1 | **I.   *Introduction***

2

3

4 Q_1.   **Please state your name.**

5

6 A_1.   Steve Brown.

7

8 Q_2.   **Where do you work?**

9

10 A_2.   I work in the Office of the Attorney
11   General.

12

13 Q_3.   **What is your job title?**

14

15 A_3.   I have been the Economist in the
16   Consumer Advocate and Protection
17   Division since 1995. A statement of my
18   credentials appears later.

19

20 | *II. Opinions*

21

22 Q_4.   **Please give your opinions on what the just**
23   **and reasonable rates are for Tennessee's**
24   **ratepayers receiving natural-gas**
25   **distribution service from Atmos.**

26

1   **A_4**.   Tennessee's ratepayers must provide a
2   reasonable equity return to the providers
3   of natural-gas distribution services, but
4   such a return must be based on verified
5   information, and the return must be free
6   from the influence of capital-gains
7   speculation.
8
9   In my opinion Tennessee's ratepayers are
10   obliged to fund Atmos's investments
11   through a return to equity motivated by
12   wealth-creation through dividends rather
13   than wealth-creation through capital-gains
14   speculation. Tennesseeans should bear an
15   overall capital cost of 6.6%, and no more.
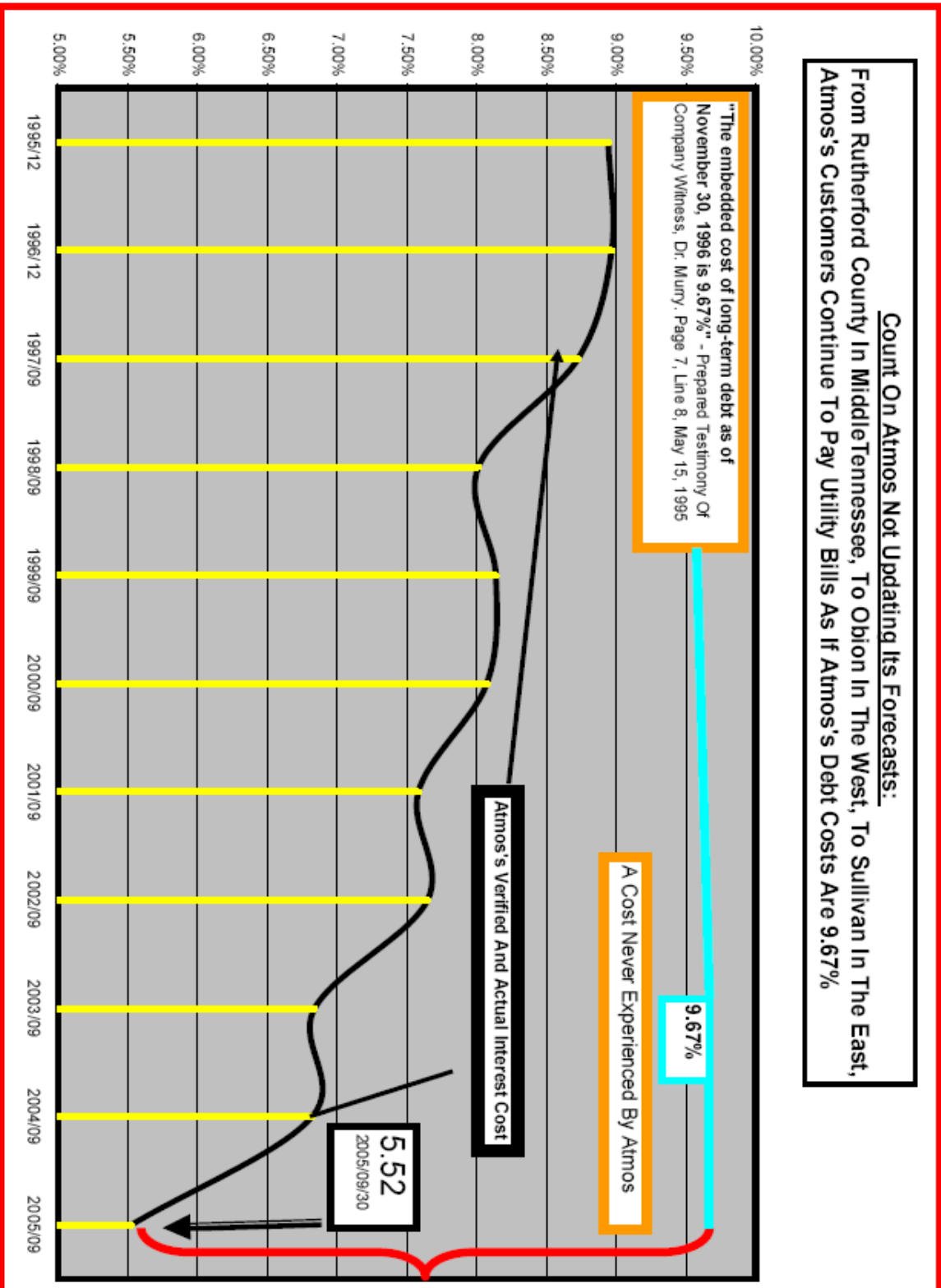16
17   The capital-cost components are 8% to
18   equity, 5.52% to long term debt, and 5.09%
19   to short term debt. These capital costs
20   apply to a capital structure composed of
21   44.3% equity, 43.1% long term debt, and
22   12.6% short term debt, which sum to 100%.
23
24   The costs and capital structure are shown
25   in my Schedule 1. If Tennessee's
26   ratepayers have to fund Atmos at a rate
27   more than 6.6%, the increase represents
28   profit achieved through capital-gains
29   speculation rather than profit through
30   dividend payments. Such an increase is not
31   necessary because Atmos is a low-risk
32   company.
33

1   The capital cost embodies verified data
2   from the United States Securities And
3   Exchange Commission. In my opinion the
4   best forecast of future financial
5   performance is past performance. Atmos has
6   publicly declared that it has no
7   obligation or duty to update forecasts of
8   future financial performance, whether such
9   performance relates to Tennessee or any
10 state where Atmos operates.
11
12 My Schedule 2 places into the record the
13 fair-warning that Atmos gives to investors
14 and consumers. Having issued its warning,
15 Atmos is to be taken at its word. Thus my
16 opinion on just and reasonable rates is
17 based on verified information. Otherwise,
18 Tennessee's ratepayers have no protection
19 from arbitrary financial predictions. In
20 the marketplace a competitive environment
21 protects consumers from having to pay
22 wayward prices for services because
23 competition gives consumers a choice of
24 suppliers. Atmos is a monopoly, facing no
25 competition from any other natural-gas
26 distributor. Thus Atmos's financial
27 forecasts are not a reasonable basis for
28 setting prices to ratepayers in Tennessee.
29 In the past Atmos made good on its
30 warning, never updating its bills to
31 consumers to account for the company's
32 declining interest costs, which are shown
33 in the next page of my testimony.

Count On Atmos Not Updating Its Forecasts:
From Rutherford County In Middle Tennessee, To Obion In The West, To Sullivan In The East, Atmos's Customers Continue To Pay Utility Bills As If Atmos's Debt Costs Are 9.67%

"The embedded cost of long-term debt as of November 30, 1996 is 9.67%" - Prepared Testimony Of Company Witness, Dr. Murry, Page 7, Line 8, May 15, 1995

A Cost Never Experienced By Atmos

9.67%

Atmos's Verified And Actual Interest Cost

5.52
2005/09/30

10.00%
9.50%
9.00%
8.50%
8.00%
7.50%
7.00%
6.50%
6.00%
5.50%
5.00%

1995/12
1996/12
1997/09
1998/09
1999/09
2000/09
2001/09
2002/09
2003/09
2004/09
2005/09

1   Atmos has not lowered its rates in over 11
2   years, but it has, like all natural-gas
3   distributors, raised its dividends to
4   stockholders. However, my research for this
5   case has led me to discover that only 37% of
6   publicly-traded companies pay dividends to
7   their stock holders. The other companies
8   rely on capital-gains to reward their
9   stockholders. Thus, Atmos's need for an
10 equity return must be judged according to
11 its need to maintain stockholders' dividend
12 payments, not according to Atmos's desire to
13 offer capital-gains to its stockholders. In
14 fact, the Federal Reserve Board's transcript
15 from its Open Market Committee Meeting of
16 March 22, 1994 says in part at page 40:
17 "Everything we know about markets is that
18 abnormal rates of return, especially those
19 built on capital gains, cannot persist."
20 Therefore, I pared away economic data
21 dominated by capital-gains speculation until
22 the data was reduced to a reliable core for
23 Tennessee's ratepayers.
24
25 Setting just and reasonable rates requires
26 the selection of companies comparable to the
27 company whose rates are in question. The
28 "comparable companies" method for rate-
29 setting is a long-standing regulatory
30 principle which has the effect of preventing
31 the arbitrary determination of equity costs.
32

1   Unique or arbitrary conditions that may
2   affect Atmos's financial behavior are
3   avoided when the opinions are founded on
4   the behavior of the comparables. The use
5   of "comparables" for regulatory-decision
6   making is akin to judging behavior
7   according to rules rather than judging
8   behavior according to the identity of the
9   company. Although nothing in rate-setting
10 is absolute and inflexible, the
11 "comparable companies" method is a tried-
12 and-true measure for arriving at just and
13 reasonable rates.
14
15 I have chosen 10 companies to form a
16 comparable group. They are AGL Resources,
17 KeySpan, LaClede Group, New Jersey
18 Resources, NICOR, Northwest Natural Gas
19 Company, Peoples Energy Corporation,
20 Piedmont, Southwest Gas Corporation, and
21 WGL Holdings. These are the same companies
22 I chose in CAPD's show-cause filing of
23 September 15, 2005 regarding Atmos. These
24 are also the companies which the Tennessee
25 Regulatory Authority accepted as forming a
26 comparable group in Docket 04-00034 to
27 assess the proposed rates of Chattanooga
28 Gas, a subsidiary of AGL Resources.
29 However, in this docket AGL Resources is
30 in the comparable group and Atmos is the
31 company whose rates are being assessed.
32

1   My Schedule 3, pages 1 to 10, displays the
2   capital structures for each company for
3   each fiscal year from 2003 to 2005. More
4   specifically, the capital structure is
5   taken from each comparable company's SEC
6   form 10-K for each comparable company's
7   most recent fiscal year. Each form 10-K
8   has the benefit of being audited. I use
9   the SEC's data as a means of building in
10 accountability and objectivity into the
11 capital structure, and limiting the
12 capital structure to data verified by
13 auditors who are independent of the
14 company. Also, the three-year period
15 generally matches the Authority's rate-
16 case guidelines calling for three years of
17 historical data.
18
19 My Schedule 4 displays a short-term debt
20 cost of 5.09%. Short-term debt cost is
21 determined directly by the Federal Reserve
22 Board. In January 2002 short-term debt
23 cost dropped below 2%, moved to a minimum
24 of 1% a year later, and did not return to
25 2% again until November 2004, when the
26 Reserve Board appeared to change course by
27 raising interest rates. The cost of 5.09%
28 in my Schedule 4 is reasonable given the
29 change in the Board's policy.
30

1   My Schedule 5 displays Atmos's current
2   cost of long-term debt cost of 5.52%. Data
3   at the top of the schedule ties directly
4   to the long-term debt displayed in a
5   portion of Atmos's SEC 10-K filing, which
6   is shown in the bottom half of Schedule 5.
7
8   My Schedule 6 displays one method I
9   employed to determine the appropriate
10   equity return. I used the traditional
11   Discounted Cash Flow (DCF) method,
12   where equity cost is the sum of a
13   dividend yield and dividend growth.
14   The DCF analysis suggests a reasonable
15   equity return of 8%, which is close to
16   the top of the range, shown on the
17   schedule in the lower right, under the
18   column named "Range Of Suggested DCF
19   Equity Returns To The Stock Holder."
20
21   In my opinion the DCF is a sound
22   model, not easily construed to give
23   results far from the mainstream.
24   Dividends and dividend yields are well
25   tracked by web sites, newspapers,
26   newsletters, and other forms of the
27   popular press. In my opinion the
28   public availability of the inputs and
29   the ease with which they can be
30   applied explain why the model appears
31   in every rate case and in every
32   jurisdiction.
33

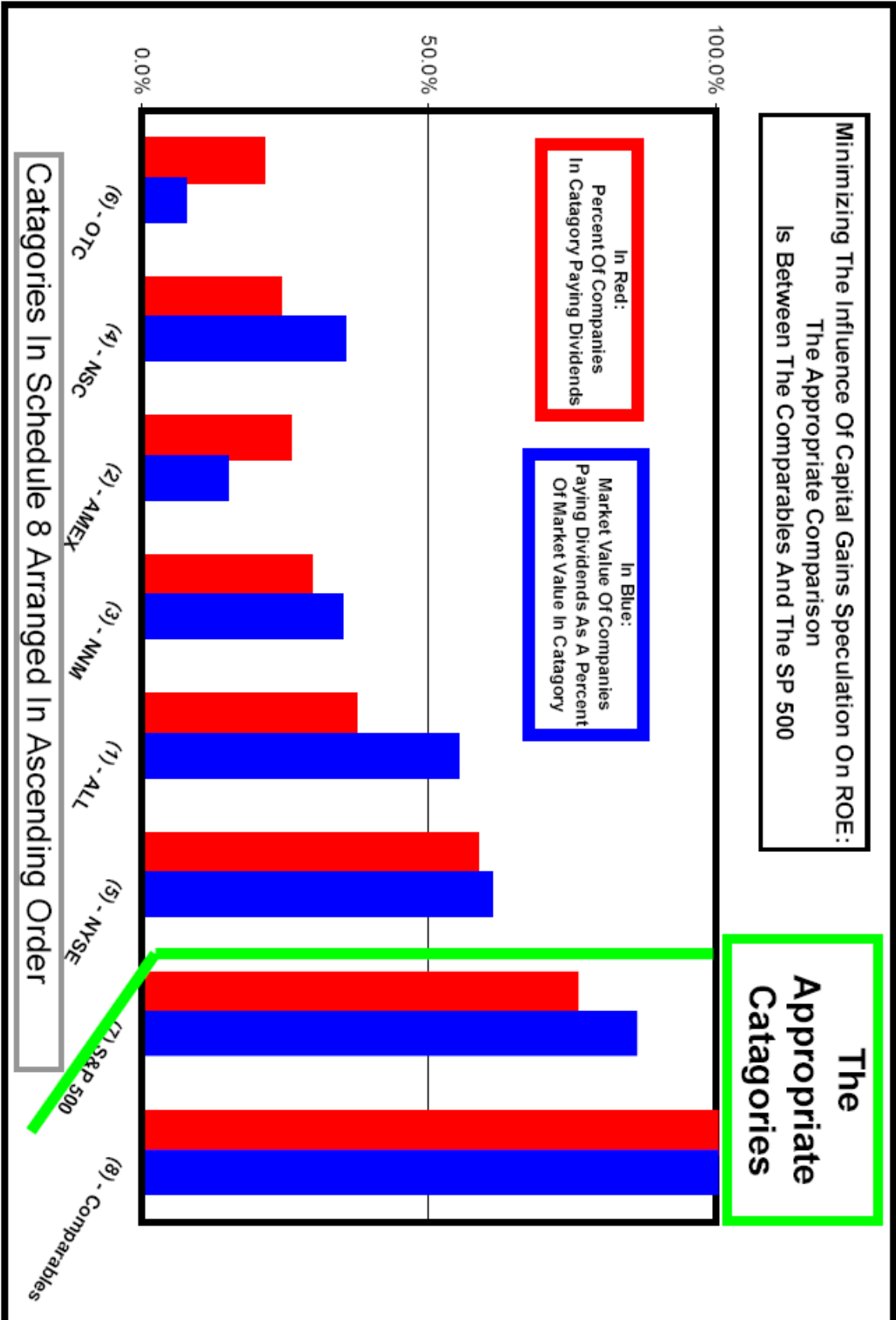|		
1	Q_5.	**What further evidence supports your**
2		**opinion that 8% is a reasonable equity**
3		**return?**
4		
5	A_5.	In my opinion there is ample evidence.
6		The return of 8% is well above Atmos's
7		debt cost of 5.52%. My Schedule 7
8		substantiates that the natural-gas
9		distributors consider the steady
10		payment of a dividend as a driving
11		force in their behavior. I found
12		nothing to indicate that capital-gains
13		are a motivating financial concern.
14		
15		Therefore, my opinion is that the
16		reasonableness of an 8% return should
17		be judged against other dividend-
18		paying companies. To that end I
19		constructed my Schedule 8. It is based
20		on data for over 6000 companies in the
21		Morningstar online-data-base which
22		maintains a five-year history of
23		financial data found in annual SEC
24		Form 10-K reports filed with the
25		Securities and Exchange Commission by
26		companies throughout the United
27		States.
28		

1   Schedule 8 has eight large data boxes
2   numbered (1) through (8) for eight
3   different sets of companies. Each box
4   number has a description under it, and
5   under the description are five columns
6   of data for the specific group of
7   companies in the box.
8
9   For example, Schedule 8's lower left
10   side displays a box labeled "(5) –
11   NYSE" for the New York Stock Exchange.
12   Underneath that label is the
13   description "NYSE – 1980 Companies
14   With A Market Value Of $21,680
15   Billion." Just below the description,
16   on the left, is a column labeled
17   "Percent of NYSE Companies Paying
18   Dividends." Beneath the label is the
19   figure of "58%." To the left of the
20   "58%" figure is the term "Current."
21   The economic meaning is that just 58%
22   of the NYSE equity-listed companies
23   paid dividends to their stockholders
24   in the Fiscal Year 2005, which most
25   often ends in December. The rest of
26   the companies relied on capital gains
27   to reward their shareholders, which
28   means the shareholder gets no reward
29   unless the stock is sold.
30

1   To the right of "58%" is the figure of
2   "61%" which indicates that the
3   dividend-paying companies accounted
4   for 61% of the market value of the
5   NYSE equity-listed companies Fiscal
6   Year 2005. To the right of "61%" is
7   the figure of "1.89%" which is the
8   median dividend yield of the NYSE's
9   dividend-paying companies. To the
10   right of "1.89%" is the figure of "9%"
11   which is the median dividend growth of
12   the dividend-paying companies.
13   Finally, to the right of "9%" is the
14   figure of "32%" which is the median
15   dividend payout of the dividend-paying
16   companies. Each data box is read in
17   the same way.
18
19   Many companies do not make dividend
20   payments, and thus are unlike Atmos
21   and the comparable companies. An 8%
22   equity return for Atmos is
23   appropriately evaluated as just and
24   reasonable by looking to a group of
25   companies most like the comparables.
26   That group is the S&P 500 because most
27   of its companies pay dividends, shown
28   as the data in box 7: "(7) – S&P 500."
29   The chart on the next page displays
30   Schedule 8's data and plainly shows
31   the close similarity of the S&P 500 to
32   the comparable group.
33

Minimizing The Influence Of Capital Gains Speculation On ROE:
The Appropriate Comparison
Is Between The Comparables And The SP 500

In Red:
Percent Of Companies
In Catagory Paying Dividends

In Blue:
Market Value Of Companies
Paying Dividends As A Percent
Of Market Value In Catagory

The
Appropriate
Catagories

Catagories In Schedule 8 Arranged In Ascending Order

Category	
(6) - OTC	
(4) - NSC	
(2) - AMEX	
(3) - NNM	
(1) - ALL	
(5) - NYSE	
(7) - S&P 500	
(8) - Comparables	

0.0% 50.0% 100.0%

1

1

2   A major difference between the two

3   groups lies in the dividend yield and

4   dividend growth. The S&P 500 has a

5   dividend yield of only 1.54%, well

6   below the 4.18% yield for the

7   comparable group. On the other hand,

8   S&P 500 has a dividend growth rate of

9   11% but the comparable group has a

10   growth rate of just over 2%. The low

11   growth rate combined with high yield

12   is a sign that the comparable

13   companies are low risk in comparison

14   to the broader group.

15

16 Q_6.   **In your opinion is Morningstar's data**

17   **accurate and complete?**

18

19 A_6.   Yes. In my opinion the data is

20   accurate and complete.

21

22   For example, my Schedule 9 is drawn

23   from Morningstar's data and provides

24   another reason to employ the S&P500 as

25   a standard: it has representation from

26   the NYSE and the NASDAQ and the

27   distribution of market values closely

28   matches the distribution of market

29   values across the various markets.

30

1   My Schedule 10 shows that a steady
2   stream of high returns is not typical
3   in the economy, as shown by the S&P
4   500 and the Dow Jones 30 Industrial
5   Index, both of which use NASDAQ and
6   NYSE companies.
7
8   My Schedule 11 displays certain
9   comments at the NASDAQ website
10   regarding the S&P 500 index and the
11   NYSE Composite Index, which I note
12   that Atmos has relied on in the past.
13
14   My Schedule 12 displays betas from the
15   NASDAQ website and further shows that
16   NASDAQ uses the S&P 500 to calculate
17   betas, a standard measure of risk. The
18   values of the betas, which average
19   only .34, confirm that the comparable
20   group and Atmos are low-risk companies
21   in comparison to the market as a
22   whole. According to the beta, the
23   comparable group is only one-third as
24   risky as the broader market, and Atmos
25   is only one-fourth as risky as the
26   broader market.
27
28   My Schedule 13 pages 1 to 11 display
29   web pages at NASDAQ, showing the betas
30   for each company in the comparable
31   group and Atmos.
32

1		NASDAQ's betas are an input in my Risk
2		Premium model.
3		
4	Q_7.	**What is the Risk Premium model?**
5		
6	A_7.	The model is meant to assure that the
7		equity return should have a premium
8		over debt cost. Equity investments are
9		riskier than debt because equity
10		investments occasionally lose money,
11		thus equity investors require a risk
12		premium or a higher return than debt.
13		For example, equity holders are last
14		in line for the distribution of
15		earnings and also last in line for
16		distribution of liquidation proceeds.
17		In both cases the debt holders are
18		paid first. Any funds left are
19		distributed to the equity holders.
20		Therefore, the cost of equity is the
21		debt yield plus a risk premium for the
22		company.
23		
24	Q_8.	**What is the procedure for deriving the**
25		**cost of equity from this risk premium**
26		**model?**
27		
28	A_8.	The procedure has six steps:
29		
30		1. Estimate the market's
31		current cost of debt - K_d.
32		

1   2. Estimate market-wide rate

2   of return for common equity -

3   R_m.

4

5   3. Estimate the market-wide

6   risk-free investment - R_f.

7

8   4. Take the difference

9   between steps 2 and 3

10

11   5. Multiply the difference by

12   a "Beta" - B_e.

13

14   6. Add the result of step 5

15   to the debt cost in step 1.

16   The result is the estimated

17   cost of equity from the risk

18   premium model

19

20         $K_e = K_d + (B_e)*(R_m-R_f)$

21

22

23   My Schedule 14 shows the results:

24

25   8.0% = 5.92% + 0.332(9.93% - 3.72%)

26

27

28 **Q_9.**   **What do you use to estimate Kd, the**

29   **market's current cost of debt?**

30

31 **A_9.**   I use 5.92%, as shown in my Schedule

32   15. Atmos has said in its most recent

33   SEC 10-K that its bonds are

1 "investment grade," which corresponds
2 to "triple A" or "AAA" rating. The
3 rates in Schedule 15 are very recent
4 rates from the Federal Reserve Board,
5 and capture the Reserve Board's recent
6 decisions raising interest rates, just
7 as my Schedule 4 does. Even though
8 Atmos's long term debt cost is 5.52%,
9 the market's current cost of debt is
10 just that, a market rate and not a
11 specific company's cost.
12
13 Q_10. **What do you use to estimate R_m,**
14 **market-wide rate of return for common**
15 **equity?**
16
17 A_10. My Schedule 16, near the bottom,
18 displays a figure of 9.93%, the actual
19 historical returns to the S&P500 since
20 1925. This figure is taken from
21 Ibbotson Associates Yearbook- Stocks
22 Bonds, Bills and Inflation for 2005,
23 as noted at the bottom of the
24 Schedule. The Ibbotson Associates
25 Yearbook for 2005, page 61, describes
26 the index: "The large company stock
27 total return index is based upon the
28 S&P Composite Index. This index is
29 readily available, carefully
30 constructed, market-value-weighted
31 benchmark of large company stock
32 performance…Currently, the S&P
33 Composite Index includes 500 of the

1   largest stocks (in terms of stock
2   market value) in the United States."
3
4 Q_11.   **Why are you using historical data to**
5   **estimate the risk premium?**
6
7 A_11.   Historical data provides a way to
8   smooth out the wild fluctuations in
9   the risk premium, which is the
10   difference between the risk-free
11   return and market return to common
12   equity. Since return to debt is fairly
13   stable, the fluctuations are caused by
14   the wide swings in the return to
15   equity. For example, if the return to
16   common equity is large in one year, so
17   is the premium, if the return is small
18   the next year, the premium will be
19   negative.
20
21 Q_12.   **Why are you using the years from 1925**
22   **through 2004 to measure the risk**
23   **premium?**
24
25 A_12.   Ibbotson provides historical
26   information on the risk premium from
27   1925 through 2004, and these years
28   represent the entire term for which
29   information is available. Using the
30   entire data avoids any element of
31   subjectivity that may influence the
32   selection of only a portion of the
33   data.

1

2 Q_13.   **Why are you using 9.93% as the**
3   **estimate of the market-wide rate of**
4   **return to common equity?**

5

6 A_13.   I use that figure because it
7   represents normal performance in the
8   market: 9.93% is the actual annual
9   rate of growth in the value of the S&P
10   500 companies. One dollar invested in
11   the S&P at year end 1925, with
12   dividends reinvested, grew to $2533.20
13   by year end 2004; this represents a
14   compound annual growth rate of 9.93%.
15   The year-by-year change is shown
16   columns 3 and 6.

17

18   In my Schedule 16 the figure of 9.93%
19   contrasts with figure of 12.39%, which
20   is an "arithmetic average" of
21   percentage changes, otherwise known as
22   a "fool's gold" calculation.

23

24 Q_14.   **Why is the figure "12.39%" a "fool's**
25   **gold" calculation?**

26

27 A_14.   The figure is a "fool's gold"
28   calculation because it overstates the
29   true percentage increase when
30   percentage increases are averaged with
31   percentage decreases.

32

1 Here is an example of the "fool's
2 gold" calculation. If I bought a stock
3 two years ago for $1000 and the market
4 price declined to $500, I would have a
5 loss of 50% in that year. If by a
6 miracle the stock climbed back to
7 $1000 the next year, I would have a
8 100% gain even though I have the same
9 amount of money I started with.
10
11 If I took that to a bank and asked for
12 a loan on the basis of my percent
13 gain, I think I would be turned down.
14 The average gain over two years is the
15 "arithmetic" mean, which is 25%, i.e.,
16 (-50% + 100%)/2. Any historical record
17 averaging percentage losses and
18 percentage gains to get an average
19 percent increase always overestimates
20 the true gain.
21

1   The calculation is accurate only in
2   the case where there have always been
3   gains. In this situation the average
4   return and the "fool's gold"
5   calculation are identical. A
6   divergence between the two numbers
7   indicates that in some years there
8   were no gains and losses. The greater
9   the divergence, the greater the losses
10   in the market. The difference between
11   "9.93%" and "12.39%" in my Schedule 15
12   indicates plenty of losses over the
13   years.
14
15   **Q_15.**   **What represents the market-wide risk-**
16   **free investment, R_f?**
17
18   **A_15.**   I am using the three-month U.S.
19   Treasury bills displayed in my
20   Schedule 17.
21
22   **Q_16.**   **What is the market-wide risk free rate**
23   **of return, R_f, based on three-month**
24   **bills?**
25
26   **A_16.**   The risk free rate is 3.72%, which is
27   the annual growth rate in the value of
28   the three-month treasury bills from
29   1926 to 2004. Therefore, the time
30   frame of the risk-free rate matches
31   the time frame of the market-wide
32   return to common equity. Schedule 16
33   shows the 79 year history for returns

1 to Treasury bills, and in the entire
2 time there is no loss. The "fool's
3 gold" calculation displays an
4 "arithmetic average" of 3.76%. It is
5 slightly higher than the actual rate
6 because there were no gains in several
7 years. The three-month rate is the
8 best measure of a riskless rate
9 because it is the shortest-term rate.
10
11 Q_17. **Does the risk premium model require**
12 **that the risk free rate be based on**
13 **long term debt or on short term debt?**
14
15 A_17. Neither one is required because the
16 term of the debt is not material. The
17 critical aspect is that the debt must
18 be risk free.
19
20 Q_18. **Why is the three-month treasury bill the**
21 **best measure of a riskless rate?**
22
23 A_18. There are three reasons:
24
25 1. The three-month bill is a debt
26 instrument. This fits with the
27 risk premium's basic premise: the
28 return to debt is less than the
29 equity return and equity return is
30 determined by referencing debt.
31

1   2. Of all the other debt
2   instruments measures that could be
3   used -- long-term corporate bonds,
4   long-term government bonds, and
5   intermediate term government bonds
6   -- the three-month bill provides
7   the lowest rate. This is
8   consistent with the financial
9   concept that rates decline as risk
10 declines, and risk declines as the
11 the duration of the note declines.
12
13 3. A three-month bill is free from
14 losses but the other debt
15 instruments are not, i.e., they
16 are riskier forms of investment
17 than the three-month bill, which
18 is why their rates are higher. Of
19 all the debt instruments, the
20 three-month bill is the safest.
21
22 Investors are also absolutely
23 certain of what cash flows will be
24 received and when they will be
25 received. Unlike the other debt
26 instruments, the three-month bill
27 carries no risk of default or loss
28 of principal.
29
30 Q_19. **Is there a way to use long term bonds**
31   **as a riskless rate?**
32

1 **A_19**.   No. Long term bonds could be used as a
2   riskless rate if the bonds were truly
3   riskless but that is not the case.
4
5 **Q_20**.   **What is the Consumer Advocate's**
6   **position on rate design?**
7
8 **A_20**.   The Consumer Advocate has generally
9   supported across-the-board rate
10   changes. At this time however, the
11   Consumer Advocate has not seen any
12   evidence that would suggest the need
13   to alter the across-the-board
14   approach.
15
16
17
18
19
20   This completes my testimony at this time
21

22 ### III.   *Statement of Credentials and*
23   *Experience*

24
25 **Q_21**.   **What experience do you have regarding**
26   **utilities?**
27
28 **A_21**.   In 1995 I began work as an economist
29   in the Consumer Advocate and
30   Protection Division (CAPD) of the
31   Attorney General's Office. I have also
32   appeared as a witness for CAPD in
33   several cases before the Tennessee

1		Regulatory Authority (TRA). From 1986
2		to 1995 I was employed by the Iowa
3		Utilities Board as Chief of the Bureau
4		of Energy Efficiency, Auditing and
5		Research, and Utility Specialist and
6		State Liaison Officer to the U.S.
7		Nuclear Regulatory Commission. From
8		1984 to 1986 I worked for Houston
9		Lighting & Power as Supervisor of Rate
10		Design. From 1982 to 1984 I worked for
11		Arizona Electric Power Cooperative as
12		a Rate Analyst. From 1979 to 1982 I
13		worked for Tri-State Generation and
14		Transmission Association as Power
15		Requirements Supervisor and Rate
16		Specialist. Since 1979 my work spanned
17		many issues including cost of service
18		studies, rate design issues,
19		telecommunications issues and matters
20		related to the disposal of nuclear
21		waste.
22		
23	Q_22.	**What is your educational background?**
24		
25	A_22.	I have an M.S. in Regulatory Economics
26		from the University of Wyoming, an
27		M.A. and Ph.D. in International
28		Relations with a specialty in
29		International Economics from the
30		University of Denver, and a B.A. from
31		Colorado State University.
32		

1 Q_23. **Dr. Brown, have you authored any**
2   **articles relating to your profession?**
3
4 A_23. Yes, my articles have appeared in
5   Public Utilities Fortnightly.
6
7 Q_24. **Are you and have you been a member of**
8   **any professional organizations, Dr.**
9   **Brown?**
10
11 A_24. Yes, I am a past member of the NARUC
12   Staff Committee on Management
13   Analysis, a past trustee of and a
14   member of the Board for the Automatic
15   Meter Reading Association, and a
16   current member of the National
17   Association of Business Economists.
18
19 Q_25. **Have you studied mathematics and**
20   **statistics as part of your education?**
21
22 A_25. Yes.
23
24 Q_26. **Dr. Brown, do you use mathematics and**
25   **statistics in combination with**
26   **economics as part of your profession?**
27
28 A_26. Yes.
29
30
31
32 Q_27. **Where do you work and what is your job**
33   **title?**

1
2   **A_27.**   I am an Economist in the Consumer
3   Advocate and Protection Division,
4   Office of the Attorney General.
5
6   **Q_28.**   **What are your responsibilities as an**
7   **Economist?**
8
9   **A_28.**   I review companies' petitions for rate
10   changes and follow the economic
11   conditions that affect the companies.
12
13 **Q_29.**   **What experience do you have regarding**
14   **utilities?**
15
16 **A_29.**   In 1995 I began work as an economist
17   in the Consumer Advocate and
18   Protection Division (CAPD) of the
19   Attorney General's Office. I have also
20   appeared as a witness for CAPD in
21   several cases before the Tennessee
22   Regulatory Authority (TRA). From 1986
23   to 1995 I was employed by the Iowa
24   Utilities Board as Chief of the Bureau
25   of Energy Efficiency, Auditing and
26   Research, and Utility Specialist and
27   State Liaison Officer to the U.S.
28   Nuclear Regulatory Commission. From
29   1984 to 1986 I worked for Houston
30   Lighting & Power as Supervisor of Rate
31   Design. From 1982 to 1984 I worked for
32   Arizona Electric Power Cooperative as
33   a Rate Analyst. From 1979 to 1982 I

1 worked for Tri-State Generation and
2 Transmission Association as Power
3 Requirements Supervisor and Rate
4 Specialist. Since 1979 my work spanned
5 many issues including cost of service
6 studies, rate design issues,
7 telecommunications issues and matters
8 related to the disposal of nuclear
9 waste.
10
11 Q_30. **What is your educational background?**
12
13 A_30. I have an M.S. in Regulatory Economics
14 from the University of Wyoming, an
15 M.A. and Ph.D. in International
16 Relations with a specialty in
17 International Economics from the
18 University of Denver, and a B.A. from
19 Colorado State University.
20
21 Q_31. **Dr. Brown, have you authored any**
22 **articles relating to your profession?**
23
24 A_31. Yes, my articles have appeared in
25 Public Utilities Fortnightly.
26
27 Q_32. **Are you and have you been a member of**
28 **any professional organizations, Dr.**
29 **Brown?**
30
31 A_32. Yes, I am a past member of the NARUC
32 Staff Committee on Management
33 Analysis, a past trustee of and a

1   member of the Board for the Automatic
2   Meter Reading Association, and a
3   current member of the National
4   Association of Business Economists.
5
6 Q_33.   **Have you studied mathematics and**
7   **statistics as part of your education?**
8
9 A_33.   Yes.
10
11 Q_34.   **Dr. Brown, do you use mathematics and**
12   **statistics in combination with**
13   **economics as part of your profession?**
14
15 A_34.   Yes.
16