield on a Treasury Strip would be more appropriate.