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**Before the Public Service Commission
of the State of Missouri**

Rebuttal Testimony

of

James H. Vander Weide, Ph.D.

April 2016

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OF
DR. JAMES H. VANDER WEIDE
ON BEHALF OF
THE EMPIRE DISTRICT ELECTRIC COMPANY
BEFORE THE
MISSOURI PUBLIC SERVICE COMMISSION
ER-2016-0023

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**REBUTTAL TESTIMONY
OF
DR. JAMES H. VANDER WEIDE
ON BEHALF OF
THE EMPIRE DISTRICT ELECTRIC COMPANY
BEFORE THE
MISSOURI PUBLIC SERVICE COMMISSION
CASE NO. ER-2016-0023**

1 **I. INTRODUCTION**

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

3 A. My name is James H. Vander Weide. I am President of Financial Strategy
4 Associates, a firm that provides strategic and financial consulting services to
5 business clients. My business address is 3606 Stoneybrook Drive, Durham,
6 North Carolina 27705.

7 **Q. ARE YOU THE SAME JAMES H. VANDER WEIDE WHO PROVIDED**
8 **DIRECT TESTIMONY BEFORE THE MISSOURI PUBLIC SERVICE**
9 **COMMISSION (“THE COMMISSION”) IN THIS PROCEEDING?**

10 A. Yes, I am.

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

12 A. I have been asked by The Empire District Electric Company (“Empire” or “the
13 Company”) to review the Commission Staff Report Revenue Requirement in
14 this proceeding and to evaluate Staff’s recommended authorized return on
15 equity (“ROE”) for Empire and Staff’s studies of the cost of equity for an
16 average-risk electric utility.

17 **Q. IS THERE ANYTHING IN THE STAFF’S REPORT THAT WOULD CAUSE**
18 **YOU TO CHANGE YOUR RECOMMENDED 9.9 PERCENT TO**
19 **10.6 PERCENT RETURN ON EQUITY RANGE FOR EMPIRE?**

20 A. No.

1 **II. STAFF'S RECOMMENDED AUTHORIZED RETURN ON EQUITY ("ROE")**

2 **Q. WHAT IS STAFF'S RECOMMENDED AUTHORIZED ROE FOR EMPIRE?**

3 A. Staff recommends that Empire be authorized to earn a 9.75 percent ROE.

4 **Q. HOW DOES STAFF ARRIVE AT ITS RECOMMENDED 9.75 PERCENT**
5 **AUTHORIZED ROE FOR EMPIRE?**

6 A. Staff arrives at its recommended 9.75 percent authorized ROE for Empire by
7 adding a 25-basis-point risk premium to the 9.53 percent and 9.50 percent
8 ROEs the Commission authorized in 2015 for the Missouri electric operations
9 of Union Electric and Kansas City Power & Light (see the orders in Case
10 Numbers ER-2014-0258 and ER-2014-0370).

11 **Q. DOES STAFF ALSO REPORT THE AVERAGE AUTHORIZED ROE FOR**
12 **ELECTRIC UTILITIES IN 2015?**

13 A. Yes. The Staff also reports that the average authorized ROE for all electric
14 utilities in 2015 was 9.85 percent and that the average authorized ROE for
15 integrated electric utilities, excluding surcharge/rider cases and settled cases,
16 was 9.75 percent in 2015 and 9.94 percent in 2014.

17 **Q. WHAT ROE IS EMPIRE REQUESTING IN THIS PROCEEDING?**

18 A. Empire is requesting an ROE of 9.9 percent in this proceeding (see testimony
19 of Mr. Bryan Owens).

20 **Q. DID YOU PROVIDE ESTIMATES OF EMPIRE'S COST OF EQUITY IN**
21 **YOUR DIRECT TESTIMONY IN THIS PROCEEDING?**

22 A. Yes. I provided a Discounted Cash Flow ("DCF") cost of equity estimate of
23 9.9 percent, an ex ante risk premium cost of equity estimate of 10.6 percent,
24 and an ex post risk premium estimate of 10.1 percent. The average of these

1 estimates is 10.2 percent. On the basis of these cost of equity studies, I
2 recommended that Empire be allowed an authorized ROE in the range
3 9.9 percent to 10.6 percent.

4 **Q. DO YOUR COST OF EQUITY STUDIES SUPPORT THE COMPANY'S**
5 **REQUESTED 9.9 PERCENT ROE?**

6 A. Yes. My studies support the conclusion that the Company's requested
7 9.9 percent ROE is conservative because the Company's requested ROE is
8 at the low end of my cost of equity range of estimates.

9 **III. STAFF'S STUDIES OF THE COST OF EQUITY FOR THE AVERAGE RISK**
10 **ELECTRIC UTILITY**

11 **Q. IN ADDITION TO INFORMATION ON THE AUTHORIZED ROES FOR**
12 **ELECTRIC UTILITIES IN 2014 AND 2015, DOES STAFF PROVIDE AN**
13 **ESTIMATE OF THE COST OF EQUITY FOR AN AVERAGE-RISK**
14 **ELECTRIC UTILITY?**

15 A. Yes.

16 **Q. HOW DOES STAFF ESTIMATE THE AVERAGE-RISK ELECTRIC**
17 **UTILITY'S COST OF EQUITY?**

18 A. Staff estimates the average-risk electric utility's cost of equity by applying
19 both a single-stage annual and a multi-stage annual Discounted Cash Flow
20 ("DCF") model to a proxy group of fifteen electric utilities. From its single-
21 stage DCF method, Staff obtains an estimated ROE in the range 7.3 percent
22 to 8.3 percent (Staff Report at 41). From its multi-stage DCF method, Staff
23 obtains an estimated ROE in the range 7.38 percent to 8.15 percent (Staff
24 Report at 43).

1 As a check on its DCF results, Staff also applies the Capital Asset Pricing
2 Model (“CAPM”) to its proxy company groups, obtaining results in the range
3 6.05 percent to 7.72 percent (Staff Report at 53). As a further check on its
4 DCF results, Staff examines several “rule of thumb” methods, obtaining
5 results in the range 7.27 percent to 8.80 percent (Staff Report at 54).

6 **A. PROXY GROUP OF ELECTRIC UTILITIES**

7 **Q. WHAT COMPANIES DOES STAFF INCLUDE IN ITS PROXY GROUP OF**
8 **ELECTRIC UTILITIES?**

9 A. Staff’s proxy group includes fifteen electric utilities: ALLETE Inc., Alliant
10 Energy, Ameren Corp., American Electric Power, CMS Energy Corp., DTE
11 Energy Company, Entergy Corporation, Great Plains Energy, Northwestern
12 Corporation, OGE Energy Corp., Pinnacle West Capital, PNM Resources,
13 Inc., Portland General Electric Company, Westar Energy, Inc., and Xcel
14 Energy.

15 **Q. HOW DOES STAFF SELECT COMPANIES FOR INCLUSION IN ITS**
16 **PROXY GROUP?**

17 A. Starting with an initial group of sixty-six power companies followed by SNL
18 Financial, Staff selects fifteen companies that, in its opinion, satisfy the
19 following criteria (Staff Report at 38 - 39):

- 20 1. Classified as a power company by SNL (66 companies);
- 21 2. Publicly-traded stock (no companies eliminated, 66 remaining);
- 22 3. Followed by The Edison Electric Institute (“EEI”) and classified by EEI as a
23 regulated utility (33 companies eliminated, 33 remaining);
- 24 4. At least 50% of plant from electric utility operations (3 companies
25 eliminated, 30 remaining);

1 5. At least 25% of electric plant from generation (5 companies eliminated, 25
2 remaining);

3 6. At least 80% of income from regulated utility operations (1 company
4 eliminated, 24 remaining);

5 7. No reduced dividend since 2013 (0 companies eliminated, 24 remaining);

6 8. At least investment grade credit rating (0 companies eliminated, 24
7 remaining);

8 9. At least 2 equity analysts providing long-term growth projections in the last
9 90 days (5 companies eliminated, 19 remaining);

10 10. No significant merger or acquisition announced recently (4 companies
11 eliminated, 15 remaining).

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

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

16 **Q. IS IT DESIRABLE TO CHOOSE A RELATIVELY LARGE GROUP OF
17 COMPARABLE RISK COMPANIES?**

18 A. Yes.

19 **Q. PLEASE EXPLAIN.**

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

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

5 **Q. WHAT PROXY GROUP OF ELECTRIC UTILITIES DO YOU USE FOR THE**
6 **PURPOSE OF ESTIMATING EMPIRE'S COST OF EQUITY?**

7 A. I use the group of thirty electric utilities shown in Schedule JVW-1 of my direct
8 testimony.

9 **Q. WHAT CRITERIA DO YOU USE TO SELECT PROXY ELECTRIC**
10 **UTILITIES?**

11 A. As described in my direct testimony, I select all the companies in Value Line's
12 groups of electric utilities that: (1) paid dividends during every quarter of the
13 last two years; (2) did not decrease dividends during any quarter of the past
14 two years; (3) have an I/B/E/S long-term growth forecast; and (4) are not the
15 subject of a merger offer that has not been completed. In addition, each of the
16 utilities included in my comparable groups has an investment grade bond
17 rating and a Value Line Safety Rank of 1, 2, or 3. (Vander Weide Direct at
18 31).

19 **Q. HOW DOES THE AVERAGE INVESTMENT RISK OF STAFF'S SMALLER**
20 **GROUP OF FIFTEEN ELECTRIC UTILITIES COMPARE TO THE**
21 **AVERAGE INVESTMENT RISK OF YOUR LARGER PROXY GROUP OF**
22 **THIRTY ELECTRIC UTILITIES?**

23 A. Staff's proxy group of fifteen electric utilities have the same investment risk as
24 my proxy group of thirty electric utilities. For example, the average S&P bond

1 rating for my large proxy electric utility group is between BBB+ and A-, and for
2 Staff's smaller group of electric utilities, is equal to BBB+; and the average
3 Value Line Safety Rank for both my group and Staff's group is 2 (see Rebuttal
4 Schedule JWV-1).

5 **Q. DO YOU HAVE SPECIFIC ISSUES WITH STAFF'S SELECTION**
6 **CRITERIA?**

7 A. Yes. First, Staff's criteria that proxy electric utilities must have a certain
8 percentage of regulated assets, plant from generation, or income from
9 regulated utility operations, each relate to a potential single dimension of risk
10 rather than to an overall assessment of a company's equity risk. A problem
11 with using a potential single dimension of risk, such as percent regulated
12 electric assets or income, is that a company may be eliminated based on a
13 single dimension of risk, even though the company's overall risk may be
14 comparable to those included in the proxy group.

15 Second, Staff provides no justification for the cut-off values it uses for
16 percent regulated assets and income. Staff's criterion requiring a proxy
17 company to have at least twenty-five percent of assets related to generation
18 plant and eighty percent of income from regulated utility operations, for
19 example, are arbitrary. Similarly, Staff provides no justification for limiting its
20 proxy group to EEI's "regulated" classification, rather than including
21 "regulated" and "mostly regulated."

22 Third, Staff fails to recognize that it is quite difficult to quantify the
23 percentage of a company's business that is classified as "regulated." Ideally,
24 one would measure percent regulated versus percent non-regulated based on

1 the market values of a company's regulated and non-regulated businesses.
2 However, since the individual business segments are not market traded, there
3 is no market value for these business segments. Although an analyst might
4 attempt to quantify "percent regulated" and "percent unregulated" using
5 accounting variables such as assets or revenues as a substitute for market
6 values, these accounting categories are imperfect because the accounting for
7 regulated assets and revenues is likely not comparable from one company to
8 another, and accounting values are imperfect indicators of market values.

9 **Q. CAN THE RISKS OF INVESTING IN AN ELECTRIC UTILITY BE EASILY**
10 **QUANTIFIED?**

11 A. No. Because risk is forward looking and the future is uncertain, risk cannot be
12 precisely quantified. In addition, efforts to make a comparable group to be
13 precisely comparable in risk would cause the size of the sample group to be
14 so small as to reduce the accuracy of the cost of equity estimate.

15 **Q. DO COMPARABLE RISK COMPANIES HAVE TO BE COMPARABLE IN**
16 **EVERY RISK DIMENSION TO THE COMPANY WHOSE COST OF EQUITY**
17 **IS BEING DETERMINED?**

18 A. No. Comparable companies should be comparable in average overall risk to
19 the company whose cost of equity is being determined.

20 **Q. WHAT CONCLUSION DO YOU DRAW FROM YOUR ANALYSIS OF**
21 **STAFF'S PROXY GROUP?**

22 A. I conclude that the Commission should rely on my proxy group to estimate
23 Empire's cost of equity. As I have demonstrated, my proxy group has similar
24 investment risk, but includes a significantly larger sample of companies than

1 Staff's proxy group. Since one may generally obtain more accurate estimates
2 of the cost of equity by using a larger sample of comparable risk companies,
3 the Commission should rely on my proxy electric utilities to estimate Empire's
4 cost of equity.

5 **B. STAFF'S DCF MODELS**

6 **Q. WHAT DCF MODELS DOES STAFF USE TO ESTIMATE THE COST OF**
7 **EQUITY FOR AN AVERAGE-RISK ELECTRIC UTILITY?**

8 A. Staff estimates the cost of equity for an average-risk electric utility using both
9 a single-stage annual DCF model and a multi-stage annual DCF model.

10 **Q. PLEASE DESCRIBE STAFF'S SINGLE-STAGE ANNUAL DCF MODEL.**

11 A. Staff's single-stage annual DCF model is of the form, $k = D_1/P_0 + g$, where k is
12 the cost of equity, D_1 is the expected first period dividend, P_0 is the current
13 stock price, and g is the average expected future growth in the company's
14 earnings and dividends per share.

15 **1. Staff's Single-Stage Annual DCF Model**

16 **Q. WHAT ARE THE BASIC ASSUMPTIONS OF STAFF'S SINGLE-STAGE**
17 **ANNUAL DCF MODEL?**

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

1 **Q. YOU NOTE THAT ONE ASSUMPTION OF STAFF'S SINGLE-STAGE**
2 **ANNUAL DCF MODEL IS THAT DIVIDENDS ARE PAID ANNUALLY. DO**
3 **ANY OF STAFF'S PROXY ELECTRIC UTILITIES, IN FACT, PAY**
4 **DIVIDENDS ANNUALLY?**

5 A. No. All of Staff's proxy electric utilities pay dividends quarterly.

6 **Q. CAN STAFF'S SINGLE-STAGE ANNUAL DCF MODEL BE**
7 **MATHEMATICALLY DERIVED FROM THE ASSUMPTION THAT**
8 **DIVIDENDS ARE PAID QUARTERLY?**

9 A. No. Staff's single-stage annual DCF model can only be derived from the
10 assumption that dividends are paid annually. When dividends are paid
11 quarterly, the quarterly DCF model is the only model that can be
12 mathematically derived from the underlying DCF assumption that a
13 company's stock price is equal to the discounted present value of all expected
14 future dividends. Since Staff's proxy electric utilities pay dividends quarterly,
15 Staff should have used a quarterly DCF model to estimate Empire's cost of
16 equity.

17 **Q. YOU ALSO MENTION THAT STAFF'S SINGLE-STAGE DCF MODEL**
18 **REQUIRES AN ESTIMATE OF THE EXPECTED FIRST PERIOD DIVIDEND**
19 **FOR EACH COMPANY. HOW DOES STAFF ESTIMATE THE EXPECTED**
20 **FIRST PERIOD DIVIDEND FOR ITS SINGLE-STAGE ANNUAL DCF**
21 **MODEL?**

22 A. Staff uses the FactSet projected 2016 dividend per share for each company
23 as its estimate of the expected first period dividend in its single-stage annual
24 DCF model. (Staff Report at 40)

1 **Q. DO YOU AGREE WITH STAFF'S USE OF THE FACTSET PROJECTED**
2 **2016 DIVIDEND PER SHARE FOR EACH COMPANY AS THE ESTIMATE**
3 **OF THE EXPECTED FIRST PERIOD DIVIDEND IN ITS APPLICATION OF**
4 **THE DCF MODEL?**

5 A. No. Staff's single-stage annual DCF model is based on the assumptions that
6 dividends are paid annually and grow at the same constant rate forever.
7 Under these assumptions, the cost of equity is given by the equation, $k = D_0$
8 $(1 + g) / P_0 + g$, where D_0 is the current annualized dividend, P_0 is the stock
9 price, and g is the expected constant annual growth rate. Thus, the correct
10 first period dividend in the single-stage annual DCF model is the current
11 annualized dividend multiplied by the factor, $(1 + growth\ rate)$. (See Vander
12 Weide direct testimony, Appendix 2.)

13 **Q. HOW DOES STAFF ESTIMATE THE GROWTH COMPONENT OF ITS DCF**
14 **MODEL?**

15 A. Staff reviews historical five- and ten-year growth rates in dividends per share
16 ("DPS"), earnings per share ("EPS"), and book value per share ("BPS"), as
17 reported in SNL, along with five-year forecasts of EPS growth obtained from
18 FactSet. From its review of these data, Staff obtains three growth indicators
19 for its proxy electric utilities (TABLE 1 reproduces the average growth rates
20 reported on Staff's Schedule 10-6). Because Staff believes that most of the
21 forecasted growth rates are unsustainably high for electric utilities, Staff
22 applies its judgment to choose a growth rate in the range 3.5 percent to
23 4.5 percent for its proxy electric utilities in its constant growth DCF model
24 (Staff Report at 41 and Schedule 12).

**TABLE 1
ELECTRIC UTILITY GROWTH RATES REPORTED BY STAFF
SCHEDULE 10-6**

COMPANY	10-YR HISTORICAL DPS, EPS, BVPS GROWTH (%)	5-YR DPS, EPS, BVPS (%)	FORECASTED EPS GROWTH (%)
ALLETE, Inc.	3.39%	4.08%	5.67%
Alliant Energy	7.14%	6.99%	5.50%
Ameren Corp.	-2.43%	-1.32%	6.14%
American Electric Power	4.12%	3.69%	5.52%
CMS Energy Corp.	NM	9.52%	6.88%
DTE Energy Company	3.66%	4.61%	5.45%
Entergy Corporation	1.77%	-3.54%	0.49%
Great Plains Energy	-1.87%	0.66%	5.32%
NorthWestern Corporation	NM	6.41%	5.00%
OGE Energy Corp.	6.65%	6.48%	4.50%
Pinnacle West Capital	2.88%	4.17%	4.84%
PNM Resources, Inc.	0.18%	4.81%	6.76%
Portland General Electric Company	NM	3.55%	4.98%
Westar Energy, Inc.	4.62%	4.75%	4.66%
Xcel Energy	4.39%	4.67%	5.07%
Average	2.88%	3.97%	5.12%

1 **Q. DO YOU AGREE WITH STAFF’S USE OF HISTORICAL GROWTH RATES**
2 **TO ESTIMATE INVESTORS’ GROWTH EXPECTATIONS WHEN**
3 **ANALYSTS’ GROWTH EXPECTATIONS FOR STAFF’S PROXY ELECTRIC**
4 **UTILITIES ARE READILY AVAILABLE?**

5 A. No. Historical growth rates are inherently inferior to analysts’ forecasts
6 because analysts’ forecasts already incorporate all relevant information
7 regarding historical growth rates and also incorporate the analysts’ knowledge
8 about current conditions and expectations regarding the future. My studies
9 indicate that the correlation between analysts’ growth forecasts and stock

1 prices is significantly higher than the correlation between historical growth
2 rates and stock prices.

3 **Q. DO YOU AGREE WITH STAFF'S USE OF ANALYSTS' EARNINGS PER**
4 **SHARE GROWTH FORECASTS TO ESTIMATE THE GROWTH**
5 **COMPONENT OF ITS DCF MODEL?**

6 A. Yes. Analysts' growth forecasts are superior to historical growth rates
7 because they incorporate all relevant information regarding current and future
8 economic conditions. In addition, as discussed in my direct testimony, my
9 studies indicate that analysts' growth forecasts are more highly correlated
10 with stock prices than historical growth rates. This result is consistent with the
11 hypothesis that investors use analysts' growth forecasts in making stock buy
12 and sell decisions. Since the DCF model requires the growth estimates of
13 investors, and investors use analysts' growth forecasts in making stock buy
14 and sell decisions, analysts' growth forecasts are the best estimate of future
15 growth in the DCF model.

16 **Q. DOES THE DCF MODEL REQUIRE THE GROWTH FORECASTS OF**
17 **INVESTORS OR THE GROWTH FORECASTS OF STAFF?**

18 A. The DCF model requires the growth forecasts of investors because investors'
19 growth forecasts are impounded in stock prices.

20 **Q. DO YOU HAVE EVIDENCE THAT INVESTORS USE THE ANALYSTS'**
21 **GROWTH FORECASTS RATHER THAN HISTORICAL GROWTH RATES?**

22 A. Yes. I report such evidence in my direct testimony at pages 28 - 30. I also
23 note that if investors did not use analysts' growth forecasts in making stock
24 buy and sell decisions, they would be unwilling to pay for analysts' growth

1 forecasts. That investors purchase information on analysts' growth forecasts
2 at considerable expense is further support for using analysts' growth
3 forecasts to estimate the growth component of the DCF model.

4 **2. Staff's Multi-Stage DCF Model**

5 **Q. WHAT ARE THE BASIC ASSUMPTIONS OF STAFF'S MULTI-STAGE DCF**
6 **MODEL?**

7 A. Staff's multi-stage DCF model is based on the assumptions that investors
8 believe all electric utilities will grow at the average of the analysts' EPS
9 growth rates for five years, grow at a rate that steadily declines in years six
10 through ten to Staff's three percent to four percent estimates of perpetual
11 growth, and then grow at rates in the range three to four percent in perpetuity.
12 Specifically, Staff calculates multi-stage DCF results using terminal growth
13 rates of 3 percent, 3.5 percent, and 4 percent (Staff Schedules 13-1, 13-2,
14 and 13-3).

15 **Q. WHY DOES STAFF RECOMMEND THE USE OF A MULTI-STAGE DCF**
16 **MODEL RATHER THAN THE USE OF ITS SINGLE-STAGE DCF MODEL**
17 **TO ESTIMATE EMPIRE'S COST OF EQUITY IN THIS PROCEEDING?**

18 A. Staff recommends using a multi-stage DCF model because Staff believes that
19 the analysts' five-year EPS growth forecasts for electric utilities are not
20 sustainable in the long run:

21 The constant-growth DCF model may not yield reliable results if
22 industry and/or economic circumstances cause expected near-term
23 growth rates to be inconsistent with sustainable perpetual growth
24 rates. Consequently, as in the last rate case, Staff again performed
25 a multi-stage DCF analysis in this case and is relying primarily on
26 this analysis to draw conclusions on the change in the cost of
27 common equity since the 2014 rate case because the multi-stage

1 DCF is dynamic enough to consider changes in near-term growth
2 rates, but still maintain a consistent perpetual growth rate as this
3 rate should not change much, if any, because there have been no
4 structural changes in the economy or industry to support it. (Staff
5 Report at 42.)

6 **Q. DO YOU AGREE WITH STAFF'S OPINION THAT ANALYSTS'**
7 **PROJECTED GROWTH RATES FOR ELECTRIC UTILITIES ARE NOT**
8 **SUSTAINABLE IN THE LONG RUN?**

9 A. No. First, I disagree with Staff's attempt to impose its view of "sustainability"
10 on investors. The cost of equity is determined by investors in the marketplace,
11 not by Staff. If investors use analysts' growth forecasts in making stock buy
12 and sell decisions—and my studies indicate that they do—the analysts'
13 growth forecasts should be used to estimate the growth component of the
14 DCF model, whether or not Staff believes these growth forecasts are
15 "sustainable."

16 Second, Staff fails to recognize that investor growth forecasts affect
17 stock prices. If Staff believes that investors' growth forecasts are irrational,
18 Staff should adjust the stock prices for the companies in its DCF analyses as
19 well as the growth forecasts. Making such an adjustment to the stock price
20 would significantly increase the results of Staff's multi-stage DCF analysis.

21 **Q. HAVE YOU DONE ANY STUDIES ON THE GROWTH RATES THAT**
22 **INVESTORS USE TO VALUE STOCKS IN THE MARKETPLACE?**

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

1 **Q. YOU NOTE THAT STAFF ASSUMES THAT ELECTRIC UTILITIES WILL**
2 **GROW AT A CONSTANT RATE OF THREE PERCENT TO**
3 **FOUR PERCENT IN THE LONG RUN. HOW DOES STAFF ARRIVE AT ITS**
4 **THREE TO FOUR PERCENT ESTIMATE OF LONG-TERM GROWTH?**

5 A. Staff arrives at its 3 percent to 4 percent estimate of long-term growth by
6 examining data on the rolling ten-year average growth rates in DPS, EPS,
7 and BPS for Central region electric utilities from 1968 through 1999 (Staff
8 Report at 44 – 47).

9 **Q. DO YOU AGREE WITH STAFF'S USE OF AVERAGE HISTORICAL**
10 **GROWTH IN DPS, EPS, AND BPS TO FORECAST LONG-RUN FUTURE**
11 **GROWTH IN THE DCF MODEL?**

12 A. No. As discussed above and in my direct testimony, the DCF model requires
13 the growth forecasts of investors, and my studies indicate that investors use
14 the analysts' EPS growth forecasts to forecast long-run future growth in the
15 DCF model. In addition, historical growth rates are strongly influenced by
16 accounting adjustments and one-time write-offs that do not relate to a
17 company's expected future growth.

18 **C. STAFF CAPM ANALYSIS**

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

20 A. The CAPM is an equilibrium model in which the expected rate of return on an
21 investment in a company is equal to a risk-free rate of interest, plus an
22 expected risk premium, where the expected risk premium is the product of a
23 company-specific risk factor, or beta, and the expected risk premium on the
24 market portfolio of all securities.

1 **Q. HOW DOES STAFF USE THE CAPM TO ESTIMATE EMPIRE'S COST OF**
2 **EQUITY?**

3 A. The CAPM requires estimates of the risk-free rate, the company-specific risk
4 factor, or beta, and the risk premium on the market portfolio. As its estimate of
5 the risk-free rate, Staff uses the average yield to maturity on 30-year Treasury
6 bonds for the three-month period ending February 2016, (2.82 percent). As its
7 estimate of the company-specific risk factor or beta, Staff uses its average
8 estimated betas for its proxy company group, 0.73. As its estimate of the risk
9 premium on the market portfolio, Staff uses: (1) the arithmetic mean risk
10 premium on the S&P 500 compared to the total return on long-term Treasury
11 bonds for the period 1926 – 2014 (6.0 percent); and (2) the geometric mean
12 risk premium on the S&P 500 compared to the total return on long-term
13 Treasury bonds for the period 1926 – 2014 (4.4 percent) (Staff Report at 52.)

14 **Q. DO YOU AGREE WITH STAFF'S CAPM ANALYSIS OF THE COST OF**
15 **EQUITY FOR AN AVERAGE-RISK ELECTRIC UTILITY?**

16 A. No. I disagree with the Staff's use of: (1) the current average yield on 30-year
17 Treasury bonds to estimate the risk-free rate component of the CAPM; (2) the
18 total return on long-term Treasury bonds rather than the income return on
19 long-term Treasury bonds to estimate the historical market risk premium;
20 (3) both the geometric average and the arithmetic average historical returns
21 to estimate the market risk premium from 1926 to 2014; and (4) failure to
22 adjust for the tendency of the CAPM to underestimate the required return on
23 investments in companies having betas less than 1.0 and/or low market
24 capitalization.

1 **Q. WHY DO YOU DISAGREE WITH STAFF'S USE OF THE CURRENT YIELD**
2 **ON 30-YEAR TREASURY BONDS TO ESTIMATE THE RISK-FREE RATE**
3 **COMPONENT OF THE CAPM?**

4 A. I disagree with Staff's use of the current yield on Treasury bonds to estimate
5 the risk-free rate component of the CAPM because current yields on Treasury
6 bonds are artificially low as a result of the Federal Reserve's efforts to
7 stimulate the economy. I recommend using the forecasted interest rate on
8 long-term Treasury bonds rather than the current interest rate to estimate the
9 risk-free rate component of the CAPM. Because current interest rates are
10 determined more by Federal Reserve policy interventions than by market
11 forces, I believe forecasted interest rates are better indicators of investor-
12 required returns on Treasury securities in the market place. At the time of my
13 direct testimony, the forecasted yield on 20-year Treasury bonds was
14 approximately 4.4 percent, whereas Staff's CAPM studies use a Treasury
15 bond yield equal to 2.82 percent.

16 **Q. WHAT IS THE DIFFERENCE BETWEEN THE INCOME RETURN ON U.S.**
17 **TREASURY SECURITIES AND THE TOTAL RETURN ON THESE**
18 **SECURITIES?**

19 A. The income return considers only the income an investor receives from
20 owning a debt instrument such as U.S. Treasury securities, whereas the total
21 return considers both the income and the capital gain or loss on the
22 investment.

23 **Q. DO YOU AGREE WITH STAFF'S USE OF THE AVERAGE TOTAL**
24 **RETURN ON LONG-TERM TREASURY BONDS, RATHER THAN THE**

1 **AVERAGE INCOME RETURN, TO MEASURE THE MARKET-REQUIRED**
2 **RISK PREMIUM COMPONENT OF THE CAPM?**

3 A. No. The market risk premium component of the CAPM reflects the difference
4 between the expected return on the market portfolio and the risk-free rate of
5 interest. Staff should have used the income return on long-term Treasury
6 bonds to measure the risk premium on the market portfolio because the
7 income return is the only return that is risk free. Because the total return
8 includes capital gains and losses, and capital gains and losses are highly
9 uncertain, the total return is not risk free.

10 **Q. DO YOU AGREE WITH STAFF'S USE OF BOTH GEOMETRIC MEAN AND**
11 **ARITHMETIC MEAN RETURNS ON THE S&P 500 TO ESTIMATE THE**
12 **RISK PREMIUM ON THE MARKET PORTFOLIO?**

13 A. No. As I describe in my direct testimony, I recommend using the arithmetic
14 mean return rather than the geometric mean return because the arithmetic
15 mean return is the only return that will discount the investor's expected future
16 wealth to the current price of the investment (see Vander Weide Direct
17 Testimony, Schedule JWV-5).

18 **Q. HAVE YOU CALCULATED A CAPM ESTIMATE OF THE AVERAGE-RISK**
19 **ELECTRIC UTILITY'S COST OF EQUITY USING A 4.4 PERCENT**
20 **FORECASTED YIELD ON 20-YEAR TREASURY BONDS AND THE**
21 **7.0 PERCENT MARKET RISK PREMIUM THAT REFLECTS THE**
22 **DIFFERENCE BETWEEN THE ARITHMETIC MEAN RETURN AND THE**
23 **INCOME RETURN ON 20-YEAR TREASURY BONDS, USING STAFF'S**
24 **PROXY COMPANY GROUP?**

1 A. Yes. Using these data, I find a base CAPM cost of equity equal to 9.7 percent
2 (4.4 + 0.76 x 7.0 = 9.7).

3 **Q. YOU NOTE THAT STAFF FAILS TO ADJUST FOR THE TENDENCY OF**
4 **THE CAPM TO UNDERESTIMATE THE COST OF EQUITY FOR**
5 **COMPANIES WITH BETAS LESS THAN 1.0. DO YOU HAVE EVIDENCE**
6 **THAT THE CAPM TENDS TO UNDERESTIMATE THE COST OF EQUITY**
7 **FOR COMPANIES WITH BETAS LESS THAN 1.0?**

8 A. Yes. As described on pages 44 – 46 of my Direct Testimony, the original
9 evidence that the unadjusted CAPM tends to underestimate the cost of equity
10 for companies whose equity beta is less than 1.0 and to overestimate the cost
11 of equity for companies whose equity beta is greater than 1.0 was presented
12 in a paper by Black, Jensen, and Scholes, “The Capital Asset Pricing Model:
13 Some Empirical Tests.” Numerous subsequent papers have validated the
14 Black, Jensen, and Scholes findings, including those by Litzenberger and
15 Ramaswamy, Banz, Fama and French, and Fama and MacBeth.¹

16 **Q. DO YOU HAVE ADDITIONAL EVIDENCE THAT THE CAPM TENDS TO**
17 **UNDERESTIMATE THE COST OF EQUITY FOR UTILITY COMPANIES**
18 **WITH AVERAGE BETAS LESS THAN 1.0?**

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

1 A. Yes. As I describe in my Direct Testimony and show on Schedule 7 of my
2 Direct Testimony, over the period 1937 to 2015, investors in the S&P Utilities
3 Stock Index have earned a risk premium over the yield on long-term Treasury
4 bonds equal to 5.49 percent, while investors in the S&P 500 have earned a
5 risk premium over the yield on long-term Treasury bonds equal to
6 6.06 percent. According to the CAPM, investors in utility stocks should expect
7 to earn a risk premium over the yield on long-term Treasury securities equal
8 to the average utility beta times the expected risk premium on the S&P 500.
9 Thus, the ratio of the risk premium on the utility portfolio to the risk premium
10 on the S&P 500 should equal the utility beta. However, the average utility
11 beta is approximately 0.75, whereas the historical ratio of the utility risk
12 premium to the S&P 500 risk premium is 0.90 ($5.49 \div 6.06 = 0.90$). In short,
13 the 0.75 measured beta for electric utilities significantly underestimates the
14 cost of equity for the utilities, providing further support for the conclusion that
15 the CAPM underestimates the cost of equity for utilities at this time.

16 **Q. YOU ALSO NOTE THAT THE CAPM UNDERESTIMATES THE COST OF**
17 **EQUITY FOR SMALL MARKET CAPITALIZATION COMPANIES. HOW**
18 **DOES EMPIRE'S MARKET CAPITALIZATION COMPARE TO THE**
19 **MARKET CAPITALIZATION OF STAFF'S PROXY COMPANIES?**

20 A. Empire's market capitalization is approximately one-half the size of the
21 smallest company in Staff's proxy group, PNM Resources, and only about five
22 percent as large as the largest company in Staff proxy group, American
23 Electric Power.

TABLE 2
MARKET CAPITALIZATION OF STAFF PROXY ELECTRIC UTILITIES
COMPARED TO EMPIRE'S MARKET CAPITALIZATION

LINE	STAFF PROXY COMPANY	MARKET CAP \$ (MIL)
1	ALLETE, Inc.	2,847
2	Alliant Energy	8,249
3	Amer. Elec. Power	32,131
4	Ameren Corp.	11,865
5	CMS Energy Corp.	11,603
6	DTE Energy Company	16,052
7	Entergy Corporation	14,158
8	Great Plains Energy	4,887
9	NorthWestern Corp.	2,936
10	OGE Energy Corp.	5,652
11	Pinnacle West Capital	8,156
12	PNM Resources, Inc.	2,688
13	Portland General	3,536
14	Westar Energy, Inc.	6,818
15	Xcel Energy	20,998
16	Empire Dist. Elec.	1,457

1 **Q. IS THERE EVIDENCE IN THE FINANCIAL LITERATURE THAT**
2 **INVESTORS EXPECT TO EARN A HIGHER RATE OF RETURN ON**
3 **SMALL CAPITALIZATION COMPANIES SUCH AS EMPIRE THAN WOULD**
4 **BE PREDICTED FROM THE BASIC CAPM EQUATION USED BY STAFF?**

5 A. Yes. The financial literature provides evidence that investors require a higher
6 rate of return for investments in low-capitalization companies, such as
7 Empire, than is indicated by Staff's CAPM equation. Estimates of the risk
8 premium required to be added to the estimated CAPM cost of equity for low-
9 capitalization companies such as Empire is approximately 1.7 percent –
10 1.8 percent.

1 **D. CONCLUSION**

2 **Q. WHAT CONCLUSION DO YOU DRAW FROM YOUR ANALYSES OF**
3 **STAFF'S DCF AND CAPM ESTIMATES OF THE COST OF EQUITY FOR**
4 **THE AVERAGE-RISK ELECTRIC UTILITY?**

5 A. I conclude that Staff's cost of equity studies underestimate Empire's cost of
6 equity by at least 200 to 300 basis points. I further conclude that Staff was
7 correct to base its recommended 9.75 percent authorized ROE on the
8 authorized ROEs found in recent proceedings rather than on the results of its
9 cost of equity studies.

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

11 A. Yes, it does.

**REBUTTAL SCHEDULE JWV-1
COMPARISON OF AVERAGE VALUE LINE SAFETY RANK
AND STANDARD & POOR'S BOND RATING
FOR VANDER WEIDE PROXY ELECTRIC UTILITIES AND STAFF'S PROXY ELECTRIC
UTILITIES**

LINE	VANDER WEIDE PROXY GROUP	SAFETY RANK	S&P BOND RATING	S&P BOND RATING (NUMERICAL)
1	ALLETE	2	BBB+	6
2	Alliant Energy	2	A-	5
3	Amer. Elec. Power	2	BBB	7
4	Ameren Corp.	2	BBB+	6
5	Black Hills	2	BBB	7
6	CMS Energy Corp.	2	BBB+	6
7	Dominion Resources	2	A-	5
8	DTE Energy	2	BBB+	6
9	Duke Energy	2	A-	5
10	Empire Dist. Elec.	2	BBB	7
11	Eversource Energy	1	A	4
12	Exelon Corp.	3	BBB	7
13	G't Plains Energy	3	BBB+	6
14	ITC Holdings	2	A-	5
15	NextEra Energy	2	A-	5
16	NorthWestern Corp.	3	BBB	7
17	OGE Energy	1	A-	5
18	PG&E Corp.	3	BBB	7
19	Pinnacle West Capital	1	A-	5
20	PNM Resources	3	BBB	7
21	Portland General	2	BBB	7
22	PPL Corp.	3	A-	5
23	SCANA Corp.	2	BBB+	6
24	Sempra Energy	2	BBB+	6
25	Southern Co.	2	A	4
26	TECO Energy	2	BBB+	6
27	Vectren Corp.	2	A-	5
28	Westar Energy	2	BBB+	6
29	Wisconsin Energy	1	A-	5
30	Xcel Energy Inc.	1	A-	5
31	Average	2.0	BBB+ to A-	5.8

REBUTTAL SCHEDULE JWV-1 (CONTINUED)
COMPARISON OF AVERAGE VALUE LINE SAFETY RANK
AND STANDARD & POOR'S BOND RATING
FOR VANDER WEIDE PROXY ELECTRIC UTILITIES AND STAFF'S PROXY ELECTRIC UTILITIES

LINE	STAFF PROXY GROUP	SAFETY RANK	S&P BOND RATING	S&P BOND RATING (NUMERICAL)
1	ALLETE, Inc.	2	BBB+	6
2	Alliant Energy	2	A-	5
3	Amer. Elec. Power	2	BBB	7
4	Ameren Corp.	2	BBB+	6
5	CMS Energy Corp.	2	BBB+	6
6	DTE Energy Company	2	BBB+	6
7	Entergy Corporation	3	BBB	7
8	Great Plains Energy	3	BBB+	6
9	NorthWestern Corp.	3	BBB	7
10	OGE Energy Corp.	2	A-	5
11	Pinnacle West Capital	1	A-	5
12	PNM Resources, Inc.	3	BBB+	6
13	Portland General	2	BBB	7
14	Westar Energy, Inc.	2	BBB+	6
15	Xcel Energy	1	A-	5
16	Average	2.1	BBB+	6.0

AFFIDAVIT OF JAMES H. VANDER WEIDE

STATE OF NORTH CAROLINA)
) ss
COUNTY OF DURHAM)

On the 20th day of April, 2016, before me appeared James H. Vander Weide, to me personally known, who, being by me first duly sworn, states that he is President of Financial Strategy Associates and acknowledges that he has read the above and foregoing document and believes that the statements therein are true and correct to the best of his information, knowledge and belief.

James H. Vander Weide
James H. Vander Weide

Subscribed and sworn to before me this 20th day of April, 2016.

Tochukwu Chime Ukpabi
Notary Public

My commission expires: 10-04-2016

