Before the Public Service Commission
of the State of Missouri

Rebuttal Testimony

of

James H. Vander Weide, Ph.D.

April 2008

REBUTTAL TESTIMONY
OF
DR. JAMES H. VANDER WEIDE
ON BEHALF OF
THE EMPIRE DISTRICT ELECTRIC COMPANY
BEFORE THE
MISSOURI PUBLIC SERVICE COMMISSION
CASE NO. ER-2008-0093

1 **I.   INTRODUCTION AND SUMMARY**

2 **Q.   PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS.**

3 A.   My name is James H. Vander Weide. I am Research Professor of Finance

4   and Economics at Duke University, the Fuqua School of Business. I am also

5   President of Financial Strategy Associates, a firm that provides strategic and

6   financial consulting services to business clients. My business address is

7   3606 Stoneybrook Drive, Durham, North Carolina.

8 **Q.   ARE YOU THE SAME JAMES H. VANDER WEIDE WHO PROVIDED**

9   **DIRECT TESTIMONY BEFORE THE MISSOURI PUBLIC SERVICE**

10   **COMMISSION ("THE COMMISSION") IN THIS PROCEEDING?**

11 A.   Yes, I am.

12 **Q.   WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

13 A.   I have been asked by The Empire District Electric Company ("Empire" or "the

14   Company") to review the pre-filed direct testimonies of Mr. Matthew J. Barnes

15   and Mr. Michael Gorman and to evaluate their recommended costs of equity

16   for Empire. Mr. Barnes's testimony is presented on behalf of the Financial

17   Analysis Staff of the Missouri Public Service Commission ("the Commission"),

1   and Mr. Gorman's testimony is presented on behalf of Explorer Pipeline

2   Company; General Mills; and Praxair, Inc.

3 **Q.** **IS THERE ANYTHING IN THE DIRECT TESTIMONIES OF MR. BARNES**

4   **OR MR. GORMAN THAT WOULD CAUSE YOU TO CHANGE YOUR**

5   **RECOMMENDED 11.6 PERCENT COST OF EQUITY FOR EMPIRE?**

6 **A.** No. After reviewing their testimonies, I continue to recommend that Empire

7   be allowed to earn a return on equity of 11.6 percent.

8 **II.** **Rebuttal of Mr. Barnes**

9 **Q.** **WHAT IS MR. BARNES'S RECOMMENDED COST OF EQUITY FOR**

10   **EMPIRE?**

11 **A.** Mr. Barnes recommends a cost of equity in the range 9.70 percent to

12   10.85 percent, with a midpoint of 10.28 percent.

13 **Q.** **HOW DID MR. BARNES ESTIMATE EMPIRE'S COST OF EQUITY?**

14 **A.** Mr. Barnes estimated Empire's cost of equity by applying the Discounted

15   Cash Flow ("DCF") model to a proxy group of 16 electric companies. As a

16   check on his DCF results, Mr. Barnes also applied the Capital Asset Pricing

17   Model ("CAPM") to his proxy company group.

18   **A.** **Proxy Companies**

19 **Q.** **WHAT CRITERIA DID MR. BARNES USE TO SELECT HIS PROXY**

20   **COMPANY GROUP?**

21 **A.** Mr. Barnes selected his proxy companies based on the following criteria:

22   1. Stock publicly traded: This criterion did not eliminate any companies;

23   2. Information printed in Value Line: This criterion did not eliminate any
24   companies;

1   3. Ten years of data available: This criterion eliminated twelve additional
2   companies;

3   4. Percent of electric utility revenues greater than or equal to 70 percent:
4   This eliminated twenty-four companies;

5   5. No pending merger in the last six months: This criterion did not eliminate
6   any companies.

7   6. No reduced dividend in the last ten years: This criterion eliminated eight
8   additional companies.

9   7. Two sources for projected growth with one available from Value Line: This
10   criterion did not eliminate any companies.

11   8. At least investment grade credit rating: This criterion eliminated two
12   additional companies.

13 **Q.**   **DOES MR. BARNES CONSIDER ALL COMPANIES THAT MEET HIS**

14   **CRITERIA?**

15 A.   No. Mr. Barnes eliminated Xcel Energy, even though it appears to satisfy all

16   his criteria.

17 **Q.**   **WHAT IS THE PURPOSE OF PROXY SELECTION CRITERIA?**

18 A.   The purpose of proxy selection criteria is to identify the largest possible group

19   of comparable risk companies that have sufficient data to reliably apply cost

20   of equity methodologies such as the DCF, CAPM, and risk premium.

21 **Q.**   **WHY IS IT DESIRABLE TO CHOOSE A RELATIVELY LARGE GROUP OF**

22   **COMPARABLE RISK COMPANIES?**

23 A.   It is desirable to choose a relatively large group of comparable risk companies

24   because the estimate of the cost of equity obtained from applying cost of

25   equity methodologies to a single company is uncertain. Cost of equity

26   methodologies such as the DCF, CAPM, and risk premium, require estimates

27   of quantities such as growth rates, betas, and expected risk premiums that

28   necessarily involve a degree of uncertainty. However, the uncertainty in

1   estimating the cost of equity by applying cost of equity methodologies to a

2   single company can be significantly reduced by applying cost of equity

3   models to a relatively large group of comparable risk companies. Intuitively,

4   any over- and under-estimate of the cost of equity that arises from the

5   application of cost of equity methods to a single company is averaged out by

6   applying the methods to a larger group of comparable risk companies.

7   In addition, the choice of a relatively small group of proxy companies

8   requires a great deal of judgment. When the analyst applies judgment to

9   select a small group of companies, the analyst may be tempted to choose a

10   set of selection criteria that produce a desired result. The analyst can

11   eliminate the possibility of selection bias by starting with the largest possible

12   group of comparable risk companies and eliminating only those companies

13   with insufficient data to estimate the cost of equity.

14   **Q.   DO MR. BARNES'S PROXY SELECTION CRITERIA PRODUCE THE**

15   **LARGEST POSSIBLE GROUP OF COMPARABLE RISK COMPANIES**

16   **THAT HAVE SUFFICIENT DATA TO RELIABLY APPLY COST OF EQUITY**

17   **METHODOLOGIES?**

18   A.   No. Mr. Barnes's criteria eliminate 12 companies because they do not have

19   ten years of data available; 24 companies because they have less than

20   70 percent revenue from electric service; and eight companies because they

21   have reduced their dividend at some point in the past ten years. However,

22   Mr. Barnes fails to explain why these criteria are required to assure either that

1   proxy companies are comparable in risk, or that there are sufficient data to

2   reliably apply his cost of equity methodologies.

3   **Q.   DOES MR. BARNES, IN FACT, USE TEN YEARS OF DATA TO ESTIMATE**

4   **EMPIRE'S COST OF EQUITY?**

5   A.   No. Mr. Barnes's DCF model is based primarily on analysts' growth rates that

6   do not require ten years of historical data.

7   **Q.   MR.   BARNES'S   CRITERION   THAT   COMPANIES   MUST   HAVE**

8   **70 PERCENT REVENUE FROM ELECTRIC SERVICE ELIMINATES SOME**

9   **COMPANIES THAT ARE COMBINATION ELECTRIC/GAS COMPANIES.**

10   **IS THERE ANY REASON WHY COMBINATION ELECTRIC/NATURAL GAS**

11   **COMPANIES SHOULD BE ELIMINATED FROM THE PROXY GROUP?**

12   A.   No. Since natural gas operations are similar in risk to electric operations, a

13   combination electric/natural gas company is similar in risk to an electric

14   company.

15   **Q.   IS THERE ANY REASON WHY A COMBINATION ELECTRIC/NATURAL**

16   **GAS COMPANY MIGHT EVEN BE LESS RISKY THAN A PURE ELECTRIC**

17   **COMPANY?**

18   A.   Yes. One could reasonably expect that a combination electric and gas utility

19   might be slightly less risky than a company operating in a single energy

20   market such as electricity because electric and natural gas operations are

21   comparable in risk when considered individually, but are not perfectly

22   correlated with each other. The imperfect correlation of returns on electric

1   and natural gas operations can allow the combination electric/natural gas

2   companies to diversify their risks.

3   **Q.** **WHAT CRITERIA DID YOU USE TO SELECT PROXY COMPANIES?**

4   A.   As described in my direct testimony, I selected all the companies in Value

5   Line's groups of electric companies that: (1) paid dividends during every

6   quarter of the last two years; (2) did not decrease dividends during any

7   quarter of the past two years; (3) had at least three analysts included in the

8   I/B/E/S mean growth forecast; (4) have an investment grade bond rating and

9   a Value Line Safety Rank of 1, 2, or 3; and (5) are not the subject of a merger

10   offer that has not been completed. These data indicate that my proxy groups

11   of comparable companies are, if anything, conservative

12 **Q.** **DO YOU HAVE ANY EVIDENCE THAT YOUR PROXY GROUPS ARE A**

13   **CONSERVATIVE PROXY FOR THE RISK OF INVESTING IN EMPIRE?**

14 A.   Yes. On page 25 of my direct testimony, I note that my proxy electric

15   companies have an average Value Line Safety Rank of 2, while Empire has a

16   Value Line Safety Rank of 3. I also note that the average S&P bond rating of

17   my electric proxy companies is approximately BBB+, while Empire has an

18   S&P bond rating of BBB-. These data indicate that my proxy groups of

19   comparable companies are, if anything, conservative proxies for the risk of

20   investing in Empire.

21 **Q.** **DO YOU HAVE ANY EVIDENCE THAT YOUR PROXY GROUPS ARE**

22   **SIMILAR IN RISK TO MR. BARNES'S SMALL PROXY GROUP?**

1   A.   Yes. Mr. Barnes's proxy group of 16 companies has an average Value Line

2   Safety Rank of 2, and an average S&P bond rating of BBB+. The average

3   S&P bond rating for both my large proxy electric group and Mr. Barnes's

4   smaller group of electric companies is BBB+, and the average Value Line

5   Safety Rank for both groups is 2.

6   **Q.   WHAT ARE THE IMPLICATIONS OF YOUR OBSERVATION THAT YOUR**

7   **PROXY COMPANIES ARE A CONSERVATIVE PROXY FOR THE RISK OF**

8   **INVESTING IN EMPIRE?**

9   A.   My observation that my proxy companies are demonstrably less risky than

10   Empire implies that my cost of equity results are a lower bound for Empire's

11   cost of equity. That is, Empire's cost of equity should be higher than the cost

12   of equity results I obtain from my proxy companies.

13 **Q.   WHAT ARE THE IMPLICATIONS OF YOUR OBSERVATION THAT YOUR**

14   **LARGE GROUP OF 37 PROXY COMPANIES IS SIMILAR IN RISK TO MR.**

15   **BARNES'S SMALLER PROXY GROUP OF COMPANIES?**

16 A.   The implications of my observation that my large group of proxy companies is

17   similar in risk to Mr. Barnes's smaller proxy group is that my cost of equity

18   results are more reliable than Mr. Barnes's. As discussed above, it is

19   preferable to use a larger proxy group of similar risk companies to estimate

20   the cost of equity because the cost of equity results for a single company or a

21   small group of companies is uncertain. However, the uncertainty in cost of

22   equity results for a small group of companies can be reduced by using a

23   larger group of companies of comparable risk.

1   **B.   DCF Model**

2   **Q.   WHAT DCF MODEL DID MR. BARNES USE TO ESTIMATE EMPIRE'S**

3   **COST OF EQUITY?**

4   A.   Mr. Barnes used an annual DCF model of the form, $k = D_1/P_0 + g$, where k is

5   the cost of equity, D_1 is the expected first period dividend, P_0 is the current

6   stock price, and g is the average expected future growth in the company's

7   earnings and dividends.

8   **Q.   WHAT ARE THE BASIC ASSUMPTIONS OF MR. BARNES'S ANNUAL**

9   **DCF MODEL?**

10 A.   Mr. Barnes's annual DCF model is based on the assumptions that: (1) a

11   company's stock price is equal to the present value of the future dividends

12   investors expect to receive from their investment in the company;

13   (2) dividends are paid annually; (3) dividends, earnings, and book value are

14   expected to grow at the same constant rate forever; and (4) the first dividend

15   is received one year from the date of the analysis.

16 **Q.   ONE OF THE ASSUMPTIONS OF MR. BARNES'S ANNUAL DCF MODEL**

17   **IS THAT DIVIDENDS ARE PAID ANNUALLY. DO ANY OF MR. BARNES'S**

18   **PROXY COMPANIES, IN FACT, PAY DIVIDENDS ANNUALLY?**

19 A.   No. All of Mr. Barnes's proxy companies pay dividends quarterly.

20 **Q.   CAN MR. BARNES'S ANNUAL DCF MODEL BE MATHEMATICALLY**

21   **DERIVED FROM THE ASSUMPTION THAT DIVIDENDS ARE PAID**

22   **QUARTERLY?**

23 A.   No.   Mr. Barnes's annual DCF model can only be derived from the

24   assumption that dividends are paid annually.   When dividends are paid

1   quarterly, the quarterly DCF model is the only model that can be

2   mathematically derived from DCF assumptions. Since Mr. Barnes's proxy

3   companies pay dividends quarterly, he should have used a quarterly DCF

4   model to estimate Empire's cost of equity.

5 **Q.   YOU ALSO MENTION THAT MR. BARNES'S DCF MODEL REQUIRES AN**

6   **ESTIMATE OF THE EXPECTED FIRST PERIOD DIVIDEND FOR EACH**

7   **COMPANY. HOW DID MR. BARNES ESTIMATE THE EXPECTED FIRST**

8   **PERIOD DIVIDEND FOR HIS ANNUAL DCF MODEL?**

9 A.   Mr. Barnes used Value Line's estimate of each company's dividend over the

10   next year as his estimate of the expected first period dividend in his annual

11   DCF model.

12 **Q.   DO YOU AGREE WITH MR. BARNES'S USE OF VALUE LINE'S**

13   **ESTIMATE OF EACH COMPANY'S DIVIDEND OVER THE NEXT YEAR AS**

14   **THE ESTIMATE OF THE EXPECTED FIRST PERIOD DIVIDEND IN HIS**

15   **APPLICATION OF THE DCF MODEL?**

16 A.   No.   Mr. Barnes's annual DCF model is based on the assumption that

17   dividends will grow at the same constant rate forever. Under the assumption

18   that dividends will grow at the same constant rate forever, the cost of equity is

19   given by the equation, $k = D_0 (1 + g) / P_0 + g$, where D_0 is the current

20   annualized dividend, P_0 is the stock price, and g is the expected constant

21   annual growth rate. Thus, the correct first period dividend in the annual DCF

22   model is the current annualized dividend multiplied by the factor, (*1 + growth*

23   *rate*).

1 **Q. WHAT IS THE EFFECT OF MR. BARNES'S USE OF AN INCORRECT**

2 **ESTIMATE OF THE FIRST PERIOD DIVIDEND IN HIS ANNUAL DCF**

3 **MODEL?**

4 A. Mr. Barnes's use of an incorrect estimate of the first period dividend, taken by

5 itself, caused him to underestimate the DCF cost of equity for his proxy group

6 by approximately 25 basis points.

7 **Q. HOW DID MR. BARNES ESTIMATE THE GROWTH COMPONENT OF HIS**

8 **DCF MODEL?**

9 A. Mr. Barnes reviewed historical five- and ten-year growth rates in dividends per

10 share, earnings per share, and book value per share, as reported in Value

11 Line, along with forecasts of earnings per share obtained from I/B/E/S,

12 Standard & Poor's, and Value Line. Mr. Barnes's final choice of growth rate

13 was based on his judgment about the growth rate that, in his opinion,

14 investors could expect for the proxy companies. In this case, Mr. Barnes

15 claims that he gave primary weight to the analysts' forecasts of earnings per

16 share growth in estimating the growth component of his DCF model; but he

17 also reported and considered DCF results based on historical growth rates.

18 **Q. DO YOU AGREE WITH MR. BARNES'S CONSIDERATION OF**

19 **HISTORICAL GROWTH RATES TO ESTIMATE INVESTORS'**

20 **EXPECTATIONS WHEN ANALYSTS' GROWTH EXPECTATIONS FOR MR.**

21 **BARNES'S PROXY COMPANIES ARE READILY AVAILABLE?**

22 A. No. Historical growth rates are inherently inferior to analysts' forecasts

23 because analysts' forecasts already incorporate all relevant information

1   regarding historical growth rates and also incorporate the analysts' knowledge

2   about current conditions and expectations regarding the future. My studies

3   indicate that the correlation between analysts' growth forecasts and stock

4   prices is significantly higher than the correlation between historical growth

5   rates and stock prices.

6 **Q.   DO YOU AGREE WITH MR. BARNES'S CONSIDERATION OF ANALYSTS'**

7   **EARNINGS PER SHARE GROWTH FORECASTS TO ESTIMATE THE**

8   **GROWTH COMPONENT OF HIS DCF MODEL?**

9 A.   Yes.   Analysts' growth forecasts are superior to historical growth rates

10   because they incorporate all relevant information regarding current and future

11   economic conditions. In addition, as discussed in my direct testimony, my

12   studies indicate that analysts' growth forecasts are more highly correlated

13   with stock prices than historical growth rates. This result is consistent with the

14   hypothesis that investors use analysts' growth forecasts in making stock buy

15   and sell decisions. Since the DCF model requires the growth estimates of

16   investors, and investors use analysts' growth forecast in making stock buy

17   and sell decisions, analysts' growth forecasts are the best estimate of future

18   growth in the DCF model.

19 **Q.   WHAT ANALYSTS' GROWTH FORECASTS DOES MR. BARNES USE?**

20 A.   Mr. Barnes uses growth forecasts from I/B/E/S, Standard & Poor's, and Value

21   Line.

22 **Q.   WHAT IS I/B/E/S?**

1   A.   I/B/E/S is a division of Thomson Financial that reports analysts' EPS growth

2   forecasts for a broad group of companies. The forecasts are expressed in

3   terms of a mean forecast and a standard deviation of forecast for each firm.

4   Investors use the mean forecast as an estimate of future firm performance.

5   **Q.   WHY DO YOU RECOMMEND USING THE I/B/E/S GROWTH ESTIMATES**

6   **IN THE DCF MODEL?**

7   A.   I recommend using the I/B/E/S growth forecasts in the DCF model because

8   I/B/E/S growth forecasts: (1) are widely circulated in the financial community,

9   (2) include the projections of reputable financial analysts who develop

10   estimates of future EPS growth, (3) are reported on a timely basis to

11   investors, (4) are widely used by institutional and other investors; and (5) are

12   more highly correlated with stock prices than historical growth rates.

13   **Q.   HOW DO THE I/B/E/S GROWTH FORECASTS DIFFER CONCEPTUALLY**

14   **FROM THE GROWTH FORECASTS OF STANDARD & POOR'S AND**

15   **VALUE LINE?**

16   A.   The I/B/E/S growth forecasts differ conceptually from the growth forecasts of

17   Standard & Poor's and Value Line in that the I/B/E/S growth forecasts

18   represent the average growth forecast of all analysts or most all of the

19   analysts that follow a particular stock, whereas the Standard & Poor's and

20   Value Line growth forecasts represent only the views of a single analyst. In

21   addition, the I/B/E/S long-term growth forecast is a forecast that covers a

22   period from the beginning of the current period to a period five years later,

23   whereas the Value Line forecast represents the growth for a five-year period

1   that began in 2004 – 2006 and ends in 2010 – 2012. Since the period 2004 –

2   2006 is two years old, the Value Line forecast is less appropriate for use in

3   the DCF model.

4 Q. **HOW DO THE I/B/E/S GROWTH FORECASTS DIFFER NUMERICALLY**

5   **FROM THE STANDARD & POOR'S AND VALUE LINE FORECASTS FOR**

6   **MR. BARNES'S PROXY COMPANIES?**

7 A. As shown on Mr. Barnes's Schedule 15, the average I/B/E/S growth forecast

8   for his proxy companies is 7.83 percent, while the average Standard & Poor's

9   and Value Line forecasts are 7.75 percent and 5.53 percent, respectively.

10 Q. **WHAT GROWTH FORECAST DID MR. BARNES ACTUALLY USE IN HIS**

11   **DCF ESTIMATE OF EMPIRE'S COST OF EQUITY?**

12 A. Mr. Barnes used a growth forecast in the range 5.55 percent to 6.70 percent.

13 Q. **THE LOW END OF MR. BARNES'S GROWTH FORECAST IS CLEARLY**

14   **ASSOCIATED WITH THE VALUE LINE GROWTH FORECAST. HOW DID**

15   **MR. BARNES OBTAIN THE 6.7 PERCENT HIGH END OF HIS GROWTH**

16   **FORECAST RANGE?**

17 A. Mr. Barnes does not explain how he obtained the 6.7 percent high end of his

18   growth forecast range. However, I note that his 6.7 percent high-end growth

19   rate is 110 basis points less than the average I/B/E/S and Standard & Poor's

20   growth forecasts for his proxy companies. Furthermore, since Mr. Barnes's

21   final recommended cost of equity is based on the midpoint of his cost of

22   equity range, Mr. Barnes's recommended cost of equity is based on a growth

1   rate that is 170 basis points less than the average I/B/E/S and Standard &

2   Poor's growth forecasts.

3   **Q.   WHAT DCF RESULT WOULD MR. BARNES HAVE OBTAINED IF HE HAD**

4   **USED THE I/B/E/S GROWTH FORECAST TO ESTIMATE THE GROWTH**

5   **COMPONENT OF HIS DCF MODEL AND ALSO CORRECTLY ESTIMATED**

6   **THE FIRST PERIOD DIVIDEND IN HIS DCF MODEL?**

7   A.   Mr. Barnes would have obtained a DCF estimate of the cost of equity equal to

8   12.1 percent (see Rebuttal Schedule JVW-1).

9   **C.   CAPM**

10 **Q.   WHAT IS THE CAPM?**

11 A.   The CAPM is an equilibrium model in which the expected rate of return on an

12 investment in a company is equal to a risk-free rate of interest, plus an

13 expected risk premium, where the expected risk premium is the product of a

14 company-specific risk factor, or beta, and the expected risk premium on the

15 market portfolio of all securities.

16 **Q.   HOW DID MR. BARNES USE THE CAPM TO ESTIMATE EMPIRE'S COST**

17 **OF EQUITY?**

18 A.   The CAPM requires estimates of the risk-free rate, the company-specific risk

19 factor, or beta, and the risk premium on the market portfolio. As his estimate

20 of the risk-free rate, Mr. Barnes used the yield to maturity on 30-year Treasury

21 bonds in January 2008 (4.33 percent). As his estimate of the company-

22 specific risk factor or beta, Mr. Barnes used Value Line's average estimated

23 beta for his proxy companies (0.85). As his estimate of the risk premium on

24 the market portfolio, Mr. Barnes used: (1) the arithmetic mean risk premium

1   risk premium on the S&P 500 compared to the yield on long-term Treasury

2   bonds for the period 1926 – 2006 (allegedly 6.5 percent); (2) the geometric

3   mean risk premium on the S&P 500 compared to the yield on long-term

4   Treasury bonds for the period 1926 – 2006 (allegedly 5.0 percent); and

5   (3) the geometric mean risk premium on the S&P 500 compared to long-term

6   Treasury bonds for the period 1996 – 2006 (allegedly 0.59 percent).   Mr.

7   Barnes obtained his risk premium data from Morningstar's (formerly Ibbotson

8   Associates) 2007 Yearbook, *Stocks, Bonds, Bills, and Inflation* (SBBI).

9   **Q.   YOU NOTED EARLIER THAT MR. BARNES USED DATA FROM**

10   **MORNINGSTAR (THE DATA FORMERLY PROVIDED BY IBBOTSON**

11   **ASSOCIATES) TO ESTIMATE THE REQUIRED MARKET RISK PREMIUM**

12   **COMPONENT OF THE CAPM. WHAT IS MORNINGSTAR' CURRENT**

13   **ESTIMATE OF THE REQUIRED MARKET RISK PREMIUM ON STOCK**

14   **INVESTMENTS COMPARED TO INVESTMENTS IN 20-YEAR U.S.**

15   **TREASURY BONDS?**

16   A.   Morningstar's current estimate of the required market risk premium is

17   7.1 percent.

18   **Q.   HOW DOES MORNINGSTAR ARRIVE AT ITS 7.1 PERCENT ESTIMATE**

19   **OF THE REQUIRED MARKET RISK PREMIUM?**

20   A.   Morningstar arrives at its estimate of the required market risk premium by

21   calculating the arithmetic mean return on the S&P 500 and the arithmetic

22   mean income return on 20-year U.S. Treasury bonds over the period 1926

23   through 2007. Morningstar then uses the difference between these two

1   arithmetic mean returns as its estimate of the forward-looking market risk

2   premium.

3   **Q.   WHY DOES MORNINGSTAR RECOMMEND USING DATA FROM THE**

4   **PERIOD 1926 THROUGH 2007 TO ESTIMATE THE MARKET RISK**

5   **PREMIUM, RATHER THAN DATA FROM A SHORTER PERIOD OF TIME,**

6   **SUCH AS THE PERIOD 1996 THROUGH 2007 USED BY MR. BARNES IN**

7   **HIS THIRD RISK PREMIUM ESTIMATE?**

8   A.   As Morningstar states:

9   The estimate of the equity risk premium depends on the length of
10   the data series studied. A proper estimate of the equity risk
11   premium requires a data series long enough to give a reliable
12   average without being unduly influenced by very good and very
13   poor short-term returns. When calculated using a long data
14   series, the historical equity risk premium is relatively stable.
15   Furthermore, because an average of the realized equity risk
16   premium is quite volatile when calculated using a short history,
17   using a long series makes it less likely that the analyst can justify
18   any number he or she wants. [2008 Ibbotson® SBBI® Valuation
19   Yearbook, p. 82]

20   **Q.   DO YOU HAVE ANY EVIDENCE THAT MR. BARNES'S COST OF EQUITY**

21   **ESTIMATES USING GEOMETRIC MEAN RISK PREMIUM DATA FOR THE**

22   **PERIOD 1996 – 2006 ARE UNREALISTICALLY LOW?**

23   A.   Yes. As shown in Mr. Barnes's Schedule 18, Column 8, his CAPM model

24   based on risk premiums for the short period from 1996 – 2006 produces an

25   average cost of equity estimate of only 4.83 percent. Since investors are risk

26   averse, reasonable investors would not invest in a more risky equity that was

27   expected to earn just 4.83 percent if they could earn a return that is more than

28   120 basis points higher by investing in less risky utility bonds. Thus, Mr.

1   Barnes's cost of equity estimates using geometric mean risk premium data for

2   the period 1996 – 2006 are unrealistically low.

3   **Q.**   **WHY DOES MORNINGSTAR RECOMMEND USING THE ARITHMETIC**

4   **MEAN RETURN ON THE S&P 500 RATHER THAN THE GEOMETRIC**

5   **MEAN RETURN ON THIS INDEX IN ORDER TO ESTIMATE THE MARKET**

6   **RISK PREMIUM?**

7   A.   Morningstar recommends using the arithmetic mean return rather than the

8   geometric mean return in order to estimate the cost of equity because a cost

9   of equity based on the arithmetic mean return is the only cost of equity that

10   will discount the investors' expected future wealth to the current price of the

11   stock (see Ibbotson® SBBI® Valuation Yearbook at 77 – 81 and Schedule 5

12   in my direct testimony). In addition, the arithmetic mean is most appropriate

13   for use in the CAPM because the CAPM is based on the assumption that the

14   return is obtained from an additive process, and the arithmetic mean return is

15   additive, whereas the geometric mean return is not. Because the arithmetic

16   mean provides the best estimate of the required market risk premium, the

17   Commission should ignore Mr. Barnes's two CAPM results based on

18   geometric mean risk premiums.

19   **Q.**   **WHAT IS THE DIFFERENCE BETWEEN THE INCOME RETURN ON U.S.**

20   **TREASURY SECURITIES AND THE TOTAL RETURN ON THESE**

21   **SECURITIES?**

22   A.   The income return considers only the income an investor receives from

23   owning a debt instrument such as U.S. Treasury securities, whereas the total

1   return considers both the income and the capital gain or loss on the

2   investment.

3 **Q.** **WHY DOES MORNINGSTAR RECOMMEND USING THE INCOME**

4   **RETURN ON U.S. TREASURY SECURITIES RATHER THAN THE TOTAL**

5   **RETURN IN ITS RISK PREMIUM ESTIMATE?**

6 **A.** Morningstar recommends using the income return rather than the total return

7   on Treasury securities to estimate the risk-free rate component of the equity

8   risk premium because the income return is the only return that is risk free.

9   Since the total return includes capital gains and losses, and capital gains and

10   losses are highly uncertain, the total return is definitely not risk free.

11 **Q.** **WHAT CAPM RESULT WOULD MR. BARNES HAVE OBTAINED IF HE**

12   **HAD BASED HIS CAPM CALCULATIONS ON CORRECT INPUTS FROM**

13   **MORNINGSTAR FOR THE MARKET RISK PREMIUM, THE AVERAGE**

14   **VALUE LINE BETA FOR A LARGE SAMPLE OF RISK COMPARABLE**

15   **COMPANIES, AND THE FORECASTED INTEREST RATE ON LONG-**

16   **TERM U.S. TREASURY SECURITIES?**

17 **A.** Mr. Barnes would have obtained a CAPM result of 10.4 percent [4.33 + (.85 x

18   7.1) = 10.4].

19 **Q.** **DO YOU HAVE OTHER CRITICISMS OF MR. BARNES'S USE OF THE**

20   **CAPM TO ESTIMATE EMPIRE'S COST OF EQUITY?**

21 **A.** Yes. Mr. Barnes fails to recognize that the CAPM underestimates the cost of

22   equity for companies with betas less than 1.0 and that the CAPM must be

1   adjusted to include an additional risk premium for small capitalization

2   companies such as Empire District.

3 **Q. WHAT EVIDENCE DO YOU HAVE THAT THE CAPM TENDS TO**

4 **UNDERESTIMATE THE COST OF EQUITY FOR COMPANIES WITH**

5 **BETAS LESS THAN 1.0?**

6 A. As described in my direct testimony at page 39, the original evidence that the

7   unadjusted CAPM tends to underestimate the cost of equity for companies

8   whose equity beta is less than 1.0 and to overestimate the cost of equity for

9   companies whose equity beta is greater than 1.0 was presented in a paper by

10   Black, Jensen, and Scholes, "The Capital Asset Pricing Model: Some

11   Empirical Tests." Numerous subsequent papers have validated the Black,

12   Jensen, and Scholes findings, including those by Litzenberger and

13   Ramaswamy, Banz, Fama and French, and Fama and MacBeth.[1]

14 **Q. DO YOU HAVE ANY EVIDENCE THAT INVESTORS EXPECT TO EARN A**

15 **HIGHER RATE OF RETURN ON SMALL CAPITALIZATION COMPANIES**

16 **SUCH AS EMPIRE THAN WOULD BE PREDICTED FROM THE BASIC**

17 **CAPM EQUATION USED BY MR. BARNES?**

18 A. Yes. Ibbotson provides evidence that investors require a higher rate of return

19   for investments in small capitalization companies than is indicated by Mr.

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[1] Fischer Black, Michael C. Jensen, and Myron Scholes, "The Capital Asset Pricing Model: Some Empirical Tests," in Studies in the Theory of Capital Markets, M. Jensen, ed. New York: Praeger, 1972; Eugene Fama and James MacBeth, "Risk, Return, and Equilibrium: Empirical Tests," Journal of Political Economy 81 (1973), pp. 607-36; Robert Litzenberger and Krishna Ramaswamy, "The Effect of Personal Taxes and Dividends on Capital Asset Prices: Theory and Empirical Evidence." Journal of Financial Economics 7 (1979), pp. 163-95.; Rolf Banz, "The Relationship between Return and Market Value of Common Stocks," Journal of Financial Economics (March 1981), pp. 3-18; and Eugene Fama and Kenneth French, "The Cross-Section of Expected Returns," Journal of Finance (June 1992), pp. 427-465.

1   Barnes's CAPM equation.   Ibbotson's most recent estimates of the risk

2   premium required to be added to the basic CAPM cost of equity are shown

3   below in Table 2.

4   **TABLE 1**
                     IBBOTSON ESTIMATES OF CAPM
                 SMALL COMPANY SIZE PREMIA [2]

Size	Smallest Mkt. Cap. ($ millions)	Premium
Large-Cap (No Adjustment)	9,274.049	-
Mid-Cap	2,413.583	0.92%
Low-Cap	725.267	1.65%
Micro-Cap	1.922	3.65%

5 **Q.   WHAT CAPM RESULT WOULD MR. BARNES HAVE OBTAINED IF HE**

6   **HAD CORRECTLY RECOGNIZED THE EFFECT OF A COMPANY'S**

7   **MARKET CAPITALIZATION ON THE REQUIRED CAPM RATE OF**

8   **RETURN AND CORRECTLY USED THE ARITHMETIC MEAN RETURN**

9   **FOR THE PERIOD 1926 - 2007?**

10 A.   Mr. Barnes would have obtained a CAPM cost of equity for Empire equal to

11   12.0 percent [4.33 + (.85 x 7.1) + 1.65 = 12.0].

12   **III. Rebuttal of Mr. Gorman**

13 **Q.   WHAT IS MR. GORMAN'S RECOMMENDED COST OF EQUITY FOR**

14   **EMPIRE?**

15 A.   Mr. Gorman recommends a cost of equity for Empire equal to 10.0 percent.

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[2]
        See Ibbotson® 2008 Risk Premia Over Time Report published by Morningstar.

1   **Q.   WHAT PROXY COMPANIES DOES MR. GORMAN USE TO ESTIMATE**

2   **EMPIRE'S COST OF EQUITY?**

3   A.   Mr. Gorman uses the group of 16 electric utilities shown on his Schedule

4   MPG-4 to estimate Empire's cost of equity.

5   **Q.   WHAT CRITERIA DID MR. GORMAN USE TO SELECT HIS PROXY**

6   **GROUP OF ELECTRIC UTILITIES?**

7   A.   Mr. Gorman chose Value Line electric utilities that met the following seven

8   selection criteria (see Gorman Direct at 14-15):

9   a. S&P's senior secured bond rating in the "BBB" and "lower A-range"
10   categories.
11   b. Moody's senior secured bond rating in the "Baa" and "lower A-range"
12   categories.
13   c. Consensus growth estimates available from Zacks, Reuters and SNL
14   Financial.
15   d. Had not suspended dividends over the last two years.
16   e. Common equity ratios to total capital between 40 percent and
17   60 percent.
18   f. No significant merger and acquisition activity.
19   g. Not exposed to corporate or market restructuring.

20 **Q.   DO YOU AGREE WITH MR. GORMAN'S PROXY GROUP SELECTION**

21 **CRITERIA?**

22 A.   No.   First, as I have discussed previously, the purpose of proxy group

23   selection is to choose the largest possible group of comparable risk

24   companies with sufficient data to estimate the cost of equity.   One possible

25   measure of comparable risk is a company's bond rating, which Mr. Gorman

26   included in his criteria.   However, Mr. Gorman's criteria that a company must

27   have an equity ratio in the range 40 percent to 60 percent, and "no exposure

28   to corporate or market restructuring" are superfluous because these are

29   already considered by the credit rating agencies when they assign a

1   company's credit rating. Mr. Gorman's superfluous criteria greatly reduce the

2   number of companies in his proxy group and thus reduce the reliability of his

3   cost of equity estimate.

4   Second, Mr. Gorman incorrectly uses the S&P and Moody's "senior

5   secured" bond ratings as criteria for his proxy group. The S&P and Moody's

6   "senior secured" bond ratings apply only to a company's senior secured debt,

7   not to a company's total debt or to the company as a whole. The S&P issuer

8   credit rating is a better measure of a _company's_ risk than its "senior secured"

9   bond rating. For example, Empire's S&P issuer credit rating is BBB-, just one

10   notch above non-investment grade, while its senior secured debt rating is

11   BBB+. Empire's issuer credit rating is a better measure of the company's risk

12   than the rating on its senior secured credit.

13   Third, Mr. Gorman's criteria are both vague and arbitrary. For

14   example, Mr. Gorman fails to explain: (1) exactly what categories he intends

15   to include in the phrase, "lower A range;" (2) why he selected common equity

16   ratios in the range 40 percent to 60 percent rather than some other range, or

17   any range at all; and (3) what he means by the phrase, "not exposed to

18   corporate or market restructuring." Mr. Gorman's use of these arbitrary

19   criteria serve only to reduce the number of companies in his proxy group,

20   without improving either his group's risk comparability or the reliability of his

21   cost of equity results.

1 **Q. ARE ELECTRIC UTILITIES WITH EQUITY RATIOS OUTSIDE THE RANGE**

2 **40 PERCENT TO 60 PERCENT MORE RISKY THAN ELECTRIC UTILITIES**

3 **WITH EQUITY RATIOS WITHIN THIS RANGE?**

4 A. No. Using the data reported in Mr. Gorman's work papers, I have determined

5 that the average S&P bond rating for the electric utilities with equity ratios

6 outside the range 40 percent to 60 percent is approximately A- / BBB+. As

7 shown on Mr. Gorman's Schedule MPG-4, the average S&P bond rating for

8 the companies in his proxy group is BBB+. Thus, on the basis of S&P bond

9 ratings, the companies Mr. Gorman eliminated due to the existence of equity

10 ratios outside the range 40 percent to 60 percent have approximately the

11 same risk as the companies in his proxy group.

12 **Q. HAVE YOU BEEN ABLE TO DETERMINE FROM MR. GORMAN'S WORK**

13 **PAPERS WHAT HE MEANS BY THE CRITERION, "NOT EXPOSED TO**

14 **CORPORATE OR MARKET RESTRUCTURING"?**

15 A. Yes. Apparently Mr. Gorman means that companies in his proxy group must

16 not be categorized by the Edison Electric Institute as "diversified." Since

17 there is little or no relationship between diversification and exposure to

18 corporate or market restructuring, Mr. Gorman's last proxy selection criterion

19 would have been easier to interpret if he had simply used the criterion "not

20 classified by EEI as diversified" as his selection criterion.

21 **Q. ARE "DIVERSIFIED" ELECTRIC UTILITIES MORE RISKY THAN THE**

22 **"MOSTLY REGULATED" OR "REGULATED" ELECTRIC UTILITIES**

23 **CONTAINED IN MR. GORMAN'S PROXY GROUP?**

1   A.   No. Using data from Mr. Gorman's work papers, I have also determined that

2   the average S&P bond rating for the diversified companies that Mr. Gorman

3   eliminated is A-. However, an A- bond rating is insignificantly different from

4   the average BBB+ bond rating of the companies in Mr. Gorman's proxy

5   group. Indeed, if anything, the average A- rating of the "diversified"

6   companies Mr. Gorman excluded from his proxy group indicates that these

7   companies are slightly less risky than Mr. Gorman's proxy companies. If Mr.

8   Gorman intended to eliminate "diversified" companies because they are

9   "more risky" than "regulated" or "mostly regulated" companies, Mr. Gorman's

10   bond ratings indicate that his hypothesis is incorrect.

11   Q.   **HAS MR. GORMAN ALWAYS USED THESE SAME SELECTION CRITERIA**

12   **TO CHOOSE PROXY COMPANIES?**

13   A.   No. In the recent AmerenUE rate case and a 2005 San Diego Gas & Electric

14   proceeding, Mr. Gorman required that his proxy companies have investment-

15   grade bond ratings, rather than bond ratings in the "BBB and lower A" range,

16   as in this case. In addition, in the California proceeding, Mr. Gorman only

17   required that a company have an equity ratio of at least 40 percent, rather

18   than an equity ratio in the range 40 percent to 60 percent.

19   Q.   **HAS MR. GORMAN EVER ADOPTED THE SAME SELECTION CRITERIA**

20   **YOU USE TO CHOOSE PROXY COMPANIES?**

21   A.   Yes. In a case for Progress Energy Florida in 2005, Docket No. 050078, Mr.

22   Gorman filed testimony on July 13, 2005, in which he used my recommended

23   proxy groups to estimate Progress Energy Florida's cost of equity:

1   Q.   How did you select your proxy risk group of publicly
2   traded utilities in estimating a fair return for PEF?

3   A.   I first reviewed the proxy risk group of electric and gas
4   utility companies relied on by PEF witness Dr. James Vander
5   Weide. Based on a careful review of the companies included in
6   his comparable groups, I have determined that those two groups
7   are reasonably risk comparable to PEF. Hence, in an effort to
8   minimize the issues between the methods I will use to estimate
9   a fair return for PEF, and those contained in Dr. Vander Weide's
10   analysis, I will use the same two proxy groups used by Dr.
11   Vander Weide. I have reached this decision after reviewing the
12   risk parameters of these groups and determined [sic] that they
13   are reasonable risk proxies for use in estimating the cost of
14   equity to PEF. [Gorman Direct Testimony, FPSC Docket No.
15   050078-EI, July 13, 2005, Page 16.]

16 My proxy groups in the Progress Energy Florida proceeding were selected

17 using the same criteria that I have recommended in this proceeding.

18 **Q. YOU NOTE THAT MR. GORMAN ADOPTED YOUR PROXY SELECTION**

19 **CRITERIA IN THE PROGRESS ENERGY CASE IN FLORIDA, AND THAT**

20 **YOU HAVE EMPLOYED THE SAME SELECTION CRITERIA IN THIS CASE**

21 **AS YOU EMPLOYED IN THE FLORIDA CASE. HOW DOES YOUR**

22 **RECOMMENDED PROXY GROUP IN THIS CASE COMPARE IN RISK TO**

23 **MR. GORMAN'S SMALLER GROUP OF 16 ELECTRIC UTILITIES?**

24 A. As noted above, my proxy group of 37 electric utilities has an average S&P

25 bond rating of BBB+ and a Value Line Safety Rank of 2. Mr. Gorman's proxy

26 group of 16 companies also has an average S&P bond rating of BBB+ and a

27 Value Line Safety Rank of 2.

28 **Q. WHAT CONCLUSION DO YOU DRAW FROM YOUR OBSERVATION**

29 **THAT YOUR PROXY GROUP HAS MORE THAN TWICE AS MANY**

1   **COMPANIES AS MR. GORMAN'S, AND HAS THE SAME S&P BOND**

2   **RATING AND VALUE LINE SAFETY RANK?**

3   A.   For all the reasons I have discussed above, I conclude that my proxy group

4   provides a significantly more reliable cost of equity estimate than Mr.

5   Gorman's.

6   **A.   Mr. Gorman's Constant Growth DCF Model**

7   **Q.   WHAT RESULT DOES MR. GORMAN OBTAIN FROM HIS APPLICATION**

8   **OF HIS CONSTANT GROWTH DCF MODEL?**

9   A.   Mr. Gorman obtains a DCF result of 11.54 percent.

10   **Q.   WHAT GROWTH RATE DID MR. GORMAN USE IN HIS CONSTANT**

11   **GROWTH DCF MODEL?**

12   A.   Mr. Gorman used average analysts' growth rates from Zacks, Reuters, and

13   SNL.

14   **Q.   IN HIS FINAL RECOMMENDATION, DOES MR. GORMAN GIVE ANY**

15   **WEIGHT TO THE RESULTS OF HIS APPLICATION OF HIS CONSTANT**

16   **GROWTH DCF MODEL?**

17   A.   No. Mr. Gorman states:

18   The average three to five-year growth rate for my comparable
19   group is 7.40%. This growth rate is too high to be a rational
20   estimate of long-term sustainable growth. This inflated growth
21   rate results in an inflated constant growth DCF result. Therefore,
22   I will not place significant weight on this result in forming my
23   recommended return on equity. [Gorman Direct at 19]

24   **Q.   MR. GORMAN SEEMS TO BELIEVE THAT INVESTORS' GROWTH**

25   **EXPECTATIONS MUST BE "RATIONAL." ARE INVESTORS' GROWTH**

26   **EXPECTATIONS ALWAYS "RATIONAL"?**

1   A.   No.   In hindsight, most economists would agree that investors' growth

2   expectations during the tech stock boom of the late 1990s and early 2000

3   were irrational. Yet, it was these "irrational" growth expectations that caused

4   stock prices to rise by so much during that time.

5   Q.   **DOES THE DCF MODEL ONLY REQUIRE THE USE OF INVESTORS'**

6   **GROWTH   EXPECTATIONS   WHEN   INVESTORS'   GROWTH**

7   **EXPECTATIONS ARE "RATIONAL"?**

8   A.   No.   The DCF model requires the use of investors' growth expectations,

9   whether rational or irrational.

10   Q.   **IS IT APPROPRIATE FOR MR. GORMAN TO ADJUST THE GROWTH**

11   **TERM IN HIS DCF MODEL, WITHOUT ALSO ADJUSTING THE STOCK**

12   **PRICE TERM IN HIS MODEL?**

13   A.   No. If Mr. Gorman believes that investors' growth expectations are irrational,

14   he should recognize that "irrational" growth expectations are likely to be

15   accompanied by "irrational" stock prices. To be consistent in applying his own

16   definition of "rational," Mr. Gorman would need to adjust not only his growth

17   estimates to reflect the long-run growth in the economy, but also his stock

18   prices to reflect a "rational" estimate of the value of the company.

19   **B. Mr. Gorman's Two-Stage DCF Model**

20   Q.   **WHAT IS THE BASIC ASSUMPTION OF MR. GORMAN'S TWO-STAGE**

21   **DCF MODEL?**

22   A.   Mr. Gorman's two-stage DCF model is based on the assumption that

23   investors believe his proxy companies will grow at the average analyst growth

1   rates for five years, and then beginning in the sixth year grow at the rate of

2   5 percent forever.

3 **Q. DOES MR. GORMAN PROVIDE ANY EVIDENCE TO SUPPORT THIS**

4 **BASIC ASSUMPTION?**

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

6 **Q. WHY DOES MR. GORMAN PREFER THE RESULTS OF HIS TWO-STAGE**

7 **DCF MODEL OVER THE RESULTS OF HIS CONSTANT GROWTH DCF**

8 **MODEL?**

9 A. Mr. Gorman asserts:

10   The proxy group's three to five-year growth rate exceeds the
11   growth rate of the overall U.S. economy. Based on consensus
12   economic projections, as published by Blue Chip Economic
13   Indicators, the five and ten-year GDP growth is estimated at a
14   nominal rate of 5.0%. A company cannot grow, indefinitely, at a
15   faster rate than the market in which it sells its products. The
16   U.S. economy, or GDP, growth projection represents a ceiling,
17   or high end, sustainable growth rate for a utility over an
18   indefinite period of time. [Gorman Direct at 19]

19 **Q. DO YOU AGREE WITH MR. GORMAN'S STATEMENT THAT COMPANIES**

20 **CANNOT GROW FOREVER AT A RATE IN EXCESS OF THE EXPECTED**

21 **GROWTH IN THE U.S. ECONOMY?**

22 A. Yes. As Mr. Gorman implies, if a company grew forever at a rate in excess of

23   the rate of growth of the U.S. economy, it would eventually take over the

24   economy. This is not a reasonable expectation.

25 **Q. DOES THE STATEMENT THAT A COMPANY CANNOT GROW AT A RATE**

26 **GREATER THAN THE RATE OF GROWTH IN THE GNP FOREVER IMPLY**

27 **THAT A SINGLE-STAGE DCF MODEL CANNOT BE USED TO ESTIMATE**

28 **THE COST OF EQUITY?**

1   A.   No. Mr. Gorman fails to recognize that the DCF model requires the growth

2   expectations of investors, not the growth expectations of Mr. Gorman. If

3   investors use analysts' growth rates to value stocks in the marketplace, Mr.

4   Gorman should use analysts' growth rates to estimate the growth component

5   of the DCF model. Mr. Gorman also fails to recognize that companies do not

6   have to grow at the same rate forever for the single-stage DCF Model to be a

7   reasonable approximation of how prices are determined in capital markets.

8   **Q.   HAVE YOU DONE ANY STUDIES ON THE GROWTH RATES THAT**

9   **INVESTORS USE TO VALUE STOCKS IN THE MARKETPLACE?**

10   A.   Yes. As discussed in my direct testimony, my studies indicate that investors

11   use analysts' forecasted growth rates to value stocks in the marketplace.

12   **Q.   DOES THE STATEMENT THAT A COMPANY CANNOT GROW AT A RATE**

13   **OF GROWTH GREATER THAN THE GROWTH IN GNP FOREVER IMPLY**

14   **THAT MR. GORMAN'S ASSUMPTION THAT COMPANIES CAN ONLY**

15   **GROW AT RATES FASTER THAN THE ECONOMY FOR FIVE YEARS IS**

16   **CORRECT?**

17   A.   No. The statement that a company's earnings cannot grow at a rate greater

18   than the rate of growth in the GNP forever, does not imply that companies

19   can only grow faster than the rate of growth in the economy for five years.

20   Mr. Gorman's assumption that companies must grow at the same rate as the

21   economy after year five is completely arbitrary.

22   **Q.   DO YOU HAVE ANY EVIDENCE THAT THE CONSTANT GROWTH DCF**

23   **MODEL WITH I/B/E/S ANALYSTS GROWTH RATES PROVIDES A**

1   **BETTER REPRESENTATION OF HOW INVESTORS VALUE SECURITIES**

2   **THAN MR. GORMAN'S TWO-STAGE DCF MODEL?**

3 A. Yes. To test the relative ability of the constant and two-stage DCF models to

4   explain differences in how investors value securities, I have examined

5   whether there is a statistical relationship between a company's price/earnings

6   ratio and the growth rates used in both the constant growth and two-stage

7   DCF models. If investors use the I/B/E/S growth rate in a constant growth

8   DCF model in valuing electric company stocks, rather than the average

9   growth rate in Mr. Gorman's two-stage DCF model, then the I/B/E/S growth

10   rate should be more highly correlated with company price/earnings ratios than

11   Mr. Gorman's average growth rate.

12   As shown below, the I/B/E/S growth rates are significantly more

13   correlated with electric company price/earnings ratios than are Mr. Gorman's

14   average growth rates from his two-stage model. The higher correlation of the

15   I/B/E/S growth rates with price/earnings ratios is demonstrated by: (1) the

16   higher r square in the equation containing the I/B/E/S growth rate, as opposed

17   to the equation containing the average growth rate in Mr. Gorman's two-stage

18   DCF model; and (2) the significantly higher t statistic on the I/B/E/S growth

19   rate compared to Mr. Gorman's average growth rate. (A t statistic greater

20   than 1.96 is generally considered to be evidence that the regression

21   coefficient is significantly different from zero.) These results provide strong

22   evidence that the constant growth DCF model with the I/B/E/S growth rates is

1   a reasonable approximation of how investors value securities in the

2   marketplace.

3

TABLE 2
REGRESSION OF P/E RATIOS VS.
I/B/E/S GROWTH RATE AND DIVIDEND PAYOUT

	I/B/E/S GROWTH	DIVIDEND PAYOUT	R SQUARE	F
Coefficient	0.325	0.019	**0.174**	3.692
t statistic	**2.657**	1.005		

4

TABLE 3
REGRESSION OF P/E RATIOS VS.
TWO-STAGE GROWTH RATE AND DIVIDEND PAYOUT

	TWO-STAGE GROWTH	DIVIDEND PAYOUT	R SQUARE	F
Coefficient	0.744	(0.005)	**0.038**	0.694
t statistic	**1.054**	(0.286)		

5   **C.**   **Mr. Gorman's Risk Premium Model**

6 **Q.** **HOW DID MR. GORMAN ESTIMATE THE REQUIRED RISK PREMIUM**

7   **FOR INVESTING IN HIS ELECTRIC COMPANY PROXY GROUP?**

8 A. Mr. Gorman estimated the required risk premium for investing in his proxy

9   electric utilities from data on the average authorized electric utility rates of

10   return on equity for each year from 1986 to June 2007. Mr. Gorman found

11   that the average authorized rate of return on equity for electric utilities over

12   this period was 5.04 percent higher than the yield to maturity on long-term

13   Treasury bonds and 3.67 percent higher than the yield to maturity on A-rated

14   utility bonds.

15 **Q.** **DO YOU AGREE WITH MR. GORMAN'S METHOD OF ESTIMATING THE**

16   **REQUIRED RISK PREMIUM ON ELECTRIC UTILITY STOCKS?**

1   A.   No. Mr. Gorman fails to recognize that the Commission has a responsibility to

2   make an independent assessment of the required return on equity for Empire

3   in this proceeding. In addition, Mr. Gorman fails to recognize that the

4   indicated risk premium in his data base tends to increase as interest rates

5   decline. Mr. Gorman should have adjusted his average risk premiums to

6   account for the relationship between the allowed risk premium on equity and

7   the level of interest rates on long-term Treasury bonds and A-rated utility

8   bonds.

9   **Q.**   **HAVE YOU STUDIED THE RELATIONSHIP BETWEEN THE ALLOWED**

10   **RATES OF RETURN ON EQUITY BY REGULATORY COMMISSIONS AND**

11   **THE INTEREST RATES ON LONG-TERM TREASURY BONDS AND A-**

12   **RATED UTILITY BONDS?**

13 A.   Yes. Using the data found in Mr. Gorman's Schedules MPG-10 and MPG-11,

14   I performed a regression analysis of the relationship between the risk

15   premium implied by the allowed rates of return on equity issued by regulatory

16   commissions and the interest rates on long-term Treasury bonds and A-rated

17   utility bonds. I found that the risk premium implied by allowed rates of return

18   compared to the yield on long-term Treasury bonds is given by the

19   relationship:

20                   $RP_{AUTHORIZED} = 7.648 - 0.395 \times T_B$

21   where:

22	$RP_{AUTHORIZED}$	=	the risk premium implied by utility
23			commission authorized rates of return on
24			equity,
25	7.648 and 0.395	=	estimated regression coefficients; and
26	T_B	=	the yield on long-term Treasury bonds.

1   Similarly, I found that the risk premium implied by allowed rates of

2   return compared to the yield on A-rated utility bonds is given by the

3   relationship:

4    $$RP_{AUTHORIZED} = 6.707 - 0.381 \text{ x } A_B$$

5   where:

6 $RP_{AUTHORIZED}$	=	the risk premium implied by utility
7		commission authorized rates of return on
8		equity,
9 6.707 and 0.381	=	estimated regression coefficients; and
10 A_B	=	the yield on Moody's A-rated utility bonds.

11 **Q. WHAT RISK PREMIUMS DO YOU OBTAIN FROM YOUR STATISTICAL**

12 **ANALYSIS OF THE RELATIONSHIP BETWEEN ALLOWED RATES OF**

13 **RETURN AND INTEREST RATES USING MR. GORMAN'S DATA?**

14 A.   Using Mr. Gorman's forecasted interest rates, I obtain a risk premium of

15   5.83 percent over the yield to maturity on 20-year U.S. Treasury bonds and

16   4.26 percent over the yield to maturity on utility bonds. These risk premiums

17   are approximately 60 to 80 basis points higher than the 5.04 percent and

18   3.67 percent risk premiums obtained by Mr. Gorman.

19 **Q. WHY ARE THE ESTIMATED RISK PREMIUMS FROM YOUR**

20 **REGRESSION ANALYSES SO MUCH HIGHER THAN THE AVERAGE**

21 **RISK PREMIUMS OVER THE 1986 – 2006 PERIOD THAT MR. GORMAN**

22 **USED?**

23 A.   The risk premiums from my regression analyses are higher than the average

24   risk premiums over the period of Mr. Gorman's study because, as my

25   regression analyses demonstrate, risk premiums generally increase when

1   interest rates decline; and interest rates have declined over the period of Mr.

2   Gorman's study.

3 **Q.** **HOW DID MR. GORMAN ESTIMATE THE INTEREST RATE COMPONENT**

4   **OF HIS RISK PREMIUM METHOD?**

5 A. Mr. Gorman estimated the interest rate component of his risk premium

6   method in two ways. For his risk premium over the Treasury bond yield, Mr.

7   Gorman used the Blue Chip 4.6 percent projected yield on 30-year Treasury

8   bonds. For the risk premium over utility bonds, Mr. Gorman used the average

9   yield on Baa-rated utility bonds for the 13-week period ending February 8,

10   2008.

11 **Q.** **WHAT COST OF EQUITY ESTIMATES WOULD MR. GORMAN HAVE**

12   **OBTAINED FROM HIS RISK PREMIUM ANALYSIS IF HE HAD**

13   **CORRECTLY RECOGNIZED THAT THE RISK PREMIUM INCREASES**

14   **WHEN INTEREST RATES DECLINE, AS YOU DESCRIBE ABOVE?**

15 A. Using Mr. Gorman's Blue Chip forecasted interest rates of 4.6 percent on

16   long-term Treasury bonds and 6.42 percent yield on Baa-rated utility bonds,

17   Mr. Gorman would have obtained estimated risk premiums of 5.83 percent

18   over long-term Treasury bonds and 4.26 percent over utility bonds. Adding

19   these risk premium estimates to the interest rates, Mr. Gorman would have

20   obtained cost of equity estimates of 10.4 percent and 10.7 percent. These

21   results exceed Mr. Gorman's risk premium estimates of the cost of equity by

22   approximately 50 to 80 basis points and exceed his recommended cost of

23   equity by 40 to 70 basis points.

1   **D.**   **Mr. Gorman's Capital Asset Pricing Model ("CAPM")**

2 **Q.**   **HOW DOES MR. GORMAN USE THE CAPM TO ESTIMATE THE COST OF**

3   **EQUITY FOR HIS PROXY COMPANIES?**

4 **A.**   The CAPM requires an estimate of the risk-free rate, the company-specific

5   risk factor or beta, and the expected return on the market portfolio. For his

6   estimate of the risk-free rate, Mr. Gorman used the forecasted 4.6 percent

7   yield to maturity on long-term Treasury bonds. For his estimate of the

8   company-specific risk, or beta, Mr. Gorman used the median 0.85 Value Line

9   beta for his proxy companies. For his estimate of the expected return on the

10   market portfolio, Mr. Gorman used data on the return on the S&P 500

11   compared to the return on 20-year Treasury bonds over the period 1926 to

12   2007 reported in Morningstar' 2007 Yearbook.

13 **Q.**   **WHAT RISK PREMIUM VALUES DID MR. GORMAN USE IN HIS**

14   **APPLICATION OF THE CAPM?**

15 **A.**   As explained on pages 31- 32 of his testimony, Mr. Gorman used risk

16   premium values equal to 6.5 percent and 7.0 percent in his CAPM approach.

17 **Q.**   **DO YOU AGREE WITH MR. GORMAN'S USE OF 6.5 PERCENT AND**

18   **7.0 PERCENT ESTIMATES OF THE RISK PREMIUM ON THE MARKET**

19   **PORTFOLIO IN HIS CAPM APPROACH?**

20 **A.**   No. Mr. Gorman relies on data from Morningstar to estimate the expected

21   risk premium on the market portfolio. Morningstar strongly recommends the

22   use of an arithmetic mean risk premium equal to 7.1 percent, not 6.5 percent

23   or 7.0 percent. The Morningstar 7.1 percent recommended risk premium is

24   the difference between the arithmetic average return on the market portfolio

1   over the period 1926 through 2007 and the arithmetic average income return

2   on long-term Treasury bonds.

3   **Q.   WHY DOES MORNINGSTAR USE THE AVERAGE INCOME RETURN ON**

4   **LONG-TERM TREASURY BONDS RATHER THAN THE AVERAGE TOTAL**

5   **RETURN ON LONG-TERM TREASURY BONDS TO MEASURE THE**

6   **MARKET RISK PREMIUM?**

7   A.   Morningstar explains the use of the income return on long-term Treasury

8   bonds on page 77 of the valuation edition of the 2008 Ibbotson® SBBI®

9   Yearbook:

10   Price changes in bonds due to unanticipated changes in yields
11   introduce price risk into the total return. Therefore, the total
12   return on the bond series does not represent the riskless rate of
13   return. The income return better represents the unbiased
14   estimate of the purely riskless rate of return, since an investor
15   can hold a bond to maturity and be entitled to the income return
16   with no capital loss.

17   **Q.   WHAT COST OF EQUITY WOULD MR. GORMAN HAVE OBTAINED FROM**

18   **HIS CAPM APPROACH IF HE HAD CORRECTLY USED THE**

19   **MORNINGSTAR' 7.1 PERCENT MARKET RISK PREMIUM?**

20   A.   Mr. Gorman would have obtained a CAPM cost of equity estimate of

21   10.64 percent, 30 basis points higher than the 10.34 percent CAPM cost of

22   equity estimate Mr. Gorman reports in his testimony. This estimate is based

23   on a risk-free rate of 4.6 percent, the Ibbotson risk premium of 7.1 percent,

24   and the average 0.85 Value Line beta for his proxy group of electric utilities.

25   **Q.   WHAT COST OF EQUITY WOULD MR. GORMAN HAVE OBTAINED FROM**

26   **HIS CAPM IF HE HAD ADJUSTED HIS CAPM RESULT TO REFLECT THE**

1   **ADDITIONAL RISK ASSOCIATED WITH EMPIRE'S SMALL MARKET**

2   **CAPITALIZATION?**

3   A.   Mr. Gorman would have obtained a CAPM cost of equity for Empire equal to

4   12.3 percent [4.6 + (.85 x 7.1) + 1.65 = 12.3].

5   **E.   Mr. Gorman's Fuel Adjustment Recommendation**

6   **Q.   DOES MR. GORMAN RECOMMEND AN ADJUSTMENT TO HIS COST OF**

7   **EQUITY IF THE COMMISSION APPROVES A FUEL ADJUSTMENT**

8   **MECHANISM IN THIS PROCEEDING?**

9   A.   Yes. Mr. Gorman recommends that his cost of equity be reduced if the

10   Commission approves a fuel adjustment mechanism for Empire in this

11   proceeding.

12   **Q.   DO YOU AGREE WITH MR. GORMAN'S RECOMMENDATION THAT THE**

13   **COST OF EQUITY BE REDUCED IF THE COMMISSION APPROVES A**

14   **FUEL ADJUSTMENT MECHANISM IN THIS PROCEEDING?**

15   A.   No. Mr. Gorman fails to recognize that his recommended cost of equity is

16   based on his application of several cost of equity methodologies to a group of

17   proxy companies. However, Mr. Gorman fails to acknowledge that virtually all

18   of the companies in his proxy group already have fuel adjustment

19   mechanisms. Thus, the reduced risk of having a fuel adjustment mechanism

20   is already included in Mr. Gorman's recommended cost of equity.

21   **Q.   IF THE COMMISSION FAILS TO APPROVE A FUEL ADJUSTMENT**

22   **MECHANISM, WOULD AN UPWARD ADJUSTMENT TO THE COST OF**

23   **EQUITY BE REQUIRED?**

1   A.   Yes. Since virtually all companies in the proxy groups presented in testimony

2   in this proceeding have fuel adjustment clauses, the cost of equity

3   recommendations of all three witnesses already include the lower risk of

4   having a fuel adjustment mechanism. If no fuel adjustment mechanism is

5   approved, the cost of equity should be increased to account for the greater

6   risk of not having a fuel adjustment mechanism.

7   **Q.   DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

8   A.   Yes, it does.

REBUTTAL SCHEDULE JVW-1
MR. BARNES'S CORRECTED
DISCOUNTED CASH FLOW ANALYSIS

COMPANY NAME	DIVIDEND	STOCK PRICE	PROJECTED DIVIDEND YIELD	GROWTH	COST OF EQUITY
Alliant Energy	$1.40	$39.814	3.73%	6.00%	9.7%
Ameren Corp.	$2.54	$53.011	5.14%	7.30%	12.4%
American Electric Power	$1.64	$46.773	3.72%	6.02%	9.7%
Cleco Corp.	$0.90	$25.999	3.95%	14.00%	17.9%
DPL Inc.	$1.10	$28.366	4.22%	8.88%	13.1%
Entergy Corp.	$3.00	$115.043	2.88%	10.60%	13.5%
FirstEnergy Corp.	$2.20	$67.465	3.62%	11.00%	14.6%
FPL Group	$1.64	$65.803	2.74%	9.90%	12.6%
Hawaiian Electric	$1.24	$22.291	6.04%	8.53%	14.6%
IDACORP, Inc.	$1.20	$34.131	3.73%	6.00%	9.7%
NSTAR	$1.40	$34.683	4.30%	6.50%	10.8%
Pinnacle West Capital	$2.10	$41.435	5.36%	5.73%	11.1%
PNM Resources	$0.92	$23.150	4.34%	9.13%	13.5%
Progress Energy	$2.46	$47.468	5.44%	5.04%	10.5%
Southern Company	$1.61	$36.940	4.58%	5.03%	9.6%
Westar Energy	$1.08	$25.451	4.48%	5.58%	10.1%
Average					12.1%

Notes:

Companies	=	Mr. Barnes's proxy company group.
Dividend (D)	=	Most recent quarterly dividend annualized. (*See* Value Line issues used by Mr. Barnes, dated Nov. 30, 2007, Dec. 28, 2007, and Feb. 8, 2008.)
Stock Price (P)	=	From Mr. Barnes's Schedule 16.
Projected Dividend Yield	=	Annualized dividend multiplied by the factor (1 + g) divided by stock price.
Growth (g)	=	I/B/E/S forecast of future earnings growth (*See* Mr. Barnes's Schedule 15.)
Cost of Equity (K)	=	Cost of equity using the annual version of the DCF model.

$$K = \frac{D(1+g)}{P_0} + g$$