

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

---

In re: Petition for increase in rates increase  
by Progress Energy Florida, Inc.

Docket No. 090079-EI  
Submitted for filing: August 31, 2009

---

**REBUTTAL TESTIMONY OF  
JAMES H. VANDER WEIDE, PH.D.**

**ON BEHALF OF PROGRESS ENERGY FLORIDA**

DOCUMENT NO.    DATE  
09024-09    08/31/09  
FPSC - COMMISSION CLERK

**REBUTTAL TESTIMONY OF  
JAMES H. VANDER WEIDE, PH.D.**

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21

**I. INTRODUCTION AND SUMMARY**

**Q. What is your name and business address?**

A. My name is James H. Vander Weide. My business address is 3606 Stoneybrook Drive, Durham, North Carolina.

**Q. Are you the same James H. Vander Weide who previously provided direct testimony filed on March 20, 2009?**

A. Yes, I am.

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

A. I have been asked by Progress Energy Florida ("PEF") to review the direct testimony and cost of capital recommendation of Dr. J. Randall Woolridge. Dr. Woolridge's testimony is presented on behalf of the Florida Office of Public Counsel.

**Q. Do you have any exhibits to your rebuttal testimony?**

A. Yes. I have prepared or sponsored the preparation of the following exhibits to my testimony:

- Exhibit No. \_\_\_\_ (JVW-15), Comparison of Bond Ratings and Safety Ranks for Woolridge and Vander Weide Proxy Companies;

DOCUMENT NUMBER-DATE

09024 AUG31 08

FPSC-COMMISSION CLERK

- 1                   ● Exhibit No. \_\_\_ (JVW-16), Dr. Woolridge’s DCF Analysis Results Using  
2                   Mean Analysts’ Growth Estimates;
- 3                   ● Exhibit No. \_\_\_ (JVW-17), Updated Summary of Discounted Cash Flow  
4                   Analysis for Value Line Electric Companies; and
- 5                   ● Exhibit No. \_\_\_ (JVW-18), Research Literature that Studies the Efficacy  
6                   of Analysts’ Earnings Forecasts.

7                   These exhibits are true and accurate to the best of my knowledge.

8

9   **Q.    Is there anything in the testimony of Dr. Woolridge that causes you to change**  
10 **your recommended cost of equity for PEF?**

11 A.    No.

12                   **II.    REBUTTAL OF DR. WOOLRIDGE**

13 **Q.    What is Dr. Woolridge’s recommended rate of return on equity for PEF?**

14 A.    Dr. Woolridge recommends that PEF be allowed to earn a rate of return on equity  
15 equal to 9.75 percent.

16

17 **Q.    What areas of Dr. Woolridge’s testimony will you address in your rebuttal**  
18 **testimony?**

19 A.    I will address Dr. Woolridge’s: (1) proxy companies; (2) discounted cash flow  
20 (“DCF”) analysis; (3) rejection of analysts’ growth forecasts; (4) Capital Asset  
21 Pricing Model (“CAPM”) analysis; (5) comments on the relationship between  
22 utility rates of return on equity and their market-to-book ratios; and (6) comments  
23 on my direct testimony.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24

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

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

A. Dr. Woolridge selects companies that are listed as electric utilities in both AUS Utility Reports and The Value Line Investment Survey, have at least 75 percent of revenues from regulated electric utility services; have operating revenues less than \$15 billion; have an investment-grade bond rating by Standard & Poor's and Moody's, and have a three-year history of paying dividends with no dividend cuts [Woolridge at 15].

**Q. What is the purpose of proxy selection criteria?**

A. The purpose of proxy selection criteria is to identify the largest possible group of comparable risk companies that have sufficient data to reliably apply cost of equity methodologies such as the DCF, CAPM, and risk premium.

**Q. Why is it desirable to choose a relatively large group of comparable risk companies?**

A. It is desirable to choose a relatively large group of comparable risk companies because the estimate of the cost of equity obtained from applying cost of equity methodologies to a single company is uncertain. Cost of equity methodologies such as the DCF, CAPM, and risk premium, require estimates of quantities such as growth rates, betas, and expected risk premiums that necessarily involve a degree of uncertainty. However, the uncertainty in estimating the cost of equity by applying cost of equity methodologies to a single company can be significantly

1 reduced by applying cost of equity models to a relatively large group of  
2 comparable risk companies. Intuitively, any over- and under-estimate of the cost  
3 of equity that arises from the application of cost of equity methods to a single  
4 company is averaged out by applying the methods to a larger group of comparable  
5 risk companies.

6 In addition, the choice of a relatively small group of proxy companies  
7 requires a great deal of judgment. When an analyst like Dr. Woolridge applies  
8 judgment to select a small group of companies, he or she may be tempted to  
9 choose a set of selection criteria that produce a desired result. The analyst can  
10 eliminate the possibility of selection bias by starting with the largest possible  
11 group of comparable risk companies and eliminating only those companies with  
12 insufficient data to estimate the cost of equity.

13  
14 **Q. Do Dr. Woolridge's proxy selection criteria produce the largest possible**  
15 **group of comparable risk companies that have sufficient data to reliably**  
16 **apply cost of equity methodologies?**

17 A. No. Dr. Woolridge's proxy selection criteria eliminate a large number of utilities  
18 that most investors would consider to be of comparable risk to PEF. For example,  
19 Dr. Woolridge's requirement that each proxy company must have at least  
20 75 percent of revenues from regulated electric utility operations eliminates 11  
21 Value Line electric utilities that are widely considered to be comparable in  
22 investment risk to PEF, Dominion, Consolidated Edison, Exelon, FPL Group,  
23 Pepco Holdings, SCANA, Sempra Energy, TECO Energy, Vectren, Wisconsin

1 Energy, and Westar Energy. In addition, Dr. Woolridge's selection criteria allow  
2 him to include several small electric utilities that have insufficient data to reliably  
3 estimate the cost of equity.  
4

5 **Q. Do you have evidence that the 11 companies Dr. Woolridge eliminates as a**  
6 **result of his greater than 75 percent regulated electric revenue criterion are**  
7 **widely considered to be comparable in investment risk to PEF?**

8 A. Yes. As shown in the table below, using Dr. Woolridge's own data, the 11  
9 eliminated companies have an average Standard & Poor's bond rating of A-, an  
10 average Moody's bond rating in the range A2 to A3, and an average Value Line  
11 Safety Rank of 2. Based on Dr. Woolridge's data, Progress Energy has an  
12 Standard & Poor's bond rating of A-, a Moody's bond rating of A2,<sup>1</sup> and an  
13 average Value Line Safety Rank of 2. In addition, I note that the distribution of  
14 bond ratings for companies in this group generally falls in the A range.

---

<sup>1</sup> See Exhibit JRW-4, page 1 of 1. I base this comparative analysis on the data provided by Dr. Woolridge because these are the data that Dr. Woolridge uses in selecting his proxy companies. As I note later in my rebuttal, the AUS bond rating data used by Dr. Woolridge are not correct many instances. When the bond rating information is corrected, the 11 eliminated companies are still similar in risk to PEF and Progress Energy. I provide Standard & Poor's bond ratings and Value Line Safety Ranks for my comparable companies in my direct testimony as of the time of my studies in my Exhibit \_\_\_(JVW-1), page 2.

1  
2  
3  
4

**Table 1**  
**Electric Companies Eliminated from Woolridge Proxy Group**  
**because <75% Revenues from Regulated Electric Utility Operations**  
**(but Included in Vander Weide Proxy Group)<sup>2</sup>**

COMPANY	S&P BOND RATING	S&P (NUMERICAL)	MOODY'S BOND RATING	MOODY'S (NUMERICAL)	VALUE LINE SAFETY RANK <sup>3</sup>
Dominion Resources	A	4	A3	5	2
Consolidated Edison	A-	5	A1	3	1
Exelon Corporation	A-	5	A3	5	1
FPL Group	A	4	Aa3	2	1
Pepco Holdings	A-	5	Baa1	6	3
SCANA	A-	5	A2	4	2
SEMPRA Energy	A+	3	A1	3	2
TECO Energy	BBB	7	Baa2	7	3
Vectren Corporation	A	4	A3	5	2
Wisconsin Energy	A-	5	Aa3	2	2
Westar Energy	BBB-	8	Baa2	7	2
Average	A-	5.0	A2 - A3	4.5	1.9

5  
6  
7

**Distribution of Bond Ratings**  
**Electric Companies Eliminated from Woolridge Proxy Group**

RATING	NO. OF COMPANIES	MOODY'S RATING	NO. OF COMPANIES
AA-	0	Aa3	2
A+	1	A1	2
A	3	A2	1
A-	5	A3	3
BBB+	0	Baa1	1
BBB	1	Baa2	2
BBB-	1	Baa3	0
BB+	0	Ba2	0
NR	0	NR	0

8  
9

<sup>2</sup> See Exhibit JRW-4, page 1 of 1. I base this comparative analysis on the data provided by Dr. Woolridge because these are the data that Dr. Woolridge uses in selecting his proxy companies.

<sup>3</sup> The Value Line Investment Analyzer, August 22, 2009. I provide Standard & Poor's bond ratings and Value Line Safety Ranks for my comparable companies in my direct testimony as of the time of my studies in my Exhibit \_\_\_ (JVW-1), page 2.

1 **Q. Does Dr. Woolridge implement his criterion that a company must have at**  
2 **least 75 percent revenues from regulated electric service correctly?**

3 A. No. Dr. Woolridge included PG&E Corporation in his proxy group, even though  
4 it has less than 75 percent revenues from regulated electric services (see Dr.  
5 Woolridge's Exhibit JRW-4, page 1 of 1).

6

7 **Q. You note that Dr. Woolridge also requires that his proxy companies have less**  
8 **than \$15 billion in operating revenues. What Value Line electric utilities fail**  
9 **to meet Dr. Woolridge's criterion that the company has less than \$15 billion**  
10 **in revenues?**

11 A. The four Value Line electric utilities eliminated by Dr. Woolridge's criterion that  
12 the company must have less than \$15 billion in revenues are Dominion  
13 Resources, Exelon Corporation, FPL Group, and Southern Company.

14

15 **Q. Do you have evidence that the four companies Dr. Woolridge eliminates as a**  
16 **result of his less than \$15 billion in revenue criterion are widely considered to**  
17 **be comparable in investment risk to PEF and Progress Energy?**

18 A. Yes. As shown below, using Dr. Woolridge's own data, the four companies  
19 eliminated by his less than \$15 billion in revenue criterion have an average  
20 Standard & Poor's bond rating of A, an average Moody's bond rating of A2, and  
21 an average Value Line Safety Rank of 1.0.





1 A. No. Dr. Woolridge fails to include several companies, including Empire District  
2 Electric, Hawaiian Electric, Portland General, and Pinnacle West, even though  
3 these companies satisfy his selection criteria.<sup>6</sup>

4  
5 **Q. What criteria do you use to select proxy companies?**

6 A. I select all the companies in Value Line's electric company groups that: (1) paid  
7 dividends during every quarter of the last two years; (2) did not decrease  
8 dividends during any quarter of the past two years; (3) had at least three analysts  
9 included in the I/B/E/S average growth forecast; (4) have an investment-grade  
10 bond rating and a Value Line Safety Rank of 1, 2, or 3; and (5) are not the subject  
11 of a merger offer that has not been completed.

12  
13 **Q. Do you have any evidence that your proxy group is a reasonable proxy for  
14 the risk of investing in PEF?**

15 A. Yes. Based on data from Standard & Poor's and Value Line, my proxy group of  
16 electric companies has the same average S&P bond rating as PEF, BBB+, and the  
17 same Value Line Safety Rank, 2, as Progress Energy.<sup>7</sup> These data indicate that

---

<sup>6</sup> See Woolridge Exhibit JRW-4, page 1 of 1 and the AUS Utility Reports provided in Dr. Woolridge's work papers. According to the AUS Utility Report, Empire, Hawaiian Electric, Pinnacle West, and Portland General have electric revenues equal to 86 percent, 98 percent, 95 percent, and 98 percent, respectively; each company has an investment-grade bond rating; each company has total revenues less than \$15 billion; each company has a long-term growth estimate on Zacks.com. With regard to PG&E, as shown in Woolridge Exhibit JRW-4, the company has electric revenues of 74 percent; thus, according to Dr. Woolridge's selection criterion, PG&E should not be in his proxy group.

<sup>7</sup> The average Standard & Poor's bond rating is different from that noted above because I obtain the Standard & Poor's bond ratings directly from Standard & Poor's. In addition, some bond ratings  
(continued . . .)

1 my proxy group of companies is a reasonable proxy for the risk of investing in  
2 PEF.

3

4 **Q. Dr. Woolridge claims that your proxy group is “slightly riskier” than his**  
5 **proxy group [Woolridge at 16]. Do you agree with his assessment?**

6 A. No. In fact, based on recent data from Standard & Poor’s, Moody’s, and Value  
7 Line, my proxy group is demonstrably less risky than Dr. Woolridge’s proxy  
8 group. First, using Dr. Woolridge’s data, my proxy group has slightly higher  
9 Standard & Poor’s and Moody’s bond ratings, and slightly higher Value Line  
10 Safety Ranks than Dr. Woolridge’s proxy group. In addition, my group does not  
11 include any companies that have below-investment-grade bond ratings; and my  
12 companies on average are larger and more widely followed in the investment  
13 community than the companies in Dr. Woolridge’s proxy group.

14

15 **Q. Dr. Woolridge claims that your proxy group has greater variability of bond**  
16 **ratings than his proxy group [Woolridge at 16]. Is his assertion correct?**

17 A. No. Using the most recent Standard & Poor’s and Moody’s data, as summarized  
18 in the tables below, my proxy group has less variability in bond ratings than Dr.

---

(... continued)

and Value Line Safety Ranks for my companies have changed since the time of my studies described in my direct testimony. My conclusion that my proxy group on average is similar in risk to PEF and Progress Energy is confirmed both by the data available at the time of my direct testimony and by current data for these companies. Further, I provide an updated DCF analysis using current market data and the set of electric companies that currently meet my proxy company selection criteria.

1  
2  
3  
4  
5

Woolridge's proxy group. [Supporting data are shown in Exhibit No. \_\_\_(JVW-15)].

**Table 3  
Distribution of Bond Ratings  
in Woolridge Proxy Group**

S&P RATING	NO. OF COMPANIES	MOODY'S RATING	NO. OF COMPANIES
A+	1	A1	0
A	0	A2	1
A-	1	A3	0
BBB+	4	Baa1	4
BBB	6	Baa2	5
BBB-	1	Baa3	4
BB+	1	Ba1	0
BB	0	Ba2	1
NR	1	NR	0
Total	15		15

6  
7  
8

**Table 4  
Distribution of Bond Ratings  
in Vander Weide Proxy Group**

S&P BOND RATING	NO. OF COMPANIES	MOODY'S BOND RATING	NO. OF COMPANIES
A+	0	A1	0
A	2	A2	1
A-	5	A3	2
BBB+	6	Baa1	7
BBB	7	Baa2	7
BBB-	4	Baa3	7
BB+	0	Ba1	0
BB	0	Ba2	0
NR	0	NR	0
Total	24		24

9  
10  
11

**Q. Does your proxy group also have less variability than Dr. Woolridge's proxy group with regard to the Value Line Safety Rank?**

12  
13  
14

**A. Yes (see table below).**

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20

**Table 5**  
**Distribution of Value Line Safety Ranks**

**Woolridge Proxy Group**

VALUE LINE SAFETY RANK	NO. OF COMPANIES
1	1
2	7
3	7
Total	15

**Vander Weide Proxy Group**

VALUE LINE SAFETY RANK	NO. OF COMPANIES
1	4
2	11
3	8
Total	24

**Q. Why should the Commission accept your comparable company group instead of Dr. Woolridge's?**

A. The Commission should accept my proxy group rather than Dr. Woolridge's proxy group because my proxy group: (1) is more comparable in risk to PEF and Progress Energy; (2) provides more reliable results since it is based on a larger set of companies; (3) contains companies that are more widely followed in the investment community; and (4) does not contain companies with non-investment grade bond ratings.

**Q. What DCF results do you obtain in your direct testimony for your proxy companies?**

A. I obtain an average DCF result of 12.3 percent for my proxy companies, as reported in my direct testimony in Exhibit \_\_ (JWV-1).

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24

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

**Q. Does Dr. Woolridge use the DCF model to estimate PEF's cost of equity?**

A. Yes, he does.

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

A. Dr. Woolridge obtains a DCF result of 10.3 percent for his proxy group of 15 electric utilities and 10.5 percent for my proxy group of 24 electric utilities.

**Q. What DCF Model does Dr. Woolridge use to estimate PEF's cost of equity?**

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

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

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

1 **Q. Do you agree with Dr. Woolridge's use of an annual DCF model to estimate**  
2 **PEF's cost of equity?**

3 A. No. Dr. Woolridge's annual DCF model is based on the assumption that  
4 companies pay dividends only at the end of each year. Since Dr. Woolridge's  
5 proxy companies all pay dividends quarterly, Dr. Woolridge should have used the  
6 quarterly DCF model to estimate PEF's cost of equity.

7  
8 **Q. Why is it unreasonable to use an annual DCF model to estimate the cost of**  
9 **equity for companies that pay dividends quarterly?**

10 A. It is unreasonable to apply an annual DCF model to companies that pay dividends  
11 quarterly because: (1) the DCF model is based on the assumption that a  
12 company's stock price is equal to the present value of the expected future  
13 dividends associated with investing in the company's stock; and (2) the annual  
14 DCF model cannot be derived from this assumption when dividends are paid  
15 quarterly.<sup>8</sup>

16  
17 **Q. Does Dr. Woolridge acknowledge that one must recognize the assumptions of**  
18 **the DCF model when estimating the model's inputs?**

---

<sup>8</sup> I note that Staff also uses a quarterly DCF model to estimate the cost of equity in Florida. See Memorandum Dated May 20, 2009, Docket No. 090006-WS, regarding the annual reestablishment of authorized range of return on common equity for water and wastewater utilities.

1 A. Yes. Dr. Woolridge states, “In general, one must recognize the assumptions  
2 under which the DCF model was developed in estimating its components (the  
3 dividend yield and expected growth rate).” [Woolridge at 35.]  
4

5 **Q. Recognizing your disagreement with Dr. Woolridge’s use of an annual DCF  
6 model, did Dr. Woolridge apply the annual DCF model correctly?**

7 A. No. Dr. Woolridge’s annual DCF model is based on the assumption that  
8 dividends will grow at the same constant rate forever. Under the assumption that  
9 dividends will grow at the same constant rate forever, the cost of equity is given  
10 by the equation,  $k = D_0 (1 + g) / P_0 + g$ , where  $D_0$  is the current annualized  
11 dividend,  $P_0$  is the stock price, and  $g$  is the expected constant annual growth rate.  
12 Thus, the correct first period dividend in the annual DCF model is the current  
13 annualized dividend multiplied by the factor,  $(1 + \text{growth rate})$ . Instead, Dr.  
14 Woolridge uses the current annualized dividend multiplied by the factor  $(1 + 0.5$   
15  $\text{times growth rate})$  as the first period dividend in his DCF model. This incorrect  
16 procedure, apart from other errors in his methods, causes him to underestimate  
17 PEF’s cost of equity.  
18

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

21 A. Dr. Woolridge considers Value Line data on historical growth rates in earnings,  
22 dividends, and book value, as well as Value Line data on projected growth rates in  
23 earnings, dividends, and book value. For most of his proxy companies, Value



1 Line's average historical growth rates are significantly less than its projected  
2 growth rates. Dr. Woolridge also considers analysts' forecasts of future growth  
3 provided by First Call, Reuters, and Zacks, and internal growth estimates based  
4 on Value Line's estimates of retention ratios and rates of return on book equity.  
5 Dr. Woolridge's final estimate of the growth rate that investors expect for his  
6 proxy companies is an average of Value Line's historical growth rates, Value  
7 Line's projected growth rates, Dr. Woolridge's internal growth rates, and his  
8 reported analysts' growth rates.

9  
10 **Q. Do you agree with Dr. Woolridge's use of historical growth rates to estimate**  
11 **investors' expectation of future growth in the DCF model?**

12 A. No. Historical growth rates are inherently inferior to analysts' forecasts because  
13 analysts' forecasts already incorporate all relevant information regarding  
14 historical growth rates and also incorporate the analysts' knowledge about current  
15 conditions and expectations regarding the future. My studies, described in my  
16 direct testimony at pp. 32 – 33, indicate that investors use analysts' earnings  
17 growth forecasts in making stock buy and sell decisions rather than historical or  
18 internal growth rates such as those presented by Dr. Woolridge.

19  
20 **Q. How do Value Line's projected growth rates for Dr. Woolridge's proxy**  
21 **group of electric utilities compare to Value Line's historical growth rates for**  
22 **these companies?**

1 A. Value Line's projected growth rates are approximately 200 basis points higher  
2 than its historical growth rates for Dr. Woolridge's proxy companies (see  
3 Woolridge Exhibit\_\_JRW-10, pp. 3 – 4).

4  
5 **Q. What is the internal growth method of estimating the growth component for**  
6 **the DCF method?**

7 A. The internal growth method estimates expected future growth by multiplying a  
8 company's retention ratio, "b," times its expected rate of return on equity, "r."  
9 Thus, "g = b x r," where "b" is the percentage of earnings that are retained in the  
10 business and "r" is the expected rate of return on equity.

11  
12 **Q. Do you agree with the internal growth method for estimating growth in the**  
13 **DCF model?**

14 A. No. The internal growth method is logically circular because it requires an  
15 estimate of the expected rate of return on equity, "r," in order to estimate the cost  
16 of equity using the DCF model. Yet, for regulated companies such as PEF, the  
17 allowed rate of return on equity is set equal to the cost of equity.

18  
19 **Q. What rate of return on equity does Dr. Woolridge assume in his calculation**  
20 **of expected growth using his internal growth method?**

21 A. Dr. Woolridge uses a rate of return on equity in the range 11.0 percent to  
22 11.3 percent (Woolridge Exhibit\_\_JRW-10, p. 4.)

23

1 **Q. Is it reasonable to assume that Dr. Woolridge's proxy companies will earn a**  
2 **rate of return on equity in the range 11.0 percent to 11.3 percent when he is**  
3 **recommending that they be allowed to earn only a return of 9.75 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  
6 to Dr. Woolridge's recommended 9.75 percent, they would forecast that the  
7 utilities would earn 9.75 percent on equity. Thus, Dr. Woolridge's recommended  
8 9.75 percent rate of return on equity is inconsistent with his assumed 11.0 percent  
9 to 11.3 percent 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  
19 several years, Dr. Woolridge's failure to recognize the "external" component of  
20 future growth causes him to underestimate his proxy companies' expected future  
21 growth. This is particularly important at this point in time when the electric  
22 utility industry is expected to undertake substantial infrastructure investments and  
23 to finance part of this expansion through the capital markets.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23

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

A. No. Dr. Woolridge fails to recognize that Value Line calculates its reported rates of return on equity by dividing a company's net income by end of year equity, whereas most financial analysts calculate a company's rate of return on equity by dividing net income by the average equity for the year. In the general case where a company's equity is increasing, Value Line's reported ROEs will understate the average ROE for the year.

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

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

**Q. What growth rates does Dr. Woolridge obtain from First Call, Reuters, and Zacks?**

A. Dr. Woolridge obtains a median growth rate of 6.1 percent for both his proxy group and my proxy group (see Woolridge Exhibit\_\_ JRW-10, p. 5). However,

1 the average growth forecast for Dr. Woolridge's proxy group is 6.9 percent, and  
2 for my proxy group, 6.3 percent.

3  
4 **Q. What DCF result would Dr. Woolridge have obtained for his proxy**  
5 **companies if he had relied entirely on the average growth rates of First Call,**  
6 **Reuters, and Zacks?**

7 A. Dr. Woolridge reports an average dividend yield of 5.2 percent for his proxy  
8 group and 5.5 percent for my proxy group. The average analyst growth rate for  
9 his proxy group is 6.9 percent, and for my proxy group, 6.3 percent. Adding these  
10 dividend yields to the analysts' growth rates, and using Dr. Woolridge's  
11 (incorrect)  $\frac{1}{2}g$  multiplier, produces DCF results for the two proxy groups in the  
12 range 12.0 percent to 12.2 percent. If one correctly implements the annual DCF  
13 model using a full year of growth, one obtains average DCF results in the range  
14 12.2 percent to 12.5 percent. [See Exhibit \_\_\_\_ (JVW-16)]. I also note that neither  
15 of these calculations includes a flotation cost allowance, and that the Commission  
16 typically includes a flotation cost allowance of approximately 25 to 50 basis  
17 points.<sup>9</sup>

18  

---

<sup>9</sup> In the recent TECO Order, the Commission states, "We have traditionally recognized a reasonable adjustment for flotation costs in the determination of the investor-required ROE. ... such adjustments have typically been on the order of 25 to 50 basis points." Order No. PSC-09-0283-FOF-EI, Docket No. 080317-EI, April 30, 2009, at 44. In addition, I note that Staff typically uses a flotation cost of allowance of four percent in both DCF and CAPM models to estimate the cost of equity for water utilities in Florida. See Memorandum Dated May 20, 2009, Docket No. 090006-WS, regarding the annual reestablishment of authorized range of return on common equity for water and wastewater utilities.

1 **Q. Have you also calculated DCF results for a group of electric utilities that**  
2 **currently meet your proxy selection criteria?**

3 A. Yes. The market-weighted average DCF result for the companies that currently  
4 meet my proxy selection criteria is 11.5 percent, and the simple average result is  
5 12.3 percent. If the two highest and lowest results are eliminated from the group,  
6 the market-weighted average DCF result is 12.0 percent and the simple average  
7 result is 12.3 percent. (See Exhibit \_\_\_\_(JVV-17.)

8

9 **C. Dr. Woolridge's Rejection of Analysts' Growth**  
10 **Forecasts**

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

13 A. As described in my written evidence, I recommend using the analysts' forecasts  
14 published by I/B/E/S Thomson Reuters.

15

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

19 A. Security analysts analyze the prospects of companies and forecast earnings. They  
20 take into account all available historical and current data plus any additional  
21 information that is available, such as changes in projected capital expenditures,  
22 regulatory climate, industry restructuring, regulatory rulings, or changes in the  
23 competitive environment. The performance of security analysts is measured  
24 against their ability to weigh the above factors, to predict earnings growth, and to

1 communicate their views to investors. Financial research indicates that securities  
2 analysts are influential, their forecasts are more accurate than simple extrapolation  
3 of past growth, and, most importantly, the consensus of their forecasts is  
4 impounded in the current structure of market prices. This is a key result, since a  
5 proper application of the DCF model requires the matching of stock prices and  
6 investors' growth expectations.

7  
8 **Q. Are analysts' forecasts readily available?**

9 A. Yes. An important part of the analysts' job is getting their views across to  
10 investors. Major investment firms send out monthly reports with their earnings  
11 forecasts, and institutional investors have direct access to analysts. Individual  
12 investors can get the same forecasts through their investment advisors or online.  
13 Studies reported in the academic literature indicate that recommendations based  
14 on these forecasts are relied on by investors. Indeed, because analysts' forecasts  
15 are perceived by investors as being useful, there are services which offer analysts'  
16 forecasts on all major stocks. I/B/E/S and Zack's are some of the providers of  
17 these data. I recommend use of the I/B/E/S growth rates because they have been:  
18 (1) shown to be highly correlated with stock prices; (2) widely studied in the  
19 finance literature; and (3) widely available to investors for many years.

20  
21 **Q. Is it your contention that analysts make perfectly accurate predictions of**  
22 **future earnings growth?**

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

10  
11 **Q. Does the observation that analysts' growth forecasts are inherently uncertain**  
12 **imply that investors should ignore analysts' growth forecasts in making stock**  
13 **buy and sell decisions?**

14 A. No. Because growth forecasts have a significant influence on a company's stock  
15 price, investors have a great incentive to use the best available forecasts of a  
16 company's growth prospects, even if these growth forecasts are inherently  
17 uncertain. In this regard, the investor's situation is similar to the situation of a  
18 pilot who is flying across the country. Although the pilot recognizes that weather  
19 forecasts are inherently uncertain, he or she has a strong incentive to obtain the  
20 best available forecasts of cross-country weather patterns before taking off.

21  
22 **Q. Have you done research on the appropriate use of analysts' forecasts in the**  
23 **DCF model?**



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

10  
11 **Q. Please summarize the results of your study.**

12 A. First, we performed a correlation analysis to identify the historically oriented  
13 growth rates which best described a firm's stock price. Then we did a regression  
14 study comparing the historical and retention growth rates to the consensus  
15 analysts' forecasts. In every case, the regression equations containing the average  
16 of analysts' forecasts statistically outperformed the regression equations  
17 containing the historical and retention growth estimates. These results are  
18 consistent with those found by Cragg and Malkiel, the early major research in this  
19 area (John G. Cragg and Burton G. Malkiel, *Expectations and the Structure of*  
20 *Share Prices*, University of Chicago Press, 1982). These results are also  
21 consistent with the hypothesis that investors use analysts' forecasts, rather than  
22 historically oriented growth calculations, in making stock buy and sell decisions.  
23 They provide overwhelming evidence that the analysts' forecasts of future growth

1 are superior to historically oriented growth measures in predicting a firm's stock  
2 price.

3

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

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

9

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

13 A. No. Dr. Woolridge argues that analysts' growth forecasts should not be used to  
14 estimate the future growth component of the DCF model because, in his opinion,  
15 it is well known that analysts' growth forecasts are overly optimistic [Woolridge  
16 at 39].

17

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

20 A. Yes, I have reviewed the articles identified in Exhibit \_\_\_\_ (JVW-18).

21

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

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

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

10 A. I have identified at least eight published research studies dating from 1972 to  
11 2006 that compare the accuracy of analysts' growth forecasts to the accuracy of  
12 forecasts based on historical extrapolations. Typically, these research studies  
13 follow several basic steps: (1) gather data on historical earnings per share for a  
14 large sample of firms over a reasonably long historical period of time; (2) gather  
15 data on actual earnings per share growth rates for the same firms over a  
16 subsequent future time period; (3) apply statistical forecasting techniques to  
17 determine the best model for forecasting future earnings growth based on  
18 historical growth data; (4) gather data on analysts' growth forecasts for the study  
19 period; (5) calculate the difference between the actual growth rate and the  
20 forecasted growth rate for both the best statistical forecasting model and the  
21 analysts' forecasts; (6) determine whether there is a significant difference between  
22 the forecasting errors of the statistical forecasting model and the forecasting errors  
23 of analysts' EPS growth forecasts; and (7) if the errors from the analysts' EPS

1 growth forecasts are less than the errors from the statistical forecasting techniques  
2 and the difference is statistically significant, conclude that analysts provide  
3 superior forecasts to the forecasts obtained by statistical forecasting techniques.

4 The main differences between the studies reported in the literature relate to the  
5 time period studied, the size of the database, and the statistical techniques used to  
6 forecast future earnings growth 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 10 below). These articles strongly support the conclusion  
15 that analysts' EPS growth forecasts are better proxies for investor growth  
16 expectations than historical growth rates.

1  
2  
3  
4

**TABLE 6**  
**ARTICLES THAT STUDY WHETHER ANALYSTS' FORECASTS**  
**OR HISTORICAL GROWTH EXTRAPOLATIONS**  
**ARE BETTER PREDICTORS OF EPS GROWTH**

<i>Author (Date)</i>	<i>Support Historical</i>	<i>Support Analysts</i>
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

5

6

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

7

8

9

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.

10

11

12

13

14

15

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

16

17

A. I have identified at least seven published research studies that use regression techniques to test whether the impact of changes in analysts' growth forecasts on stock prices is sufficiently strong to justify the conclusion that analysts' EPS growth forecasts are good proxies for investor growth expectations. All these studies find that changes in analysts' growth forecasts have a large and

18

19

20

21

1 statistically significant impact on changes in stock prices. Five of these studies  
 2 also test whether the impact of analysts' growth forecasts on stock prices is  
 3 stronger than the impact of historical and/or retention growth rates on stock  
 4 prices. These studies find that changes in analysts' growth forecasts have a  
 5 significantly stronger impact on stock prices than changes in historical and/or  
 6 retention earnings growth rates. In summary, financial research strongly supports  
 7 the conclusion that analysts' growth forecasts are the best proxies for investor  
 8 growth expectations.

9 **TABLE 7**  
 10 **ARTICLES THAT STUDY THE RELATIONSHIP**  
 11 **BETWEEN ANALYSTS' GROWTH FORECASTS AND STOCK PRICES**

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

12

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

15 A. A review of available research evidence strongly supports the hypothesis that  
 16 analysts' growth forecasts are not optimistic. I have reviewed nine articles that  
 17 address whether analysts' growth forecasts are overly optimistic. At least seven  
 18 of the nine articles reviewed find no evidence that analysts' growth forecasts are  
 19 overly optimistic. Two articles find evidence of optimism, but also conclude that  
 20 optimism is declining significantly over time. Of these two studies, one finds that

1 analysts' forecasts for the Standard & Poor's 500 are pessimistic for the last four  
2 years of the study.

3 **TABLE 8**  
4 **ARTICLES THAT STUDY WHETHER ANALYSTS' FORECASTS**  
5 **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

6  
7 **Q. What is the most important contribution of the more recent research**  
8 **literature on the accuracy of analysts' forecasts?**

9 A. The most important contribution of more recent research is to identify substantial  
10 statistical difficulties in earlier research studies that caused some of these studies  
11 to unwittingly accept the hypothesis of optimism when no optimism was present.  
12 For example, recent studies recognize that the results of earlier studies are heavily  
13 influenced by the presence of large unexpected accounting write-offs and special  
14 accounting charges at a small number of sample companies. Unexpected  
15 accounting write-offs and special charges have a potentially dramatic impact on  
16 conclusions concerning analysts' bias because analysts' forecasts intentionally  
17 exclude the impact of accounting write-offs and special charges, whereas actual  
18 earnings include these items. Thus, a comparison of analysts' forecasts premised  
19 on normalized earnings (that is, earnings that exclude the impact of accounting

1 write-offs and special charges) to reported earnings that include the negative  
2 effect of accounting write-offs and special charges will bias the results in favor of  
3 concluding that analysts are optimistic. Recent studies demonstrate that, once the  
4 distorting effect of unexpected accounting write-offs and special charges are  
5 removed from the analysis, there is no evidence that analysts' EPS growth  
6 forecasts are optimistic.

7           Recent research also highlights the potential impact of high correlation in  
8 analysts' forecast errors on study conclusions. Analysts' forecast errors tend to be  
9 highly correlated because unexpected industry and economy-wide shocks, such as  
10 unexpected increases in oil prices or terrorist attacks, have similar effects on all  
11 firms in the same industry. However, the relevant statistical tests of optimism are  
12 based on the assumption that analysts' forecast errors are independent, that is, the  
13 tests assume that the correlation of the analyst errors is zero. Once the statistical  
14 tests of optimism are adjusted to account for the high correlation in forecast errors  
15 that generally characterize the data, evidence supports the hypothesis that  
16 analysts' EPS growth forecasts are unbiased, and hence not optimistic.

17  
18 **Q. Dr. Woolridge argues that analysts face potential conflicts of interest**  
19 **between their companies' research operations and underwriting operations.**  
20 **Has the New York Stock Exchange ("NYSE") and the National Association**  
21 **of Securities Dealers ("NASD") addressed the issue of analysts' potential**  
22 **conflicts of interest?**



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

3 Imposed structural reforms to increase analyst independence, including  
4 prohibiting investment banking personnel from supervising analysts or  
5 approving research reports;

6 Prohibited offering favorable research to induce investment banking  
7 business;

8 Prohibited research analysts from receiving compensation based on a  
9 specific investment banking transaction;

10 Required disclosure of financial interests in covered companies by the  
11 analyst and the firm;

12 Imposed quiet periods for the issuance of research reports after securities  
13 offerings managed or co-managed by a member;

14 Restricted personal trading by analysts;

15 Required disclosure in research reports of data and price charts that help  
16 investors track the correlation between an analyst's rating and the stock's  
17 price movements; and

18 Required disclosure in research reports of the distribution of buy/hold/sell  
19 ratings and the percentage of investment banking clients in each category.<sup>10</sup>

20

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

23 A. Contrary to Dr. Woolridge's assessment that analysts' growth forecasts should not  
24 be used in the DCF model because they are well known to be optimistic, I find  
25 that the research literature provides strong support for the conclusion that:

26 (1) analysts' EPS growth forecasts are not optimistic; and (2) analysts' EPS  
27 growth forecasts are reasonable proxies for investor growth expectations, while  
28 the historical growth extrapolations and retention growth rates used by Dr.

---

<sup>10</sup> "Joint Report by NASD and the NYSE on the Operation and Effectiveness of the Research Analyst Conflict of Interest Rules," December 2005, p. 5.

1 Woolridge are not. Furthermore, Dr. Woolridge's concerns regarding analysts'  
2 potential conflicts of interest have been fully addressed by rule changes  
3 implemented by the NYSE and NASD in the early 2000s. In addition, Dr.  
4 Woolridge fails to recognize that the DCF model requires the growth forecasts of  
5 investors, whether accurate or not. In this regard, it is helpful to keep in mind that  
6 investors would not pay for analysts' growth forecasts if they did not find them to  
7 be helpful in making stock buy and sell decisions. Similarly, the NYSE and  
8 NASD would not have taken steps to address conflicts of interest if investors did  
9 not rely on analysts' forecasts in making investment decisions.

10  
11 **D. Dr. Woolridge's Capital Asset Pricing Model**

12 **Q. What is the CAPM?**

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

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

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

22  
23 **Q. How does Dr. Woolridge use the CAPM to estimate PEF's cost of equity?**

1 A. The CAPM requires estimates of the risk-free rate, the company-specific risk  
2 factor, or beta, and either the required return on an investment in the market  
3 portfolio, or the risk premium on the market portfolio compared to an investment  
4 in risk-free government securities. For the risk-free rate, Dr. Woolridge uses the  
5 recent average 4.5 percent yield on 30-year Treasury bonds [Woolridge at 45]; for  
6 the company-specific risk factor or beta, Dr. Woolridge uses the current Value  
7 Line beta for each company [Woolridge at 45]; and for the required return or risk  
8 premium on the market portfolio, Dr. Woolridge employs the average  
9 4.37 percent risk premium he obtains from his review of the risk premium  
10 literature [Woolridge at 56].

11

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

13 A. Dr. Woolridge obtains a CAPM result of 7.6 percent for his proxy group and a  
14 result of 7.7 percent for my proxy group.

15

16 **Q. Is either 7.6 percent or 7.7 percent a reasonable estimate of PEF's cost of  
17 equity?**

18 A. No. These cost of equity results are approximately equal to the 7.72 percent  
19 average yield on Moody's Baa-rated utility bonds over the last year. Since an  
20 investment in a company's equity is significantly more risky than an investment  
21 in its bonds, a company's cost of equity should be significantly higher than its  
22 cost of debt.

23

1 **Q. Does Dr. Woolridge recognize that the results of his CAPM analysis are**  
2 **unreasonably low?**

3 A. Yes. Dr. Woolridge reports the results of his DCF and CAPM studies in his  
4 testimony at page 57 as follows:

METHODOLOGY	RANGE
Discounted Cash Flow	10.3-10.5%
Capital Asset Pricing Model	7.6-7.7%

5  
6 From these results, Dr. Woolridge concludes that PEF's cost of equity is in the  
7 range 9.5 percent to 10.0 percent, with a midpoint of 9.75 percent. Since Dr.  
8 Woolridge's CAPM results are approximately 200 basis points lower than the  
9 midpoint of his recommended range of results, Dr. Woolridge must agree that a  
10 CAPM result of 7.6 percent or 7.7 percent is unreasonably low.

11  
12 **Q. Do you agree with Dr. Woolridge's application of the CAPM?**

13 A. No. I agree with Dr. Woolridge that his CAPM results are below a reasonable  
14 range of estimates of PEF's cost of equity.

15  
16 **Q. Why do you believe that the CAPM produces unreasonably low cost of**  
17 **equity results for electric utilities at this time?**

18 A. I believe there are two reasons why the CAPM produces unreasonably low cost of  
19 equity results for electric utilities at this time. First, as a result of the economic  
20 crisis, the U.S. Treasury has kept interest rates on Treasury securities low as part  
21 of its effort to stimulate the economy. The efforts of the U. S. Treasury to keep  
22 interest rates low has significantly increased the spread between the risk-free rate,

1 as measured by the yield on Treasury debt, and the cost of utility debt, as  
2 measured by the Moody's yields on public utility bonds. Since the cost of equity  
3 for public utilities moves more in line with utility debt than with government debt  
4 yields, the CAPM, which relates the cost of equity to the yield on government  
5 debt, understates the utility cost of equity. In addition, the betas of utilities are  
6 currently approximately 0.70, and the CAPM tends to underestimate the cost of  
7 equity for companies whose equity beta is less than 1.0 and to overestimate the  
8 cost of equity for companies whose equity beta is greater than 1.0.

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

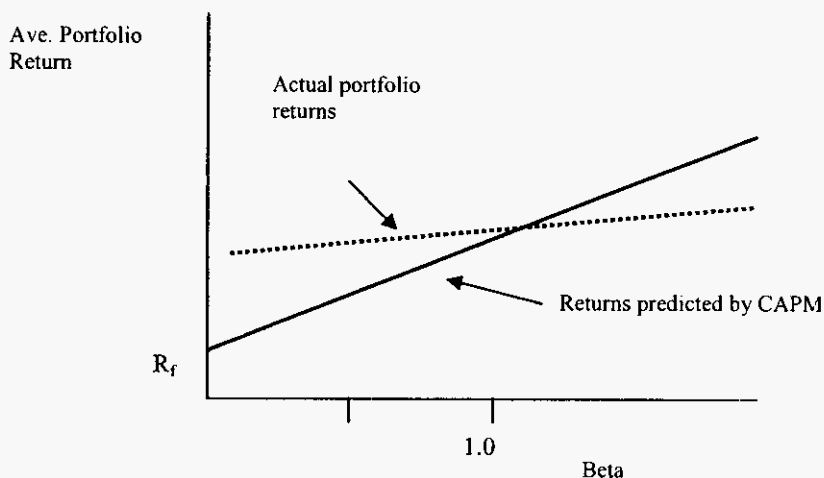
14 **A.** Yes. The CAPM conjectures that security returns increase with increases in  
15 security betas in line with the equation

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

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

1  
2  
3

**Figure 1**  
**Average Returns Compared to Beta**  
**for Portfolios Formed on Prior**



4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16

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  
6 with betas less than 1.0. Since the CAPM significantly underestimates the cost of  
7 equity for companies with betas less than 1.0, and both Dr. Woolridge's and my  
8 proxy companies have betas that are significantly less than 1.0, I further conclude  
9 that the Commission should give little or no weight to the results of the CAPM at  
10 this time.

11

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

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

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

19 As such, the relationship between a firm's return on equity, cost of  
20 equity, and market-to-book ratio is relatively straightforward. A  
21 firm that earns a return on equity above its cost of equity will see  
22 its common stock sell at a price above its book value. Conversely,  
23 a firm that earns a return on equity below its cost of equity will see  
24 its common stock sell at a price below its book value. [Woolridge  
25 at 28.]  
26

27 **Q. Dr. Woolridge reports the results of three regression analyses that he believes**  
28 **support his claim that: (1) companies with market-to-book ratios greater**

1 **than 1.0 are earning more than their costs of equity; (2) companies with**  
2 **market-to-book ratios equal to 1.0 are earning their costs of equity; and**  
3 **(3) companies with market-to-book ratios less than 1.0 are earning less than**  
4 **their costs of equity [Woolridge at 28]. Do Dr. Woolridge's regression**  
5 **analyses provide any support for Dr. Woolridge's claim?**

6 A. No. Dr. Woolridge's regression analyses do not support his claim. Dr.  
7 Woolridge claims that the cost of equity for electric utilities like PEF is  
8 9.75 percent. Of the 54 electric utilities in his market-to-book graph, 28 have  
9 ROEs less than 9.75 percent. However, 21 of these 28 companies—with ROEs  
10 less than Dr. Woolridge's 9.75 recommended cost of equity—have market-to-  
11 book ratios exceeding 1.0. The average ROE for these companies is 7.3 percent,  
12 and the average market-to-book is 1.13. These data clearly contradict Dr.  
13 Woolridge's claim that companies earning less than their cost of equity will have  
14 market-to-book ratios of less than 1.0.

15  
16 **Q. Are you surprised by Dr. Woolridge's evidence that most electric, gas, and**  
17 **water utilities have market-to-book ratios greater than 1.0, even if they are**  
18 **earning ROEs less than their cost of equity?**

19 A. No. According to the DCF model, a company's stock price is equal to the present  
20 value of the company's *expected* future dividends, which, in turn, depend on its  
21 *expected* future ROEs. Thus, market-to-book ratios greater than 1.0, at best,  
22 imply that investors expect the company to earn more than its cost of equity at  
23 some time in the future. There is nothing in the DCF model that allows the



1 analyst to draw inferences about the relationship between a company's historical  
2 ROE and its cost of equity from evidence on market-to-book ratios.

3  
4 **F. Rebuttal of Dr. Woolridge's Comments on Vander Weide**  
5 **Direct Testimony**

6 **Q. What issues does Dr. Woolridge have regarding your estimate of PEF's cost**  
7 **of equity?**

8 A. Dr. Woolridge disagrees with my: (1) proxy companies; (2) quarterly DCF  
9 model; (3) reliance on analysts' growth forecasts; (4) risk premium estimates;  
10 (5) allowance for flotation costs; and (6) financial leverage adjustment  
11 [Woolridge at 62].

12 **1. Proxy Companies**

13 **Q. What proxy companies do you use to estimate PEF's cost of equity?**

14 A. I use the proxy group of Value Line electric utilities shown in Schedule 1 of my  
15 direct testimony.

16  
17 **Q. Why does Dr. Woolridge disagree with your choice of proxy companies?**

18 A. Dr. Woolridge claims that my proxy group is unreasonable because it includes  
19 companies such as Dominion, SCANA, and Vectren that receive a relatively low  
20 percentage of revenues from electric operations and companies such as Southern  
21 Company, with operating revenues greater than \$15 billion [Woolridge at 63].

22  
23 **Q. Why do Dominion, SCANA, and Vectren receive a relatively low percentage**  
24 **of revenues from electric utility operations?**

1 A. Dominion, SCANA, and Vectren receive a relatively low percentage of revenues  
2 from electric utility operations because they are combination utilities that also  
3 have significant revenues from natural gas utility operations.

4  
5 **Q. Does your inclusion of Dominion, SCANA, and Vectren increase the risk of**  
6 **your proxy group relative to either PEF or Dr. Woolridge's proxy group of**  
7 **electric companies?**

8 A. No. As shown in Exhibit \_\_\_ (JVW-1) of my direct testimony, Dominion,  
9 SCANA, and Vectren each has a Standard & Poor's bond rating of A- and Value  
10 Line Safety Rank of 2.<sup>11</sup>

11  
12 **Q. Does the inclusion of these companies in your proxy group increase your**  
13 **DCF result for your proxy companies?**

14 A. No. Dominion has an above average result and SCANA and Vectren have below  
15 average results, and their inclusion in my group has an insignificant impact on the  
16 average DCF result for the group.

17  
18 **Q. Which companies in your proxy group have operating revenues greater than**  
19 **\$15 billion?**

20 A. The companies in my proxy group that have operating revenues greater than \$15  
21 billion include Dominion, Exelon, FPL Group, and Southern Company.

---

<sup>11</sup> SCANA's bond rating was lowered to BBB+ on April 22, 2009.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21

**Q. Does your inclusion of companies such as Dominion, Exelon, FPL Group, and Southern Company, with operating revenues greater than \$15 billion increase the risk of your proxy group relative to PEF or to Dr. Woolridge's proxy group?**

A. No. To the contrary, the inclusion of these companies reduces the risk of my proxy group. Specifically, as shown in Exhibit \_\_ (JVW-1), page 2 of 2, Dominion has an S&P bond rating of A-, a Value Line Safety Rank of 2; Exelon has an S&P bond rating of BBB+ and a Value Line Safety Rank of 1;<sup>12</sup> FPL Group has an S&P bond rating of A and a Value Line Safety Rank of 1; and Southern Company has an S&P bond rating of A and a Value Line Safety Rank of 1. The average S&P bond rating for my entire proxy group is BBB+ and the average Value Line Safety Rank is 2.

**Q. Does the inclusion of these companies increase your DCF result?**

A. No. The inclusion of these four companies has an insignificant impact on my average DCF result. Moreover, there are good reasons to include these companies since they represent a significant part of the market for public utility stocks.

**2. Quarterly DCF Model**

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

---

<sup>12</sup> Exelon's Standard & Poor's bond rating was lowered to BBB on October 21, 2008.

1 A. Dr. Woolridge claims that I should: (1) use the annual rather than the quarterly  
2 DCF model to estimate PEF's cost of equity; (2) use a combination of historical  
3 and analysts' growth rates to estimate the growth component of the DCF model;  
4 (3) include no adjustment for flotation costs; (4) use equal weighting to calculate  
5 my average DCF results; and (5) give less weight to my DCF results in arriving at  
6 my cost of equity recommendation.

7

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

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

14

15 **Q. Why do you use the quarterly rather than the annual DCF model to estimate**  
16 **PEF's cost of equity?**

17 A. As I discuss in my direct testimony, the DCF model assumes that a company's  
18 stock price is equal to the present discounted value of all expected future  
19 dividends. Since the companies in my proxy group all pay dividends quarterly,  
20 the current market price that investors are willing to pay reflects the expected  
21 quarterly receipt of dividends. Therefore, a quarterly DCF model must be used to  
22 estimate the cost of equity for these firms. The quarterly DCF model differs from  
23 the annual DCF model in that it expresses a company's price as the present

1 discounted value of a quarterly stream of dividend payments. The annual DCF  
2 model is only a correct expression for the present discounted value of future  
3 dividends if dividends are paid once at the end of each year.

4  
5 **Q. Why does Dr. Woolridge disagree with your application of the quarterly**  
6 **DCF model?**

7 A. Dr. Woolridge argues first that an early proponent of the DCF model, Dr. Myron  
8 Gordon, stated that “the appropriate dividend yield adjustment for growth in the  
9 DCF model is the expected dividend for the next quarter multiplied by four.”  
10 [Woolridge at 64.] Second, Dr. Woolridge argues that Professor Bower has stated  
11 that the conventional DCF calculation does produce a downwardly-biased  
12 estimate of the cost of equity, but the annual DCF model provides the most  
13 appropriate estimate of the utility’s required return on rate base. [Woolridge at  
14 65.]

15  
16 **Q. Is Dr. Gordon’s statement in favor of an annual DCF model a reasonable**  
17 **justification for use of the annual DCF model in this proceeding?**

18 A. No. Although Dr. Gordon was certainly a major early proponent of the DCF  
19 model, this does not imply that Dr. Gordon is correct in his arguments regarding  
20 the quarterly DCF model. As shown in my Appendix 1 (filed with my direct  
21 testimony), there can be no doubt that, when dividends are paid quarterly, the  
22 quarterly DCF model must be used to estimate the cost of equity.

23

1 **Q. Do you agree with Dr. Bower's statement that the annual DCF calculation is**  
2 **a downwardly-biased estimate of the market cost of equity when companies**  
3 **pay dividends quarterly?**

4 A. Yes. That is why I use the quarterly DCF model to estimate the cost of equity in  
5 this proceeding.

6  
7 **Q. Do you agree with Dr. Bower's argument that the annual DCF model is the**  
8 **appropriate measure of the required rate of return on rate base?**

9 A. No. As discussed in my direct testimony, I believe that it is important to measure  
10 the cost of equity for the proxy companies correctly, and then to adjust the cost of  
11 equity for differences between the financial risk reflected in the cost of equity of  
12 the proxy companies and the financial risk implied by the utility's rate making  
13 capital structure.

14

15 **3. Analysts' Growth Forecasts**

16 **Q. Dr. Woolridge also criticizes your use of analysts' growth rates in your DCF**  
17 **model. Why do you use analysts' growth rates to estimate the growth**  
18 **component of the DCF model?**

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

24

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

3 A. No. Dr. Woolridge has four criticisms of my statistical studies of the relationship  
4 between analysts' growth rates and stock prices. First, he argues that my  
5 statistical study is outdated. Second, he argues that my study is misspecified  
6 because I used a "linear approximation" to the DCF model rather than a modified  
7 version of the DCF model. Third, he argues that I did not use both historical and  
8 analysts' forecasted growth rates in the same regression. Fourth, he argues that I  
9 did not perform any tests to determine if the difference between historic and  
10 projected growth measures is statistically significant.

11

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

14 A. No. As discussed in my direct testimony, my study was updated in August 2004.  
15 The updated study continues to support the conclusion that the analysts' growth  
16 rates are more highly correlated with stock prices than historical measures such as  
17 those employed by Dr. Woolridge. Furthermore, Dr. Woolridge ignores other  
18 studies that have corroborated my results.

19

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

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

8

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

11 A. I did not use a combination of historical and analysts' growth rates in the same  
12 regression because there are an infinite number of such combinations which could  
13 be tested. My studies indicate that the relationship between analysts' forecasts  
14 and stock prices is so strong compared to the relationship between historical  
15 growth rates and stock prices that there would be little advantage to combining  
16 historical growth rates with analysts' forecasts to predict stock prices.

17

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

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

22



1 **Q. Dr. Woolridge claims in his testimony, “It is well known that the EPS**  
2 **forecasts of Wall Street securities analysts are overly optimistic and**  
3 **upwardly biased.” [Woolridge at 66.] Is he correct?**

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

13  
14 **Q. Does some of the later research explain why some earlier studies in the**  
15 **literature conclude that analysts’ EPS growth forecasts are optimistic?**

16 A. Yes. Articles by Abarbanell and Lehavy (2003) and Keane and Runkle (1998)  
17 recognize that the results of earlier studies are heavily influenced by the presence  
18 of large unexpected accounting write-offs and special accounting charges at a  
19 small number of sample companies. Analysts’ forecasts intentionally exclude the  
20 impact of accounting write-offs and special charges because such one-time write-  
21 offs and special charges are inherently unpredictable. Unexpected accounting  
22 write-offs and special charges have a potentially dramatic impact on conclusions  
23 concerning analysts’ bias because actual earnings include these items whereas

1 analysts' normalized forecasts exclude them. Thus, a comparison of analysts'  
2 forecasts premised on normalized earnings (that is, earnings that exclude the  
3 impact of accounting write-offs and special charges) to reported earnings that  
4 include the negative effect of accounting write-offs and special charges will bias  
5 the results in favor of concluding that analysts are optimistic. These studies  
6 demonstrate that, once the distorting effect of unexpected accounting write-offs  
7 and special charges are removed from the analysis, there is no evidence that  
8 analysts' EPS growth forecasts are optimistic.

9 This research also highlights the potential impact of high correlation in  
10 analysts' forecast errors on study conclusions. Analysts' forecast errors tend to  
11 be highly correlated because unexpected industry and economy-wide shocks,  
12 such as unexpected increases in oil prices or terrorist attacks, have similar  
13 effects on all firms in the same industry. However, typical statistical tests of  
14 optimism (such as R-squares and t-statistics) are based on the assumption that  
15 analysts' forecast errors are independent, that is, the tests assume that the  
16 correlation of the analyst errors is zero. Once the statistical tests of optimism  
17 are adjusted to account for the high correlation in forecast errors that generally  
18 characterize the data, evidence supports the hypothesis that analysts' EPS  
19 growth forecasts are unbiased, and hence not optimistic.

20  
21 **Q. Dr. Woolridge also discusses his study of the relationship between analysts'**  
22 **forecasted growth rates and subsequently achieved growth rates [Woolridge**  
23 **at 66 – 68]. Do you have any criticisms of his study?**

1 A. Yes. First, Dr. Woolridge apparently makes no attempt to screen his data for  
2 companies that have only one or two analysts' growth forecasts or for companies  
3 that have outlier growth forecasts. Although my studies indicate that analysts'  
4 growth forecasts are highly correlated with stock prices for large publicly-traded  
5 companies that are followed by at least three analysts, they may not be highly  
6 correlated for many of the small companies contained in the I/B/E/S data base that  
7 have fewer than three analysts' growth estimates and that have outlier growth  
8 forecasts. Second, Dr. Woolridge makes no attempt to correct for the statistical  
9 problems in studies of analysts' forecasts. For example, Dr. Woolridge makes no  
10 attempt to adjust his data for the impact on earnings of unexpected accounting  
11 write-offs and special charges. Further, Dr. Woolridge fails to adjust for the high  
12 correlation in analysts' forecast errors across companies. Financial researchers  
13 have conclusively demonstrated that there is no evidence of analysts' optimism in  
14 data sets that are properly adjusted for the impact of one-time accounting write-  
15 offs and the correlation in analysts' forecasts errors across companies.<sup>13</sup>

16  
17 **Q. Dr. Woolridge also discusses the results of his study of the relationship**  
18 **between analysts' forecasts for utilities and the utilities' subsequent achieved**  
19 **earnings growth rates. Do you have any comments on his study?**

---

<sup>13</sup> See Jeffery Abarbanell and Reuven Lehavy, "Biased Forecasts or Biased Earnings? The Role of Reported Earnings in Explaining Apparent Bias and Over/underreaction in Analysts' Earnings Forecasts," *Journal of Accounting and Economics*, 36 (2003) 105 – 146; Stephen J. Ciccone, "Trends in Analyst Earnings Forecast Properties," *International Review of financial Analysis*, 14 (2005) 1 – 22.

1 A. Yes. First, Dr. Woolridge has misspecified the time frame of his analysts'  
2 earnings growth forecasts. In his study, Dr. Woolridge claims that he compares  
3 an analysts' forecast made in a particular quarter to the company's realized  
4 earnings growth rate in the same quarter four years hence. In making this  
5 comparison, Dr. Woolridge fails to recognize that the time frame of the analysts'  
6 growth forecast is an indefinite, long-run period that may differ from one analyst  
7 to another. Dr. Woolridge has provided no evidence that analysts' growth  
8 estimates were intended to forecast actual results for a period exactly four years  
9 hence. Second, Dr. Woolridge has not distinguished between normalized and  
10 non-normalized earnings. The analysts' forecasts are generally intended to be  
11 normalized earnings growth forecasts, meaning that they are forecasts of earnings  
12 in the absence of extraordinary events and one-time write-offs. It is likely that a  
13 good deal of the forecast deviations in Dr. Woolridge's sample are due to  
14 extraordinary events and one-time write-offs rather than to problems with the  
15 analysts' forecasts of normalized earnings.

#### 17 **4. Risk Premium**

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

19 A. The risk premium approach is based on the principle that investors expect to earn  
20 a return on an equity investment in PEF that reflects a "premium" over and above  
21 the return they expect to earn on an investment in a portfolio of long-term bonds.  
22 This equity risk premium compensates equity investors for the additional risk they  
23 bear in making equity investments versus bond investments. Using the risk

1 premium approach, the cost of equity is given by the following equation: cost of  
2 equity = interest rate plus risk premium.

3  
4 **Q. How did you estimate the interest rate component of the risk premium**  
5 **approach?**

6 A. I estimated the interest rate component of the risk premium approach using the  
7 yield to maturity on A-rated utility bonds.

8  
9 **Q. Does Dr. Woolridge have any criticisms of your use of the yield to maturity**  
10 **on A-rated utility bonds to estimate the interest rate component of the risk**  
11 **premium approach?**

12 A. Yes. Dr. Woolridge argues that my use of the yield to maturity on A-rated utility  
13 bonds inflates the required return on equity because long-term utility bonds are  
14 not risk free, that is, they are subject to both interest rate risk and credit risk  
15 [Woolridge at 76].

16  
17 **Q. Do you agree with Dr. Woolridge's criticism of your use of the yield to**  
18 **maturity on A-rated utility bonds to estimate the interest rate component of**  
19 **the risk premium approach?**

20 A. No. Dr. Woolridge fails to recognize that the risk premium approach does not  
21 require that the interest rate be "risk free." Indeed, the only requirement of the  
22 risk premium approach is that the same interest rate be used to estimate the  
23 interest rate component as is used to estimate the risk premium component. Since

1 the risk premium approach suggests that the cost of equity equals (the interest  
2 rate) plus (the required return on equity minus the interest rate), the cost of equity  
3 should be approximately the same in a risk premium analysis, no matter what  
4 interest rate is used as the benchmark interest rate. Thus, use of the interest rate  
5 on A-rated utility bonds in a risk premium analysis will produce a higher interest  
6 rate component than use of a government bond interest rate, but this difference  
7 will be offset by the correspondingly lower risk premium. The lower risk  
8 premium arises because the difference between the return on equity and yield on  
9 A-rated utility bonds is less than the difference between the return on equity and  
10 the yield on long-term government bonds.

11  
12 **Q. Why do you use the yield on A-rated utility bonds rather than the yield on**  
13 **Treasury bonds in your risk premium studies?**

14 A. I use the yield on A-rated utility bonds rather than the yield on Treasury bonds in  
15 my risk premium studies because I believe that utility bond yields are better  
16 indicators of utilities' cost of equity than Treasury bond yields. First, because the  
17 U.S. dollar is the major currency for international trade, foreign governments tend  
18 to hold their currency reserves in U.S. Treasury bonds. Indeed, foreign investors  
19 now hold approximately 55 percent of U.S. Treasury debt.<sup>14</sup> Thus, Treasury bond

---

<sup>14</sup> Report to the Secretary of the Treasury from the Treasury Borrowing Advisory Committee of the Securities Industry and Financial Markets Association, February 4, 2009.  
<http://www.ustreas.gov/press/releases/tg10.htm>

1 yields are highly sensitive to changes in international economic conditions,  
2 whereas the U.S. utilities' cost of equity is not.

3 Second, since U.S. Treasuries are considered to be the safest investment in  
4 the world, investors across the world tend to flock to investments in U.S.  
5 Treasuries at times of widespread global economic turmoil. In such periods of  
6 turmoil, the required return on risky investments such as utility bonds and stocks  
7 increases while the yield on U.S. Treasury bonds declines.

8 Third, yields on U.S. Treasury bonds are highly sensitive to efforts by the  
9 Federal Reserve to stimulate the economy. Although most Federal Reserve  
10 monetary policy operations are conducted using short-term U. S. Treasury bills,  
11 yields on long-term Treasury bonds frequently move in the same direction as  
12 yields on short-term Treasury bills. In addition, the Federal Reserve has recently  
13 begun to purchase long-term Treasury bonds in an effort to further reduce long-  
14 term Treasury yields.

15 Fourth, to the extent that there are economic developments that are  
16 specific to the utility industry, such as changes in environmental regulations and  
17 energy policy, such factors will be reflected both in utility bond yields and the  
18 utility cost of equity, but not in U.S. Treasury bond yields. Thus, that utility bond  
19 yields reflect utility-specific risks is an argument for—not an argument against—  
20 the use of utility bond yields to indicate changes in the utility cost of equity.

21

22 **Q. How do you estimate the risk premium component of the risk premium**  
23 **approach?**

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

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

11 A. Dr. Woolridge criticizes my ex ante risk premium approach because it relies on  
12 analysts’ forecasts to estimate the required return on equity using the DCF model.  
13

14 **Q. Have you addressed this criticism elsewhere in this rebuttal testimony?**

15 A. Yes, I have. (See Section II, C above.)  
16

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

19 A. No. Dr. Woolridge states:

20 There are a number of flaws in using historic returns over long  
21 time periods to estimate expected equity risk premiums. These  
22 issues include: (a) biased historic bond returns; (b) the arithmetic  
23 versus the geometric mean return; (c) the large error in measuring  
24 the equity risk premium using historical returns; (d) unattainable  
25 and biased historic stock returns; (e) company survivorship bias;  
26 (f) the “peso problem—U.S. stock market survivorship bias;” (g)  
27 market conditions today are significantly different than the past;



1 and (h) changes in risk and return in the markets. [Woolridge at  
2 78.]

3  
4 **Q. Why does Dr. Woolridge believe that historical bond returns are biased?**

5 A. Dr. Woolridge states:

6 Historic bond returns are biased downward as a measure of  
7 expectancy because of capital losses suffered by bondholders in  
8 the past. As such, risk premiums derived from this data are biased  
9 upwards. [Woolridge at 79.]

10  
11 **Q. Do you agree with Dr. Woolridge's statement that historical bond returns are  
12 biased downward because of capital losses suffered by past bond investors?**

13 A. No. Because of capital gains and losses, historical bond returns may be higher or  
14 lower than what investors expected at the time they purchased the bonds. During  
15 the period since 1982, for example, historical bond returns have been biased  
16 upward as a measure of expectancy because of the large capital gains achieved by  
17 bondholders over this period. However, over the entire period considered in my  
18 ex post risk premium study (from 1937 to the present), capital gains and losses on  
19 bonds have approximately offset each other, and consequently there is no  
20 significant bias as a result from either capital gains or losses.

21  
22 **Q. What is the difference between an arithmetic and a geometric mean return?**

23 A. An arithmetic mean return is an additive return that is calculated by summing the  
24 achieved return in each time period and dividing the total by the number of  
25 periods. In contrast, the geometric mean return is a multiplicative return that is  
26 calculated in two steps. First, one calculates the product of (1 plus the return) in

1 each period of the study. Second, one calculates the  $n^{th}$  root of this product and  
2 subtracts 1 from the result. Thus, if there are two periods, and  $r_1$  and  $r_2$  are the  
3 returns in periods one and two, respectively, the arithmetic mean is calculated  
4 from the equation:  $a_m = (r_1 + r_2) \div 2$ . The geometric mean is calculated from the  
5 equation,

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

7

8 **Q. Please describe Dr. Woolridge's concern regarding the use of geometric**  
9 **versus arithmetic mean returns.**

10 A. Dr. Woolridge believes that my ex post risk premium study is biased because I  
11 calculate the expected risk premium using the arithmetic mean of past returns,  
12 whereas he believes I should have calculated the expected risk premium using the  
13 geometric mean of past returns.

14

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

16 A. No. As explained in Ibbotson® SBBI® Valuation Edition 2009 Yearbook  
17 (SBBI®), the arithmetic mean return is the best approach for calculating the return  
18 investors expect to receive in the future:

19 The equity risk premium data presented in this book are arithmetic  
20 average risk premia as opposed to geometric average risk premia.  
21 The arithmetic average equity risk premium can be demonstrated  
22 to be most appropriate when discounting future cash flows. For  
23 use as the expected equity risk premium in either the CAPM or the  
24 building block approach, the arithmetic mean or the simple  
25 difference of the arithmetic means of stock market returns and  
26 riskless rates is the relevant number. This is because both the  
27 CAPM and the building block approach are additive models, in  
28 which the cost of capital is the sum of its parts. The geometric

average is more appropriate for reporting past performance, since it represents the compound average return. [SBBI<sup>®</sup> at 59.]

1 A discussion of the importance of using arithmetic mean returns in the context of  
2 CAPM or risk premium studies is contained in my direct testimony,  
3 Exhibit \_\_\_(JVW-5), “Using the Arithmetic Mean to Estimate the Cost of Equity  
4 Capital.”

5

6 **Q. Dr. Woolridge claims that “the U. S. Securities and Exchange Commission**  
7 **requires equity mutual funds to report historical return performance using**  
8 **geometric mean and not arithmetic mean returns.” [Woolridge at 80.] Does**  
9 **this observation demonstrate that the risk premium should be estimated**  
10 **using geometric mean returns rather than arithmetic mean returns?**

11 A. No. As discussed above, I agree that historical performance should be measured  
12 using the geometric mean rather than the arithmetic mean. However, as I  
13 demonstrate in Exhibit \_\_\_(JVW-5), in estimating the cost of equity, it is essential  
14 to use the arithmetic mean return because it is only the arithmetic mean return that  
15 will make an initial investment grow to the expected investment value at the end  
16 of the investment horizon. Thus, for an investment with an uncertain outcome,  
17 the arithmetic mean is the best measure of the forward looking expected risk  
18 premium.

19

20 **Q. Dr. Woolridge also criticizes your ex post risk premium study because it is**  
21 **based on “unattainable and biased historic stock returns.” [Woolridge at**  
22 **p. 81.] Is he correct?**

1 A. No. Dr. Woolridge bases his allegation on the assumption that stock index returns  
2 such as those reported by Ibbotson are “unattainable to investors.” Dr.  
3 Woolridge’s assumption is false: investors, in fact, can attain the returns achieved  
4 by stock indices simply by purchasing the stock index.

5

6 **Q. Do you agree with Dr. Woolridge’s criticism that your ex post risk premium**  
7 **study is characterized by “survivorship bias”? [Woolridge 82]**

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

17

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

19 A. Dr. Woolridge uses the term “peso problem” to refer to the fact that U.S. investors  
20 have earned higher returns on stock investments than investors in other countries  
21 because the U.S. economy has not suffered many of the same economic calamities  
22 as the economies of other countries. This criticism of the use of U. S. stock  
23 returns in risk premium studies might be appropriate if one were attempting to

1 estimate the expected rates of return on non-U. S. stocks. However, for U. S.  
2 stocks, since there is no indication that the U. S. will suffer the economic  
3 calamities of other countries, such as hyper-inflation or military invasion, there is  
4 no reason why the returns on U. S. stocks would be biased upward. As  
5 Morningstar states with respect to “survivorship bias” and the closely-related  
6 “peso problem”:

7 While the survivorship bias evidence may be compelling on a  
8 worldwide basis, one can question its relevance to a purely U.S.  
9 analysis. If the entity being valued is a U.S. company, then the relevant  
10 data set should be the performance of equities in the U.S. market.  
11 [SBB<sup>I</sup>® at 65.]

12  
13 **Q. On p. 83 of his testimony, Dr. Woolridge criticizes your use of historical risk**  
14 **premiums on the grounds that “market conditions today are significantly**  
15 **different than in the past.” What is the basis of Dr. Woolridge’s concern**  
16 **regarding “current market conditions”?**

17 A. Dr. Woolridge is concerned that, since price/earnings ratios are high, and interest  
18 rates are at historic lows, stock returns in the future may be significantly less than  
19 they have been in the past. [Woolridge at p. 83.]

20  
21 **Q. Is this a reasonable basis on which to reject the use of historical risk**  
22 **premium data?**

23 A. No. Price/earnings ratios are not unusually high at present, and there is no  
24 compelling evidence that price/earnings ratios are unreasonably high in light of  
25 current interest rate conditions in the capital markets. Dr. Woolridge also fails to  
26 understand that my study involves the difference between stock returns and bond

1 returns, and bond returns may be more sensitive to interest rates than stock  
2 returns. Thus, if anything, low interest rates, according to his logic, should imply  
3 that risk premiums would increase in the future, not decrease.  
4

5 **Q. Dr. Woolridge's final criticism of your ex post risk premium study is that the**  
6 **equity risk premium has declined in recent years. Did you present any**  
7 **evidence in your direct testimony relating to this issue?**

8 A. Yes. I presented evidence on pp. 45 – 46 of my direct testimony that there has  
9 been no significant trend in equity risk premiums over time. Since the time of my  
10 direct testimony, the Ibbotson® SBBI® 2009 Yearbook has been published, which  
11 agrees with my finding that there has been no significant trend in equity risk  
12 premiums over time:

13 The significance of this evidence is that the realized equity risk  
14 premium next year will not be dependent on the realized equity  
15 risk premium from this year. That is, there is no discernable  
16 pattern in the realized equity risk premium—it is virtually  
17 impossible to forecast next year's realized risk premium based on  
18 the premium of the previous year. For example, if this year's  
19 difference between the riskless rate and the return on the stock  
20 market is higher than last year's, that does not imply that next  
21 year's will be higher than this year's. It is as likely to be higher as  
22 it is lower. The best estimate of the expected value of a variable  
23 that has behaved randomly in the past is the average (or arithmetic  
24 mean) of its past values. [SBBI® at 61.]

25

26 **Q. Dr. Woolridge claims that his market risk premium estimate is reasonable**  
27 **because it is consistent with the 6.62 percent long-term forecasted return on**  
28 **the S&P 500 published in February 2009 by the Federal Reserve Bank of**

1 **Philadelphia's Survey of Professional Forecasters [Woolridge at 52]. Is the**  
2 **Survey of Professional Forecasters a reliable source of cost of equity**  
3 **estimates?**

4 A. No. The economists included in the survey are macro economists who are  
5 primarily concerned with forecasting factors such as GDP growth, inflation rates,  
6 unemployment rates, job growth, and other macro economic indicators. The  
7 6.62 percent forecast of the long-term expected return on the S&P 500 is  
8 inherently unrealistic as an estimate of the required return on the S&P 500  
9 because this expected return as of February 2009 is significantly less than the  
10 7.74 percent average yield on Baa-rated utility bonds at February 2009. Since  
11 equity investments in the S&P 500 are more risky than investments in Baa-rated  
12 utility bonds, the required rate of return, or cost of equity, on the S&P 500 must  
13 certainly be greater than the yield to maturity on Baa-rated utility bonds.

14  
15 **Q. Dr. Woolridge also claims that his risk premium estimate is reasonable**  
16 **because it is consistent with the risk premium estimate found in the Graham**  
17 **Harvey survey of Chief Financial Officers in June 2009 [Woolridge at 54 –**  
18 **55]. Do you agree that surveys of business managers provide useful**  
19 **information on the expected market risk premium?**

20 A. No. Surveys of business managers provide little or no information on the  
21 expected market risk premium because: (1) managers have no incentive to take  
22 the survey seriously; (2) their responses are not typically based on market  
23 transactions or actual investment decisions; (3) their responses may reflect what

1 they think the investigator wants to hear; and (4) the response rate is frequently  
2 low. In addition, Dr. Woolridge fails to recognize that Graham and Harvey  
3 comment that their survey responders frequently use hurdle rates for making  
4 investment decisions that exceed their estimates of excess returns on the S&P  
5 500.<sup>15</sup>

##### 7 **5. Flotation Costs and Market Weighting**

8 **Q. Why do you include an adjustment for flotation costs in your DCF analysis?**

9 A. I include an adjustment for flotation costs because, without such an adjustment,  
10 PEF would not be able to recover all the costs it incurs to finance its investments  
11 in electric plant and equipment.

12  
13 **Q. Does PEF issue equity in the capital markets?**

14 A. No. Although PEF does not issue equity in the capital markets, its parent must  
15 issue equity to provide PEF the necessary financing to make investments in its  
16 electric utility operations in Florida. If the parent is not able to recover its  
17 flotation costs through PEF's rates, it will have no incentive to invest in PEF.

18  
19 **Q. Does Dr. Woolridge agree with your flotation cost adjustment?**

---

<sup>15</sup> Graham and Harvey confirm that CEO responses to their survey are not typically based on market transactions or actual investment decisions when they state, "Often their [the CFO's] 10-year risk premium is supplemented so that the company's hurdle rate exceeds their expected excess return on the S&P 500." John Graham and Campbell Harvey, "The Long-Run Equity Risk Premium," Sep. 9, 2005, p. 6.



1 A. No. Dr. Woolridge claims that a flotation cost adjustment is inappropriate  
2 because: (1) the company has not presented any evidence that it actually incurs  
3 flotation costs when it issues new equity; and (2) it is frequently asserted that a  
4 flotation cost adjustment is required to prevent dilution of the company's existing  
5 shareholders, but existing shareholders cannot suffer dilution as long as the  
6 company's stock price is above book value.

7

8 **Q. Do you agree with Dr. Woolridge's assertion that the company did not**  
9 **provide any evidence that it incurs flotation costs when it issues new equity?**

10 A. No. In Appendix 3 of my direct testimony, I present evidence that all companies  
11 incur flotation costs when they issue new equity securities, that flotation costs  
12 represent approximately five percent of the company's pre-issue stock price, and  
13 that the company will not be able to earn a fair rate of return on its investment if it  
14 does not recover its flotation costs.

15

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

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

22

1 **Q. What weighting do you use to arrive at an average DCF result for your proxy**  
2 **group of companies?**

3 A. As shown in Exhibit No. \_\_\_ (JVW-1) of my direct testimony, I calculate average  
4 DCF results using market value weighting. I note that if I had used simple  
5 weighting, my average DCF result would have been slightly higher, 12.4 percent.

6  
7 **Q. Why do you use market value weighting to calculate the average DCF result**  
8 **for your proxy company group?**

9 A. I use market value weighting to calculate the average DCF result for my proxy  
10 companies because the purpose of my cost of equity analyses is to measure  
11 investors' expected rate of return on a portfolio of electric utility stocks. The  
12 expected rate of return on a portfolio of stocks is best calculated using market  
13 value weights for the companies in the portfolio. However, as noted above, the  
14 simple average DCF result for my proxy companies is slightly higher than the  
15 market-weighted average DCF result.

16  
17 **Q. Dr. Woolridge criticizes the use of market value weighting for the electric**  
18 **companies because it "gives the greatest weight to the companies that are**  
19 **significantly larger than PEF." [Woolridge at 63.] Do you agree with Dr.**  
20 **Woolridge's assertion that you should have given more weight to the DCF**  
21 **results of small utilities?**

22 A. No. Since analysts' growth forecasts are uncertain, DCF results for companies  
23 with more analysts' growth forecasts, which are typically the larger companies,

1 are generally more reliable than DCF results for smaller companies with fewer  
2 analyst's growth forecast. In addition, a higher weight for large utilities is  
3 justified on the grounds that the larger utilities represent a significantly larger  
4 share of the portfolios of the average investor.

## 5 **6. Financial Risk Adjustment**

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

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

10  
11 **Q. Does the forward-looking variance of an investor's return on a stock  
12 investment in a company depend on the company's capital structure?**

13 A. Yes. The forward-looking variance of an investor's return depends on the  
14 company's debt to equity ratio, where both debt and equity are measured in terms  
15 of market values, not book values.

16  
17 **Q. What is the meaning of the term, "financial risk"?**

18 A. Economists use the term, "financial risk" to refer to the contribution of the firm's  
19 capital structure, *i.e.*, its debt to equity ratio, to the forward-looking variance of  
20 return on the firm's stock.

21

1 **Q. Does financial risk reflect the market values of debt and equity in a**  
2 **company's capital structure or the book values of debt and equity in a**  
3 **company's capital structure?**

4 A. Financial risk measures the contribution of the company's capital structure to the  
5 forward-looking variance of return on the company's stock, and the forward-  
6 looking variance depends on the market values of debt and equity in the  
7 company's capital structure, not the book values.<sup>16</sup> Thus, financial risk reflects  
8 the market values of debt and equity in a company's capital structure, not the  
9 book values.

10

11 **Q. Is PEF recommending that its weighted average cost of capital in this**  
12 **proceeding be calculated based on the market values of debt and equity in its**  
13 **capital structure?**

14 A. No. Consistent with previous regulatory practice, PEF is recommending that its  
15 weighted average cost of capital be based on the book values of debt and equity in  
16 its capital structure.

17

18 **Q. Is the financial risk associated with PEF's recommended capital structure**  
19 **measured in the same way as the financial risk associated with the capital**  
20 **structures of your proxy companies?**

---

<sup>16</sup> See, for example, Richard A. Brealey, Stewart C. Myers, and Franklin Allen, *Principles of Corporate Finance*, 8<sup>th</sup> ed., McGraw-Hill, 2006.

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

6

7 **Q. How did you adjust your cost of equity results for your comparable**  
8 **companies to reflect the difference between the market's perception of the**  
9 **financial risk of your proxy companies and the financial risk reflected in**  
10 **PEF's recommended capital structure?**

11 A. As described in my direct testimony (see pp. 52 – 54), I adjusted the cost of equity  
12 results for my comparable companies by equating the after-tax weighted average  
13 cost of capital of my proxy companies to the after-tax weighted average cost of  
14 capital of PEF. In this procedure, I used market-value capital structure weights  
15 for my comparable companies because the cost of capital for these companies is  
16 based on market values, and I used book value weights for PEF because the  
17 recommended cost of capital for PEF in this proceeding is based on book values.

18

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

20 A. No. Dr. Woolridge claims that my financial risk adjustment is unjustified  
21 because: (1) a market-to-book ratio above 1.0 indicates that a company is earning  
22 more than its cost of equity; (2) there is no change in the company's leverage;  
23 (3) financial publications report capital structures based on book values; and

1 (4) no other commissions have accepted using a market value capital structure to  
2 calculate the allowed rate of return. [Woolridge at 90.]

3  
4 **Q. Do you agree that a market-to-book ratio greater than 1.0 indicates that a**  
5 **company is earning more than its cost of equity?**

6 A. No. As discussed above, Dr. Woolridge's own study shows that 28 of the 54  
7 electric utilities in his market-to-book study have ROEs less than 9.75 percent  
8 (Dr. Woolridge's recommended return on equity). However, 21 of these 28  
9 companies have market-to-book ratios exceeding 1.0. The average ROE for these  
10 companies is 7.3 percent, and the average market-to-book is 1.13. These data  
11 clearly contradict Dr. Woolridge's claim that a company's market-to-book ratio is  
12 an indicator of whether a company is earning more than its cost of equity.

13  
14 **Q. Does your financial risk adjustment assume a "change" in a company's**  
15 **leverage?**

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

20  
21 **Q. Does the observation that financial publications report capitalization on a**  
22 **book value basis undermine the validity of your financial risk adjustment?**

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

8

9 **Q. Dr. Woolridge claims that in response to OPC Data Request 4-163, you**  
10 **stated that you "could not identify any proceeding" in which you have**  
11 **testified "in which the regulatory commission had adopted" your "leverage**  
12 **adjustment." [Woolridge at 90.] Does Dr. Woolridge correctly characterize**  
13 **your response?**

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

19 Furthermore, I am also aware that market value capital structures have  
20 been used to set allowed rates of return in numerous telecommunications cases in  
21 which I have participated since 1996, including the *Virginia Arbitration*  
22 *Proceeding* in which my 12.95 percent overall cost of capital recommendation

1 was accepted and a Michigan docket in which my 75 percent equity market value  
2 capital structure recommendation has been accepted.<sup>17</sup>

3

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

5 **A. Yes, it does.**

---

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



**Vander Weide Rebuttal Exhibit No. \_\_\_\_ (JVW-15)  
 Comparison of Bond Ratings and Safety Ranks for  
 Woolridge and Vander Weide Proxy Companies**

**Woolridge Proxy Company Group**

LINE NO.	WOOLRIDGE PROXY COMPANIES	S&P BOND RATING	S&P BOND RATING (NUMERICAL)	MOODY'S BOND RATING	MOODY'S BOND RATING (NUMERICAL)	VALUE LINE SAFETY RANK
1	American Electric Power	BBB	7	Baa2	7	3
2	ALLETE	BBB+	6	Baa1	6	2
3	Cleco Corporation	BBB	7	Ba2	10	3
4	Central Vermont Public Serv	BB+	9	Baa3	8	3
5	DPL Inc.	A-	3	Baa1	6	3
6	Edison International	BBB-	8	Baa2	7	3
7	Entergy Corporation	BBB	7	Baa3	8	2
8	FirstEnergy Corporation	BBB	7	Baa3	8	2
9	IDACORP, Inc.	BBB	7	Baa2	7	3
10	NSTAR	A+	3	A2	4	1
11	Northeast Utilities	BBB	7	Baa2	7	3
12	PG&E Corporation	BBB+	6	Baa1	6	2
13	Progress Energy Inc.	BBB+	6	Baa2	7	2
14	UIL Holdings	NR		Baa3	8	2
15	Xcel Energy	BBB+	6	Baa1	6	2
16	Average		6.4		7.0	2.4

Source of data: Standard & Poor's, Moody's, August 21, 2009; The Value Line Investment Analyzer, August 2009.

**Vander Weide Rebuttal Exhibit No. \_\_\_\_ (JVW-15)  
 Comparison of Bond Ratings and Safety Ranks for  
 Woolridge and Vander Weide Proxy Companies**

**Vander Weide Proxy Company Group**

Line No.	Company	S&P Bond Rating	S&P Bond Rating (Numerical)	Moody's Bond Rating	Moody's Bond Rating (Numerical)	Safety Rank
1	Ameren Corporation <sup>18</sup>	BBB-	8	Baa3	8	3
2	American Electric Power Co.	BBB	7	Baa2	7	3
4	Dominion Resources, Inc.	A-	5	Baa2	7	2
5	DPL Inc.	A-	3	Baa1	6	3
3	Consolidated Edison, Inc.	A-	5	Baa1	6	1
6	Edison International	BBB-	8	Baa2	7	3
7	Entergy Corporation	BBB	7	Baa3	8	2
8	Exelon Corporation <sup>19</sup>	BBB	7	Baa1	6	1
9	FirstEnergy Corporation	BBB	7	Baa3	8	2
10	FPL Group, Inc.	A	4	A2	4	1
11	Northeast Utilities	BBB	7	Baa2	7	3
12	PG&E Corporation	BBB+	6	Baa1	6	2
16	Progress Energy Inc.	BBB+	6	Baa2	7	2
13	Pinnacle West Capital Corp.	BBB-	8	Baa3	8	3
14	Pepco Holdings, Inc.	BBB	7	Baa3	8	3
15	Portland General Electric	BBB+	6	Baa2	7	2
17	SCANA Corporation <sup>20</sup>	BBB+	6	Baa2	7	2
19	Southern Company	A	4	A3	2	1
18	SEMPRA Energy	BBB+	6	Baa1	6	2
20	TECO Energy, Inc.	BBB	7	Baa3	8	3
21	Vectren Corporation	A-	5	Baa1	6	2
22	Wisconsin Energy Corporation	BBB+	6	A3	5	2
23	Westar Energy, Inc.	BBB-	8	Baa3	8	2
24	Xcel Energy Inc.	BBB+	6	Baa1	6	2
25	Average <sup>21</sup>		6.2		6.7	2.2

Source of data: Standard & Poor's, Moody's, August 21, 2009; The Value Line Investment Analyzer, August 2009.

<sup>18</sup> Ameren no longer meets my selection criteria because it cut its dividend in February 2009.

<sup>19</sup> Exelon was rated BBB+ by Standard & Poor's at the time of my studies.

<sup>20</sup> SCANA was rated A- by Standard & Poor's at the time of my studies.

<sup>21</sup> On a market value weighted basis, the average ratings are 6.0 (Standard & Poor's BBB+), 6.3 (Moody's Baa1), and 1.8 (Value Line Safety Rank).

**Vander Weide Rebuttal Exhibit No. \_\_\_\_ (JVW-16)**  
**Dr. Woolridge's DCF Analysis**  
**Results Using Mean Analysts' Growth Estimates**

LINE NO.	COMPANY	DIVIDEND YIELD	GROWTH	YIELD ADJUSTED FOR 1/2 YEAR GROWTH	COST OF EQUITY	YIELD ADJUSTED FOR FULL YEAR GROWTH	COST OF EQUITY
1	American Electric Power	6.4%	5.8%	6.6%	12.4%	6.8%	12.6%
2	ALLETE, Inc.	5.8%	3.9%	5.9%	9.8%	6.0%	9.9%
3	Cleco Corporation	5.0%	8.9%	5.2%	14.1%	5.4%	14.3%
4	Central Vermont Public Serv.	4.2%	13.1%	4.4%	17.6%	4.7%	17.8%
5	DPL Inc.	5.2%	9.4%	5.4%	14.8%	5.6%	15.0%
6	Edison International	4.3%	4.1%	4.3%	8.4%	4.4%	8.5%
7	Entergy Corporation	4.2%	8.4%	4.3%	12.7%	4.5%	12.9%
8	FirstEnergy Corporation	5.3%	6.7%	5.4%	12.1%	5.6%	12.3%
9	IDACORP, Inc.	5.0%	5.0%	5.1%	10.1%	5.2%	10.2%
10	NSTAR	4.2%	9.5%	4.4%	14.0%	4.6%	14.2%
11	Northeast Utilities	4.8%	6.1%	5.0%	11.1%	5.1%	11.2%
12	PG&E Corporation	4.5%	7.0%	4.6%	11.7%	4.8%	11.8%
13	Progress Energy Inc.	6.8%	5.1%	7.0%	12.1%	7.2%	12.3%
14	UIL Holdings Corporation	7.6%	4.3%	7.7%	12.1%	7.9%	12.2%
15	Xcel Energy Inc.	5.3%	6.0%	5.4%	11.5%	5.6%	11.6%
16	Average	5.2%	6.9%	5.4%	12.3%	5.6%	12.5%

Source of data: See Woolridge Exhibit JRW-10-2 (dividend yields) and Exhibit JRW-10-5 (analysts' growth forecasts).

**Vander Weide Rebuttal Exhibit No. \_\_\_\_ (JVW-16)**  
**Dr. Woolridge's DCF Analysis**  
**Results Using Mean Analysts' Growth Estimates**

LINE NO.	COMPANY	DIVIDEND YIELD	GROWTH	YIELD ADJUSTED FOR 1/2 YEAR GROWTH	COST OF EQUITY	YIELD ADJUSTED FOR FULL YEAR GROWTH	COST OF EQUITY
1	Ameren Corporation	7.1%	4.2%	7.2%	11.4%	7.4%	11.6%
2	American Electric Power	5.8%	3.9%	5.9%	9.8%	6.0%	9.9%
3	Consolidated Edison, Inc.	6.3%	3.6%	6.4%	10.0%	6.5%	10.1%
4	Dominion Resources, Inc.	5.5%	6.2%	5.7%	11.9%	5.9%	12.1%
5	DPL Inc.	5.2%	9.4%	5.4%	14.8%	5.6%	15.0%
6	Edison International	4.3%	4.1%	4.3%	8.4%	4.4%	8.5%
7	Entergy Corporation	4.2%	8.4%	4.3%	12.7%	4.5%	12.9%
8	Exelon Corporation	4.4%	4.7%	4.5%	9.2%	4.6%	9.3%
9	FirstEnergy Corporation	5.3%	6.7%	5.4%	12.1%	5.6%	12.3%
10	FPL Group, Inc.	3.6%	9.3%	3.7%	13.0%	3.9%	13.2%
11	Northeast Utilities	4.2%	9.5%	4.4%	14.0%	4.6%	14.2%
12	PG&E Corporation	4.5%	7.0%	4.6%	11.7%	4.8%	11.8%
13	Pinnacle West Capital Corp.	7.4%	5.2%	7.6%	12.8%	7.8%	13.0%
14	Pepeco Holdings, Inc.	8.1%	4.1%	8.3%	12.4%	8.4%	12.5%
15	Portland General Electric	5.7%	7.0%	5.9%	12.8%	6.1%	13.0%
16	Progress Energy Inc.	6.8%	5.1%	7.0%	12.1%	7.2%	12.3%
17	SCANA Corporation	5.6%	5.7%	5.8%	11.5%	5.9%	11.6%
18	SEMPRA Energy	3.5%	6.5%	3.6%	10.2%	3.7%	10.3%
19	Southern Company	5.5%	5.8%	5.7%	11.5%	5.8%	11.6%
20	TECO Energy, Inc.	7.2%	10.3%	7.6%	17.9%	8.0%	18.3%
21	Vectren Corporation	6.2%	6.4%	6.3%	12.7%	6.5%	12.9%
22	Westar Energy, Inc.	3.4%	8.7%	3.5%	12.2%	3.6%	12.4%
23	Wisconsin Energy	6.7%	4.2%	6.8%	11.0%	7.0%	11.2%
24	Xcel Energy Inc.	5.3%	6.0%	5.4%	11.5%	5.6%	11.6%
25	Average	5.5%	6.3%	5.7%	12.0%	5.8%	12.2%

Source of data: See Woolridge Exhibit JRW-10-2 (dividend yields) and Exhibit JRW-10-5 (analysts' growth forecasts).

**Vander Weide Rebuttal Exhibit No. \_\_\_\_ (JVW-17)  
Updated Summary of Discounted Cash Flow Analysis  
for Value Line Electric Companies**

LINE NO.	COMPANY	D <sub>0</sub>	P <sub>0</sub>	GROWTH	COST OF EQUITY
1	Amer. Elec. Power	0.410	27.922	3.03%	9.6%
2	ALLETE	0.440	28.253	6.00%	13.2%
3	CMS Energy Corp.	0.125	11.923	6.75%	11.3%
4	Dominion Resources	0.438	32.500	6.36%	12.3%
5	DPL Inc.	0.285	22.743	9.32%	15.3%
6	Duke Energy	0.230	14.380	3.50%	10.7%
7	Consol. Edison	0.590	36.937	2.44%	9.5%
8	Edison Int'l	0.310	30.488	1.32%	5.7%
9	Entergy Corp.	0.750	74.348	9.02%	13.9%
10	Exelon Corp.	0.525	49.363	2.66%	7.3%
11	FirstEnergy Corp.	0.550	39.490	6.67%	13.2%
12	FPL Group	0.473	56.427	9.59%	13.5%
13	Hawaiian Elec.	0.310	17.525	4.87%	13.1%
14	Alliant Energy	0.375	24.868	4.60%	11.4%
15	NSTAR	0.375	31.307	6.25%	11.7%
16	Northeast Utilities	0.238	21.588	8.33%	13.3%
17	PG&E Corp.	0.420	37.525	7.07%	12.1%
18	Public Serv. Enterprise	0.333	32.113	5.67%	10.4%
19	Progress Energy	0.620	36.575	5.36%	13.2%
20	Pinnacle West Capital	0.525	28.895	5.67%	14.2%
21	Pepco Holdings	0.270	13.098	3.67%	13.1%
22	Portland General	0.245	18.690	6.99%	13.2%
23	PPL Corp.	0.345	32.351	12.67%	18.0%
24	SCANA Corp.	0.470	31.740	5.34%	12.1%
25	Southern Co.	0.438	30.066	4.97%	11.5%
26	Sempra Energy	0.390	48.353	6.61%	10.2%
27	TECO Energy	0.200	11.895	9.04%	17.2%
28	UIL Holdings	0.432	22.626	4.47%	13.3%
29	Vectren Corp.	0.335	23.225	6.42%	13.1%
30	Wisconsin Energy	0.338	40.333	9.03%	12.6%
31	Westar Energy	0.300	18.305	3.32%	10.6%
32	Xcel Energy Inc.	0.245	18.187	6.58%	12.8%
33	Market-Wtd. Ave.				11.5%
34	Average				12.3%
35	Market-Wtd. w/o 2 highest and lowest				12.0%
36	Simple Average w/o 2 highest and lowest				12.3%

Notes:

- $d_1, d_2, d_3, d_4$  = Next four quarterly dividends, calculated by multiplying the last four quarterly dividends per Value Line by the factor  $(1 + g)$ .
- $P_0$  = Average of the monthly high and low stock prices during the three months ending July 2009 per Thomson Reuters.
- FC = Flotation costs expressed as a percent of gross proceeds.
- $g$  = I/B/E/S forecast of future earnings growth July 2009.
- $k$  = Cost of equity using the quarterly version of the DCF model.

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

**EXHIBIT \_\_ (JVW-18)**  
**RESEARCH LITERATURE THAT STUDIES**  
**THE EFFICACY OF ANALYSTS' EARNINGS FORECASTS**

- Abarbanell, J., and Reuven Lehavy (2003). "Biased forecasts or biased earnings? The role of reported earnings in explaining apparent bias and over/underreaction in analysts' earnings forecasts." Journal of Accounting & Economics 36: 105-146.
- Banker, R. D., and Lei Chen (2006). "Predicting earnings using a model based on cost variability and cost stickiness." The Accounting Review 81(2): 285-307.
- Brown, L. D., and Michael S. Rozeff (1978). "The superiority of analyst forecasts as measures of expectations: evidence from earnings." The Journal of Finance 33(1): 1-16.
- Brown, L. D., Gordon D. Richardson, and Steven J. Schwager (1987). "An information interpretation of financial analyst superiority in forecasting earnings." Journal of Accounting Research 25(1): 49-67.
- Brown, L. D., Robert L. Hagerman, Paul A. Griffin, Mark E. Zmijewski (1987). "Security analyst superiority relative to univariate time-series models in forecasting quarterly earnings." Journal of Accounting & Economics 9: 61-87.
- Brown, L. D. (1997). "Analyst forecasting errors: additional evidence." Financial Analysts Journal November/December: 81-88.
- Ciccone, S. J. (2005). "Trends in analyst earnings forecast properties." International Review of Financial Analysis 14: 1-22.
- Clarke, J., Stephen P. Ferris, Narayanan Jayaraman, and Jinsoo Lee (2006). "Are analyst recommendations biased? Evidence from corporate bankruptcies." Journal of Financial and Quantitative Analysis 41(1): 169-196.
- Crichfield, T., Thomas Dyckman and Josef Lakonishok (1978). "An evaluation of security analysts' forecasts." The Accounting Review 53(3): 651-668.
- Elton, E. J., and Martin J. Gruber (1972). "Earnings estimates and the accuracy of expectational data." Management Science 18(8): B-409 - B-424.
- Elton, E. J., Martin J. Gruber, and Mustafa Gultekin (1981). "Expectations and share prices." Management Science 27(9): 975-987.
- Elton, E. J., Martin J. Gruber and Mustafa N. Gultekin (1984). "Professional expectations: accuracy and diagnosis of errors." Journal of Financial and Quantitative Analysis 19(4): 351-363.
- Fried, D. and D. Givoly (1982). "Financial analysts' forecasts of earnings : A better surrogate for market expectations." Journal of Accounting and Economics 4(2): 85-107.
- Givoly, D., and Josef Lakonishok (1984). "Properties of analysts' forecasts of earnings: a review and analysis of the research." Journal of Accounting Literature 3: 119-148.
- Gordon, D. A., Myron J. Gordon, and Lawrence I. Gould (1989). "Choice among methods of estimating share yield." Journal of Portfolio Management Spring: 50-55.
-

**EXHIBIT \_\_\_\_ (JVW-18) (CONTINUED)**  
**RESEARCH LITERATURE THAT STUDIES**  
**THE EFFICACY OF ANALYSTS' EARNINGS FORECASTS**

Keane, M. P., and David E. Runkle (1998). "Are financial analysts' forecasts of corporate profits rational." The Journal of Political Economy **106**(4): 768-805.

Malkiel, B. G., and John G. Cragg (1970). "Expectations and the structure of share prices." The American Economic Review **60**(4): 601-617.

Malkiel, B. G. (1970). "The valuation of public utility equities." The Bell Journal of Economics **1**(1): 143-160.

Newbold, P., J. Kenton Zumwalt, and Srinivasan Kannan (1987). "Combining forecasts to improve earnings per share prediction: an examination of electric utilities." International Journal of Forecasting **3**: 229-238.

Timme, S. G., and Peter C. Eisemann (1989). "On the use of consensus forecasts of growth in the constant growth model: the case of electric utilities." Financial Management **18**(4): 23-35.

Vander Weide, J. H., and Willard T. Carleton (1988). "Investor growth expectations: analysts vs. history." Journal of Portfolio Management **Spring**: 78-82.

Yang, R., and Yaw M. Mensah (2006). "The effect of the SEC's regulation fair disclosure on analyst forecast attributes." Journal of Financial Regulation and Compliance **14**(2): 192-209.