

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

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In Re: Request for rate increase) DOCKET NO. 010949-EI
by Gulf Power Company.)
_____)

VOLUME NUMBER 3

Pages 157 through 269



IN RE: HEARING

BEFORE: CHAIRMAN LILA A. JABER
COMMISSIONER J. TERRY DEASON
COMMISSIONER BRAULIO L. BAEZ
COMMISSIONER MICHAEL A. PALECKI
COMMISSIONER RUDOLPH "RUDY" BRADLEY

DATE: MONDAY, FEBRUARY 25, 2002

TIME: COMMENCED AT 9:30 A.M.

PLACE: FPSC
4075 ESPLANADE WAY
ROOM 152
TALLAHASSEE, FLORIDA

REPORTED BY: NANCY S. METZKE, RPR, CCR

APPEARANCES: (As heretofore noted.)

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I N D E X

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JAMES A. ROTHSCHILD	
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EXHIBITS - VOLUME VI

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NUMBER

ID. ADMTD.

#28 JAR-1 through JAR-10

P R O C E E D I N G S

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3 CHAIRMAN JABER: That brings us to Mr. Rothschild,
4 OPC?

5 MR. BURGESS: Yes, commissioner. We would call Mr.
6 Rothschild to the stand.

7 JAMES A. ROTHSCHILD

8 was called as a witness on behalf of the Office of Public
9 Counsel, and, having been duly sworn, testified as follows:

10 EXAMINATION

11 BY MR. BURGESS:

12 Q Mr. Rothschild, am I correct that you have been
13 been sworn in?

14 A Yes.

15 Q Would you state your name and business address
16 please?

17 A James A. Rothschild, and my business address is 115
18 Scarlet Oak Drive, Wilton, Connecticut.

19 Q Mr. Rothschild, did you prepare testimony that was
20 prefiled in this docket on behalf of the Office of Public
21 Counsel?

22 A Yes, I did.

23 Q And have you made any subsequent changes to the
24 testimony or exhibits that were filed?

25 A Yes, there were a few very minor changes that were

1 discussed in my deposition.

2 Q Mr. Rothschild, if you were asked the same
3 questions that were presented in the prefiled testimony
4 today, would your answer be the same with the exception of
5 those reflected in the amended exhibits?

6 A Yes.

7 MR. BURGESS: Commissioner, we would ask that Mr.
8 Rothschild's testimony be entered in the record as
9 though read.

10 CHAIRMAN JABER: Okay. Let me get clarification.
11 Are there changes to his testimony or changes to the
12 exhibits?

13 MR. BURGESS: There are -- well, perhaps it would
14 be best for him to testify to it. There were changes to
15 the exhibits that Mr. Rothschild submitted and explained
16 in his deposition which has become part of the record in
17 lieu of cross examination. I have filed with the clerk
18 and served each of the parties with those amended
19 exhibits.

20 CHAIRMAN JABER: Okay. I just wanted to know if
21 there were changes to the testimony before we inserted
22 it into the record.

23 MR. ROTHSCHILD: Okay. If I may add for
24 clarification, there are no changes to the testimony
25 other than to the extent that it refers to exhibits and

1 uses numbers from those exhibits, and there were a few
2 small changes in those numbers.

3 CHAIRMAN JABER: Okay. Mr. Burgess, what's the
4 best way of handling that? Do you want to do an errata
5 sheet? You said you've actually given --

6 MR. BURGESS: I'm sorry. I have filed them, and so
7 they are -- have been submitted with the clerk's office,
8 and so -- and with the cover sheet that they are to
9 replace the corresponding exhibits that are currently in
10 his testimony. So my understanding is that they are as
11 though filed, that they are part of what is being
12 presented today.

13 CHAIRMAN JABER: Wonderful. Thank you.

14 MR. BURGESS: Okay. Thank you.

15 CHAIRMAN JABER: The prefiled direct testimony of
16 James A. Rothschild shall be inserted into the record
17 as though read.

18 MR. BURGESS: Thank you, commissioner.
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1 I. STATEMENT OF QUALIFICATIONS OF JAMES A. ROTHSCHILD

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3 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

4 A. My name is James A. Rothschild and my address is 115 Scarlet Oak Drive,
5 Wilton Connecticut 06897.

6

7 Q. WHAT IS YOUR OCCUPATION?

8 A. I am a financial consultant specializing in utility regulation. I have experience in
9 the regulation of electric, gas, telephone, sewer, and water utilities throughout
10 the United States.

11

12 Q. PLEASE SUMMARIZE YOUR UTILITY REGULATORY EXPERIENCE.

13 A. I am President of Rothschild Financial Consulting and have been a consultant
14 since 1972. From 1979 through January 1985, I was President of Georgetown
15 Consulting Group, Inc. From 1976 to 1979, I was the President of J. Rothschild
16 Associates. Both of these firms specialized in utility regulation. From 1972
17 through 1976, Touche Ross & Co., a major international accounting firm,
18 employed me as a management consultant. Touche Ross & Co. later merged to
19 form Deloitte Touche. Much of my consulting at Touche Ross was in the area of
20 utility regulation. While associated with the above firms, I have worked for
21 various state utility commissions, attorneys general, and public advocates on
22 regulatory matters relating to regulatory and financial issues. These have
23 included rate of return, financial issues, and accounting issues. (See Appendix
24 A.)

25

26 Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

- 1 A. I received an MBA in Banking and Finance from Case Western University (1971)
- 2 and a BS in Chemical Engineering from the University of Pittsburgh (1967).
- 3

1 II. PURPOSE

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3 Q. WHAT IS THE PURPOSE OF THIS TESTIMONY?

4 A. The purpose of this testimony is to determine the cost of equity, capital structure,
5 and overall cost of capital that is appropriate to apply to the rate base of the
6 regulated electric utility operations of Gulf Power. Additionally, this testimony
7 provides an evaluation of the testimony of Gulf Power's cost of equity witness,
8 Mr. Benore.

9

1 III. SUMMARY OF FINDINGS AND RECOMMENDATIONS

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3 Q. PLEASE SUMMARIZE YOUR FINDINGS AND RECOMMENDATIONS IN
4 THIS CASE.

5 A. I have determined that the overall cost of capital that should be allowed to Gulf
6 Power's regulated electric operations is 7.33%. This determination is based
7 upon the capital structure proposed by Gulf Power, and a cost of equity of
8 10.00%. I have adopted the company's embedded cost of long-term debt,
9 preferred stock, and customer deposits. I am aware that Florida regulatory
10 policy has implemented numerous adjustment clauses which have the effect of
11 reducing the risk experienced by Gulf Power's equity holders. These include a
12 forward-looking fuel adjustment clause, a conservation adjustment clause, and
13 an environmental adjustment clause. The aggregate impact of these clauses is
14 likely to cause a reduction in risk beyond the level of risk reduction that exists
15 on average by the comparative electric companies. I have not made a
16 downward adjustment to my cost of equity recommendation to account for
17 these lower risks. However, it would be reasonable for the Commission to
18 make such a downward adjustment to the cost of equity to recognize the lower
19 risk caused by these adjustment clauses. Equity reductions to reflect lower risks
20 such as this have often been in the range of a 25 basis point (0.25%) reduction
21 in the cost of equity.

22 The company's requested cost of equity is based upon the testimony of
23 Mr. Benore. His testimony contains serious errors in the implementation of the

1 equity costing methods he has presented. These problems are explained in
2 detail later in this testimony.

3 Summarizing, the major problem with his Discounted Cash Flow (DCF)
4 cost of equity computation is that he applies the DCF Method as if investors
5 not only expect short-term analyst forecasts to be accurate in the short-term, but
6 also somehow applicable in the long-term. Mr. Benore's analysis implies that
7 investors believe the average return on book equity (ROE) for his selected
8 group of comparative electric companies will increase to 18% by 2024 and
9 keep increasing forever. Ignoring his inappropriate stretching of short-term
10 forecasts to the horizon, his DCF method would still be mathematically invalid
11 because it is not indicative of the expected growth in dividends, stock price, or
12 book value even over the next five years. The serious deficiencies in Mr.
13 Benore's DCF approach are repeated all over again in the portion of Mr.
14 Benore's risk premium based methods that rely upon his DCF method.

15 For reasons shown later in this testimony, Mr. Benore's risk premium
16 method introduces a substantial upward bias because he relies upon the historic
17 quantification of the risk premium based upon the improper "arithmetic
18 average" approach rather than the "geometric average". As will be shown later
19 in this testimony, textbooks, the U.S. Securities and Exchange Commission
20 (SEC) and even Value Line has found that using the arithmetic average rather
21 than the geometric average results in an upwardly biased result.

22 As will be explained later in this testimony, my criticisms of Mr.
23 Benore's approaches to determine the cost of equity are confirmed by many

1 sources, one of which is a recent analysis presented by Credit Suisse First
2 Boston (CSFB). In this CSFB report, entitled "Global Strategy Perspectives"¹
3 they find that five-year analysts' consensus growth rates "... are unusually
4 unreliable...", being high because of "... one-off reductions in interest rates and
5 tax gains...". CSFB also states "(w)e remind readers that over the last 10 years
6 I/B/E/S earnings numbers have on average been 6% too optimistic 12 months
7 prior to a reporting date." CSFB finds that the equity risk premium over
8 treasuries for an investment of average risk is 3.7%. The risk premium over Baa
9 rated corporate bonds is 1.9%. These bond risk premiums are consistent with
10 my cost of equity recommendation (see Schedule JAR 10, P. 1) and are much
11 lower than the very excessive 6.62% equity risk premium over corporate bonds
12 used by Mr. Benore. See page 32, line 9 of his direct testimony.

13

¹ An article in a publication entitled *Weekly Insights*, dated October 4, 2001. The article is contained on pages 55-64.

1 IV. CAPITAL STRUCTURE AND EMBEDDED COST RATES

2

3 Q. HOW HAVE YOU DETERMINED THE CAPITAL STRUCTURE AND
4 EMBEDDED COST RATES IN THIS PROCEEDING?

5 A. I have adopted the capital structure and embedded cost rates as proposed by the
6 company.

7

1 V. COST OF COMMON EQUITY

2

3 **A. Introduction**

4

5 Q. HOW DID YOU DETERMINE THE COST OF EQUITY, AND WHAT
6 WERE YOUR FINDINGS?

7 A. I have determined the cost of equity by applying two different versions of the
8 DCF method and two different versions of the Risk Premium/CAPM method.
9 The DCF method was applied to the group of comparative electric distribution
10 companies selected by company witness Mr. Benore. For additional
11 comparative purposes, I also applied the DCF method directly to Southern
12 Company, the parent of Gulf Power. I consider the results of all the methods to
13 produce my final recommendation compare and contrast the results of each
14 method with the results obtained from the other methods. I do not mechanically
15 combine various results because it is preferable to compare and contrast the
16 results and evaluate them in the context of current economic conditions. For
17 example, the flight to quality in the market today causes a properly applied risk
18 premium/CAPM model to understate the cost of equity. I gave this fact
19 important consideration when interpreting the results. In more normal economic
20 times, it may be appropriate to give the risk premium/CAPM result a higher
21 weighting.

22

1 Q. One of the two versions of the DCF method I used is based upon the commonly
2 used simplified, or constant growth, or single-stage version of the DCF model.
3 This version determines the cost of equity by summing the dividend yield and a
4 future expected growth rate. This constant growth version of the DCF model
5 only produces a valid result if the value used for the growth rate is reasonably
6 representative of investors' future expectation of a constant growth rate for
7 earnings, dividends, book value, and stock price. As will be explained later in
8 this testimony, should the growth rate used in this constant growth formula not
9 be representative of the anticipated growth rate for any one of these factors,
10 then this simplified version of the DCF method should not be used because it
11 will produce a result that is not a valid indicator of the cost of equity.

12 In addition to presenting the constant growth form of the DCF model, I also
13 have used the results of a complex, or multi-stage version of the DCF model.
14 This multi-stage version of the DCF model separately discounts each future
15 anticipated cash flow and therefore does not require the limitation of a constant
16 growth rate in earnings, dividends, book value, and stock price to still be correct.
17 Any combination of future levels of these factors can be used so long as the
18 inputs are consistent with investors' future expectations. The multi-stage DCF
19 model might seem more complicated because it requires separate estimates of the
20 expected cash flow in each future year considered. In reality, however, the
21 proper implementation of the single-stage DCF requires so much care in the
22 selection of a growth rate that is equally applicable to dividends, earnings, book

1 value, and stock price that it actually takes an even greater level of sophistication
2 to properly implement the single-stage DCF than the multi-stage DCF.

3 As shown on Schedule JAR 2, when applied to the comparative group of
4 electric companies, the constant growth or single-stage DCF is indicating a cost
5 of equity of 8.86% to 9.64% depending upon the time period and the companies
6 used, and the multi-stage DCF is indicating a cost of equity of 9.25% to 10.36%,
7 with an average result of 9.80%.

8 The risk premium/CAPM method was first applied by utilizing the actual
9 historic difference between the earned total return on equity investments
10 compared to the inflation rate. This method is helpful because the relationship
11 between the inflation rate and the earned return on common stocks has been
12 shown to be relatively stable in all major sub-periods from 1802 through 1997.²
13 Furthermore, the U.S. Treasury Department now sells long-term U.S. treasury
14 bonds that are indexed to inflation as well as selling U.S. treasury bonds that
15 are not indexed to inflation. Therefore, it is possible to accurately quantify
16 what future rate of inflation investors expect by comparing the yield on the two
17 different forms of U.S. treasuries. By quantifying investors' expectations for
18 the future inflation rate and adding a risk premium derived from the historically
19 stable differential between the inflation rate and the return on common stocks,
20 it is possible to develop an estimate of the current cost of equity. As shown on
21 Schedule JAR 2, the cost of equity derived from this approach for the average

² Page 12 of *Stocks for the Long Run* by Jeremy J. Siegel, Professor of Finance- the Wharton School of the University of Pennsylvania, McGraw Hill, 1998.

1 equity is currently indicated to be 8.90%. The result would be lower than
2 8.90% if the lower risk of electric utilities was considered. While I normally
3 have made a specific adjustment to lower the indicated cost of equity for risk
4 specific reasons, in the current marketplace the yields on long-term bonds
5 already reflect the flight to quality caused by uncertain economic times and the
6 stimulating effects of the Federal Reserve Board. Therefore, I have not
7 included the risk-adjusted results of the inflation premium method in my cost of
8 equity summary.

9 The second approach to the risk premium/CAPM method was to add a
10 risk premium to the cost of debt. This method has been commonly applied in
11 utility rate proceedings by determining the historic difference between the
12 actual total return earned by investors on common stocks (total return is
13 dividends plus capital appreciation) and comparing that return to the total
14 return earned on a bond investment. The difference between those two returns
15 is the risk premium. That risk premium is then modified for the risk that is
16 appropriate for the company or group of companies to which the method is
17 being applied. In the past, I have applied this method by determining the
18 appropriate risk premium between the cost of debt and the cost of equity for an
19 average electric utility and the cost of various debt instruments. The debt
20 instruments I used were a) long-term treasury bonds, b) long term high quality
21 corporate bonds, c) intermediate term treasury bonds, and d) 90-day treasury
22 bills. Again, due to current economic conditions, there are temporarily
23 problems with using treasury securities in a risk premium analysis based upon

1 historic risk premium relationships. Therefore, I have only summarized the
2 results of a risk premium analysis based upon long-term corporate bonds. The
3 overall cost of equity based upon this method was 10.62% for a non-utility
4 common stock of average risk. After using beta to adjust for the lower risk of
5 the electric utility industry, the indicated cost became 8.94%. See Schedule
6 JAR 2.

7 **B. Summary of Conclusions on Cost of Equity**

8

9 Q. WHAT IS THE COST OF EQUITY TO GULF POWER?

10 A. Based upon an analysis of all of the cost of equity results shown on Schedule
11 JAR 2 and considering conditions in the current financial markets, I find that a
12 conservatively high estimate of the cost of equity to Gulf Power is currently
13 10.00%.

14 Recognizing that the pending recession fears are causing the DCF method to
15 overstate the cost of equity at this juncture, I noted that the constant growth
16 version of the DCF method as applied to the comparative group of electric
17 utilities is 8.86% to 9.64%. I also found that the cost of equity indicated by the
18 multi-stage version of the DCF method applied to the same group of electric
19 distribution utilities varied between 9.25% to 10.36% depending upon whether
20 the low end or the high end of the cost of equity range expected by investors is
21 used in the second stage. For the first stage of the DCF method, I used the return
22 on equity forecast by Value Line. To the extent that Value Line's forecast is
23 more optimistic than actually anticipated by investors, this will make the multi-

1 stage approach overstate the cost of equity. The cost of equity indicated by the
2 risk premium/CAPM method is 10.62% for an equity of average risk, and is
3 8.94% if consideration is given to the lower than average risk experienced by a
4 regulated electric utility. See Schedule JAR 2. The results of the inflation
5 premium method are difficult to interpret in the current environment because in
6 times of recession, there us usually a "... flight to quality....". "Flight to
7 quality" means that investors are more inclined to purchase low risk U.S.
8 treasury securities in uncertain economic times than when they are more
9 confident about the outlook for the economy. The inflation premium method is
10 dependent upon U.S. treasury interest rates and is therefore is being temporarily
11 impacted by this "flight to quality".

12 Based upon a review of the DCF and risk premium/CAPM results, I
13 recommend that the cost of equity for an electric utility of average risk is no
14 more than 10.0%. This result is conservatively high because it is slightly above
15 the 9.80% average of the results of the complex, or multi-stage DCF. The
16 results of the multi-stage DCF are higher than the results for either the constant
17 growth DCF or the risk premium/CAPM results.

18 Since the percentage of common equity in the capital structure of Gulf
19 Power is very similar to the percentage of common equity used by the
20 comparative electric companies, no financial risk adjustment is required.

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Q. HAVE YOU SEEN COST OF CAPITAL WITNESSES ARGUE THAT THE DCF METHOD UNDERSTATES THE COST OF EQUITY WHEN THE MARKET-TO-BOOK RATIOS ARE ABOVE 1.0?

A. Yes, I have seen company cost of capital witnesses, including Mr. Benore in this case, that have made such an argument even though such an argument is inaccurate. Both the FERC and the FCC have appropriately rejected such an argument, finding that applying the allowed rate of return to the utility's book value provides the return required by shareholders. As FERC has explained in detail:

Specifically, they claim that when a utility's market-to-book ratio is above one, applying a DCF-based allowed rate of return to a book value rate base results in earnings that are too low. Conversely, when a utility's market-to-book ratio is below one, applying a DCF-based allowed rate of return to a book value rate base results in earnings that are too high. Both commenters argue that the allowed rate of return should be applied to a market value rate based rather than to book value.

The following example demonstrates the circularity of their claim. Equity capital costs generally rise as interest rates rise. Conversely, equity capital cost rates generally fall as interest rates fall. During periods of rising equity costs, utilities generally file for rate increases to cover these higher costs. This action protects utility shareholders from declines in the value of the stock. The result is a tendency to maintain a utility's existing market-to-book ratio during periods of rising equity costs.

During periods of falling capital costs, the revenue required to meet shareholder capital costs requirements also declines. Until a utility files for new rates at the lower capital cost, it continues to charge rates based on the higher

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equity capital costs that existed when the current rates were set. The result is a tendency for the utility to earn more than its shareholders currently require and a concomitant increase in the price of the utility's common stock and market-to-book ratio.

When capital costs are below those of the previous filing, applying the allowed rate of return to a market value rate base would perpetuate the unnecessarily high revenues at the expense of utility's customers. **Applying the allowed rate of return to a book value rate base would reduce revenue to the level required by shareholders at the new lower cost of equity. These revenues will provide the utility with an opportunity to recover all costs including the cost of capital.**

1 The argument over the application of an allowed rate of return
2 to a market value rate base is an old one and the problem of
3 circularity inherent in that approach has been long and widely
4 recognized. **The Supreme Court's statement in Federal**
5 **Power Commission v. Hope Natural Gas Co. that "rates**
6 **cannot be dependent upon 'fair value' when the value of**
7 **the going enterprise depends on earnings under whatever**
8 **rates may be anticipated"** reflects its recognition of that
9 **problem. The market value of an enterprise or its common**
10 **stock depends upon its earnings or anticipated earnings,**
11 **which in turn depends upon the rates allowed. Thus,**
12 **market value is a result of the ratemaking process and may**
13 **not properly be the beginning of the process as well.**

14
15 Docket RM87-35-000, P. 3348 of the Federal Register/ Vol. 53, No. 24, Friday
16 Feb. 5, 1988. Emphasis added.

17
18 From the above quote, it is proper to conclude that the FERC recognizes
19 good ratemaking should not try to set a cost of equity with the intent of
20 maintaining a stock price that is in excess of book value. If the stock price
21 exceeds book value, a reasonable result of the new rate determination could be
22 for the stock price to decline. If the stock price is selling below book value, a
23 reasonable outcome of the new rate determination could be for the stock price
24 to increase. This meets the objective of allowing a reasonable rate of return on
25 rate base.

26 Similarly, the Federal Communications Commission (FCC) responded to
27 an argument made by Ameritech which suggested that the FCC was "...
28 obligated to prescribe a rate of return that will ensure continuation of the
29 carriers' current market-to-book ratios."³ The FCC rejected Ameritech's
30 argument for several reasons. The reasons stated were:

³Page 15 of decision FCC 90-315 dated September 19, 1990, in CC Docket No. 89-624.

1
2 ... market-to-book ratios greater than one have been viewed
3 traditionally as possible indicators that the company's return is
4 greater than its required return.
5

6 ...Ameritech places great reliance on its perception that unless this
7 Commission applies the market-derived rate of return to its equity
8 base, stockholders will see a massive decline in the value of their
9 stock. It is true that prescription of a rate of return based on market
10 data could lead to a decrease in the value of the stock if investors
11 have been expecting continuation of a previously-authorized higher
12 rate of return. On the other hand, a reduced rate of return might
13 have no impact on stock price if, as often happens, the reduction
14 had already been anticipated and discounted by the market. In any
15 case, the requirement that we balance ratepayer and investor
16 interests does not allow us to insulate investors from a diminution
17 in the value of their stock (if in fact we could do so). **In any**
18 **event, if we prescribed a rate of return above that which**
19 **market data showed to be reasonable, investors would increase**
20 **their expectations as to the carrier's rate of return, market**
21 **value would increase, and the carrier would seek a higher rate**
22 **of return authorization so that these higher expectations are**
23 **not thwarted. We would be remiss in our responsibilities to**
24 **balance ratepayers' and investors' interests if we implemented**
25 **procedures that effectively insulated a carrier from**
26 **experiencing a decrease in its authorized return. Thus, our**
27 **current market-based rate of return procedures meet the**
28 **Bluefield/Hope criteria notwithstanding that their application**
29 **herein may adversely impact carriers' high market-to-book**
30 **stock ratios.**

31
32 Moreover, market-to-book ratios greater than one have been
33 viewed traditionally as possible indicators that the company's
34 return is greater than its required return.
35

36 (Emphasis added)

37
38 (FCC-90-315, P. 15.)
39

1 **C. Details of the Determination of the Cost of Equity**

2 **1. Definition of the Cost of Equity**

3 Q. PLEASE DEFINE THE TERM COST OF EQUITY.

4 A. The cost of equity is the rate of return that must be offered to a common equity
5 investor in order for that investor to be willing to buy the common stock. The
6 rate of return is provided to investors in two parts. One part of the return is from
7 a dividend. The other part of the return is through the change in the stock price.
8 Investors buy stock to benefit from the total return. Total return is the sum of the
9 dividend income and the profit (or loss) obtained from the change in the stock
10 price. While it is uncommon in the utility industry, many companies do not pay a
11 dividend at all. Yet, investors are willing to buy the stock if they feel that the
12 likely capital appreciation will offset the lack of any dividend income.

13 Common equity investors do not know with certainty what the stock price
14 or dividends will be in the future. Therefore, common equity investment always
15 entails risk, but the risk can vary greatly from company to company.

16 Typically, public utility common stocks are among the least risky
17 common equity investments because dividends are generally more secure, and
18 because utility companies enjoy a territorial monopoly for at least a major part of
19 their business. The territorial monopoly for a utility company is especially useful
20 for risk reduction because utility companies provide a basic service that is needed
21 by their customers both in good times and in bad times. Therefore, as long as it
22 can prove cost justification, a utility company can (through the mechanism of a

1 rate case) increase its rates to the point where it can recover all of its reasonably
2 incurred costs -- including the cost of capital.

3 The above description of the cost of equity might sound to some like a
4 description of the DCF method because it talks about dividend yield and stock
5 price appreciation. Perhaps a major part of the reason that the DCF method has
6 been so commonly used over the years is because, more than any other method,
7 if properly applied, it directly examines these factors that provide the incentive
8 for investors to buy common stock in the first place. The DCF method starts
9 with the current dividend yield, and adds to that dividend yield an estimate of
10 growth to arrive at the estimated cost of capital. This growth is really the
11 estimate of the future capital appreciation that investors are expecting. Dividend
12 growth, book value growth, and earnings growth, to the extent they may be used,
13 are only relevant to the degree they can help estimate stock price appreciation.

14 The risk premium method, which includes the CAPM method, is also
15 commonly used by witnesses in rate proceedings. The risk premium/CAPM
16 method is really measuring the very same thing as the DCF method --- the total
17 return expected by a common stock investor. Rather than determining this total
18 return by directly estimating future dividends and capital appreciation, the risk
19 premium/CAPM method is looking to either interest rates or the inflation rate to
20 help estimate what total return common stock investors want.

21 These methods are appropriate to use because they measure the return
22 investors care about, the return on market price. An investor who buys a
23 common stock at \$10.00 per share and sells it a year later for \$10.90 will have

1 received a 9% return (plus dividends, if any) irrespective of whether or not the
2 company earned any money, and irrespective of the return on book value.

3 However, the rate of return estimated by these methods is correctly applicable
4 to book value. Investors are entitled to a reasonable return on RATE BASE, not
5 a return on the current market value of the stock. Therefore, in the hypothetical
6 example, the commission should set rates such that the return on the used and
7 useful rate base is expected to be 9.0%. If the market price should happen to be
8 below book value, this would NOT be justification for providing a lower return
9 than the cost of equity demanded by investors. If the market price should happen
10 to be above book value, this would NOT be justification for providing a higher
11 return than the cost of equity demanded by investors. The FERC and the FCC
12 both agree with this principle. See quote noted above. As the U. S. Supreme
13 Court found in its decision in the Hope Natural Gas case (320 US 591-660), the
14 stock price is "... the end product of the process of rate-making not the starting
15 point..." and that "... the fact that the value is reduced does not mean that the
16 regulation is invalid."

17

18 **2. Implementation of the DCF Method**

19 a) Introduction

20
21 Q. HOW IS THE DCF METHOD USUALLY IMPLEMENTED?

22 A. The DCF method is usually implemented in utility rate proceedings using the
23 constant growth version. It is applied by implementing the following formula:

1

2

cost of equity = dividend yield + future expected growth

3

Growth of: dividends, earnings, book value and stock price.

4

5 Q. IS THE DCF MODEL WIDELY USED IN UTILITY RATE PROCEEDINGS?

6 A. Yes. The DCF model has been widely used for many years. From my

7 experience, the constant growth form of the DCF model is more widely used

8 than any other approach to determining the cost of equity.

9

10 Q. IS THE DCF MODEL COMMONLY IMPLEMENTED IN A CONSISTENT
11 MANNER?12 A. No. The DCF model is widely used and widely abused. Most implementations
13 of the DCF model in utility rate proceedings start out with the same $D/P + g$, or
14 dividend yield plus growth formula. Also, most generally agree that the growth
15 rate "g" must be representative of the constant future growth rate anticipated by
16 investors for dividends, earnings, book value, and stock price. However, all too
17 often, this important principle is forgotten when it comes time to implement the
18 constant growth DCF formula. Such carelessness causes substantial,
19 unnecessary error when implementing the constant growth version of the DCF
20 model.

21

22 Q. WHY IS IT SO IMPORTANT FOR THE GROWTH RATE USED IN THE
23 CONSTANT GROWTH VERSION OF THE DCF MODEL TO BE

1 REPRESENTATIVE OF THE CONSTANT GROWTH RATE FOR
2 DIVIDENDS, EARNINGS, BOOK VALUE AND STOCK PRICE?

3 A. The derivation of the constant growth formula is based upon the principle that
4 investors buy stock solely for the right to future cash flows obtained as a result
5 of that ownership. The cash flows are obtained through dividend payments
6 and/or stock price appreciation. The constant growth version of the DCF
7 formula will accurately quantify investors' expectations only if investors expect
8 the dividend yield (defined as dividend payment divided by stock price) and the
9 growth in dividends to best be estimated at one constant growth rate for many
10 years into the future. The dividend yield and growth rate that are used in the
11 constant growth formula must be selected carefully. Consider what happens if
12 the expected growth rates are not all equal:

13
14 1. DIFFERENT GROWTH RATE FOR EARNINGS AND FOR
15 DIVIDENDS. Both dividends and the ability for a company to grow
16 dividends in the future are directly derived from earnings. The dividend
17 yield, or D/P, portion of the constant growth DCF formula quantifies the
18 investor-derived value from the portion of earnings paid out as a dividend
19 and the "g" portion of the constant growth DCF formula quantifies the
20 value of the portion of earnings retained in the business. If dividends are
21 quantified using the current dividend rate, but an earnings forecast is used
22 to quantify "g" that is based upon a future environment in which earnings
23 are expected to grow more rapidly than dividends, an ever-increasing

1 portion of the total return expected by investors will be attributable to
2 growth and a smaller portion will be attributable to dividends. Under
3 these conditions, other things being equal, the constant growth version of
4 the DCF model would overstate the cost of equity because the decrease in
5 the payout ratio that results from a more rapid earnings growth rate than
6 dividend growth rate would shift a greater portion of the earnings from
7 dividends to earnings growth. The result of this is that the higher future
8 earnings growth rate would cause the portion of earnings available for
9 dividends to be lower, and therefore the dividend yield would be lower.
10 Conversely, if future earnings growth were expected to be less than
11 dividend growth, the constant growth form of the DCF model would
12 understate the cost of equity. Every time a dividend payment is
13 scheduled, the board of directors of a company decides what portion of
14 earnings to pay out as a dividend and what portion of earnings to re-
15 invest, or "retain" in the business. It is this re-investment of earnings that
16 causes sustainable growth. Both dividends and growth therefore compete
17 for the same dollars of earnings. The higher the portion of earnings
18 allocated to the payment of dividends, the smaller the amount of earnings
19 left over for re-investment and therefore the lower the future growth rate.
20 The relationship between the portion of earnings paid out as a dividend
21 and the portion re-invested in the business is commonly referred to as
22 either the dividend "payout" ratio (which is computed by dividing
23 dividends by earnings), or the "retention rate" (which is computed by

1 dividing the portion of earnings re-invested in the business by earnings).
2 The sum of the payout ratio and the retention rate is 1.0, or 100% because
3 100% of earnings are either paid out as a dividend or retained in the
4 business. The constant growth version of the DCF formula uses a specific
5 dividend rate to compute the "D/P" term of its formula. This specific
6 dividend rate has specific earnings "retention rate" associated with it.
7 This specific "retention rate" provides for one and only one percentage of
8 earnings that remains to cause the growth that is quantified in the second
9 term of the equation. This is because the portion of earnings paid out as a
10 dividend and the portion not paid out as a dividend must remain equal to
11 total earnings. Consider what happens if the dividend "payout ratio" or
12 the earnings "retention" ratio are not constant. If they are not constant,
13 the portion of earnings available for growth and the portion available for
14 dividends will continue to shift over time, but under such conditions the
15 constant growth formula produces an erroneous result because it is
16 incapable of properly accounting for this change.

17
18 2. EARNINGS PER SHARE GROWTH RATE DIFFERENT
19 FROM STOCK PRICE GROWTH RATE. When earnings per share
20 growth rates are measured over a relatively short time period such as the
21 five-year consensus growth rates compiled by services such as Zacks and
22 I/B/E/S, it is likely that investors expect materially different growth rates
23 in earnings per share and stock price. This is because the earnings per

1 share growth rate as reported in such services is simply the compound
2 annual growth rate in the earnings per share from the most recently
3 completed fiscal year to the earnings per share forecast for five years into
4 the future. Presumably, an earnings per share forecast for five years into
5 the future is sufficiently far off that analysts' forecasts for that time
6 period must be based upon an expectation of normal conditions. Five
7 years into the future is too far off to forecast abnormal economic
8 conditions, abnormal weather conditions, or any abnormal operating
9 problems that could impact earnings. However, the base year from
10 which earnings are forecast is likely to contain some abnormalities that
11 have an impact on earnings. To the extent this abnormality exists, the
12 forecast of earnings per share growth from the base year to a period five
13 years in the future will be equal to the sustainable growth rate plus or
14 minus the impact of any abnormalities. Growth that is required to bring
15 earnings up to or down to normally expected conditions is not
16 sustainable growth and therefore it is not the kind of growth that would
17 be mirrored in the stock price growth rate.

18
19 3. DIFFERENT GROWTH RATE FOR EARNINGS AND FOR
20 BOOK VALUE. The return on book equity is computed by dividing
21 earnings by book value. This is an important number for several
22 reasons: a) for a regulated utility company, the allowed cost of equity is
23 the return on book equity that a utility commission intends for a

1 company to earn on the regulated portion of its business, and b)
2 unregulated companies attempt to earn the highest risk adjusted returns
3 on equity that is possible. If earnings per share grow more rapidly than
4 book value per share, the return on equity increases. Conversely, if
5 earnings per share grow more slowly than book value per share, the
6 return on equity decreases. While increases and/or decreases in the
7 earned return on equity can and do occur, it is not credible to forecast a
8 sustained change in the return on equity for the many years into the
9 future that are required in the constant-growth DCF model. A forecasted
10 continuation of a decrease in the earned return on equity would
11 eventually drive the earned return on equity to near zero – a condition
12 that is not credible for a regulated business providing a needed service.
13 Similarly, a forecasted continuation of an increase in the earned return on
14 equity would eventually drive the earned return on equity to an extremely
15 high number – a condition that would not form the basis for a credible
16 growth rate forecast for a regulated business because of the regulatory
17 constraints on the authorized return. Similarly, an earnings per share
18 growth rate higher than the book value per share growth rate is not
19 credible for a competitive business because, as returns would go higher
20 and higher, more and more competitors would be attracted. If a growth
21 rate based upon an earning per share forecast higher than the forecast
22 book value per share growth rate were used in a constant-growth form of
23 the DCF model, then the constant-growth version of the DCF model

1 would contain an upward bias. Conversely, if an earnings per share
2 forecast that is lower than the book value per share growth rate, then the
3 constant-growth form of the DCF model would contain a downward
4 bias.

5

6 Q. ARE FIVE-YEAR EARNINGS PER SHARE FORECASTS OF THE TYPE
7 AVAILABLE FROM SOURCES SUCH AS ZACKS, I/B/E/S, AND
8 VALUE LINE SUITABLE AS A PROXY FOR LONG-TERM
9 SUSTAINABLE GROWTH IN THE CONSTANT-GROWTH FORM OF
10 THE DCF MODEL?

11 A. No. For the above reasons, it is improper to directly use a five-year earnings
12 per share forecast as a proxy for long-term sustainable growth in the constant-
13 growth DCF model. No attempt is made for these earnings per share forecasts
14 to be representative of the anticipated growth rate in dividends per share,
15 book value per share, or stock price. Therefore, these sources can be used to
16 develop a sustainable growth rate in the context of a constant-growth DCF
17 model, but if used directly as a proxy for long-term growth they are no more
18 accurate than it would be to forecast the height of a human at age 60 based
19 upon a reasonable forecast of annual growth for the five years starting at age
20 12. These earnings per share forecasts are generally different from the
21 anticipated growth in dividends, book value, and stock price because they
22 include the often substantial impact of bringing earnings up or down to a
23 normal earned return on equity from whatever return on equity was achieved

1 in the most recently completed fiscal year. Additionally, such analysts'
2 growth rates tend to be overstated because of the well-documented propensity
3 for analysts to be optimistic.⁴ The combined effect of the habitual optimism
4 and the required movement over a relatively short five-year time period to
5 bring earnings per share up to the optimistic levels causes five-year analysts'
6 growth rates to commonly overstate the future sustainable growth rate. As
7 noted earlier, an October 4, 2001 report issued by Credit Suisse First Boston
8 noted that analysts' estimates "... have on average been 6% too optimistic 12
9 months prior to a reporting date."⁵ As a result, DCF approaches that rely
10 upon the direct use of analysts' five-year growth rates repeatedly overstate the
11 cost of equity.

12
13 Q. HOW IS IT POSSIBLE TO ENSURE THAT THE GROWTH RATE USED IN
14 THE CONSTANT-GROWTH VERSION OF THE DCF MODEL WILL

⁴ While there are many sources that have shown this optimism to exist, one noteworthy source is a statement by Arthur Levitt, chairman of the U.S. Securities and Exchange Commission. The following appeared on page 4 of the 5/31/99 issue of Barrons:

ARTHUR LEVITT MAY BE THE best chairman of the SEC since Joe Kennedy. And no accident, really: Like Kennedy, Levitt spent enough time in the Street to develop a fine nose for good stocks and bad people.

Back in April, Levitt delivered some cogent remarks on analysts (in the sacred order of being, they're somewhat lower than angels) and their innate bullishness (solely the product of their sunny natures).

As he observed, sell recommendations make up 1.4% of all analysts' recommendations, while buys represent 68%.

By way of explanation for this strange imbalance, he offers the possibility of a "direct correlation between the content of an analyst's recommendation and the amount of business his firm does with the issuer."

Analysts, he grouses are too eager to see every frog of a stock as a prince. What the world needs, he laments, are analysts who call a frog a frog.

1 RESULT IN A CONSTANT GROWTH RATE INDICATOR FOR
2 DIVIDENDS, EARNINGS, BOOK VALUE, AND STOCK PRICE?

3 A. The most straight-forward and most accurate way to make this computation is to
4 use the formula “ $b \times r + sv$ ” formula, where b = the earnings retention rate,
5 r =the future expected return on book equity, and sv is a factor that accounts for
6 sustainable growth caused by the sale of new shares of common stock. The
7 mathematics in support of the derivation of the DCF model show that the “ $b \times r$
8 + sv ” formula should be used to quantify sustainable growth. Common
9 mistakes with this formula include using historic values of “ $b \times r$ ” and/or of
10 “ sv ” rather than future expected values, and most importantly by failing to
11 realize that in order for the formula to be applied properly, the retention rate
12 value, “ b ” must be determined in a manner that is consistent with the other
13 values input into the DCF model. This is a critical step necessary to ensure that
14 the portion of the future expected earnings that have been allocated to
15 dividends is consistent with the future expected earnings level that is used to
16 compute growth. This is the way to be sure that the retention rate used to
17 compute the dividend yield portion of the constant-growth portion of the DCF
18 model is the same as the retention rate used to compute growth. If the two are
19 not equal, then the total amount of future expected earnings allocated in
20 aggregate to dividends and to growth will be something other than 100% of

⁵ *Weekly Insights*, “Global Strategy Perspectives”, October 4, 2001, page 58.

1 earnings. An approach that accounts for something other than 100% of
2 earnings in the cost of equity computation will result in an invalid result.

3 The way to ensure the consistency necessary for a valid result from the
4 implementation of the constant-growth form of the DCF model is to compute the
5 retention rate "b" based upon the inputs used for the dividend rate "D" and the
6 future expected return on equity, "r". This computation is straight-forward. By
7 definition the retention rate "b" is equal to the portion of dividends not paid out
8 as a dividend divided by earnings. The earnings consistent with the value used
9 for "D" is computed by multiplying book value as of the time of the
10 determination of "D" by the value of "r". The result is the future expected rate of
11 earnings that is consistent with the value used for "D". By subtracting "D" from
12 the future expected earnings consistent with the value used for "r" and dividing
13 that amount by the earnings consistent with the value chosen for "r" results in a
14 retention rate that contains the necessary consistency. If any other value for "b"
15 is used, such as a forecasted value for "b" in some future time period, then the
16 result from the constant-growth DCF computation would be invalid.

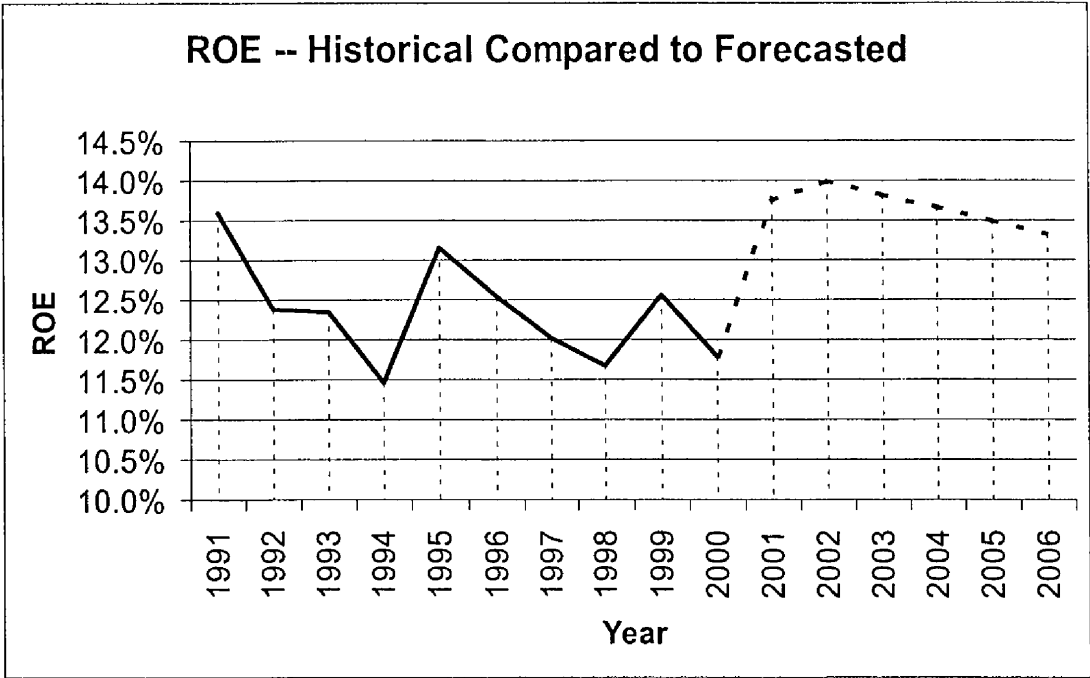
17
18 Q. HOW DID YOU APPLY THE DCF MODEL IN THIS CASE?

19 A. I applied the DCF method two different ways. One way is a single-stage, or
20 constant growth DCF model in which I added a growth rate that was carefully
21 constructed to meet the rigorous requirements of the constant growth formula.
22 Both approaches to the DCF method are dependent upon an estimate of what
23 common equity investors expect for future cash flow. Any company creates a

1 future cash flow for its equity investors by investing funds in assets that are
2 needed by its business. The future cash flow rate is therefore dependent upon
3 the rate at which the funds invested by the equity investors is able to earn. The
4 rate at which they are able to earn is referred to as the return on book equity.

5
6 Q. HOW DID YOU DETERMINE THE FUTURE RETURN ON BOOK
7 EQUITY ANTICIPATED BY INVESTORS?

8 A. I examined both the historic actual returns earned on average by the comparative
9 group of electric companies and the future return on equity forecast by Value
10 Line. The results of that analysis are illustrated on the graph below.



21
22 The data used to compile the above graph is shown on Schedule JAR 3, Page
23 4.

24 The above graph shows that historically earned returns have been in a
25 relatively tight band, varying between 11.7% at the low and 13.6% at the high.
26 Despite this history, Value Line forecasts a marked increase in the average earned

1 return on equity up to about 14.0% in 2002, followed by a gradual tapering off to
2 13.3% by 2006. To determine the future returns on equity, and therefore the future
3 cash flows expected by investors, it is necessary to view the above as knowledgeable
4 investors are likely to view it.

5

6 Q. HOW WOULD KNOWLDEGEABLE INVESTORS VIEW THE ABOVE
7 DATA?

8 A. Knowledgeable investors would start by questioning the credibility of a forecast
9 for a sudden increase in the earned return on equity in light of a long history
10 of returns being within a relatively tight lower range. In view of the well
11 documented and widely publicized view that analysts tend to be overly
12 optimistic about future earnings, and the knowledge that lower interest rates
13 are likely to mean lower allowed return on equity in the future than were
14 allowed in the past, most knowledgeable investors would not find the
15 forecasted increase in return on equity to be a credible estimate of the earned
16 return on book equity level that is sustainable into the future. The graph
17 shown below shows the historic actual earned returns on book equity, the
18 returns on book equity forecast by Value Line, and a conservatively high
19 estimate of the return on book equity range that likely encompasses what is
20 expected by the majority of knowledgeable investors:

21

22

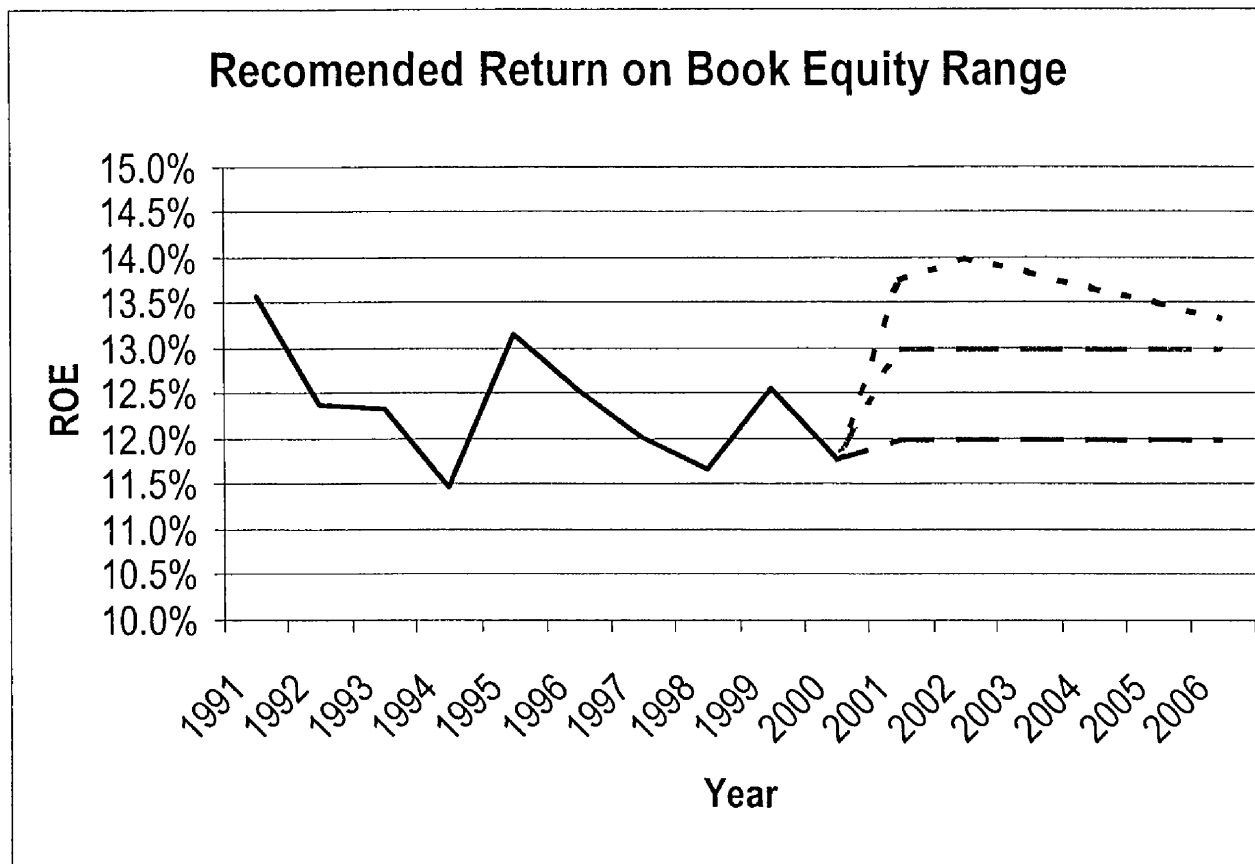
23

24

25

26

27



As shown on Schedule JAR 3 page 3, the median future expected return on book equity consistent with the analysts growth rate forecasts compiled by Zacks is 14.49%.

For the first stage of the multi-stage DCF model, which is the period from 2001 through 2006, I used the returns on equity as forecast by Value Line. Given the well-known upward bias in analysts' estimates, my use of Value Line's forecast produces a conservatively high result. Determining what return on equity for the second-stage that would be consistent with Value Line's projections is not clear-cut. The Value Line projection shows an initial increase in the forecasted return on book equity materially above the historic pattern, followed by a decline towards the historic pattern. In consideration of this

1 downtrend, the historic pattern for earned returns, the fact that allowed returns
2 on equity are considerably below the projected return on equity range forecast
3 by Value Line through 2006, and the known optimism embedded in analysts
4 forecasts, the best estimate for the return on book equity anticipated by
5 investors, I have concluded that the best estimate of what investors expect for a
6 future sustainable return on book equity is between 12.0% and 13.0%. This
7 range is conservatively high since the low end of the range is above the low end
8 of the historic range, and the high end of the range is above the high end of the
9 range is above the high end of the historic range in every year since 1991. The
10 range I have chosen is also conservatively high because unless interest rates go
11 back up to the prior levels they were on average from 1991 through 2000,
12 allowed return on book equity should be reduced as we go into the future.

13
14 Q. YOU SAID THAT ANALYSTS ESTIMATES ARE WELL KNOWN TO HAVE
15 A TENDENCY TO BE HIGH. PLEASE PROVIDE YOUR BASIS FOR
16 THAT CONCLUSION.

17 A. In addition to the statements from former Securities Exchange Commission
18 former chairman Arthur Levitt, and the statements in a recent report from Credit
19 Suisse First Boston that I have referenced earlier in this testimony, other
20 noteworthy sources include an article that appeared on the first page of the
21 September 3, 2001 issue of the Financial Times. This article, entitled "HSBC
22 shakes up research" begins by saying:

23
24 HSBC is radically restructuring its investment research in a sign that
25 banks are responding to criticism o the quality o equity analysis.

26 The bank's analysts will be required to publish as many "sell"
27 recommendations on stocks as "buys" and HSBC will invest its own money
28 in its best research ideas. The move is in response to criticism that

1 investment banks' analysts are too positive about companies in the hope of
2 generating lucrative corporate finance work.

3 Criticism has been particularly strong in the US, where many banks
4 continued to talk up technology shares at the peak of the market. The banks
5 are facing a wave of litigation from investors who lost money by following
6 analysts' recommendations. Merrill Lynch recently paid \$400,000 to a client
7 to drop an action against Henry Blodget, its star internet analyst.

8 Banks have also been attacked by US regulators and politicians.
9

10
11

12 An article appeared in the November 18, 2001 edition of the New York
13 Times, on the first page of the Sunday business section 3. This article, entitled
14 "Telecom's Pied Piper: Whose Side Was He On?" is an article about Salomon
15 Smith Barney telecommunications analyst Jack Benjamin Grubman, "... one of
16 Wall Street's highest-paid analysts...". The article then says:

17

18 Anyone can make mistakes, but Mr. Grubman's cheerleading
19 epitomizes the conflict-of-interest questions that have dogged Wall Street for
20 two years: Even as he rallied clients of Salomon Smith Barney, a unit of
21 **Citigroup**, to buy shares of untested telecommunications companies and to
22 hold on to the shares as they lost almost all of their value, he was aggressively
23 helping his firm win lucrative stock and bond deals from these same
24 companies.

25 Since 1997, Salomon has taken in more investment banking fees from
26 telecom companies than any other firm on the Street. Because of Mr.
27 Grubman's power and prominence, and because his compensation is based in
28 part on fees the company generated with his help, a part of those fees went to
29 him.
30

31

32 Because of articles like these, others that have appeared over the years, and
33 knowledge gained from personal experience, knowledgeable investors know that
34 analysts forecasts have a strong tendency to be overly optimistic.
35
36

1 b) Implementation of Single-stage DCF

2

3 Q. HOW DID YOU IMPLEMENT THE SINGLE-STAGE OR CONSTANT
4 GROWTH DCF IN THIS CASE?

5 A. I started by taking the current quarterly dividend rate for each company
6 examined⁶ and multiplying it by 4 to arrive at the current annual rate. This
7 number was then converted to a dividend yield by dividing it by the stock price
8 of each company. The stock price used was determined two different ways.
9 One way was to take the actual stock price as of November 30, 2001. The
10 second way was to take the average of the high and low stock price for the year
11 ended November 30, 2001. Then, the dividend yield was increased by adding
12 one-half the future expected growth rate. This upward adjustment to the
13 dividend yield is necessary because the DCF formula specifies that the dividend
14 yield to be used is equal to the dividends expected to be paid over the next year
15 divided by the market price. After this adjustment to increase the dividend
16 yield, the yield is equal to an estimate of dividends over the next year. To each
17 dividend yield result, I added one-half the future expected growth rate. After
18 the adjustment, the yield is equal to an estimate of dividends over the next
19 year.⁷

20

⁶ Except for the water companies, the companies examined were selected by PSE&G.

⁷ The complex version does not directly use dividend yields. Instead, it determines the present value of each dividend payment as a discounted cash flow.

1 Q. HOW DID YOU OBTAIN THE GROWTH RATES YOU USED IN THE
2 CONSTANT GROWTH, OR $k = D/P + G$, VERSION OF THE DCF METHOD?

3 A. I derived the growth rates from the internal, or retention growth rate, or "b x r"
4 method where "b" represents the future expected retention rate and "r" represents
5 the future expected earned return on book equity. In addition to the "b x r"
6 growth caused by the retention of earnings, I added an amount to recognize that
7 growth is also caused by the sale of new common stock in excess of book value.

8 *A critical requirement in the implementation of the simplified version of the*
9 *DCF model is that the estimate of the future expected growth rate be a growth*
10 *rate that is expected to be sustained, on average, for many years into the future.*

11 Stock analysts and textbooks recognize that generally the most accurate way to
12 estimate the sustainable growth rate in a constant growth DCF method is to use
13 what is usually referred to as the retention growth, or "b x r" method. In this
14 approach, the future expected retention rate "b" is multiplied by the future
15 expected return on book equity "r" in order to obtain a sustainable growth rate.
16 Other methods to estimate future sustainable growth are sometimes used.
17 However, those methods are generally more subjective, and even if used with
18 extreme care, do not have the same potential for accuracy that a properly applied
19 "b x r" estimate has. The reason for this is, in order to produce a meaningful
20 result, those methods must be adjusted to eliminate factors which would
21 otherwise cause them to include non-recurring influences on growth and/or

1 growth rates that are not equally representative of the future average expected
 2 growth in earnings, dividends, book value, and stock price.

3 The "b x r" method is best implemented by multiplying the *future expected*
 4 return on book equity by the retention rate that is consistent with both the future
 5 expected return on book equity and the dividend rate used to compute the
 6 dividend yield. Also, future sustainable growth should include an increment of
 7 growth to allow for the impact of sales of new common stock above book value.

8 The "b x r" growth rate computation, unless adjusted, does not account for
 9 sustainable growth that is caused by the purchase or sale of common stock above
 10 book value. Therefore, I modified the "b x r" growth rate to account for this
 11 additional growth factor. This additional growth factor, which is a standard part
 12 of the DCF computation, is sometimes referred to as the "VS" growth.

13 An accurate estimate for the future sustainable value of "r" (return on equity)
 14 when multiplied by a value for "b" (retention rate) that is consistent with the
 15 selection of the dividend rate and the expected return on book equity, produces a
 16 growth rate that is constant and sustainable.

17

18 Q. DO STOCK ANALYSTS USE THE "b x r" METHOD?

19 A. Yes. In the textbook, Investments, by Bodie, Kane and Marcus (Irwin, 1989) at
 20 page 478, expected growth rate of dividends is described as follows:

21

22 How do stock analysts derive forecasts of *g*, the expected growth
 23 rate of dividends? Usually, they first assume a constant dividend payout
 24 ratio (that is, ratio of dividends to earnings), which implies that
 25 dividends will grow at the same rate as earnings. Then they try to relate
 26 the expected growth rate of earnings to the expected profitability of the
 27 firm's *future* investment opportunities.

1 The exact relationship is

2
3
$$g = b \times \text{ROE}$$

4
5 where b is the proportion of the firm's earnings that is reinvested
6 in the business, called the **plowback ratio** or the **earnings retention**
7 **ratio**, and ROE is the rate of return (return on equity) on new
8 investments. If all of the variables are specified correctly, [the] equation
9 . . . is true by definition, . . .

10
11
12 Q. HOW DID YOU COMPUTE "g"?

13 A. As previously stated, I used the "b x ROE" method specified in the above
14 textbook quote, although I refer to it in this testimony as the "b x r" method. In
15 the above equation, ROE has the same meaning as "r". I recognized that investors
16 have both historical and forecasted information available to determine the future
17 return on book equity expected by investors. Forecasted data includes not only
18 specific data for a company being evaluated, but also includes overall industry
19 forecasted data. In addition to "b x r" growth, I included a factor to allow for
20 growth caused by the sale of new common stock at a price other than book value.

21 I have reflected the impact on growth caused by the sale or repurchase of
22 common stock in my recommended growth rate. The computations in support of
23 this estimate are shown on Schedule JAR 8.

24
25 Q. THERE ARE COST OF CAPITAL WITNESSES WHO CLAIM THAT THE "b
26 x r" METHOD IS SOMEHOW CIRCULAR. THIS IS BECAUSE THE FUTURE
27 EARNED RETURN ON BOOK EQUITY THAT YOU USE TO QUANTIFY
28 GROWTH IS USED TO DETERMINE THE COST OF EQUITY, AND THE

1 COST OF EQUITY IS THEN USED TO DETERMINE THE FUTURE RETURN
2 ON EQUITY THAT WILL BE EARNED. IS THIS CIRCULAR?

3 A. No. Those who erroneously claim that the method is circular confuse the
4 definition of "r" and the definition of "k". While "r" is defined as the future
5 return on **book** equity anticipated by investors, "k" is the cost of equity, or the
6 return investors expect on the **market price** investment. Since the market price
7 is determined based upon what investors are willing to pay for a stock, and the
8 book value is based upon the net stockholders' investment in the company, "r"
9 usually has a different value than "k". In fact, the proper application of the DCF
10 method relates a specific stock market price to a specific expectation of future
11 cash flows that is created by future earned return ("r") levels. For example,
12 assume investors are willing to pay \$10 a share for a company when the
13 expectations are that the company will be able to earn 12% on its book equity in
14 the future. If events would cause investors to re-evaluate the 12% return
15 expectation, the stock price should be expected to change. If investors'
16 expectations of the future return on book equity change from 12% to 10%, and
17 there is no corresponding change in the cost of equity, the stock price would
18 decline. The cost of equity, however, would not decline simply because an event
19 might occur that would cause investors to lower their estimate for "r". The cost
20 of equity is equal to the sum of both the dividend yield and growth. Investors'
21 estimate of "r" influences the investors' estimate for growth. Changes in growth
22 expectations cause investors to change the price they are willing to pay for stock.
23 A change in the stock price can cause a change in the dividend yield that offsets

1 the change in expected growth. In this way, a higher dividend yield would offset
2 by the lower expected growth rate and leave the cost of equity, "k", unchanged.

3

4 Determination of the future return on equity "r"

5 Q. HOW DID YOU DETERMINE THE VALUE OF "r" THAT YOU USED IN
6 YOUR RETAINED EARNINGS GROWTH COMPUTATIONS?

7 A. My estimate for "r" for the comparative group of electric utilities is 13.0%. This
8 13.0% is conservative because it is the upper end of the 12.00% to 13.00% range
9 for future expected return on book equity that I developed earlier in this section of
10 my testimony. . The value of "r" that is required in the DCF formula is the one
11 that is sustainable into the future for much longer than 5 years.

12

13 Determination of Retention Rate, "b"

14

15 Q. HOW HAVE YOU DETERMINED THE VALUE OF THE FUTURE
16 EXPECTED RETENTION RATE "b" THAT YOU USED IN YOUR
17 SIMPLIFIED DCF ANALYSIS?

18 A. I have recognized that the retention rate, "b", is merely the residual of the dividend
19 rate, "D", and the future expected return on book equity, "r." Since, by
20 definition, "b" is the fraction of earnings not paid out as a dividend, the only
21 correct value to use for "b" is the one that is consistent with the quantification of
22 the other variables when implementing the DCF method. The formula to
23 determine "b" is:

1

2

$b = 1 - (D/E)$, where

3

b = retention rate

4

D = Dividend rate

5

E = Earnings rate

6

7

However, "E" is equal to "r" times the book value per share. Book value per share is a known amount, as is "E", consistent with the future expected value for "r", and the "D" used to compute dividend yield. Therefore, to maximize the accuracy of the DCF method, quantification of the value of "b" should be done in a manner that recognizes the interdependency between the value of "b" and the values for "r" and "D". I directly computed the value of "b" based upon the values of "D", and "r".

8

9

10

11

12

13

14

15 Q. WHAT RETENTION RATES DID YOU USE?

16

A. Based upon the above formula, I used a retention rate for application to the electric companies of 27.78% and 30.38%. See Schedule JAR 4, P.1.

17

18

c) Implementation of Multi-stage DCF

19

20

21

Q. HOW DID YOU IMPLEMENT THE MULTI-STAGE DCF METHOD?

1 A. The first stage of the model is based upon Value Line's estimates of dividends
2 per share and earnings per share for 2001 through 2005⁸ for the companies
3 examined. Value Line does not show a specific earnings and dividend
4 projection for every year from 2000 to 2005. Projections for years skipped by
5 Value Line were made by extrapolation from the available data. When
6 implementing this method, I mechanically used Value Line's projections for the
7 period in which the projections were available.

8 I determined future earnings in the second stage of the non-constant DCF
9 model by multiplying the future book value per share by the future expected
10 earned return on book equity. For the purposes of this case, I used the same
11 future expected return on book equity that I used in the simplified version of
12 the DCF model.⁹ Projected book value equals the beginning book value plus
13 the current year's earnings minus the current year's dividends. Book value
14 growth projections also include the effect of sales of new common stock. The
15 projections in the second stage of the DCF model were made for 40 years into
16 the future. Events longer than 40 years into the future have a minimal present
17 value.¹⁰

⁸ The estimate for 2005 is shown by Value Line as its estimate from 2005-2006.

⁹ For reasons explained in the discussion of the simplified version of the DCF method, I believe this provides the best estimate of future earnings. However, if the use of a varying array of future expected returns on book equity were supported by the facts, rather than a constant return, the same mathematical model would still be proper to use in determining the cost of equity.

¹⁰ For example, a change in an assumption that the selling market-to-book would be 0.1 lower or higher than as of the time of purchase would introduce a potential inaccuracy in the indicated cost of equity of plus or minus about 25 basis points in a 30-year analysis, but a similar change in the market-to-book ratio expectation would introduce only plus or minus about 15 basis points in a 40 year

1 My projections have relied on a constant dividend payout ratio for the
2 second stage¹¹. The future constant dividend payout ratio was set equal to the
3 payout ratio for 2001.

4 I derived the estimated future stock price from the projected book value
5 using the same market-to-book ratio at the time of sale as exists today. The
6 only cash outflow is the price paid for the stock. The non-constant version of
7 the model uses both the spot stock price as of November 30, 2001, and the
8 average stock price for the year ended November 30, 2001 to be representative
9 of the price paid.

10 The retention rate used in the second-stage was set equal to the retention
11 rate forecast by Value Line for 2001 of 41.33%. This is considerably higher
12 than the 26.58% retention rate obtained by relating the \$1.83 current actual
13 dividend rate shown on Schedule JAR 3, P. 1 with the earnings per share
14 earned in 2000 of \$2.49 shown on Schedule JAR 3, P. 2. As shown on
15 Schedule JAR 5, P. 1, Value Line forecasts the retention rate to increase to
16 47.39% by 2005. The large increase is the result of Value Line's unsustainably
17 high forecast for an increase in earned return on equity. It is unlikely that
18 investors expect such a large change in the retention rate. Investors probably
19 expect the future retention rate to be reasonably in line with the retention rate

analysis. If longer than 40 years were used, the result would be even less sensitive to the future market-to-book ratio expectation.

¹¹As in the case of the future expected earned return on equity assumption, if there were evidence to support the use of varying payout ratios instead of a constant payout ratio, the same model could still be used to accurately quantify the cost of equity. Unlike the simplified DCF model, this model specifically accounts for the fact that a change in the payout ratio has an impact on the book value, and therefore has an impact on the earnings rate achieved in the future.

1 achieved in 2000. Nevertheless, to be conservative, I used the 41.33%
2 retention rate forecast for 2001 as the sustainable retention rate in the second-
3 stage. The complex, or multi-stage DCF produces a higher indicated cost of
4 equity than the single stage method because the multi-stage method adopts
5 without modification the optimistic earnings forecasts made by Value Line for
6 2001 through 2005.

7 As shown on Schedule JAR 5, P. 1-2, the complex, or non-constant
8 version of the DCF model indicates a cost of equity between 9.87% and
9 10.36% for the comparative group of electric companies.

10

11 Q. WHAT COST OF EQUITY IS INDICATED BY THE IMPLEMENTATION OF
12 THE DCF METHOD IN THIS CASE?

13 A. As shown on Schedule JAR 2, the cost of equity indicated by the DCF method
14 was estimated to be between 8.86% and 10.36% for all of the examined electric
15 companies.

16

1 **3. Implementation of Risk Premium/CAPM Method**

2
3 a) Introduction

4
5 Q. PLEASE EXPLAIN THE RISK PREMIUM/CAPM METHOD.

6 A. The risk premium/CAPM method estimates the cost of equity by analyzing the
7 historic difference between the cost of equity and a related factor such as the rate
8 of inflation or the cost of debt.

9 One critically important fact to understand when implementing the risk
10 premium method is that risk premiums have declined in recent years. As
11 mentioned earlier in this testimony, Federal Reserve Chairman Alan
12 Greenspan, made a speech on October 14, 1999 entitled "Measuring Financial
13 Risk in the Twenty-first Century". The text of the speech is available at
14 <http://www.bog.frb.fed.us/boarddocs/speeches/1999/19991014.htm>. In the speech,
15 Chairman Greenspan says:

16
17 That equity risk premiums have generally declined during the past decade is not
18 in dispute. What is at issue is how much of the decline reflects new,
19 irreversible technologies, and what part is a consequence of a prolonged
20 business expansion without a significant period of adjustment. The business
21 expansion is, of course, reversible, whereas technological advancements
22 presumably are not.

23
24 Q. IS CHAIRMAN GREENSPAN'S VIEW OF THE REDUCTION IN RISK
25 PREMIUMS CONSISTENT WITH WHAT INVESTORS NOW
26 GENERALLY EXPECT?

27 A. Yes. One good source to confirm that the financial community shares
28 Chairman Greenspan's conclusion is an article that appeared in the April 5,
29 1999 issue of *Business Week*:

1
2 The risk premium is the difference between the risk-free interest rate, usually
3 the return on U.S. Treasury bills, and the return on a diversified stock portfolio.
4 Over more than 70 years, the return to stocks averaged 11.2%, and T-bills, just
5 3.8%. The difference between the two returns, 7.4%, is the risk premium.
6 Economists explain this extra return as an investors' reward for taking on the
7 greater risk of owning stocks. **Most market watchers believe that in recent**
8 **years, the premium has fallen to somewhere between 3% and 4% because**
9 **of lower inflation and a long business upswing that makes corporate**
10 **earnings less variable.**

11 [emphasis added]

12
13 On October 4, 2001, the previously referenced report from Credit Suisse
14 First Boston concluded that the equity risk premium over treasury bonds is
15 3.7%, and the equity risk premium overBaa rated corporate bonds is now
16 1.9%.¹²

17
18
19 b) Inflation Risk Premium Method.

20
21 Q. HOW HAVE YOU APPLIED THE INFLATION PREMIUM METHOD?

22 A. I implemented the inflation premium method by adding investors' current
23 expectation for inflation to the long-term rate earned by common stocks net of
24 inflation. This result was modified, based upon beta, to obtain a result that was
25 compatible with the risk of the average gas distribution utility.

¹² Weekly Insights, "Global Strategy Perspectives", October 4, 2001, Credit Suisse First Boston, page 55 and 61.

1

2 Q. WHAT IS THE BASIS FOR THE INFLATION PREMIUM METHOD?

3 A. A book entitled *Stocks for the Long Run*¹³ examined the real returns achieved
4 by common stocks from 1802 through 1997. The conclusion in the book is that
5 equity returns in excess of the inflation rate have been very similar in all major
6 sub-periods between 1802 and 1997, while the risk premium in between bonds
7 and common stocks has been erratic. Page 11 of this book says:

8

9 Despite extraordinary changes in the economic, social, and political
10 environment over the past two centuries, stocks have yielded between 6.6 and
11 7.2 percent per year after inflation in all major subperiods.

12

13 The book then says on page 12:

14

15 Note the extraordinary stability of the real return on stocks over all major
16 subperiods: 7.0 percent per year from 1802-1870, 6.6 percent from 1871
17 through 1925, and 7.2 percent per year since 1926. Ever since World War II,
18 during which all the inflation in the U.S. has experienced over the past two
19 hundred years has occurred, the average real rate of return on stocks has been
20 7.5 percent per year. This is virtually identical to the previous 125 years,
21 which saw no overall inflation. This remarkable stability of long-term real
22 returns is a characteristic of mean reversion, a property of a variable to offset
23 its short-term fluctuations so as to produce far more stable long-term returns.

24

Continuing on page 14, *Stocks for the Long Run* says:

25

26 As stable as the long-term real returns have been for equities, the
27 same cannot be said of fixed-income assets. Table 1-2 reports the nominal
28 and real returns on both short-term and long-term bonds over the same time
29 periods as in Table 1-1. The real returns on bills has dropped precipitously

¹³ *Stocks for the Long Run* by Jeremy J. Siegel, Professor at Wharton. McGraw Hill, 1998. According to the book cover, Professor Siegel was "... hailed by Business Week as the top business school professor in the country...".

1 from 5.1 percent in the early part of the nineteenth century to a bare 0.6
2 percent since 1926, a return only slightly above inflation.

3 The real return on long-term bonds has shown a similar pattern. Bond
4 returns fell from a generous 4.8 percent in the first sub period to 3.7 percent
5 in the second, and then to only 2.0 percent in the third.

6
7 The book explains some of the reasons why bond returns have been
8 especially unstable. Page 16 says:

9
10 The stock collapse of the early 1930's caused a whole generation of
11 investors to shun equities and invest in government bonds and newly-insured
12 bank deposits, driving their return downward. Furthermore, the increase in
13 the financial assets of the middle class, whose behavior towards risk was far
14 more conservative than that of the wealthy of the nineteenth century, likely
15 played a role in depressing bond and bill returns.

16 Moreover, during World War II and the early postwar years, interest
17 rates were kept low by the stated bond support policy of the Federal Reserve.
18 Bondholders had bought these bonds because of the widespread predictions
19 of depression after the war. This support policy was abandoned in 1951
20 because low interest rates fostered inflation. But interest rate controls,
21 particularly on deposits, lasted much longer.

22
23 The book then provides a conclusion on page 16 that:

24
25 Whatever the reason for the decline in the return on fixed-income assets over
26 the past century, it is almost certain that the real returns on bonds will be
27 higher in the future than they have been over the last 70 years. As a result of
28 the inflation shock of the 1970's, bondholders have incorporated a significant
29 inflation premium in the coupon on long-term bonds.

30
31
32 Q. IS IT POSSIBLE TO ACCURATELY QUANTIFY INVESTORS' CURRENT
33 EXPECTATIONS FOR INFLATION?

34 A. Yes. It has recently become possible to analytically determine investor's
35 expectations for inflation. The U.S. government has issued inflation-indexed
36 treasury bonds. The total return received by investors in these bonds is a fixed
37 interest rate plus an increment to the principal based upon the actual rate of -

1 inflation that occurs over the life of the bond. These bonds pay a lower
2 interest rate simply because investors know that in addition to the interest
3 payments, they will receive the allowance for inflation as part of the increment
4 to the principal. This is in contrast to conventional U.S. treasury bonds. The
5 principal amount of a conventional bond does not change over the life of the
6 bond. Therefore, whatever allowance for inflation investors believe they need
7 can only be obtained through the interest payment. By comparing the interest
8 rate on conventional U.S. treasury bonds with the interest rate on inflation-
9 indexed U.S. treasury bonds, the future inflation rate anticipated by investors
10 can be quantified.

- 11
- 12 Q. WHAT IS THE CURRENT INFLATION EXPECTATION OF INVESTORS?
- 13 A. As of early July 2001, the inflation expectation of investors was estimated to be
14 about 2.25%. See Schedule JAR 9. This was obtained by observing that long-
15 term inflation-indexed treasury securities were yielding 3.48%, while long-term
16 non inflation-indexed treasury securities were yielding 5.63%. The difference
17 between 5.63% and 3.48% is 2.15%. This result was rounded up to 2.25%.
18 Adding this 2.25% inflation expectation to the 6.6% to 7.2% range produces an
19 inflation risk premium indicated cost of equity of 8.85% to 9.45% for an equity
20 investment of average risk. Then, to apply this result in this case, it is
21 necessary to adjust the return down to account for the lower than market-
22 average risk inherent in an investment in gas utility stocks.

23 The risk premium approach is based upon a premium over the inflation
24 rate. I made a risk adjustment based upon the average beta of the comparative
25 gas companies. The average beta of the gas distribution companies is 0.60. See
26 Schedule JAR 3, P. 3. To make the adjustment, I used the yield on 90-day
27 treasury bills because these short-term treasury bills have a beta of very close to

1 zero. The yield on 90-day treasury bills of 3.62% was subtracted from the
2 6.60% to 7.20% risk premium to arrive at a 1.80% to 2.16% equity risk
3 premium over 90-day treasury bills. This range was then multiplied by the 0.60
4 beta to arrive at a risk adjusted equity premium of 1.18% to 1.42%. The
5 difference between the unadjusted equity risk premium and the adjusted equity
6 risk premium was then subtracted from the historic return net of inflation to
7 arrive at an indicated inflation premium cost rate of 7.67% to 8.03%. The mid-
8 point of this range is the risk premium/CAPM equity cost result of 7.85%. See
9 Schedule JAR 9.

10
11 c) Debt Risk Premium Method

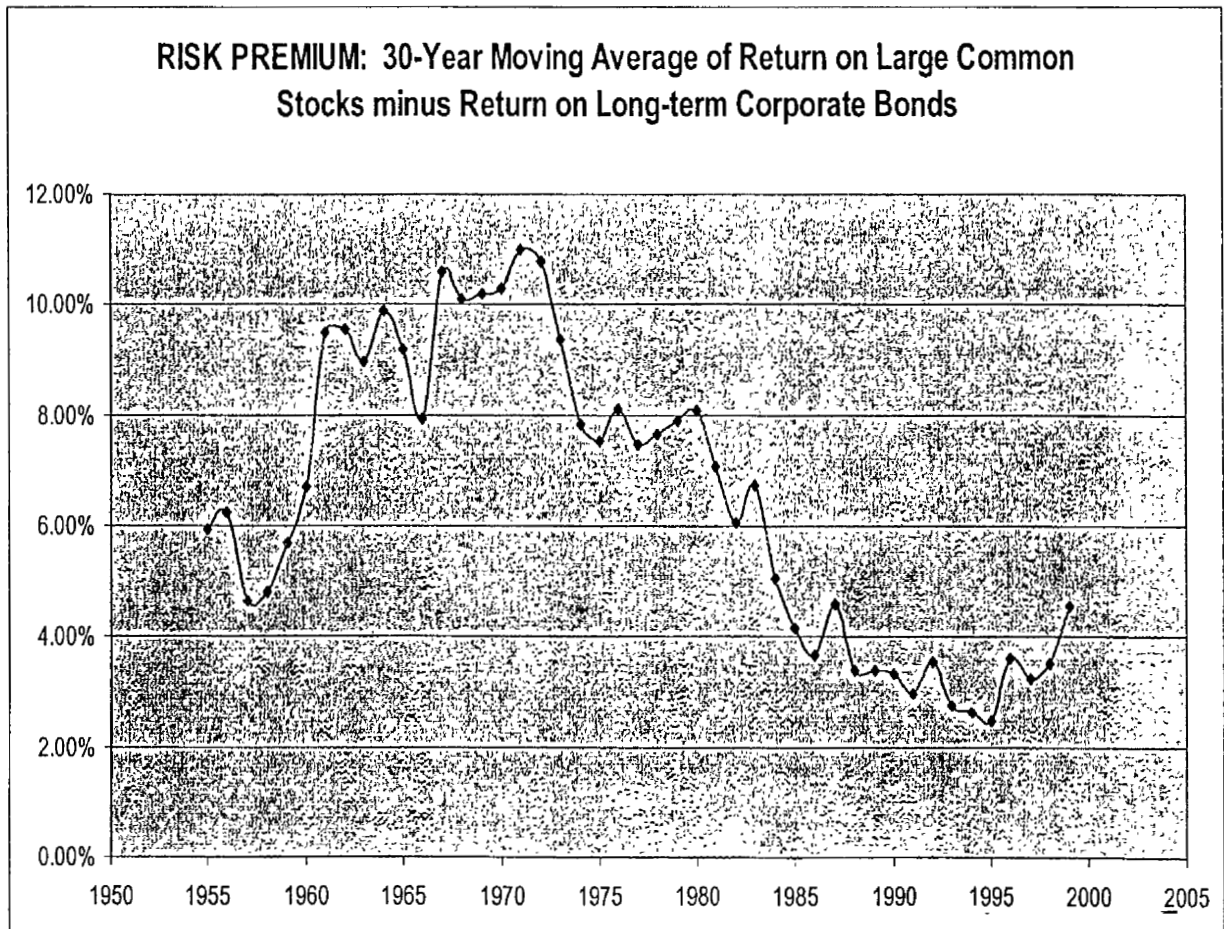
12
13 Q. HOW DID YOU DETERMINE THE COST OF EQUITY USING THE DEBT
14 RISK PREMIUM METHOD?

15 A. As shown on Schedule JAR 10, I separately determined the proper risk premium
16 applicable to long-term treasury bonds, long-term corporate bonds, intermediate-
17 term treasury bonds and short-term treasury bills. In this way, the debt risk
18 premium method I present considers a wide array of data points across the yield
19 curve. In this way, the results are less impacted by a temporary imbalance that
20 may exist in the debt maturity "yield curve".

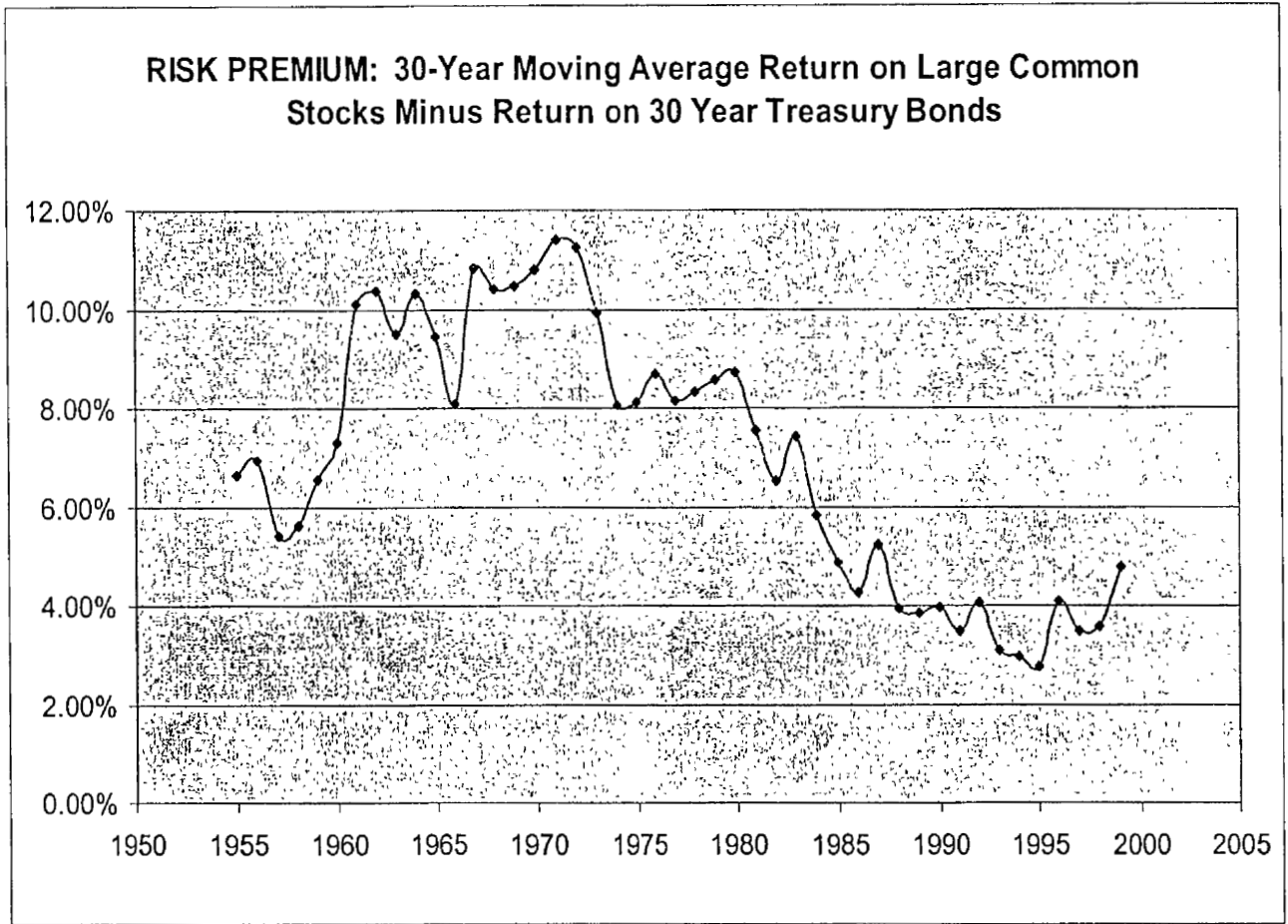
21
22 Q. EARLIER IN THIS SECTION OF YOUR TESTIMONY, YOU SHOWED
23 THAT FEDERAL RESERVE CHAIRMAN GREENSPAN NOTED THAT
24 THE FACT THAT EQUITY RISK PREMIUMS HAVE DECLINED "... IS
25 NOT IN DISPUTE." YOU ALSO PROVIDED SOURCES FROM
26 FINANCIAL LITERATURE CONCLUDING THAT THE RISK PREMIUM
27 IS NOW LESS THAN 4%. DO YOU HAVE ANALYTICAL SUPPORT TO -

1 SHOW THAT THE STATEMENTS BY CHAIRMAN GREENSPAN AND
2 FROM THE OTHER SOURCES YOU HAVE QUOTED ARE CORRECT?

3 A. I examined the historic actual earned returns on common stocks and bonds
4 from 1926 through 2000. But, rather than merely making one simplistic
5 computation that examined the entire time period with only one return number
6 over the entire period, I examined a 30-year moving average of the earned
7 returns. 30 years is long enough to see if indeed there is a trend to the earned
8 returns, but not so short as to be overly influenced by the natural volatility in
9 earned returns that generally occurs over just a year or a few years. As shown
10 in the following graphs, the decline in the risk premiums is persistent and
11 undeniable.



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An examination of the above graphs confirms that a risk premium over 30 year treasuries in the 3 to 4% range is appropriate. For my equity cost computations, I used the conservatively high estimate of 4.0% as the risk premium appropriate to add to U.S. treasuries when determining the cost of equity for an industrial company of average risk.. For applying the appropriate risk premium to interest rates other than U.S. treasuries, I determined the average historic risk spread between long-term treasuries and the other interest rate categories I examined. See Schedule JAR 10, P. 2. This 4% risk premium was increased or decreased as warranted by the historic data when applied to

1 each of the separate interest rate categories to which I applied the risk premium
2 method.

3

4 Q. WHY HAVE YOU CHOSEN 30 YEARS TO SHOW THE DOWNTREND IN
5 THE RISK PREMIUM RATHER THAN A SHORTER TIME PERIOD SUCH
6 AS 10 YEARS?

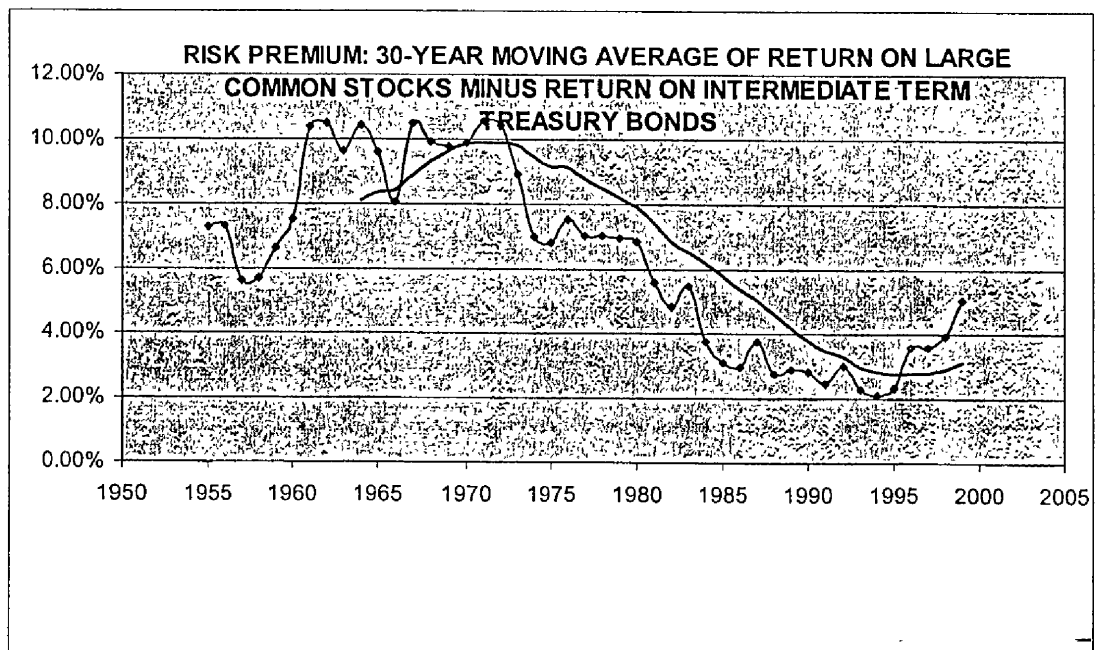
7 A. 10 years is far too short of a time period to be able to observe the actual risk
8 premium based upon realized historic returns. The reason that realized returns
9 over a short time are not helpful at quantifying the risk premium is as follows.
10 If the equity risk premium declines, this means by definition that equity
11 investors are willing to settle for a lower risk premium component of the total
12 return they are demanding. If they are willing to settle for a lower return and if
13 other things remain equal, this means that investors are willing to pay a higher
14 stock price for the same future expected cash flow. What this means is that the
15 initial reaction to a lowering of the equity risk premium is for the stock price to
16 rise. A rise in the stock price results in a higher historic earned return at the
17 same time the higher stock price means the investor would expect a lower
18 future return. Unless enough years are used in the historic analysis to diminish
19 the misleading impact of the initial response to a reduction in the risk premium,
20 the historic earned returns will not be helpful. I am especially encouraged by
21 the relative consistency of the trend in the lowering of the risk premium as
22 shown in the 30-year data. This reinforces the likelihood that the risk premium
23 has declined as Federal Reserve Chairman Greenspan and many others have
24 observed.

25

26 Q. THE LAST DATA POINT IN THE 30-YEAR MOVING AVERAGE GRAPH
27 YOU HAVE PROVIDED SHOWS AN INDICATION OF AN UP-TICK IN -

1 THE INDICATED RISK PREMIUM IN THE LAST DATA POINT. DOES
 2 THAT INDICATE TO YOU THAT THE RISK PREMIUM MIGHT BE
 3 SHOWING AN UPTREND?

4 A. No. The up-tick merely represents the inclusion of 1999 results and the
 5 exclusion of 1999 results from the 30 year moving average. This happened
 6 because we now know that 1999 was the extreme "bubble" year for common
 7 stock prices in the U.S. The data source I relied upon to create the graph only
 8 contained historic return data through 1999, so I cannot yet provide a precise
 9 update to include data through 2000. However, it is now known that during
 10 2000 and so far through 2001, the total return on bonds substantially exceeded
 11 the total return on common stocks enough so that the actual risk premium
 12 earned in 2000, and so far in 2001, by common stocks over bonds was negative.
 13 Based upon this conservatively low estimate of a NEGATIVE earned risk
 14 premium in 2000 and so far in 2001, an update of the above graphs will show
 15 that the 30-year moving average of the risk premium will decline towards the
 16 range established from the 30-year average of the prior years.



1
2 Q. ARE THERE REASONS WHY THE RISK PREMIUM HAS BEEN ON A
3 MULTI-DECADE DECLINE?

4 A. Yes. One important reason is a lowering of the U.S. capital gains income tax
5 rate. Investors are concerned about the total after-tax return earned. The
6 majority of the return earned by an investor on a long-term bond (and in many
7 cases all of the return earned by a long-term bond investor) is the interest
8 income. Interest income is fully taxed at regular income tax rates. This is in
9 contrast to an investor in common stocks. An investor in the average large
10 common stock has received the majority of their total return in the form of
11 stock price, or capital appreciation. Capital appreciation is not taxed at all until
12 the stock is sold. Then, it is taxed at the long-term capital gains rate if the stock
13 as been owned long enough to be eligible for such treatment. Currently, long-
14 term capital gains are subject to a federal income tax of no more than 20%.
15 This is a considerably lower rate on long-term capital gains than prevailed in
16 prior decades.

17 Another important reason why the risk premium demanded by common
18 stock investors versus bond investors has declined is because enough years
19 have now passed since the Great Depression that a greater proportion of
20 investors are more comfortable owning common stocks than was the case when
21 the memory of the Great Depression was forefront in the minds of most
22 investors.

1 Yet another factor is the proliferation of mutual funds. While it is
2 debatable whether the popularity of mutual funds is proof that the risk premium
3 has declined (because more investors are comfortable investing in common
4 stock) or is the reason that the risk premium declined (because mutual fund
5 marketing has increased the availability of investment funds for equity), it is
6 nevertheless a relevant factor.

7

8 Q. WHAT COST OF EQUITY IS INDICATED BY THE IMPLEMENTATION OF
9 THE RISK PREMIUM/CAPM METHOD IN THIS CASE?

10 A. As shown on Schedule JAR 2, the cost of equity indicated by the risk
11 premium/CAPM method is approximately 8.90%.

12

1 VI. EVALUATION OF THE TESTIMONY OF MR. BENORE

2

3 **A. Summary**

4 Q. PLEASE SUMMARIZE THE TESTIMONY OF MR. BENORE.

5

6 A. Mr. Benore has recommended that Gulf Power be allowed a return on equity of
7 “at least” 13.0%”¹⁴. He arrived at this recommendation based upon the DCF
8 model, CAPM, and comparable earnings approaches. In both his DCF and
9 CAPM approaches has made substantial errors in mathematics, and both financial
10 and regulatory theory. His comparable earnings analysis is not an equity costing
11 approach at all as it measures what returns are, not what returns should be.

12

13 1. **DCF Method.** Mr. Benore applied the DCF method to a group of
14 electric companies he selected. He used the constant-growth, or $D/P + g$
15 form of the DCF model. He estimated the value for “g” by using the
16 estimates of various analysts of what earnings per share growth will be
17 over the next five years. See Exhibit No. _____ (CAB-1). He did no
18 testing of his growth rate numbers to determine if it is or is not proper to
19 use in the constant-growth version of the DCF model. His DCF analysis
20 resulted in an indicated cost of equity of 11.7%%. He then inflated this
21 result up to 13.6% by making a “...transformation...” such that the return

1 on equity he recommended would not impact the company's stock price.

2 See Exhibit No. ____ (CAB-1), Schedule 7, page 16.

3

4 **2. CAPM Method.** Mr. Benore applies two CAPM methods,
5 the historic approach and a projected version. In his historic
6 approach Mr. Benore assumed that investors expect the same risk
7 premium differential between common stocks and bonds as was
8 achieved on average from 1926 through 1998. He quantified this
9 difference by using an annual arithmetic average of the difference
10 rather than a geometric, or compound return approach. In his
11 projected version of the CAPM, he estimated the cost of equity
12 based upon his DCF method that relies upon five-year analysts
13 growth as a proxy for long-term sustainable growth.. Based upon
14 30-year treasury bond yield of 6.4%, Mr. Benore concluded that
15 his CAPM method was indicating a cost of equity of 10.3% to
16 11.2% based upon his "historic tests", and was indicating 11.5%
17 to 12.0% based upon his "projected tests". Then, just as in his
18 DCF approach, he further inflated these results, in this case up to
19 11.4% to 13.3% to derive a return that was high enough to not
20 impact the current stock price. See Exhibit No. ____ (CAB-1),
21 Schedule 9, pages 15 and 16.

¹⁴ Exhibit No. CAB (1) ____ Schedule 1a.

1 Q. PLEASE SUMMARIZE YOUR REACTION TO MR. BENORE'S
2 TESTIMONY.

3 A. Mr. Benore's DCF method result is highly unreliable because he uses a non-
4 constant growth rate in a formula that only produces a meaningful cost of
5 equity indication if there is a constant growth rate. Using a non-constant
6 growth in earnings per share overstates the cost of equity by double-counting
7 the future cash flow benefits anticipated by investors and by making the
8 implied erroneous assumption that the return on book equity will continue to
9 increase on average indefinitely into the future. A major reason Mr. Benore's
10 risk premium overstates the cost of equity is because it uses the upwardly-
11 biased arithmetic average of historic returns to quantify investors future
12 expected returns on equity. Merely by switching to the geometric mean
13 would have lowered his risk premium result by a full 2.0%. Even if his risk
14 premium result is lowered by this 2.0%, it is still too high because it ignores
15 the general downtrend in risk premiums that has been occurring over the last
16 three or four decades.

17

18 **B. DCF Method**

19

20 Q. PLEASE COMMENT ON MR. BENORE'S DCF APPROACH.

21 A. What Mr. Benore calls his DCF method is really a round-about series of computations
22 that, once distilled to their true essence, do not compute the cost of equity. Mr. Benore
23 starts out with what he calls a "standard" DCF method, which is the familiar dividend

1 yield plus growth approach. This would result in the cost of equity demanded by
2 investors if the dividend yield and growth rate were properly determined. Leaving
3 aside for the moment the very serious mathematical and conceptual errors he made in
4 applying the "standard DCF", he totally destroys what the DCF model is intended to
5 do when he converts his "standard DCF" result into what he calls his "End-Result
6 DCF".

7 A properly applied "standard" DCF determines the cost of equity demanded by
8 investors by relating the current stock price to the future cash flows expected by
9 investors. Assuming the "standard DCF" is properly applied, the result of that
10 computation tells the Commission what profit allowance is necessary to offer to
11 investors whether the stock price of a company is too high or too low. In other words,
12 the "standard DCF" that properly quantifies divided yield and growth results in a cost
13 of equity determination that is accurate irrespective of the stock price or the market-to-
14 book ratio. It is why the discovery of the DCF method by John Barr Williams back in
15 1937 is considered to be an extremely important development in the history of finance.
16 It is the characteristic of the DCF method to be able to estimate the cost of equity
17 irrespective of the relationship between the market price and the book value that gives
18 it wide-spread academic appeal and why it is by far the most commonly used approach
19 to determining the cost of equity in utility ratemaking proceedings. Other, more
20 simplified and older techniques such as the earnings/price method were used.
21 However, a problem with the earnings/price method is that the earnings/price result
22 loses meaning as the price deviates from book value. It is the DCF approach that fixed
23 this problem.

1 The "end result DCF" adjustment Mr. Benore has added to the DCF approach
2 totally destroys the method. Its harm to the DCF method is conceptually equivalent to
3 the harm done to a fresh pizza if it were whammed by an 18 wheeler going 90 miles an
4 hour and wrapped around the front tire for the next 153 miles. The carefully
5 constructed, time tested DCF method result loses all meaning in the context of a cost
6 of equity computation if, as Mr. Benore has done, the integrity of the relationship
7 between the actual stock price and the cash flows that give rise to that stock price are
8 violated. When Mr. Benore says that the DCF method is only correct when the
9 market-to-book ratio is 1.0, he has it completely backwards. The DCF method was
10 specifically designed to be able to accurately estimate the cost of equity irrespective of
11 what is the market-to-book ratio. Mr. Benore's "end result DCF" is an attempt to
12 negate all of the progress in securities analysis that has occurred since John Barr
13 Williams discovery back in 1937.

14 The "End-Result DCF" is not a DCF method at all. Instead, it is a direct attempt
15 on the part of Mr. Benore to set the return on equity high enough so that the current
16 market price would be maintained whether or not that market price is the result of
17 either excessive or deficient earnings prospects. The erroneous nature of this "End-
18 Result DCF" is perhaps best illustrated by noting that by this end-result method, the
19 higher the stock price of a utility company, the higher the return on equity he would
20 recommend. In other words, Mr. Benore's approach to the DCF method provides an
21 answer that is exactly the opposite of reality. It is a well-known principle of finance
22 that, other things being equal, as the price of a stock or bond goes up, the cost of

1 capital goes down. Any credible method to determining the cost of equity should
2 recognize this basic principle.

3 Mr. Benore's End-Result DCF fails the end result test. Assume, hypothetically,
4 that a utility commission made a mistake by allowing a utility company a return on
5 equity higher than the cost of equity. These excessive earnings would make the stock
6 price of the utility company rise because new investors would be anxious to share in
7 the windfall profits that would be expected to result from the commission's error.
8 Under generally accepted regulatory principles, what should happen when a
9 commission sets the return on equity too high is that in the next rate case, the
10 commission should evaluate market data to recognize that the allowed return was too
11 high. Once the excessive return was identified, the need to balance the interests of
12 ratepayers and investors should lead the commission to lower the allowed return to the
13 level that reflects current market conditions. However, under Mr. Benore's approach,
14 this re-adjustment process would be negated. Under his scheme, once the stock price
15 of a utility company gets too high (whether it is because of a commission mistake or a
16 drop in capital cost rates causing the expected return on book equity to be higher than
17 the cost of equity), he advises the Commission to keep the stock price at its excessive
18 level. His method effectively treats the allowed return as a one-way ratchet. It could
19 go up, but it could not come down since any lowering of the allowed return could
20 result in a decline in the stock price.

21 I strongly disagree, and more importantly, in the landmark *Hope Natural Gas*
22 decision the U.S. Supreme Court disagrees with Mr. Benore. If utility stock prices
23 have increased because investors have come to expect utility companies to be able to

1 habitually earn higher returns on book equity than investors are demanding on their
2 market price investment, regulators should not permit those excessive earnings to
3 continue into the next rate setting time period. In order to balance the interests of
4 investors and ratepayers, regulators must be willing to take action that could change
5 earnings expectations. This balancing of interests means that at time, the Board might
6 need to take action to increase the earned return on equity when the financial
7 marketplace communicates it is dissatisfied with the earnings prospects on book.
8 Also, there are times when the Board needs to take action to decrease the allowed
9 return on equity when the financial marketplace communicates investors are more than
10 happy with earnings prospects on book.

11

12 Q. HAS MR. BENORE TAKEN THE INCONSISTENT POSITION OF
13 **RECOMMENDING AN INCREASE TO THE RETURN ON BOOK EQUITY IN**
14 **THOSE TIMES WHEN EXPECTATIONS FOR EARNINGS ON BOOK ARE LESS**
15 **THAN THE RETURN ON MARKET DEMANDED BY INVESTORS AND NOT**
16 **RECOMMENDING A DECREASE TO THE RETURN ON BOOK EQUITY IN**
17 **THOSE TIMES WHEN THE EARNINGS ON BOOK ARE MORE THAN THE**
18 **RETURN ON MARKET DEMANDED BY INVESTORS?**

19 A. Yes. Between 1979 and 1981, market prices for many electric utilities were below the
20 accounting book value. Mr. Benore's track record of inconsistently recommending
21 increases to earnings expectations when the market to book ratio is below 1 and not
22 believing in decreases to earnings expectations when the market to book is above 1
23 could be shown by referencing Mr. Benore's older testimony.

1

2 Q. PLEASE RESPOND TO MR. BENORE'S DECISION TO NOT SIMPLY USE THE
3 COST OF EQUITY INDICATED BY THE "STANDARD" DCF MODEL.

4 A. By rejecting the cost of equity indicated by the "standard" DCF method, Mr. Benore is
5 rejecting the concept of setting the cost of equity equal to the investors' required return
6 on market. His conclusion to reject the DCF method is based upon circular reasoning.
7 It is circular because he believes that once excessive earnings have caused the stock
8 price of a utility to increase, earnings must be kept at that excessive level just to avoid
9 a price decline. He believes this should be the case even if that price decline would
10 only return the stock price back to the level that would have been proper if the
11 excessive profits had never been earned. Later in this section of the testimony, I will
12 provide examples of regulatory agencies and state courts that are consistent with these
13 *Hope* case principles.

14

15 Q. PLEASE CITE SPECIFIC EXAMPLES OF WHERE MR. BENORE USES THE
16 STOCK PRICE HE BELIEVES SHOULD BE ACHIEVED AS THE STARTING
17 POINT OF HIS ANALYSIS RATHER THAN THE END PRODUCT AS
18 REQUIRED IN THE HOPE CASE?

19 A. On page 13 of his testimony, Mr. Benore presents an example where he assumes the
20 cost of equity demanded by investors is 10%, but the return they expect on book is
21 13.0%. In this example, he incorrectly argues that the 13.0% return on book should be
22 allowed even though investors are demanding a cost of equity of 10% simply because
23 the stock price for the company has already been bid up by investors to above book

1 value. Note that if the stock price had not been bid up, then his example would not
2 have indicated a higher allowed return on equity than the cost of equity. Therefore,
3 Mr. Benore's procedures for determining the cost of equity results in the determination
4 of an allowed return on equity that is above the cost of equity simply for the purpose of
5 maintaining a stock price at its current level. This example creates the illogical
6 conclusion that the higher the stock price, the higher the return he would have a
7 commission allow. This results in the improper use of the current stock price as the
8 starting point for what should be achieved rather than computing the cost of equity as a
9 means of determining what the stock price should be. Such an approach is the circular
10 reasoning found improper in the *Hope* case because it would do nothing but maintain
11 whatever the current market price already is, whether or not that stock price might be
12 too high or too low.

13 The source of Mr. Benore's confusion is that he has juxtaposed the expected return
14 on book equity with the cost of equity demanded by investors. Consider how
15 superfluous regulation would become if Mr. Benore's beliefs were to be adopted.
16 Assume a utility company is allowed a cost of equity of 15% back in a time when
17 inflation and interest rates are very high. Then, assume the utility company begins to
18 earn 15% on its book equity just as inflation and interest rates decline significantly.
19 The logical response on the part of those investors who expected the 15% earned
20 return to continue would be to bid up the stock price. The proper response on the part
21 of regulators would be to recognize that when capital cost rates decline, it is necessary
22 to lower the cost of equity even though lowering the cost of equity below 15% would
23 cause rational investors to reconsider the stock price they are willing to pay. A

1 lowering of the 15% prior equity cost allowance down to current equity cost levels
2 would cause the stock price to return closer to the level it was prior to the time the
3 utility company's stock rose due to the high earnings level. Yet, Mr. Benore's
4 philosophy would never provide a mechanism for the allowed return on equity to be
5 lowered irrespective of what happens to the cost of equity. Once investors
6 expectations for excessive profits is built into the stock price, he would have the
7 allowed return on equity set high enough so that the excess profits and therefore the
8 resulting high stock price would be maintained. His process would protect
9 stockholders from a potential decline in stock prices, but would fail to balance the
10 interests of investors and ratepayers because it would force ratepayers to support a
11 return on equity that was higher than the current cost of equity.

12
13 Q. YOU HAVE STATED THAT THE U.S. SUPREME COURT HAS ALREADY
14 ESTABLISHED THAT IT IS NOT PROPER TO MERELY SET THE COST OF
15 EQUITY AT A LEVEL HIGH ENOUGH TO MAINTAIN A CURRENT STOCK
16 PRICE. PLEASE ELABORATE.

17 A. In contrast to Mr. Benore, the *Hope* case correctly explains that the cost of equity is
18 used to influence what the stock price should be. *Hope* recognizes that it is improper to
19 start with the current stock price and improperly concluding that the return on equity
20 should be set at the level to produce earnings at the level required to maintain that
21 current stock price. As is stated in the *Hope* case, a cost of equity that would result in a
22 lower stock price can be a reasonable conclusion because:

1 The fixing of prices, like other applications of the police power, may
 2 reduce the value of the property which is being regulated. But the fact
 3 that the value is reduced does not mean that the regulation is invalid. ...
 4 It does, however, indicate that "fair value" is the end product of the
 5 process of rate-making not the starting point as the Circuit Court of
 6 Appeals held. The heart of the matter is that rates cannot be made to
 7 depend upon "fair value" when the value of the going enterprise depends
 8 on earnings under whatever rates may be anticipated.

9 ...

10 We recently stated that the meaning of the word "value" is to be gathered
 11 "from the purpose for which a valuation is being made. Thus the
 12 question in a valuation for rate making is how much a utility will be
 13 allowed to earn.

14 *Hope* Decision (302 US,601)

15
 16 Q. ARE THERE EXAMPLES OF REGULATORY DECISIONS WHICH SUPPORT THE
 17 CONTINUED USE OF THE *HOPE* STANDARD?

18 A. Yes. I already provided examples of this earlier in my testimony in quotes from
 19 the FERC and the FCC.

20 Furthermore, in response to the theory behind a comparable earnings analysis
 21 approach sponsored by Illinois Bell, the Illinois Appeals Court responded to an Illinois
 22 Bell position that was very similar to the argument relied upon by Mr. Benore in this
 23 case to reject the use of the DCF method. The decision by the Appeals Court stated
 24 the following:

25 Phillips' methodology is premised on the assumption that
 26 sophisticated investors will not purchase Bell equity unless they expect to
 27 enjoy a ROE approaching the ROE on book value. Therefore, under
 28 Phillips' regime, sophisticated investors refuse to pay the premium -- i.e.
 29 the inflation of the market value of a stock in relation to its book value -- to
 30 invest in certain companies. The unavoidable implication of this
 31 assumption is that a fair ROE at least approximates the ROE on book value.

32 ... In an unregulated capital market there is no guarantee that the
 33 ROE on the market value of their stocks will pace the ROE on book value.
 34 Likewise, in Bell's regulated capital market, the Commission has no duty to

1 ensure that an investor's ROE keeps pace with the ROE on book value.
2 See Illinois Bell Telephone Co. v. Federal Communications Comm'n
3 (1993), 988 F 2d 1254, 1260-62 (Illinois Bell Telephone Co. III)
4

5 Illinois Bell Telephone Company v. Illinois Commerce Commission , Appeal
6 No. 2—94—1272 v Citizens Utility Board Appeal No. 2—94-1440, filed
7 July 17, 1996.
8

9 Q. YOU HAVE EXPLAINED THAT IN THIS CASE, MR. BENORE HAS TESTIFIED
10 THAT THE DCF METHOD UNDERSTATES THE COST OF EQUITY BECAUSE
11 THE MARKET-TO-BOOK IS ABOVE 1. DID COMPANY WITNESSES SUCH AS
12 MR. BENORE CONSISTENTLY APPLY THIS SAME ARGUMENT ABOUT THE
13 DCF METHOD WHEN THE MARKET-TO-BOOK RATIO WAS BELOW 1?

14 A. No. When market-to-book ratios were below 1.0, they often argued that the allowed
15 return on equity had to increase to get the market price up to book value. As an
16 example of an argument that was typical during the time that market-to-book ratios
17 were below 1.0, following is a quote from page 26 of a decision in a Minnesota Power
18 and Light Company rate proceeding, Docket No. E-015/GR-80-76. This Minnesota
19 Power and Light case was filed by the company on February 1, 1980.
20

21 The Company's case rested on a constitutional mandate for
22 determining the proper cost of equity, as set forth by the U.S. Supreme
23 Court in Bluefield and Hope.

24 The Company stated its market to book ratio was relevant to all
25 three of the Bluefield criteria. A market to book ratio below one would
26 not necessarily violate Bluefield, but the persistence of that ratio below
27 one over a sustained period of time would mean that the market return
28 determinations were being incorrectly made. MP&L believed that any

1 method used to measure cost of equity which presupposes the
2 continuation of substandard earnings would produce confiscation.

3

4 Note that in this Minnesota Power and Light case, Mr. Benore is not troubled by a
5 market to book ratio that is too high even though when the market to book has
6 been sustained at a level above one "...presupposes the continuation of ..."
7 excessive earnings.

8

9 Q. WHY DID YOU HAPPEN TO CHOOSE THE ABOVE QUOTE FROM THE
10 MINNESOTA POWER AND LIGHT CASE?

11 A. Both Mr. Benore and I appeared in the above quoted Minnesota Power and Light
12 case. While I did not retain a copy of his testimony from that case, I did keep a
13 copy of the decision. Upon reviewing the decision, I encountered the above
14 quote.

15

16 Q. PLEASE ELABORATE ON YOUR PROBLEMS WITH MR. BENORE'S
17 IMPLEMENTATION OF THE "STANDARD" DCF METHOD.

18 A. The largest problem with his standard DCF method is that he used a constant-
19 growth version of the DCF model, but used a proxy for long-term growth based
20 solely on earnings per share growth forecast for the five years from 2000 to 2005.
21 This growth rate that he used is the same kind of growth rate that the previously
22 quoted Credit Suisse First Boston report categorized as "... unusually
23 unreliable...", explaining that they are not only on average too high, but are even -

1 more exaggerated than usual because of the one-time impact to earnings caused
2 by a reduction in interest rates and taxes.¹⁵ The earnings per share consensus
3 growth rate is an unreasonable proxy for long-term sustainable growth. For
4 example, he did not contrast the earned return on equity in the most recently
5 completed fiscal year or the earned return on equity consistent with the earnings
6 per share forecast to test if the earned return on equity is changing over the five
7 years he examined. Therefore, he does not know if the book value is forecast to
8 be growing more or less rapidly than earnings per share over the five years
9 covered by the analysts' consensus forecast.

10 The numbers required to make the necessary comparison of the historic
11 base period return on book equity and the forecasted return on book equity are
12 shown on my Schedule JAR 3, Page 4. The comparison shows that while the
13 earned return on book equity for the comparative group of electric utilities chosen
14 by Mr. Benore was 11.8% in 2000, the forecasted return on equity that is
15 consistent with the analysts' consensus earnings per share growth rate is 13.3%,
16 in five years. For the return on equity to increase, this means that earnings must
17 be forecast to grow more rapidly than book value – a result that makes it a
18 mathematical mistake to use the analysts' consensus five-year growth rate as a
19 proxy for long-term growth in the DCF model.

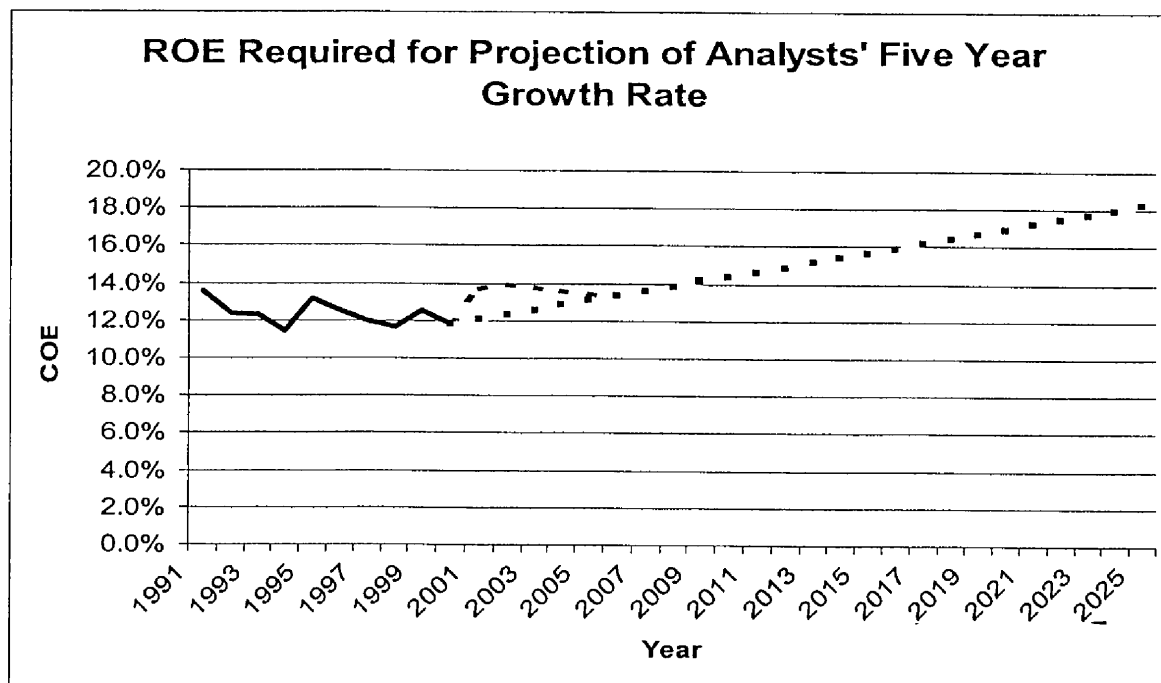
20

¹⁵ *Weekly Insights*, "Global Strategy Perspectives", Credit Suisse First Boston, October 4, 2001, pages 55-64.

1 Q. EARLIER IN YOUR TESTIMONY, YOU PRESENTED A GRAPH THAT
 2 SHOWED HISTORIC AND PROJECTED EARNED RETURNS ON BOOK
 3 EQUITY. CAN YOU PRESENT A GRAPH THAT SHOWS THE RETURNS
 4 ON BOOK EQUITY CONSISTENT WITH MR. BENORE'S SELECTED
 5 GROWTH RATE METHOD?

6 A. Yes. By using a five-year analysts' growth rate projection as a proxy for long-
 7 term sustainable growth, Mr. Benore is effectively projecting an continued
 8 increase in the earned return on equity. This is because the growth rate he used
 9 in his DCF analysis includes both the sustainable growth caused by the
 10 anticipated retention of earnings and the non-recurring increase in earnings per
 11 share caused by the forecasted increase in the return on book equity. Following
 12 is the historic actual return on book equity achieved by Mr. Benore's comparative
 13 electric companies and the return on book equity they would have to achieve in
 14 the future if it were correct to merely project five-year growth indefinitely into
 15 the future.

16
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22



1 Since no knowledgeable investor could possibly expect the return on book
2 equity to continue to increase indefinitely into the future, no knowledgeable
3 investors know better than to use an analysts five year growth rate in a constant
4 growth DCF formula as doing so would assure that the constant growth method
5 dramatically overstates the cost of equity.

6 In addition to the earnings per share growth rate and book value per share
7 growth rate failing the constant-growth requirement of the form of the DCF
8 model selected by Mr. Benore because of the inherent problem of earnings per
9 share being expected to grow at a different rate than book value per share (a
10 characteristic that is confirmed by the forecasted increase in return on book
11 equity¹⁶), a comparison of earnings per share forecasted growth rate and the
12 dividends per share growth rate also shows that Mr. Benore was wrong to use the
13 five-year earnings per share forecasted growth rate as a proxy for sustainable
14 growth in the DCF model. The fact that there is a material difference in the
15 forecasted rate of growth for earnings and for dividends makes it all the more
16 mathematically erroneous to use the five-year earnings per share growth rate as a
17 proxy for long-term growth in the version of the DCF formula that requires an
18 expectation of the same constant growth rate for earnings, dividends, book value,
19 and stock price. My Schedule JAR 6 shows that the dividends per share growth
20 rate forecast by Value Line from 2000 to 2005 is a compound annual rate of

¹⁶ The definition of return on book equity is earnings per share divided by book value per share. Therefore, it is a mathematical fact that the return on book equity would remain constant if and only if earnings per share and book value per share were growing at the same rate. If earnings per share is

1 1.25%. This growth rate is considerably lower than the analysts' consensus
2 earnings per share growth rate over the same period. If dividends are growing
3 less rapidly than earnings, it means the lower relative dividend and resultant
4 lower dividend yield is expected to decline at the same time that earnings per
5 share growth accelerates¹⁷. The constant-growth formula is inaccurate and will
6 materially overstate the cost of equity under such conditions because the
7 constant-growth DCF's cost of equity valuation assumes that the dividend yield
8 will remain at the higher rate prevailing at the beginning of the projection period.
9 If investors expect dividends to grow less rapidly than earnings, and if they
10 expect the stock price to grow as rapidly as earnings, then they also expect the
11 dividend yield to decline. This expected decline in the dividend yield causes the
12 constant-growth approach to overstate the cost of equity by an amount related to
13 the expected decline in the divided yield. If the dividend yield in the future will
14 decline, causing investors to loose a portion of the cash flow that was accounted
15 for in the constant growth DCF model. Any time the DCF model overstates a
16 future anticipated cash flow, this fact will create an upward bias in the DCF
17 model.
18

growing more rapidly than book value per share, then the return on book equity has to increase as a simple matter of mathematics.

¹⁷ In this case, dividends are still expected to grow. They are just expected to grow at a much slower rate than earnings. This means that if earnings growth is a proxy for stock price growth, then a lower growth rate for dividends than for stock price has to result in a decline in the dividend yield. If stock price is not expected to grow as rapidly as earnings, then the dividend yield would not have to decline, but a stock price growth lower than the expected earnings growth would only make it even more improper to use the earnings per share consensus growth rate as a proxy for long-term growth in the DCF model.

1 Q. PLEASE SUMMARIZE YOUR COMMENTS ON THE USE OF THE DCF
2 METHOD.

3 A. I have shown that Mr. Benore's approach to the DCF method contains many
4 substantive errors in mathematics and financial theory. The principles he relied
5 upon to formulate his method have been rejected by the U. S. Supreme Court,
6 FERC, the FCC, and most recently the Appeals Court in Illinois. Therefore, the
7 Commission should give no weight to his DCF approach.

8

9 **C. Capital Asset Pricing Model**

10

11 Q. PLEASE EXPLAIN HOW MR. BENORE APPLIES THE CAPM METHOD

12 A. Mr. Benore mentions his risk premium method on page 27 of his testimony, and
13 provides supporting documentation for the approach on his Schedule 9. He applies
14 his risk premium method two different ways. One way he compares the actual
15 annual average returns achieved by the S&P 500 with the average returns achieved
16 on long-term bonds. Then, he reduced that result based upon the beta of electric
17 companies. He added this differential to a 6.4% yield on U.S. treasury bonds to
18 obtain an indicated cost of equity of 10.4%. He also presents an alternative
19 approach to the CAPM method in which he adds another 0.9% based upon an
20 empirical study he attributes to Dr. Roger Morin who, while not a witness in this
21 proceeding, is a frequent cost of capital witness for utility companies. See page 15
22 of Mr. Benore's Schedule 9.

1 Mr. Benore presents yet another method that he calls a CAPM method. In this
2 additional method he quantifies the cost of equity by using the DCF method as applied
3 to the S&P 500. When he applies this DCF method, he repeats the same mistake he
4 used when applying the DCF method to utility companies – he used a short-term
5 five-year projected growth rate in earnings per share as a proxy for long-term
6 sustainable growth. Additionally, Mr. Benore implemented a CAPM analysis by
7 starting with Value Line’s expectation of total return to investors.

8 Just as with his DCF method, Mr. Benore inflates the result of his CAPM
9 analysis based upon his “End-Result” adjustment.

10 The very serious problems with Mr. Benore’s CAPM method are numerous:

11

12 1) The continued use of the flawed end-result adjustment.

13 2) The repetition of the errors in his standard DCF

14 3) The use of arithmetic historic growth rather than compounded, or geometric
15 growth

16 4) The assumption that risk premiums today are the same as they were in the
17 past.

18 5) The mistake of treating 30-year treasury bonds as if they were a risk-free
19 investment.

20

21 Q. IS THE END RESULT UPWARD ADJUSTMENT TO THE CAPM METHOD
22 ANY MORE APPROPRIATE THAN THE SIMILAR UPWARD ADJUSTMENT
23 MR. BENORE HAS PROPOSED WITH HIS DCF METHOD?

1 A. No. Just as with the DCF method, making the upward adjustment to the DCF
2 method, the effect of the upward adjustment is to transform the cost of equity
3 computation into the return on equity required to keep a stock price unchanged. In
4 other words, Mr. Benore's upward adjustment has the effect of assuming that
5 whatever earnings are currently expected by investors are exactly proper irrespective
6 of whatever relationship those earnings expectations have with the earnings level
7 that investors demand. Just as was the case with the DCF method, because the
8 method uses the stock price as the ending point rather than the starting point, it is a
9 direct and specific violation of the U.S. Supreme Court's findings in the Hope
10 Natural Gas case.

11

12 Q. HOW DID MR. BENORE REPEAT THE ERRORS FROM HIS DCF METHOD
13 WHEN IMPLEMENTING HIS CAPM METHOD?

14 A. In one of the versions of his CAPM method, Mr. Benore quantified the cost of
15 equity for the S&P 500 by adding an analysts five-year growth rate for the S&P
16 500 to the current dividend yield of the S&P 500. See Exhibit No. ___(CAB-1),
17 Schedule 9, Page 12. The DCF result he so obtained was 16.8%. This 16.8% is
18 so obviously too high that it serves as a helpful illustrator of the inherent
19 problem with using a five-year earnings per share growth rate as a proxy for
20 sustainable growth. The five-year growth rates are growth rates from the most
21 recently completed historic year to a period five years into the future. Since last
22 year was a year in which earnings were impacted by the onset of the current
23 recession, earnings in the base year were atypically low. This fact, combined

1 with the well-established upward bias that exists in analysts forecasts results in a
2 growth rate that is substantially higher than any rational investor expects.

3

4 Q. YOU SAID THAT ONE PROBLEM WITH MR. BENORE'S
5 IMPLEMENTATION OF THE RISK PREMIUM METHOD WAS HIS USE
6 OF THE ARITHMETIC AVERAGE TO ARRIVE AT THE HISTORIC
7 ACTUAL RETURNS HE USED TO DERIVE THE RETURN DIFFERENCE
8 BETWEEN BONDS AND STOCK. PLEASE EXPLAIN.

9 A. As will be explained in detail later in this section of my testimony, textbooks,
10 the U.S. Securities and Exchange Commission (SEC), and Value Line have all
11 recognized that the only proper way to measure long-term historic actual earned
12 returns is to use the geometric mean. The arithmetic mean is specifically
13 identified by several sources as a method that will specifically result in an
14 answer that is upwardly biased. The arithmetic average of returns is computed
15 by taking the percentage change over a specific period ¹⁸, and computing an
16 arithmetic average of those returns. The geometric average is computed by
17 determining the compound annual average return from the beginning of the
18 period to the end of the period being examined.

19

¹⁸ Frequently arithmetic average returns are computed based upon annual results. However, arithmetic returns could be computed using any other time – daily, weekly, monthly, every two years, every 5 years, etc. and then converting that result to an average annual return.

1 Q. PLEASE EXPLAIN WHY YOU HAVE CONCLUDED IT IS IMPROPER TO
2 DEVELOP A RISK PREMIUM BASED UPON HISTORIC ARITHMETIC
3 RETURNS?

4 A. Arithmetic average returns overstate the actual returns received by investors.
5 The more variable historic growth rates have been, the more the method
6 exaggerates actual growth rates. Arithmetic average returns ignore the impact
7 of compound interest. For example, if a company were to have a stock price of
8 \$10.00 in the beginning of the first year of the measurement period and a \$5.00
9 stock price at the end of the first year, an arithmetic average approach would
10 conclude that the return earned by the investor would be a loss of 50% [$(\$5-$
11 $\$10)/(\$10)$]. If, in the second year, the stock price returned to \$10.00, then the
12 arithmetic average would compute a gain of 100% in the second year [$(\$10-$
13 $\$5)/(\$5)$]. The arithmetic average approach would naively average the 50%
14 loss in the first year with the 100% gain in the second year to arrive at the
15 conclusion that the total return received by the investor over this two year
16 period would be 25% per year [$(-50\% + 100\%)/2$ years]. In other words, the
17 arithmetic average approach is so inaccurate that it would conclude the average
18 annual return over this two-year period was 25% per year even though the stock
19 price started at \$10.00 and ended at \$10.00. The geometric average would not
20 make such an error. It would only consider the compound annual return from
21 the beginning \$10.00 to the ending \$10.00, and correctly determine that the
22 annual average of the total returns was not 25%, but was zero.

1 In order to protect investors from misleading data, the SEC requires mutual
2 funds to report historic returns by using the geometric average only. The
3 arithmetic average is not permitted. The geometric average, or SEC method,
4 has the compelling advantage of providing a true representation of the
5 performance that would have actually been achieved by an investor who made
6 an investment at the beginning of a period and re-invested dividends at market
7 prices prevailing at the time the dividends were paid.

8

9 Q. DOES THE FINANCIAL COMMUNITY COMPUTE HISTORIC ACTUAL
10 ACHIEVED RETURNS BASED UPON ARITHMETIC MEANS OR
11 GEOMETRIC MEANS?

12 A. The financial community (as represented by articles from *The Wall Street Journal*
13 and from *Business Week* that are specifically quoted in the "Implementation of
14 Risk Premium/CAPM Method" section of this testimony) refers to geometric
15 averages when evaluating historic returns. Additionally, page 92 of the August
16 16, 1999 issue of *Fortune* magazine refers to the return that is equal to the
17 geometric mean from Ibbotson Associates as "...the oft-quoted calculation..." of
18 historic actual returns on common stocks. The article does not even mention the
19 number that is equal to the historic arithmetic return.

20

21 Q. DO FINANCIAL TEXTBOOKS SUPPORT THE USE OF THE GEOMETRIC
22 AVERAGE FOR COMPUTING HISTORIC ACTUAL RETURNS?

1 A. Yes. For example, the textbook *Valuation. Measuring and Managing the*
2 *Value of Companies*, by Copeland, Koller, and Murrin of McKinsey & Co. ,
3 John Wiley & Sons, 1994, in a description of how to use the Ibbotson
4 Associates data states the following on pages 261-262:

5 We use a geometric average of rates of return because arithmetic
6 averages are biased by the measurement period. An arithmetic
7 average estimates the rates of return by taking a simple average of
8 the single period rates of return. Suppose you buy a share of a
9 nondividend-paying stock for \$50. After one year the stock is
10 worth \$100. After two years the stock falls to \$50 once again.
11 The first period return is 100 percent; the second period return is -
12 50 percent. The arithmetic average return is 25 percent [(100
13 percent - 50 percent)/2]. The geometric average is zero. (The
14 geometric average is the compound rate of return that equates the
15 beginning and ending value.) **We believe that the geometric**
16 **average represents a better estimate of investors' expected**
17 **returns over long periods of time.**

18
19 (Emphasis added)

20 Similarly, in another textbook discussion that specifically addresses the use of
21 the Ibbotson data, *Financial Market Rates & Flows*, by James C. Van Horne,
22 Prentice Hall, 1990, states the following on page 80:

23 The geometric mean is a geometric average of annual returns, whereas
24 the arithmetic mean is an arithmetic average. For cumulative wealth
25 changes over long sweeps of time, the geometric mean is the
26 appropriate measure.

27
28 The textbook *Investments* by Nancy L. Jacob and R. Richardson Pettit, Irwin,
29 1988, puts it well when it says:

30 The existence of uncertainty as reflected in a distribution of possible
31 values makes the **expected value**, or arithmetic average rate of return, a
32 misleading and biased representation of the wealth increments which will
33 be generated from multiperiod investment opportunities.

1 The average *annual* rate of wealth accumulation over the investment
2 period, termed the **average annual geometric rate of return**, correctly
3 measures the average annual accumulation to wealth when multiple
4 periods are involved.

5
6 (Emphasis is contained in the original)

7
8
9 Q.HAS VALUE LINE SAID ANYTHING REGARDING THE USE OF AN
10 ARITHMETIC AVERAGE OR A GEOMETRIC AVERAGE?

11 A. Yes. On May 9, 1997, Value Line issued a report entitled "The Differences in
12 Averaging". This report was contained on pages 6844-6845 of the "Value Line
13 Selection & Opinion" portion of its weekly mailings to subscribers. This report
14 says that:

15
16 (t)he arithmetic average has an upward bias, though it is the simplest
17 to calculate. The geometric average does not have any bias, and thus
18 is the best to use when compounding (over a number of years) is
19 involved.
20

21 The Value Line report then goes on to provide examples that show why the
22 arithmetic average overstates the achieved returns while the geometric average
23 produces the correct result.

24 Ibbotson Associates has also said that it is the geometric average that is "...
25 the correct average to compare with a bond yield..."¹⁹.
26

¹⁹ Page 75 of Stocks, Bonds, Bills, and Inflation 1986 Yearbook.

1 Q. HAVE YOU COMPARED GRAPHICALLY THE CAPITAL
2 APPRECIATION GROWTH RATE USING THE ARITHMETIC AVERAGE
3 METHOD WITH THE CAPITAL APPRECIATION GROWTH RATE THAT
4 IS OBTAINED USING THE SEC METHOD?

5 A. Yes. In the following graph I show the actual movement of the S&P Utility
6 index from 1928 through 1998. I also show how the index would have behaved
7 on a year-by-year basis using the average growth obtained from the SEC
8 method and using the arithmetic average historic growth rate methodology.
9 The graph illustrates that arithmetic average calculation of historic actual
10 returns deviates at an ever-increasing rate over time from the actual S&P Utility
11 Index, overstating the total return from 1928-1998 by almost 400%. By
12 contrast, the historic actual returns computed using the SEC method is a
13 dramatically more reasonable track of the growth of the S&P utility over time
14 and thus is a better measure of historic actual return rates realized by investors.
15 In the following table, Series 1 is the actual return on the S&P Utilities Index,
16 Series 2 is the geometric return on the S&P Utilities Index and Series 3 is the
17 arithmetic return.

18

19

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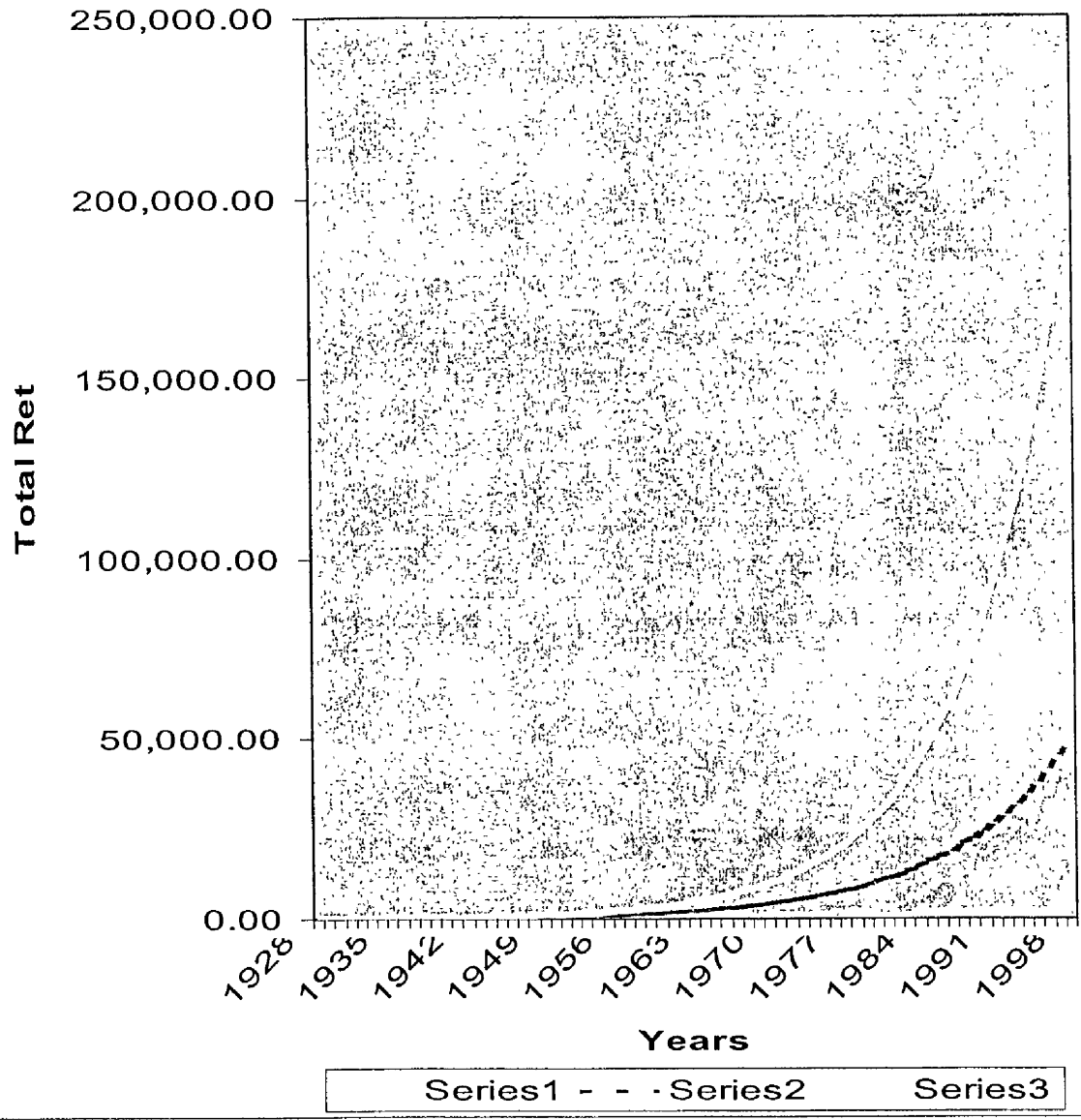
21

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Actual Return on \$100 Investment in S&P Utility Index versus Arithmetic Return and Geometric Return from 1928 through 1998



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In the above chart, the top line shows that if \$100 had been invested in public utility common stocks in 1928 through 1998 and had earned the arithmetic return, the \$100 would have grown to about \$200,000. The lower irregular line shows what actually would have happened to a real \$100 investment if it had been invested in public utility common stocks. As shown on the graph, the \$100 investment would have actually grown to about \$50,000. While the increase from \$100 to \$50,000 is a very sizeable return, it is far less than the \$200,000 return that would have been achieved if the arithmetic return methodology had been achieved. The smooth line that ends at the same place as the actual return line is the ongoing value of \$100 invested in 1928 that grew at the geometric return rate. Note that the \$100 invested at the geometric return rate is, by 1998, exactly equal to the actual return. Therefore, the geometric return accurately measures the actual return that was achieved from 1928 through 1998, but the arithmetic average return exaggerates the actual return by 3 times.

Q. HOW MUCH HIGHER IS THE RISK PREMIUM DIFFERENCE BASED UPON AN ARITHMETIC AVERAGE THAN IT IS BASED UPON A GEOMETRIC AVERAGE?

1 A. From 1928 to 1998, the arithmetic average method produced an indicated risk
2 premium that was about 1.90% higher for public utility stocks versus public
3 utility bonds than the risk premium indicated by using the SEC, or geometric
4 average method. The arithmetic median method produced a 1.85% higher risk
5 premium than is indicated by using the SEC, or geometric average method.

6

7 Q. DOES THE FACT THAT THE ABOVE ANALYSIS YOU HAVE SHOWN IS
8 BASED UPON HISTORIC DATA BUT THE PURPOSE OF THE COST OF
9 EQUITY COMPUTATION IS FORWARD-LOOKING CHANGE THE
10 APPROPRIATENESS OF THE USE OF THE GEOMETRIC AVERAGE?

11 A. No. While I have seen some witnesses argue that while the geometric average is
12 proper for measuring returns earned historically, the arithmetic average should
13 be used to project the future, such an argument defies logic. If it were correct
14 that the geometric approach were proper for measuring historic returns, but the
15 arithmetic average were proper for measuring projected returns, this line of
16 thinking would result in the absurd conclusion that at the same time investors
17 expect to earn at the higher arithmetic rate over the next ten years, once the ten
18 years has passed, these same investors expect that they will look back and have
19 earned the lower geometric average return. The truth is that as they look back
20 at history, to the extent the historical performance is a guide as to what returns
21 will be earned in the future, it is the geometric average not the arithmetic
22 average, that measures the sustainable returns that investors expect to receive
23 over the next five, ten, or fifteen years.

1

2 Q. HAVE RISK PREMIUMS BEEN STABLE OVER THE YEARS SO THAT
3 INVESTORS COULD EXPECT THE FUTURE RISK PREMIUM TO BE
4 EQUAL TO THE HISTORIC RISK PREMIUM ACHIEVED IN
5 AGGREGATE SINCE 1926?

6 A. No. As I have shown earlier in this testimony, there is compelling evidence
7 that risk premiums have declined.

8

9 Q. YOU SAID THAT ONE OF THE PROBLEMS WITH MR. BENORE'S
10 IMPLEMENTATION OF THE CAPM METHOD IS THAT HE ASSUMED
11 THE RISK PREMIUM IS THE SAME TODAY AS IT WAS ON AVERAGE
12 SINCE 1926. PLEASE SHOW WHY THAT IS A PROBLEM.

13 A. The graphs I have shown earlier in this testimony show that there has been a
14 persistent, dramatic, and undeniable reduction in the equity risk premium that
15 began in about 1970 and leveled off at a new, much lower level in about 1985.
16 As stated earlier in this testimony, my observation of a lower equity risk
17 premium is consistent with what Federal Reserve Chairman Greenspan found
18 to be a fact that is not even in dispute.

19 The reason Mr. Benore failed to detect the downtrend in the risk premium is
20 because he relied upon an invalid approach for testing to see whether or not a
21 drop in the equity risk premium had occurred. He merely regressed the
22 difference in the earned return on an equity investment against the earned return
23 on a bond investment in each year against time. The reason his approach found

1 no trend is because the difference between the earned return on stocks and the
2 earned return on bonds in any one year is not an indicator of investors
3 expectations for that year. The results are so hugely variable that they only
4 begin to take on any meaning when the results are cumulated over enough years
5 to smooth out the random "noise". Mr. Benore's statistical method did nothing
6 to smooth out this noise, so the result he got is irrelevant.

7

8 Q. ARE LONG-TERM TREASURY BONDS RISK FREE?

9 A. Absolutely not. The market price of long-term treasury bonds fluctuate
10 substantially in price as long-term interest rates change. For example, it would be
11 risky for an investor who was planning to use his or her money to purchase a
12 house in 3 months to invest all of that money in 30 year treasury bonds. If
13 interest rates should happen to rise substantially over the 3 months, the investor
14 would receive less for the bond than he or she paid for that bond, and would
15 therefore no longer have sufficient funds to purchase the house. Because a 30
16 year treasury bond is not risk free, it does not have the zero beta that would be
17 consistent with a true risk free investment. It could be acceptable to use a 30-year
18 treasury bond in the CAPM formula, but only if the beta term is changed from
19 the simple "B" used by Mr. Benore to the $B_1 - B_2$ term that I have shown above.

20

21 Q. DID MR. BENORE DETERMINE THE BETA OF A 30 YEAR TREASURY
22 BOND TO CONFIRM IF AN INVESTMENT IN A 30 YEAR TREASURY

1 BOND IS OR IS NOT RISK FREE WITHIN THE CONTEXT OF A CAPM
2 MODEL?

3 A. No. Instead, he incorrectly assumed that the beta of a long-term treasury bond is
4 zero. An investment in long-term treasury bonds contains risk because the market
5 price of long-term treasury bonds change with changes in interest rates, and will
6 change substantially if long-term interest rates change substantially. This is in
7 sharp contrast to the market price of a short-term treasury bill which encounters
8 very little change in market price specifically because an investor can always
9 reinvest the funds at prevailing market interest rates. In order to try and fit his
10 erroneous view of the CAPM method into his invalid formulation of the method,
11 for purposes of evaluating risk of a bond investment, he has inappropriately
12 ignored the market volatility definition of risk and changed it to the predictability
13 of interest yield. Among the many problems with Mr. Benore's thinking on this
14 matter is that a 30-year treasury bond is not risk free. This is because even
15 though the interest yield may be fixed for 30 years, the purchasing power of the
16 interest payments and the purchasing power of the principal payment at the end
17 of the 30 years is *anything but* risk free. For example, if inflation over the next
18 30 years is 2% per year, then in current dollars, the purchasing power of a \$1,000
19 treasury bond is \$552.10. Alternatively, if inflation should average 5% over the
20 next 30 years, the purchasing power of that same \$1,000 principal payment on
21 the 30-year government bond is only \$231.40. Therefore, when Mr. Benore
22 makes the erroneous statement that there is no investment risk in a 30-year U.S.

1 treasury bond, his statement is as silly as if he said that an investor is indifferent
2 to receiving \$231.40 or \$552.10.

3 Because Mr. Benore has incorrectly used the yield on a long-term treasury bond
4 as a proxy for a risk free investment, he has understated the downward adjustment
5 that should be made to the S&P 500 equity return to arrive at the return applicable
6 to Gulf Power.

7

8 Q. YOU HAVE IDENTIFIED NUMEROUS SERIOUS PROBLEMS WITH MR.
9 BENORE'S CAPM METHOD. YET, A REVIEW OF HIS SCHEDULE 9,
10 PAGE 15 SHOWS THAT IF THE 10.3% TO 11.2% RESULT HE OBTAINED
11 FROM HIS HISTORICAL RISK PREMIUM METHOD WERE UPDATED TO
12 REFLECT THE CURRENT INTEREST RATE ON LONG-TERM
13 TREASURIES OF ABOUT 5.4%, IT WOULD PRODUCE AN INDICATED
14 COST OF EQUITY OF BETWEEN 9.3% AND 10.2%. THIS IS A CLOSER
15 RESULT TO YOUR RECOMMENDED 10.0% COST OF EQUITY THAN THE
16 RESULT YOU OBTAINED FROM YOUR RISK PREMIUM/CAPM
17 ANALYSIS. PLEASE RESPOND.

18 A. Even a properly applied historic risk premium analysis that corrects for changes
19 in long-term trends in the risk premium is based upon a premise that there is
20 some meaningful relationship between historic risk premiums and current risk
21 premiums. These are unusual times. The U.S. is in its first recession in many
22 years. Both the Federal Reserve has responded by lowering interest rates and
23 the U.S. government has implemented tax relief to stimulate the economy. The

1 combination of the recession and the response taken by the Federal Reserve has
2 caused the current risk premium to be substantially different from what can best
3 be determined by an accurate analysis of history. In the current environment,
4 this causes a properly applied historically based equity risk premium method to
5 understate the cost of equity. That temporary understatement is currently offset
6 by the overstatement that is permanently caused by using the annual arithmetic
7 averaging technique proposed by Mr. Benore. Therefore, just as in the old
8 saying that even a broken clock is accurate twice a day, in the current
9 environment the 9.9% mid-point of the 9.4% to 10.3% that is derived from Mr.
10 Benore's updated result from his historical CAPM tests does produce an
11 acceptable result. But, just like the broken clock, his historical CAPM approach
12 is wrong far more often than it is correct.

13

14 **E. COMPARABLE EARNINGS ANALYSIS**

15

16 Q. PLEASE EXPLAIN THE COMPARABLE EARNINGS METHOD
17 PRESENTED BY MR. BENOIRE.

18 A. Mr. Benore implemented the comparable earnings method merely by examining
19 the return on book equity forecast by Value Line for each of his comparative
20 electric companies and merely setting the "cost of equity" to that average. See
21 his Schedule 10, page 6.

22

23 Q. IS THIS METHOD VALID?

1 A. No. Ms. Benore has attempted to determine the cost of equity that would be
2 demanded by investors on the market price of a company comparable to Gulf
3 Power by comparing it to the actual and projected returns on book equity of a
4 selection of industrial companies. Leaving aside the overly optimistic return on
5 equity expectation in Value Line's projection, the method is still seriously
6 flawed. The method simply considered the returns on book equity that were
7 achieved, and are expected to be achieved by Value Line in the next 3 to 5 years.
8 **The earned return on book equity is an entirely different concept than the**
9 **cost of equity.** Investors buy and sell stock at the market price, not the book
10 value. If investors feel that the return on book is less than they can earn on a
11 comparable investment elsewhere, then they bid the price of the stock down
12 until the point where the return on market is equal to the return expectation
13 acceptable to investors. Conversely, if the return on book is higher than
14 comparable risk returns they can earn elsewhere, then the price of the stock is
15 bid up to the point where the return on market is lower than the return on book.

16 Because the comparable earnings method only looks at return expectations
17 without any input from investors on the adequacy of those returns, the method is
18 hopelessly circular.

19

20 Q. MR. BENORE GIVES REASONS WHY HE IS IN FAVOR OF THE
21 COMPARABLE EARNINGS METHOD ON PAGES 3-6 OF HIS SCHEDULE
22 10. PLEASE RESPOND.

1 A. Mr. Benore says that the comparable earnings method is the most widely used
2 approach after the DCF model. From my experience, that is inaccurate. Out of
3 the hundreds of cases in which I have testified, I do not recall even one in which a
4 commission stated that it gave any weight to a method that merely assumes that
5 the future expected return on equity is somehow equal to the cost of equity.

6 Mr. Benore claims that the comparable earnings method is supported by U.S.
7 Supreme Court decisions. I disagree. Mr. Benore is taking concepts out of
8 context. To reach this conclusion, he must ignore capital attraction standards, and
9 numerous other concepts expressed in the decisions.

10 Mr. Benore says that the comparable earnings method is an apples to apples
11 method because it determines the book return on common stock equity of
12 comparable risk electric companies. Mr. Benore's critical error is that he has
13 forgotten the capital attraction standard. In order for a return on book equity
14 allowance to be reasonable, a company must be able to attract new capital. New
15 capital is raised at a price approximately equal to market price, not book value.
16 Therefore, it is the return rate on market, not the return rate on book that
17 determines whether or not the company can attract new capital on reasonable
18 terms. If the return is higher than necessary, then the stock price is bid up above
19 book value. If the return is lower than adequate, then investors bid the stock price
20 down below book value. Absent input from investors through consideration of
21 the market price, the return on book says nothing about whether or not a company
22 can raise new capital on reasonable terms. A simple, but correct analogy would
23 be with that of a thermostat. The job of a thermostat is to tell the heating or _

1 cooling system whether or not it should adjust the room temperature. If a room is
2 too warm, it turns on the air conditioner. If it is too cool, it turns on the heat. Yet,
3 if the thermostat were to use an approach analogous to Mr. Benore's comparable
4 earnings test, it would look at the room temperature and say the room temperature
5 is what the room temperature should be and it would never ever turn on the heat
6 or the air conditioning.

7 Mr. Benore says that the comparable earnings method is easy to understand
8 and simple to implement. Anyone who truly understands the method would never
9 implement it because it does not measure the cost of equity. It is not simple to
10 implement because the result is totally dependent upon the companies selected, as
11 it depends merely on their projected returns on equity, and is not dependent upon
12 important factors such as relative risk. By the simple to implement comparable
13 earnings method, the cost of equity to a company going bankrupt would be zero,
14 since companies going bankrupt are not expected to be producing any earnings at
15 all in the future.

16 Mr. Benore says that the comparable earnings method "... avoids the problem
17 of over, or under, rewarding investors when prices and book value are materially
18 different from unity...". It does not avoid the problem at all, it merely pretends
19 that the problem does not exist. The truth is that in order to responsibly find the
20 cost of equity it is necessary to determine what investors are demanding. To do
21 this, it is important to recognize that investors are more than happy with earnings
22 prospects when the stock price is above book value and find earnings prospects
23 inadequate when stock prices are below book value. All that ignoring the problem

1 as Mr. Benore as done accomplishes is that it makes his comparable earnings
2 analysis invalid.

3 Mr. Benore says that the comparable earnings method "... acknowledges the
4 linkage between the return on common stock equity and the growth rate in the
5 DCF model...". He provides no basis for this statement, but my response is that
6 his statement is 100% opposite from the truth. The comparable earnings method
7 totally ignores any linkage between the growth rate investors expect to achieve on
8 their stock investment and the cost of equity.

9 Mr. Benore says that the comparable earnings method moves from market
10 based models to book based models. It does do this, just as a thermostat that was
11 willing to determine that whatever the room temperature is is what the room
12 temperature should be. Such a approach would be simple and inexpensive. One
13 could do without not only any mechanical thermostat, but could eliminate the
14 heating and cooling system also. The problem is it would not work at all. Neither
15 does the comparable earnings method.

16

17 **D. FINANCING COSTS**

18 Q. MR. BENORE HAS PROPOSED THE ADDITION OF 0.2% FOR FINANCING
19 COSTS. IS THIS CORRECT?

20 A.No. He has exaggerated these costs, and failed to note that when utility stock prices
21 are above book value, any financing costs that might be incurred are more than
22 offset by the accretion to book value that occurs.

1 The FERC, in its generic rulemaking proceedings from several years ago,
2 found that financing costs were only two basis points.²⁰ Adjusting for such a
3 small amount is beyond rounding error.

4

5 Q. CAN YOU PRESENT AN ANALYSIS TO SHOW THAT MR. BENORE'S
6 REQUESTED ALLOWANCE FOR FINANCING COSTS MUST BE
7 EXCESSIVE?

8 A. Yes. According to page 2 of Schedule D-1 of the MFR's, Gulf Power has
9 requested a capital structure containing \$491,919,000 of common equity. If the
10 return on this equity were increased by Mr. Benore's requested 0.20% per year,
11 this would increase the after-tax return on that \$492 million by \$984,000 per year
12 (\$492 million times 0.20%). At the average rate of increase in equity of 0.4%
13 per year (per Schedule JAR8), at the present level of common equity outstanding,
14 this would amount to an average issuance of \$2 million per year. Financing
15 costs averaging \$984,000 per year if related to the average actual average annual
16 issuance of \$2 million per year would effectively be financing costs equal to
17 almost 50% of the amount of new equity raised. Therefore, just as was concluded
18 by the FERC, the appropriate financing cost allowance should be much less than
19 the 0.2% used by Mr. Benore. In fact, the financing cost, when computed at the
20 correct level, becomes so small that the amount is lost in rounding errors.

21

22 **E. CONCLUSIONS**

23

24 Q. PLEASE SUMMARIZE YOUR CONCLUSIONS.

²⁰ Generic Determination of Rate of Return on Common Equity for Public Utilities, January 29, 1988, Federal Register/ Vo. 53, No. 24/ Friday, February 5, 1988/Rules and Regulations, P. 3357.

1 A. Mr. Benore has overstated the cost of equity by applying the constant growth
2 version of the DCF model based upon a non-constant growth rate indicators, and
3 applied his risk premium approach in ways that exaggerate the cost of equity for
4 reasons that I have identified above. As a result of these mistakes, his 13.2% result is
5 considerably higher than the cost of equity. My recommended 9.10% cost of equity is
6 based upon both a constant growth DCF approach that computes a constant growth
7 rate that is required for the model result to be meaningful. My recommendation is
8 also based upon a non-constant growth version of the DCF model that properly
9 quantifies the cost of equity impact based upon future expected growth rates that are
10 not necessarily constant in the future. Additionally, my recommendation is based
11 upon risk premium/CAPM approaches that rely upon the unbiased geometric average
12 approach to quantify historic returns, and considers the lowering of risk premiums
13 that has been occurring.

14

15 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

16 A. Yes.

17

1 Q And Mr. Rothschild, did you also prepare various
2 exhibits that have been identified as JAR-1 through JAR-10
3 and inclusive?

4 A Yes.

5 MR. BURGESS: Commissioner, we would ask for
6 exhibit numbers for those. We have no objection to all
7 of them being lumped together and considered a composite
8 exhibit.

9 CHAIRMAN JABER: Okay. And, staff, I'll go ahead
10 and identify them as a Composite Exhibit 28. I can't
11 tell, and I don't know if this is true about all of the
12 commissioners' copies, but I can't tell if the exhibit
13 that I have is the modified exhibit. So during the next
14 break, if you'll just take a look and compare and let us
15 know for purposes of clarifying the record. But for now
16 Composite Exhibit 28 will be JAR-1 through JAR-10.

17 MR. BURGESS: Thank you, commissioner. With that
18 we would tender the witness for cross examination. ,
19 I'm sorry, I would, before that, ask Mr. Rothschild if
20 he has a summary that he would present for the
21 Commission's edification.

22 CHAIRMAN JABER: Go ahead, Mr. Rothschild.

23 A Okay. Thank you very much, commissioner.

24 Good afternoon. We're all ratepayers. Everybody
25 in this room, I think it's safe to say, is a ratepayer. We

1 all want safe and reliable service, and none of us want to
2 pay any more than necessary. Many of us in this room are
3 investors. As investors, we want to earn as much as
4 possible, and we want to lower our risks. The Commission's
5 job in determining the cost of capital, and as well as other
6 things it makes its decision on, is to balance those
7 interests.

8 One of the ways that the interest is balanced is to
9 use original cost ratemaking. Original cost ratemaking might
10 sound like it's a rate-based determination issue, but in this
11 case, it has become a cost of equity issuance. We're used to
12 seeing original cost ratemaking in a way that provides a
13 return of and a return on the investment funds. The return
14 of shows up in the form of depreciation. Return on shows up
15 in the form of the cost of capital, cost of equity. And that
16 cost of equity includes a fair profit to which the Commission
17 determines what that is; and that fair profit includes,
18 whether or not specifically noted, it includes an allowance
19 for inflation.

20 Over time it's typical and usual in this country
21 that the replacement cost of a utility's assets exceeds its
22 original cost. In the past, the fact that the replacement
23 cost has exceeded the original cost caused a lot of debate
24 and concern in the utility ratemaking, and tensions became so
25 high that the U.S. Supreme Court heard those issues in what

1 we all recognize as the landmark Hope Natural Gas case that
2 we hear over and over again in rate proceedings. This
3 decision, which was rendered in the early 1940s was about
4 primarily determining that original-cost ratemaking is
5 acceptable.

6 Why this introduction covering a lot of what we
7 know? And that is, because a major difference between Mr.
8 Benore and my position that the Commission needs to address
9 is -- relates to Mr. Benore's example that he provided
10 earlier today, specifically, and it was in his testimony
11 before, of course, specifically the example he showed on Page
12 5 of the handout he provided a few moments ago.

13 The impact of what he's doing here is a very
14 sophisticated way of suggesting that ratepayers should pay a
15 return on an amount that is in excess of the original cost
16 ratemaking. In other words, he's asking the Commission to
17 overturn the Hope decision through the back door. I go
18 through a lengthy discussion that I will not belabor here
19 today, other than if somebody wants to ask questions about
20 it, of why I don't think that's appropriate. I think the
21 Hope case should stand, why I think the determinations that
22 have been -- the decisions that I discuss from the Federal
23 Energy Regulatory Commission, the Federal Communications
24 Commission, and some other jurisdictions are appropriate,
25 apply here; and that is, adjustment to inflate the allowed

1 return above the return that's fair and reasonable on
2 original-cost ratemaking should not be entertained or should
3 not be adopted by the Commission.

4 I'm going to turn now to another major area of
5 disagreement between Mr. Benore and myself to help the
6 Commission focus on what it's going to, in all probability,
7 want to give careful consideration to; and that is, how to
8 implement the DCF method. The DCF method, I think we all
9 agree, measures the expectation of stock investors. What
10 does an investor do? An investor, and those of you who are
11 investors know, you take money out of your bank account today
12 to decide to buy a stock in exchange for a future cash flow.
13 That future cash flow in utility companies typically includes
14 a dividend, and it includes a growth rate.

15 The dividend and the growth both come from earnings.
16 When we take earnings, we carve out an amount and say that
17 the portion of earnings that goes to dividends is the amount
18 that is the current cash flow, and in the simplified version
19 or the constant growth version of the DCF method, we quantify
20 that as the dividend yield; and what's left over is the
21 growth rate.

22 When you're applying that method, it's very, very
23 important, indeed it's critical, that when you're doing it,
24 that you have to be able to reasonably expect dividends,
25 earnings, stock price, and book value all to be growing at

1 the same rate. If they're not, the formula doesn't work any
2 more. You can still apply a DCF method. You just have to
3 get more complicated about it.

4 And what happens, if you're taking the dividend yield
5 portion of the formula, which takes a one-time look at
6 dividend and computes the dividend yield, if you take that
7 and say, okay, from this dividend rate we know the dividend
8 portion, and what's left over is for growth, and you're
9 applying that to an environment when you think earnings are
10 growing faster than dividends. What you have is accelerating
11 growth which can be realistic, but unless you go back and
12 revisit the dividends, you're counting that same dollar of
13 earnings twice. When you do that, you overstate the cost of
14 equity that an investor who knows how to do arithmetic
15 properly recognizes. And that is another major area of
16 disagreement. I go into great detail in my testimony, and
17 other than to point out and summarize, and to the extent
18 there are any questions to elaborate on it, I won't go
19 through the details of that argument this afternoon.

20 I'm going to go very briefly on to risk premium and
21 to say that, again, there's lengthy discussion on a major
22 difference between Mr. Benore and my testimony, is that I
23 have used the geometric average to quantify returns. This is
24 a recognized method to produce an unbiased result, unbiased
25 meaning it's not mathematically high or not mathematically

1 low, as contrasted to the arithmetic average which is an
2 approach that is recognized by Value Line to overstate
3 historic returns. It's a method that the U.S. Securities and
4 Exchange Commission does not let mutual funds tell their
5 investors the return because it overstates; and it is,
6 therefore, also not a method that the Commission should rely
7 on to quantify the cost of equity.

8 And just as a bullet point, I would note that I
9 have rejected a comparable earnings analysis in which all you
10 do is take the earned return on book equity and use that as a
11 proxy for the cost of equity. I think that's not helpful
12 because -- just because you know what an earned return is,
13 doesn't tell you whether that earned return is too low, just
14 right, or too high. You need to go further than that. You
15 need to see how investors react to that return to see whether
16 that return is more than appropriate or less than the amount
17 necessary to get those investors in this room willing to take
18 money out of their bank account to buy the stock.

19 And another smaller point, but nevertheless one
20 that is relevant, is financing costs. I have not made a
21 specific increment to my recommendation for financing costs
22 because, essentially, for two reasons. One if you compute it
23 properly, it's very small. As FERC has determined, it's
24 about two basis points, and two basis points are .02 percent.
25 I mean I wish I could tell you I could compute the cost of

1 equity within the accuracy of .02 percent. I cannot.

2 And in these times when the market to books are above
3 one, issuing a financing actually is profitable to the
4 company because the net result is that the book value goes
5 up. So right now you don't need it at all, and if you did
6 need it, it was so small that it's -- we've got, I guess,
7 more important things to worry about. And with that, to the
8 extent that I can help the Commission in a further discussion
9 on these or any other topics in my testimony, I'd be happy to
10 answer questions.

11 CHAIRMAN JABER: Thank you, Mr. Rothschild.

12 Staff, did you have questions.

13 MR. ELIAS: No. Thank you.

14 CHAIRMAN JABER: Commissioners?

15 COMMISSIONER BRADLEY: I have a question.

16 CHAIRMAN JABER: Go ahead.

17 COMMISSIONER BRADLEY: Thank you, Madam Chairman.
18 Mr. Rothschild?

19 MR. ROTHSCHILD: Yes, commissioner.

20 COMMISSIONER BRADLEY: Just to clear this up in my
21 mind, at the beginning of your presentation, you used
22 the term preferred stock, and as you elaborated, you
23 switched into the term common stock. Are those two
24 synonymous?

25 MR. ROTHSCHILD: I don't remember saying preferred

1 stock. But the simple answer is, no, preferred stock is
2 not synonymous with common stock. Preferred stock
3 typically is a stock that is preferred in relation to
4 the payment of a dividend, and frequently there is a
5 fixed-dividend rate which is paid to preferred stock,
6 and that amount is only paid if there's enough
7 earnings -- you've got to pay the preferred dividend
8 before the common dividend receives anything; but the
9 earned return to preferred is typically capped so that
10 it cannot exceed that specified dividend rate.

11 COMMISSIONER BRADLEY: Madam Chair.

12 CHAIRMAN JABER: Yes, go ahead.

13 COMMISSIONER BRADLEY: On Page 7, Line 9, that's
14 the -- that's where the term preferred stock is
15 inserted.

16 MR. ROTHSCHILD: I'm sorry, are you looking in my
17 prefiled testimony?

18 COMMISSIONER BRADLEY: Yes.

19 MR. ROTHSCHILD: Oh, I'm just -- oh, excuse me, in
20 that reference, I'm just saying what I accepted was the
21 company's requested cost for preferred stock. I have
22 not disagreed with that number.

23 COMMISSIONER BRADLEY: Okay.

24 CHAIRMAN JABER: Any other questions,
25 commissioners?

1 (NO RESPONSE) .

2 CHAIRMAN JABER: Redirect?

3 MR. BURGESS: No, Madam Chairman.

4 CHAIRMAN JABER: Thank you.

5 Thank you, Mr. Rothschild.

6 MR. BURGESS: Madam Chairman, I'd ask that
7 Composite Exhibit 28, I believe as it was identified --

8 CHAIRMAN JABER: Yes, Exhibit 28 will be admitted
9 into the record without objection. And that brings us
10 to Benore rebuttal.

11 (Whereupon, the transcript continues in sequence in
12 Volume 4)

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CERTIFICATE

STATE OF FLORIDA)
COUNTY OF LEON)

I, NANCY S. METZKE, Certified Shorthand Reporter and Registered Professional Reporter, certify that I was authorized to and did stenographically report the foregoing proceedings and that the transcript is a true and complete record of my stenographic notes.

DATED this 25th day of February, 2002.

Nancy S Metzke
NANCY S. METZKE, CCR, RPR

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