KENTUCKY PUBLIC SERVICE COMMISSION

Case No. 2014-00396

KENTUCKY POWER COMPANY

COST OF CAPITAL

DIRECT TESTIMONY

OF

J. RANDALL WOOLRIDGE, PH.D.

ON BEHALF OF
KENTUCKY OFFICE OF ATTORNEY GENERAL
March 23, 2015

KENTUCKY POWER COMPANY
Case No. 2014-00396

Direct Testimony of J. Randall Woolridge, Ph. D.

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| 1 | Q. | **PLEASE STATE YOUR FULL NAME, ADDRESS, AND OCCUPATION.** |

| 2 | A. | My name is J. Randall Woolridge, and my business address is 120 Haymaker Circle, |

3   State College, PA 16801. I am a Professor of Finance and the Goldman, Sachs & Co.

4   and Frank P. Smeal Endowed University Fellow in Business Administration at the

5   University Park Campus of the Pennsylvania State University. I am also the Director

6   of the Smeal College Trading Room and President of the Nittany Lion Fund, LLC. A

7   summary of my educational background, research, and related business experience is

8   provided in Appendix A.

9

10   **I.**   **SUBJECT OF TESTIMONY AND SUMMARY OF RECOMMENDATIONS**
11

12   **Q.**   **WHAT IS THE SCOPE OF YOUR TESTIMONY IN THIS PROCEEDING?**
13

14   A.   I have been asked by Kentucky Office of Attorney General ("OAG") to provide an

15   opinion as to the fair rate of return or cost of capital for Kentucky Power Company

16   ("KPC" or the "Company") and to evaluate the cost of capital testimony of the

17   Company.

18

19   **Q.**   **HOW IS YOUR TESTIMONY ORGANIZED?**

20   A.   First, I summarize my cost of capital recommendation for the Company, and review the

21   primary areas of contention on the Company's rate of return position. Second, I provide

22   an assessment of capital costs in today's capital markets. Third, I discuss the selection

23   of a proxy group of electric utility companies for estimating the cost of equity capital for

24   the Company. Fourth, I discuss the Company's recommended capital structure and debt

25   cost rates.   Fifth, I provide an overview of the concept of the cost of equity capital, and

1 then estimate the equity cost rate for the Company. Finally, I critique KPC's rate of

2 return analysis and testimony. A table of contents is provided just after the title page.

3

4 **Q.** **PLEASE   REVIEW   THE   ALTERNATIVE   RECOMMENDATIONS**

5   **REGARDING THE APPROPRIATE RATE OF RETURN FOR THE**

6   **COMPANY.**

7 A. The Company's proposed capital structure and senior capital cost rates are provided

8   by Mr. Marc D. Reitter. I have used the capital structure developed by OAG witness

9   Mr. Ralph Smith. Dr. William E. Avera and Mr. Adrien M. McKenzie have

10   recommended a common equity cost rate of 10.62% for the Company. I have applied

11   the Discounted Cash Flow Model ("DCF") and the Capital Asset Pricing Model

12   ("CAPM") to a proxy group of publicly-held electric utility companies ("Electric

13   Proxy Group") as well as the group developed by Dr. Avera and Mr. McKenzie

14   ("Avera/McKenzie Proxy Group").   My analysis indicates an equity cost rate of

15   8.65% is appropriate for the Company. This figure represents the upper end of my

16   equity cost rate range and includes a 0.25% risk adjustment for KPC. With my

17   proposed capital structure and senior capital cost rates, I am recommending an overall

18   fair rate of return or cost of capital of 6.63%. This is summarized in Exhibit JRW-1.

19

20 **Q.** **PLEASE INITIALLY SUMMARIZE THE REGULATORY GUIDELINES**

21   **ESTABLISHED   FOR   THE   PURPOSE   OF   DETERMINING   THE**

22   **APPROPRIATE ROE FOR A PUBLIC UTILITY.**

23 A. The United States Supreme Court established the guiding principles for establishing a

1   fair return on capital for regulated public utilities in two cases: (1) *Bluefield* and (2)

2   *Hope*.[1] In those cases, the Court recognized that the fair rate of return on equity

3   should be: (1) comparable to returns investors expect to earn on other investments of

4   similar risk; (2) sufficient to assure confidence in the company's financial integrity;

5   and (3) adequate to maintain and support the company's credit and to attract capital.

6

7 **Q.   PLEASE REVIEW THE BASIC DIFFERENCES BETWEEN THE STATE OF**

8 **THE MARKETS AND CAPITAL COSTS.**

9   A.   A major point of difference between Dr. Avera and Mr. McKenzie and myself

10   involves our opposing views about the state of capital markets and capital costs. Dr.

11   Avera and Mr. McKenzie note that interest rates and capital costs are at historically

12   low levels due to the financial crisis and the monetary stimulus provided by the

13   Federal Reserve. However, they claim that with the end of the Federal Reserve's

14   bond buying program and with growing concerns over ongoing political and

15   economic conditions in the U.S. and abroad, interest rates and capital costs are going

16   up. To support this claim, they cite forecasts of higher interest rates and state that " . .

17   . the KPSC should consider near-term forecasts for public utility bond yields in

18   assessing the reasonableness of individual cost of equity estimates and in evaluating a

19   fair ROE for Kentucky Power. . . . "[2]

20   In my opinion, this outlook on the markets and capital costs has proven to be

21   incorrect in the past and is way off the mark currently. The facts are: (1) the economy

22   has been growing for over four years and unemployment is down to 5.6%; (2)

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[1] *Federal Power Commission v. Hope Natural Gas Co*., 320 U.S. 591 (1944) ("*Hope*") and *Bluefield Water Works and Improvement Co. v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923) ("*Bluefield*").
[2] Avera/McKenzie Testimony, P. 19.

1   inflationary expectations and interest rates remain at historically low levels and are

2   likely to stay there for some time; (3) reflective of the improved economic conditions,

3   corporate earnings growth, and low interest rates, the stock market is at an all-time

4   high; and (4) economists' forecasts of higher interest rates cited by Dr. Avera and Mr.

5   McKenzie have consistently been incorrect in the past. Overall, the economy and

6   capital markets have recovered and are looking to the future, and with low interest

7   rates and high stock prices, capital costs continue to be at historically low levels.

8

9 **Q.   WHAT ARE THE PRIMARY ISSUES WITH RESPECT TO MEASURING**

10   **THE COST OF EQUITY CAPITAL IN THIS PROCEEDING?**

11 A.   There are two primary errors in Dr. Avera and Mr. McKenzie's DCF analysis. First,

12   they have eliminated over 20% of their results because they believe these DCF

13   estimates are too low. Second, their DCF growth rate is based exclusively on the

14   projected long-term earnings per share ("EPS") growth rates of Wall Street analysts.

15   I provide empirical evidence that demonstrates the long-term earnings growth rates of

16   these analysts are overly optimistic and upwardly-biased. I also show that the

17   estimated long-term EPS growth rates of *Value Line* are overstated. In developing

18   my DCF growth rate, I have used thirteen growth rate measures including historic and

19   projected growth rate measures and have evaluated growth in dividends, book value,

20   and earnings per share.

21   The CAPM approach requires an estimate of the risk-free interest rate, beta,

22   and the market or equity risk premium. The major area of disagreement involves the

23   measurement and magnitude of the market risk premium. In short, Dr. Avera and Mr.

4

1 McKenzie's market risk premium is excessive and does not reflect current market

2 fundamentals. As I highlight in my testimony, there are three procedures for

3 estimating a market or equity risk premium – historic returns, surveys, and expected

4 return models. Dr. Avera and Mr. McKenzie use a projected market risk premium that

5 includes an expected market return of 13.1%. Dr. Avera and Mr. McKenzie's

6 projected market return uses analysts' long-term EPS growth rate projections to

7 compute an expected market return and market risk premium. This EPS growth rate

8 projection, and the resulting expected market return and market risk premium, include

9 unrealistic assumptions regarding future economic and earnings growth and stock

10 returns. I have used a market risk premium of 5.5%, which: (1) factors all three

11 approaches into estimating an equity premium; and (2) employs the results of many

12 studies of the market risk premium.[3] As I note, my market risk premium reflects the

13 market risk premiums: (1) discovered in academic studies by leading finance

14 scholars; (2) employed by leading investment banks and management consulting

15 firms; and (3) that result from surveys of companies, financial forecasters, financial

16 analysts, and corporate CFOs.

17   In estimating a cost of equity capital, in addition to the DCF and CAPM

18 approaches, Dr. Avera and Mr. McKenzie have also used a Utility Risk Premium

19 ("URP") approach and have included a flotation cost adjustment of 0.12% in their

20 rate of return recommendation. In the URP model, their risk premium is based on the

21 historical relationship between the yields on long-term utility bonds and authorized

22 ROEs for electric utility companies. There are several issues with this approach. First

23 and foremost, this approach is a gauge of commission behavior and not investor

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[3] See page 6 of Exhibit JRW-11.

1	behavior. Capital costs are determined in the market place through the financial
2	decisions of investors and are reflected in such fundamental factors as dividend
3	yields, expected growth rates, interest rates, and investors' assessment of the risk and
4	expected return of different investments. Regulatory commissions evaluate capital
5	market data in setting authorized ROEs, but also take into account other utility and
6	rate case-specific information in setting ROEs. As such, Dr. Avera and Mr.
7	McKenzie's URP approach and its results reflect other factors used by utility
8	commissions in authorizing ROEs in addition to capital costs. This may be especially
9	true when the authorized ROE data includes the results of rate cases that are settled
10	and not fully litigated. Second, the methodology produces an inflated measure of the
11	risk premium because the approach uses historic authorized ROEs and utility bond
12	yields, and the resulting risk premium is applied to projected utility bond yields. Third,
13	the historic risk premium is inflated as a measure of investors' required risk premium
14	since the utilities have been selling at a market-to-book ratio in excess of 1.0. This
15	indicates that the authorized rates of return have been greater than the return that
16	investors require.

17 **Q. HOW DO DR. AVERA AND MR. MCKENZIE'S URP ESTIMATES**
18 **COMPARE TO THE ACTUAL STATE-LEVEL AUTHORIZED ROES?**

19 A. Their URP equity cost rate estimates overstate actual state-level authorized ROEs.

20 The authorized ROEs for electric utilities have gradually decreased in recent years.

21 These authorized ROEs declined from 10.01% in 2012, to 9.8% in 2013, to 9.76% in

22 2014, according to Regulatory Research Associates.[4]

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[4] *Regulatory Focus*, Regulatory Research Associates. The authorized ROEs exclude the authorized ROEs in

| 1 | Q. | **PLEASE DISCUSS YOUR RECOMMENDATION IN LIGHT OF THE** |

1   Q.   **PLEASE DISCUSS YOUR RECOMMENDATION IN LIGHT OF THE**

2   **STATE-LEVEL AUTHORIZED ROES?**

3   A.   Whereas my recommendation in this proceeding is below the average state-level

4   authorized ROEs, my recommended ROE reflects the historically low capital cost

5   rates in the markets. In my opinion, the ROEs authorized by state utility commissions

6   have lagged behind capital market cost rates. And I believe that this has been

7   particularly true in recent years as some commissions have been reluctant to authorize

8   ROEs below 10%. However, the <u>trend</u> has clearly been towards lower ROEs, and the

9   <u>norm</u> now is clearly below 10%. Hence, I believe that my recommended ROE

10   reflects our historically low capital cost rates, and these low capital cost rates are

11   finally being recognized by state utility commissions.

12 Q.   **WHAT OTHER ISSUES DO YOU HAVE WITH THE EQUITY COST RATE**

13   **ANALYSES OF DR. AVERA AND MR. MCKENZIE?**

14 A.   There are several other less significant issues in Dr. Avera and Mr. McKenzie's

15   equity cost rate analyses. In their CAPM analysis, they have: (1) used a projected

16   risk-free rate that is about 200 basis points above current market rates; (2) employed

17   the Empirical CAPM ("ECAPM") version of the CAPM, which makes inappropriate

18   adjustments to the risk-free rate and the market risk premium; and (3) included

19   unwarranted flotation cost and size adjustments. Dr. Avera and Mr. McKenzie have

20   also used several other ROE analyses which they refer to as "checks of

21   reasonableness" on their 10.62% ROE recommendation. These approaches include an

22   Expected Earnings approach and a DCF analysis for a non-utility group. I show that

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Virginia which include generation adders.

1   these alternative approaches do not provide an appropriate measure of the equity cost

2   rate for the Company. I highlight a number of errors in these ROE benchmark

3   analyses.

4

5 **Q.**   **PLEASE SUMMARIZE THE PRIMARY AREAS OF DISAGREEMENT IN**

6   **THIS PROCEEDING.**

7 A.   In summary, the primary areas of disagreement in measuring the Company's cost of

8   capital are: (1) KPC's proposed capital structure; (2) our opposing views regarding

9   the state of the markets and capital costs; (3) the DCF equity cost rate estimates, and

10   in particular, (a) Dr. Avera and Mr. McKenzie's ignoring over 20% of their low-end

11   results, and (b) Dr. Avera and Mr. McKenzie's exclusive use of the earnings per share

12   growth rates of Wall Street analysts and *Value Line*; (4) the base interest rate and

13   market or equity risk premium in the URP and CAPM approaches; and (5) whether or

14   not equity cost rate adjustments are needed to account for size and flotation costs.

15

16   **II.**   <u>**CAPITAL COSTS IN TODAY'S MARKETS**</u>
17

18 **Q.**   **PLEASE DISCUSS CAPITAL COSTS IN U.S. MARKETS.**

19 A.   Long-term capital cost rates for U.S. corporations are a function of the required

20   returns on risk-free securities plus a risk premium. The risk-free rate of interest is the

21   yield on long-term U.S. Treasury bonds. The yields on 10-year U.S. Treasury bonds

22   from 1953 to the present are provided on Panel A of Exhibit JRW-2. These yields

23   peaked in the early 1980s and have generally declined since that time. These yields

24   fell to below 3.0% in 2008 as a result of the financial crisis. From 2008 until 2011,

1	these rates fluctuated between 2.5% and 3.5%. In 2012, the yields on 10-year
2	Treasuries declined from 2.5% to 1.5% as the Federal Reserve initiated its
3	Quantitative Easing III ("QEIII") program to support a low interest rate environment.
4	These yields increased from mid-2012 to about 3.0% as of December of 2013 on
5	speculation of a tapering of the Federal Reserve's QEIII policy. Since that time, the
6	ten-year Treasury yield declined and bottomed out at 1.7% in January of 2015. This
7	yield is currently slightly below 2.0%.
8	Panel B on Exhibit JRW-2 shows the differences in yields between ten-year
9	Treasuries and Moody's Baa-rated bonds since the year 2000. This differential
10	primarily reflects the additional risk premium required by bond investors for the risk
11	associated with investing in corporate bonds as opposed to obligations of the U.S.
12	Treasury. The difference also reflects, to some degree, yield curve changes over
13	time. The Baa rating is the lowest of the investment grade bond ratings for corporate
14	bonds. The yield differential hovered in the 2.0% to 3.5% range until 2005, declined
15	to 1.5% until late 2007, and then increased significantly in response to the financial
16	crisis. This differential peaked at 6.0% at the height of the financial crisis in early
17	2009 due to tightening in credit markets, which increased corporate bond yields, and
18	the "flight to quality," which decreased Treasury yields. The differential subsequently
19	declined, and has been in the 2.5% to 3.5% range over the past four years.
20	The risk premium is the return premium required by investors to purchase
21	riskier securities. The risk premium required by investors to buy corporate bonds is
22	observable based on yield differentials in the markets. The market risk premium is
23	the return premium required to purchase stocks as opposed to bonds. The market or

1		equity risk premium is not readily observable in the markets (like bond risk
2		premiums) since expected stock market returns are not readily observable. As a
3		result, equity risk premiums must be estimated using market data. There are
4		alternative methodologies to estimate the equity risk premium, and these alternative
5		approaches and equity risk premium results are subject to much debate. One way to
6		estimate the equity risk premium is to compare the mean returns on bonds and stocks
7		over long historical periods. Measured in this manner, the equity risk premium has
8		been in the 5% to 7% range.[5] However, studies by leading academics indicate that
9		the forward-looking equity risk premium is actually in the 4.0% to 6.0% range.
10		These lower equity risk premium results are in line with the findings of equity risk
11		premium surveys of CFOs, academics, analysts, companies, and financial forecasters.
12		
13	**Q.**	**PLEASE DISCUSS INTEREST RATES ON LONG-TERM UTILITY BONDS.**
14	A.	Panel A of Exhibit JRW-3 provides the yields on A-rated public utility bonds. These
15		yields peaked in November 2008 at 7.75% and henceforth declined significantly.
16		These yields declined to below 4.0% in mid-2013, and then increased with interest
17		rates in general to the 4.85% range as of late 2013. They have since declined to about
18		4.0%.
19		Panel B of Exhibit JRW-3 provides the yield spreads between long-term A-
20		rated public utility bonds relative to the yields on 20-year U.S. Treasury bonds.
21		These yield spreads increased dramatically in the third quarter of 2008 during the
22		peak of the financial crisis and have decreased significantly since that time. For
23		example, the yield spreads between 20-year U.S. Treasury bonds and A-rated utility

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[5] See Exhibit JRW-11, p. 5-6.

1   bonds peaked at 3.4% in November 2008, declined to about 1.5% in the summer of

2   2012, and have remained in that range.

3

4 **Q.**   **PLEASE PROVIDE MORE DETAILS ABOUT THE FEDERAL RESERVE'S**

5   **QEIII POLICY AND INTEREST RATES.**

6 A.   On September 13, 2012, the Federal Reserve released its policy statement relating to

7   QEIII. In its statement, the Federal Reserve announced that it intended to expand and

8   extend its purchasing of long-term securities to about $85 billion per month.[6] The

9   Federal Open Market Committee ("FOMC") also indicated that it intended to keep

10   the target for the federal funds rate between 0 to 1/4 percent through at least mid-

11   2015. In subsequent meetings over the next year, the Federal Reserve reiterated the

12   continuation of its bond buying program and tied future monetary policy moves to

13   unemployment rates and the level of interest rates.[7]

14   Beginning in May of 2013, the speculation in the markets was that the Federal

15   Reserve's bond buying program would be tapered or scaled back. This speculation

16   was fueled by more positive economic data on jobs and the economy. The speculation

17   led to an increase in interest rates, with the ten-year Treasury yield increasing to

18   about 3.0% as of December 2013. Due to continuing positive economic data, the

19   Federal Reserve did decide to reduce its purchases of mortgage-backed securities and

20   Treasuries by $5 billion per month beginning in January of 2014.[8] Despite the

21   announcement, the equity markets reacted positively to the news of the QEIII

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[6] Board of Governors of the Federal Reserve System, *Statement Regarding Transactions in Agency Mortgage-Backed Securities and Treasury Securities* (Sept. 13, 2012).
[7] Board of Governors of the Federal Reserve System, *FOMC Statement* (Dec. 12, 2012).
[8] *Ibid.*

1   tapering due to the clarity provided by the FOMC on the future of the monetary

2   stimulus, interest rates, and economic activity.

3
4   Q.   **PLEASE DISCUSS THE FEDERAL RESERVE'S ACTIONS IN 2014.**

5   A.   The January 29, 2014, FOMC meeting was historic as Janet Yellen took over from

6   Ben Bernanke as Fed Chairman. The FOMC also tapered its bond buying program

7   by another $5 billion per month beginning in February.[9] In subsequent monthly

8   meetings during 2014, the FOMC noted that it saw improvement in the economy and

9   the housing and labor markets and it continued to taper its bond buying program. In

10   its October 28-29 meeting, the FOMC put an end to its bond buying program

11   primarily due to improving economic conditions and, in particular, the better

12   employment market.[10] The announcement was expected, and speculation grew as to

13   when the Federal Reserve would change course in its "highly accommodative"

14   monetary policy and move to increase short-term interest rates. This speculation

15   continued through the end of 2014 and into 2015 as the economy has continued to

16   advance and the unemployment rate has declined to 5.5%. With the improvement in

17   the economy and the labor and housing markets, the FOMC focused on the sluggish

18   pace of inflation. In its release following its January, 2015 meeting, the FOMC noted

19   the following:[11]

20   Labor market conditions have improved further, with strong job gains and a
21   lower unemployment rate. On balance, a range of labor market indicators
22   suggests that underutilization of labor resources continues to
23   diminish. Household spending is rising moderately; recent declines in energy
24   prices have boosted household purchasing power. Business fixed investment
25   is advancing, while the recovery in the housing sector remains slow. Inflation

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[9] Board of Governors of the Federal Reserve System, *FOMC Statement* (Jan. 29, 2014).

[10] Board of Governors of the Federal Reserve System, *FOMC Statement* (Nov. 19, 2014).

[11] Board of Governors of the Federal Reserve System, *FOMC Statement* (January 28, 2015).

1   has declined further below the Committee's longer-run objective, largely
2   reflecting declines in energy prices. Market-based measures of inflation
3   compensation have declined substantially in recent months; survey-based
4   measures of longer-term inflation expectations have remained stable.[12]
5

6   On the issue as to when short-term interest rates may be increased, the FOMC

7   opted to provide a cautionary outlook for the markets:[13]

8   To support continued progress toward maximum employment and price
9   stability, the Committee today reaffirmed its view that the current 0 to 1/4
10   percent target range for the federal funds rate remains appropriate. In
11   determining how long to maintain this target range, the Committee will assess
12   progress--both realized and expected--toward its objectives of maximum
13   employment and 2 percent inflation. This assessment will take into account a
14   wide range of information, including measures of labor market conditions,
15   indicators of inflation pressures and inflation expectations, and readings on
16   financial and international developments. Based on its current assessment, the
17   Committee judges that it can be patient in beginning to normalize the stance
18   of monetary policy.
19

20 In the January FOMC release, as well as in Federal Reserve Chairman

21 Yellen's subsequent Semi-annual Monetary Policy Report and Testimony to

22 Congress on February 24th and 25th, the markets focused on one key word regarding

23 monetary policy – 'patient.' In its March 18 statement, the FOMC omitted the word

24 'patient' with respect to the normalization of monetary policy, and suggested that its

25 target range for federal funds, and therefore short-term interest rates, would only be

26 increased once the outlook for the labor market and price increases improved.[14] The

27 markets reacted positively to the news.

28

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[12] Board of Governors of the Federal Reserve System, *FOMC Statement* (January 28, 2015).
[13] *Ibid*.
[14] Board of Governors of the Federal Reserve System, *FOMC Statement* (March 18, 2015).

1 **Q. HOW HAVE THE MARKETS REACTED TO THE FEDERAL RESERVE'S**

2 **SCALE BACK AND END OF QEIII?**

3 A.   The yield on the ten-year Treasury note was 3.0% as of January 2, 2014. This yield

4   trended down during 2014, and bottomed out at 1.7% in January of 2015. This yield

5   subsequently rose to over 2.1% in the following month, but fell back below 2.0%

6   after the FOMC's March statement.[15]

7

8 **Q. DR. AVERA AND MR. MCKENZIE CLAIM THAT CAPITAL COSTS ARE**

9   **ABOUT TO INCREASE AND POINT TO FORECASTS OF HIGHER**

10   **INTEREST RATES AS PROOF. PLEASE RESPOND.**

11 A. Dr. Avera and Mr. McKenzie and I have significantly different views on the current

12   state of the markets and capital costs.   While Dr. Avera and Mr. McKenzie

13   acknowledge that interest rates and capital costs are at historically low levels, they

14   claim that with the end of the Federal Reserve's QEIII program and with concerns

15   over political and economic conditions in the U.S. and abroad, interest rates and

16   capital costs are going up. To support this claim, they cite forecasts of higher interest

17   rates and note that the KPSC should consider these forecasts for public utility yields

18   in setting a fair ROE for the Company.

19   However, I believe that Dr. Avera and Mr. McKenzie's outlook on the

20   markets and capital costs is way off the mark. There are several factors that support

21   an alternative view.

22   First, the economy has been growing for over four years, and, as noted above,

23   the Federal Reserve continues to see continuing strength in the economy. The labor

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[15] http://research.stlouisfed.org/fred2/series/DGS10/downloaddata.

14

1   market has improved better than expected, with unemployment now down to 5.6%.

2   Second, interest rates remain at historically low levels and are likely to stay

3   there for some time. There are two factors driving the continued lower interest rates:

4   (1) as noted by the FOMC, inflationary expectations in the U.S. remain very low and

5   are below the FOMC's target of 2.0%; and (2) global economic growth – including

6   Europe and Asia – remains stagnant. As a result, while the yields on ten-year U.S.

7   Treasury bonds are low by historic standards, these yields are well above the

8   government bond yields in Germany, Japan, and the United Kingdom. Thus, U.S.

9   Treasuries offer an attractive yield relative to those of other major governments

10   around the world, thereby attracting capital to the U.S. and keeping U.S. interest rates

11   down.

12   Third, reflective of the economic conditions and earnings growth and low

13   interest rates, the stock market is at an all-time high. The S&P 500 provided a return

14   of 32% in 2013 and added another thirteen percent in 2014.

15   Finally, Dr. Avera and Mr. McKenzie reference forecasts of higher interest as

16   evidence that capital costs are about to increase significantly. Moreover, with the end

17   of the Fed's QEIII program, economists have been predicting higher interest rates for

18   some time.   However, these forecasts have proven to be wrong.   In fact, all the

19   economists in Bloomberg's interest rate survey forecasted interest rates would

20   increase in 2014, and <u>100% of economists were wrong</u>. According to the *Market*

21   *Watch* article:[16]

22   The survey of economists' yield projections is generally skewed toward rising
23   rates — only a few times since early 2009 have a majority of respondents to
24   the Bloomberg survey thought rates would fall. But the unanimity of the

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[16] Ben Eisen, *Yes, 100% of economists were dead wrong about yields*, MARKET WATCH, October 22, 2014.

1 rising rate forecasts in the spring was a stark reminder of how one-sided
2 market views can become. It also teaches us that economists can be
3 universally wrong.
4
5 As a final note on this issue, these consensus forecasts of economists that

6 interest rates are going higher seem to be continually wrong. In fact, in 2014,

7 *Bloomberg* reported that the Federal Reserve Bank of New York has stopped using

8 the interest rate estimates of professional forecasters in the Bank's interest rate model

9 due to the unreliability of those forecasters' interest rate forecasts.[17]

10

11 Q. **PLEASE SUMMARIZE YOUR THOUGHTS ON THE STATE OF THE**

12 **MARKETS AND CAPITAL COSTS.**

13 A. Overall, the economy and capital markets have recovered and are looking to the

14 future, and, with low interest rates and high stock prices, capital costs continue to be

15 at historically low levels.

16

17 **III. PROXY GROUP SELECTION**

18

19 Q. **PLEASE DESCRIBE YOUR APPROACH TO DEVELOPING A FAIR RATE**

20 **OF RETURN RECOMMENDATION FOR THE COMPANY.**

21 A. To develop a fair rate of return recommendation for the Company, I have evaluated

22 the return requirements of investors on the common stock of a proxy group of

23 publicly-held electric utility companies ("Electric Proxy Group"). I have also

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[17] Susanne Walker & Liz Capo McCormick, *Unstoppable $100 Trillion Bond Market Renders Models Useless*, BLOOMBERG.COM (June 2, 2014), http://www.bloomberg.com/news/2014-06-01/the-unstoppable-100-trillion-bond-market-renders-models-useless.html.

1		employed the group developed by Dr. Avera and Mr. McKenzie ("Avera/McKenzie
2		Proxy Group").
3		
4	**Q.**	**PLEASE DESCRIBE YOUR PROXY GROUP OF COMPANIES.**
5	A.	The selection criteria for the Electric Proxy Group include the following:
6		1. At least 50% of revenues from regulated electric operations as reported by
7		*AUS Utilities Report*;
8		2. Listed as an Electric Utility by *Value Line Investment Survey* and listed as an
9		Electric Utility or Combination Electric & Gas Utility in *AUS Utilities Report*;
10		3. An investment-grade corporate credit and bond rating;
11		4. Has paid a cash dividend for the past six months, with no cuts or omissions;
12		5. Not involved in an acquisition of another utility, and not the target of an
13		acquisition, in the past six months; and
14		6. Analysts' long-term EPS growth rate forecasts available from Yahoo, Reuters,
15		and/or Zack's.
16		The Electric Proxy Group includes twenty-nine companies. Summary
17		financial statistics for the proxy group are listed in Exhibit JRW-4.[18] The median
18		operating revenues and net plant among members of the Electric Proxy Group are
19		$3,464.9 million and $10,876.0 million, respectively. The group receives 81% of its
20		revenues from regulated electric operations, has a BBB+ bond rating from Standard
21		& Poor's, a current common equity ratio of 47.0%, and an earned return on common
22		equity of 9.6%.

---

[18] In my testimony, I present financial results using both mean and medians as measures of central tendency. However, due to outliers among means, I have used the median as a measure of central tendency.

1

2   **Q.   PLEASE DESCRIBE THE AVERA/MCKENZIE PROXY GROUP.**

3   A.   Dr. Avera and Mr. McKenzie's group is smaller and includes only twelve electric

4   utilities.[19] Although I believe that my group provides a more comprehensive sample

5   to estimate an equity cost rate for the Company, I will also include the

6   Avera/McKenzie Proxy Group in my analysis.

7   Summary financial statistics for Dr. Avera and Mr. McKenzie's proxy group

8   is provided in Panel B of page 1 of Exhibit JRW-4. The median operating revenues

9   and net plant for the Avera/McKenzie Proxy Group are $6,581.0 million and

10        $15,018.0 million, respectively. The group receives 79% of its revenues from

11   regulated electric operations, has a BBB+/BBB bond rating from S&P, a current

12   common equity ratio of 45.6%, and a current earned return on common equity of

13   9.7%.

14

15 **Q.   HOW DOES THE INVESTMENT RISK OF THE COMPANY COMPARE TO**

16   **THAT   OF   YOUR   ELECTRIC   PROXY   GROUP   AND   THE**

17   **AVERA/MCKENZIE PROXY GROUP?**

18 A.   I believe that bond ratings provide a good assessment of the investment risk of a

19   company. KPC's issuer credit rating is BBB according to S&P and Baa2 according

20   to Moody's. KPC's S&P and Moody's bond ratings are slightly below the averages

21   for the two proxy groups. The Electric Proxy Group's S&P and Moody's average

---

[19] Their group initially included thirteen utilities, but Hawaiian Electric is in the process of being acquired by Nextera and so it was excluded from my analysis.

1 bond ratings are BBB+ and A3/Baa1 and Avera/McKenzie Proxy Group's S&P and

2 Moody's average bond ratings are BBB+/BBB.

3 In addition, on page 2 of Exhibit JRW-4, I have assessed the riskiness of the

4 Company's parent, American Electric Power ("AEP"), relative to the Electric and

5 Avera/McKenzie Proxy Groups using five different risk measures published by *Value*

6 *Line*. These measures include Beta, Financial Strength, Safety, Earnings

7 Predictability, and Stock Price Stability. These risk measures suggest that the

8 Company's parent, AEP, risk profile is very similar to the averages for the groups.

9 However, giving primary weighting to KPC's credit ratings, I believe that KPC is

10 slightly riskier than the two groups.

11

12   **IV. CAPITAL STRUCTURE RATIOS AND DEBT COST RATES**

13

14 **Q. WHAT IS KPC'S RECOMMENDED CAPITAL STRUCTURE FOR**

15 **RATEMAKING PURPOSES?**

16 A. KPC's recommended capital structure includes -2.69% short-term debt, 4.52%

17 accounts receivable, 52.98% long-term debt and 45.19% common equity. The

18 Company proposes a short-term debt cost rate of 0.25%, an accounts receivable cost

19 rate of 1.07%, and a long-term debt cost rate of 5.41%. The proposed capital

20 structure and senior capital cost rates are provided in Panel A of page 1 of Exhibit

21 JRW-5.

22 **Q. ARE YOU ADOPTING THE COMPANY'S PROPOSED CAPITAL**

23 **STRUCTURE?**

1   A.   No. KPC has proposed a capital structure which includes negative short-term debt which

2   is based on several financing adjustments. After the adjustments, the adjusted short-

3   term debt figure is negative since KPC has no short-term debt outstanding. As the

4   capitalization is proposed, it makes no sense since no company has negative short-term

5   debt. OAG witness Mr. Ralph Smith develops a capital structure for KPC that makes

6   alternative adjustments and does not include negative short-term debt.

7

8   **Q**   **WHAT CAPITAL STRUCTURE IS RECOMMENDED BY OAG WITNESS**

9   **SMITH?**

10   A.   Mr. Smith's recommended capital structure includes 0.00% short-term debt, 4.61%

11   accounts receivable, 51.49% long-term debt and 43.90% common equity. The

12   proposed capital structure and senior capital cost rates are provided in Panel B of

13   page 1 of Exhibit JRW-5.

14   **Q.**   **PLEASE DISCUSS THE CAPITAL STRUCTURES OF THE COMPANIES IN**

15   **THE ELECTRIC GROUP.**

16   A.   Panel C of page 1 of Exhibit JRW-5 provides the average capitalization ratios for the

17   companies in the Electric Proxy Group. Page 2 of Exhibit JRW-5 provides the

18   supporting company data. The average capitalization ratios for the proxy group are

19   5.32% short-term debt, 47.11% long-term debt, 0.66% preferred stock, and 46.90%

20   common equity. These are the capital structure ratios for the holding companies that

21   trade in the markets and are used to estimate an equity cost rate for KPC.

1	**Q.**	**IS THE OAG PROPOSED CAPITAL STRUCTURE CONSISTENT WITH**
2		**THE AVERAGE CAPITAL STRUCTURE OF THE ELECTRIC PROXY**
3		**GROUP?**

4 A. Yes. Panel D of page 1 of Exhibit JRW-5 provides the average capitalization ratios as

5 proposed by OAG using only investor-provided capital. These ratios exclude accounts

6 receivable financing which is not provided by investors. KPC's capitalization ratios

7 from investor-provided capital are 0.00% short-term debt, 53.77% long-term debt,

8 46.23% common equity. KPC's capitalization ratios from investor-provided capital are

9 similar to and consistent with the capitalization ratios of the Electric Proxy Group.

10

11 **Q.** **ARE YOU USING THE UTILITY'S RECOMMENDED SENIOR CAPITAL**

12 **COST RATES?**

13 A. Yes, I am also using the Company's proposed debt cost rates as well as the account

14 receivable cost rate.

15

16

17 **V.** **THE COST OF COMMON EQUITY CAPITAL**

18

19 **A.** **OVERVIEW**

20 **Q.** **WHY MUST AN OVERALL COST OF CAPITAL OR FAIR RATE OF**

21 **RETURN BE ESTABLISHED FOR A PUBLIC UTILITY?**

22 A. In a competitive industry, the return on a firm's common equity capital is determined

23 through the competitive market for its goods and services. Due to the capital

1 requirements needed to provide utility services and to the economic benefit to society

2 from avoiding duplication of these services, some public utilities are monopolies.

3 Because of the lack of competition and the essential nature of their services, it is not

4 appropriate to permit monopoly utilities to set their own prices. Thus, regulation

5 seeks to establish prices that are fair to consumers and, at the same time, sufficient to

6 meet the operating and capital costs of the utility (i.e., provide an adequate return on

7 capital to attract investors).

8

9 **Q.** **PLEASE PROVIDE AN OVERVIEW OF THE COST OF CAPITAL IN THE**

10 **CONTEXT OF THE THEORY OF THE FIRM.**

11 A. The total cost of operating a business includes the cost of capital. The cost of

12 common equity capital is the expected return on a firm's common stock that the

13 marginal investor would deem sufficient to compensate for risk and the time value of

14 money. In equilibrium, the expected and required rates of return on a company's

15 common stock are equal.

16 Normative economic models of the firm, developed under very restrictive

17 assumptions, provide insight into the relationship between firm performance or

18 profitability, capital costs, and the value of the firm. Under the economist's ideal

19 model of perfect competition, where entry and exit are costless, products are

20 undifferentiated, and there are increasing marginal costs of production, firms produce

21 up to the point where price equals marginal cost. Over time, a long-run equilibrium is

22 established where price equals average cost, including the firm's capital costs. In

23 equilibrium, total revenues equal total costs, and because capital costs represent

1   investors' required return on the firm's capital, actual returns equal required returns,

2   and the market value must equal the book value of the firm's securities.

3   In the real world, firms can achieve competitive advantage due to product

4   market imperfections.   Most notably, companies can gain competitive advantage

5   through product differentiation (adding real or perceived value to products) and by

6   achieving economies of scale (decreasing marginal costs of production). Competitive

7   advantage allows firms to price products above average cost and thereby earn

8   accounting profits greater than those required to cover capital costs.   When these

9   profits are in excess of that required by investors, or when a firm earns a return on

10 equity in excess of its cost of equity, investors respond by valuing the firm's equity in

11 excess of its book value.

12   James M. McTaggart, founder of the international management consulting

13 firm Marakon Associates, described this essential relationship between the return on

14 equity, the cost of equity, and the market-to-book ratio in the following manner:[20]

15   Fundamentally, the value of a company is determined by the
16   cash flow it generates over time for its owners, and the
17   minimum acceptable rate of return required by capital
18   investors. This "cost of equity capital" is used to discount the
19   expected equity cash flow, converting it to a present value.
20   The cash flow is, in turn, produced by the interaction of a
21   company's return on equity and the annual rate of equity
22   growth.   High return on equity (ROE) companies in
23   low-growth markets, such as Kellogg, are prodigious
24   generators of cash flow, while low ROE companies in
25   high-growth markets, such as Texas Instruments, barely
26   generate enough cash flow to finance growth.

27   A company's ROE over time, relative to its cost of equity, also
28   determines whether it is worth more or less than its book value.
29   If its ROE is consistently greater than the cost of equity capital

---

[20] James M. McTaggart, "The Ultimate Poison Pill: Closing the Value Gap," *Commentary* (Spring 1988), p. 2.

1	(the investor's minimum acceptable return), the business is
2	economically profitable and its market value will exceed book
3	value. If, however, the business earns an ROE consistently less
4	than its cost of equity, it is economically unprofitable and its
5	market value will be less than book value.

6   As such, the relationship between a firm's return on equity, cost of equity, and

7 market-to-book ratio is relatively straightforward. A firm that earns a return on

8 equity above its cost of equity will see its common stock sell at a price above its book

9 value. Conversely, a firm that earns a return on equity below its cost of equity will

10 see its common stock sell at a price below its book value.

11

12 **Q.**   **PLEASE PROVIDE ADDITIONAL INSIGHTS INTO THE RELATIONSHIP**

13   **BETWEEN RETURN ON EQUITY AND MARKET-TO-BOOK RATIOS.**

14 A.   This relationship is discussed in a classic Harvard Business School case study entitled

15   "A Note on Value Drivers." On page 2 of that case study, the author describes the

16   relationship very succinctly:[21]

17	For a given industry, more profitable firms – those able
18	to generate higher returns per dollar of equity ("ROE")
19	– should have higher market-to-book ratios.
20	Conversely, firms which are unable to generate returns
21	in excess of their cost of equity ("K") should sell for
22	less than book value.

	Profitability	*Value*
23		
24	*If ROE > K*	*then Market/Book > 1*
25	*If ROE = K*	*then Market/Book =1*
26	*If ROE < K*	*then Market/Book < 1*

27   To assess the relationship by industry, as suggested above, I performed a

28 regression study between estimated ROE and market-to-book ratios using natural gas

---

[21] Benjamin Esty, "A Note on Value Drivers," Harvard Business School, Case No. 9-297-082, April 7, 1997.

1	distribution, electric utility, and water utility companies. I used all companies in
2	these three industries that are covered by *Value Line* and have estimated ROE and
3	market-to-book ratio data. The results are presented in Panels A-C of pages 1-2 of
4	Exhibit JRW-6. The average R-squares for the electric, gas, and water companies are
5	0.78, 0.63, and 0.49, respectively.[22] This demonstrates the strong positive
6	relationship between ROEs and market-to-book ratios for public utilities.
7	

8 **Q. WHAT ECONOMIC FACTORS HAVE AFFECTED THE COST OF EQUITY**
9 **CAPITAL FOR PUBLIC UTILITIES?**

10 A. Exhibit JRW-7 provides indicators of public utility equity cost rates over the past
11 decade. Page 1 shows the yields on long-term 'A' rated public utility bonds. These
12 yields peaked in the early 2000s at over 8.0%, declined to about 5.5% in 2005, and
13 rose to 6.0% in 2006 and 2007. They stayed in that 6.0% range until the third quarter
14 of 2008 when they spiked to almost 7.5% during the financial crisis. They declined
15 to the 4.0% range in 2012, and increased to the 4.85% range in 2013, and have since
16 declined to about 4.25%.

17 Page 2 of Exhibit JRW-7 provides the dividend yields for the electric utilities
18 over the past decade. These dividend yields generally declined slightly over the
19 decade until 2007. They increased in 2008 and 2009 in response to the financial
20 crisis, but declined in the last four years and now are about 4.2%.

21 Average earned returns on common equity and market-to-book ratios for
22 electric utilities are on page 3 of Exhibit JRW-7. The average earned returns on

---

[22] R-square measures the percent of variation in one variable (e.g., market-to-book ratios) explained by another variable (e.g., expected ROE). R-squares vary between zero and 1.0, with values closer to 1.0 indicating a higher relationship between two variables.

1   common equity were in the 9.0%-12.0% range over the past decade and have hovered

2   in the 10.0% range for the past four years. The average market-to-book ratio for the

3   group was in the 1.10X to 1.80X range during the decade. The average declined to

4   about 1.10X in 2009, but has since increased to 1.40X as of 2013.

5

6 Q.   **WHAT FACTORS DETERMINE INVESTORS' EXPECTED OR REQUIRED**

7   **RATE OF RETURN ON EQUITY?**

8 A.   The expected or required rate of return on common stock is a function of market-wide

9   as well as company-specific factors. The most important market factor is the time

10   value of money as indicated by the level of interest rates in the economy. Common

11   stock investor requirements generally increase and decrease with like changes in

12   interest rates. The perceived risk of a firm is the predominant factor that influences

13   investor return requirements on a company-specific basis. A firm's investment risk is

14   often separated into business and financial risk. Business risk encompasses all factors

15   that affect a firm's operating revenues and expenses. Financial risk results from

16   incurring fixed obligations in the form of debt in financing its assets.

17

18 Q.   **HOW DOES THE INVESTMENT RISK OF UTILITIES COMPARE WITH**

19   **THAT OF OTHER INDUSTRIES?**

20 A.   Due to the essential nature of their service as well as their regulated status, public

21   utilities are exposed to a lesser degree of business risk than other, non-regulated

22   businesses. The relatively low level of business risk allows public utilities to meet

23   much of their capital requirements through borrowing in the financial markets,

1	thereby incurring greater than average financial risk. Nonetheless, the overall
2	investment risk of public utilities is below that of most other industries.
3	Exhibit JRW-8 provides an assessment of investment risk for 99 industries as
4	measured by beta, which according to modern capital market theory, is the only
5	relevant measure of investment risk. These betas come from the *Value Line*
6	*Investment Survey*. The study shows that the investment risk of utilities is very low.
7	The average betas for electric (average of east, central, and west), water, and gas
8	utility companies are 0.74, 0.74, and 0.80, respectively. As such, the cost of equity
9	for utilities is among the lowest of all industries in the U.S. according to the CAPM.
10	
11	**Q. HOW CAN THE EXPECTED OR REQUIRED RATE OF RETURN ON**
12	**COMMON EQUITY CAPITAL BE DETERMINED?**
13	A. The costs of debt and preferred stock are normally based on historical or book values
14	and can be determined with a great degree of accuracy. The cost of common equity
15	capital, however, cannot be determined precisely and must instead be estimated from
16	market data and informed judgment. This return to the stockholder should be
17	commensurate with returns on investments in other enterprises having comparable
18	risks.
19	According to valuation principles, the present value of an asset equals the
20	discounted value of its expected future cash flows. Investors discount these expected
21	cash flows at their required rate of return that, as noted above, reflects the time value
22	of money and the perceived riskiness of the expected future cash flows. As such, the

1 cost of common equity is the rate at which investors discount expected cash flows

2 associated with common stock ownership.

3 Models have been developed to ascertain the cost of common equity capital

4 for a firm. Each model, however, has been developed using restrictive economic

5 assumptions. Consequently, judgment is required in selecting appropriate financial

6 valuation models to estimate a firm's cost of common equity capital, in determining

7 the data inputs for these models, and in interpreting the models' results. All of these

8 decisions must take into consideration the firm involved as well as current conditions

9 in the economy and the financial markets.

10

11 Q. **HOW DO YOU PLAN TO ESTIMATE THE COST OF EQUITY CAPITAL**

12 **FOR THE COMPANY?**

13 A. I rely primarily on the DCF model to estimate the cost of equity capital. Given the

14 investment valuation process and the relative stability of the utility business, I believe

15 that the DCF model provides the best measure of equity cost rates for public utilities.

16 It is my experience that most commissions have traditionally relied on the DCF

17 model. I have also performed a CAPM study; however, I give these results less

18 weight because I believe that risk premium studies, of which the CAPM is one form,

19 provide a less reliable indication of equity cost rates for public utilities.

20

21 **B. DCF ANALYSIS**

22

1   **Q.**   **PLEASE DESCRIBE THE THEORY BEHIND THE TRADITIONAL DCF**

2   **MODEL.**

3   A.   According to the DCF model, the current stock price is equal to the discounted value

4   of all future dividends that investors expect to receive from investment in the firm.

5   As such, stockholders' returns ultimately result from current as well as future

6   dividends. As owners of a corporation, common stockholders are entitled to a *pro*

7   *rata* share of the firm's earnings. The DCF model presumes that earnings that are not

8   paid out in the form of dividends are reinvested in the firm so as to provide for future

9   growth in earnings and dividends. The rate at which investors discount future

10   dividends, which reflects the timing and riskiness of the expected cash flows, is

11   interpreted as the market's expected or required return on the common stock.

12   Therefore, this discount rate represents the cost of common equity. Algebraically, the

13   DCF model can be expressed as:

14
15

$$P = \frac{D_1}{(1+k)^1} + \frac{D_2}{(1+k)^2} + \ldots \frac{D_n}{(1+k)^n}$$

16
17

18   where P is the current stock price, D_n is the dividend in year n, and k is the cost of

19   common equity.

20

21   **Q.**   **IS THE DCF MODEL CONSISTENT WITH VALUATION TECHNIQUES**

22   **EMPLOYED BY INVESTMENT FIRMS?**

23   A.   Yes. Virtually all investment firms use some form of the DCF model as a valuation

24   technique. One common application for investment firms is called the three-stage

25   DCF or dividend discount model ("DDM"). The stages in a three-stage DCF model

1   are presented in Exhibit JRW-9, page 1 of 2. This model presumes that a company's

2   dividend payout progresses initially through a growth stage, then proceeds through a

3   transition stage, and finally assumes a maturity (or steady-state) stage. The dividend-

4   payment stage of a firm depends on the profitability of its internal investments which,

5   in turn, is largely a function of the life cycle of the product or service.

6   1.   Growth stage: Characterized by rapidly expanding sales, high profit

7   margins, and an abnormally high growth in earnings per share. Because of

8   highly profitable expected investment opportunities, the payout ratio is low.

9   Competitors are attracted by the unusually high earnings, leading to a decline

10   in the growth rate.

11   2.   Transition stage: In later years, increased competition reduces profit

12   margins   and   earnings   growth   slows.   With   fewer   new   investment

13   opportunities, the company begins to pay out a larger percentage of earnings.

14   3.   Maturity (steady-state) stage: Eventually, the company reaches a

15   position where its new investment opportunities offer, on average, only

16   slightly attractive ROEs. At that time, its earnings growth rate, payout ratio,

17   and ROE stabilize for the remainder of its life. The constant-growth DCF

18   model is appropriate when a firm is in the maturity stage of the life cycle.

19
20   In using this model to estimate a firm's cost of equity capital, dividends are

21   projected into the future using the different growth rates in the alternative stages, and

22   then the equity cost rate is the discount rate that equates the present value of the

23   future dividends to the current stock price.

24

1 **Q. HOW DO YOU ESTIMATE STOCKHOLDERS' EXPECTED OR REQUIRED**

2 **RATE OF RETURN USING THE DCF MODEL?**

3 A. Under certain assumptions, including a constant and infinite expected growth rate,

4 and constant dividend/earnings and price/earnings ratios, the DCF model can be

5 simplified to the following:

6

$$ P = \frac{D_1}{k - g} $$

10
11 where D_1 represents the expected dividend over the coming year and g is the expected

12 growth rate of dividends. This is known as the constant-growth version of the DCF

13 model. To use the constant-growth DCF model to estimate a firm's cost of equity,

14 one solves for k in the above expression to obtain the following:

$$ k = \frac{D_1}{P} + g $$

18

19 **Q. IN YOUR OPINION, IS THE CONSTANT-GROWTH DCF MODEL**

20 **APPROPRIATE FOR PUBLIC UTILITIES?**

21 A. Yes. The economics of the public utility business indicate that the industry is in the

22 steady-state or constant-growth stage of a three-stage DCF. The economics include

23 the relative stability of the utility business, the maturity of the demand for public

24 utility services, and the regulated status of public utilities (especially the fact that their

25 returns on investment are effectively set through the ratemaking process). The DCF

26 valuation procedure for companies in this stage is the constant-growth DCF. In the

27 constant-growth version of the DCF model, the current dividend payment and stock

1   price are directly observable. However, the primary problem and controversy in

2   applying the DCF model to estimate equity cost rates entails estimating investors'

3   expected dividend growth rate.

4

5 **Q. WHAT FACTORS SHOULD ONE CONSIDER WHEN APPLYING THE DCF**

6   **METHODOLOGY?**

7 A. One should be sensitive to several factors when using the DCF model to estimate a

8   firm's cost of equity capital. In general, one must recognize the assumptions under

9   which the DCF model was developed in estimating its components (the dividend

10   yield and the expected growth rate). The dividend yield can be measured precisely at

11   any point in time, but tends to vary somewhat over time. Estimation of expected

12   growth is considerably more difficult. One must consider recent firm performance, in

13   conjunction with current economic developments and other information available to

14   investors, to accurately estimate investors' expectations.

15

16 **Q. WHAT DIVIDEND YIELDS HAVE YOU REVIEWED?**

17 A. I have calculated the dividend yields for the companies in the two proxy groups using

18   the current annual dividend and the 30-day, 90-day, and 180-day average stock

19   prices. These dividend yields are provided on page 2 of exhibit JRW-10 for the

20   Electric and Avera/McKenzie Proxy Groups, respectively. For the Electric Proxy

21   Group, the mean and median dividend yields using 30-day, 90-day, and 180-day

22   average stock prices range from 3.4% to 3.7%. Given this range, I will use 3.55% as

23   the dividend yield for the Electric Proxy Group. For the Avera/McKenzie Proxy

1   Group, provided in Panel B of page 2 of Exhibit JRW-10, the mean and median

2   dividend yields range from 3.4% to 3.8% using the 30-day, 90-day, and 180-day

3   average stock prices. Given this range, I am using a dividend yield of 3.6% for the

4   Avera/McKenzie Proxy Group.

5   **Q.   PLEASE DISCUSS THE APPROPRIATE ADJUSTMENT TO THE SPOT**

6   **DIVIDEND YIELD.**

7   A.   According to the traditional DCF model, the dividend yield term relates to the

8   dividend yield over the coming period. As indicated by Professor Myron Gordon,

9   who is commonly associated with the development of the DCF model for popular use,

10   this is obtained by: (1) multiplying the expected dividend over the coming quarter by

11   4, and (2) dividing this dividend by the current stock price to determine the

12   appropriate dividend yield for a firm that pays dividends on a quarterly basis.[23]

13   In applying the DCF model, some analysts adjust the current dividend for

14   growth over the coming year, as opposed to the coming quarter. This can be

15   complicated because firms tend to announce changes in dividends at different times

16   during the year. As such, the dividend yield computed based on presumed growth

17   over the coming quarter as opposed to one based on the coming year can be quite

18   different. Consequently, it is common for analysts to adjust the dividend yield by

19   some fraction of the long-term expected growth rate.

20

---

[23] *Petition for Modification of Prescribed Rate of Return*, Federal Communications Commission, Docket No. 79-05, Direct Testimony of Myron J. Gordon and Lawrence I. Gould at 62 (April 1980).

| 1 | **Q.** | **GIVEN THIS DISCUSSION, WHAT ADJUSTMENT FACTOR WILL YOU** |

1   **Q.**   **GIVEN THIS DISCUSSION, WHAT ADJUSTMENT FACTOR WILL YOU**

2   **USE FOR YOUR DIVIDEND YIELD?**

3   A.   I will adjust the dividend yield by one-half (1/2) the expected growth so as to reflect

4   growth over the coming year. This is the approach employed by the Federal Energy

5   Regulatory Commission ("FERC").[24] The DCF equity cost rate ("K") is computed

6   as:

7

8                              $$K = [\ (D/P) * (1 + 0.5g)\ ] + g$$

9

10   **Q.**   **PLEASE DISCUSS THE GROWTH RATE COMPONENT OF THE DCF**

11   **MODEL.**

12   A.   There is much debate as to the proper methodology to employ in estimating the

13   growth component of the DCF model. By definition, this component is investors'

14   expectation of the long-term dividend growth rate. Presumably, investors use some

15   combination of historical and/or projected growth rates for earnings and dividends per

16   share and for internal or book value growth to assess long-term potential.

17

18   **Q.**   **WHAT GROWTH DATA HAVE YOU REVIEWED FOR THE PROXY**

19   **GROUPS?**

20   A.   I have analyzed a number of measures of growth for companies in the proxy groups.

21   I reviewed *Value Line's* historical and projected growth rate estimates for earnings

22   per share ("EPS"), dividends per share ("DPS"), and book value per share ("BVPS").

23   In addition, I utilized the average EPS growth rate forecasts of Wall Street analysts as

---

[24] Opinion No. 414-A, *Transcontinental Gas Pipe Line Corp.*, 84 FERC ¶ 61,084 (1998).

1   provided by Yahoo, Reuters and Zacks.   These services solicit five-year earnings

2   growth rate projections from securities analysts and compile and publish the means

3   and medians of these forecasts.   Finally, I also assessed prospective growth as

4   measured by prospective earnings retention rates and earned returns on common

5   equity.

6

7 Q. **PLEASE   DISCUSS   HISTORICAL   GROWTH   IN   EARNINGS   AND**

8   **DIVIDENDS AS WELL AS INTERNAL GROWTH.**

9 A. Historical growth rates for EPS, DPS, and BVPS are readily available to investors

10   and are presumably an important ingredient in forming expectations concerning

11   future growth.   However, one must use historical growth numbers as measures of

12   investors' expectations with caution.   In some cases, past growth may not reflect

13   future growth potential.   Also, employing a single growth rate number (for example,

14   for five or ten years) is unlikely to accurately measure investors' expectations, due to

15   the sensitivity of a single growth rate figure to fluctuations in individual firm

16   performance as well as overall economic fluctuations (i.e., business cycles).   One

17   must appraise the context in which the growth rate is being employed.   According to

18   the conventional DCF model, the expected return on a security is equal to the sum of

19   the dividend yield and the expected long-term growth in dividends.   Therefore, to best

20   estimate the cost of common equity capital using the conventional DCF model, one

21   must look to long-term growth rate expectations.

22   Internally generated growth is a function of the percentage of earnings

23   retained within the firm (the earnings retention rate) and the rate of return earned on

35

| 1 | | those earnings (the return on equity). The internal growth rate is computed as the |

1   those earnings (the return on equity). The internal growth rate is computed as the

2   retention rate times the return on equity. Internal growth is significant in determining

3   long-run earnings and, therefore, dividends. Investors recognize the importance of

4   internally generated growth and pay premiums for stocks of companies that retain

5   earnings and earn high returns on internal investments.

6

7   **Q.**   **PLEASE DISCUSS THE SERVICES THAT PROVIDE ANALYSTS' EPS**

8   **FORECASTS.**

9   A.   Analysts' EPS forecasts for companies are collected and published by a number of

10   investment information services, including Institutional Brokers Estimate System

11   ("I/B/E/S"), Bloomberg, FactSet, Zacks, First Call, and Reuters, among others.

12   Thompson Reuters publishes analysts' EPS forecasts under different product names,

13   including I/B/E/S, First Call, and Reuters. Bloomberg, FactSet, and Zacks each publish

14   their own set of analysts' EPS forecasts for companies. These services do not reveal:

15   (1) the analysts who are solicited for forecasts; or (2) the identity of the analysts who

16   actually provide the EPS forecasts that are used in the compilations published by the

17   services. I/B/E/S, Bloomberg, FactSet, and First Call are fee-based services. These

18   services usually provide detailed reports and other data in addition to analysts' EPS

19   forecasts. Thompson Reuters and Zacks do provide limited EPS forecast data free-of-

20   charge on the internet. Yahoo finance (http://finance.yahoo.com) lists Thompson

21   Reuters as the source of its summary EPS forecasts. The Reuters website

22   (www.reuters.com) also publishes EPS forecasts from Thompson Reuters, but with

23   more detail. Zacks (www.zacks.com) publishes its summary forecasts on its website.

1   Zack's estimates are also available on other websites, such as MSN money

2   (http://money.msn.com).

3

4 **Q.**   **PLEASE PROVIDE AN EXAMPLE OF THESE EPS FORECASTS.**

5 A.   The following example provides the EPS forecasts compiled by Reuters for Alliant

6   Energy Corp. (stock symbol "LNT"). The figures are provided on page 2 of Exhibit

7   JRW-9. The top line shows that one analyst has provided EPS estimates for the

8   quarter ending March 31, 2015. The mean, high and low estimates are $0.76, $0.76,

9   and $0.76, respectively. The second line shows the quarterly EPS estimates for the

10   quarter ending June 30, 2015 of $0.52 (mean), $0.52 (high), and $0.52 (low). Line

11   three show the annual EPS estimates for the fiscal year ending December 2015 ($3.64

12   (mean), $3.69 (high), and $3.60 (low)). The quarterly and annual EPS forecasts in

13   lines 1-3 are expressed in dollars and cents. As in the LNT case shown here, it is

14   common for more analysts to provide estimates of annual EPS as opposed to

15   quarterly EPS. The bottom line shows the projected long-term EPS growth rate,

16   which is expressed as a percentage. For LNT, two analysts have provided a long-

17   term EPS growth rate forecast, with mean, high, and low growth rates of 4.90%,

18   5.00%, and 4.80%.

19

20 **Q.**   **WHICH OF THESE EPS FORECASTS IS USED IN DEVELOPING A DCF**

21   **GROWTH RATE?**

1 A.   The DCF growth rate is the long-term projected growth rate in EPS, DPS, and BVPS.

2   Therefore, in developing an equity cost rate using the DCF model, the projected long-

3   term growth rate is the projection used in the DCF model.

4

5 **Q.   WHY DO YOU NOT RELY EXCLUSIVELY ON THE EPS FORECASTS OF**

6   **WALL STREET ANALYSTS IN ARRIVING AT A DCF GROWTH RATE FOR**

7   **THE PROXY GROUP?**

8 A.   There are several issues with using the EPS growth rate forecasts of Wall Street

9   analysts as DCF growth rates. First, the appropriate growth rate in the DCF model is

10   the dividend growth rate, not the earnings growth rate. Nonetheless, over the very

11   long term, dividend and earnings will have to grow at a similar growth rate.

12   Therefore, consideration must be given to other indicators of growth, including

13   prospective dividend growth, internal growth, as well as projected earnings growth.

14   Second, a recent study by Lacina, Lee, and Xu (2011) has shown that analysts' long-

15   term earnings growth rate forecasts are not more accurate at forecasting future

16   earnings than naïve random walk forecasts of future earnings.[25] Employing data over

17   a twenty-year period, these authors demonstrate that using the most recent year's EPS

18   figure to forecast EPS in the next 3-5 years proved to be just as accurate as using the

19   EPS estimates from analysts' long-term earnings growth rate forecasts.   In the

20   authors' opinion, these results indicate that analysts' long-term earnings growth rate

21   forecasts should be used with caution as inputs for valuation and cost of capital

22   purposes. Finally, and most significantly, it is well known that the long-term EPS

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[25] M. Lacina, B. Lee & Z. Xu, *Advances in Business and Management Forecasting (Vol. 8),* Kenneth D. Lawrence, Ronald K. Klimberg (ed.), Emerald Group Publishing Limited, pp.77-101.

1		growth rate forecasts of Wall Street securities analysts are overly optimistic and
2		upwardly biased. This has been demonstrated in a number of academic studies over
3		the years. This issue is discussed at length in Appendix B of this testimony. Hence,
4		using these growth rates as a DCF growth rate will provide an overstated equity cost
5		rate. On this issue, a study by Easton and Sommers (2007) found that optimism in
6		analysts' growth rate forecasts leads to an upward bias in estimates of the cost of
7		equity capital of almost 3.0 percentage points.[26]
8		
9	**Q.**	**IS IT YOUR OPINION THAT STOCK PRICES REFLECT THE UPWARD**
10		**BIAS IN THE EPS GROWTH RATE FORECASTS?**
11	A.	Yes, I do believe that investors are well aware of the bias in analysts' EPS growth
12		rate forecasts, and therefore stock prices reflect the upward bias.
13	**Q.**	**HOW DOES THAT AFFECT THE USE OF THESE FORECASTS IN A DCF**
14		**EQUITY COST RATE STUDY?**
15	A.	According to the DCF model, the equity cost rate is a function of the dividend yield and
16		expected growth rate. Because stock prices reflect the bias, it would affect the dividend
17		yield. In addition, the DCF growth rate needs to be adjusted downward from the
18		projected EPS growth rate to reflect the upward bias.
19		
20	**Q.**	**PLEASE DISCUSS THE HISTORICAL GROWTH OF THE COMPANIES IN**
21		**THE PROXY GROUPS, AS PROVIDED BY *VALUE LINE*.**

---

[26] Peter D. Easton & Gregory A. Sommers, *Effect of Analysts' Optimism on Estimates of the Expected Rate of Return Implied by Earnings Forecasts*, 45 J. ACCT. RES. 983–1015 (2007).

1   A.   Page 3 of Exhibit JRW-10 provides the 5- and 10-year historical growth rates for

2   EPS, DPS, and BVPS for the companies in the two proxy groups, as published in the

3   *Value Line Investment Survey.* The median historical growth measures for EPS, DPS,

4   and BVPS for the Electric Proxy Group, as provided in Panel A, range from 1.8% to

5   4.0%, with an average of 3.3%. For the Avera/McKenzie Proxy Group, as shown in

6   Panel B of page 3 of Exhibit JRW-10, the historical growth measures in EPS, DPS,

7   and BVPS, as measured by the medians, range from 1.5% to 4.3%, with an average of

8   3.1 %.

9

10 Q.   **PLEASE SUMMARIZE** *VALUE LINE'S* **PROJECTED GROWTH RATES**

11   **FOR THE COMPANIES IN THE PROXY GROUPS.**

12 A.   *Value Line's* projections of EPS, DPS, and BVPS growth for the companies in the

13   proxy groups are shown on page 4 of Exhibit JRW-10. As stated above, due to the

14   presence of outliers, the medians are used in the analysis. For the Electric Proxy

15   Group, as shown in Panel A of page 4 of Exhibit JRW-10, the medians range from

16   4.0% to 5.5%, with an average of 4.7%. For the Avera/McKenzie Proxy Group, as

17   shown in Panel B of page 4 of Exhibit JRW-10, the medians range from 3.3% to

18   6.0%, with an average of 4.4%.

19   Also provided on page 4 of Exhibit JRW-10 are the prospective sustainable

20   growth rates for the companies in the two proxy groups as measured by *Value Line*'s

21   average projected retention rate and return on shareholders' equity. As noted above,

22   sustainable growth is a significant and a primary driver of long-run earnings growth.

1		For the Electric Proxy Group and the Avera/McKenzie Proxy Group, the median
2		prospective sustainable growth rates are 4.0% and 3.9%, respectively.
3		

4 **Q.** **PLEASE ASSESS GROWTH FOR THE PROXY GROUPS AS MEASURED**

5 **BY ANALYSTS' FORECASTS OF EXPECTED 5-YEAR EPS GROWTH.**

6 A. Yahoo, Zacks, and Reuters collect, summarize, and publish Wall Street analysts'

7 long-term EPS growth rate forecasts for the companies in the proxy groups. These

8 forecasts are provided for the companies in the proxy groups on page 5 of Exhibit

9 JRW-10. I have reported both the mean and median growth rates for the two groups.

10 Since there is considerable overlap in analyst coverage between the three services, and

11 not all of the companies have forecasts from the different services, I have averaged the

12 expected five-year EPS growth rates from the three services for each company to arrive

13 at an expected EPS growth rate for each company. The mean/median of analysts'

14 projected EPS growth rates for the Electric and Avera/McKenzie Proxy Groups are

15 4.8%/4.7% and 4.4%/4.8%, respectively.[27]

16

17 **Q.** **PLEASE SUMMARIZE YOUR ANALYSIS OF THE HISTORICAL AND**

18 **PROSPECTIVE GROWTH OF THE PROXY GROUPS.**

19 A. Page 6 of Exhibit JRW-10 shows the summary DCF growth rate indicators for the

20 proxy groups.

21 The historical growth rate indicators for my Electric Proxy Group imply a

22 baseline growth rate of 3.3%. The average of the projected EPS, DPS, and BVPS

---

[27] Given the much higher mean of analysts' projected EPS growth rates for the Avera Proxy Group, I have also considered the mean figures in the growth rate analysis.

growth rates from *Value Line* is 4.7%, and *Value Line*'s projected sustainable growth
rate is 4.0%. The high end of the range for the Electric Proxy Group are the projected
EPS growth rates of Wall Street analysts, which are 4.8% and 4.7% as measured by
the mean and median growth rates. The overall range for the projected growth rate
indicators is 3.3% to 4.8%. Giving primary weight to the projected EPS growth rate
of Wall Street analysis, I will use 4.75% as the DCF growth rate for the Electric
Proxy Group. This growth rate figure is clearly in the upper end of the range of
historic and projected growth rates for the Electric Proxy Group.

The historical growth rate indicators for the Avera/McKenzie Proxy Group
indicate a growth rate of 3.1%. *Value Line*'s average projected EPS, DPS, and BVPS
growth rate for the group is 4.4%, and *Value Line*'s projected sustainable growth rate
is 3.9%. The mean/median projected EPS growth rates of Wall Street analysts for the
group are 4.4% and 4.8%. The range for the projected growth rate indicators is 3.1%
to 4.8%. Giving primary weight to the projected EPS growth rate of Wall Street
analysis, I believe that a growth rate of 4.75% is appropriate for the Avera/McKenzie
Proxy Group. As is the case for the Electric Proxy Group, this growth rate figure is
clearly in the upper end of the range of historic and projected growth rates for the
Avera/McKenzie Proxy Group.

Q. BASED ON THE ABOVE ANALYSIS, WHAT ARE YOUR INDICATED COMMON EQUITY COST RATES FROM THE DCF MODEL FOR THE GROUP?

A. My DCF-derived equity cost rates for the groups are summarized on page 1 of
Exhibit JRW-10 and in the table below.

	Dividend Yield	1 + ½ Growth Adjustment	DCF Growth Rate	Equity Cost Rate
Electric Proxy Group	**3.55%**	**1.02375**	**4.75%**	**8.40%**
Avera/McKenzie Proxy Group	**3.60%**	**1.02375**	**4.75%**	**8.45%**

The result for my Electric Proxy Group is the 3.55% dividend yield, times the one and one-half growth adjustment of 1.02375, plus the DCF growth rate of 4.75%, which results in an equity cost rate of 8.40%. The result for the Avera/McKenzie Proxy Group includes a dividend yield of 3.60%, times the one and one-half growth adjustment of 1.02375, plus the DCF growth rate of 4.75%, which results in an equity cost rate of 8.45%.

C.   CAPITAL ASSET PRICING MODEL

Q.   PLEASE DISCUSS THE CAPITAL ASSET PRICING MODEL ("CAPM").

A.   The CAPM is a risk premium approach to gauging a firm's cost of equity capital. According to the risk premium approach, the cost of equity (K) is the sum of the interest rate on a risk-free bond (R_f) and a risk premium (RP), as in the following:

$$K \quad = \quad R_f \quad + \quad RP$$

The yield on long-term Treasury securities is normally used as R_f. Risk premiums are measured in different ways. The CAPM is a theory of the risk and expected returns of common stocks. In the CAPM, two types of risk are associated with a stock: firm-specific risk or unsystematic risk, and market or systematic risk, which is measured by a firm's beta. The only risk that investors receive a return for bearing is systematic risk.

1   According to the CAPM, the expected return on a company's stock, which is

2   also the equity cost rate (K), is equal to:

3            $K = (R_f) + ß * [E(R_m) - (R_f)]$

4   Where:

5   • K represents the estimated rate of return on the stock;

6   • $E(R_m)$ represents the expected return on the overall stock market.
7   Frequently, the 'market' refers to the S&P 500;

8   • (R_f) represents the risk-free rate of interest;

9   • $[E(R_m) - (R_f)]$ represents the expected equity or market risk premium—
10   the excess return that an investor expects to receive above the risk-free rate for
11   investing in risky stocks; and

12   • *Beta*—(ß) is a measure of the systematic risk of an asset.
13

14   To estimate the required return or cost of equity using the CAPM requires

15   three inputs: the risk-free rate of interest (R_f), the beta (ß), and the expected equity or

16   market risk premium $[E(R_m) - (R_f)]$. R_f is the easiest of the inputs to measure – it is

17   represented by the yield on long-term Treasury bonds. ß, the measure of systematic

18   risk, is a little more difficult to measure because there are different opinions about

19   what adjustments, if any, should be made to historical betas due to their tendency to

20   regress to 1.0 over time. And finally, an even more difficult input to measure is the

21   expected equity or market risk premium $[(E(R_m) - (R_f)]$. I will discuss each of these

22   inputs below.

23

24 **Q.** **PLEASE DISCUSS EXHIBIT JRW-11.**

25 A. Exhibit JRW-11 provides the summary results for my CAPM study. Page 1 shows

26   the results, and the following pages contain the supporting data.

27

1	Q.	**PLEASE DISCUSS THE RISK-FREE INTEREST RATE.**
2	A.	The yield on long-term U.S. Treasury bonds has usually been viewed as the risk-free
3		rate of interest in the CAPM. The yield on long-term U.S. Treasury bonds, in turn,
4		has been considered to be the yield on U.S. Treasury bonds with 30-year maturities.
5		
6	Q.	**WHAT RISK-FREE INTEREST RATE ARE YOU USING IN YOUR CAPM?**
7	A.	As shown on page 2 of Exhibit JRW-11, the yield on 30-year Treasury bonds has been
8		in the 2.5% to 4.0% range over the 2013–2015 time period. The 30-year Treasury
9		yield is currently at the lower end of this range. Given the recent range of yields and
10		the possibility of higher interest rates, I will use 4.0% as the risk-free rate, or R_f, in
11		my CAPM.
12		
13	Q.	**WHAT BETAS ARE YOU EMPLOYING IN YOUR CAPM?**
14	A.	Beta (ß) is a measure of the systematic risk of a stock. The market, usually taken to
15		be the S&P 500, has a beta of 1.0. The beta of a stock with the same price movement
16		as the market also has a beta of 1.0. A stock whose price movement is greater than
17		that of the market, such as a technology stock, is riskier than the market and has a
18		beta greater than 1.0. A stock with below average price movement, such as that of a
19		regulated public utility, is less risky than the market and has a beta less than 1.0.
20		Estimating a stock's beta involves running a linear regression of a stock's return on
21		the market return.
22		As shown on page 3 of Exhibit JRW-11, the slope of the regression line is the
23		stock's ß. A steeper line indicates that the stock is more sensitive to the return on the

1		overall market. This means that the stock has a higher ß and greater-than-average
2		market risk. A less steep line indicates a lower ß and less market risk.
3		Several online investment information services, such as Yahoo and Reuters,
4		provide estimates of stock betas. Usually these services report different betas for the
5		same stock. The differences are usually due to: (1) the time period over which the ß
6		is measured; and (2) any adjustments that are made to reflect the fact that betas tend
7		to regress to 1.0 over time. In estimating an equity cost rate for the proxy group, I am
8		using the betas for the companies as provided in the *Value Line Investment Survey*.
9		As shown on page 3 of Exhibit JRW-11, the median betas for the companies in the
10		Electric and Avera/McKenzie Proxy Groups are 0.70 and 0.75, respectively.
11	Q.	**PLEASE DISCUSS THE MARKET RISK PREMIUM.**
12	A.	The MRP is equal to the expected return on the stock market (e.g., the expected return
13		on the S&P 500, $E(R_m)$ minus the risk-free rate of interest (R_f)). The MRP is the
14		difference in the expected total return between investing in equities and investing in
15		"safe" fixed-income assets, such as long-term government bonds. However, while
16		the MRP is easy to define conceptually, it is difficult to measure because it requires
17		an estimate of the expected return on the market - $E(R_m)$. As is discussed below, there
18		are different ways to measure $E(R_m)$, and studies have come up with significantly
19		different magnitudes for $E(R_m)$. Merton Miller, 1990 Nobel Prize winner in
20		economics, summarized the issue in this way: "I still remember the teasing we
21		financial economists, Harry Markowitz, William Sharpe, and I, had to put up with
22		from the physicists and chemists in Stockholm when we conceded that the basic unit
23		of our research, the expected rate of return, was not actually observable. I tried to

1   tease back by reminding them of their neutrino –a particle with no mass whose

2   presence was inferred only as a missing residual from the interactions of other

3   particles. But that was eight years ago. In the meantime, the neutrino has been

4   detected."[28]

5 **Q.**   **PLEASE DISCUSS THE ALTERNATIVE APPROACHES TO ESTIMATING**

6   **THE MRP.**

7 A.   Page 4 of Exhibit JRW-11 highlights the primary approaches to, and issues in,

8   estimating the expected MRP. The traditional way to measure the MRP was to use

9   the difference between historical average stock and bond returns. In this case,

10   historical stock and bond returns, also called ex post returns, were used as the

11   measures of the market's expected return (known as the ex ante or forward-looking

12   expected return). This type of historical evaluation of stock and bond returns is often

13   called the "Ibbotson approach" after Professor Roger Ibbotson, who popularized this

14   method of using historical financial market returns as measures of expected returns.

15   Most historical assessments of the equity risk premium suggest an equity risk

16   premium range of 5% to 7% above the rate on long-term U.S. Treasury bonds.

17   However, this can be a problem because: (1) ex post returns are not the same as ex

18   ante expectations; (2) market risk premiums can change over time, increasing when

19   investors become more risk-averse and decreasing when investors become less risk-

20   averse; and (3) market conditions can change such that ex post historical returns are

21   poor estimates of ex ante expectations.

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[28] Merton Miller, "The History of Finance: An Eyewitness Account," *Journal of Applied Corporate Finance*, 2000, P. 3.

1   The use of historical returns as market expectations has been criticized in

2   numerous academic studies as discussed later in my testimony. The general theme of

3   these studies is that the large equity risk premium discovered in historical stock and

4   bond returns cannot be justified by the fundamental data. These studies, which fall

5   under the category "Ex Ante Models and Market Data," compute ex ante expected

6   returns using market data to arrive at an expected equity risk premium. These studies

7   have also been called "Puzzle Research" after the famous study by Mehra and

8   Prescott in which the authors first questioned the magnitude of historical equity risk

9   premiums relative to fundamentals.[29]

10   In addition, there are a number of surveys of financial professionals regarding

11   the MRP. There also have been several published surveys of academics on the equity

12   risk premium. *CFO Magazine* conducts a quarterly survey of CFOs, which includes

13   questions regarding their views on the current expected returns on stocks and bonds.

14   Usually, over 500 CFOs participate in the survey.[30] Questions regarding expected

15   stock and bond returns are also included in the Federal Reserve Bank of

16   Philadelphia's annual survey of financial forecasters, which is published as the *Survey*

17   *of Professional Forecasters*.[31] This survey of professional economists has been

18   published for almost fifty years. In addition, Pablo Fernandez conducts occasional

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[29] Rajnish Mehra & Edward C. Prescott, The Equity Premium: A Puzzle, *Journal of Monetary Economics,* 145 (1985).

[30]*See* DUKE/CFO MAGAZINE GLOBAL BUSINESS OUTLOOK SURVEY, www.cfosurvey.org (last accessed Dec. 15, 2014).

[31] Federal Reserve Bank of Philadelphia, *Survey of Professional Forecasters (Feb. 13, 2015).* The Survey of Professional Forecasters was formerly conducted by the American Statistical Association ("ASA") and the National Bureau of Economic Research ("NBER") and was known as the ASA/NBER survey. The survey, which began in 1968, is conducted each quarter. The Federal Reserve Bank of Philadelphia, in cooperation with the NBER, assumed responsibility for the survey in June 1990.

1   surveys of financial analysts and companies regarding the equity risk premiums they

2   use in their investment and financial decision-making.[32]

3

4   **Q.   PLEASE PROVIDE A SUMMARY OF THE MRP STUDIES.**

5   A.   Derrig and Orr (2003), Fernandez (2007), and Song (2007) have completed the most

6   comprehensive reviews to date of the research on the MRP.[33] Derrig and Orr's study

7   evaluated the various approaches to estimating MRPs, as well as the issues with the

8   alternative approaches and summarized the findings of the published research on the

9   MRP.   Fernandez examined four alternative measures of the MRP – historical,

10   expected, required, and implied. He also reviewed the major studies of the MRP and

11   presented the summary MRP results. Song provides an annotated bibliography and

12   highlights the alternative approaches to estimating the MRP.

13   Page 5 of Exhibit JRW-11 provides a summary of the results of the primary

14   risk premium studies reviewed by Derrig and Orr, Fernandez, and Song, as well as

15   other more recent studies of the MRP. In developing page 5 of Exhibit JRW-11, I

16   have categorized the studies as discussed on page 4 of Exhibit JRW-11. I have also

17   included the results of the "Building Blocks" approach to estimating the equity risk

18   premium, including a study I performed, which is presented in Appendix C of this

19   testimony. The Building Blocks approach is a hybrid approach employing elements

20   of both historical and *ex ante* models.

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[32] Pablo Fernandez, Pablo Linares and Isabel Fernandez Acín, *"*Market Risk Premium used for 88 countries in 2014: a survey with 8,228 answers," June 20, 2014.

[33] *See* Richard Derrig & Elisha Orr, "Equity Risk Premium: Expectations Great and Small," Working Paper (version 3.0), Automobile Insurers Bureau of Massachusetts, (August 28, 2003); Pablo Fernandez, "Equity Premium: Historical, Expected, Required, and Implied," IESE Business School Working Paper, (2007); Zhiyi Song, "The Equity Risk Premium: An Annotated Bibliography," CFA Institute, (2007).

1

2 **Q.   PLEASE DISCUSS PAGE 5 OF EXHIBIT JRW-11.**

3 A.   Page 5 of JRW-11 provides a summary of the results of the MRP studies that I have

4   reviewed. These include the results of: (1) the various studies of the historical risk

5   premium, (2) *ex ante* MRP studies, (3) MRP surveys of CFOs, financial forecasters,

6   analysts, companies and academics, and (4) the Building Block approach to the MRP.

7   There are results reported for over thirty studies, and the median MRP is 4.68%.

8

9 **Q.   PLEASE HIGHLIGHT THE RESULTS OF THE MORE RECENT RISK**

10   **PREMIUM STUDIES AND SURVEYS.**

11 A.   The studies cited on page 5 of Exhibit JRW-11 include every MRP study and survey I

12   could identify that was published over the past decade and that provided an MRP

13   estimate. Most of these studies were published prior to the financial crisis of 2007-

14   2009. In addition, some of these studies were published in the early 2000s at the

15   market peak. It should be noted that many of these studies (as indicated) used data

16   over long periods of time (as long as fifty years of data) and so were not estimating an

17   MRP as of a specific point in time (e.g., the year 2001). To assess the effect of the

18   earlier studies on the MRP, I have reconstructed page 5 of Exhibit JRW-11 on page 6

19   of Exhibit JRW-11; however, I have eliminated all studies dated before January 2,

20   2010. The median for this subset of studies is 5.17%.

21
22 **Q.   GIVEN THESE RESULTS, WHAT MARKET OR MRP ARE YOU USING IN**

23   **YOUR CAPM?**

1   A.   Much of the data indicates that the market risk premium is in the 4.0% to 6.0% range.

2   Several recent studies (such as Damodaran, American Appraisers, the CFO Survey,

3   and my supply-side model), have suggested an increase in the market risk premium.

4   Therefore, I will use 5.5%, which is in the upper end of the range, as the market or

5   MRP.

6

7   Q.   **IS YOUR *EX ANTE* MRP CONSISTENT WITH THE MRPS USED BY**

8   **CFOS?**

9   A.   Yes.   In the March 2015 CFO survey conducted by *CFO Magazine* and Duke

10   University, the expected 10-year MRP was 5.2%.

11

12 Q.   **IS YOUR *EX ANTE* MRP CONSISTENT WITH THE MRPS OF**

13   **PROFESSIONAL FORECASTERS?**

14 A.   The financial forecasters in the previously referenced Federal Reserve Bank of

15   Philadelphia survey projected both stock and bond returns. In the February 2015

16   survey, the median long-term expected stock and bond returns were 5.79% and

17   3.91%, respectively. This provides an *ex ante* MRP of 1.88% (5.79%-3.91%).

18

19 Q.   **IS YOUR *EX ANTE* MRP CONSISTENT WITH THE MRPS OF FINANCIAL**

20   **ANALYSTS AND COMPANIES?**

1   A.   Yes. Pablo Fernandez recently published the results of a 2014 survey of academics,

2   financial analysts, and companies.[34] This survey included over 8,000 responses. The

3   median MRP employed by U.S. analysts and companies was 5.0%.

4

5   **Q.   WHAT EQUITY COST RATE IS INDICATED BY YOUR CAPM ANALYSIS?**

6   A.   The results of my CAPM study for the proxy groups are summarized on page 1 of

7   Exhibit JRW-11 and in the table below.

8
$$K = (R_f) + \beta * [E(R_m) - (R_f)]$$

	Risk-Free Rate	Beta	MRP	Equity Cost Rate
Electric Proxy Group	4.0%	0.70	5.5%	7.9%
Avera/McKenzie Proxy Group	4.0%	0.75	5.5%	8.1%

9

10   For the Electric Proxy Group, the risk-free rate of 4.00% plus the product of the beta

11   of 0.70 times the MRP of 5.50% results in a 7.9% equity cost rate. For the

12   Avera/McKenzie Proxy Group, the risk-free rate of 4.00% plus the product of the

13   beta of 0.75 times the MRP of 5.50% results in an 8.1% equity cost rate.

14

15   **D.   EQUITY COST RATE SUMMARY**

---

[34] Pablo Fernandez, Pablo Linares and Isabel Fernandez Acín, "Market Risk Premium used for 88 countries in 2014: a survey with 8,228 answers," June 20, 2014.

1

2   **Q.   PLEASE SUMMARIZE YOUR EQUITY COST RATE STUDY.**

3   A.   My DCF analyses for the Electric and Avera/McKenzie Proxy Groups indicate equity

4   cost rates of 8.40% and 8.45%, respectively. My CAPM analyses for the Electric and

5   Avera/McKenzie Proxy Groups indicate equity cost rates of 7.9% and 8.1%.

	DCF	CAPM
Electric Proxy Group	8.40%	7.90%
Avera/McKenzie Proxy Group	8.45%	8.10%

6   **Q.   GIVEN THESE RESULTS, WHAT IS YOUR ESTIMATED EQUITY COST**

7   **RATE FOR THE GROUPS?**

8   A.   Given these results, I conclude that the appropriate equity cost rate for companies in

9   my Electric Group and the Avera/McKenzie Proxy Group is in the 7.90% to 8.45%

10   range. However, since I rely primarily on the DCF model, I am using the upper end

11   of the range as the equity cost rate. Therefore, I conclude that the appropriate equity

12   cost rate for the groups is 8.4%.

13   **Q.   ARE YOU RECOMMENDING 8.40% AS AN EQUITY COST RATE FOR**

14   **KPC?**

15   A.   No. As previously discussed, KPC credit ratings, and in particular KPC's Moody's

16   credit rating of Baa2, suggest that the company is a little riskier than the two groups.

17   The rating differential is less than a full rating category (such as A to Baa). The

18   difference between A and Baa Moody's bond yields over the past year is about 50

19   basis points. Since the rating differential is less than a full rating category, I will

1   adjust KPC's equity cost rate by ½ of this amount, or 0.25%, to reflect the slightly

2   higher risk of KPC relative to the proxy group.

3 **Q. GIVEN THIS ADJUSTMENT, WHAT IS YOUR RECOMMENDED EQUITY**

4   **COST RATE FOR KPC?**

5 A. My recommended equity cost rate or ROE for KPC is 8.65% (8.40% + 0.25%).

6

7 **Q. PLEASE INDICATE WHY AN 8.65% RETURN IS APPROPRIATE FOR THE**

8   **COMPANY AT THIS TIME.**

9 A. There are a number of reasons why an 8.65% return on equity is appropriate and fair

10   for the Company in this case:

11   1. As shown in Exhibit JRW-8, the electric utility industry is one of the lowest

12   risk industries in the U.S. as measured by beta. As such, the cost of equity capital for

13   this industry is amongst the lowest in the U.S., according to the CAPM.

14   2. As shown in Exhibits JRW-2 and JRW-3, capital costs for utilities, as

15   indicated by long-term bond yields, are still at historically low levels. In addition,

16   given the low inflationary expectations and the slow global economic growth, interest

17   rates are likely to remain at low levels for some time.

18   3. As highlighted by Mr. McKenzie and Dr. Avera, KPC has a number of rate

19   adjustment mechanisms for environmental costs and demand side management that

20   serve to reduce the riskiness of KPC.

21   4. As previously indicated, the authorized ROEs for electric utilities have

22   gradually decreased in recent years. These authorized ROEs have declined from

23   10.01% in 2012, to 9.8% in 2013, to 9.76% in 2014, according to Regulatory

1	Research Associates. In my opinion, these authorized ROEs have lagged behind
2	capital market cost rates. This has been especially true in recent years as some state
3	commissions have been reluctant to authorize ROEs below 10%. However, the <u>trend</u>
4	has been lower towards lower ROEs, and the <u>norm</u> now is below ten percent. Hence,
5	I believe that my recommended ROE reflects our present historically low capital cost
6	rates, and these low capital cost rates are finally being recognized by state utility
7	commissions.
8	
9	**Q.** **DO YOU BELIEVE THAT YOUR 8.65% MEETS *HOPE* AND *BLUEFIELD***
10	**STANDARDS?**
11	A. Yes. As previously noted, according to the *Hope* and *Bluefield* decisions, returns on
12	capital should be: (1) comparable to returns investors expect to earn on other
13	investments of similar risk; (2) sufficient to assure confidence in the company's
14	financial integrity; and (3) adequate to maintain and support the company's credit and
15	to attract capital. KPC's average earned ROE over the past five years (2010-2014) is
16	7.25%.[35] Also, KPC has been able to raise capital. The Company issued $250
17	million in senior unsecured, 12-year bonds in September of 2014 at 4.18%. Therefore,
18	I do believe that my ROE recommendation meets the criteria established in the *Hope*
19	and *Bluefield* decisions.
20	
21	**VI.** **CRITIQUE OF KPC'S RATE OF RETURN TESTIMONY**
22	

---

[35] AG_1_405_Attachment13.xls .

1 **Q.   PLEASE   SUMMARIZE   THE   COMPANY'S   COST   OF   CAPITAL**

2   **RECOMMENDATION.**

3 A.   KPC witness Mr. Marc D. Reitter provides the recommended capital structure and

4   debt cost rates, and Dr. Avera and Mr. McKenzie recommend a common equity cost

5   rate for KPC. KPC's recommended capital structure includes -2.69% short-term debt,

6   4.52% accounts receivable, 52.98% long-term debt and 45.19% common equity. The

7   Company proposes a short-term debt cost rate of 0.25%, an accounts receivable cost

8   rate of 1.07%, and a long-term debt cost rate of 5.41%. Dr. Avera and Mr. McKenzie

9   have recommended a ROE or common equity cost rate of 10.62%. This rate of return

10   recommendation is summarized on page 1 of Exhibit JRW-12.

11

12 **Q.   WHAT ISSUES DO YOU HAVE WITH THE COMPANY'S COST OF**

13   **CAPITAL POSITION?**

14 A.   The primary areas of disagreement in measuring the Company's cost of capital are:

15   (1) KPC's proposed capital structure; (2) our opposing views regarding the state of

16   the markets and capital costs; (3) the DCF equity cost rate estimates, and in particular,

17   (a) Dr. Avera and Mr. McKenzie's ignoring over 20% of their low-end results, and

18   (b) Dr. Avera and Mr. McKenzie's exclusive use of the earnings per share growth

19   rates of Wall Street analysts and *Value Line*; (4) the base interest rate and market or

20   equity risk premium in the URP and CAPM approaches; and (5) whether or not

21   equity cost rate adjustments are needed to account for size and flotation costs.

22

23   There are several other less significant issues in Dr. Avera and Mr.

1		McKenzie's equity cost rate analyses. In their CAPM analysis, they have: (1) used a
2		projected risk-free rate that is more than 150 basis points above current market rates;
3		and (2) employed the Empirical CAPM ("ECAPM") version of the CAPM, which
4		makes inappropriate adjustments to the risk-free rate and the market risk premium.
5		Dr. Avera and Mr. McKenzie have also used several other ROE analyses which they
6		refer to as "checks of reasonableness" on their 10.62% ROE recommendation. These
7		approaches include an Expected Earnings approach and a DCF analysis for a non-
8		utility group. I show that these alternative approaches do not provide an appropriate
9		measure of the equity cost rate for the Company.
10		The capital structure issue and our alternative views on the state of the capital
11		markets issue were previously discussed. The discussion below focusses on Dr.
12		Avera and Mr. McKenzie's recommended equity cost rate.
13		
14	Q.	**PLEASE REVIEW DR. AVERA AND MR. MCKENZIE'S EQUITY COST**
15		**RATE APPROACHES.**
16	A.	Dr. Avera and Mr. McKenzie use their proxy group and employ DCF, CAPM, and URP
17		equity cost rate approaches. Dr. Avera and Mr. McKenzie's equity cost rate estimates
18		for KPC are summarized on page 1 of Exhibit JRW-13. Based on these figures, and
19		including a flotation cost adjustment of 0.12%, they conclude that the appropriate
20		equity cost rate for the Company is 10.62%.
21		
22		**A. DCF Approach**
23		

| 1 | Q. | **PLEASE SUMMARIZE DR. AVERA AND MR. MCKENZIE'S DCF** |
| 2 | | **ESTIMATES.** |

3   A.   On pages 32-45 of their testimony and in their Exhibit Nos. WEA/AMM 5, 6 and 7, Dr.

4   Avera and Mr. McKenzie develop an equity cost rate by applying the DCF model to the

5   Avera/McKenzie Proxy Group. Dr. Avera and Mr. McKenzie's DCF results are

6   summarized on page 1 of Exhibit JRW-13. In the traditional DCF approach, the equity

7   cost rate is the sum of the dividend yield and expected growth. For the DCF growth

8   rate, Dr. Avera and Mr. McKenzie use five measures of projected EPS growth – the

9   projected EPS growth of Wall Street analysts as compiled by IBES, Reuters, and Zack's,

10   *Value Line's* projected EPS projected growth rate, and a measure of sustainable growth

11   as computed by the sum of internal ("br") and external ("sv") growth. The average of

12   the mean DCF results is 9.5% for the Avera/McKenzie Proxy Group.

13

14   Q.   **WHAT ARE THE ERRORS IN DR. AVERA AND MR. MCKENZIE'S DCF**

15   **ANALYSES?**

16   A.   The primary issues in Dr. Avera and Mr. McKenzie's DCF analyses are: (1) the

17   asymmetric elimination of low-end DCF results - they have ignored over 20% of the low

18   DCF results for their constant-growth DCF model application; and (2) the excessive use

19   of the EPS growth rate forecasts of Wall Street analysts and *Value Line* - the DCF

20   growth rate in their DCF models employ the overly optimistic and upwardly-biased EPS

21   growth rate estimates of Wall Street analysts and *Value Line.*

22
23   1.   The Asymmetric Elimination of Low-End DCF Results
24
25

1	Q.	**PLEASE ADDRESS DR. AVERA AND MR. MCKENZIE'S ASYMMETRIC**

1   Q.   **PLEASE ADDRESS DR. AVERA AND MR. MCKENZIE'S ASYMMETRIC**

2   **ELIMINATION OF DCF RESULTS.**

3   A.   A very significant error with Dr. Avera and Mr. McKenzie's DCF equity cost rate

4   analyses is their asymmetric elimination of DCF results. Page 2 of Exhibit JRW-13

5   provides Dr. Avera and Mr. McKenzie's DCF results for their utility group. In deriving

6   a DCF equity cost rate, Dr. Avera and Mr. McKenzie have labeled equity cost rates

7   below 7.5% and above 17.7% as extreme outliers.[36] These screens eliminate 15 of their

8   65 DCF results, or 23%. All of the eliminated DCF results are on the low end. By

9   eliminating low-end outliers and not also eliminating the same number of high-end

10   outliers, Dr. Avera and Mr. McKenzie bias their DCF equity cost rate study and report a

11   higher DCF equity cost rate than the data indicate. In my DCF analysis, I have used the

12   median as a measure of central tendency so as to not give outlier results too much

13   weight. My approach also avoids biasing the results by including all data in the analysis

14   and not selectively eliminating outcomes.

15   On page 2 of Exhibit JRW-13, I have recalculated Dr. Avera and Mr.

16   McKenzie's DCF equity cost rate for the Avera/McKenzie Proxy Group without

17   eliminating the so-called extreme outliers. The actual mean and median DCF equity

18   cost rates, using all observations in the analysis, average 8.4% and 8.7%, respectively.

19   As such, Dr. Avera and Mr. McKenzie's asymmetric elimination of low-end DCF

20   results distorts their reported DCF ROEs.

21

22   2. Analysts EPS Growth Rates

---

[36] In contrast, I have not labeled observations as outliers, but I have used the median as a measure of central tendency to minimize the impact of outliers.

1

2   Q.   **PLEASE REVIEW DR. AVERA AND MR. MCKENZIE'S DCF GROWTH**

3   **RATE.**

4   A.   In their constant-growth DCF model, Dr. Avera and Mr. McKenzie's DCF growth

5   rate is the average of the projected EPS growth rate forecasts of (1) Wall Street

6   analysts as compiled by Zacks, IBES, and Reuters; and (2) *Value Line*.

7

8   Q.   **PLEASE DISCUSS DR. AVERA AND MR. MCKENZIE'S USE OF THE**

9   **PROJECTED EPS GROWTH RATES OF WALL STREET ANALYSTS AND**

10   ***VALUE LINE* IN THEIR DCF MODELS.**

11   A.   A very significant issue with Dr. Avera and Mr. McKenzie's DCF analyses is their

12   reliance on the EPS growth rate forecasts of Wall Street analysts and *Value Line*.

13

14   Q.   **WHY IS IT ERRONEOUS TO RELY EXCLUSIVELY ON THE EPS**

15   **FORECASTS OF WALL STREET ANALYSTS IN ARRIVING AT A DCF**

16   **GROWTH RATE?**

17   A.   There are several issues with using the EPS growth rate forecasts of Wall Street

18   analysts and *Value Line* as DCF growth rates. First, as discussed above, the

19   appropriate growth rate in the DCF model is the dividend growth rate, not the

20   earnings growth rate. Therefore, consideration must be given to other indicators of

21   growth, including prospective dividend growth, internal growth, as well as projected

22   earnings growth. Second, and most significantly, it is well-known that the long-term

23   EPS growth rate forecasts of Wall Street securities analysts are overly optimistic and

1   upwardly biased. This has been demonstrated in a number of academic studies over

2   the years. In addition, I demonstrate that *Value Line*'s EPS growth rate forecasts are

3   consistently too high. Hence, using these growth rates as a DCF growth rate will

4   provide an overstated equity cost rate.

5

6 Q.   **PLEASE DISCUSS DR. AVERA AND MR. MCKENZIE'S RELIANCE ON**

7   **THE PROJECTED GROWTH RATES OF WALL STREET ANALYSTS AND**

8   *VALUE LINE.*

9 A.   It seems highly unlikely that investors today would rely excessively on the EPS

10   growth rate forecasts of Wall Street analysts and ignore other growth rate measures in

11   arriving at expected growth. As I previously indicated, the appropriate growth rate in

12   the DCF model is the dividend growth rate, not the earnings growth rate. Hence,

13   consideration must be given to other indicators of growth, including historic growth,

14   prospective dividend growth, internal growth, as well as projected earnings growth.

15   In addition, as mentioned, the 2011 study by Lacina, Lee, and Xu has shown that

16   analysts' long-term earnings growth rate forecasts are not more accurate at

17   forecasting future earnings than naïve random walk forecasts of future earnings.[37] As

18   such, the weight given to analysts' projected EPS growth rate should be limited. And

19   finally, and most significantly, it is well-known that the long-term EPS growth rate

20   forecasts of Wall Street securities analysts are overly optimistic and upwardly biased.

21   Hence, using these growth rates as a DCF growth rate produces an overstated equity

22   cost rate. A 2007 study by Easton and Sommers found that optimism in analysts'

---

[37] *Ibid.* p. 77.

1   growth rate forecasts leads to an upward bias in estimates of the cost of equity capital

2   of almost 3.0 percentage points.[38] These issues are addressed in more detail in

3   Appendix B.

4

5   **B.   Empirical CAPM Approach**

6

7   **Q.   PLEASE DISCUSS DR. AVERA AND MR. MCKENZIE'S CAPM.**

8   A.   On pages 45-51 of their testimony and in Exhibit No. WEA/AMM 8, Dr. Avera and Mr.

9   McKenzie estimate an equity cost rate by applying a CAPM model to their proxy group.

10   Dr. Avera and Mr. McKenzie have not used a traditional CAPM, but rather a variant of

11   the traditional CAPM, the Empirical CAPM ("ECAPM"). The CAPM approach

12   requires an estimate of the risk-free interest rate, Beta, and the MRP. They calculate a

13   CAPM equity cost rate using the current long-term Treasury bond yield of 3.3%, a

14   projected bond yield of 4.7%, and Betas from *Value Line*.[39]   A market risk premium is

15   computed for each risk-free rate, and both are based on an expected stock market return

16   of 13.1%. They also add a size premium to their CAPM equity cost rate.   The ECAPM

17   version of the CAPM makes adjustments to the risk-free rate and the market risk

18   premium in calculating an equity cost rate.   Their ECAPM equity cost rates using

19   current/projected interest rates and including/excluding a size premium result in a range

20   from 11.3% to 12.4%.

21

22 **Q.   WHAT ARE THE ERRORS IN DR. AVERA AND MR. MCKENZIE'S ECAPM**

---

[38] *Ibid.* p. 29.
[39] See page 2 of Exhibit WEA/AMM 8.

1		**ANALYSIS?**
2	A.	The primary errors with Dr. Avera and Mr. McKenzie's ECAPM analysis are: (1) the
3		use of the ECAPM version of the CAPM; (2) the current and projected risk-free
4		interest rates that are used; (3) the expected market return of 13.1% that is used to
5		compute the market risk premiums; and (4) the size adjustment that is used.
6		
7		1. ECAPM Approach
8		
9	**Q.**	**WHAT ISSUES DO YOU HAVE WITH DR. AVERA AND MR. MCKENZIE'S**
10		**ECAPM?**
11	A.	The ECAPM, as popularized by rate of return consultant Dr. Roger Morin, attempts
12		to model the well-known finding of tests of the CAPM that have indicated the
13		Security Market Line ("SML") is not as steep as predicted by the CAPM. As such,
14		the ECAPM is nothing more than an ad hoc version of the CAPM and has not been
15		theoretically or empirically validated in refereed journals. The ECAPM provides for
16		weights which are used to adjust the risk-free rate and market risk premium in applying
17		the ECAPM. Dr. Avera and Mr. McKenzie use 0.25 and 0.75 factors to boost the MRP
18		measure but provide no empirical justification for those figures.
19		Beyond the lack of any theoretical or empirical validation of the ECAPM itself,
20		there are two errors in Dr. Avera and Mr. McKenzie's version of the ECAPM. I am not
21		aware of any tests of the CAPM that use adjusted betas such as those used by Dr.
22		Avera and Mr. McKenzie. Adjusted betas address the empirical issues with the
23		CAPM by increasing the expected returns for low beta stocks and decreasing the

1		returns for high beta stocks.
2		2. Risk-Free Interest Rate
3		
4	**Q.**	**PLEASE DISCUSS THE BASE YIELD OF DR. AVERA AND MR.**
5		**MCKENZIE'S ECAPM ANALYSIS.**
6	A.	Dr. Avera and Mr. McKenzie use current and projected risk-free interest rates of 3.3%
7		and 4.7% in their ECAPM. These figures are inflated as the current yield on long-term
8		Treasury bonds is below 3.0%.
9		3. Market Risk Premium
10		
11	**Q.**	**PLEASE ASSESS DR. AVERA AND MR. MCKENZIE'S MARKET RISK**
12		**PREMIUMS DERIVED FROM APPLYING THE DCF MODEL TO THE S&P**
13		**500.**
14	A.	The primary problem with Dr. Avera and Mr. McKenzie's CAPM analysis is the
15		magnitude of the market or equity risk premium. Dr. Avera and Mr. McKenzie develop
16		an expected market risk premium by: (1) applying the DCF model to the S&P 500 to get
17		an expected market return; and (2) subtracting the risk-free rate of interest. Dr. Avera
18		and Mr. McKenzie's estimated market return of 13.1% for the S&P 500 equals the
19		sum of the dividend yield of 2.3% and expected EPS growth rate of 10.8%. The
20		expected EPS growth rate is the average of the expected EPS growth rates from
21		IBES. The primary error in this approach is Dr. Avera and Mr. McKenzie's expected
22		DCF growth rate. As discussed in Appendix B, the expected EPS growth rates of
23		Wall Street analysts are upwardly biased. In addition, as explained below, the
24		projected growth rate is inconsistent with economic and earnings growth in the U.S.

1

2 **Q. BEYOND YOUR PREVIOUS DISCUSSION OF THE UPWARD BIAS IN**

3 **WALL STREET ANALYSTS' EPS GROWTH RATE FORECASTS, WHAT**

4 **OTHER EVIDENCE CAN YOU PROVIDE THAT DR. AVERA AND MR.**

5 **MCKENZIE'S S&P 500 GROWTH RATE IS EXCESSIVE?**

6 A. A long-term EPS growth rate of 10.8% is not consistent with historic as well as

7 projected economic and earnings growth in the U.S for several reasons: (1) long-term

8 EPS and economic growth, as measured by GDP, is about ½ of Dr. Avera and Mr.

9 McKenzie's projected EPS growth rate of 10.8%; (2) more recent trends in GDP

10 growth, as well as projections of GDP growth, suggest slower economic and earnings

11 growth in the future; and (3) over time, EPS growth tends to lag behind GDP growth.

12 The long-term economic, earnings, and dividend growth rate in the U.S. has

13 only been in the 5% to 7% range. I performed a study of the growth in nominal GDP,

14 S&P 500 stock price appreciation, and S&P 500 EPS and DPS growth since 1960.

15 The results are provided on page 1 of Exhibit JRW-14, and a summary is given in the

16 table below.

17 **GDP, S&P 500 Stock Price, EPS, and DPS Growth**
18 **1960-Present**

Nominal GDP	6.6%
S&P 500 Stock Price	6.8%
S&P 500 EPS	6.9%
S&P 500 DPS	5.6%
Average	6.5%

19

20 **Q. DO MORE RECENT DATA SUGGEST THAT THE U.S. ECONOMY**

21 **GROWTH IS FASTER OR SLOWER THAN THE LONG-TERM DATA?**

1	A.	The more recent trends suggest lower future economic growth than the long-term
2		historic GDP growth. The historic GDP growth rates for 10-, 20-, 30-, 40- and 50-
3		years are presented in Panel A of page 3 of Exhibit JRW-14 and in the table below.

4

<div align="center">

Historic GDP Growth Rates

10-Year Average	3.6%
20-Year Average	4.4%
30-Year Average	5.0%
40-Year Average	6.2%
50-Year Average	6.7%

</div>

5

6   These data clearly suggest that nominal GDP growth in recent decades has slowed to the

7   4.0% to 5.0% area.

8

9 **Q. WHAT LEVEL OF GDP GROWTH IS FORECASTED BY ECONOMISTS AND**

10 **VARIOUS GOVERNMENT AGENCIES?**

11 A. There are several forecasts of annual GDP growth that are available from financial

12   forecasters and government agencies. These are listed in Panel B of page 3 of Exhibit

13   JRW-14. The mean 10-year nominal GDP growth forecast (as of February 2015) by

14   economists in the recent *Survey of Professional Forecasters* is 4.7%. The Energy

15   Information Administration (EIA), in its projections used in preparing *Annual Energy*

16   *Outlook,* forecasts long-term nominal GDP growth of 4.5% for the period 2011-2040.

17   The Congressional Budget Office, in its forecasts for the period 2014 to 2024,

18   projects a nominal GDP growth rate of 4.8%.

19

20 **Q. WHY IS GDP GROWTH RELEVANT IN YOUR DISCUSSION OF DR. AVERA**

21 **AND MR. MCKENZIE'S USE OF THE LONG-TERM EPS GROWTH RATES**

1   **IN DEVELOPING A MARKET RISK PREMIUM FOR THEIR CAPM?**

2   A.   Because, as indicated in recent research, the long-term earnings growth rates of

3   companies are limited to the growth rate in GDP.

4

5   **Q.   PLEASE HIGHLIGHT THE RESEARCH ON THE LINK BETWEEN**

6   **ECONOMIC AND EARNINGS GROWTH AND EQUITY RETURNS.**

7   A.   Brad Cornell of the California Institute of Technology published a study in 2010 on

8   GDP growth, earnings growth, and equity returns. He found that long-term EPS

9   growth in the U.S. is directly related to GDP growth, with GDP growth providing an

10   upward limit on EPS growth. In addition, he found that long-term stock returns are

11   determined by long-term earnings growth. He concluded with the following

12   observations:[40]

13   The long-run performance of equity investments is fundamentally linked to
14   growth in earnings. Earnings growth, in turn, depends on growth in real GDP.
15   This article demonstrates that both theoretical research and empirical research
16   in development economics suggest relatively strict limits on future growth. In
17   particular, real GDP growth in excess of 3 percent in the long run is highly
18   unlikely in the developed world. In light of ongoing dilution in earnings per
19   share, this finding implies that investors should anticipate real returns on U.S.
20   common stocks to average no more than about 4–5 percent in real terms.
21

22   Given current inflation in the 2% to 3% range, the results imply nominal

23   expected stock market returns in the 7% to 8% range. As such, Dr. Avera and Mr.

24   McKenzie's projected earnings growth rates and implied expected stock market

25   returns and MRPs are not indicative of the realities of the U.S. economy and stock

26   market. As such, their expected CAPM equity cost rate is significantly overstated.

---

[40] Bradford Cornell, "Economic Growth and Equity Investing," *Financial Analysts Journal* (Jan./Feb. 2010), p. 63.

1		
2	**Q.**	**PLEASE PROVIDE A SUMMARY ASSESSMENT OF DR. AVERA AND MR.**
3		**MCKENZIE'S PROJECTED MRP DERIVED FROM EXPECTED MARKET**
4		**RETURNS.**
5	A.	Dr. Avera and Mr. McKenzie's market risk premium derived from their DCF
6		application to the S&P 500 is inflated due to errors and bias in their study.
7		Investment banks, consulting firms, and CFOs use the MRP concept every day in
8		making financing, investment, and valuation decisions. On this issue, the opinions of
9		CFOs and financial forecasters are especially relevant. CFOs deal with capital markets
10		on an ongoing basis since they must continually assess and evaluate capital costs for
11		their companies. They are well aware of the historical stock and bond return studies
12		of Ibbotson. The CFOs in the March 2015 *CFO Magazine* – Duke University Survey
13		of over 500 CFOs shows an expected return on the S&P 500 of 7.40% over the next
14		ten years. In addition, the financial forecasters in the February 2015 Federal Reserve
15		Bank of Philadelphia survey expect an annual market return of 5.79% over the next
16		ten years. As such, with a more realistic equity or market risk premium, the
17		appropriate equity cost rate for a public utility should be in the 8.0% to 9.0% range
18		and not in the 10.0% to 11.0% range.
19		
20		4. Size Adjustment
21		
22	**Q.**	**PLEASE DISCUSS DR. AVERA AND MR. MCKENZIE'S SIZE**
23		**ADJUSTMENT.**

1   A.   Dr. Avera and Mr. McKenzie include a size adjustment in their CAPM approach for

2   the size of the companies in the utility group. This adjustment is based on the

3   historical stock market returns studies as performed by Morningstar (formerly

4   Ibbotson Associates). There are numerous errors in using historical market returns to

5   compute risk premiums. These errors provide inflated estimates of expected risk

6   premiums. Among the errors are survivorship bias (only successful companies

7   survive – poor companies do not survive) and unattainable return bias (the Ibbotson

8   procedure presumes monthly portfolio rebalancing). The net result is that Ibbotson's

9   size premiums are poor measures for risk adjustment to account for the size of a

10   utility.

11   In addition, Professor Annie Wong has tested for a size premium in utilities

12   and concluded that, unlike industrial stocks, utility stocks do not exhibit a significant

13   size premium.[41] As explained by Professor Wong, there are several reasons why such a

14   size premium would not be attributable to utilities. Utilities are regulated closely by

15   state and federal agencies and commissions, and hence, their financial performance is

16   monitored on an ongoing basis by both the state and federal governments. In addition,

17   public utilities must gain approval from government entities for common financial

18   transactions such as the sale of securities. Furthermore, unlike their industrial

19   counterparts, accounting standards and reporting are fairly standardized for public

20   utilities. Finally, a utility's earnings are predetermined to a certain degree through the

21   ratemaking process in which performance is reviewed by state commissions and other

22   interested parties. Overall, in terms of regulation, government oversight, performance

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[41] Annie Wong, "Utility Stocks and the Size Effect: An Empirical Analysis," *Journal of the Midwest Finance Association*, pp. 95-101, (1993).

1   review, accounting standards, and information disclosure, utilities are much different

2   than industrials, which could account for the lack of a size premium.

3

4 Q.   **PLEASE DISCUSS THE RESEARCH ON THE SIZE PREMIUM IN**

5   **ESTIMATING THE EQUITY COST RATE.**

6 A.   As noted, there are errors in using historical market returns to compute risk

7   premiums. With respect to the small firm premium, Richard Roll (1983) found that

8   one-half of the historic return premium for small companies disappears once biases

9   are eliminated and historic returns are properly computed. The error arises from the

10   assumption of monthly portfolio rebalancing and the serial correlation in historic

11   small firm returns.[42]

12   In a more recent paper, Ching-Chih Lu (2009) estimated the size premium

13   over the long-run. Lu acknowledges that many studies have demonstrated that smaller

14   companies have historically earned higher stock market returns. However, Lu

15   highlights that these studies rebalance the size portfolios on an annual basis. This

16   means that at the end of each year the stocks are sorted based on size, split into

17   deciles, and the returns are computed over the next year for each stock decile. This

18   annual rebalancing creates a problem. Using a size premium in estimating a CAPM

19   equity cost rate requires that a firm carry the extra size premium in its discount factor

20   for an extended period of time, not just for one year, which is the presumption with

21   annual rebalancing. Through an analysis of small firm stock returns for longer time

---

[42] *See* Richard Roll, "On Computing Mean Returns and the Small Firm Premium," *Journal of Financial Economics*, pp. 371-86, (1983).

| 1 | | periods (and without annual rebalancing), Lu finds that the size premium disappears |
| 2 | | within two years. Lu's conclusion with respect to the size premium is:[43] |

3		However, an analysis of the evolution of the size premium will show
4		that it is inappropriate to attach a fixed amount of premium to the cost
5		of equity of a firm simply because of its current market capitalization.
6		For a small stock portfolio which does not rebalance since the day it
7		was constructed, its annual return and the size premium are all
8		declining over years instead of staying at a relatively stable level.
9		This confirms that a small firm should not be expected to have a
10		higher size premium going forward sheerly because it is small now.

11

12 **C.   Utility Risk Premium ("URP") Approach**

13
14 **Q.   PLEASE DISCUSS DR. AVERA AND MR. MCKENZIE'S URP APPROACH.**

15 A.   On pages 51-56 of their testimony and in their Exhibit No. WEA/AMM 9, Dr. Avera

16   and Mr. McKenzie estimate an equity cost rate of 10.1% using a current utility bond

17   yield, and an equity cost rate of 11.3% using a projected utility bond yield. Dr. Avera

18   and Mr. McKenzie develop an equity cost rate by: (1) regressing the annual authorized

19   returns on equity for electric utility companies from 1974 to 2013 time period on the

20   yields on Moody's long-term public utility bonds; and (2) adding the appropriate risk

21   premium established in (1) to current and projected Moody's long-term public utility

22   bond yields of 4.70% and 6.77%, respectively.

23

24 **Q.   WHAT ARE THE ISSUES WITH DR. AVERA AND MR. MCKENZIE'S URP**

25   **APPROACH?**

26 A.   The base yield and the measurement and magnitude of the risk premium.

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[43] Ching-Chih Lu, "The Size Premium in the Long Run," 2009 Working Paper, SSRN abstract no. 1368705.

2   1. Base Yield

3
4   Q.   **PLEASE   DISCUSS   THE   BASE   YIELD   OF   DR.   AVERA   AND   MR.**

5   **MCKENZIE'S URP ANALYSIS.**

6   A.   The base yield in Dr. Avera and Mr. McKenzie's URP analysis is the prospective yield

7   on long-term, 'A' rated public utility bonds. This is erroneous for two reasons. First, the

8   6.77% projected yield is more than 200 basis points above current long-term utility bond

9   yields.[44]   Second, using the yield on these securities inflates the required return on

10   equity for the Company in two ways: (1) long-term bonds are subject to interest rate

11   risk, a risk which does not affect common stockholders since dividend payments (unlike

12   bond interest payments) are not fixed but tend to increase over time; and (2) the base

13   yield in Dr. Avera and Mr. McKenzie's risk premium study is subject to credit risk since

14   it is not default risk-free like an obligation of the U.S. Treasury. As a result, its yield-to-

15   maturity includes a premium for default risk and therefore is above its expected return.

16   Hence, using a bond's yield-to-maturity as a base yield results in an overstatement of

17   investors' return expectations.

18

19   2. Risk Premium

20

21   Q.   **WHAT ARE THE ISSUES WITH DR. AVERA AND MR. MCKENZIE'S RISK**

22   **PREMIUM?**

---

[44] See page 2 of Exhibit WEA/AMM 9.

1   A.   The most important issue is that Dr. Avera and Mr. McKenzie's risk premium is not

2   necessarily applicable to measure investors' required rate of return. Dr. Avera and

3   Mr. McKenzie's URP approach is a gauge of *commission* behavior and not *investor*

4   behavior. Capital costs are determined in the market place through the financial

5   decisions of investors and are reflected in such fundamental factors as dividend

6   yields, expected growth rates, interest rates, and investors' assessment of the risk and

7   expected return of different investments. Regulatory commissions evaluate capital

8   market data in setting authorized ROEs but also take into account other utility and

9   rate case-specific information in setting ROEs. As such, Dr. Avera and Mr.

10   McKenzie's approach and results reflect other factors such as capital structure, credit

11   ratings and other risk measures, service territory, capital expenditures, energy supply

12   issues, rate design, investment and expense trackers, and other factors used by utility

13   commissions in determining an appropriate ROE in addition to capital costs. For

14   example, Dr. Avera and Mr. McKenzie's analysis includes rate cases from the state of

15   Virginia that include up to 200 basis point generation riders in the ROE decisions.

16   Dr. Avera and Mr. McKenzie's methodology also produces an inflated measure

17   of the risk premium because the approach uses historic authorized ROEs and utility

18   bond yields, and the resulting risk premium is applied to projected utility bond yields.

19   Finally, the risk premium is inflated as a measure of investors' required risk premium

20   since the utilities have been selling at a market-to-book ratio in excess of 1.0. This

21   indicates that the authorized rate of return have been greater than the return that

22   investors require.

1	Q.	**HOW DO DR. AVERA AND MR. MCKENZIE'S URP ESTIMATES**
2		**COMPARE TO THE ACTUAL STATE-LEVEL AUTHORIZED ROES?**
3	A.	Their URP equity cost rate estimates overstate actual state-level authorized ROEs.
4		The authorized ROEs for electric utilities have gradually decreased in recent years.
5		These authorized ROEs declined from 10.01% in 2012, to 9.8% in 2013, to 9.76% in
6		2014, according to Regulatory Research Associates.[45]
7		
8		
9		
10		**D. Flotation Costs**
11		
12	Q.	**PLEASE DISCUSS DR. AVERA AND MR. MCKENZIE'S ADJUSTMENT FOR**
13		**FLOTATION COSTS.**
14	A.	Dr. Avera and Mr. McKenzie claim an upward adjustment of 0.12% to the equity cost
15		rate recommendation to account for flotation costs. This adjustment factor is
16		erroneous for several reasons.
17		First, they have not identified any current flotation costs for the Company.
18		Therefore, the Company is requesting annual revenues in the form of a higher return
19		on equity for flotation costs that have not been identified.
20		Second, it is commonly argued that a flotation cost adjustment is necessary to
21		prevent the dilution of the existing shareholders. In this case, Dr. Avera and Mr.
22		McKenzie justify a flotation cost adjustment by referring to bonds and the manner in

---

[45] *Regulatory Focus*, Regulatory Research Associates. The authorized ROEs exclude the authorized ROEs in Virginia which include generation adders.

1	which issuance costs are recovered by including the amortization of bond flotation
2	costs in annual financing costs. However, this is incorrect for several reasons:
3	(1) If an equity flotation cost adjustment is similar to a debt flotation cost
4	adjustment, the fact that the market-to-book ratios for electric utility companies are
5	over 1.5X actually suggests that there should be a flotation cost reduction (and not an
6	increase) to the equity cost rate. This is because when (a) a bond is issued at a price
7	in excess of face or book value, and (b) the difference between market price and the
8	book value is greater than the flotation or issuance costs, the cost of that debt is lower
9	than the coupon rate of the debt. The amount by which market values of electric
10	utility companies are in excess of book values is much greater than flotation costs.
11	Hence, if common stock flotation costs were exactly like bond flotation costs, and
12	one was making an explicit flotation cost adjustment to the cost of common equity,
13	the adjustment would be downward;
14	(2) If a flotation cost adjustment is needed to prevent dilution of existing
15	stockholders' investment, then the reduction of the book value of stockholder
16	investment associated with flotation costs can occur only when a company's stock is
17	selling at a market price at or below its book value. As noted above, electric utility
18	companies are selling at market prices well in excess of book value. Hence, when
19	new shares are sold, existing shareholders realize an increase, not a decrease, in the
20	book value per share of their investment;
21	(3) Flotation costs consist primarily of the underwriting spread or fee and not
22	out-of-pocket expenses. On a per-share basis, the underwriting spread is the
23	difference between the price the investment banker receives from investors and the

1	price the investment banker pays to the company. Therefore, these are not expenses
2	that must be recovered through the regulatory process. Furthermore, the underwriting
3	spread is known to the investors who are buying the new issue of stock and who are
4	well aware of the difference between the price they are paying to buy the stock and
5	the price that the company is receiving. The offering price which they pay is what
6	matters when investors decide to buy a stock based on its expected return and risk
7	prospects. Therefore, the company is not entitled to an adjustment to the allowed
8	return to account for those costs; and
9	(4) Flotation costs, in the form of the underwriting spread, are a form of a
10	transaction cost in the market. They represent the difference between the price paid
11	by investors and the amount received by the issuing company. Whereas the Company
12	believes that it should be compensated for these transaction costs, it has not accounted
13	for other market transaction costs in determining its cost of equity. Most notably,
14	brokerage fees that investors pay when they buy shares in the open market are another
15	market transaction cost. Brokerage fees increase the effective stock price paid by
16	investors to buy shares. If the Company had included these brokerage fees or
17	transaction costs in its DCF analysis, the higher effective stock prices paid for stocks
18	would lead to lower dividend yields and equity cost rates. This would result in a
19	downward adjustment to their DCF equity cost rate for the Company.
20	
21	**E. Checks of Reasonableness**
22	
23	1. <u>CAPM</u>

1		
2	**Q.**	**PLEASE DISCUSS DR. AVERA AND MR. MCKENZIE'S CAPM USED AS A**
3		**CHECK ON THEIR OTHER EQUITY COST RATE APPROACHES.**
4	A.	On pages 59-60 of their testimony and in their Exhibit No. WEA/AMM 10, Dr. Avera
5		and Mr. McKenzie estimate an equity cost rate in the range of 10.7% to 11.6% using
6		the same inputs as their previous application of the CAPM. The three primary errors
7		associated with their original ECAPM application recur here: (1) excessive current
8		and projected risk-free interest rates of 3.3% and 4.7%, respectively; (2) primarily, an
9		overstated market risk premium that is based on unrealistic expectations of future
10		earnings and economic growth and stock returns; and (3) the inclusion of a size
11		premium.
12		
13		2. Expected Earnings Approach
14		
15	**Q.**	**PLEASE DISCUSS DR. AVERA AND MR. MCKENZIE'S EXPECTED**
16		**EARNINGS ANALYSIS.**
17	A.	On pages 60-63 of their testimony and in Exhibit No. WEA/AMM 11, Dr. Avera and
18		Mr. McKenzie estimate an equity cost rate of 9.9% for their electric group using an
19		approach they call the Expected Earnings ("EE") approach. Their methodology
20		simply involves using the expected ROE for the companies in the proxy group as
21		estimated by *Value Line*. This approach is fundamentally flawed for several reasons.
22		First, these ROE results include the profits associated with the *unregulated* operations
23		of the utility proxy group. Their electric group receives on average 73% of revenues

1		from regulated electric and operations. Second, and more importantly, Dr. Avera and
2		Mr. McKenzie's approach uses the expected returns on book value projected by
3		*Value Line* as a proxy for investors' required return on market value equity today.
4		The error is that the expected rate of return on book value is not equivalent to the
5		required rate of return on market value. Furthermore, when the market to book ratio
6		is greater than 1.0, investors' required rate of return on market value is less than their
7		expected rate of return on book value. As such, Dr. Avera and Mr. McKenzie's
8		expected earnings analysis overstates investors' required rate of return on equity.
9		
10		3. DCF Applied to Non-Utility Group
11		
12	**Q.**	**PLEASE DISCUSS THE PROBLEM WITH DR. AVERA AND MR.**
13		**MCKENZIE'S NON-UTILITY PROXY GROUP.**
14	A.	On pages 63-70 of their testimony and in their Exhibit No. WEA/AMM 12, Dr. Avera
15		and Mr. McKenzie estimate an equity cost rate for KPC using a proxy group of sixteen
16		non-utility companies. This group includes such companies as Coca-Cola, General
17		Mills, Johnson & Johnson, Kellogg, Kimberly-Clark, McDonald's, PepsiCo, Verizon,
18		and WalMart.
19		This approach is fundamentally flawed for two reasons. First, while many of
20		these companies are large and successful, their lines of business are vastly different
21		from the electric utility business and they do not operate in a highly regulated
22		environment. Second, and most importantly, the previously discussed upward bias in
23		the EPS growth rate forecasts of Wall Street analysts is particularly severe for non-utility

1   companies and therefore the DCF equity cost rate estimates for this group are

2   particularly overstated – this is demonstrated by the large differences between the DCF

3   results for the Avera/McKenzie Proxy Group versus the Non-Utility Group.

4

5   **Q.   DOES THIS CONCLUDE YOUR TESTIMONY?**

6   A.   Yes.

7

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

Application Of Kentucky Power Company For:	)
(1) A General Adjustment Of Its Rates;	)
(2) Approval of Its 2014 Environmental Compliance	) Case No. 2014-00396
Plan; (3) Approval of Tariffs And Riders; and (4)	)
An Order Granting All Other Required Approvals	)
and Relief	)

AFFIDAVIT OF Dr. J. Randall Woolridge
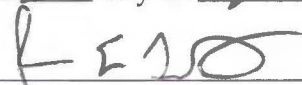
	)
Commonwealth of Pennsylvania	)
	)

      Dr. J. Randall Woolridge, being first duly sworn, states the following: The prepared Pre-Filed Direct Testimony and the Schedules attached thereto constitute the direct testimony of Affiant in the above-styled case. Affiant states that he would give the answers set forth in the Pre-Filed Direct Testimony if asked the questions propounded therein. Affiant further states that, to the best of his knowledge, his statements made are true and correct. Further affiant saith not.

_____
Dr. J. Randall Woolridge

SUBSCRIBED AND SWORN to before me this 23rd day of _March_, 2015.

_____
NOTARY PUBLIC

My Commission Expires: 11-10-2015