

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

FILED

JUL 17 2007

INDIANA UTILITY
REGULATORY COMMISSION

PETITION OF OHIO VALLEY GAS CORPORATION FOR)
(1) AUTHORITY TO INCREASE ITS RATES AND)
CHARGES FOR GAS UTILITY SERVICE; (2) APPROVAL)
OF NEW SCHEDULES OF RATES AND CHARGES AND)
CHANGES TO ITS GENERAL RULES AND)
REGULATIONS APPLICABLE TO GAS UTILITY)
SERVICE, INCLUDING INCREASES IN CERTAIN NON-)
RECURRING CHARGES; (3) AUTHORITY TO)
IMPLEMENT A NORMAL TEMPERATURE)
ADJUSTMENT MECHANISM AND DEFER THE NORMAL)
TEMPERATURE ADJUSTMENT MARGINS FOR FUTURE)
RECOVERY OR REFUND; (4) AUTHORITY TO)
IMPLEMENT A PIPELINE SAFETY COMPLIANCE COST)
TRACKING MECHANISM AND DEFERRAL)
ACCOUNTING OF SUCH COSTS UNTIL THE EFFECTIVE)
DATE OF THE TRACKING MECHANISM; (5) APPROVAL)
OF NEW DEPRECIATION RATES; AND (6) APPROVAL)
PURSUANT TO I.C. 8-1-2.5 OF SUCH ALTERNATIVE)
REGULATORY PLAN OR PLANS AS MAY BE)
REASONABLE, NECESSARY AND APPLICABLE TO)
SUCH AUTHORITY, APPROVALS AND DEFERRALS)

CAUSE NO. 43209

PREFILED TESTIMONY OF

BRADLEY E. LORTON – PUBLIC’S EXHIBIT - BEL

ON BEHALF OF THE

INDIANA OFFICE OF

UTILITY CONSUMER COUNSELOR

JULY 17, 2007

CERTIFICATE OF SERVICE

This is to certify that a copy of the **OUC C PREFILED TESTIMONY OF BRADLEY E. LORTON** has been served upon the following parties of record in the captioned proceeding by electronic service and/or by depositing a copy of same in the United States mail, first class postage prepaid, on July 17, 2007.

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TESTIMONY OF WITNESS BRADLEY E. LORTON
CAUSE NOS. 43208 & 43209
OHIO VALLEY GAS

1 **Q: Please state your name and business address.**

2 A: My name is Bradley E. Lorton, and my business address is the Indiana
3 Government Center North, 100 North Senate Avenue, Room N501, Indianapolis,
4 Indiana, 46204.

5 **Q: How are you currently employed?**

6 A: I am a Utility Analyst in the Natural Gas Division of the Indiana Office of Utility
7 Consumer Counselor (OUCC).

8 **Q: Please describe your qualifications.**

9 A: My expertise is primarily in economics and public utility regulation. I hold
10 Bachelor of Science and Master of Science degrees in Economics from Indiana
11 State University. I also completed additional courses at Indiana University-
12 Purdue University at Indianapolis in Economics, Mathematics and Labor Studies.
13 I have completed both week-long segments of the NARUC Annual Regulatory
14 Studies program at Michigan State University.

15 I have over twenty-five years experience in government and private
16 industry. My career in public utility regulation began in 2001 when I accepted
17 my current position with the OUCC. Prior to that time I served in management
18 and business analyst positions for the U. S. Department of the Navy at the Naval
19 Air Warfare Center in Indianapolis, and its privatized successor organizations. I
20 also served as a Producer Price Index Economist at the Bureau of Labor Statistics,

1 United States Department of Labor, and as a Statistician for the Indiana Division
2 of Labor.

3 **Q: Have you provided testimony in other cases before the Indiana Utility**
4 **Regulatory Commission?**

5 A: Yes. I have testified before this Commission on several occasions in the past six
6 years, in cases involving issues ranging from cost of equity to energy efficiency to
7 alternative regulatory proposals.

8 **Q: What have you done to prepare to testify in this cause?**

9 A: I reviewed the Petition, Petitioner's Case-in-Chief and its responses to discovery
10 requests. I reviewed Petitioner's existing and proposed gas tariffs. I also
11 reviewed Petitioner's workpapers, in particular those of Mr. Paul R. Moul.

12 I reviewed additional information relevant to cost of equity capital (i.e. the
13 appropriate return on equity) including interest rate data from the Federal
14 Reserve, economic growth data from the U.S. Bureau of Economic Analysis, and
15 inflation data from the U.S. Bureau of Labor Statistics, and Ibbotson Associates.

16 **Q: What is the purpose of your testimony?**

17 A: I testify in regards to the cost of equity capital (sometimes referred to as the
18 authorized return on equity "ROE"). The OUCC believes Petitioner's proposed
19 11.75% ROE is far too high, particularly in light of the fact that Petitioner has
20 zero long term debt in its capital structure.¹ Based on the results of the
21 Discounted Cash Flow (DCF) method, and the Capital Asset Pricing Model
22 (CAPM), I conclude that a cost of equity of 8.5% for Petitioner would be very

¹ The only debt in Petitioner's capital structure is in the form of customer deposits.

1 reasonable. I also analyze macroeconomic and capital market trends to
2 demonstrate that the U.S. economy remains in a low cost of capital environment.

3 **Q: Petitioner's Witness Mr. Moul submitted cost of equity testimony that**
4 **applied to both Cause Nos. 43208 and 43209. Will you be doing the same?**

5 A: Yes.

6 **Q: What is Petitioner's current authorized return on equity?**

7 A: It is currently 10.15%.

8 **Q: Do you recommend reducing Petitioner's authorized ROE?**

9 A: Yes.

10 **Q: Please explain why?**

11 A: This rate case includes the proposed implementation of a Normal Temperature
12 Adjustment mechanism (NTA)), and a tracker for costs associated with pipeline
13 safety requirements. Neither of these trackers existed at the time of Petitioner's
14 last rate case. Both of these trackers will reduce risk for Petitioner, and the
15 authorized ROE should clearly be reduced below the current 10.15% level.

16 **THE PROXY GROUP FOR DCF AND CAPM ANALYSES**

17 **Q: Please describe your approach to establishing a cost of equity estimate for**
18 **Petitioner.**

19 A: I relied primarily on the DCF and CAPM models to estimate the cost of equity.

20 **Q: Can you apply the DCF and CAPM models directly to Petitioner?**

21 A: No. Neither Ohio Valley Gas, Inc., nor Ohio Valley Gas Corporation is a publicly
22 traded company, and consequently much of the data that would be available for

1 publicly traded companies is not available for Petitioner. This fact makes it
2 impractical to apply the DCF and CAPM directly to Petitioner.

3 Like Petitioner's witness Mr. Moul, I calculated cost of equity for
4 Petitioner based on a proxy group of publicly traded companies. This is an
5 established approach.

6 **Q: Petitioner's Witness Mr. Moul utilized a proxy group of seven publicly**
7 **traded companies for his DCF and CAPM analyses. Do you agree with the**
8 **selection of his proxy group?**

9 A: Yes. As I understand it Mr. Moul's criteria for the proxy group are as follows:

- 10 • Companies engaged in the natural gas distribution business
11 • Companies with publicly traded common stock
12 • Companies that are contained in the Value Line Investment Survey
13 • Companies that have less than \$1 billion of market capitalization of their
14 equity
15 • Companies that are not currently the target of a merger or acquisition

16 **Q: What companies did Mr. Moul choose to be in his proxy group?**

17 A: Mr. Moul chose seven companies, three from the Standard edition of Value Line,
18 and four from the Small and Mid-Cap edition. The three companies chosen from
19 the standard edition are Laclede Group Inc., Northwest Natural Gas Co., and
20 South Jersey Industries, Inc. The four companies chosen from the Small and
21 Mid-Cap edition are Energy South, Inc., Chesapeake Utilities Corporation, RGC
22 Resources, Inc. and Delta Natural Gas Company.

1 Mr. Moul states that "In terms of capitalization, OVG is very much
2 smaller than the average size of the Gas Group and the S&P Utilities."²
3 Nevertheless, given the data requirements to perform DCF and CAPM analysis,
4 this proxy group does attempt to include smaller companies in an effort to attain
5 more comparability with Petitioner.

6 **Q: Are there significant differences between the companies in the proxy group**
7 **and Petitioner?**

8 A: As Mr. Moul points out in his testimony, the companies in the proxy group are
9 significantly larger than Petitioner. However, this does not present a stumbling
10 block for the use of the Gas Utility Proxy Group. Annie Wong of Western
11 Connecticut State University writes:

12 . . . given firm size, utility stocks are consistently less risky than
13 industrial stocks. Second, industrial betas tend to decrease with
14 firm size but utility betas do not. These findings may be attributed
15 to the fact that all public utilities operate in an environment with
16 regional monopolistic power and regulated finance structure. As a
17 result, the business and financial risks are very similar among the
18 utilities regardless of their sizes.³

19 Moreover, Michael Paschall and George B. Hawkins state that:

20
21 A size premium does not automatically apply in every case. Each
22 privately held company should be analyzed to determine if a size
23 premium is appropriate in its particular case. There can be unusual
24 circumstances where a small company has risk characteristics that
25 make it far less risky than the average company, warranting the use
26 of a very low risk premium. One possible example of this is a
27 private water utility (monopoly situation, very low risk, near-
28 guarantee of payments).⁴
29

² Petitioner's Exhibit No. PRM, p. 12.

³ Annie Wong, "Utility Stock and the Size Effect: An Empirical Analysis," *Journal of the Midwest Finance Association*, 1993, p. 98

⁴ Paschall and Hawkins, *Do Smaller Companies Warrant a Higher Discount Rate for Risk?: The "Size Effect" Debate*, CCH Business Valuation Alert, December, 1999.

1 **Q: Are there other major differences that may indicate that Petitioner is less**
2 **risky than the proxy group?**

3 A: Yes. Another major difference is that each of the companies in Mr. Moul's proxy
4 group has a capital structure that includes significant amounts of long-term debt.
5 For instance, of the four companies that Mr. Moul has selected from the Small
6 and Mid-Cap Value Line, Energy South has a capital structure with 37% long
7 term debt; Chesapeake Utilities has 37% long term debt; RGC Resources has 41%
8 long term debt and Delta Natural Gas has 51% long term debt.⁵

9 Petitioner has presented a capital structure with zero long term debt. Such
10 a capital structure eliminates financial risk for Petitioner. There are no bond
11 holders with a prior claim on Petitioner's earnings. By accepting Mr. Moul's
12 proxy group companies (who rely significantly on debt), it should be emphasized
13 that any resulting cost of equity estimate will be conservatively high for a utility
14 with zero long term debt.

15 Indeed, Mr. Moul recognizes this difficulty in his testimony by deducting
16 an adjustment of between 121 and 144 basis points from his rate of return.
17 However, he erroneously determines that this results in too low a result, and adds
18 back a larger adjustment for Petitioner's small size.⁶ As Petitioner is a public
19 utility, Paschall and Hawkins' analysis (cited above) strongly indicates that Mr.
20 Moul's size premium is not justified.

21 DISCOUNTED CASH FLOW ANALYSIS

22 **Q: Please describe Discounted Cash Flow (DCF) Analysis.**

⁵ Value Line Investment Survey, *Standard Edition* and *Small and Mid-Cap Edition*, June 15, 2007, www.valueline.com.

⁶ Petitioner's Exhibit No. PRM, pp. 33-34.

1 A: DCF analysis helps investors determine the appropriate price to pay for particular
2 assets, such as utility stocks. The model has been adapted for regulatory
3 proceedings in order to determine the cost of utility equity capital. The DCF
4 model holds that the price of an asset today should equal the sum of all the cash
5 flows that the asset will generate, discounted by the appropriate rate back to the
6 present. This discount rate equals the cost of capital. With utility stocks,
7 dividends are the relevant cash flows.

8 **Q: Please describe the "Constant Growth" DCF Model.**

9 A: The underlying principle of the "Constant Growth" DCF Model is that the price of a
10 firm's stock reflects the *expected* cash flows (i.e. dividends) associated with that
11 stock, discounted at a rate equal to the cost of equity capital. This can be expressed
12 mathematically by the following equation:

13
$$P_0 = D_1 / (K - g)$$

14 In this equation, the current price, P_0 , can be calculated by dividing the expected
15 annual dividend for the next year, D_1 , by the term $K - g$ where K represents the cost
16 of equity capital and g equals the expected, long-run annual growth rate in dividends
17 per share (DPS). This model relies on the assumption that investors *expect* earnings
18 per share (EPS), book value per share (BPS), and stock price per share to also grow
19 at a constant long-run rate (g).

20 By rearranging the algebraic terms, it becomes possible to solve for the cost
21 of equity capital. The resulting formula is the DCF model most familiar in utility
22 regulation:

1
$$K = (D_1/P_0) + g$$

2
3 Here, the cost of equity capital, K , equals the “forward dividend yield,”
4 D_1/P_0 , plus the expected growth rate in dividends per share, g . The DCF model,
5 therefore, requires estimates of the forward dividend yield and the expected growth
6 rate.

7 **Q: Is the “Constant Growth” DCF Model considered a reliable method for**
8 **estimating cost of equity for public utilities?**

9 A: Yes. This model, when combined with reasonable judgment, provides a realistic and
10 reliable method of estimating a utility's cost of equity. It also formulates the cost of
11 equity as "yield plus growth," which accurately defines the incentive for investors to
12 purchase stocks.

13 The DCF model is also relatively simple in that it states cost of equity in
14 terms of just two components, and only one of these involves any major controversy.
15 The calculation of dividend yield generally involves few disputes. Most of the
16 controversy in DCF calculations focuses on the growth rate g . This should not be
17 surprising since the growth rate projects into the future, and disagreements will
18 always arise regarding such projections. However, a reasonable estimate for g can
19 be developed by evaluating variables such as dividends, earnings, and book value
20 per share. (Note: for the balance of my testimony, the “Constant Growth DCF
21 Model” will simply be referred to as the “DCF model”).

22 **Q: What is the difference between the current and forward dividend yields?**

1 A: The current yield, D_0/P_0 , equals the current annual dividend rate, D_0 , divided by the
2 current stock price, P_0 . The current annual dividend rate, D_0 , equals the most recent
3 quarterly dividend multiplied by four -- it does not include any projection into the
4 next year. Dividend yields published by The Wall Street Journal and AUS Utility
5 Reports are current dividend yields D_0/P_0 .

6 The forward yield, D_1/P_0 , adjusts the current yield D_0/P_0 to reflect likely
7 dividend growth in the subsequent year. The forward yield replaces the current
8 dividend rate, D_0 , with a prospective dividend rate, D_1 . D_1 is the rate expected
9 during the following year, and the forward yield will then be calculated by dividing
10 D_1 by the current price, P_0 . Financial analysts frequently accomplish this adjustment
11 by increasing the current dividend yield for one-half of a year's growth in dividends.
12 This method is often referred to as the "half-year method." I utilize this method in
13 my DCF analysis to convert current dividend yields (D_0/P_0) into forward dividend
14 yields (D_1/P_0).

15 **Q: What is the result of your forward dividend yield calculation?**

16 A: My calculations resulted in a 3.8% forward dividend yield for the Gas Utility Proxy
17 Group. This calculation applies the "half year method" to the average current yield
18 calculated from AUS Utility Reports data from January through June 2007. Page 2
19 of Attachment BEL-1 shows my calculations.

20 **Q: Did you compare your forward dividend yield calculation with any other**
21 **published data?**

22 A: Yes. I compared the results to an average of the Value Line dividend yields for the
23 Gas Utility Proxy Group. Value Line publishes forward dividend yield estimates
24 that do reflect anticipated dividend growth in the coming year. My calculations and

1 the Value Line forward yields are shown in Attachment BEL-1. I arrived at a
2 forward yield of 3.8% for the Gas Utility Proxy Group. This is slightly higher
3 than the average of the Value Line forward yields, which equals 3.6%.

4 **Q: What did you conclude with respect to the Dividend Yield term of the DCF**
5 **model?**

6 A: I concluded that a 3.8% dividend yield is reasonable for my DCF calculations.
7 Also, this affords a slightly higher cost of equity for Petitioner than the Value
8 Line average dividend yields for the Gas Utility Proxy Group. I have chosen the
9 conservatively high estimate.

10 **Q: Did the proxy group selection present any challenges for estimation of the**
11 **DCF growth rate (g)?**

12 A: Yes. Although I can agree with the selection of the companies in the proxy group,
13 it does present challenges in calculating the DCF growth estimate. The four (4)
14 Small and Mid-cap companies have less growth data published in Value Line.
15 The Standard edition includes "annual rates" data for 10-year growth, 5-year
16 growth and a forward growth projection. Only 5-year and 1-year growth data are
17 available in the Small and Mid-cap edition. Consequently, 10 year growth and
18 forward projection elements have data missing for several of the proxy group
19 companies. Indeed, Attachment BEL-2 is DCF workpapers underlying Mr.
20 Moul's testimony. It appears that he was also unable to fill in the missing data.
21 He attempted to resolve this problem by merely averaging the data from the
22 companies in the Value Line Standard Edition in cases where no other options
23 were available. While this provides a mathematical solution to the problem, it
24 weights his estimates heavily toward three (3) of the seven (7) companies.

1 **Q: How did you approach this challenge?**

2 A: My approach was to put the most weight on estimates based on full sets of
3 necessary data. Consequently, in my DCF studies I will put the greatest weight
4 on the growth data shown in the five year growth column in my DCF exhibits in
5 Attachment BEL-1.

6 **Q: Please describe the calculation of the growth term "g" that you utilized in**
7 **your DCF analysis.**

8 A: To calculate the growth term, I relied on Value Line growth rates in EPS, DPS
9 and BPS for companies in the Gas Utility Proxy Group. As explained above, I
10 relied primarily on the five year growth rate data, which is available for all seven
11 (7) of the proxy group companies.

12 **Q: Please describe the results of your growth calculations.**

13 A: I have concluded that 4.5% is a very reasonable growth rate for the Gas Utility
14 Proxy Group.⁷ Not only is this the rate resulting from an average of the EPS, DPS
15 and BPS 5-year growth rates for the proxy group, it is also very close to the rate
16 that results from an average of the available forecasted rates for 2010-2012 for the
17 proxy group companies in the Standard Value Line. It is also the same rate as the
18 average of EPS for the proxy group companies in the Standard Value Line over
19 the past 10 years. The data on DPS and BPS for the past 10 years would indicate
20 a much lower growth rate than my 4.5% estimate. Also, I excluded from my
21 calculations all negative growth rates, in particular a -1.0% rate for RGC
22 Resources in the 5-year average EPS.

23 **Q: What have you concluded based on your DCF analysis?**

⁷ See page 5 of Attachment BEL-1 for Value Line Growth Rate data and averages.

1 A: My DCF calculations result in a cost of equity of 8.3%. This combines the 3.8%
2 forward yield and the 4.5% growth rate. I did not add a "flotation adjustment" as
3 Petitioner's stock is not publicly traded.

4
5 CAPITAL ASSET PRICING MODEL

6
7 **Q: Please describe the Capital Asset Pricing Model (CAPM).**

8 A: The underlying assumption of CAPM is that the stock market compensates investors
9 for risk that cannot be eliminated by means of a diversified stock portfolio. In
10 CAPM, the required return on a stock equals the sum of a risk free rate of return (R_f)
11 plus a risk premium [$\beta \cdot (R_m - R_f)$] which is proportional to the level of "market risk,"
12 which cannot be eliminated through diversification. The CAPM formula is:

13
$$K = R_f + \beta \cdot (R_m - R_f)$$

14 where,

15 β = Beta, a measure of risk for the company,

16 K = Required return (i.e. cost of equity) on the stock of the company,

17 R_f = Risk-free rate of return,

18 R_m = Market equity return,

19 $(R_m - R_f)$ = Market equity risk premium.

20
21 The "Beta" is considered the measure of risk most relevant in CAPM. A stock with a
22 Beta below 1.0 is considered less volatile and less risky than the stock market.
23 Above a 1.0 Beta the stock is considered more volatile and more risky than the stock
24 market. By definition the stock market has a Beta of 1.0. The market is usually

1 represented by a large and highly diversified portfolio of stocks such as the Standard
2 & Poor's 500.

3 **Q: Were you able to perform a CAPM analysis directly for Petitioner?**

4 A: No. As Petitioner is not a publicly traded company, the necessary data does not
5 exist to perform CAPM analysis directly for Petitioner. Therefore, I have used the
6 Gas Utility proxy group to perform a CAPM analysis.

7 **Q: How did you determine "beta"?**

8 A: I used betas from the Value Line Investment Survey, Standard Edition and Small
9 and Mid-Cap Edition. However, as Attachment BEL-3 shows, I considered betas
10 from Smart Money, Yahoo Finance and NASDAQ. For this analysis I averaged
11 only the Value Line adjusted betas. I will utilize 0.64 as the beta estimate in my
12 CAPM analysis. This is the same average beta used by Mr. Moul.

13 **Q: What risk free rate (R_f) are you using for your CAPM calculations?**

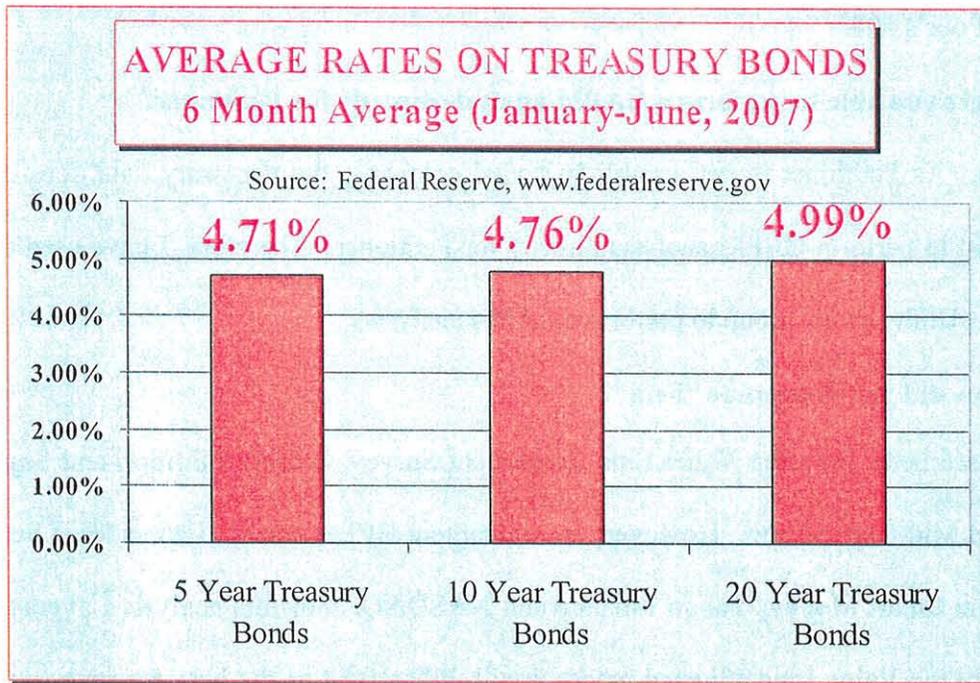
14 A: I used 5.0% for my risk free rate.

15 **Q: Please describe how you determined the risk free rate of 5.0%.**

16 A: I examined recent and long term trends in yields on 5-year, 10-year and 20-year
17 Treasury securities from data available from the Federal Reserve.⁸ I calculated
18 averages for the latest 3 months and the first 6 months of 2007. Graph 1 illustrates
19 the average rates on 5, 10, and 20 year Treasuries based on the first six months of
20 2007. Graph 2 shows the average rates based on the most recent 3 months for which
21 data is available, April through June, 2007.

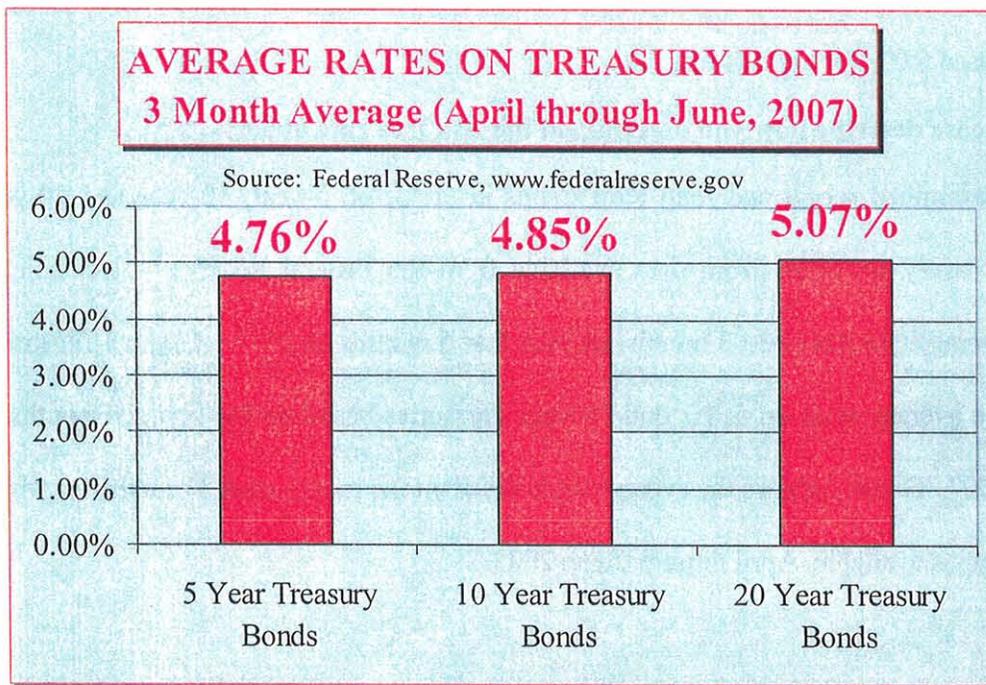
⁸ www.federalreserve.gov.

1 **Graph 1**



2

3 **Graph 2**



4

1 Rates on these bonds increased in early June to over 5%. However, recent
2 weeks have experienced some fluctuations.⁹ Five year Treasuries reached 5.18% on
3 June 12th, but declined to 4.9% by July 2nd. Ten and 20 year Treasuries also
4 reached 5.26% and 5.44%, respectively, on June 12th. They then declined to 5.0%
5 and 5.18%, respectively. It is not possible to say if the increases experienced in
6 early June are part of any longer term trend. However, I examined several years of
7 rate data from the Federal Reserve and discovered that the rate for 10-year
8 Treasuries has not exceeded 5% in more than three consecutive months since mid-
9 2001. Ten year Treasuries exceeded 5% in March through May 2002 and in May
10 through July 2006.

11 I also examined the economic projections from the Congressional Budget
12 Office (CBO) in *The Budget and Economic Outlook: Fiscal Years 2008 to 2017*,
13 published in January, 2007. The latest CBO projections for 10-year Treasuries are
14 4.8% in 2007, and 5.0% in 2008. The projected rates for the periods 2009 through
15 2012, and 2013 through 2017, go no higher than 5.2%.¹⁰

16 My research leads me to conclude that 5.0% is a very reasonable risk-free
17 rate for my CAPM analysis, and is consistent with recent experience.

18 **Q: How did you estimate the Market Risk Premium ($R_m - R_f$)?**

19 A: I calculated long term market risk premiums based on historical data from Stocks,
20 Bonds, Bills and Inflation, 2007 Yearbook, by Ibbotson Associates. The Ibbotson

⁹ Following data is from www.federalreserve.gov.

¹⁰ Congressional Budget Office. *The Budget and Economic Outlook: Fiscal Years 2008 to 2017*, January, 2007, www.cbo.gov.

1 data base covers the period 1926 to 2006. There are two methods of calculating
2 historical holding period returns: the geometric mean (or compound annual return)
3 and the arithmetic mean, which is a simple average of one year holding period
4 returns.

5 The geometric mean return measures the average compound annual rate of
6 return from an investment over a period of more than one year. The arithmetic mean
7 measures the average of one year holding period returns. The arithmetic mean rate
8 of return *always* exceeds the geometric mean rate of return unless the investment
9 provides a constant return year after year. The arithmetic mean approach also
10 produces higher estimates of the market risk premium, and higher overall CAPM
11 results.

12 As the Commission has expressed its preference for considering both the
13 geometric mean and arithmetic mean approaches, the market risk premiums that I
14 calculate give equal weight to both the geometric and arithmetic mean approaches.

15 I used the resulting market risk premium of 5.75% in my CAPM calculations
16 [see Attachment BEL-3].

17 **Q: Please describe the results of your CAPM analysis.**

18 A: Here again, I emphasize that my analysis provides a conservatively high estimate. I
19 have used only the upwardly adjusted betas from Value Line and a risk free rate very
20 close to that used in Petitioner's case-in-chief. I have also balanced the weight given
21 to the geometric mean and arithmetic mean approaches. This results in a CAPM
22 estimate of 8.68%.

1 **Q: But, Mr. Lorton, since you and Mr. Moul use the same proxy group and**
2 **average beta, how do you account for the fact that his CAPM calculation is**
3 **noticeably higher?**

4 A: First, my recommended risk-free rate is somewhat lower than his 5.25%. However,
5 the largest difference lies in the estimate of the market risk premium. As he
6 describes in Appendix H of his testimony, Mr. Moul utilizes a method that relies on
7 a median appreciation *potential* estimate from Value Line, which his footnote
8 indicates is forecast at “40% for 3 to 5 years hence.”¹¹. He also calculates a market
9 risk premium based only on the arithmetic mean, comparing stocks with long term
10 bonds. This yields a higher CAPM result than if both the geometric mean and
11 arithmetic mean approaches are taken into account. My understanding is that the
12 Commission wishes to take both geometric and arithmetic mean approaches into
13 account. Also, shareholders will earn a geometric mean rate of return, unless they
14 own the stock for only one year, or experience the same rate of return year after
15 year. Neither of these appear to be realistic assumptions.

16 Moreover, Mr. Moul includes a 0.19% “flotation cost adjustment.”
17 Investorwords.com defines “flotation costs” as:

18 The costs of issuing a new security, including the money
19 investment bankers earn from the spread between their cost
20 and the price offered to the public, and the accounting, legal,
21 printing and other costs associated with the issue.¹²

22 As Petitioner is not a publicly traded company, a flotation cost adjustment is not
23 appropriate in this Cause.

¹¹ Petitioner's Exhibit PRM, Appendix H

¹² http://www.investorwords.com/2026/flotation_costs.html

1 **Q: Please summarize your CAPM conclusions.**

2 A: The CAPM analysis that I performed indicates a cost of equity for the Gas Utility
3 proxy group of 8.68%.

4 **Q: How does this estimate compare with your DCF cost of equity estimate?**

5 A: It is slightly higher than my 8.3% DCF result. Therefore, I am recommending a cost
6 of equity for Petitioner of 8.5%, which is supported by both my DCF and CAPM
7 studies and by my analysis of macroeconomic trends.

8 **Q: Mr. Lorton, in the recent Lawrenceburg Gas rate case (Cause No. 43090), you**
9 **recommended a cost of equity of 9.25% for the Petitioner. Why is your**
10 **recommendation lower in this case?**

11 A: For economic reasons, Lawrenceburg Gas did not file testimony that included
12 extensive cost of equity studies such as DCF and CAPM analyses. The OUCC
13 accommodated Lawrenceburg Gas by refraining from such analyses in its own
14 testimony. In this case, Petitioner filed extensive cost of equity testimony, including
15 DCF and CAPM studies by Mr. Moul, as part of its case-in-chief. Therefore, the
16 OUCC performed its own DCF and CAPM analyses which strongly support an
17 8.5% cost of equity.

18 Also in the Lawrenceburg case, the utility's capital structure was a major
19 issue. While Lawrenceburg Gas proposed a 100% equity financed capital structure,
20 long-term debt held by the parent company was used to finance its only operation:
21 Lawrenceburg Gas Company. Moreover, the Commission Order allowed a small
22 addition to risk premium due to the fact that two of Lawrenceburg Gas's customers

1 accounted for more than half of the company's total throughput. This is far from the
2 case with this petitioner, as Mr. Moul's testimony bears out:

3 Throughput to the Company's industrial and transportation
4 customers represents 43% of total throughput. Indeed, the
5 Company's ten largest customers (both sales and
6 transportation service) together represent 29% of total
7 throughput on the Company's system.¹³
8

9 Consequently, I found no reason to modify the results of my DCF and
10 CAPM studies in this Cause, which strongly support an 8.5% cost of equity.

11 MACROECONOMIC TRENDS

12
13 **Q: Do macroeconomic factors and trends influence the cost of equity?**

14
15 **A:** Yes. The most noteworthy of these factors are interest rates, economic growth,
16 and inflation.

17 **Q: Do you have economic forecast data to support 8.5% as a reasonable ROE?**

18 **A:** Yes. Another indication of the reasonable nature of my recommendation comes
19 from the Spring 2007, *CFO Magazine Business Outlook Survey*, from Duke
20 University.¹⁴ This survey of Chief Financial Officers from major corporations,
21 observed: "On May 12, 2006 the annual yield on 10-yr treasury bonds was 4.8%"
22 and posed the question, "Over the next 10 years, I expect the average annual S&P
23 500 return will be: . . ." The mean expected return on the S&P 500 was 8.33%
24 with a 95% Confidence Interval between 7.78% to 8.87%. These expectations

¹³ Petitioner's Exhibit No. PRM, p. 8.

¹⁴ *CFO Magazine, Business Outlook Survey*, Spring 2007,
http://www.cfo.com/article.cfm/8884390/c_8910395, p. 36

1 have actually declined since last November when the mean expected return was
2 8.40%. The range of possible outcomes that included Mr. Moul's recommended
3 cost of equity of 11.75% (a range of 11.21% to 12.66%) was given only a 1-in-10
4 probability (see Attachment BEL-4). I emphasize that these return estimates
5 apply to companies in the S&P 500, which includes many industrial companies
6 reasonably considered more risky than regulated utilities.

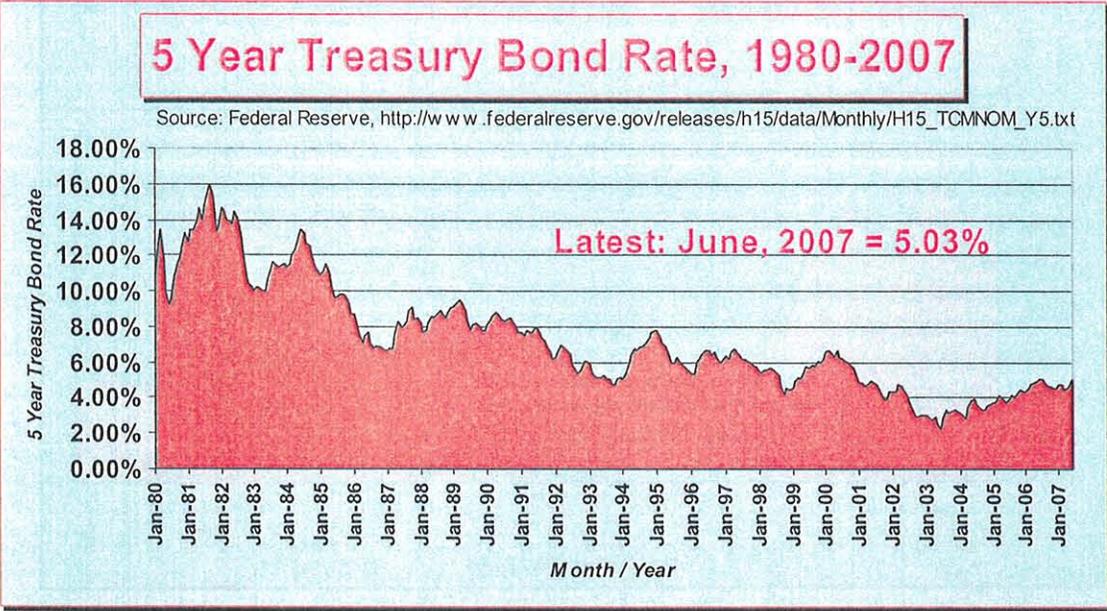
7 In stark contrast to the CFO Survey rate of return of 8.33% for S&P 500
8 companies, Mr. Moul suggests that an 11.75% cost of equity should apply to a
9 regulated public utility with a 100% equity capital structure. In today's capital
10 market, Mr. Moul's recommendation is far too high and not realistic.

11 **Q: Please discuss interest rates as an influencing factor.**

12 A: Interest rates are one of the most important influencing factors. U.S. Treasury
13 Bonds are commonly used to establish the risk-free rate of return in many
14 analyses. Moreover, changes in interest rates have an impact on investor
15 expectations.

16 Recent years have been described as a period of "low cost capital." Lower
17 interest rates and bond yields have been the main indicator of this trend. The
18 trend toward low cost capital has taken place over two decades; it is a long run
19 phenomenon. Graph 3 shows the monthly interest rate trend on 5-year constant
20 maturity Treasury bonds, reported by the Federal Reserve. Graph 3 makes it
21 obvious that we are in a period with rates well below the experience of the 1980s
22 and 1990s.

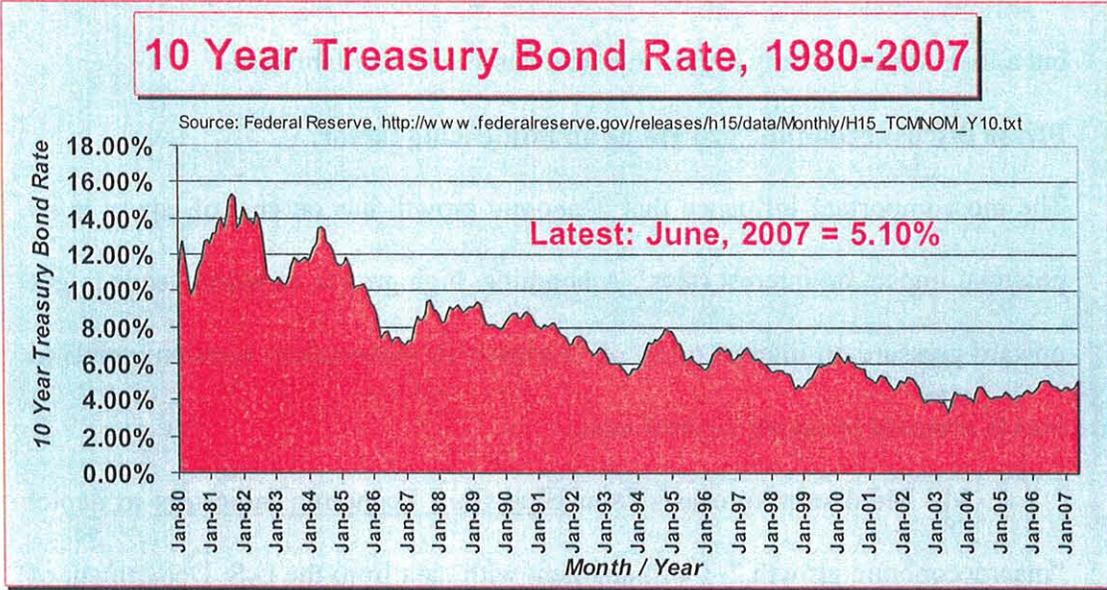
1 **Graph 3**



2

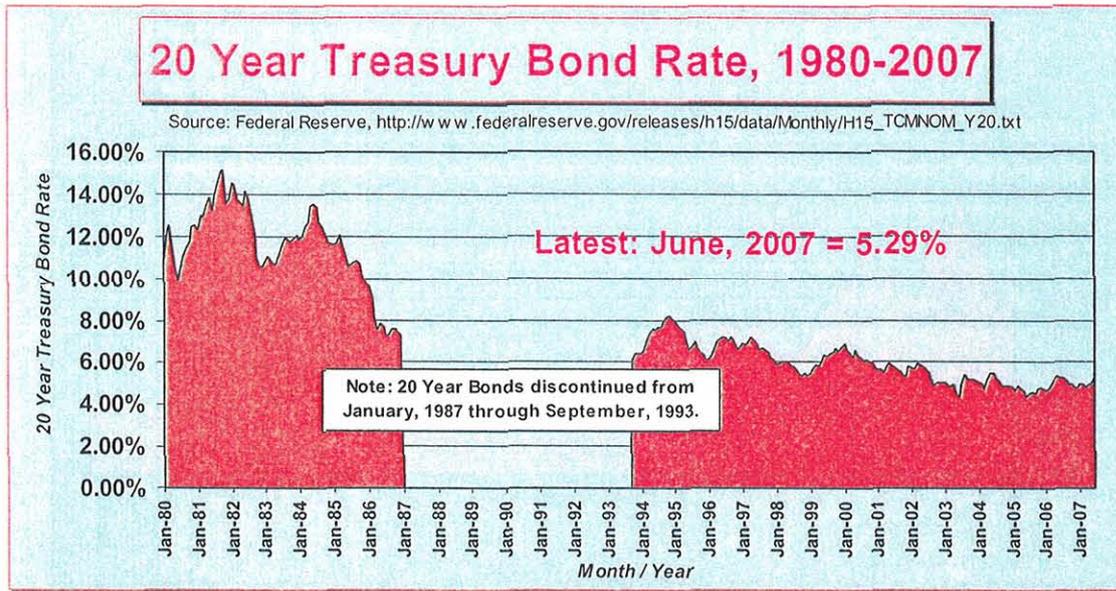
3 Graphs 4 and 5 reveal similar trends for 10-year and 20-year Treasuries.

4 **Graph 4**



5

1 **Graph 5**



3 All three graphs reveal that, since 2003, rates have exceeded 5% for a
4 couple of months in the late Spring and Summer of 2006, and have since
5 struggled to return to that level. June 2007 has experienced rates just above 5%
6 but a long term trend any higher than that has yet to be established.

7 **Q: Please discuss economic growth as an influencing factor.**

8 A: The most important influence that economic growth has on cost of equity is its
9 potential impact on interest rates. A booming, high growth economy tends to put
10 upward pressure on interest rates. A lackluster or recessionary economy tends to
11 lead to stagnant or falling interest rates.

12 Mr. Moul uses forecasts from Blue Chip Economic Indicators to depict
13 “macroeconomic growth.” I will augment with data from the U.S. Department of

1 Commerce, Bureau of Economic Analysis (BEA)¹⁵, and from the CBO, to provide
2 historical perspective.

3 On page 19 of his testimony, Mr. Moul uses Blue Chip¹⁶ forecasts for
4 2008-12 of 5.2% nominal annual GDP growth, and 5.1% in the period 2013-2017.
5 BEA data using current (nominal) dollars reveal that nominal growth in 2004 was
6 6.9%, and 6.3% in 2005. The Congressional Budget Office, using BEA data,
7 projects only 4.3% nominal growth in 2007, 4.8% in 2008, followed by 4.7% in
8 the period 2009-2012 and 4.3% in the period 2013-2017.¹⁷ Two important
9 federal agencies forecast nominal economic growth at a much slower pace than
10 recent years, and make Mr. Moul's forecasts appear optimistic.

11 Real economic growth, measured in constant (i.e. inflation adjusted)
12 dollars, reveals an even more sobering comparison with the recent past. Graph 6
13 shows annual percent changes in real GDP in the period 1930 through 2006, as
14 published by BEA. The current economic expansion, which began in late 2001
15 has been somewhat less robust than earlier decades. Prior to the 1990's economic
16 expansion periods included at least one or more years above 5% real growth. The
17 U.S. economy has not experienced that level of real GDP growth on an annual
18 basis since 1984. Moreover, CBO forecasts only 2.3% real growth in 2007, 3.0 in
19 2008, 2.9% annually in the period 2009-2012, and 2.5% in 2013-2017.¹⁸ Recent
20 data confirms this slowing, as seasonally adjusted annual growth rates from BEA

¹⁵ U.S. Department of Commerce, Bureau of Economic Analysis, www.bea.gov.

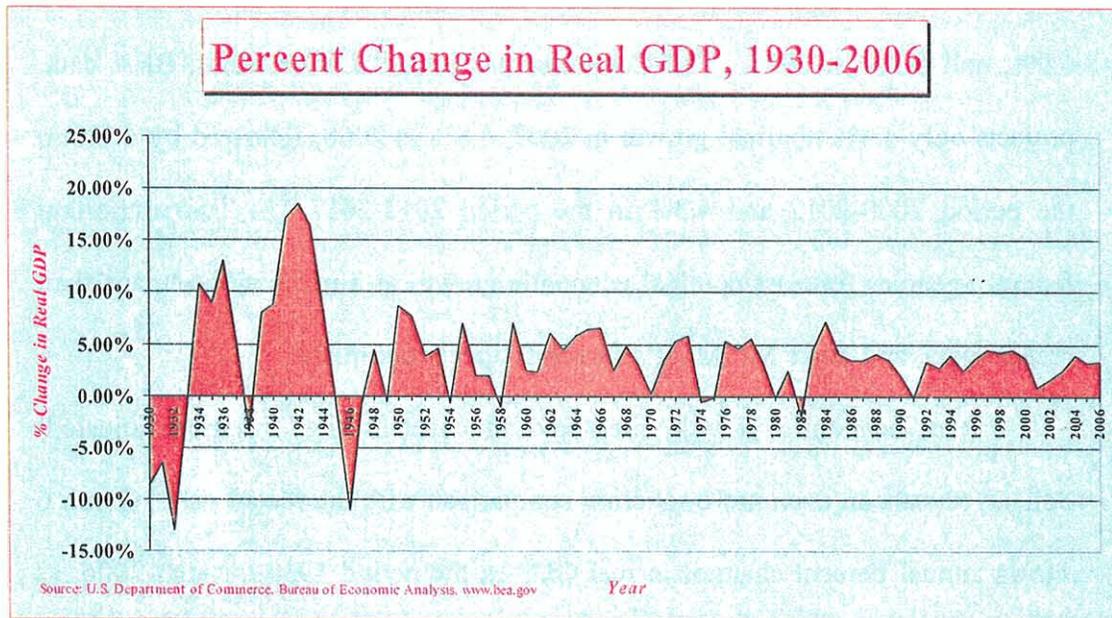
¹⁶ Petitioner's Exhibit No. PRM, p. 19

¹⁷ Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2008-2017, January, 2007*. www.cbo.gov.

¹⁸ Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2008-2017, January, 2007*. www.cbo.gov.

1 show a sluggish economy over the past four quarters. The second quarter of 2006
2 saw a real growth rate at 2.6%, the third quarter at 2.0%, the fourth quarter at
3 2.5% and the first quarter of 2007 at 0.7%.¹⁹

4 **Graph 6**



5
6 **Q: Have you taken current and projected inflation into account in your**
7 **analysis?**

8 **A:** Yes.

9 **Q: Please describe the trends in the rate of inflation.**

10 **A:** The U.S. economy remains in a relatively low inflation period. In his testimony
11 regarding the Semiannual Monetary Policy Report to the Congress, before the
12 Committee on Banking, Housing, and Urban Affairs, U.S. Senate, on February
13 14, 2007, Federal Reserve Chairman Ben S. Bernanke stated:

¹⁹ U.S. Department of Commerce, Bureau of Economic Analysis, www.bea.gov

1 Another significant factor influencing medium-term trends in
2 inflation is the public's expectations of inflation. These
3 expectations have an important bearing on whether transitory
4 influences on prices, such as those created by changes in energy
5 costs, become embedded in wage and price decisions and so leave
6 a lasting imprint on the rate of inflation. It is encouraging that
7 inflation expectations appear to have remained contained.

8 The projections of the members of the Board of Governors and the
9 presidents of the Federal Reserve Banks are for inflation to
10 continue to ebb over this year and next. In particular, the central
11 tendency of those forecasts is for core inflation--as measured by
12 the price index for personal consumption expenditures excluding
13 food and energy--to be 2 to 2-1/4 percent this year and to edge
14 lower, to 1-3/4 to 2 percent, next year.²⁰

15 Chairman Bernanke did go on to say that the possibility that inflation
16 "might not moderate" remains a "predominant" policy concern for the Federal
17 Reserve (which is normal for the Fed). In spite of recent run-ups in energy prices,
18 inflation seems to be surprisingly stable on a macro level. The overall Consumer
19 Price Index (CPI) has experienced only minor fluctuations over the past two years
20 in spite of the high volatility of energy prices.²¹ As of May, 2007, the CPI for All
21 Urban Consumers had increased only 2.7% over May 2006. This is despite large
22 increases in energy prices over recent months. The seasonally adjusted CPI for
23 Energy was 5.4% in May alone, and the compound annual rate of inflation on
24 Energy based on the past three months performance was a whopping 71%. Yet,
25 in spite of the volatility and heavy upward price pressure in the energy markets,
26 overall inflation remains relatively under control.

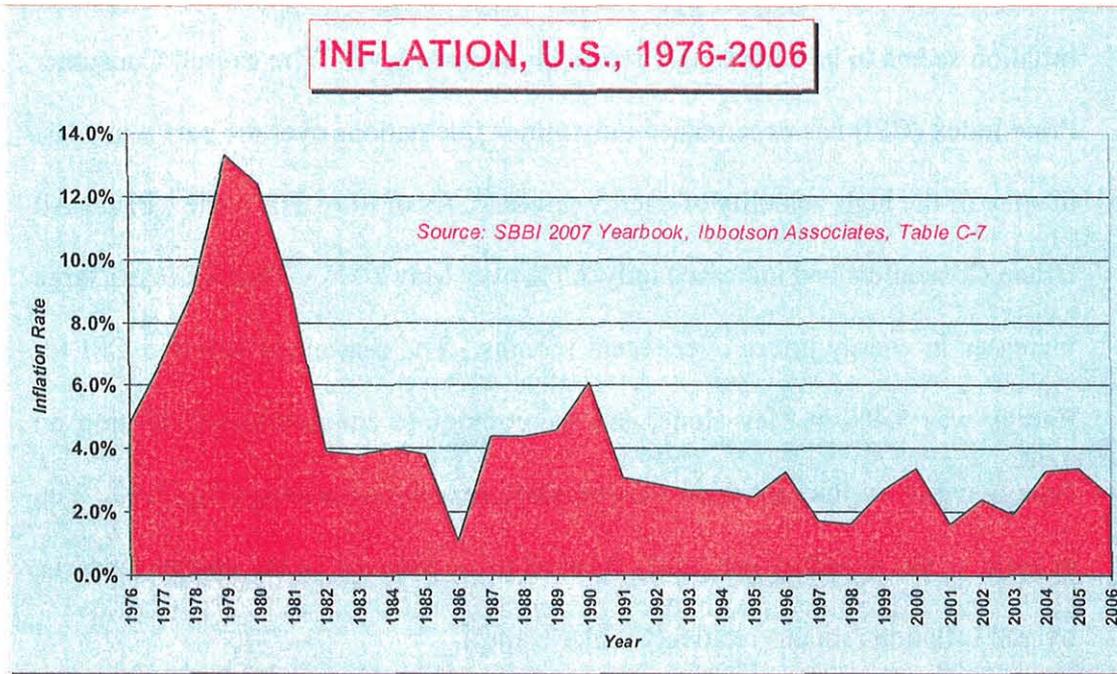
27 The United States remains in a long term period of relatively low inflation.

²⁰ Federal Reserve, <http://www.federalreserve.gov/boarddocs/hh/2007/february/testimony.htm>.

²¹ CPI data from U.S. Department of Labor, Bureau of Labor Statistics, www.bls.gov.

1 Data from Ibbotson Associates shows that inflation moderated in 2006 falling
2 from 3.4% in 2005 to 2.5%. According to Ibbotson, between 2000 and 2006
3 inflation has averaged only 2.6% per year. This compares to an annual average of
4 3.0% between 1990 and 2000, and 5.2% between 1980 and 1990. Graph 7 shows
5 the annual inflation rates for the period between 1976 and 2006. It illustrates that
6 the United States remains in a period of low inflation, in spite of increased energy
7 costs in recent years. The 2.7% increase in the CPI between May 2006 and May
8 2007 helps to confirm this analysis as it includes the recent run-up in oil and
9 gasoline prices. Even with sharply higher energy prices, inflation appears to be
10 relatively low, and nowhere near levels experienced in earlier decades.

11 **Graph 7**



12

1 Moreover, the latest forecast from the CBO projects increases in both the
2 overall CPI and the Core CPI (which excludes highly volatile commodities such
3 as energy) averaging 2.2% per year between 2009 and 2017. This is on top of a
4 projection of only a 1.9% increase in the CPI for 2007 and 2.3% in 2008.²² The
5 Federal Reserve Bank of Philadelphia's *Survey of Professional Forecasters*,
6 *Second Quarter 2007*, projects inflation at 2.3% in each of the next three years, an
7 average of 2.45% over the next five years, and 2.4% over the next ten years.²³
8 These remain very low by historical standards. Low inflation rates tend to
9 support lower interest rates and lower costs of financing capital investment,
10 including investments in utility plant.

11 **Q: What are your conclusions about the macroeconomic trends that influence**
12 **cost of equity?**

13 A: Recent trends in interest rates, inflation and economic growth do not reveal an
14 over-heating economy, nor one in which the cost of capital trends toward
15 significant increases. Moreover, the CFO Magazine survey clearly demonstrates
16 that Petitioner's proposed 11.75% cost of equity is well above market
17 expectations, even for a much more risky stock portfolio like the S&P 500
18 containing many industrial companies. Consequently, my recommended cost of
19 equity for Petitioner of 8.5% is much more in line with current economic
20 conditions than is Mr. Moul's recommendation.

²² Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2008-2017, January, 2007*. www.cbo.gov.

²³ Federal Reserve Bank of Philadelphia *Survey of Professional Forecasters, Second Quarter, 2007*, <http://www.phil.frb.org/files/spf/survq207.html>.

1 describes a relatively low-risk industry. I estimated a risk-free rate of 5.0% based
2 primarily on the recent and long term experience with rates on U.S. Treasury
3 bonds [see Attachment BEL-3]. Giving equal weight to both the geometric mean
4 and arithmetic mean approaches, I calculated a market risk premium of 5.75%.
5 This results in a CAPM cost of equity for the proxy group of 8.68%.

6 **Q: Please summarize your testimony on macroeconomic and capital market**
7 **trends influencing cost of equity.**

8 A: In stark contrast to the market expectations described in CFO Magazine of an
9 8.33% anticipated return on the S&P 500, Mr. Moul comes up with a rate of
10 11.75% for a regulated public utility with zero long term debt. Again, in today's
11 capital market, Mr. Moul's recommendation is far too high and simply not
12 realistic.

13 I examined three macroeconomic variables that can influence the cost of
14 equity capital. First, I examined interest rates. In spite of recent modest
15 increases, there appears to be no decisive trend indicating a period of sustained
16 higher interest rates. Interest rates on 5-year, 10-year and 20-year bonds have
17 stayed in the 4% to 5% range for several years, and the recent increase above five
18 percent has not established itself as a long term trend. Moreover, CBO forecasts
19 longer term growth in real GDP to be in a modest 2.5%-3.0% range. Growth in
20 this range seems unlikely to drive up interest rates. Real growth in GDP (which
21 filters out the impact of inflation) has been consistent since the recovery of 2002,
22 but has been lower than in the previous two decades.

23 Inflation is also an important variable to consider. The United States is
24 currently experiencing an extended period of low inflation. While inflation fears

1 are always a policy consideration for the Federal Reserve, recent experience and
2 projections by the CBO tend to indicate that inflation is under control in spite of
3 recent run-ups in energy prices.

4 The evidence regarding interest rates, economic growth, inflation and
5 market return expectations all support my 8.5% cost of equity recommendation
6 for Petitioner. Furthermore, the Commission should bear in mind that Petitioner
7 has a 100% equity capital structure, and consequently has eliminated a large
8 portion of risk associated with the need to service debt. Considering the results
9 of the DCF and CAPM studies and the other evidence discussed above, an
10 authorized return on equity of 8.5% is entirely reasonable for Petitioner,
11 especially in light of Petitioner's 100% equity capital structure.

12 **Q: Does this conclude your testimony?**

13 **A:** Yes, it does.

Summary of Discounted Cash Flow Analysis (DCF)

DCF formula: $K = (D_1/P_0) + g$

Gas Utility Group:

Dividend Yield (D_1/P_0):	3.8%	see page	2 of 5
Dividend Growth (g):	4.5%	see page	4 of 5
Cost of Equity (k):	8.3%		

AUS Dividend Yield Data
(January through June 2007 publication dates)

	Last 3 months Average	Last 6 months Average	Year-to-date average	Value Line Forward Yield D ₁ /P ₀
Laclede Group (LG)	3.9%	3.9%	3.9%	4.9%
Northwest Natural Gas (NWN)	4.0%	4.0%	4.0%	3.0%
South Jersey Industries (SJI)	4.6%	4.6%	4.6%	2.6%
Chesapeake Utilities (CPK)	4.7%	4.6%	4.6%	3.4%
RGC Resource, Inc. (RGCO)	2.9%	3.0%	3.0%	4.5%
Delta Natural Gas Co. (DGAS)	3.0%	3.2%	3.2%	4.8%
Energy South, Inc. (ENSI)	3.8%	3.7%	3.7%	2.1%
Gas Utility Group Average	3.6%	3.7%	3.7%	3.6%

Gas Utility Group:

Six Month Average Dividend Yield, adjusted for growth by (1 + 0.5g)

$$D_1/P_0 = D_0/P_0 * (1 + 0.5g) = 3.7\% * [1 + 0.5(0.045)] = \quad \quad \quad \mathbf{3.8\%}$$

Value Line Forward Yield (D₁/P₀) = **3.6%**

Use for forward yield (D₁/P₀): **3.8%**

AUS Utility Reports Dividend Yield Data
(January through June 2007 publication dates)

	January	February	March	April	May	June	Last 3 months Average	Last 6 months Average
Laclede Group (LG)	4.2%	4.3%	4.6%	4.9%	4.7%	4.6%	4.7%	4.6%
Northwest Natural Gas (NWN)	3.4%	3.5%	3.3%	3.2%	3.1%	2.8%	3.0%	3.2%
South Jersey Industries (SJI)	3.0%	3.0%	2.8%	2.7%	2.6%	2.5%	2.6%	2.8%
Chesapeake Utilities (CPK)	3.8%	4.0%	3.9%	3.8%	3.7%	3.4%	3.6%	3.8%
RGC Resource, Inc. (RGCO)	4.9%	4.8%	4.6%	4.4%	4.4%	4.3%	4.4%	4.6%
Delta Natural Gas Co. (DGAS)	4.9%	4.9%	4.9%	4.9%	4.9%	4.8%	4.9%	4.9%
Energy South, Inc. (ENSI)	2.3%	2.4%	2.3%	2.3%	2.2%	2.1%	2.2%	2.3%
Gas Utility Proxy Group Average	3.8%	3.8%	3.8%	3.7%	3.7%	3.5%	3.6%	3.7%

Summary of Discounted Cash Flow Analysis (DCF) Growth Estimates

Gas Utility Group:

Average of 10 year historical growth:	3.4%
Average of 5 year historical growth:	4.5%
Average of Value Line forecasted growth rates:	4.4%
Use for DCF dividend growth rate (g):	4.5%

Averages are the average earnings, dividends, and book value per share growth for the applicable periods.

Value Line Growth Rates

	Past 10 Years			Past 5 Years			Value Line Forecast			Averages		
	Earnings	Dividends	Book Value	Earnings	Dividends	Book Value	Earnings	Dividends	Book Value	Average of 10 year historical growth:	Average of 5 year historical growth:	Average of Value Line forecasted growth rates:
Laclede Group (LG)	3.0%	1.0%	3.0%	6.5%	0.5%	3.5%	2.0%	2.5%	5.0%	2.3%	3.5%	3.2%
Northwest Natural Gas (NWN)	2.0%	1.0%	4.0%	3.0%	1.5%	3.5%	6.5%	5.5%	4.0%	2.3%	2.7%	5.3%
South Jersey Industries (SJI)	8.5%	2.0%	6.0%	9.5%	3.5%	13.5%	-	5.5%	4.5%	5.5%	8.8%	3.3%
Chesapeake Utilities (CPK)	-	-	-	5.0%	1.5%	4.5%	-	-	-	0.0%	3.7%	0.0%
RGC Resource, Inc. (RGC)	-	-	-	-1.0%	1.5%	3.0%	-	-	-	0.0%	2.3%	0.0%
Delta Natural Gas Co. (DGAS)	-	-	-	2.5%	1.0%	4.5%	-	-	-	0.0%	2.7%	0.0%
Energy South, Inc. (ENSI)	-	-	-	8.5%	5.0%	7.0%	-	-	-	0.0%	6.8%	0.0%
GROUP AVERAGES	4.5%	1.3%	4.3%	5.8%	2.1%	5.6%	4.3%	4.5%	4.5%	3.4%	4.5%	4.4%

All data based on most recent edition (as of June 15, 2007) of Value Line Investment Survey, Ratings and Reports -- www.valueline.com.

Note: The -1.0% for RGC Resources, Inc. under the Earnings Rate for the past 5 years was excluded from this calculation.

Historical Growth Rates
Earnings Per Share, Dividends Per Share,
Book Value Per Share, and Cash Flow Per Share

<u>Gas Group</u>	<u>Earnings per Share</u>		<u>Dividends per Share</u>		<u>Book Value per Share</u>		<u>Cash Flow per Share</u>	
	<u>Value Line</u>		<u>Value Line</u>		<u>Value Line</u>		<u>Value Line</u>	
	<u>5 Year</u>	<u>10 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>5 Year</u>	<u>10 Year</u>
Chesapeake Utilities	6.00%	-	1.50%	-	3.50%	-	4.50%	-
Delta Natural Gas	2.50%	-	1.00%	-	4.50%	-	-1.00%	-
EnergySouth, Inc.	6.50%	-	5.00%	-	6.50%	-	6.50%	-
Laclede Group	4.50%	2.50%	0.50%	1.00%	2.50%	3.00%	1.50%	1.00%
Northwest Natural Gas	5.00%	1.50%	1.00%	1.00%	3.50%	4.00%	2.50%	1.50%
RGC Resources, Inc.	-1.50%	-	1.50%	-	3.00%	-	0.50%	-
South Jersey Industries	11.50%	8.00%	2.50%	1.50%	13.00%	5.50%	6.50%	4.50%
	<u>4.93%</u>	<u>4.00%</u>	<u>1.86%</u>	<u>1.17%</u>	<u>5.21%</u>	<u>4.17%</u>	<u>3.00%</u>	<u>2.33%</u>

Source of Information: Value Line Investment Survey, December 15, 2006

Analysts' Five-Year Projected Growth Rates
Earnings Per Share, Dividends Per Share,
Book Value Per Share, and Cash Flow Per Share

<u>Gas Group</u>	<u>I/B/E/S</u> <u>First</u> <u>Call</u>	<u>Zacks</u> <u>Earnings</u> <u>Per share</u>	<u>Reuters</u> <u>Market</u> <u>Guide</u>	<u>Value Line</u>				
				<u>Earnings</u> <u>Per Share</u>	<u>Dividends</u> <u>Per Share</u>	<u>Book</u> <u>Value</u> <u>Per Share</u>	<u>Cash</u> <u>Flow</u> <u>Per Share</u>	<u>Percent</u> <u>Retained to</u> <u>Common Equity</u>
Chesapeake Utilities	6.00%	6.00%	-	-	-	-	-	-
Delta Natural Gas	-	2.00%	-	-	-	-	-	-
EnergySouth, Inc.	-	5.00%	5.00%	-	-	-	-	-
Laclede Group	-	-	4.00%	5.00%	2.50%	7.50%	8.00%	4.00%
Northwest Natural Gas	4.88%	5.30%	4.88%	7.00%	4.00%	3.50%	4.50%	3.80%
RGC Resources, Inc.	-	N/A	-	-	-	-	-	-
South Jersey Industries	6.33%	6.30%	6.33%	7.00%	6.00%	6.00%	6.50%	6.00%
<u>Average</u>	<u>5.74%</u>	<u>4.92%</u>	<u>5.05%</u>	<u>6.33%</u>	<u>4.17%</u>	<u>5.67%</u>	<u>6.33%</u>	<u>4.60%</u>

Source of Information :

Thomson Financial, January 8, 2007

Zacks, January 8, 2007

Reuters, January 8, 2007

Value Line Investment Survey, December 15, 2006

CAPM Cost of Equity Summary

CAPM Formula: $K = R_f + \beta(R_m - R_f)$

Risk Free Rate (R_f)	5.0%
Beta (β)	0.64
Risk Premium (<i>Geometric Approach - Long Term Bonds</i>)	5.00%
Risk Premium (<i>Arithmetic Approach - Long Term Bonds</i>)	6.50%
Risk Premium (<i>Long Term Bonds</i>)	5.75%
Required Return (K) (<i>Long Term Bonds</i>)	8.68%

RISK FREE RATE

Yields on U.S. Treasury Securities

Recent Months

Month	5 Year Treasury Bonds	10 Year Treasury Bonds	20 Year Treasury Bonds
January 2007	4.75%	4.76%	4.95%
February 2007	4.71%	4.72%	4.93%
March 2007	4.48%	4.56%	4.81%
April 2007	4.59%	4.69%	4.95%
May 2007	4.67%	4.75%	4.98%
June 2007	5.03%	5.10%	5.29%
Recent 3 Month Average (April-May-June)	4.76%	4.85%	5.07%
Recent 6 Month Average (January-June)	4.71%	4.76%	4.99%

Source: Federal Reserve, www.federalreserve.gov

Risk Free Rate for CAPM Calculation	5.0%
--	-------------

Beta for Gas Utility Group

Company	Value Line Adjusted	Smart Money	Yahoo Finance	NASDAQ
Laclede Group	0.90	0.53	1.11	0.53
North West Natural Gas	0.75	0.16	0.66	0.16
South Jersey Industries	0.70	0.36	0.27	0.32
Chesapeake Utilities	0.60	0.36	0.13	0.36
RGC Resource, Inc.	0.35	-0.04	-0.28	0.01
Delta Natural Gas Co.	0.50	0.22	0.73	0.22
Energy South, Inc.	0.65	0.55	0.67	0.53
Average for Gas Utility Group	0.64	0.31	0.47	0.30

Note: Value Line data as of June 15, 2007, Smart Money.com and Yahoo.com data as of June 28, 2007

Market Risk Premiums

Total Returns, 1926-2006

	Stocks	Long-term Bonds
Geometric Mean	10.40%	5.40%
Arithmetic Mean	12.30%	5.80%

Market Risk Premiums ($R_m - R_f$)

		Long-term Bonds
Geometric Mean		5.00%
Arithmetic Mean		6.50%
Average Market Risk Premium		5.75%

Source: Ibbotson Associates, *Stocks, Bonds, Bills and Inflation, 2007 Yearbook*, p. 119

Duke University/CFO Business Outlook Survey - U.S. - Spring, 2007

8. On May 21, 2007 the annual yield on 10-yr treasury bonds was 4.8%. Please complete the following:

	Mean	SD	95% CI	Median	Minimum	Maximum	Total
Over the next 10 years, I expect the average annual S&P 500 return will be: There is a 1-in-10 chance it will be less than:	3.17	4.70	2.73 - 3.62	4	-25	50	425
Over the next 10 years, I expect the average annual S&P 500 return will be: Expected return:	8.33	5.89	7.78 - 8.87	8	3	100	449
Over the next 10 years, I expect the average annual S&P 500 return will be: There is a 1-in-10 chance it will be greater than:	11.94	7.65	11.21 - 12.66	11	3	100	425
Over the next year, I expect the average annual S&P 500 return will be: There is a 1-in-10 chance it will be less than:	0.53	6.90	-0.12 - 1.19	3	-25	25	424
Over the next year, I expect the average annual S&P 500 return will be: Expected return:	7.37	3.72	7.02 - 7.71	7	-5	23	449
Over the next year, I expect the average annual S&P 500 return will be: There is a 1-in-10 chance it will be greater than:	12.00	5.24	11.50 - 12.50	11	-5	30	422