

**BEFORE THE**  
**FLORIDA PUBLIC SERVICE COMMISSION**

**DOCKET NO. 110138-EI**

**REBUTTAL TESTIMONY AND EXHIBIT**  
**OF**  
**JAMES H. VANDER WEIDE PH.D.**



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1                                   **REBUTTAL TESTIMONY AND EXHIBIT OF**  
2                                   **JAMES H. VANDER WEIDE, PH.D.**  
3                                   **ON BEHALF OF GULF POWER COMPANY**  
4                                   **DOCKET NO. 110138-EI**

5                                   **November 4, 2011**  
6  
7

8                                   **I.     INTRODUCTION AND PURPOSE**

9     **Q.     Please state your name, title, and business address.**

10    **A.     My name is James H. Vander Weide. I am Research Professor of Finance and**  
11       **Economics at Duke University, The Fuqua School of Business. I am also President**  
12       **of Financial Strategy Associates, a firm that provides strategic and financial**  
13       **consulting services to business clients. My business address is 3606 Stoneybrook**  
14       **Drive, Durham, North Carolina 27705.**

15  
16    **Q.     Are you the same James H. Vander Weide who provided direct testimony in**  
17       **this proceeding?**

18    **A.     Yes, I am.**  
19

20    **Q.     What is the purpose of your testimony?**

21    **A.     I have been asked by Gulf Power Company ("Gulf Power" or "the Company") to**  
22       **review the direct testimonies and cost of capital recommendations of Dr. J. Randall**  
23       **Woolridge and Mr. Michael P. Gorman. Dr. Woolridge's testimony is presented on**  
24       **behalf of the Florida Office of Public Counsel ("OPC"), and Mr. Gorman is**  
25       **appearing on behalf of the Federal Executive Agencies ("FEA").**

1   **Q.    Is there anything in the testimonies of Dr. Woolridge and Mr. Gorman that**  
2       **causes you to change your recommended cost of equity for Gulf Power?**

3   **A.    No, there is not. I continue to recommend that Gulf Power be allowed to earn an**  
4       **11.7 percent rate of return on equity.**

5

6                                   **II.    REBUTTAL OF DR. WOOLRIDGE**

7   **Q.    What is Dr. Woolridge's recommended rate of return on equity for Gulf**  
8       **Power?**

9   **A.    Dr. Woolridge recommends that Gulf Power be allowed to earn a rate of return on**  
10       **equity equal to 9.25 percent.**

11

12   **Q.    What areas of Dr. Woolridge's testimony will you address in your rebuttal**  
13       **testimony?**

14   **A.    I will address Dr. Woolridge's: (1) proxy companies; (2) discounted cash flow**  
15       **("DCF") analysis; (3) rejection of analysts' growth forecasts; (4) Capital Asset**  
16       **Pricing Model ("CAPM") analysis; (5) comments on the relationship between**  
17       **utility rates of return on equity and their market-to-book ratios; and (6) comments**  
18       **on my direct testimony.**

19

20       **A.    Dr. Woolridge's Proxy Companies**

21   **Q.    What criteria does Dr. Woolridge use to select his proxy company group?**

22   **A.    Dr. Woolridge selects companies that are listed as electric utilities or combination**  
23       **electric and gas companies in both AUS Utility Reports and The Value Line**  
24       **Investment Survey, have at least 50 percent of revenues from regulated electric**  
25       **utility services, pay a cash dividend, have an investment-grade bond rating as**

1 reported by AUS Utility Reports, are not involved in an acquisition, and have EPS  
2 growth rate forecasts available from Yahoo, Reuters, and Zacks [Woolridge at 8–  
3 9].  
4

5 **Q. Do you agree with Dr. Woolridge's proxy selection criteria?**

6 A. No. I disagree with Dr. Woolridge's criteria that: (1) a proxy company must be  
7 followed by AUS Utility Reports; (2) must have at least fifty percent of revenues  
8 from regulated electric utility services; and (3) must have an investment-grade bond  
9 rating as reported by AUS Utility Reports.  
10

11 **Q. Why do you disagree with Dr. Woolridge's criterion that a proxy company**  
12 **must be followed by AUS Utility Reports?**

13 A. I disagree with this criterion because, in my opinion, the average investor does not  
14 rely on AUS Utility Reports as an important or widely used source of information  
15 for investment decisions. The average investor is more likely to rely on  
16 information from investment information companies such as Value Line, Standard  
17 & Poor's, and Internet sources such as Yahoo Finance and Reuters.  
18

19 **Q. Why do you disagree with Dr. Woolridge's criterion that a proxy company**  
20 **must have at least fifty percent of revenues from regulated electric utility**  
21 **services?**

22 A. I disagree with this criterion for three reasons. First, the fair rate of return standard  
23 set forth in the *Hope* and *Bluefield* decisions requires that investors have an  
24 opportunity to earn a return on their investment in Gulf Power that is  
25 commensurate with returns they expect to earn on other investments of similar risk.

1 The *Hope* and *Bluefield* decisions do not require that a proxy company must have a  
2 specific percentage of revenues from electric utility service. Second, the  
3 companies in the Value Line electric utility industry that fail Dr. Woolridge's  
4 criterion requiring greater than fifty percent revenues from electric utility services  
5 generally fail this criterion because they are combination utilities that have both  
6 electric and gas utility operations. Since electric and natural gas utility operations  
7 are widely considered to be of relatively similar risk, there is no need to eliminate  
8 combination utilities from a proxy company group to estimate the cost of equity for  
9 an electric utility such as Gulf Power. Third, it is not clear that revenues is a  
10 primary indicator of a company's involvement in electric utility operations.  
11

12 **Q. What Value Line electric utilities does Dr. Woolridge eliminate because he**  
13 **believes they have less than fifty percent revenues from electric utility**  
14 **operations?**

15 A. It appears that Dr. Woolridge eliminates Black Hills, CenterPoint Energy,  
16 Dominion Resources, Integrys Energy, Sempra Energy, UIL Holdings, and Vectren  
17 for this reason.  
18

19 **Q. Are these companies combination utilities, with both electric utility and**  
20 **natural gas utility operations?**

21 A. Yes.  
22

23 **Q. Why do you disagree with Dr. Woolridge's criterion that a company must**  
24 **have an investment-grade bond rating as reported by AUS Utility Reports?**  
25

1 A. Although I generally agree that a proxy company should have an investment-grade  
2 bond rating, I disagree with Dr. Woolridge's reliance on AUS Utility Reports as a  
3 source for information on a company's bond rating. In my experience, AUS Utility  
4 Reports is an unreliable source of bond rating information. For example, AUS  
5 Utility Reports shows a BBB+ Standard & Poor's bond rating for UniSource and  
6 "NR" from Moody's, when, in fact, UniSource has a below-investment grade bond  
7 rating from both Standard & Poor's and Moody's, as shown directly on the web  
8 sites of Standard & Poor's and Moody's. (See  
9 [http://www.standardandpoors.com/prot/ratings/entity-](http://www.standardandpoors.com/prot/ratings/entity-ratings/en/us/?entityID=269542&sectorCode=UTIL)  
10 [ratings/en/us/?entityID=269542&sectorCode=UTIL](http://www.standardandpoors.com/prot/ratings/entity-ratings/en/us/?entityID=269542&sectorCode=UTIL) and  
11 [http://www.moody.com/credit-ratings/UniSource-Energy-Corporation-credit-](http://www.moody.com/credit-ratings/UniSource-Energy-Corporation-credit-rating-806919894)  
12 [rating-806919894](http://www.moody.com/credit-ratings/UniSource-Energy-Corporation-credit-rating-806919894).) Furthermore, a company's current bond rating by Standard &  
13 Poor's or Moody's is freely available to anyone from Standard & Poor's or  
14 Moody's.

15  
16 **B. Dr. Woolridge's DCF Model**

17 **Q. Does Dr. Woolridge use the DCF model to estimate Gulf Power's cost of**  
18 **equity?**

19 A. Yes, he does.  
20

21 **Q. What cost of equity result does Dr. Woolridge obtain from his application of**  
22 **his DCF model?**

23 A. Dr. Woolridge obtains a cost of equity result of 9.3 percent for his proxy group  
24 [Woolridge Exhibit \_\_\_\_JRW-10, page 1 of 6].  
25

1    **Q.    What DCF model does Dr. Woolridge use to estimate Gulf Power's cost of**  
2    **equity?**

3    A.    Dr. Woolridge uses an annual DCF model of the form,  $k = D_0(1+.5g)/P_0 + g$ ,  
4    where  $k$  is the cost of equity,  $D_0$  is the first period dividend,  $P_0$  is the current stock  
5    price, and  $g$  is the average expected future growth in the company's earnings and  
6    dividends.

7  
8    **Q.    What are the basic assumptions of Dr. Woolridge's annual DCF model?**

9    A.    Dr. Woolridge's annual DCF model is based on the assumptions that: (1) a  
10    company's stock price is equal to the present value of the future dividends investors  
11    expect to receive from their investment in the company; (2) dividends are paid  
12    annually; (3) dividends, earnings, and book values are expected to grow at the same  
13    constant rate forever; and (4) the first dividend is received one year from the date of  
14    the analysis.

15  
16    **Q.    Do you agree with Dr. Woolridge's use of an annual DCF model to estimate**  
17    **Gulf Power's cost of equity?**

18    A.    No. Dr. Woolridge's annual DCF model is based on the assumption that  
19    companies pay dividends only at the end of each year. Since Dr. Woolridge's  
20    proxy companies all pay dividends quarterly, Dr. Woolridge should have used the  
21    quarterly DCF model to estimate Gulf Power's cost of equity.

22  
23    **Q.    Why is it unreasonable to use an annual DCF model to estimate the cost of**  
24    **equity for companies that pay dividends quarterly?**

25

1 A. It is unreasonable to apply an annual DCF model to companies that pay dividends  
2 quarterly because: (1) the DCF model is based on the assumption that a company's  
3 stock price is equal to the present value of the expected future dividends associated  
4 with investing in the company's stock; and (2) the annual DCF model cannot be  
5 derived from this assumption when dividends are paid quarterly. (I note that this  
6 Commission also uses a quarterly DCF model when estimating the cost of equity  
7 for water and wastewater utilities. *See* Order No. PSC-11-0287-PAA-WS issued  
8 July 5, 2011, in Docket No. 110006-WS, regarding the annual reestablishment of  
9 authorized range of return on common equity for water and wastewater utilities.)  
10

11 **Q. Does Dr. Woolridge acknowledge that one must recognize the assumptions of**  
12 **the DCF model when estimating the model's inputs?**

13 A. Yes. Dr. Woolridge states, "In general, one must recognize the assumptions under  
14 which the DCF model was developed in estimating its components (the dividend  
15 yield and expected growth rate)." [Woolridge at 21.]  
16

17 **Q. Recognizing your disagreement with Dr. Woolridge's use of an annual DCF**  
18 **model, did Dr. Woolridge apply the annual DCF model correctly?**

19 A. No. Dr. Woolridge's annual DCF model is based on the assumption that dividends  
20 will grow at the same constant rate forever. Under the assumption that dividends  
21 will grow at the same constant rate forever, the cost of equity is given by the  
22 equation,  $k = D_0 (1 + g) / P_0 + g$ , where  $D_0$  is the current annualized dividend,  $P_0$  is  
23 the stock price, and  $g$  is the expected constant annual growth rate. Thus, the correct  
24 first period dividend in the annual DCF model is the current annualized dividend  
25 multiplied by the factor,  $(1 + \text{growth rate})$ . Instead, Dr. Woolridge uses the current



1 annualized dividend multiplied by the factor  $(1 + 0.5 \text{ times growth rate})$  as the first  
2 period dividend in his DCF model. This incorrect procedure, apart from other  
3 errors in his methods, causes him to underestimate Gulf Power's cost of equity.  
4

5 **Q. How does Dr. Woolridge estimate the expected future growth component of**  
6 **the DCF cost of equity?**

7 A. Dr. Woolridge considers Value Line data on historical growth rates in earnings,  
8 dividends, and book value, as well as Value Line data on projected growth rates in  
9 earnings, dividends, and book value. For most of his proxy companies, Value  
10 Line's average historical growth rates are significantly less than its projected  
11 growth rates. Dr. Woolridge also considers analysts' forecasts of future growth  
12 provided by First Call, Reuters, and Zacks, and internal growth estimates based on  
13 Value Line's estimates of retention ratios and rates of return on book equity. Dr.  
14 Woolridge's final estimate of the growth rate that investors expect for his proxy  
15 companies is an approximate average of Value Line's historical growth rates, Value  
16 Line's projected growth rates, Dr. Woolridge's internal growth rates, and his  
17 reported analysts' growth rates [Woolridge at 31].  
18

19 **Q. Do you agree with Dr. Woolridge's use of historical growth rates to estimate**  
20 **investors' expectation of future growth in the DCF model?**

21 A. No. Historical growth rates are inherently inferior to analysts' forecasts because  
22 analysts' forecasts already incorporate all relevant information regarding historical  
23 growth rates and also incorporate the analysts' knowledge about current conditions  
24 and expectations regarding the future. My studies, described in my direct  
25 testimony at pp. 24 – 26, indicate that investors use analysts' earnings growth

1 forecasts in making stock buy and sell decisions rather than historical or internal  
2 growth rates such as those presented by Dr. Woolridge.

3  
4 **Q. How do Value Line's projected growth rates for Dr. Woolridge's proxy group**  
5 **of electric utilities compare to Value Line's historical growth rates for these**  
6 **companies?**

7 A. Value Line's projected growth rates are approximately one hundred basis points  
8 higher than its historical growth rates for Dr. Woolridge's proxy companies (see  
9 Woolridge Exhibit\_\_JRW-10, pp. 3, 4 and 6).

10  
11 **Q. What is the internal growth method of estimating the growth component for**  
12 **the DCF method?**

13 A. The internal growth method estimates expected future growth by multiplying a  
14 company's retention ratio, "b," times its expected rate of return on equity, "r."  
15 Thus, " $g = b \times r$ ," where "b" is the percentage of earnings that are retained in the  
16 business and "r" is the expected rate of return on equity.

17  
18 **Q. Do you agree with the use of the internal growth method to estimate growth in**  
19 **the DCF model?**

20 A. No. The internal growth method is logically circular because it requires an estimate  
21 of the expected rate of return on equity, "r," in order to estimate the cost of equity  
22 using the DCF model. Yet, for regulated companies such as Gulf Power, the  
23 allowed rate of return on equity is set equal to the cost of equity.

1    **Q.    How does Dr. Woolridge estimate the expected rate of return on equity for**  
2       **each proxy company in his sustainable growth analysis?**

3    A.    Dr. Woolridge uses Value Line's forecast of each company's rate of return on  
4       equity for the period 2014 – 2016 as his estimate of the expected rate of return on  
5       equity for each company.

6

7    **Q.    Are there any errors in Dr. Woolridge's calculation of sustainable growth?**

8    A.    Yes. Dr. Woolridge mistakenly uses a zero percent projected rate of return on  
9       equity for Xcel Energy, whereas Value Line actually projects that Xcel's rate of  
10      return on equity for the period 2014 – 2016 will be ten percent. (See Value Line  
11      Investment Survey, Xcel Energy report, August 5, 2011.)

12

13   **Q.    What impact does Dr. Woolridge's use of an incorrect zero percent forecast**  
14      **for Xcel Energy have on the average return on equity forecast for his proxy**  
15      **company group?**

16   A.    If Dr. Woolridge had correctly used a ten percent forecast of Xcel Energy's return  
17      on equity in his internal growth calculation, the average return on equity for his  
18      proxy company group would have been fifty basis points higher, 10.3 percent  
19      rather than 9.8 percent.

20

21   **Q.    What rate of return on equity would Dr. Woolridge have assumed in his**  
22      **calculation of expected growth using his internal growth method if he had**  
23      **used the correct Value Line return on equity for Xcel Energy?**

24   A.    Dr. Woolridge would likely have used a rate of return on equity equal to  
25      10.3 percent.

1   **Q.    Is it reasonable to assume that Dr. Woolridge's proxy companies will earn a**  
2       **rate of return on equity equal to 10.3 percent when he is recommending that**  
3       **they be allowed to earn only a return of 9.25 percent?**

4   **A.    No. Investors are well aware that electric utilities are regulated by rate of return**  
5       **regulation. If investors truly believed that the utilities' cost of equity were equal to**  
6       **Dr. Woolridge's recommended 9.25 percent, they would forecast that the utilities**  
7       **would earn 9.25 percent on equity. Thus, Dr. Woolridge's recommended**  
8       **9.25 percent rate of return on equity is inconsistent with an assumed 10.3 percent**  
9       **earned rate of return on equity for his proxy companies.**

10

11   **Q.    Does Dr. Woolridge's internal growth method recognize that, in addition to**  
12       **growth from retained earnings, the companies in his proxy group can also**  
13       **grow by issuing new equity at prices above book value?**

14   **A.    No. Dr. Woolridge's internal growth method underestimates the expected future**  
15       **growth of his proxy companies because it neglects the possibility that the**  
16       **companies can also grow by issuing new equity at prices above book value. Since**  
17       **many of the proxy companies are selling at prices in excess of book value, and**  
18       **Value Line forecasts that many of them will issue new equity over the next several**  
19       **years, Dr. Woolridge's failure to recognize the "external" component of future**  
20       **growth causes to him to underestimate his proxy companies' expected future**  
21       **growth even more.**

22

23   **Q.    Does Dr. Woolridge's internal growth method recognize that Value Line's**  
24       **reported rates of return on equity generally understate each company's**  
25       **average rate of return on equity for the year?**

1 A. No. Dr. Woolridge fails to recognize that Value Line calculates its reported rates of  
2 return on equity by dividing a company's net income by end of year equity,  
3 whereas most financial analysts calculate a company's rate of return on equity by  
4 dividing net income by the average equity for the year. In the general case where a  
5 company's equity is increasing, Value Line's reported ROEs will understate the  
6 average ROE for the year. Thus Dr. Woolridge's failure to recognize that Value  
7 Line's reported ROEs understate each company's average ROE for the year is an  
8 additional factor causing him to underestimate Gulf Power's cost of equity.

9  
10 **Q. Do you agree with Dr. Woolridge's use of analysts' growth forecasts to**  
11 **estimate the expected growth component of his DCF model?**

12 A. Yes. As discussed in my direct testimony, I recommend the use of analysts'  
13 growth forecasts for the purpose of estimating the expected growth component of  
14 the DCF model. I have conducted extensive studies that demonstrate that stock  
15 prices are more highly correlated with analysts' growth rates than with either  
16 historical growth rates or the internal growth rates considered by Dr. Woolridge.

17  
18 **Q. What sources of analysts' growth rate data does Dr. Woolridge use in his DCF**  
19 **calculations?**

20 A. Dr. Woolridge uses analysts' growth rate data provided by Yahoo First Call, Zacks,  
21 and Reuters.

22  
23 **Q. What DCF result would Dr. Woolridge have obtained for his proxy companies**  
24 **if he had correctly used the quarterly DCF model, incorporated an allowance**  
25

1       **for flotation costs, and relied on the analysts' growth forecasts to estimate the**  
2       **growth component of his DCF model?**

3       A.     Dr. Woolridge would have obtained an average DCF result equal to 10.3 percent, a  
4       median result equal to 10.5 percent, and a midpoint result (average of high and low  
5       results) equal to 10.9 percent based on three-month average stock prices through  
6       September 30, 2011 (see Exhibit\_\_\_(JWV-3), Rebuttal Schedule 1). I note that the  
7       Florida Commission included an adjustment for flotation costs in its 2009 TECO  
8       Order. The Commission states, "We have traditionally recognized a reasonable  
9       adjustment for flotation costs in the determination of the investor-required ROE. ...  
10      such adjustments have typically been on the order of 25 to 50 basis points." Order  
11      No. PSC-09-0283-FOF-EI, Docket No. 080317-EI, April 30, 2009, at 44. In  
12      addition, I note that this Commission typically uses a flotation cost of allowance of  
13      four percent in both DCF and CAPM models to estimate the cost of equity for  
14      water utilities in Florida. See Order No. PSC-11-0287-PAA-WS, issued July 5,  
15      2011 in Docket No. 110006-WS, regarding the annual reestablishment of authorized  
16      range of return on common equity for water and wastewater utilities.

17  
18      **Q.     Have you updated your DCF calculations?**

19      A.     Yes. My updated DCF calculations produce an average result equal to  
20      10.7 percent, a median result equal to 10.8 percent, and a midpoint result equal to  
21      11.5 percent (see Exhibit\_\_\_(JWV-3), Rebuttal Schedule 2).

22  
23      **C.     Dr. Woolridge's Rejection of Analysts' Growth Forecasts**

24      **Q.     How do you recommend estimating the future growth component in the DCF**  
25      **model?**

1 A. As described in my direct testimony, I recommend using the analysts' forecasts  
2 published by I/B/E/S Thomson Reuters.

3  
4 **Q. Why do you believe that the analysts' forecasts of earnings growth are more**  
5 **accurate indicators of investors' growth expectations than the historical and**  
6 **internal growth data provided by Dr. Woolridge?**

7 A. Security analysts analyze the prospects of companies and forecast earnings. They  
8 take into account all available historical and current data plus any additional  
9 information that is available, such as changes in projected capital expenditures,  
10 regulatory climate, industry restructuring, regulatory rulings, or changes in the  
11 competitive environment. The performance of security analysts is measured  
12 against their ability to weigh the above factors, to predict earnings growth, and to  
13 communicate their views to investors. Financial research indicates that securities  
14 analysts are influential, their forecasts are more accurate than simple extrapolation  
15 of past growth, and, most importantly, the consensus of their forecasts is  
16 impounded in the current structure of market prices. This is a key result, since a  
17 proper application of the DCF model requires the matching of stock prices and  
18 investors' growth expectations.

19  
20 **Q. Are analysts' forecasts readily available?**

21 A. Yes. An important part of the analysts' job is getting their views across to  
22 investors. Major investment firms send out monthly reports with their earnings  
23 forecasts, and institutional investors have direct access to analysts. Individual  
24 investors can get the same forecasts through their investment advisors or online.  
25 Studies reported in the academic literature indicate that recommendations based on

1 these forecasts are relied on by investors. Indeed, because analysts' forecasts are  
2 perceived by investors as being useful, there are services which offer analysts'  
3 forecasts on all major stocks. I/B/E/S and Zack's are some of the providers of  
4 these data. I recommend use of the I/B/E/S growth rates because they have been:  
5 (1) shown to be highly correlated with stock prices; (2) widely studied in the  
6 finance literature; and (3) widely available to investors for many years.

7  
8 **Q. Is it your contention that analysts make perfectly accurate predictions of**  
9 **future earnings growth?**

10 A. No. Forecasting earnings growth, for either the short-term or long-term, is very  
11 difficult. This statement is consistent with the fact that stocks, unlike high-quality  
12 bonds, are risky investments whose returns are highly uncertain. Though analysts'  
13 forecasts are not perfectly accurate, they are better than either retention growth  
14 rates or historical growth in predicting stock prices. One would expect this result,  
15 given that analysts have all the past data plus current information. The important  
16 consideration is: what growth rates do investors use to value a stock? Financial  
17 research suggests that the analysts' growth forecasts are used by investors and  
18 therefore are most related to stock prices.

19  
20 **Q. Does the observation that analysts' growth forecasts are inherently uncertain**  
21 **imply that investors should ignore analysts' growth forecasts in making stock**  
22 **buy and sell decisions?**

23 A. No. Because growth forecasts have a significant influence on a company's stock  
24 price, investors have a great incentive to use the best available forecasts of a  
25 company's growth prospects, even if these growth forecasts are inherently



1 uncertain. In this regard, the investor's situation is similar to the situation of a pilot  
2 who is flying across the country. Although the pilot recognizes that weather  
3 forecasts are inherently uncertain, he or she has a strong incentive to obtain the best  
4 available forecasts of cross-country weather patterns before taking off.

5  
6 **Q. Have you done research on the appropriate use of analysts' forecasts in the**  
7 **DCF model?**

8 A. Yes. As described in my direct testimony, I prepared a study in conjunction with  
9 Willard T. Carleton, Professor of Finance Emeritus at the University of Arizona, on  
10 why analysts' forecasts are the best estimate of investors' expectations of future  
11 long-term growth. This study is described in a paper entitled "Investor Growth  
12 Expectations and Stock Prices: the Analysts versus History," published in the  
13 Spring 1988 edition of The Journal of Portfolio Management. My studies indicate  
14 that the analysts' forecasts of future growth are superior to historically-oriented  
15 growth measures and retention growth measures in predicting a firm's stock price.

16  
17 **Q. Please summarize the results of your study.**

18 A. First, we performed a correlation analysis to identify the historically oriented  
19 growth rates which best described a firm's stock price. Then we did a regression  
20 study comparing the historical and retention growth rates to the consensus analysts'  
21 forecasts. In every case, the regression equations containing the average of  
22 analysts' forecasts statistically outperformed the regression equations containing  
23 the historical and retention growth estimates. These results are consistent with  
24 those found by Cragg and Malkiel, the early major research in this area (John G.  
25 Cragg and Burton G. Malkiel, Expectations and the Structure of Share Prices,

1 University of Chicago Press, 1982). These results are also consistent with the  
2 hypothesis that investors use analysts' forecasts, rather than historically oriented  
3 growth calculations, in making stock buy and sell decisions. They provide  
4 overwhelming evidence that the analysts' forecasts of future growth are superior to  
5 historically oriented growth measures in predicting a firm's stock price.  
6

7 **Q. Has your study been updated to include more recent data?**

8 A. Yes. Researchers at State Street Financial Advisors updated my study using data  
9 through year-end 2003. Their results continue to confirm that analysts' growth  
10 forecasts are superior to historical and retention growth measures in predicting a  
11 firm's stock price.  
12

13 **Q. Does Dr. Woolridge agree with your assessment that analysts' growth**  
14 **forecasts should be used to estimate the future growth component of the DCF**  
15 **model?**

16 A. No. Dr. Woolridge argues that analysts' growth forecasts should not be used to  
17 estimate the future growth component of the DCF model because, in his opinion, it  
18 is well known that analysts' growth forecasts are overly optimistic [Woolridge at  
19 25].  
20

21 **Q. Have you reviewed the research literature on the properties of analysts'**  
22 **growth forecasts?**

23 A. Yes, I have reviewed the articles identified (*see* Exhibit\_\_\_\_(JVW-3), Rebuttal  
24 Schedule 3).  
25

1    **Q.    What basic questions does the research literature on analysts' forecasts**  
2       **address?**

3    A.    The research literature on analysts' growth forecasts addresses three basic  
4       questions: (1) Are analysts' forecasts superior to historical growth extrapolations  
5       in their ability to forecast future earnings per share? (2) Is the correlation between  
6       changes in analysts' EPS growth forecasts and stock prices greater than the  
7       correlation between historical earnings growth rates and stock prices? and (3) Are  
8       analysts' growth forecasts overly optimistic?

9  
10   **Q.    How do researchers test whether analysts' growth forecasts are more accurate**  
11       **than forecasts based on historical growth extrapolations?**

12   A.    I have identified at least eight published research studies dating from 1972 to 2006  
13       that compare the accuracy of analysts' growth forecasts to the accuracy of forecasts  
14       based on historical extrapolations. Typically, these research studies follow several  
15       basic steps: (1) gather data on historical earnings per share for a large sample of  
16       firms over a reasonably long historical period of time; (2) gather data on actual  
17       earnings per share growth rates for the same firms over a subsequent future time  
18       period; (3) apply statistical forecasting techniques to determine the best model for  
19       forecasting future earnings growth based on historical growth data; (4) gather data  
20       on analysts' growth forecasts for the study period; (5) calculate the difference  
21       between the actual growth rate and the forecasted growth rate for both the best  
22       statistical forecasting model and the analysts' forecasts; (6) determine whether  
23       there is a significant difference between the forecasting errors of the statistical  
24       forecasting model and the forecasting errors of analysts' EPS growth forecasts; and  
25       (7) if the errors from the analysts' EPS growth forecasts are less than the errors

1 from the statistical forecasting techniques and the difference is statistically  
2 significant, conclude that analysts provide superior forecasts to the forecasts  
3 obtained by statistical forecasting techniques. The main differences between the  
4 studies reported in the literature relate to the time period studied, the size of the  
5 database, and the statistical techniques used to forecast future earnings growth  
6 based on historical earnings data.  
7

8 **Q. What are the general conclusions of the research literature regarding the**  
9 **accuracy of analysts' growth forecasts compared to the accuracy of growth**  
10 **forecasts based on historical growth extrapolations?**

11 A. Seven of the eight articles strongly support the hypothesis that analysts' forecasts  
12 provide better predictions of future earnings growth than statistical models based  
13 on historical earnings, and one of the articles neither supports nor rejects this  
14 hypothesis (see Table 1 below). These articles strongly support the conclusion that  
15 analysts' EPS growth forecasts are better proxies for investor growth expectations  
16 than historical growth rates.  
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**TABLE 1**  
**ARTICLES THAT STUDY WHETHER ANALYSTS' FORECASTS**  
**OR HISTORICAL GROWTH EXTRAPOLATIONS**  
**ARE BETTER PREDICTORS OF EPS GROWTH**

<u>Author (Date)</u>	<u>Support Historical</u>	<u>Support Analysts</u>
Elton and Gruber (1972)	Neutral	Neutral
Brown and Rozeff (1978)	No	Yes
Crichfield, Dyckman, and Lakonishok (1978)	No	Yes
Givoly and Lakonishok (1984)	No	Yes
Brown, Hagerman, Griffin, and Zmijewski (1987)	No	Yes
Newbold, Zumwalt, and Kannan (1987)	No	Yes
Brown, Richardson, and Schwager (1987)	No	Yes
Banker and Chen (2006)	No	Yes

**Q. Why is the correlation between analysts' EPS growth forecasts and stock prices a significant issue in the research literature on analysts' growth forecasts?**

**A. If analysts' EPS growth forecasts are good proxies for investor growth expectations, one would expect that changes in analysts' growth forecasts would have a significant impact on stock prices. The impact of changes in analysts' growth expectations on stock prices can be estimated using standard statistical regression techniques.**

1 Q. What are the general conclusions of the research literature regarding the  
2 correlation between changes in analysts' EPS forecasts and stock prices?

3 A. I have identified at least seven published research studies that use regression  
4 techniques to test whether the impact of changes in analysts' growth forecasts on  
5 stock prices is sufficiently strong to justify the conclusion that analysts' EPS  
6 growth forecasts are good proxies for investor growth expectations. All these  
7 studies find that changes in analysts' growth forecasts have a large and statistically  
8 significant impact on changes in stock prices. Five of these studies also test  
9 whether the impact of analysts' growth forecasts on stock prices is stronger than the  
10 impact of historical and/or retention growth rates on stock prices. These studies  
11 find that changes in analysts' growth forecasts have a significantly stronger impact  
12 on stock prices than changes in historical and/or retention earnings growth rates. In  
13 summary, financial research strongly supports the conclusion that analysts' growth  
14 forecasts are the best proxies for investor growth expectations.

15 **TABLE 2**  
16 **ARTICLES THAT STUDY THE RELATIONSHIP**  
17 **BETWEEN ANALYSTS' GROWTH FORECASTS AND STOCK PRICES**

18	<i>Author (Date)</i>	<i>Support Historical</i>	<i>Support Analysts</i>
19	Malkiel (1970)	No	Yes
20	Malkiel and Cragg (1970)	No	Yes
21	Elton, Gruber, and Gultekin (1981)		Yes
22	Fried and Givoly (1982)		Yes
23	Vander Weide and Carleton (1988)	No	Yes
24	Gordon, Gordon, and Gould (1989)	No	Yes
25	Timme and Eisemann (1989)	No	Yes

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**Q. What are the general conclusions of the research literature regarding the claim that analysts' forecasts are overly optimistic?**

A. A review of available research evidence strongly supports the hypothesis that analysts' growth forecasts are not optimistic. I have reviewed nine articles that address whether analysts' growth forecasts are overly optimistic. At least seven of the nine articles reviewed find no evidence that analysts' growth forecasts are overly optimistic. Two articles find evidence of optimism, but also conclude that optimism is declining significantly over time. Of these two studies, one finds that analysts' forecasts for the Standard & Poor's 500 are pessimistic for the last four years of the study.

**TABLE 3**  
**ARTICLES THAT STUDY WHETHER ANALYSTS' FORECASTS**  
**ARE BIASED TOWARD OPTIMISM**

<i>Author (Date)</i>	<i>Conclusion</i>
Crichfield, Dyckman, and Lakonishok (1978)	Unbiased
Elton, Gruber, and Gultekin (1984)	Unbiased
Givoly and Lakonishok (1984)	Unbiased
Brown (1997)	Declining optimism
Keane and Runkle (1998)	Unbiased
Abarbanell and Lehavy (2003)	Unbiased
Ciccone (2005)	Pessimistic
Clarke, Ferris, Jayaraman, and Lee (2006)	Unbiased
Yang and Mensah (2006)	Unbiased

1   **Q.   What is the most important contribution of the more recent research**  
2       **literature on the accuracy of analysts' forecasts?**

3   **A.   The most important contribution of more recent research is to identify substantial**  
4       **statistical difficulties in earlier research studies that caused some of these studies to**  
5       **unwittingly accept the hypothesis of optimism when no optimism was present. For**  
6       **example, recent studies recognize that the results of earlier studies are heavily**  
7       **influenced by the presence of large unexpected accounting write-offs and special**  
8       **accounting charges at a small number of sample companies. Unexpected**  
9       **accounting write-offs and special charges have a potentially dramatic impact on**  
10      **conclusions concerning analysts' bias because analysts' forecasts intentionally**  
11      **exclude the impact of accounting write-offs and special charges, whereas actual**  
12      **earnings include these items. Thus, a comparison of analysts' forecasts premised**  
13      **on normalized earnings (that is, earnings that exclude the impact of accounting**  
14      **write-offs and special charges) to reported earnings that include the negative effect**  
15      **of accounting write-offs and special charges will bias the results in favor of**  
16      **concluding that analysts are optimistic. Recent studies demonstrate that, once the**  
17      **distorting effect of unexpected accounting write-offs and special charges are**  
18      **removed from the analysis, there is no evidence that analysts' EPS growth forecasts**  
19      **are optimistic.**

20               Recent research also highlights the potential impact of high correlation in  
21      analysts' forecast errors on study conclusions. Analysts' forecast errors tend to be  
22      highly correlated because unexpected industry and economy-wide shocks, such as  
23      unexpected increases in oil prices or terrorist attacks, have similar effects on all  
24      firms in the same industry. However, the relevant statistical tests of optimism are  
25      based on the assumption that analysts' forecast errors are independent, that is, the



1 tests assume that the correlation of the analyst errors is zero. Once the statistical  
2 tests of optimism are adjusted to account for the high correlation in forecast errors  
3 that generally characterize the data, evidence supports the hypothesis that analysts'  
4 EPS growth forecasts are unbiased, and hence not optimistic.

5  
6 **Q. Dr. Woolridge argues that analysts face potential conflicts of interest between**  
7 **their companies' research operations and underwriting operations. Have the**  
8 **New York Stock Exchange ("NYSE") and the National Association of**  
9 **Securities Dealers ("NASD") addressed the issue of analysts' potential**  
10 **conflicts of interest?**

11 **A.** Yes. Beginning in the early 2000s, the NYSE and NASD implemented a series of  
12 rule changes that address potential conflicts of interest. Specifically, they:

- 13 • Imposed structural reforms to increase analyst independence,  
14 including prohibiting investment banking personnel from  
15 supervising analysts or approving research reports;
- 16 • Prohibited offering favorable research to induce investment  
17 banking business;
- 18 • Prohibited research analysts from receiving compensation based  
19 on a specific investment banking transaction;
- 20 • Required disclosure of financial interests in covered companies  
21 by the analyst and the firm;
- 22 • Imposed quiet periods for the issuance of research reports after  
23 securities offerings managed or co-managed by a member;
- 24 • Restricted personal trading by analysts;
- 25 • Required disclosure in research reports of data and price charts

1 that help investors track the correlation between an analyst's  
2 rating and the stock's price movements; and

- 3 • Required disclosure in research reports of the distribution of  
4 buy/hold/sell ratings and the percentage of investment banking  
5 clients in each category. [See "Joint Report by NASD and the  
6 NYSE on the Operation and Effectiveness of the Research  
7 Analyst Conflict of Interest Rules," December 2005, p. 5.]  
8

9 **Q. What is your overall conclusion regarding the use of analysts' growth**  
10 **forecasts as proxies for investors' growth expectations?**

11 A. Contrary to Dr. Woolridge's assessment that analysts' growth forecasts should not  
12 be used in the DCF model because they are well known to be optimistic, I find that  
13 the research literature provides strong support for the conclusion that: (1) analysts'  
14 EPS growth forecasts are not optimistic; and (2) analysts' EPS growth forecasts are  
15 reasonable proxies for investor growth expectations, while the historical growth  
16 extrapolations and retention growth rates used by Dr. Woolridge are not.  
17 Furthermore, Dr. Woolridge's concerns regarding analysts' potential conflicts of  
18 interest have been fully addressed by rule changes implemented by the NYSE and  
19 NASD in the early 2000s. In addition, Dr. Woolridge fails to recognize that the  
20 DCF model requires the growth forecasts of investors, whether accurate or not. In  
21 this regard, it is helpful to keep in mind that investors would not pay for analysts'  
22 growth forecasts if they did not find them to be helpful in making stock buy and  
23 sell decisions. Similarly, the NYSE and NASD would not have taken steps to  
24 address conflicts of interest if investors did not rely on analysts' forecasts in  
25 making investment decisions.

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**D. Dr. Woolridge's Capital Asset Pricing Model**

**Q. What is the CAPM?**

A. The CAPM is an equilibrium model of expected returns on risky securities in which the expected or required return on a given risky security is equal to the risk-free rate of interest plus the security's "beta" times the market risk premium:

$$\text{Expected return} = \text{Risk-free rate} + (\text{Security beta} \times \text{Market risk premium}).$$

The risk-free rate in this equation is the expected rate of return on a risk-free government security, the security beta is a measure of the company's risk relative to the market as a whole, and the market risk premium is the premium investors require to invest in the market basket of all securities compared to the risk-free security.

**Q. How does Dr. Woolridge use the CAPM to estimate Gulf Power's cost of equity?**

A. The CAPM requires estimates of the risk-free rate, the company-specific risk factor, or beta, and either the required return on an investment in the market portfolio, or the risk premium on the market portfolio compared to an investment in risk-free government securities. For the risk-free rate, Dr. Woolridge uses an average 4.0 percent yield on 30-year Treasury bonds [Woolridge at 34]; for the company-specific risk factor or beta, Dr. Woolridge uses the current Value Line beta for each company [Woolridge at 35]; and for the required return or risk premium on the market portfolio, Dr. Woolridge employs an average 5.10 percent risk premium he obtains from his review of the risk premium literature [Woolridge at 43].

1

2 **Q. What CAPM result does Dr. Woolridge obtain for his proxy companies?**

3 A. Dr. Woolridge obtains a CAPM result of 7.6 percent for his proxy group  
4 [Woolridge at 45].

5

6 **Q. Does Dr. Woolridge recognize that the result of his CAPM analysis is**  
7 **unreasonably low?**

8 A. Yes. Dr. Woolridge reports a result equal to 9.3 percent for his DCF studies and a  
9 result equal to 7.6 percent for his CAPM studies [Woolridge at 45].  
10 From these results, Dr. Woolridge concludes that Gulf Power's cost of equity is  
11 equal to 9.25 percent. Since Dr. Woolridge's CAPM results are approximately 170  
12 basis points lower than his recommended cost of equity, Dr. Woolridge must agree  
13 that a CAPM result of 7.6 percent is unreasonably low.

14

15 **Q. Do you agree with Dr. Woolridge's application of the CAPM?**

16 A. No, but I do agree with Dr. Woolridge that his CAPM results are below a  
17 reasonable range of estimates of Gulf Power's cost of equity.

18

19 **Q. Why do you believe that the CAPM produces unreasonably low cost of equity**  
20 **results for electric utilities at this time?**

21 A. I believe there are two reasons why the CAPM produces unreasonably low cost of  
22 equity results for electric utilities at this time. First, as a result of the economic  
23 crisis, the U.S. Treasury has kept interest rates on Treasury securities unusually low  
24 as part of its effort to stimulate the economy. Economists are forecasting that  
25 interest rates on Treasury securities will increase significantly once the economy

1 begins to recover. In addition, the betas of utilities are currently approximately  
2 0.70, and the CAPM tends to underestimate the cost of equity for companies whose  
3 equity beta is less than 1.0 and to overestimate the cost of equity for companies  
4 whose equity beta is greater than 1.0.  
5

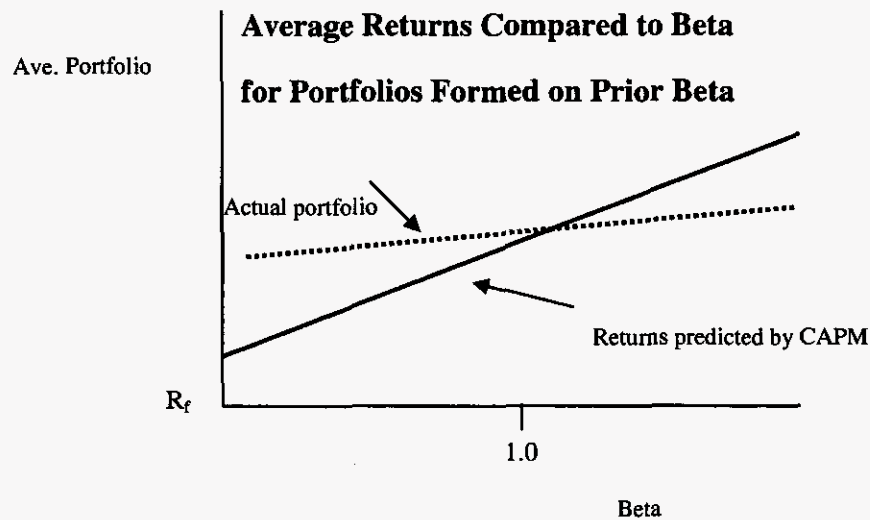
6 **Q. Can you briefly summarize the evidence that the CAPM underestimates the**  
7 **required returns for securities or portfolios with betas less than 1.0 and**  
8 **overestimates required returns for securities or portfolios with betas greater**  
9 **than 1.0?**

10 A. Yes. The CAPM conjectures that security returns increase with increases in  
11 security betas in line with the equation

$$ER_i = R_f + \beta_i [ER_m - R_f],$$

13 where  $ER_i$  is the expected return on security or portfolio  $i$ ,  $R_f$  is the risk-free rate,  
14  $ER_m - R_f$  is the expected risk premium on the market portfolio, and  $\beta_i$  is a measure  
15 of the risk of investing in security or portfolio  $i$ . If the CAPM correctly predicts the  
16 relationship between risk and return in the marketplace, then the realized returns on  
17 portfolios of securities and the corresponding portfolio betas should lie on the solid  
18 straight line with intercept  $R_f$  and slope  $[R_m - R_f]$  shown below.  
19  
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Figure 1



Financial scholars have found that the relationship between realized returns and betas is inconsistent with the relationship posited by the CAPM. As described in Fama and French (1992) and Fama and French (2004), the actual relationship between portfolio betas and returns is shown by the dotted line in the figure above. Although financial scholars disagree on the reasons why the return/beta relationship looks more like the dotted line in the figure than the solid line, they generally agree that the dotted line lies above the solid line for portfolios with betas less than 1.0 and below the solid line for portfolios with betas greater than 1.0. Thus, in practice, scholars generally agree that the CAPM underestimates portfolio returns for companies with betas less than 1.0, and overestimates portfolio returns for portfolios with betas greater than 1.0.

1   **Q.    What conclusions do you reach from your review of the literature on the**  
2       **CAPM to predict the relationship between risk and return in the**  
3       **marketplace?**

4   **A.    I conclude that the financial literature strongly supports the proposition that the**  
5       **CAPM underestimates the cost of equity for companies such as public utilities with**  
6       **betas less than 1.0. Since the CAPM significantly underestimates the cost of equity**  
7       **for companies with betas less than 1.0, and both Dr. Woolridge's and my proxy**  
8       **companies have betas that are significantly less than 1.0, I further conclude that the**  
9       **Commission should give little or no weight to the results of the CAPM at this time.**

10

11       **E.    Dr. Woolridge's Comments on the Relationship between**  
12       **Utilities' Rates of Return on Equity and their Market-to-Book**  
13       **Ratios**

14   **Q.    Does Dr. Woolridge discuss the relationship between rates of return equity,**  
15       **the cost of equity, and market-to-book ratios in his testimony?**

16   **A.    Yes. Dr. Woolridge asserts that a market-to-book ratio above 1.0 indicates that a**  
17       **company is earning more than its cost of equity:**

18           As such, the relationship between a firm's return on equity, cost of  
19           equity, and market-to-book ratio is relatively straightforward. A  
20           firm that earns a return on equity above its cost of equity will see its  
21           common stock sell at a price above its book value. Conversely, a  
22           firm that earns a return on equity below its cost of equity will see its  
23           common stock sell at a price below its book value. [Woolridge at  
24           13.]

25

1   **Q.    Dr. Woolridge reports the results of three regression analyses that he believes**  
2       **support his claim that: (1) companies with market-to-book ratios greater than**  
3       **1.0 are earning more than their costs of equity; (2) companies with market-to-**  
4       **book ratios equal to 1.0 are earning their costs of equity; and (3) companies**  
5       **with market-to-book ratios less than 1.0 are earning less than their costs of**  
6       **equity [Woolridge at 13]. Does Dr. Woolridge's regression analysis for his**  
7       **electric utilities provide any support for this claim?**

8   **A.    No. Dr. Woolridge's regression analysis for his electric utilities does not support**  
9       his claim. Dr. Woolridge claims that the cost of equity for electric utilities like  
10      Gulf Power is 9.25 percent. Of the fifty-four electric utilities in his market-to-book  
11      study, twenty-five companies have ROEs less than 9.25 percent. However, only  
12      seven of these twenty-five companies with ROEs less than Dr. Woolridge's  
13      recommended 9.25 percent cost of equity have market-to-book ratios less than 1.0  
14      [Woolridge work papers]. The average ROE for these twenty-five companies is  
15      7.1 percent, and their average market-to-book ratio is 1.23. These data clearly  
16      contradict Dr. Woolridge's claim that companies earning less than their cost of  
17      equity will have market-to-book ratios of less than 1.0.

18

19   **Q.    What is the date of Dr. Woolridge's market-to-book study?**

20   **A.    According to his work papers, Dr. Woolridge's market-to-book study is dated**  
21       January 2009.

22

23   **Q.    Have you updated Dr. Woolridge's market-to-book study using current**  
24       **market data?**

25



1 A. Yes. Using current Value Line data at October 2011, I find that of the fifty-three  
2 electric utilities followed by Value Line, nineteen have ROEs below Dr.  
3 Woolridge's recommended 9.25 percent rate of return on equity; however, contrary  
4 to Dr. Woolridge's hypothesis, only four of these nineteen electric utilities have  
5 market-to-book ratios less than 1.0. With regard to the Value Line natural gas  
6 utilities, only two of the twelve companies have ROEs less than 9.25 percent, and  
7 no natural gas utility has a market-to-book ratio less than 1.0. Similarly, for the six  
8 water utilities followed by Value Line, there are two companies that have estimated  
9 ROEs less than Dr. Woolridge's 9.25 percent recommended return on equity, and  
10 no water utility has a market-to-book ratio less than 1.0. These data provided  
11 strong evidence that Dr. Woolridge's hypothesis regarding the relationship between  
12 ROEs and market-to-book ratios is incorrect.

13

14 **F. Rebuttal of Dr. Woolridge's Comments on Vander Weide Direct**

15 **Testimony**

16 **Q. What issues does Dr. Woolridge have regarding your estimate of Gulf Power's**  
17 **cost of equity?**

18 A. Dr. Woolridge disagrees with my: (1) quarterly DCF model; (2) reliance on  
19 analysts' growth forecasts; (3) risk premium estimates; (4) allowance for flotation  
20 costs; and (5) financial leverage adjustment [Woolridge at 48].

21

22 **1. Quarterly DCF Model**

23 **Q. What are Dr. Woolridge's criticisms of your DCF studies?**

24 A. Dr. Woolridge claims that I should: (1) use the annual rather than the quarterly  
25 DCF model to estimate Gulf Power's cost of equity; (2) use a combination of

1 historical and analysts' growth rates to estimate the growth component of the DCF  
2 model; and (3) include no adjustment for flotation costs.

3

4 **Q. What is the major difference between the quarterly DCF model which you use**  
5 **and the annual DCF model employed by Dr. Woolridge?**

6 A. The major difference is that my quarterly DCF model is based on the realistic  
7 assumption that dividends are paid quarterly, while Dr. Woolridge's annual DCF  
8 model is based on the unrealistic assumption that dividends are paid once at the end  
9 of each year.

10

11 **Q. Why do you use the quarterly rather than the annual DCF model to estimate**  
12 **Gulf Power's cost of equity?**

13 A. As I discuss in my direct testimony, the DCF model assumes that a company's  
14 stock price is equal to the present discounted value of all expected future dividends.  
15 Since the companies in my proxy group all pay dividends quarterly, the current  
16 market price that investors are willing to pay reflects the expected quarterly receipt  
17 of dividends. Therefore, a quarterly DCF model must be used to estimate the cost  
18 of equity for these firms. The quarterly DCF model differs from the annual DCF  
19 model in that it expresses a company's price as the present discounted value of a  
20 quarterly stream of dividend payments. The annual DCF model is only a correct  
21 expression for the present discounted value of future dividends if dividends are  
22 paid once at the end of each year.

23

24 **Q. Why does Dr. Woolridge disagree with your application of the quarterly DCF**  
25 **model?**

1 A. Dr. Woolridge argues first that an early proponent of the DCF model, Dr. Myron  
2 Gordon, stated that “the appropriate dividend yield adjustment for growth in the  
3 DCF model is the expected dividend for the next quarter multiplied by four.”  
4 [Woolridge at 22 and 49.] Second, Dr. Woolridge argues that my quarterly DCF  
5 model allows investors to earn more than their required rate of return on equity.  
6 [Woolridge at 49.]  
7

8 **Q. Is Dr. Gordon’s statement in favor of an annual DCF model a reasonable**  
9 **justification for use of the annual DCF model in this proceeding?**

10 A. No. Although Dr. Gordon was certainly a major early proponent of the DCF  
11 model, this does not imply that Dr. Gordon is correct in his arguments regarding  
12 the quarterly DCF model. As shown in Appendix 2 of Exhibit \_\_\_\_ (JVW-2) to my  
13 direct testimony, there can be no doubt that when dividends are paid quarterly, the  
14 quarterly DCF model must be used to estimate the cost of equity.  
15

16 **Q. Do you agree with Dr. Woolridge’s assertion that the quarterly DCF model**  
17 **allows investors to earn more than their required return on equity?**

18 A. No. The quarterly DCF model does not allow investors to earn more than their  
19 required return on equity; it simply offers a better estimate of investors’ required  
20 return on equity than an annual DCF model. Whether a company earns more than  
21 its cost of equity depends on many factors, including the state of the economy and  
22 the demand for electricity, factors which cannot be known at the time the cost of  
23 equity is being estimated.  
24  
25

## 2. Analysts' Growth Forecasts

1  
2 **Q. Dr. Woolridge also criticizes your use of analysts' growth rates in your DCF**  
3 **model. Why do you use analysts' growth rates to estimate the growth**  
4 **component of the DCF model?**

5 A. I use analysts' growth rates because my studies indicate that the analysts' growth  
6 rates are highly correlated with stock prices. This evidence provides strong support  
7 for the conclusion that investors use analysts' growth rates in making stock buy and  
8 sell decisions, and thus the analysts' growth rates should be used to estimate the  
9 growth component of the DCF model.  
10

11 **Q. Does Dr. Woolridge agree with your statistical studies of the relationship**  
12 **between analysts' growth rates and stock prices?**

13 A. No. Dr. Woolridge has four criticisms of my statistical studies of the relationship  
14 between analysts' growth rates and stock prices. First, he argues that my statistical  
15 study is outdated. Second, he argues that my study is misspecified because I used a  
16 "linear approximation" to the DCF model rather than a modified version of the  
17 DCF model. Third, he argues that I did not use both historical and analysts'  
18 forecasted growth rates in the same regression. Fourth, he argues that I did not  
19 perform any tests to determine if the difference between historic and projected  
20 growth measures is statistically significant. [Woolridge at 60 – 61.]  
21

22 **Q. Do you agree with Dr. Woolridge's assertion that your statistical analysis of**  
23 **the relationship between analysts' growth rates and stock prices is outdated?**

24 A. No. As discussed in my direct testimony, my study was updated in August 2004.  
25 The updated study continues to support the conclusion that the analysts' growth

1 rates are more highly correlated with stock prices than historical measures such as  
2 those employed by Dr. Woolridge. Furthermore, Dr. Woolridge ignores other  
3 studies that have corroborated my results.  
4

5 **Q. Do you agree with Dr. Woolridge's criticism that your DCF model is**  
6 **misspecified because you used a "linear approximation" to the DCF model**  
7 **rather than a modified version of the DCF model?**

8 A. No. Most regression analyses are based on the assumption that the relationship  
9 between the variables being studied is linear. As part of my studies, I tested  
10 whether the linear assumption was sufficiently close to provide reliable estimates of  
11 the model parameters. Applying a first order Taylor-series approximation to the  
12 DCF equation, I found that the first order, or linear, approximation was sufficiently  
13 close to the true equation to justify using linear regression analysis to study the  
14 relationship between price/earnings ratios and growth rates.  
15

16 **Q. Why did you not use a combination of historical and analysts' growth rates in**  
17 **the same regression?**

18 A. I did not use a combination of historical and analysts' growth rates in the same  
19 regression because there are an infinite number of such combinations which could  
20 be tested. My studies indicate that the relationship between analysts' forecasts and  
21 stock prices is so strong compared to the relationship between historical growth  
22 rates and stock prices that there would be little advantage to combining historical  
23 growth rates with analysts' forecasts to predict stock prices.  
24  
25

1    **Q.    Is there a statistically significant difference between historical and projected**  
2       **growth measures in explaining stock prices in your statistical study?**

3    A.    Yes. The difference in performance of historical and projected growth rates is both  
4       statistically significant and dramatic.

5  
6    **Q.    Dr. Woolridge claims in his testimony, “it is well known that the long-term**  
7       **EPS growth rate forecasts of Wall Street securities analysts are overly**  
8       **optimistic and upwardly biased.” [Woolridge at 25.] Is he correct?**

9    A.    No. Contrary to Dr. Woolridge’s claim, the academic literature presents  
10       compelling evidence that analysts’ EPS forecasts are unbiased—that is, neither  
11       optimistic nor pessimistic. As discussed above, I have reviewed nine articles that  
12       address whether analysts’ growth forecasts are overly optimistic. At least seven of  
13       the nine articles reviewed find no evidence that analysts’ growth forecasts are  
14       overly optimistic. Two find evidence of optimism, but also conclude that optimism  
15       is declining significantly over time. Of these two studies, one finds that analysts’  
16       forecasts for the S&P 500 are pessimistic for the last four years of the study.

17  
18   **Q.    Does some of the later research explain why some earlier studies in the**  
19       **literature conclude that analysts’ EPS growth forecasts are optimistic?**

20   A.    Yes. Articles by Abarbanell and Lehavy (2003) and Keane and Runkle (1998)  
21       recognize that the results of earlier studies are heavily influenced by: (i) the  
22       inclusion of large unexpected accounting write-offs and special accounting charges  
23       in reported earnings; and (ii) the impact of high correlation in analysts’ forecasts.  
24       As discussed above, these articles conclude that once the problems associated with  
25       the inclusion of non-recurring earnings in reported earnings per share and

1 correlations in analysts' forecasts are corrected, the evidence supports the  
2 conclusion that analysts' forecasts are unbiased, and hence, not optimistic.

3  
4 **Q. Dr. Woolridge discusses the results of his study of the relationship between**  
5 **analysts' forecasts for utilities and the utilities' subsequent achieved earnings**  
6 **growth rates. Do you have any comments on his study?**

7 A. Yes. First, Dr. Woolridge has misspecified the time frame of his analysts' earnings  
8 growth forecasts. In his study, Dr. Woolridge claims that he compares the analysts'  
9 forecast made in a particular quarter to the company's realized earnings growth rate  
10 in the *same* quarter four years hence. In making this comparison, Dr. Woolridge  
11 fails to recognize that: (i) the time frame of the analysts' growth forecast is an  
12 indefinite, long-run period that may differ from one analyst to another;  
13 (ii) quarterly realized earnings are unaudited; and (iii) quarterly realized earnings  
14 are subject to seasonality. Dr. Woolridge has provided no evidence that analysts'  
15 growth estimates were intended to forecast actual results for exactly the same  
16 quarter four years hence.

17 Second, Dr. Woolridge has not distinguished between recurring (that is,  
18 normalized) and non-recurring (that is, non-normalized) earnings. The analysts'  
19 forecasts are intended to be applied only to growth in recurring earnings, meaning  
20 that they are forecasts of earnings in the absence of extraordinary events and one-  
21 time write-offs. It is likely that the forecast deviations in Dr. Woolridge's sample  
22 are due to primarily to the impact of extraordinary events and one-time write-offs  
23 rather than to problems with the analysts' forecasts of recurring earnings.

24 Third, Dr. Woolridge fails to adjust for the high correlation in analysts'  
25 forecast across companies. Financial researchers have conclusively demonstrated

1 that there is no evidence of analysts' optimism in data sets that are properly  
2 adjusted for the impact of one-time accounting write-offs and the correlation in  
3 analysts' forecasts across companies. (See Jeffery Abarbanell and Reuven Lehavy,  
4 "Biased Forecasts or Biased Earnings? The Role of Reported Earnings in  
5 Explaining Apparent Bias and Over/underreaction in Analysts' Earnings  
6 Forecasts," *Journal of Accounting and Economics*, 36 (2003) 105 – 146; Stephen J.  
7 Ciccone, "Trends in Analyst Earnings Forecast Properties," *International Review of*  
8 *Financial Analysis*, 14 (2005) 1 – 22.)  
9

10 **Q. Why do analysts exclude non-recurring earnings from earnings growth**  
11 **forecasts?**

12 A. Analysts exclude non-recurring earnings from earnings growth forecasts because  
13 stock prices reflect the impact of expected future earnings and, by definition, non-  
14 recurring earnings or losses are not expected to recur in the future. Since non-  
15 recurring earnings do not, in theory, impact stock prices, analysts do not include  
16 them in their earnings per share forecasts. In addition, because accounting  
17 adjustments are somewhat discretionary, it is virtually impossible to forecast the  
18 timing and magnitude of such adjustments, certainly when the long-term earnings  
19 per share forecast is intended to apply to a period three to five years in the future.  
20

21 **Q. Do you have evidence that non-recurring items can have a significant impact**  
22 **on the reported earnings per share for electric utilities?**

23 A. Yes. The impact of non-recurring items on reported earnings per share for electric  
24 utilities can be estimated from annual data on aggregate earnings per share for  
25 electric utilities, including and excluding non-recurring items, published by The



Edison Electric Institute in its annual financial report on investor-owned electric utilities. As shown in Table 4 below, aggregate EPS including non-recurring items (that is, EPS as reported) is generally less than aggregate EPS excluding non-recurring items; and, in many years, the difference is substantial. Thus, Dr. Woolridge's use of EPS data that include non-recurring items could have had a significant impact on his conclusion that analysts' forecasts are optimistic.

**TABLE 4**  
**EARNINGS PER SHARE ("EPS") INCLUDING AND EXCLUDING**  
**NON-RECURRING ITEMS**

**U.S. INVESTOR-OWNED ELECTRIC UTILITIES**

**1992 - 2007**

<u>Year</u>	<u>EPS Include Non-Recurring</u>	<u>EPS Exclude Non-Recurring</u>	<u>Difference (Exclude - Include)</u>
1992	1.66	1.85	0.19
1993	1.65	1.99	0.34
1994	1.92	1.96	0.04
1995	2.10	2.11	0.01
1996	2.14	2.21	0.07
1997	1.49	2.01	0.52
1998	1.52	1.79	0.27
1999	2.04	2.05	0.01
2000	1.59	2.47	0.88
2001	2.43	2.93	0.50
2002	(0.04)	2.40	2.44
2003	1.45	2.20	0.75
2004	2.23	2.00	(0.23)

1	2005	2.09	2.28	0.19
2	2006	2.42	2.37	(0.05)
3	2007	2.65	2.34	(0.31)

4

5

### 3. Risk Premium

6 **Q. What is the risk premium approach to estimating the cost of equity?**

7 A. The risk premium approach is based on the principle that investors expect to earn a  
8 return on an equity investment in Gulf Power that reflects a “premium” over and  
9 above the return they expect to earn on an investment in a portfolio of long-term  
10 bonds. This equity risk premium compensates equity investors for the additional  
11 risk they bear in making equity investments versus bond investments. Using the  
12 risk premium approach, the cost of equity is given by the following equation: cost  
13 of equity = interest rate plus risk premium.

14

15 **Q. How do you estimate the interest rate component of the risk premium**  
16 **approach?**

17 A. I estimate the interest rate component of the risk premium approach using the yield  
18 to maturity on A-rated utility bonds.

19

20 **Q. Does Dr. Woolridge have any criticisms of your use of the yield to maturity on**  
21 **A-rated utility bonds to estimate the interest rate component of the risk**  
22 **premium approach?**

23 A. Yes. Dr. Woolridge argues that my use of the yield to maturity on A-rated utility  
24 bonds inflates the required return on equity because long-term utility bonds are not

25

1 risk free, that is, they are subject to both interest rate risk and credit risk [Woolridge  
2 at 62 - 63].  
3

4 **Q. Do you agree with Dr. Woolridge's criticism of your use of the yield to**  
5 **maturity on A-rated utility bonds to estimate the interest rate component of**  
6 **the risk premium approach?**

7 A. No. Dr. Woolridge fails to recognize that the risk premium approach does not  
8 require that the interest rate be "risk free." Indeed, the only requirement of the risk  
9 premium approach is that the same interest rate be used to estimate the interest rate  
10 component as is used to estimate the risk premium component. Since the risk  
11 premium approach suggests that the cost of equity equals (the interest rate) plus  
12 (the required return on equity minus the interest rate), the cost of equity should be  
13 approximately the same in a risk premium analysis, no matter what interest rate is  
14 used as the benchmark interest rate. Thus, use of the interest rate on A-rated utility  
15 bonds in a risk premium analysis will produce a higher interest rate component than  
16 use of a government bond interest rate, but this difference will be offset by the  
17 correspondingly lower risk premium. The lower risk premium arises because the  
18 difference between the return on equity and yield on A-rated utility bonds is less  
19 than the difference between the return on equity and the yield on long-term  
20 government bonds.  
21

22 **Q. Why do you use the yield on A-rated utility bonds rather than the yield on**  
23 **Treasury bonds in your risk premium studies?**

24 A. I use the yield on A-rated utility bonds rather than the yield on Treasury bonds in  
25 my risk premium studies because I believe that utility bond yields are better

1 indicators of utilities' cost of equity than Treasury bond yields. First, because the  
2 U.S. dollar is the major currency for international trade, foreign governments tend  
3 to hold their currency reserves in U.S. Treasury bonds. Indeed, foreign investors  
4 now hold approximately 55 percent of U.S. Treasury debt. (See Report to the  
5 Secretary of the Treasury from the Treasury Borrowing Advisory Committee of the  
6 Securities Industry and Financial Markets Association, February 4, 2009.  
7 <http://www.ustreas.gov/press/releases/tg10.htm>.) Thus, Treasury bond yields are  
8 highly sensitive to changes in international economic conditions, whereas the U.S.  
9 utilities' cost of equity is not.

10 Second, since U.S. Treasuries are considered to be the safest investment in  
11 the world, investors across the world tend to flock to investments in U.S. Treasuries  
12 at times of widespread global economic turmoil. In such periods of turmoil, the  
13 required return on risky investments such as utility bonds and stocks increases  
14 while the yield on U.S. Treasury bonds declines. Thus, changes to U.S. Treasury  
15 bond yields are poor indicators of changes in a utility's cost of equity.

16 Third, yields on U.S. Treasury bonds are highly sensitive to efforts by the  
17 Federal Reserve to stimulate the economy. Although most Federal Reserve  
18 monetary policy operations are conducted using short-term U. S. Treasury bills,  
19 yields on long-term Treasury bonds frequently move in the same direction as yields  
20 on short-term Treasury bills. In addition, the Federal Reserve has recently begun to  
21 purchase long-term Treasury bonds in an effort to further reduce long-term  
22 Treasury yields.

23 Fourth, to the extent that there are economic developments that are specific  
24 to the utility industry, such as changes in environmental regulations and energy  
25 policy, such factors will be reflected both in utility bond yields and the utility cost

1 of equity, but not in U.S. Treasury bond yields. Thus, that utility bond yields  
2 reflect utility-specific risks is an argument for—not an argument against—the use  
3 of utility bond yields to indicate changes in the utility cost of equity.  
4

5 **Q. How do you estimate the risk premium component of the risk premium**  
6 **approach?**

7 A. I estimate the risk premium component of the risk premium approach in two ways.  
8 First, I estimate the difference between the DCF cost of equity for a proxy group of  
9 companies over the previous 111 months and the concurrent yield to maturity on A-  
10 rated utility bonds in those months, and then adjust the average risk premium to  
11 account for changes in interest rates. This estimate is my “ex ante risk premium  
12 approach.” Second, I estimate the risk premium from an historical study of stock  
13 and bond returns over the period 1937 to the present. This second risk premium  
14 approach is my “ex post risk premium approach.”  
15

16 **Q. Why does Dr. Woolridge criticize your ex ante risk premium approach?**

17 A. Dr. Woolridge criticizes my ex ante risk premium approach because it relies on  
18 analysts’ forecasts to estimate the required return on equity using the DCF model.  
19

20 **Q. Have you addressed Dr. Woolridge’s criticisms of your use of analysts’ growth**  
21 **forecasts elsewhere in this rebuttal testimony?**

22 A. Yes, I have. (See Section II, F., 3, above.)  
23

24 **Q. Does Dr. Woolridge agree with your use of historical stock and bond returns**  
25 **to estimate the equity risk premium?**

1 A. No. Dr. Woolridge states:

2 There are a number of flaws in using historic returns over long time  
3 periods to estimate expected equity risk premiums. These issues  
4 include: (a) biased historic bond returns; (b) use of the arithmetic  
5 versus the geometric mean return; (c) the large error in measuring  
6 the equity risk premium using historical returns; (d) unattainable and  
7 biased historic stock returns; (e) company survivorship bias; and (f)  
8 the "peso problem—U.S. stock market survivorship bias."  
9 [Woolridge at 65.]  
10

11 **Q. Why does Dr. Woolridge believe that historical bond returns are biased?**

12 A. Dr. Woolridge states:

13 Historic bond returns are biased downward as a measure of  
14 expectancy because of capital losses suffered by bondholders in the  
15 past. As such, risk premiums derived from this data are biased  
16 upwards. [Woolridge at 65.]  
17

18 **Q. Do you agree with Dr. Woolridge's statement that historical bond returns are**  
19 **biased downward because of capital losses suffered by past bond investors?**

20 A. No. Because of capital gains and losses, historical bond returns may be higher or  
21 lower than what investors expected at the time they purchased the bonds. During  
22 the period since 1982, for example, historical bond returns have been biased  
23 upward as a measure of expectancy because of the large capital gains achieved by  
24 bondholders over this period. However, over the entire period considered in my ex  
25 post risk premium study (from 1937 to the present), capital gains and losses on

1 bonds have approximately offset each other, and consequently there is no  
2 significant bias as a result from either capital gains or losses.  
3

4 **Q. What is the difference between an arithmetic and a geometric mean return?**

5 A. An arithmetic mean return is an additive return that is calculated by summing the  
6 achieved return in each time period and dividing the total by the number of periods.  
7 In contrast, the geometric mean return is a multiplicative return that is calculated in  
8 two steps. First, one calculates the product of (1 plus the return) in each period of  
9 the study. Second, one calculates the  $n^{\text{th}}$  root of this product and subtracts 1 from  
10 the result. Thus, if there are two periods, and  $r_1$  and  $r_2$  are the returns in periods one  
11 and two, respectively, the arithmetic mean is calculated from the equation:  $a_m = (r_1$   
12  $+ r_2) \div 2$ . The geometric mean is calculated from the equation,

$$a_g = [(1 + r_1) \times (1 + r_2)]^{.5} - 1.$$

13  
14  
15 **Q. Please describe Dr. Woolridge's concern regarding the use of geometric versus**  
16 **arithmetic mean returns.**

17 A. Dr. Woolridge believes that my ex post risk premium study is biased because I  
18 calculate the expected risk premium using the arithmetic mean of past returns,  
19 whereas he believes I should have calculated the expected risk premium using the  
20 geometric mean of past returns.  
21

22 **Q. Is Dr. Woolridge's criticism valid?**

23 A. No. As explained in Ibbotson® SBBI® Valuation Edition 2011 Yearbook (SBBI®),  
24 the arithmetic mean return is the best approach for calculating the return investors  
25 expect to receive in the future:

1 The equity risk premium data presented in this book are arithmetic  
2 average risk premia as opposed to geometric average risk premia.  
3 The arithmetic average equity risk premium can be demonstrated to  
4 be most appropriate when discounting future cash flows. For use as  
5 the expected equity risk premium in either the CAPM or the  
6 building block approach, the arithmetic mean or the simple  
7 difference of the arithmetic means of stock market returns and  
8 riskless rates is the relevant number. This is because both the  
9 CAPM and the building block approach are additive models, in  
10 which the cost of capital is the sum of its parts. The geometric  
11 average is more appropriate for reporting past performance, since it  
12 represents the compound average return. [SBBI<sup>®</sup> at 56.]

13 A discussion of the importance of using arithmetic mean returns in the context of  
14 CAPM or risk premium studies is contained in my direct testimony, Schedule 5 of  
15 Exhibit \_\_\_\_ (JVW-1), "Using the Arithmetic Mean to Estimate the Cost of Equity  
16 Capital."

17  
18 **Q. Dr. Woolridge claims that "the SEC requires equity mutual funds to report**  
19 **historical return performance using geometric mean and not arithmetic mean**  
20 **returns." [Woolridge at 67.] Does this observation demonstrate that the risk**  
21 **premium should be estimated using geometric mean returns rather than**  
22 **arithmetic mean returns?**

23 **A.** No. As discuss above, I agree that historical performance should be measured  
24 using the geometric mean rather than the arithmetic mean. However, as I  
25 demonstrate in Schedule 5 of Exhibit \_\_\_\_ (JVW-1), in estimating the cost of equity,



1 it is essential to use the arithmetic mean return because it is only the arithmetic  
2 mean return that will make an initial investment grow to the expected value of the  
3 investment at the end of the investment horizon. Thus, for an investment with an  
4 uncertain outcome, the arithmetic mean is the best measure of the forward looking  
5 expected risk premium.

6  
7 **Q. Dr. Woolridge also criticizes your ex post risk premium study because it is**  
8 **based on “unattainable and biased historic stock returns.” [Woolridge at 68 -**  
9 **69.] Is he correct?**

10 **A.** No. Dr. Woolridge bases his allegation on the assumption that stock index returns  
11 such as those reported by Ibbotson® SBBI® are “unattainable to investors.” Dr.  
12 Woolridge’s assumption is false: investors, in fact, can attain the returns achieved  
13 by stock indices simply by purchasing the stock index.

14  
15 **Q. Do you agree with Dr. Woolridge’s criticism that your ex post risk premium**  
16 **study is characterized by “survivorship bias”? [Woolridge 69.]**

17 **A.** No. Survivorship bias refers to problems that might arise when data for companies  
18 that have failed are excluded from the sample. However, with regard to the U.S.  
19 markets that I study, survivorship bias is not a major issue. First, over the period  
20 1937 to the present, there have been relatively few companies in the S&P 500 and  
21 the S&P Utilities that have failed. Second, the S&P 500 includes the return on a  
22 stock until the day it is dropped from the index, and the effect of a company being  
23 dropped from the S&P 500 is generally anticipated by the market well in advance  
24 of the delisting. Thus, survivorship is not a material issue with respect to U.S.  
25 stocks.

1

2 **Q. What does Dr. Woolridge mean when he refers to the “peso problem”?**

3 **[Woolridge at 70.]**

4 A. Dr. Woolridge uses the term “peso problem” to refer to the fact that U.S. investors  
5 have earned higher returns on stock investments than investors in other countries  
6 because the U.S. economy has not suffered many of the same economic calamities  
7 as the economies of other countries. This criticism of the use of U. S. stock returns  
8 in risk premium studies might be appropriate if one were attempting to estimate the  
9 expected rates of return on non-U. S. stocks. However, for U. S. stocks, since there  
10 is no indication that the U. S. will suffer the economic calamities of other countries,  
11 such as hyper-inflation or military invasion, there is no reason why the returns on  
12 U. S. stocks would be biased upward. As Morningstar states with respect to  
13 “survivorship bias” and the closely-related “peso problem”:

14 While the survivorship bias evidence may be compelling on a worldwide  
15 basis, one can question its relevance to a purely U.S. analysis. If the  
16 entity being valued is a U.S. company, then the relevant data set should  
17 be the performance of equities in the U.S. market. [SBBI® at 62.]

18

19 **Q. Dr. Woolridge claims that his market risk premium estimate is reasonable**  
20 **because it is consistent with the 7.37 percent long-term forecasted return on**  
21 **the S&P 500 published by the Federal Reserve Bank of Philadelphia’s Survey**  
22 **of Professional Forecasters [Woolridge at 44]. Is the Survey of Professional**  
23 **Forecasters a reliable source of cost of equity estimates?**

24 A. No. The economists included in the survey are macro economists who are  
25 primarily concerned with forecasting factors such as GDP growth, inflation rates,

1 unemployment rates, job growth, and other macro-economic indicators. They are  
2 not experts in forecasting the rate of return on the S&P 500.  
3

4 **Q. Dr. Woolridge also claims that his risk premium estimate is reasonable**  
5 **because it is consistent with the risk premium estimate found in the Graham**  
6 **Harvey survey of Chief Financial Officers in September 2011 [Woolridge at**  
7 **44]. Do you agree that surveys of business managers provide useful**  
8 **information on the expected market risk premium?**

9 A. No. Surveys of business managers provide little or no information on the expected  
10 market risk premium because: (1) managers have no incentive to take the survey  
11 seriously; (2) their responses are not typically based on market transactions or  
12 actual investment decisions; (3) their responses may reflect what they think the  
13 investigator wants to hear; and (4) the response rate is frequently low. In addition,  
14 Dr. Woolridge fails to recognize that Graham and Harvey comment that their  
15 survey responders frequently use hurdle rates for making investment decisions that  
16 exceed their estimates of excess returns on the S&P 500. (Graham and Harvey  
17 confirm that CEO responses to their survey are not typically based on market  
18 transactions or actual investment decisions when they state, "Often their [the  
19 CFO's] 10-year risk premium is supplemented so that the company's hurdle rate  
20 exceeds their expected excess return on the S&P 500." John Graham and Campbell  
21 Harvey, "The Long-Run Equity Risk Premium," Sep. 9, 2005, p. 6.)  
22  
23  
24  
25



1 securities, that flotation costs represent approximately five percent of the  
2 company's pre-issue stock price, and that the company will not be able to earn a  
3 fair rate of return on its investment if it does not recover its flotation costs.  
4

5 **Q. Do you justify flotation costs on the grounds that flotation costs are required**  
6 **to prevent dilution of existing shareholders?**

7 A. No. I justify flotation costs on the grounds that the company will not be able to  
8 earn a fair rate of return if it does not recover the flotation costs it incurs when it  
9 issues new equity. My flotation cost adjustment is unrelated to the company's  
10 market-to-book ratio.  
11

#### 12 **5. Financial Risk Adjustment**

13 **Q. How do financial market participants measure risk?**

14 A. Under the assumption that the probability distribution of returns is symmetric, *i.e.*,  
15 centered on the mean return, financial market participants generally measure risk  
16 by the forward-looking variance of return on investment.  
17

18 **Q. Does the forward-looking variance of an investor's return on a stock**  
19 **investment in a company depend on the company's capital structure?**

20 A. Yes. The forward-looking variance of an investor's return depends on the  
21 company's debt to equity ratio, where both debt and equity are measured in terms  
22 of market values, not book values.  
23  
24  
25

1   **Q.    What is the meaning of the term, “financial risk”?**

2    A.    Economists use the term, “financial risk” to refer to the contribution of the firm’s  
3           capital structure, *i.e.*, its debt to equity ratio, to the forward-looking variance of  
4           return on the firm’s stock.

5  
6   **Q.    Does financial risk reflect the market values of debt and equity in a company’s**  
7           **capital structure or the book values of debt and equity in a company’s capital**  
8           **structure?**

9    A.    Financial risk measures the contribution of the company’s capital structure to the  
10          forward-looking variance of return on the company’s stock, and the forward-  
11          looking variance depends on the market values of debt and equity in the company’s  
12          capital structure, not the book values. (*See*, for example, Richard A. Brealey,  
13          Stewart C. Myers, and Franklin Allen, *Principles of Corporate Finance*, 8<sup>th</sup> ed.,  
14          McGraw-Hill, 2006.) Thus, financial risk reflects the market values of debt and  
15          equity in a company’s capital structure, not the book values.

16  
17   **Q.    Is Gulf Power recommending that its weighted average cost of capital in this**  
18          **proceeding be calculated based on the market values of debt and equity in its**  
19          **capital structure?**

20    A.    No. Consistent with previous regulatory practice, Gulf Power is recommending  
21          that its weighted average cost of capital be based on the book values of debt and  
22          equity in its capital structure.

23

24

25

1   **Q.    Is the financial risk associated with Gulf Power's recommended capital**  
2       **structure measured in the same way as the financial risk associated with the**  
3       **capital structures of your proxy companies?**

4   **A.    No. The financial risk of my proxy companies is reflected in their market value**  
5       **capital structures, while Gulf Power is recommending that a book value capital**  
6       **structure be used for the purpose of setting rates. Thus, the financial risk of my**  
7       **proxy companies is measured by their market value capital structures, while Gulf**  
8       **Power's financial risk is measured by its book value capital structure.**

9  
10   **Q.    How do you adjust your cost of equity results for your comparable companies**  
11       **to reflect the difference between the market's perception of the financial risk**  
12       **of your proxy companies and the financial risk reflected in Gulf Power's**  
13       **recommended capital structure?**

14   **A.    As described in my direct testimony (see pp. 48 – 49), I adjust the cost of equity**  
15       **results for my comparable companies by equating the after-tax weighted average**  
16       **cost of capital of my proxy companies to the after-tax weighted average cost of**  
17       **capital of Gulf Power. In this procedure, I use market-value capital structure**  
18       **weights for my comparable companies because the cost of capital for these**  
19       **companies is based on market values, and I use book value weights for Gulf Power**  
20       **because the recommended cost of capital for Gulf Power in this proceeding is based**  
21       **on book values.**

22  
23   **Q.    Does Dr. Woolridge agree with your financial risk adjustment?**

24   **A.    No. Dr. Woolridge claims that my financial risk adjustment is unjustified because:**  
25       **(1) a market-to-book ratio above 1.0 indicates that a company is earning more than**

1 its cost of equity; (2) there is no change in the company's leverage; (3) financial  
2 publications report capital structures based on book values; and (4) no other  
3 commissions have accepted using a market value capital structure to calculate the  
4 allowed rate of return. [Woolridge at 79 - 80.]  
5

6 **Q. Do you agree that a market-to-book ratio greater than 1.0 indicates that a**  
7 **company is earning more than its cost of equity?**

8 A. No. As discussed above, Dr. Woolridge's own study, based on January 2009 data,  
9 shows that some 25 of the 54 electric utilities in his market-to-book study have  
10 ROEs less than 9.25 percent (Dr. Woolridge's recommended return on equity).  
11 However, only 7 of these 25 companies have market-to-book ratios less than 1.0.  
12 The average ROE for these companies is 7.1 percent, and the average market-to-  
13 book is 1.23. Similar results hold for current data on the market-to-book ratios and  
14 expected ROEs for Value Line utilities, as described above. These data clearly  
15 contradict Dr. Woolridge's claim that a company's market-to-book ratio is an  
16 indicator of whether a company is earning more than its cost of equity.  
17

18 **Q. Does your financial risk adjustment assume a "change" in a company's**  
19 **leverage?**

20 A. No. As discussed above, my financial risk adjustment reflects the difference in the  
21 financial risk between the capital structures of the proxy companies and the  
22 company's ratemaking capital structure. It is unclear what Dr. Woolridge refers to  
23 when he notes a "change" in capital structure.  
24  
25



1   **Q.    Does the observation that financial publications report capitalization on a**  
2       **book value basis undermine the validity of your financial risk adjustment?**

3   **A.    No. The validity of my financial risk adjustment is based on the widely-recognized**  
4       **observation that the variance of an investor's portfolio returns depends on the**  
5       **market values of the securities in the portfolio, not on the book values of the**  
6       **securities in the portfolio. The truth of the statement that variance of return**  
7       **depends on market values is recognized both in academia and the marketplace. In**  
8       **addition, investors have no difficulty in calculating market value capital structures**  
9       **from publicly available information.**

10

11   **Q.    Dr. Woolridge claims that in response to OPC interrogatories, you state that**  
12       **you "could not identify any proceeding" in which you have testified "in which**  
13       **the regulatory commission had adopted" your "leverage adjustment."**

14       **[Woolridge at 80.] Does Dr. Woolridge correctly characterize your response?**

15   **A.    No. I stated that I do not maintain records of regulatory decisions or a list of all**  
16       **cases in which commissions have accepted my recommendations. However, I**  
17       **noted that I was generally aware that financial adjustments similar to that which I**  
18       **propose have been adopted in Pennsylvania and Canada, and that many states use**  
19       **market value capital structures to determine utility property taxes.**

20               Furthermore, I am also aware that market value capital structures have been  
21       used to set allowed rates of return in numerous telecommunications cases in which  
22       I have participated since 1996, including the *Virginia Arbitration Proceeding* in  
23       which my 12.95 percent overall cost of capital recommendation was accepted, and  
24       a Michigan docket in which my 75 percent equity market value capital structure  
25       recommendation has been accepted. (*Memorandum Opinion and Order, Petition of*

1        *AT&T Communications of Virginia Inc., Pursuant to Section 252(e)(5) of the*  
2        *Communications Act for Preemption of the Jurisdiction of the Virginia Corporation*  
3        *Commission Regarding Interconnection Disputes With Verizon Virginia Inc., 18*  
4        *FCC Rcd 17722 ¶ 94 (2003) ("Virginia Arbitration Order").* In this proceeding, the  
5        Wireline Competition Bureau of the FCC, accepting Verizon's proposal, finds that  
6        the appropriate capital structure component of the weighted average cost of capital  
7        should be based on the market values of debt and equity, stating, "we give no  
8        weight to the portion of AT&T/WorldCom's proposal that is based on incumbent  
9        LECs' book value capital structure." *See Order at ¶¶ 103-104. See also, Michigan*  
10       *Public Service Commission Order, In the matter, on the Commission's own motion,*  
11       *to review the total element long run incremental costs and the total service long*  
12       *run incremental costs for Verizon North Inc., and Contel of the South, Inc., D/B/A*  
13       *Verizon North Systems, to provide telecommunications services, Case No. U-*  
14       *15210, March 18, 2009. "The Commission is not persuaded that Verizon's capital*  
15       *structure should be based on book value. The Commission agrees with the Staff*  
16       *and adopts Verizon's proposed capital structure of 75% equity and 25% debt."*  
17       *Order at 17.)*

18  
19                                **III.    REBUTTAL OF MR. GORMAN**

20        **Q.        What is Mr. Gorman's recommended cost of equity for Gulf Power?**

21        **A.        Mr. Gorman recommends a cost of equity for Gulf Power equal to 9.75 percent.**  
22

23        **Q.        How does Mr. Gorman estimate Gulf Power's cost of equity?**

24        **A.        Mr. Gorman estimates Gulf Power's cost of equity by applying several cost of**  
25        **equity methodologies to the same groups of electric companies that I present in my**

1 direct testimony. His cost of equity methodologies include: (1) the DCF model;  
2 (2) a risk premium method; and (3) a Capital Asset Pricing Model ("CAPM").  
3

4 **Q. Does Mr. Gorman give equal weight to his three cost of equity methods?**

5 A. No. Mr. Gorman's recommended 9.75 percent cost of equity is based primarily on  
6 the results of his DCF and risk premium analyses:

7 My recommended return on common equity of 9.75% is supported  
8 by my DCF and risk premium studies. Because Treasury bond yields  
9 are currently at abnormally low levels, I am placing minimal weight  
10 on the results of my CAPM study at this time  
11

12 **Q. What areas of Mr. Gorman's testimony will you address in your rebuttal**  
13 **testimony?**

14 A. I will address Mr. Gorman's DCF analysis, risk premium analysis, and his  
15 comments on my direct testimony.  
16

17 **A. Mr. Gorman's DCF Model**

18 **Q. What DCF model does Mr. Gorman use to estimate Gulf Power's cost of**  
19 **equity?**

20 A. Mr. Gorman uses an annual DCF model to estimate Gulf Power's cost of equity.  
21

22 **Q. Do you agree with Mr. Gorman's use of an annual DCF model to estimate**  
23 **Gulf Power's cost of equity?**

24 A. No. As discussed in my rebuttal of Dr. Woolridge, the DCF model is based on the  
25 assumption that a company's stock price reflects the present value of the dividends

1 investors expect to receive from their ownership of the stock. Since the companies  
2 in Mr. Gorman's analysis all pay dividends quarterly, these companies' stock prices  
3 reflect the present value of a quarterly stream of dividends. Hence, the quarterly  
4 DCF model is the only DCF model that is consistent with the basic assumption that  
5 stock prices are equal to the expected present value of future dividends.  
6

7 **Q. Does Mr. Gorman include an allowance for flotation costs in his DCF**  
8 **analysis?**

9 A. No.  
10

11 **Q. Do you agree with Mr. Gorman's failure to include flotation costs in his DCF**  
12 **analysis?**

13 A. No. As discussed in my direct testimony, flotation costs are a cost of issuing  
14 securities that must be reflected in a cost of equity analysis for investors to earn a  
15 return that is commensurate with returns on other investments of the same risk.  
16

17 **Q. How does Mr. Gorman estimate the growth component of his DCF model?**

18 A. Mr. Gorman estimates the growth component of his DCF model by using analyst  
19 growth forecasts, a "sustainable" growth forecast, and a three-stage growth  
20 forecast.  
21

22 **Q. What DCF result does Mr. Gorman obtain when he uses analysts' growth**  
23 **forecasts in his DCF model?**

24 A. Mr. Gorman obtains a DCF result equal to 10.1 percent.  
25

1   **Q.    Do you agree with Mr. Gorman's use of analysts' growth forecasts as a proxy**  
2       **for investors' growth expectations in the DCF model?**

3   **A.    Yes. Mr. Gorman's use of analysts' growth forecasts is consistent with the results**  
4       **of studies, including my own, that demonstrate that analysts' growth forecasts are**  
5       **more highly correlated with stock prices than are other growth forecasts such as**  
6       **historical growth forecasts and sustainable growth forecasts.**

7  
8   **Q.    Does Mr. Gorman offer any comments on the use of analysts' growth forecasts**  
9       **as a proxy for investors' growth expectations in the DCF model?**

10  **A.    Yes. Mr. Gorman claims that analysts' growth forecasts overstate investors' long-**  
11       **run growth expectations because they exceed economists' projections of the long-**  
12       **run growth in the economy:**

13           The three- to five-year growth rate of the proxy group exceeds the  
14           growth rate of the overall U.S. economy. As developed below, the  
15           consensus of published economists projects that the U.S. Gross  
16           Domestic Product ("GDP") will grow at a rate of no more than 5.1%  
17           and 4.7% over the next 5 and 10 years, respectively. A company  
18           cannot grow, indefinitely, at a faster rate than the market in which it  
19           sells its products. The U.S. economy, or GDP, growth projection  
20           represents a ceiling, or high-end, sustainable growth rate for a utility  
21           over an indefinite period of time. [Gorman at 19.]

22  
23  
24  
25

1   **Q.   Mr. Gorman seems to believe that investors' growth expectations must be**  
2       **"rational." Are investors' growth expectations always "rational"?**

3   **A.   No. In hindsight, most economists would agree that investors' growth expectations**  
4       **during the tech stock boom of the late 1990s and early 2000 were irrational. Yet, it**  
5       **was these "irrational" growth expectations that caused stock prices to rise by so**  
6       **much during that time.**

7  
8   **Q.   Does the DCF Model only require the use of investors' growth expectations**  
9       **when investors' growth expectations are "rational"?**

10  **A.   No. The DCF model requires the use of investors' growth expectations, whether**  
11       **rational or irrational.**

12  
13  **Q.   Is it appropriate for Mr. Gorman to adjust the growth term in his DCF model,**  
14       **without also adjusting the stock price term in his model?**

15  **A.   No. If Mr. Gorman believes that investors' growth expectations are irrational, he**  
16       **should recognize that "irrational" growth expectations are likely to be accompanied**  
17       **by "irrational" stock prices. To be consistent in applying his own definition of**  
18       **"rational," Mr. Gorman would need to adjust not only his growth estimates to**  
19       **reflect the long-run growth in the economy, but also his stock prices to reflect a**  
20       **"rational" estimate of the value of the company.**

21  
22  **Q.   Do you agree with Mr. Gorman's use of the "sustainable growth" method of**  
23       **estimating investors' growth expectations?**

24  **A.   No. I have two objections to Mr. Gorman's use of the "sustainable growth"**  
25       **method of estimating investors' growth expectations. First, the DCF model**

1 requires the growth forecasts of investors, and my studies, along with those of  
2 others, provide strong evidence that analysts' growth forecasts are a better proxy  
3 for investors' growth expectations than the sustainable growth rate used by Mr.  
4 Gorman. Second, as discussed in my rebuttal of Dr. Woolridge above, the  
5 sustainable growth method is logically circular in that each company's rate of  
6 return on equity must be known in order to estimate the sustainable growth rate at  
7 the same time that the sustainable growth rate must be known to estimate the rate of  
8 return on equity through the DCF model. It is not possible for the rate of return on  
9 equity to be known before the sustainable growth rate, and, at the same time, the  
10 sustainable growth rate to be known before the rate of return on equity.  
11

12 **Q. What is the basic assumption of Mr. Gorman's three-stage DCF model?**

13 A. Mr. Gorman's three-stage DCF model is based on the assumption that investors  
14 believe his proxy companies will grow at the average analyst growth rates for five  
15 years, then decline to the long-run growth in the economy in years six through ten,  
16 and then beginning in the sixth year grow at the rate of 4.9 percent forever.  
17

18 **Q. Does Mr. Gorman provide any evidence to support this basic assumption?**

19 A. No. He simply assumes that rational investors would make this assumption.  
20

21 **Q. Why does Mr. Gorman prefer the results of his three-stage DCF model over**  
22 **the results of his constant growth DCF Model?**

23 A. As discussed above, Mr. Gorman prefers the results of his three-stage model  
24 because, in his opinion, analysts' growth rates generally exceed the projected  
25

1 growth of the economy, and company's cannot grow forever at a rate in excess of  
2 the expected growth of the economy.  
3

4 **Q. Do you agree with Mr. Gorman's opinion that companies cannot grow forever**  
5 **at a rate in excess of the expected growth in the U.S. economy?**

6 A. Yes. As Mr. Gorman implies, if a company grew forever at a rate in excess of the  
7 rate of growth of the U.S. economy, it would eventually take over the economy.  
8 This is not a reasonable expectation.  
9

10 **Q. Does the opinion that a company cannot grow at a rate greater than the rate of**  
11 **growth in the GNP forever imply that a single-stage DCF model cannot be**  
12 **used to estimate the cost of equity?**

13 A. No. Mr. Gorman fails to recognize that the DCF model requires the growth  
14 expectations of investors, not the growth expectations of Mr. Gorman. If investors  
15 use analysts' growth rates to value stocks in the marketplace, Mr. Gorman should  
16 use analysts' growth rates to estimate the growth component of the DCF model.  
17 Mr. Gorman also fails to recognize that companies do not have to grow at the same  
18 rate forever for the single-stage DCF Model to be a reasonable approximation of  
19 how prices are determined in capital markets.  
20

21 **Q. Have you done any studies on the growth rates that investors use to value**  
22 **stocks in the marketplace?**

23 A. Yes. As discussed in my direct testimony, my studies indicate that investors use  
24 analysts' forecasted growth rates to value stocks in the marketplace.  
25



1    **Q.    Does the opinion that a company cannot grow at a rate of growth greater than**  
2       **the growth in GNP forever imply that Mr. Gorman's assumption that**  
3       **companies can only grow at rates faster than the economy for five years is**  
4       **correct?**

5    A.   No. The opinion that a company's earnings cannot grow at a rate greater than the  
6       rate of growth in the GNP forever does not imply that companies can only grow  
7       faster than the rate of growth in the economy for five years. Mr. Gorman's  
8       assumption that companies must grow at the same rate as the economy after year  
9       five is completely arbitrary.

10

11       **B.    Mr. Gorman's Risk Premium Model**

12   **Q.    How does Mr. Gorman estimate the required risk premium for investing in his**  
13       **electric company proxy group?**

14   A.   Mr. Gorman estimates the required risk premium for investing in his proxy electric  
15       utilities from data on the average authorized electric utility rates of return on equity  
16       for each year from 1986 to June 2010. Mr. Gorman finds that the average  
17       authorized rate of return on equity for electric utilities over this period was  
18       5.21 percent higher than the yield to maturity on long-term Treasury bonds and  
19       3.79 percent higher than the yield to maturity on A-rated utility bonds.

20

21   **Q.    Do you agree with Mr. Gorman's method of estimating the required risk**  
22       **premium on electric utility stocks?**

23   A.   No. Mr. Gorman fails to recognize that the Commission has a responsibility to  
24       make an independent assessment of the required return on equity for Gulf Power in  
25       this proceeding. In addition, Mr. Gorman fails to recognize that the indicated risk

1 premium in his data base tends to increase as interest rates decline. Mr. Gorman  
2 should have adjusted his average risk premiums to account for the relationship  
3 between the allowed risk premium on equity and the level of interest rates on long-  
4 term Treasury bonds and A-rated utility bonds.

5  
6 **Q. Have you studied the relationship between the allowed rates of return on**  
7 **equity by regulatory commissions and the interest rates on long-term**  
8 **Treasury bonds and A-rated utility bonds?**

9 A. Yes. Using the data found in Mr. Gorman's Exhibits MPG-11 and MPG-12, I  
10 perform a regression analysis of the relationship between the risk premium implied  
11 by the allowed rates of return on equity issued by regulatory commissions and the  
12 interest rates on long-term Treasury bonds and A-rated utility bonds. I find that the  
13 risk premium implied by allowed rates of return compared to the yield on long-term  
14 Treasury bonds is given by the relationship:

$$\begin{array}{rcll} \text{RP}_{\text{AUTHORIZED}} = & 7.820 & - & 0.418 \times T_B \\ & (21.59) & & (7.41) \end{array}$$

17 where:

18  $\text{RP}_{\text{AUTHORIZED}}$  = the risk premium implied by utility  
19 commission authorized rates of return on  
20 equity,

21 7.82 and 0.418 = estimated regression coefficients with t-  
22 statistics shown in parentheses; and

23  $T_B$  = the yield on long-term Treasury bonds.

24 Similarly, I find that the risk premium implied by allowed rates of return  
25 compared to the yield on A-rated utility bonds is given by the relationship:

$$\begin{array}{rcl}
 1 & RP_{\text{AUTHORIZED}} = & 6.780 - 0.390 \times A_B \\
 2 & & (16.89) \quad (7.59)
 \end{array}$$

3 where:

4  $RP_{\text{AUTHORIZED}}$  = the risk premium implied by utility  
 5 commission authorized rates of return on  
 6 equity,  
 7 6.78 and 0.39 = estimated regression coefficients with t-  
 8 statistics shown in parentheses; and  
 9  $A_B$  = the yield on Moody's A-rated utility bonds.

10  
 11 **Q. Do these regression equations support the conclusion that the risk premium**  
 12 **tends to increase when interest rates decline?**

13 A. Yes. The negative coefficients associated with the interest rate variables, TB and  
 14 AB, indicate that the risk premium moves in the opposite direction as interest rates,  
 15 thus verifying the conclusion that the risk premium increases when interest rates  
 16 decline.

17  
 18 **Q. What risk premium do you obtain from your statistical analysis of the**  
 19 **relationship between allowed rates of return and the interest rate on long-term**  
 20 **Treasury bonds?**

21 A. Using Mr. Gorman's forecasted 4.2 percent interest rate on long-term Treasury  
 22 bonds, I obtain a risk premium of 6.06 percent over the forecasted yield to maturity  
 23 on long-term Treasury bonds. Using Value Line's forecasted 4.9 percent yield on  
 24 Treasury bonds, I obtain a risk of 5.78 percent over the yield to maturity on 20-year  
 25 U.S. Treasury bonds. These risk premium estimates are approximately 60 to 90

1 basis points higher than the average 5.21 percent average risk premium on U. S.  
2 Treasury bonds shown on Mr. Gorman's Exhibit MPG-11, page 1 of 1.

3

4 **Q. Why are the estimated risk premiums from your regression analyses so much**  
5 **higher than the average risk premium over the 1986 – 2010 period that Mr.**  
6 **Gorman uses?**

7 A. The risk premiums from my regression analyses are higher than the average risk  
8 premium over the period of Mr. Gorman's study because, as my regression  
9 analyses demonstrate, risk premiums generally increase when interest rates decline;  
10 and interest rates have declined over the period of Mr. Gorman's study.

11

12 **Q. What risk premium do you obtain from your statistical analysis of the**  
13 **relationship between allowed rates of return and the interest rate on A-rated**  
14 **utility bonds?**

15 A. Using a forecasted interest rate on A-rated utility bonds equal to 5.89 percent, I  
16 obtain a risk premium of 4.48 percent. This risk premium estimate is  
17 approximately 70 basis points higher than the average 3.79 percent risk premium  
18 shown on Mr. Gorman's Exhibit MPG-12, page 1 of 1.

19

20 **Q. Why is the estimated risk premium from your regression analysis higher than**  
21 **the average risk premium over the period 1986 – 2010 shown on Mr.**  
22 **Gorman's Exhibit MPG-12?**

23 A. The risk premium from my regression analysis is higher than the average risk  
24 premium over the period of Mr. Gorman's study because, as discussed above, risk  
25 premiums generally increase when interest rates decline, and interest rates have

declined over the period of Mr. Gorman's study. My regression analyses correctly take into account the inverse relationship between risk premiums and interest rates.

**Q. What cost of equity estimates would Mr. Gorman have obtained from his risk premium analyses if he had correctly recognized that risk premiums increase when interest rates decline, as you describe above?**

**A.** Using Value Line's forecasted 4.9 percent yield on long-term Treasury bonds and a forecasted yield of 5.89 percent on A-rated utility bonds, Mr. Gorman would have obtained estimated risk premiums of 6.06 percent over long-term Treasury bonds and 4.48 percent over utility bonds. Adding these risk premium estimates to the forecasted interest rates, Mr. Gorman would have obtained cost of equity estimates of 10.5 percent and 10.7 percent, respectively. These results exceed Mr. Gorman's risk premium estimates of the cost of equity by approximately 70 to 90 basis points and exceed his recommended cost of equity by 95 basis points.

**C. Response to Mr. Gorman's Comments on Dr. Vander Weide's  
Testimony**

**Q. Does Mr. Gorman agree with your cost of equity estimate for Gulf Power?**

**A.** Mr. Gorman disagrees with my: (i) financial risk adjustment [Gorman at 43 – 47]; (ii) DCF analysis [Gorman at 47 – 53]; and (iii) risk premium analysis [Gorman at 54 – 57].

**1. Financial Risk Adjustment**

**Q. Why do you adjust the cost of equity results for your proxy companies to reflect the average difference between the financial risk of your proxy**

1           **companies and the financial risk reflected in Gulf Power's recommended**  
2           **capital structure?**

3    A.    As explain in my direct testimony, I adjust my cost of equity results because they  
4           reflect a higher degree of financial risk than Gulf Power's recommended capital  
5           structure. In making this assessment, I recognize that investors measure the  
6           financial risk of investing in the equity of my proxy companies based on these  
7           companies' market value capital structures, while Gulf Power is recommending a  
8           book value capital structure. Since investors demand a higher return for bearing  
9           greater risk, an adjustment is required to the cost of equity result for the proxy  
10          companies.

11  
12   **Q.    You note that "investors measure the financial risk of investing in the equity of**  
13           **my proxy companies based on these companies' market value capital**  
14           **structures." Why do equity investors measure the financial risk of your proxy**  
15           **companies based on their market value capital structures?**

16   A.    Equity investors measure financial risk based on market value capital structures  
17           because, from the equity investor's point of view, risk is measured by the forward-  
18           looking variance of return on investment; and the variance of return on investment  
19           depends on a company's market value capitalization, not its book value  
20           capitalization.

21  
22   **Q.    How does Mr. Gorman define financial risk?**

23   A.    Mr. Gorman defines financial risk as the ability of a company to pay the interest  
24           and principal payments on its debt [Gorman at 46].

25

1   **Q.   Does Mr. Gorman's definition of financial risk reflect the point of view of**  
2       **equity investors?**

3   **A.   No. Mr. Gorman's definition of financial risk reflects the point of view of debt**  
4       **investors, not the point of view of equity investors. Whereas debt investors are**  
5       **justifiably concerned with a company's ability to cover the interest and principal**  
6       **payments on its debt, equity investors are primarily concerned with the forward-**  
7       **looking variance of return on their investment. As noted above, the forward-**  
8       **looking variance of return on investment depends on a company's market value**  
9       **capital structure, not its book value capital structure. Indeed, equity investors**  
10      **generally cannot buy a company's stock at book value.**

11

12   **Q.   In summary, do you agree with Mr. Gorman's criticism of your financial risk**  
13      **adjustment?**

14   **A.   No. Mr. Gorman fails to recognize that equity investors measure financial risk by**  
15      **the forward-looking variance of return on their equity investment in the company,**  
16      **and the forward-looking variance of return on an equity investment in a company**  
17      **reflects the company's market value capital structure. Mr. Gorman's criticism of**  
18      **my financial risk adjustment depends on his incorrect assertion that financial risk**  
19      **reflects book value capitalization ratios rather than market value capitalization**  
20      **ratios. While his assertion may be correct from the bond investor's point of view, it**  
21      **is certainly not correct from the equity investor's point of view. The equity**  
22      **investor's point of view is the only point of view that is relevant for determining**  
23      **the cost of equity.**

24

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A. Mr. Gorman addresses my: (i) use of a quarterly DCF model; (ii) flotation cost adjustment; and (iii) reliance on analysts' growth forecasts.

A. Mr. Gorman claims that my use of a quarterly DCF model is inappropriate because “the quarterly compounding component of the return is not a cost to the utility” [Gorman at 50].

A. Yes. Mr. Gorman provides an example where he assumes that Gulf Power has issued a bond with a face value of \$1,000, at an interest rate of six percent paid in two semi-annual \$30 installments. He asserts that Gulf Power's cost of this bond is only six percent, whereas the bond investor expects to earn a 6.1 percent return because of the compounding effect of semi-annual coupon payments. [Gorman at 51.]

A. No. The cost of the bond to Gulf Power is calculated by solving for the value of the discount rate that equates the present value of the stream of interest and principal payments to the face value of the bond. In Mr. Gorman's example, the cost of the bond is 6.11 percent because:



1 
$$\$1,000 = \frac{\$30}{(1.0611)^5} + \frac{\$1,030}{(1.0611)}$$

2  
3 **Q. Mr. Gorman claims in his example that the cost of a \$1,000 bond with a six**  
4 **percent interest rate is the same when a company makes two semi-annual**  
5 **coupon payments as it is when the company makes a single, end-of-year**  
6 **payment of \$60. Is Mr. Gorman correct?**

7 A. No. The cost of a \$1,000 bond is greater when the company makes two semi-  
8 annual coupon payments of \$30 than when it makes a single coupon payment of  
9 \$60 at the end of the year. It can be easily demonstrated that the cost of the \$1,000  
10 bond with a single end-of-year interest payment of \$60 is 6.02 percent, whereas, as  
11 shown above, the cost of the \$1,000 bond with semi-annual interest payments equal  
12 to \$30 is 6.11 percent.

13  
14 **Q. Why is the company's cost of debt greater when it makes two semi-annual**  
15 **payments than when it makes a single end-of-year payment?**

16 A. The company's cost of debt is greater when it makes two semi-annual interest  
17 payments of \$30 than it is when it makes a single \$60 payment at the end of the  
18 year because the interest payments are made sooner on average when interest is  
19 paid semi-annually than when the company makes a single payment at the end of  
20 the year. Because of the time value of money, earlier payments are more costly to  
21 the issuing company than later payments of an equal dollar amount. In Mr.  
22 Gorman's discussion, he simply fails to recognize the time value of money.

1 **Q. Does Mr. Gorman attempt to extend his example to investments in stocks?**

2 A. Yes. Mr. Gorman provides a stock example where an investor purchases Gulf  
3 Power stock for \$100 and expects to receive four quarterly dividends equal to \$1.50  
4 each, or six percent per year [Gorman at 52- 53]. In his discussion of this example,  
5 Mr. Gorman asserts that the cost of the company's dividend payment is only six  
6 percent, whereas the return to the investor would be 6.13 percent.

7  
8 **Q. Do you agree with Mr. Gorman's assertion that the cost to the company of the**  
9 **quarterly dividend payments in his example is only six percent?**

10 A. No. Assuming for simplicity that the value of the investment is the same at the end  
11 of the year as it is at the beginning of the year, the cost of the quarterly dividend  
12 payments to the company can be calculated by solving for the value of the discount  
13 rate that equates the present value of the stream of quarterly dividend payments and  
14 capital value at the end of the year to the \$100 price of the stock. In Mr. Gorman's  
15 example, the cost to the company of the dividend payments is 6.16 percent because:

16 
$$\$100 = \frac{\$1.50}{(1.16)^{.25}} + \frac{1.50}{(1.16)^{.5}} + \frac{1.50}{(1.16)^{.75}} + \frac{\$101.50}{(1.16)}$$

17  
18 **Q. In his stock example, Mr. Gorman claims that the cost of equity to the**  
19 **company is the same when the company makes four quarterly dividend**  
20 **payments equal to \$1.50 each as it is when the company makes a single, year-**  
21 **end dividend payment equal to \$6. Is he correct?**

22 A. No. The cost of equity is greater when the company makes four quarterly \$1.50  
23 dividend payments than when it makes a single six dollar dividend payment at the

1 end of the year because the quarterly payment of dividends requires the company to  
2 make dividend payments sooner on average than the annual payment, and sooner  
3 payments are always more costly than later payments.  
4

5 **Q. Are Mr. Gorman's concerns with your use of analysts' forecasts and a**  
6 **flotation cost adjustment similar to the concerns expressed by Dr. Woolridge?**

7 **A. Yes, they are.**  
8

9 **Q. Have you responded to these concerns in your rebuttal of Dr. Woolridge?**

10 **A. Yes, I have.**  
11

12 **3. Risk Premium Analysis**

13 **Q. What issue does Mr. Gorman have with regard to your risk premium**  
14 **analysis?**

15 **A. Mr. Gorman objects to my use of a forecasted, rather than a current interest rate, in**  
16 **my risk premium analysis [Gorman at 54 – 55].**  
17

18 **Q. Why do you use a forecasted, rather than a current interest rate, in your risk**  
19 **premium analysis?**

20 **A. I use a forecasted interest rate because the fair rate of return standard requires that**  
21 **Gulf Power have an opportunity to earn its cost of equity during the period when**  
22 **rates are in effect, and the rates approved in this case will not come into effect until**  
23 **a time in 2012.**  
24  
25

- 1    **Q.    Does Mr. Gorman also use forecasted interest rates in estimating Gulf Power's**  
2       **cost of equity in his risk premium approach?**
- 3    A.    Yes. Mr. Gorman uses forecasted, rather than current interest rates in his risk  
4       premium analysis comparing the average allowed return on equity for electric  
5       utilities to interest rates on 30- year Treasury bonds [Gorman at 30 – 31].  
6
- 7    **Q.    Does Mr. Gorman attempt to estimate the cost of equity you would have**  
8       **obtained from your ex ante risk premium analysis if you had used current**  
9       **bond yields rather than forecasted bond yields?**
- 10   A.    Yes. Mr. Gorman claims that my ex ante risk premium analysis would have  
11       produced a cost of equity equal to 9.82 percent if I were to use a current interest  
12       rate on A-rated utility bonds equal to 4.92 percent [Gorman at 54].  
13
- 14   **Q.    Do you agree with Mr. Gorman's claim that your ex ante risk premium**  
15       **analysis would produce a cost of equity result equal to 9.82 percent if you were**  
16       **to use an A-rated utility bond yield equal to 4.92 percent?**
- 17   A.    No. Mr. Gorman obtains his 9.82 percent result by adding my estimated  
18       4.9 percent equity risk premium reported in my direct testimony to the 4.92 percent  
19       current yield on A-rated utility bonds. However, Mr. Gorman fails to recognize  
20       that my estimated ex ante risk premium depends on the value of the interest rate on  
21       A-rated utility bonds through the estimated regression equation described in  
22       Appendix 4 of Exhibit \_\_\_\_ (JVV-2) to my direct testimony. Although 4.9 percent  
23       is the correct ex ante risk premium estimate when the interest rate is 6.15 percent,  
24       the correct ex ante risk premium estimate when the interest rate is 4.92 percent is  
25       5.57 percent ( $5.57 = 8.17 - 0.5316 \times 4.9$ ). Thus, adding the correct 5.57 percent

1 estimated ex ante risk premium to the interest rate of 4.92 percent produces an ex  
2 ante risk premium cost of equity equal to 10.47 percent, not the 9.82 percent  
3 incorrectly calculated by Mr. Gorman.  
4

5 **Q. Does this conclude your rebuttal testimony?**

6 **A. Yes, it does.**  
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AFFIDAVIT

STATE OF NORTH CAROLINA )  
 )  
COUNTY OF DURHAM )

Docket No. 110138-EI

Before me the undersigned authority, personally appeared James H. Vander Weide, Ph.D., who being first duly sworn, deposes, and says that he is the Research Professor of Finance and Economics at Duke University, and that the foregoing is true and correct to the best of his knowledge, information, and belief. He is personally known to me.

The signed original affidavit is attached to the original testimony on file with the FPSC.

/s \_\_\_\_\_  
James H. Vander Weide, Ph.D.

Sworn to and subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_,  
2011.

\_\_\_\_\_  
Notary Public, State of North Carolina at Large

Commission No. \_\_\_\_\_

My Commission Expires \_\_\_\_\_

\_\_\_\_\_

**SUMMARY OF DISCOUNTED CASH FLOW ANALYSIS  
FOR WOOLRIDGE PROXY ELECTRIC ENERGY COMPANIES**

LINE NO.	COMPANY	$d_0$	$P_0$	GROWTH	COST OF EQUITY
1	ALLETE	0.45	38.898	6.00%	11.3%
2	Alliant Energy	0.43	39.062	6.50%	11.5%
3	Amer. Elec. Power	0.46	37.163	3.97%	9.6%
4	Ameren Corp.	0.39	29.002	1.00%	6.8%
5	Avista Corp.	0.28	24.422	4.67%	9.7%
6	CMS Energy Corp.	0.21	19.253	6.03%	11.1%
7	Consol. Edison	0.60	54.337	3.55%	8.5%
8	DTE Energy	0.59	49.183	3.47%	8.6%
9	G't Plains Energy	0.21	19.500	5.80%	10.7%
10	Hawaiian Elec.	0.31	23.432	8.60%	15.0%
11	IDACORP Inc.	0.30	38.113	4.67%	8.2%
12	MGE Energy	0.38	40.893	4.00%	8.2%
13	NextEra Energy	0.55	54.862	5.80%	10.3%
14	OGE Energy	0.38	48.241	7.17%	10.8%
15	Pepco Holdings	0.27	18.747	7.50%	14.4%
16	PG&E Corp.	0.46	41.427	3.81%	8.8%
17	Pinnacle West Capital	0.53	42.548	6.25%	12.0%
18	Portland General	0.27	24.085	5.32%	10.3%
19	SCANA Corp.	0.49	39.052	4.82%	10.5%
20	Southern Co.	0.47	40.140	5.94%	11.3%
21	TECO Energy	0.22	17.948	5.81%	11.2%
22	UniSource Energy	0.42	36.689	3.00%	8.0%
23	Westar Energy	0.32	25.659	5.18%	10.9%
24	Wisconsin Energy	0.26	30.648	7.13%	10.9%
25	Xcel Energy Inc.	0.26	23.913	5.05%	10.0%
26	Average				10.3%
27	Median				10.5%
28	Midpoint				10.9%

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Notes:

- $d_0$  = Most recent quarterly dividend.
- $d_1, d_2, d_3, d_4$  = Next four quarterly dividends, calculated by multiplying the last four quarterly dividends by the factor  $(1 + g)$ .
- $P_0$  = Average of the monthly high and low stock prices during the three months ending September 2011 per Thomson Reuters.
- FC = Flotation cost allowance (five percent) as a percent of stock price.
- $g$  = I/B/E/S forecast of future earnings growth September 2011 from Thomson Reuters.
- $k$  = Cost of equity using the quarterly version of the DCF model.

$$k = \frac{d_1(1+k)^{.75} + d_2(1+k)^{.50} + d_3(1+k)^{.25} + d_4}{P_0(1-FC)} + g$$



**UPDATED SUMMARY OF DISCOUNTED CASH FLOW ANALYSIS  
FOR ELECTRIC ENERGY COMPANIES**

LINE NO.	COMPANY	$d_0$	$P_0$	GROWTH	COST OF EQUITY
1	ALLETE	0.45	38.898	6.00%	11.3%
2	Alliant Energy	0.43	39.062	6.50%	11.5%
3	Amer. Elec. Power	0.46	37.163	3.97%	9.6%
4	Ameren Corp.	0.39	29.002	1.00%	6.8%
5	Avista Corp.	0.28	24.422	4.67%	9.7%
6	Black Hills	0.37	29.822	5.00%	10.6%
7	CenterPoint Energy	0.20	19.289	6.44%	11.2%
8	CMS Energy Corp.	0.21	19.253	6.03%	11.1%
9	Consol. Edison	0.60	54.337	3.55%	8.5%
10	Dominion Resources	0.49	48.595	3.34%	7.8%
11	DTE Energy	0.59	49.183	3.47%	8.6%
12	Duke Energy	0.25	18.672	3.36%	9.3%
13	G't Plains Energy	0.21	19.500	5.80%	10.7%
14	Hawaiian Elec.	0.31	23.432	8.60%	15.0%
15	IDACORP Inc.	0.30	38.113	4.67%	8.2%
16	Integrus Energy	0.68	49.007	9.40%	16.2%
17	NextEra Energy	0.55	54.862	5.80%	10.3%
18	Northeast Utilities	0.28	33.790	7.69%	11.5%
19	OGE Energy	0.38	48.241	7.17%	10.8%
20	Pepco Holdings	0.27	18.747	7.50%	14.4%
21	PG&E Corp.	0.46	41.427	3.81%	8.8%
22	Pinnacle West Capital	0.53	42.548	6.25%	12.0%
23	Portland General	0.27	24.085	5.32%	10.3%
24	SCANA Corp.	0.49	39.052	4.82%	10.5%
25	Sempra Energy	0.48	50.753	6.77%	11.0%
26	Southern Co.	0.47	40.140	5.94%	11.3%
27	TECO Energy	0.22	17.948	5.81%	11.2%
28	UIL Holdings	0.43	32.330	4.05%	10.1%
29	Vectren Corp.	0.35	26.767	5.57%	11.5%
30	Westar Energy	0.32	25.659	5.18%	10.9%
31	Wisconsin Energy	0.26	30.648	7.13%	10.9%
32	Xcel Energy Inc.	0.26	23.913	5.05%	10.0%
33	Average				10.7%
34	Median				10.8%
35	Midpoint				11.5%

Notes:

- $d_0$  = Most recent quarterly dividend.
- $d_1, d_2, d_3, d_4$  = Next four quarterly dividends, calculated by multiplying the last four quarterly dividends by the factor  $(1 + g)$ .
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- FC = Flotation cost allowance (five percent) as a percent of stock price.
- $g$  = I/B/E/S forecast of future earnings growth September 2011 from Thomson Reuters.
- $k$  = Cost of equity using the quarterly version of the DCF model.

$$k = \frac{d_1(1+k)^{.75} + d_2(1+k)^{.50} + d_3(1+k)^{.25} + d_4}{P_0(1-FC)} + g$$

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