MISSOURI PUBLIC SERVICE COMMISSION

STAFF REPORT

REVENUE REQUIREMENT

COST OF SERVICE

UNION ELECTRIC COMPANY
d/b/a Ameren Missouri

CASE NO. ER-2016-0179

Jefferson City, Missouri
December 9, 2016

**** Denotes Highly Confidential Information ****

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I. Executive Summary

Staff has conducted a review in Case No. ER-2016-0179 of all revenue requirement cost of service components (capital structure and return on rate base, rate base, depreciation expense and other operating expenses) which comprise Union Electric Company's d/b/a Ameren Missouri ("Ameren Missouri") revenue requirement. This audit was in response to Ameren Missouri's filing made on July 1, 2016, seeking to increase its retail rates to recover an additional approximately $206.4 million on an annual basis.

Staff's recommended increase in revenue requirement is based upon a test year for the twelve months ending March 31, 2016, including true-up estimates through December 31, 2016. Staff recommends a return on equity ("ROE") of 8.75% for Ameren Missouri. This ROE combined with recommended capitalization ratios and senior capital cost rate results in an overall rate of return or cost of capital for Ameren Missouri of 7.08%.

The impact of Staff's recommended revenue requirement for each retail rated customer class will be addressed in Staff's rate design direct testimony and report that is scheduled to be filed on December 23, 2016.

Below are definitions of technical terms that will frequently be used in the Cost of Service Report:

Test Year: The test year income statement is the starting point for determining a utility's existing annual revenues, operating costs, and net operating income. In this case, the test year is the 12 months ending March 31, 2016.

True-Up: A true-up date generally is established when a significant change in a utility's cost of service occurs after the end of the update period, but prior to the operation-of-law date, and one or more of the parties has decided this significant change in cost of service should be considered for cost-of-service recognition in the current case. True-up audits involve the filing of additional testimony and, if necessary, additional hearings beyond the initial testimony filings and hearings for a case. The true-update ordered in this case is December 31, 2016, except that the cut-off is January 1, 2017, for certain items where appropriate.

Normalization: Utility rates are intended to reflect normal ongoing operations. A normalization adjustment is required when the test year reflects the impact of an abnormal event. For example, overtime expense may be normalized to remove an unusual weather event, and revenue may be normalized to remove abnormal weather conditions.

Annualization: Annualization adjustments are the most common adjustment made to test year results to reflect the utility's most current annual level of revenue and expenses. Annualization adjustments are required when changes have occurred during the test year and/or update period, which are not fully reflected in the unadjusted test year results. For example, signing a new labor contract would necessitate annualizing the new level of wages to expense. Similarly, an addition of a large industrial customer would necessitate an annualization of billing determinants and revenues.

Disallowances: In examining test year results, Staff makes disallowances to costs that should not be recovered in rates. Examples of these types of costs are certain advertising costs and donations made to charitable organizations.

Return on Equity: The ROE is the return allowed in rates on the shareholders' equity investment in a regulated utility.

Rate of Return: The ROR is the overall cost of capital; that is, the cost of debt and the Commission-selected ROE weighted by the capital structure.

Staff Expert/Witness: Jerry Scheible, PE

II. Background

Ameren Missouri provides electric utility service to approximately 1.22 million retail customers. Ameren Missouri's service area is primarily in the eastern half of Missouri, but also includes limited areas in northwestern Missouri. Ameren Missouri is wholly owned by Ameren Corporation ("Ameren"), which also provides utility service in Illinois through its Ameren Illinois operating subsidiary. Ameren Missouri also operates a natural gas distribution business in Missouri, which serves approximately 127,000 customers.

Ameren Missouri last sought a general change of its electric retail rates when it filed a request for a $264 million annual increase on July 3, 2014, in Case No. ER-2014-0258. As a result of the Missouri Public Service Commission's ("PSC" or "Commission") Report and Order in that proceeding, Ameren Missouri was granted an annual rate increase of approximately $121.5 million, effective May 30, 2015.

Staff Expert/Witness: Jerry Scheible, PE

III. Test Year/True-Up Period

Ameren Missouri filed its case based upon a test year of the twelve-month period ending March 31, 2016, and made adjustments to its case to reflect the impacts of anticipated changes through the true-up period ending December 31, 2016, except for certain items where a true-up cut-off date of January 1, 2017 was appropriate. These dates were adopted by the Commission during the Prehearing Conference held on July 28, 2016.

Based on current information, Staff's revenue requirement as presented in its Accounting Schedules includes the expected changes for certain major items within a true-up period ending December 31, 2016, except for those items that it would be appropriate to true-up for significant changes through January 1, 2017. For example, the plant and depreciation reserve balances have been adjusted to reflect the anticipated additions through the December 31, 2016, true-up cut-off point. Fuel expense has also been adjusted to reflect an increase in coal commodity contract prices and coal transportation contract prices, which become effective on January 1, 2017. Staff expects to consider actual changes to the value of these items, as well as additional components of the cost of service, during the upcoming true-up audit. Staff is not now adopting the value of the items quantified in Staff's true-up estimate inclusions for the purpose of setting Ameren Missouri's rates. Staff has only included these items as placeholders, pending Staff's completion of its true-up audit. The true-up information to be filed is described in a footnote to the parties' *Jointly Proposed Procedural Schedule and Procedures* that was filed on August 1, 2016, and adopted by the Commission in its *Order Adopting Procedural Schedule and Delegating Authority* that was issued on August 10, 2016.

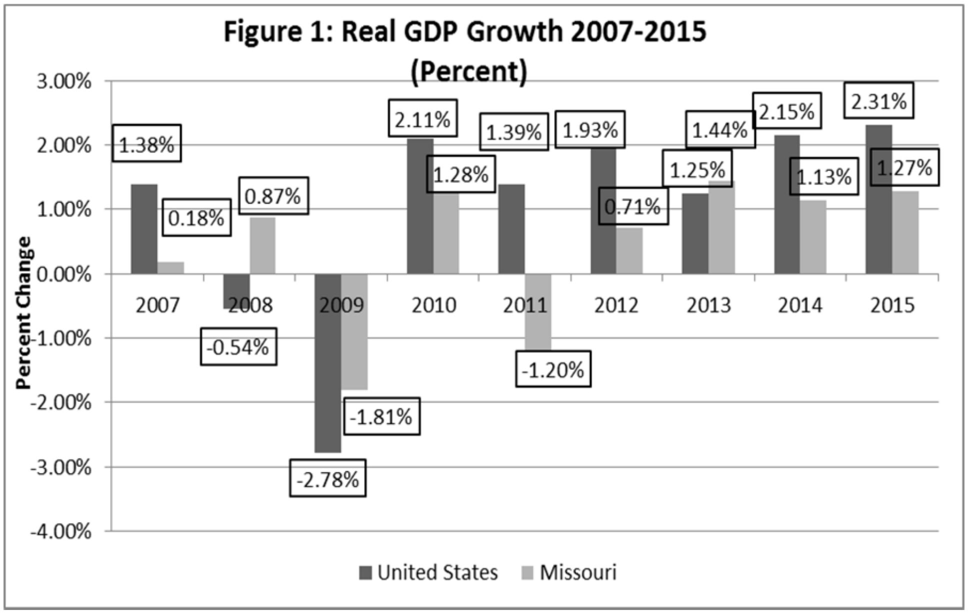
Staff Expert/Witness: Jerry Scheible, PE

IV. Economic Considerations

Staff's review of the economic considerations to take into account in this rate case revealed that indicators of Missouri's general economic condition, in the counties[1] that compose Ameren

[1] According to Schedule 2 of the minimum filing requirements and the current tariffs, Ameren Missouri serves a total of 60 counties and the unincorporated City of St. Louis. The Quarterly Census of Employment and Wages designates the independent unincorporated City of St. Louis as a county, making the Ameren Missouri service area a total of 61 counties.

Missouri's service area indicate moderate growth continues. Figure 1 below shows that the real gross domestic product ("GDP") growth of Missouri as a whole has been smaller than the United States as a whole since the recession ended (with the lone exception of 2013), and was negative in the year 2011.

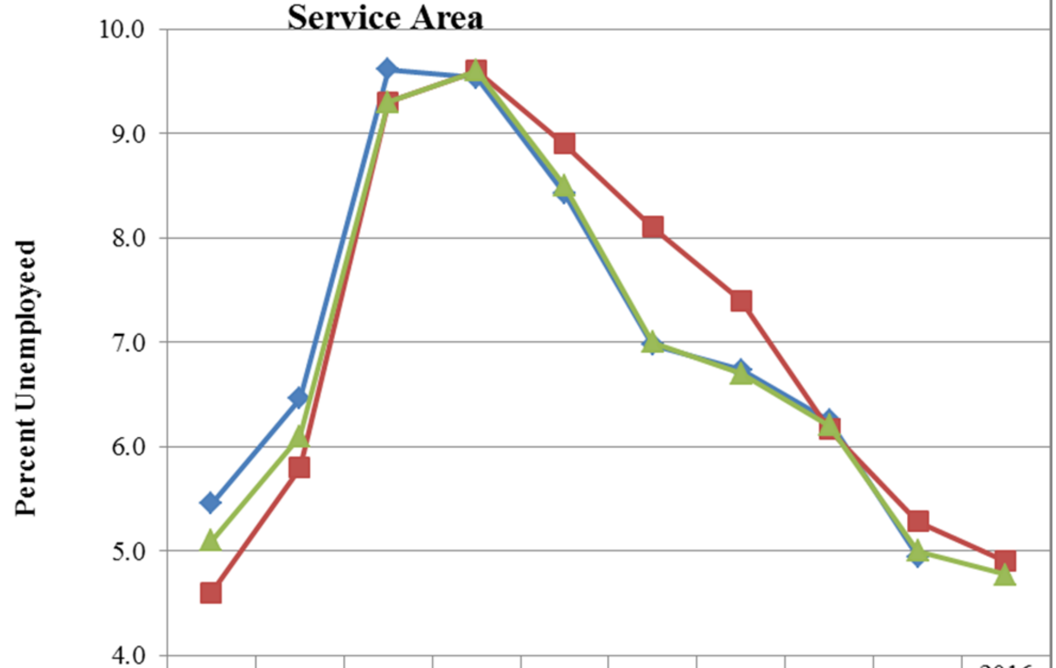


Despite a low GDP growth rate, Figure 2 shows that the annual unemployment rate levels for Missouri, including the preliminary 2016 levels, are below pre-recession levels, but the unemployment rate for the U.S. overall has yet to reach the pre-recession lows.[2] The employment rates from the Bureau of Labor and Statistics show that the number of jobs in Ameren Missouri's service territory, which peaked in 2007, is still below 2004 levels, but has increased every year since 2010 (Figure 3). St. Louis County and the City of St. Louis possess just over half of the jobs in Ameren Missouri's service area. The combined unemployment rate for all of the counties that Ameren Missouri serves is within +/- 0.1% of Missouri's total employment rate, which is to be expected given the scope of Ameren Missouri's territory. The combined unemployment rate for St. Louis tends to reflect the same trajectory as Missouri's unemployment rate, but at a higher level.[3]

[2] According to the National Bureau of Economic Research, the recession began in December 2007 and ended in June 2009.

[3] The county level unemployment data is unavailable for 2016.

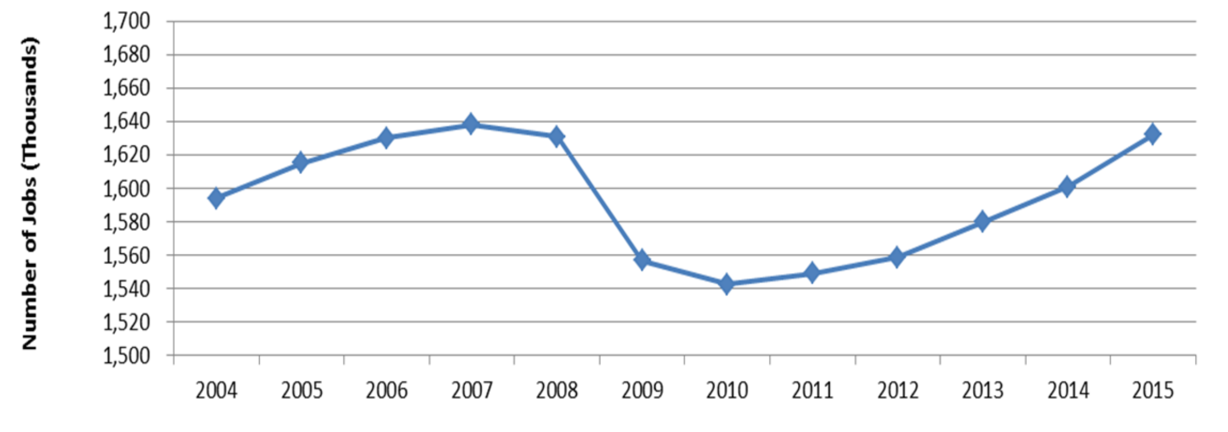
Figure 2: Unemployment Comparison for Ameren Missouri Service Area



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 (P)
St. Louis City and County	5.5	6.5	9.6	9.5	8.4	7.0	6.7	6.3	4.9	
United States	4.6	5.8	9.3	9.6	8.9	8.1	7.4	6.2	5.3	4.9
Missouri	5.1	6.1	9.3	9.6	8.5	7.0	6.7	6.2	5.0	4.8

Some economists have expressed concern that the unemployment rate statistic has not accurately reflected a lower labor-force participation rate. Figure 3 shows the number of employed persons in Ameren's Service territory is near the pre-recession peak. While not correcting for population growth, Figures 2 and 3 together show that the employment situation in Missouri has continued to improve since 2010.

Figure 3. Ameren Service Territory Employment



In addition to examining the status of the current economy, economic forecasters also examine economic data that has a history of leading, lagging, or coinciding with changes in the broader economy to anticipate future economic conditions. The current economic outlook from a variety of economic forecasters has been cautious. For instance, the American Institute for Economic Research's ("AIER")[4] most recent version of Business Cycle Conditions (November 2016) shows that 58 percent of the leading indicators are evaluated as expanding.[5] Under AIER's method, consistent evaluations above 50 percent suggest a low probability of recession over the next six to 12 months. This was the second month that was evaluated above 50 after having sixth months in a row that the evaluation was at or below 50 percent. AIER states, "[W]e do not believe there is enough evidence to suggest the economy is on a significantly different path. Consequently, we still believe the results over the past nine months are consistent with overall slow growth and continued economic expansion."[6]

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[4] American Institute for Economic Research. (09NOV16). "Business Conditions Monthly." https://www.aier.org/sites/default/files/Documents/Research/pdf/BCM_November2016.pdf (15NOV16).

[5] AIER uses 24 indicators in total – 12 leading indicators are measurable economic factors that tend to change ahead of a turning point in the broader economy, six coincident indicators that tend to change at roughly the same time as a change in the broader economy, and six lagging indicators that tend to change after a turning point in the broader economy. AIER recently revised its list of indicators, details of which can be found at https://www.aier.org/revising. A leading indicator evaluated as expanding means that the change in that indicator is historically correlated with future economic growth.

[6] American Institute for Economic Research. (09NOV16). "Business Conditions Monthly." https://www.aier.org/sites/default/files/Documents/Research/pdf/BCM_November2016.pdf (15NOV16).

Figure 4 provides a comparison of the increase in average weekly wages for the counties in Ameren Missouri's service area, along with Consumer Price Index ("CPI"), Producer Price Index ("PPI""),[7] and Ameren Missouri's electric rates. From 2007 to 2015, Ameren Missouri's service area collectively experienced a 16.81% increase in average weekly wages. This was slightly lower than the overall Missouri compounded increase in average weekly wages of 18.03% and about 3% above the CPI increase. During that same time period, the CPI increased 14.31%, Ameren Missouri filed six rate cases[8] and electric rates for Ameren Missouri customers increased approximately $935 million, or a cumulative total of 51.16%, as shown in Table 1. However, Ameren Missouri has also experienced inflationary pressure illustrated by a 10.31% increase in the PPI for Industrial Commodities from 2007 to 2015.[9] Ameren Missouri is currently requesting an additional $206 million or a 7.80% increase in rates. From 2007 to 2015, the increase in average weekly wages for Ameren Missouri's service area is less than one third of the increase in electric rates for Ameren Missouri customers. If Ameren Missouri receives its requested 7.80% increase, the increase in average weekly wages would be 26.7% of the increase in electric rates.

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[7] The PPI represents the Producer Price Index for Industrial Commodities which includes textile products and apparel, hides, skins, leather and related products, fuels and related products and power, chemicals and allied products, rubber and plastic products, lumber and wood products, pulp, paper and allied products, metals and metal products, machinery and equipment, furniture and household durables, nonmetallic mineral products and transportation equipment.

[8] Case Nos. ER-2007-0002, ER-2008-0318, ER-2010-0036, ER-2011-0028, ER-2012-0166, and ER-2014-0258.

[9] Detailed information on Ameren Missouri's expenditures and revenues can be found later in the Staff Cost-of-Service Report.

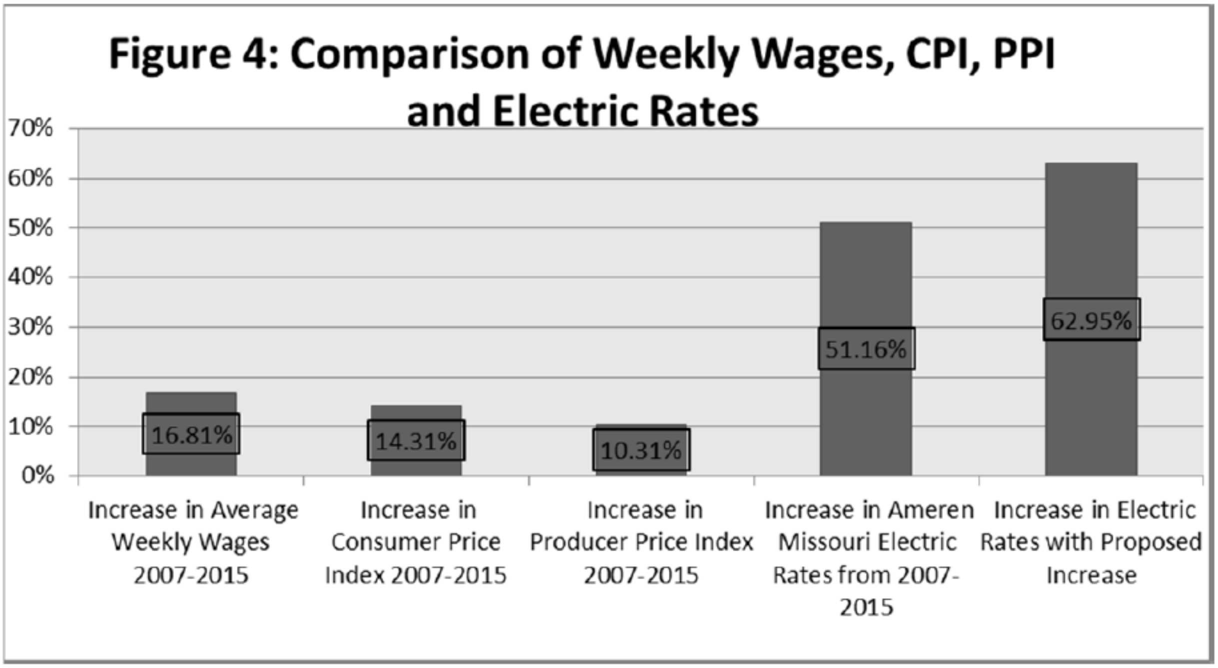

Table 1: Ameren Missouri Rate Case History 2007 - 2016			
Case Number	Effective Date	Dollar Value	Percent Increase
ER-2007-0002	1-Jun-07	$41,777,474	2.07%
	23-Jul-07	$1,010,430	
ER-2008-0318	1-Mar-09	$161,709,205	7.75%
ER-2010-0036	21-Jun-10	$229,552,309	10.43%
ER-2011-0028	31-Jul-11	$173,225,030	7.11%
ER-2012-0166	2-Jan-13	$259,647,340	10.05%
ER-2014-0258	30-May-15	$68,599,010	5.59%
Total Dollars		$935,520,798	
Total Compounded Increase			51.16%
ER-2016-0179	(Proposed)	$206,363,720	7.80%
Total with Proposed		*$1,141,884,518*	*62.95%*

Staff Experts/Witnesses: Michael L. Stahlman and Joseph P. Roling

V. Rate of Return

A. Overview

An essential ingredient of the cost-of-service ratemaking formula is the rate of return ("ROR"), which is usually premised on the goal of allowing a utility the opportunity to recover the costs required to secure debt and equity financing. A company's overall rate of return consists of three main categories: (1) capital structure (i.e., ratios of short-term debt, long-term debt, preferred stock and common equity); (2) cost rates for short-term debt, long-term debt, and preferred stock; and (3) common equity cost, which in utility ratemaking is often considered synonymous with the Return on Equity ("ROE") even if they aren't in equilibrium.

An ROE is most simply described as the allowed rate of profit for a regulated company. In a competitive market, a company's profit level is determined by a variety of factors, including the state of the economy, the degree of competition a company faces, the ease of entry into its markets, the existence of substitute or complementary products/services, the company's cost structure, the impact of technological changes, and the supply and demand for its services and/or products. For a regulated monopoly, the regulator determines the level of profit potentially available to the utility. The United States Supreme Court established the guiding principles for establishing an appropriate level of profitability for regulated public utilities in two cases: (1) *Bluefield* and (2) *Hope*.[10] In those cases, the Court recognized that the fair rate of return on equity should be: (1) comparable to returns investors expect to earn on other investments of similar risk; (2) sufficient to assure confidence in the company's financial integrity; and (3) adequate to maintain and support the company's credit and to attract capital.

Thus, the appropriate allowed ROE for a regulated utility requires estimating the market-based cost of capital. The market-based cost of capital for a regulated firm represents the return investors could expect from other investments, while assuming no more and no less risk. The purpose of all of the economic models and formulas in cost of capital testimony (including those presented later in my testimony) is to estimate, using market data of similar-risk firms, the rate of return equity investors require for that risk-class of firms in order to set an appropriate ROE for a regulated firm.

This report provides an overall fair ROR or cost of capital recommendation for the regulated electric utility operations of Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri") and evaluates Ameren Missouri ROR testimony in this proceeding.

This report is organized as follows: (1) a review of Staff's cost of equity estimate for Ameren Missouri, (2) an assessment of capital costs in today's capital markets; (3) selection of a proxy group of electric utility companies for estimating the market cost of equity for Ameren Missouri; (4) a

[10] *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*").

discussion of the capital structure of Ameren Missouri; and (5) an overview of the concept of cost of equity capital and an estimate of the equity cost rate for Ameren Missouri.

B. Summary of Positions

Ameren Missouri has proposed a capital structure of 47.14% long-term debt, 1.06% preferred stock, and 51.80% common equity based on Ameren Missouri's projected capital structure as of December 31, 2016. Ameren Missouri recommended a long-term debt cost rate of 5.39% and a preferred stock cost rate of 4.18%. Ameren Missouri witness Mr. Robert B. Hevert has recommended an ROE of 9.90% for the electric utility operations of Ameren Missouri. Ameren Missouri's overall proposed rate of return is 7.713%.

Staff's recommended capital structure and senior capital cost rates are sponsored by Staff witness David Murray. Staff recommends the Commission set Ameren Missouri's allowed ROR based on Ameren's actual capital structure and capital costs, which contains 50.51% common equity. If the Commission does not want to include the capital costs of Ameren's other operations for purposes of setting Ameren Missouri's allowed ROR, then Staff recommends the use of an adjusted Ameren Missouri capital structure that limits the common equity ratio to 50.51%.

Nonetheless, the primary difference in my recommended rate of return and Ameren Missouri's is our common equity cost estimates. To estimate an equity cost rate for Ameren Missouri, I have applied the Discounted Cash Flow Model ("DCF") and the Capital Asset Pricing Model ("CAPM") to my proxy group of electric utilities ("Electric Proxy Group"). I have also used Mr. Hevert's proxy group ("Hevert Proxy Group") for purposes of comparison to my Electric Proxy Group analysis. Mr. Hevert has also employed an alternative risk premium ("RP") approach, which he calls the Bond Yield Plus Risk Premium approach. My recommendation is that the appropriate ROE for Ameren Missouri is 8.75%. This figure is at the upper end of my equity cost rate range of 7.9% to 8.85%. My overall rate of return recommendation, based on the 8.75% ROE recommendation and Mr. Murray's capitalization ratios and senior capital cost rate, is summarized in Exhibit JRW-1. My overall rate of return recommendation of 7.07% is also reflected in Exhibit JRW-1.

My equity cost rate recommendation is consistent with the current economic environment. Despite dire and unfounded predictions of rising interest rates over the past several years, long-term interest rates and capital costs are still at low levels. As I discuss below, there are strong indicators from my assessment study of global capital markets that long-term capital costs will remain low. In estimating a common equity cost rate I have applied the DCF and the CAPM approaches to proxy groups of publicly-held electric utility companies that include the same proxy group used by Mr. Hevert.

I review current market conditions and conclude that interest rates and capital costs are at low levels and are likely to remain low for some time. On this issue, I show that the economists' forecasts of higher interest rates and capital costs have been consistently wrong for a decade.

I have employed the traditional constant-growth DCF model. When developing the DCF growth rate that I have used in my analysis, I have reviewed thirteen growth rate measures including historical and projected growth rate measures and have evaluated growth in dividends, book value, and earnings per share.

The CAPM approach requires an estimate of the risk-free interest rate, beta, and the market or risk premium. As I highlight in my testimony, there are three methods for estimating a market or equity risk premium – historical returns, surveys, and expected return models. I have used a market risk premium of 5.5%, which: (1) employs three different approaches to estimating a market premium; and (2) uses the results of many studies of the market risk premium. As I note, my market risk premium reflects the market risk premiums: (1) determined in recent academic studies by leading finance scholars; (2) employed by leading investment banks and management consulting firms; and (3) found in surveys of companies, financial forecasters, financial analysts, and corporate CFOs.

C. Capital Costs in Today's Markets

1. Historic Interest Rates and Capital Costs

Long-term capital cost rates for U.S. corporations are a function of the required returns on risk-free securities plus a risk premium. The risk-free rate of interest is the yield on long-term U.S. Treasury bonds. The yields on 10-year U.S. Treasury bonds from 1953 to the present are provided on Panel A of Exhibit JRW-2. These yields peaked in the early 1980s and have generally declined since that time. These yields fell to below 3.0% in 2008 as a result of the financial crisis. In 2012, the yields on 10-year Treasuries declined from 2.5% to 1.5% as the Federal Reserve initiated the third stage of its quantitative easing program ("QEIII") to support a low interest rate environment. These yields increased to 3.0% as of December of 2013 on speculation of a tapering of the Federal Reserve's QEIII policy. Since that time, the Federal Reserve has ended the QEIII program and has increased the federal funds rate. Nonetheless, due to slow economic growth and low inflation, the 10-year Treasury yield declined and bottomed out at 1.5% range as of mid-2016. They have since increased to 2.25%, with the majority of that increase coming in response to the U.S. presidential election.

Panel B on Exhibit JRW-2 shows the differences in yields between 10-year Treasuries and Moody's Baa-rated bonds since the year 2000. This differential primarily reflects the additional risk premium required by bond investors for the risk associated with investing in corporate bonds as opposed to obligations of the U.S. Treasury. The difference also reflects, to some degree, yield curve changes over time. The Baa rating is the lowest of the investment grade bond ratings for corporate bonds. The yield differential hovered in the 2.0% to 3.5% range until 2005, declined to 1.5% until late 2007, and then increased significantly in response to the financial crisis. This differential peaked at 6.0% at the height of the financial crisis in early 2009 due to tightening in credit markets, which increased corporate bond yields, and the "flight to quality," which decreased Treasury yields. The differential subsequently declined and bottomed out at 2.4%. The differential has since increased to the 3.25% range.

The risk premium is the return premium required by investors to purchase riskier securities. The risk premium required by investors to buy corporate bonds is observable based on yield differentials in the markets. The market risk premium is the return premium required to purchase stocks as opposed to bonds. The market or equity risk premium is not readily observable in the markets (like bond risk premiums) since expected stock market returns are not readily observable. As a result, equity risk premiums must be estimated using market data. There are alternative methodologies to estimate the equity risk premium, and these alternative approaches and equity risk premium results are subject to much debate. One way to estimate the equity risk premium is to compare the mean returns on bonds and stocks over long historical periods. Measured in this manner, the equity risk premium has been in the 5% to 7% range.[11] However, studies by leading academics indicate that the forward-looking equity risk premium is actually in the 4.0% to 6.0% range. These lower equity risk premium results are in line with the findings of equity risk premium surveys of CFOs, academics, analysts, companies, and financial forecasters.

Panel A of Exhibit JRW-3 provides the yields on A-rated public utility bonds. These yields peaked in November 2008 at 7.75% and henceforth declined significantly. These yields declined to below 4.0% in mid-2013, and then increased with interest rates in general to the 4.85% range as of late

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

2013. These rates dropped significantly during 2014 due to economic growth concerns and bottomed out below 4.0% in the first quarter of 2015. They increased with interest rates in general to 4.4% in the summer of 2015, and have since declined to the 4.0% range due to continued low economic growth and inflation.

Panel B of Exhibit JRW-3 provides the yield spreads between long-term A-rated public utility bonds relative to the yields on 20-year U.S. Treasury bonds. These yield spreads increased dramatically in the third quarter of 2008 during the peak of the financial crisis and have decreased significantly since that time. The yield spreads between 20-year U.S. Treasury bonds and A-rated utility bonds peaked at 3.4% in November 2008, declined to about 1.5% in the summer of 2012 as investor return requirements declined. The differential has gradually increased in recent years, and is now close to 2.0%.

2. <u>Current Capital Market Conditions</u>

a. Forecasts of Higher Interest Rates

As discussed above, a company's ROR is theoretically supposed to be approximately equal to its overall cost of capital in the long run. Capital costs, including the cost of debt and equity financing, are established in capital markets and reflect investors' return requirements on alternative investments based on risk and capital market conditions. These capital market conditions are a function of investors' expectations concerning many factors, including economic growth, inflation, government monetary and fiscal policies, and international developments, among others. In the wake of the financial crisis, much of the focus in the capital markets has been on the interaction of economic growth, interest rates, and the actions of the Federal Reserve (the "Fed"). In addition, as illustrated in the United Kingdom's June 24th referendum to leave the European Union ("BREXIT"), capital markets are global and capital costs are impacted by global events.

In the last couple of years, with the end of the Federal Reserve's QEIII program as well as in anticipation of the Federal Reserve's December 16, 2015, decision to raise the Federal Funds rate, there have been forecasts of higher long-term interest rates. However, these forecasts have proven to be wrong. For example, after the announcement of the end of the QEIII program, all the economists in Bloomberg's interest rate survey forecasted interest rates would increase in 2014, and 100% of the economists were wrong. According to the *Market Watch* article:[12]

> The survey of economists' yield projections is generally skewed toward rising rates — only a few times since early 2009 have a majority of respondents to the Bloomberg survey thought rates would fall. But the unanimity of the rising rate forecasts in the spring was a stark reminder of how one-sided market views can become. It also teaches us that economists can be universally wrong.

Two other financial publications have produced studies on how economists consistently predict higher interest rates yet they have been wrong. The first publication, entitled "How Interest Rates Keep Making People on Wall Street Look Like Fools," evaluated economists' forecasts for the yield on ten-year Treasury bonds at the beginning of the year for the last ten years.[13] The results demonstrated that economists consistently predict that interest rates will increase, but these forecasts are often wrong.

The second study tracked economists' forecasts for the yield on ten-year Treasury bonds on an ongoing basis from 2010 until 2015.[14] The results of this study, which was entitled "Interest Rate Forecasters are Shockingly Wrong Almost All of the Time," are shown in Figure 1 and demonstrate how economists continually forecast that interest rates are going up, and they do not. Indeed, as Bloomberg has reported, economists' continued failure in forecasting increasing interest rates has caused the Federal Reserve Bank of New York to stop using the interest rate estimates of professional forecasters in the Bank's interest rate model due to the unreliability of those forecasters' interest rate forecasts.[15]

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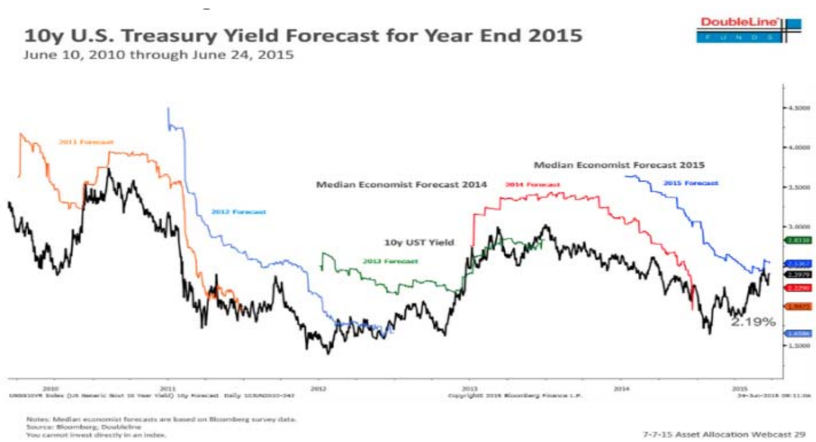
[12] Ben Eisen, "Yes, 100% of economists were dead wrong about yields, *Market Watch*," October 22, 2014. Perhaps reflecting this fact, *Bloomberg* reported that the Federal Reserve Bank of New York has stopped using the interest rate estimates of professional forecasters in the Bank's interest rate model due to the unreliability of those forecasters' interest rate forecasts. See Susanne Walker and 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.

[13] Joe Weisenthal, "How Interest Rates Keep Making People on Wall Street Look Like Fools," Bloomberg.com, March 16, 2015. http://www.bloomberg.com/news/articles/2015-03-16/how-interest-rates-keep-making-people-on-wall-street-look-like-fools.

[14] Akin Oyedele, "Interest Rate Forecasters are Shockingly Wrong Almost All of the Time," *Business Insider*, July 18, 2015. http://www.businessinsider.com/interest-rate-forecasts-are-wrong-most-of-the-time-2015-7.

[15] *Market Watch*," October 22, 2014.

Figure 1
Economists' Forecasts of the Ten-Year Treasury Yield
2010-2015



Source: Akin Oyedele, "Interest Rate Forecasters are Shockingly Wrong Almost All of the Time," *Business Insider*, July 18, 2015. http://www.businessinsider.com/interest-rate-forecasts-are-wrong-most-of-the-time.

b. The Federal Reserve's Decision to Increase the Federal Funds Rate

The Federal funds rate is set by the Federal Reserve and is the borrowing rate applicable to the most creditworthy financial institutions when they borrow and lend funds overnight to each other.[16] On December 16, 2015, the Federal Reserve or "Fed" decided to increase the target rate for Federal Funds to ¼ - ½ percent. In the release, the Federal Open Market Committee ("FOMC") included the following observations:[17] The increase came after the rate was kept in the 0.0 to 0.25 percent range for over five years in order to spur economic growth in the wake of the financial crisis. The move followed by almost two years the end of QEIII program, the Federal's Reserve's bond-buying program. The Federal Reserve has been cautious in its approach to scaling its monetary intervention, and has paid close attention to a number of economic variables, including GDP growth, retail sales, consumer confidence, unemployment, the housing market, and inflation. While the Fed has cited improvements in many areas of the economy, it has expressed concern with the low inflation rate – below the Fed's target of 2.0%.

Nonetheless, it is widely accepted that the Federal Reserve will raise the federal funds rate in December of this year. This does not necessarily mean the long-term interest rates are going up.

[16] http://www.investopedia.com/terms/f/federalfundsrate.asp.

[17] Board of Governors of the Federal Reserve System, *FOMC Statement* (Dec. 16, 2015).

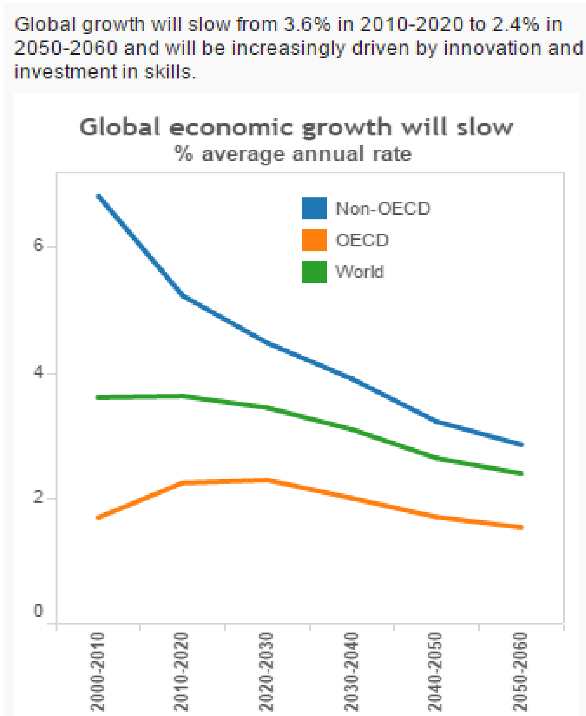
As noted, the federal funds rate is an overnight rate, not a long-term interest rate. In fact, after the Fed increased the federal funds rate last December, long term interest rates declined. The yield on 30-year Treasury bonds was about 3.0% at the time of the decision, declined to below 2.50% in 2016, and has now increased back to the 3.0% range in the wake of the U.S. presidential election.

c. Interest Rates and Capital Costs in the Long Run

In the long run, the key drivers of economic growth measured in nominal dollars are population growth, the advancement and diffusion of science and technology, and currency inflation. Although we experienced rapid economic growth during the "post-war" period (the 63 years that separated the end of World War II and the 2008 financial crisis), the post-war period is not necessarily reflective of expected future growth. It was marked by a near-tripling of global population, from under 2.5 billion to approximately 6.7 billion. Over the next 54 years, according to U.N. projections, the global population will grow considerably more slowly, reaching approximately 10.3 billion in 2070. With population growth slowing, life expectancies lengthening, and post-war "baby boomers" reaching retirement age, median ages in developed-economy nations have risen and continue to rise. The postwar period was also marked by rapid catch-up growth as Europe, Japan, and China recovered from successive devastations and as regions such as India and China deployed and leapfrogged technologies that had been developed over a much longer period in earlier-industrialized nations. That period of rapid catch-up growth is coming to an end. For example, although China remains one of the world's fastest-growing regions, its growth is now widely expected to slow substantially. This convergence of projected growth in the former "second world" and "third world" towards the slower growth of the nations that have long been considered "first world" is illustrated in this "key findings" chart published by the Organization for Economic Co-operation and Development:[18]

[18] See http://www.oecd.org/eco/outlook/lookingto2060 htm.

Figure 2
Projected Global Growth



As to dollar inflation, it has declined to far below the level it reached in the 1970s. The Federal Reserve targets a 2% inflation rate, but inflation has been below this figure. Indeed, inflation has been below the Fed's target rate for over three years due to a number of factors, including slow global economic growth, slack in the economy, and declining energy and commodity prices. The slow pace of inflation is also reflected in the decline in forecasts of future inflation. The Energy Information Administration's annual Energy Outlook includes in its nominal GDP growth projection a long-term inflation component, which the EIA projects at only 2.1% per year for its forecast period through 2040.[19]

All of this translates into slowed growth in annual economic production and income, even when measured in nominal rather than real dollars. Meanwhile, the stored wealth that is available to fund investments has continued to rise. According to the most recent release of the Credit Suisse

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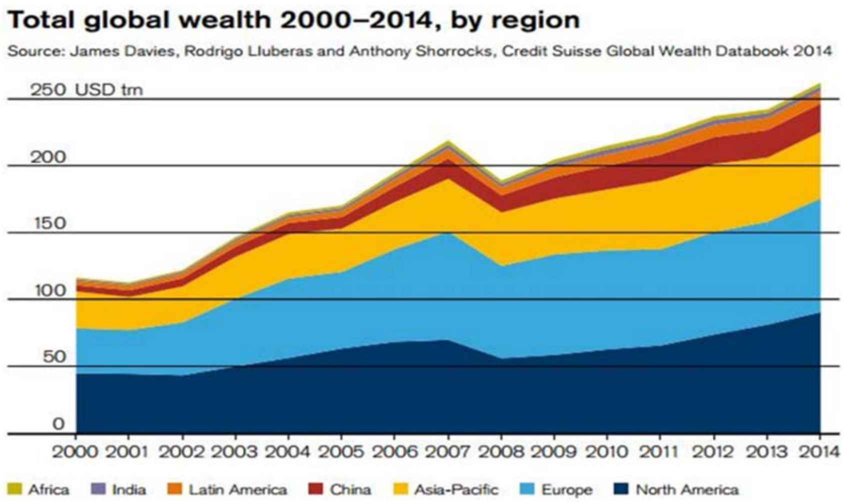
[19] *See* EIA Annual Energy Outlook 2016, Table 20 (available at http://www.eia.gov/forecasts/aeo/tables_ref.cfm).

global wealth report, global wealth has more than doubled since the turn of this century, notwithstanding the temporary setback following the 2008 financial crisis:

Figure 3
Global Wealth – 2000-2014



These long-term trends mean that overall, and relative to what had been the post-war norm, the world now has more wealth chasing fewer opportunities for investment rewards. Ben Bernanke, the former Chairman of the Federal Reserve, called this phenomenon a "global savings glut."[20] Like any other liquid market, capital markets are subject to the law of supply and demand. With a large supply of capital available for investment and relatively scarce demand for investment capital, it should be no surprise to see the cost of investment capital decline and therefore interest rates should remain low.

Bernanke addressed the issue of the continuing low interest rates in his weekly Brookings Blog. Bernanke indicated that the focus should be on real and not nominal interest rates and noted that, in the long term, these rates are not determined by the Federal Reserve:[21]

> If you asked the person in the street, "Why are interest rates so low?," he or she would likely answer that the Fed is keeping them low. That's true only in a very narrow sense. The Fed does, of course, set the benchmark nominal short-term interest rate. The Fed's policies are also the primary determinant of inflation and inflation expectations over the longer term, and inflation trends affect interest rates, as the figure above shows. But what matters

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[20] Ben S. Bernanke, *The Global Saving Glut and the U.S. Current Account Deficit* (Mar. 10, 2005), available at http://www federalreserve.gov/boarddocs/speeches/2005/200503102/.

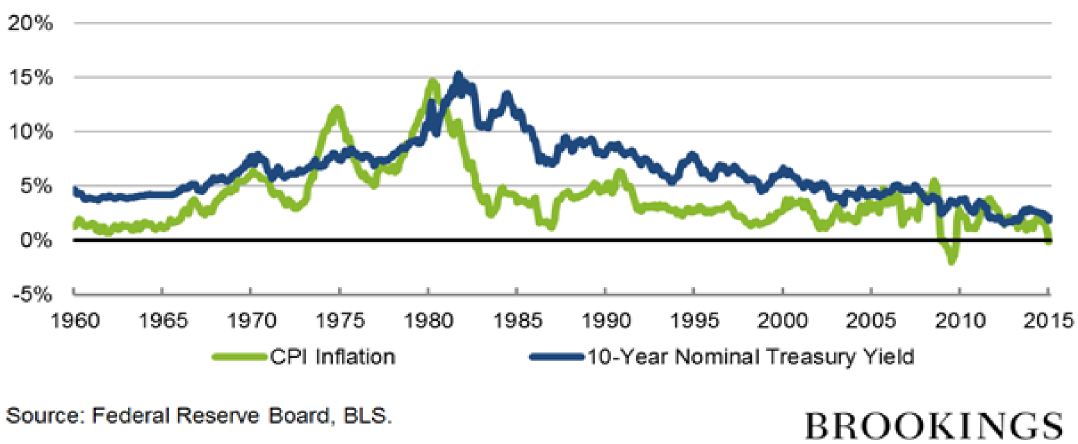
[21] Ben S. Bernanke, "Why Are Interest Rates So Low," Weekly Blog, Brookings, March 30, 2015. http://www.brookings.edu/blogs/ben-bernanke/posts/2015/03/30-why-interest-rates-so-low.

> most for the economy is the real, or inflation-adjusted, interest rate (the market, or nominal, interest rate minus the inflation rate). The real interest rate is most relevant for capital investment decisions, for example. The Fed's ability to affect real rates of return, especially longer-term real rates, is transitory and limited. Except in the short run, real interest rates are determined by a wide range of economic factors, including prospects for economic growth—not by the Fed.

Bernanke also addressed the issue about whether low interest rates are a short-term aberration or a long-term trend:[22]

> Low interest rates are not a short-term aberration, but part of a long-term trend. As the figure below shows, ten-year government bond yields in the United States were relatively low in the 1960s, rose to a peak above 15 percent in 1981, and have been declining ever since. That pattern is partly explained by the rise and fall of inflation, also shown in the figure. All else equal, investors demand higher yields when inflation is high to compensate them for the declining purchasing power of the dollars with which they expect to be repaid. But yields on inflation-protected bonds are also very low today; the real or inflation-adjusted return on lending to the U.S. government for five years is currently about minus 0.1 percent.

Figure 4
Interest Rates and Inflation
1960-Present



[22] Ibid.

d. Summary Observations on Current Capital Market Conditions

I believe that U.S. Treasuries offer an attractive yield relative to those of other major governments around the world, which will attract capital to the U.S. There are several factors driving this conclusion.

First, the economy has been growing for over five years, and, as noted above, the Federal Reserve sees continuing strength in the economy. The labor market has improved, with unemployment now at 5.0%.[23]

Second, interest rates remain at low levels and are likely to remain low. There are two factors driving the continued lower interest rates: (1) inflationary expectations in the U.S. remain low and remain below the FOMC's target of 2.0%; and (2) global economic growth – including Europe where growth is stagnant and China where growth is slowing significantly. As a result, while the yields on long-term U.S. Treasury bonds are low by historical standards, these yields are well above the government bond yields in Germany, Japan, and the United Kingdom. Thus, U.S. Treasuries offer an attractive yield relative to those of other major governments around the world, thereby attracting capital to the U.S. and keeping U.S. interest rates down.

Given these observations, I suggest that the Commission set an allowed ROE based on current market cost rate indicators and not speculate on the future direction of interest rates. As the above studies indicate, economists are always predicting that interest rates are going up, and yet they are almost always wrong. Obviously, investors are well aware of the consistently wrong forecasts of higher interest rates, and therefore place little weight on such forecasts. Investors would not be buying long-term Treasury bonds or utility stocks at their current yields if they expected interest rates to suddenly increase, thereby producing higher yields and negative returns. For example, consider a utility that pays a dividend of $2.00 with a stock price of $50.00. The current dividend yield is 4.0%. If interest rates and required utility yields increase, the price of the utility stock would decline. In the example above, if higher return requirements led the dividend yield to increase from 4.0% to 5.0% in the next year, the stock price would have to decline to $40, which would be a -20% return on the stock.[24] Obviously, investors would not buy the utility stock with an expected return of -20% due to higher dividend yield requirements.

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[23] See http://data.bls.gov/timeseries/LNS14000000.

[24] In this example, for a stock with a $2.00 dividend, a dividend yield 5.0% dividend yield would require a stock price of $40 ($2.00/$40 = 5.0%).

In sum, forecasting prices and rates that are determined in the financial markets, such as interest rates, the stock market, and gold prices, appears to be impossible to accurately do. For interest rates, I have never seen a study that suggests one forecasting service is consistently better than others or that interest rate forecasts are consistently better than just assuming that the current interest rate will be the rate in the future. As discussed above, investors would not be buying long-term Treasury bonds or utility stocks at their current yields if they expected interest rates to suddenly increase, thereby producing higher yields and negative returns.

D. Proxy Group Selection

To develop a fair rate of return recommendation for Ameren Missouri, I have evaluated the return requirements of investors on the common stock of a proxy group of publicly-held utility companies. The selection criteria for the Electric Proxy Group include the following:

1. At least 50% of revenues from regulated electric operations as reported by *AUS Utilities Report*;

2. Listed as an Electric Utility by *Value Line Investment Survey* and listed as an Electric Utility or Combination Electric & Gas Utility in *AUS Utilities Report*;

3. An investment grade issuer credit rating by Moody's and Standard & Poor's ("S&P");

4. Has paid a cash dividend in the past six months, with no cuts or omissions;

5. Not involved in an acquisition of another utility, the target of an acquisition, or in the sale or spin-off of utility assets, in the past six months; and

6. Analysts' long-term earnings per share ("EPS") growth rate forecasts available from Yahoo, Reuters, and/or Zacks.

The Electric Proxy Group includes thirty companies. Summary financial statistics for the proxy group are listed in Panel A of page 1 of Exhibit JRW-4.[25] The median operating revenues and net plant among members of the Electric Proxy Group are $6,084.5 million and $16,741.0 million, respectively. The group receives 81% of its revenues from regulated electric operations, has BBB+/Baa1 issuer

[25] 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.

credit ratings from S&P and Moody's respectively, a current common equity ratio of 47.1%, and an earned return on common equity of 9.1%.

In addition to this group, I have also employed Mr. Hevert's Proxy Group. The Hevert Proxy Group consists of sixteen companies.[26] Summary financial statistics for the proxy group are listed on Panel B of page 1 of Exhibit JRW-4. The median operating revenues and net plant among members of the Hevert Proxy Group are $2,151.4 million and $7,469.9 million, respectively. The group receives 79% of revenues from regulated electric operations, has an average BBB+ issuer credit rating from S&P and an average Baa1 long-term rating from Moody's, a current common equity ratio of 48.9%, and an earned return on common equity of 9.2%.

I use credit ratings to assess the riskiness of Ameren Missouri to the proxy groups. Exhibit JRW-4 also shows S&P and Moody's issuer credit ratings for the companies in the two groups. Ameren Missouri's issuer credit ratings are BBB+ according to S&P and Baa1 according to Moody's. These ratings are the same as the average S&P and Moody's issuer credit ratings for the Electric and Hevert Proxy Groups (BBB+ and Baa1). Therefore, I believe that Ameren Missouri's investment risk is similar to the investment risk of the Electric and Hevert Proxy Groups.

In addition, on page 2 of Exhibit JRW-4, I have assessed the riskiness of the two proxy groups using five different risk measures. These measures include Beta, Financial Strength, Safety, Earnings Predictability, and Stock Price Stability. These risk measures suggest that the two proxy groups are similar in risk. The comparisons of the risk measures include Beta (0.70 vs. 0.72), Financial Strength (A vs. A) Safety (2.0 vs. 2.0), Earnings Predictability (78 vs. 81), and Stock Price Stability (96 vs. 96). On balance, these measures suggest that the two proxy groups are similar.

As is also shown in Exhibit JRW-4, the median common equity ratios of the Electric and Hevert Proxy Groups are 47.1% and 48.0%, respectively. Ameren's capitalization has slightly more equity and less financial risk than the average current capitalizations of electric utility companies. It should be noted that these capitalization ratios for the proxy groups include total debt which consists of both short-term and long-term debt. In assessing financial risk, short-term debt is included because, just like long-term debt, short-term has a higher claim on the assets and earnings of the company and requires timely payment of interest and repayment of principal.

Staff Expert/Witness: J. Randall Woolridge

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[26] I have eliminated Great Plains Energy and Westar Energy due to their announced merger.

E. Capital Structure Ratios and Debt Cost Rates

As of March 31, 2016, Ameren Missouri's capital structure contained 52.00% common equity, 46.90% long-term debt, and 1.10% preferred stock. In past rate cases, Staff had recommended the use of Ameren Missouri's subsidiary-specific capital structure because it was fairly consistent with how its parent company, Ameren, was capitalized mainly because Ameren had not issued much, if any, holding company debt. Consequently, the use of either capital structure would have produced fairly similar revenue requirements for Ameren Missouri. However, this is no longer the case.

In November 2015 Ameren issued $700 million in long-term debt, which has caused Ameren's consolidated capital structure to be more leveraged than that of Ameren Missouri's. According to Ameren Missouri's response to Staff Data Request No. 414, Ameren's average common equity ratio for the quarters ending December 31, 2015, March 31, 2016, and June 30, 2016, was 49.8%. This compares to Ameren Missouri's average common equity ratio of 51.4% for the same period. This discrepancy caused Staff to further investigate various financial activities at Ameren and its subsidiaries to determine if it was fair and reasonable to still recommend the use of Ameren Missouri's capital structure for ratemaking purposes. Staff's recommendation is that either Ameren's consolidated capital structure and capital costs should be used to set Ameren Missouri's rate of return or Ameren Missouri's ratemaking common equity ratio should be set no higher than Ameren's common equity ratio (50.51% as of March 31, 2016) with the equity in excess of this ratio being allocated to long-term debt. In the second alternative, the debt costs and preferred costs would be based on Ameren Missouri-specific capital issuances.

Although the funds from the $700 million Ameren debt issuance appears to have been primarily for the purpose of investing in Ameren's transmission subsidiary, Ameren Transmission Company of Illinois ("ATXI"), this financing event and other financial management decisions demonstrate an increase in the commingling of Ameren's financing activities for all of its companies, which supports the use of Ameren's consolidated capital structure for ratemaking. One of the most glaring reasons for doing so is the fact that Ameren Missouri's S&P credit rating is based on Ameren's consolidated capital structure. Although this was also the situation in past Ameren Missouri rate cases, as Staff explained, because Ameren and Ameren Missouri had consistent capital structures, Staff was comfortable that Ameren Missouri's debt costs were driven by the same amount of financial risk as Ameren's capital structure.

Additionally, it is clear that Ameren is increasingly managing its capital flows and liquidity on a consolidated basis for the best interest of Ameren rather than Ameren Missouri. Although Ameren has consistently shared a $1 billion credit facility with Ameren Missouri for the last several years, sometime in 2014 Ameren increased its direct borrowing limit under this credit facility to $700 million from $500 million.[27] This allows Ameren to maintain much more liquidity at the holding company level rather than at Ameren Missouri. Of course, because Ameren has been significantly growing its investments in its Ameren Illinois and ATXI subsidiaries in the last few years and only investing in its Ameren Missouri operations at a growth level consistent with inflation, Ameren Missouri has paid enough dividends to Ameren to fund the entire amount of the dividends distributed to Ameren's shareholders. This is possible because Ameren Missouri's operations are significantly cash flow positive, which allows Ameren to reinvest capital generated by ATXI and Ameren Illinois back into the systems. In fact, because ATXI is assumed to be capitalized with 56.1% equity under FERC ratemaking treatment rather than the over 80% debt that it is capitalized with at the Ameren level, it would seem to be more transparent for Ameren Missouri to at least maintain its long-term debt levels and continue to pay Ameren its available free cash flow. For example, Ameren Missouri retired $260 million of long-term debt in the first quarter of 2016 with short-term debt. In the second quarter of 2016, Ameren Missouri only issued $149 million of long-term debt, which resulted in a $111 million reduction in its debt level. In addition to the lower amount of debt, Ameren Missouri also received a $38 million dollar equity infusion from Ameren even though Ameren Missouri has actually had a declining equity ratio due to Ameren Missouri paying more in dividends than it earns in income since Ameren Missouri's last rate case.[28] If Ameren Missouri simply refinanced the $260 million of long-term debt with an equal amount of debt and did not receive the equity infusion of $38 million, then this would have freed up $149 million (260-149+38) of additional equity Ameren would have had available for investment in ATXI. If Ameren had managed its financing to allow for equity to be invested in ATXI rather than debt, then this would have resulted in Ameren Missouri having a common equity ratio of closer to 50%. In addition, this would have allowed Ameren Missouri to have a lower embedded cost of debt due the fact that the weighted average coupon rate of the new debt issuances was 3.175%, which is lower than

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[27] Ameren's 2013 and 2014 SEC Form 10-K Filings.

[28] Ryan Martin Direct Testimony, p. 10, ll. 9-15.

Ameren Missouri's embedded cost of debt of 5.45%. Staff estimates this would lower Ameren Missouri's cost of debt by .05%.

As is evident from Staff's analysis and discussion of Ameren's financial management of its various operations, Ameren's management of its subsidiaries' capital structures seem to be primarily driven by the equity ratios it targets for ratemaking treatment. In fact, Ameren Illinois used to have common equity ratios similar to Ameren Missouri's until the Illinois Commerce Commission ("ICC") adjusted the allowed ratemaking common equity ratio to 50%. Now that the ICC authorized Ameren Illinois a 50% equity ratio, Ameren has been managing Ameren Illinois' actual equity ratio to this level. Although a 50% common equity ratio would also be reasonable for setting Ameren Missouri's rate of return, Staff recommends the Commission set Ameren Missouri's allowed ROR based on Ameren's actual capital structure and capital costs, which contains 50.51% common equity (see the first scenario on Dr. Woolridge's Exhibit JRW-1). Alternatively, if the Commission elects to not include the capital costs of Ameren's other operations for purposes of setting Ameren Missouri's allowed ROR, then Staff recommends Ameren Missouri's capital structure contain a maximum common equity ratio of 50.51% (see the third scenario on Dr. Woolridge's Exhibit JRW-1). Exhibit JRW-1 shows both the pre-tax and after-tax ROR impacts of the various approaches (the second scenario is Ameren Missouri's proposed approach). The primary driver for the increased revenue requirement using Ameren Missouri's higher common equity ratio is the need to factor this up for taxes. Based on Staff's rate base recommendation, this difference between the use of Ameren Missouri's capital structure and Ameren's capital structure is approximately $11 million.

Staff Expert/Witness: David Murray

F. The Cost of Common Equity Capital

1. <u>Overview</u>

In a competitive industry, the return on a firm's common equity capital is determined through the competitive market for its goods and services. Due to the capital requirements needed to provide utility services and the economic benefit to society from avoiding duplication of these services, some public utilities are monopolies. Because of the lack of competition and the essential nature of their services, it is not appropriate to permit monopoly utilities to set their own prices. Thus, regulation seeks to establish prices that are fair to consumers and, at the same time, sufficient to meet the operating and capital costs of the utility (i.e., provide an adequate return on capital to attract investors).

The total cost of operating a business includes the cost of capital. The cost of common equity capital is the expected return on a firm's common stock that the marginal investor would deem sufficient to compensate for risk and the time value of money. In equilibrium, the expected and required rates of return on a company's common stock are equal.

Normative economic models of a company or firm, developed under very restrictive assumptions, provide insight into the relationship between firm performance or profitability, capital costs, and the value of the firm. Under the economist's ideal model of perfect competition, where entry and exit are costless, products are undifferentiated, and there are increasing marginal costs of production, firms produce up to the point where price equals marginal cost. Over time, a long-run equilibrium is established where price equals average cost, including the firm's capital costs. In equilibrium, total revenues equal total costs, and because capital costs represent investors' required return on the firm's capital, actual returns equal required returns, and the market value must equal the book value of the firm's securities.

In the real world, firms can achieve competitive advantage due to product market imperfections. Most notably, companies can gain competitive advantage through product differentiation (adding real or perceived value to products) and by achieving economies of scale (decreasing marginal costs of production). Competitive advantage allows firms to price products above average cost and thereby earn accounting profits greater than those required to cover capital costs. When these profits are in excess of that required by investors, or when a firm earns a return on equity in excess of its cost of equity, investors respond by valuing the firm's equity in excess of its book value.

2. **<u>The Relationship Between Return on Equity, the Cost of Equity, and Market-to-Book Ratios</u>**

James M. McTaggart, founder of the international management consulting firm Marakon Associates, described this essential relationship between the return on equity, the cost of equity, and the market-to-book ratio in the following manner:[29]

> Fundamentally, the value of a company is determined by the cash flow it generates over time for its owners, and the minimum acceptable rate of return required by capital investors. This "cost of equity capital" is used to discount the expected equity cash flow, converting it to a present value. The cash flow is, in turn,

[29] James M. McTaggart, "The Ultimate Poison Pill: Closing the Value Gap," *Commentary* (Spring 1986), p.3.

> produced by the interaction of a company's return on equity and the annual rate of equity growth. High return on equity (ROE) companies in low-growth markets, such as Kellogg, are prodigious generators of cash flow, while low ROE companies in high-growth markets, such as Texas Instruments, barely generate enough cash flow to finance growth.
>
> A company's ROE over time, relative to its cost of equity, also determines whether it is worth more or less than its book value. If its ROE is consistently greater than the cost of equity capital (the investor's minimum acceptable return), the business is economically profitable and its market value will exceed book value. If, however, the business earns an ROE consistently less than its cost of equity, it is economically unprofitable and its market value will be less than book value.

As such, the relationship between a firm's return on equity, cost of equity, and market-to-book ratio is relatively straightforward. A firm that earns a return on equity above its cost of equity will see its common stock sell at a price above its book value. Conversely, a firm that earns a return on equity below its cost of equity will see its common stock sell at a price below its book value.

This relationship is discussed in a classic Harvard Business School case study entitled "Note on Value Drivers." On page 2 of that case study, the author describes the relationship very succinctly:[30]

> For a given industry, more profitable firms – those able to generate higher returns per dollar of equity– should have higher market-to-book ratios. Conversely, firms which are unable to generate returns in excess of their cost of equity should sell for less than book value.

Profitability	*Value*
If ROE > K	*then Market/Book > 1*
If ROE = K	*then Market/Book =1*
If ROE < K	*then Market/Book < 1*

To assess the relationship by industry, as suggested above, I performed a regression study between estimated ROE and market-to-book ratios using natural gas distribution, electric utility, and water utility companies. I used all companies in these three industries that are covered by *Value Line* and have estimated ROE and market-to-book ratio data. The results are presented in Panels A-C of

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

Exhibit JRW-6. The average R-squares for the electric, gas, and water companies are 0.77, 0.56, and 0.75, respectively.[31] This demonstrates the strong positive relationship between ROEs and market-to-book ratios for public utilities.

3. Indicators of Public Utility Capital Cost Rates

Exhibit JRW-7 provides indicators of public utility equity cost rates over the past decade.

Page 1 shows the yields on long-term A-rated public utility bonds. These yields decreased from 2000 until 2003, and then hovered in the 5.50%-6.50% range from mid-2003 until mid-2008. These yields spiked up to the 7.75% range with the onset of the Great Recession financial crisis, and remained high and volatile until early 2009. These yields declined to below 4.0% in mid-2013, and then increased with interest rates in general to the 4.85% range as of late 2013. They subsequently declined to below 4.0% in the first quarter of 2015, increased with interest rates in general in 2015, and have now dropped back to the 4.0% range.

Page 2 provides the dividend yields for electric utilities over the past decade. The dividend yields for this electric group have declined from the year 2000 to 2007, increased to 5.2% in 2009, and declined to about 3.75% in 2014 and 2015.

Average earned returns on common equity and market-to-book ratios for electric utilities are on page 3 of Exhibit JRW-7. For the electric group, earned returns on common equity have declined gradually since the year 2000 and have been in the 9.0% range in recent years. The average market-to-book ratios for this group peaked at 1.68X in 2007, declined to 1.07X in 2009, and have increased since that time. As of 2015, the average market-to-book for the group was 1.55X. This means that, for at least the last decade, returns on common equity have been greater than the cost of capital, or more than necessary to meet investors' required returns. This also means that customers have been paying more than necessary to support an appropriate profit level for regulated utilities.

4. The Cost of Common Equity

The costs of debt and preferred stock are normally based on historical or book values and can be determined with a great degree of accuracy. The cost of common equity capital, however, cannot be determined precisely and must instead be estimated from market data and informed judgment.

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[31] 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.

This return requirement of the stockholder should be commensurate with the return requirement on investments in other enterprises having comparable risks.

According to valuation principles, the present value of an asset equals the discounted value of its expected future cash flows. Investors discount these expected cash flows at their required rate of return that, as noted above, reflects the time value of money and the perceived riskiness of the expected future cash flows. As such, the cost of common equity is the rate at which investors discount expected cash flows associated with common stock ownership.

Models have been developed to ascertain the cost of common equity capital for a firm. Each model, however, has been developed using restrictive economic assumptions. Consequently, judgment is required in selecting appropriate financial valuation models to estimate a firm's cost of common equity capital, in determining the data inputs for these models, and in interpreting the models' results. All of these decisions must take into consideration the firm involved as well as current conditions in the economy and the financial markets.

The expected or required rate of return on common stock is a function of market-wide as well as company-specific factors. The most important market factor is the time value of money as indicated by the level of interest rates in the economy. Common stock investor requirements generally increase and decrease with like changes in interest rates. The perceived risk of a firm is the predominant factor that influences investor return requirements on a company-specific basis. A firm's investment risk is often separated into business and financial risk. Business risk encompasses all factors that affect a firm's operating revenues and expenses. Financial risk results from incurring fixed obligations in the form of debt in financing its assets.

Due to the essential nature of their service as well as their regulated status, public utilities are exposed to a lesser degree of business risk than other, non-regulated businesses. The relatively low level of business risk allows public utilities to meet much of their capital requirements through borrowing in the financial markets, thereby incurring greater than average financial risk. Nonetheless, the overall investment risk of public utilities is below most other industries.

Exhibit JRW-8 provides an assessment of investment risk for 97 industries as measured by beta, which according to modern capital market theory, is the only relevant measure of investment risk. These betas come from the *Value Line Investment Survey*. The study shows that the investment risk of utilities is very low. The average betas for electric, water, and gas utility companies are 0.72, 0.74, and 0.71, respectively. As such, the cost of equity for utilities is among the lowest of all industries in the U.S.

G. DCF Analysis

1. Overview

I rely primarily on the discounted cash flow ("DCF") model to estimate the cost of equity capital. Given the investment valuation process and the relative stability of the utility business, the DCF model provides the best measure of equity cost rates for public utilities. I have also performed a capital asset pricing model ("CAPM") study; however, I give these results less weight because risk premium studies, of which the CAPM is one form, provide a less reliable indication of equity cost rates for public utilities.

According to the DCF model, the current stock price is equal to the discounted value of all future dividends that investors expect to receive from investment in the firm. As such, stockholders' returns ultimately result from current as well as future dividends. As owners of a corporation, common stockholders are entitled to a *pro rata* share of the firm's earnings. The DCF model presumes that earnings that are not paid out in the form of dividends are reinvested in the firm so as to provide for future growth in earnings and dividends. The rate at which investors discount future dividends, which reflects the timing and riskiness of the expected cash flows, is interpreted as the market's expected or required return on the common stock. Therefore, this discount rate represents the cost of common equity. Algebraically, the DCF model can be expressed as:

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

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

Virtually all investment firms use some form of the DCF model as a valuation technique. One common application for investment firms is called the three-stage DCF or dividend discount model ("DDM"). The stages in a three-stage DCF model are presented in Exhibit JRW-9, Page 1 of 2. This model presumes that a company's dividend payout progresses initially through a growth stage, then proceeds through a transition stage, and finally assumes a maturity (or steady-state) stage. The dividend-payment stage of a firm depends on the profitability of its internal investments which, in turn, is largely a function of the life cycle of the product or service.

> 1. Growth stage: Characterized by rapidly expanding sales, high profit margins, and an abnormally high growth in earnings per share. Because of highly profitable expected investment opportunities, the payout ratio is low. Competitors are attracted by the unusually high earnings, leading to a decline in the growth rate.
>
> 2. Transition stage: In later years, increased competition reduces profit margins and earnings growth slows. With fewer new investment opportunities, the company begins to pay out a larger percentage of earnings.
>
> 3. Maturity (steady-state) stage: Eventually, the company reaches a position where its new investment opportunities offer, on average, only slightly attractive ROEs. At that time, its earnings growth rate, payout ratio, and ROE stabilize for the remainder of its life. The constant-growth DCF model is appropriate when a firm is in the maturity stage of the life cycle.

In using this model to estimate a firm's cost of equity capital, dividends are projected into the future using the different growth rates in the alternative stages, and then the equity cost rate is the discount rate that equates the present value of the future dividends to the current stock price.

2. The Constant Growth DCF Model

Under certain assumptions, including a constant and infinite expected growth rate, and constant dividend/earnings and price/earnings ratios, the DCF model can be simplified to the following:

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

> where D1 represents the expected dividend over the coming year and g is the expected growth rate of dividends. This is known as the constant-growth version of the DCF model. To use the constant-growth DCF model to estimate a firm's cost of equity, one solves for k in the above expression to obtain the following:

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

In my opinion, the economics of the public utility business indicate that the industry is in the steady-state or constant-growth stage of a three-stage DCF. The economics include the relative stability of the utility business, the maturity of the demand for public utility services, and the regulated status of public utilities (especially the fact that their returns on investment are effectively set through the ratemaking process). The DCF valuation procedure for companies in this stage is the constant-growth DCF. In the constant-growth version of the DCF model, the current dividend payment and stock price are directly observable. However, the primary problem and controversy in applying the DCF model to estimate equity cost rates entails estimating investors' expected dividend growth rate.

One should be sensitive to several factors when using the DCF model to estimate a firm's cost of equity capital. In general, one must recognize the assumptions under which the DCF model was developed in estimating its components (the dividend yield and the expected growth rate). The dividend yield can be measured precisely at any point in time; however, it tends to vary somewhat over time. Estimation of expected growth is considerably more difficult. One must consider recent firm performance, in conjunction with current economic developments and other information available to investors, to accurately estimate investors' expectations.

3. Dividend Yield

I have calculated the dividend yields for the companies in the proxy group using the current annual dividend and the 30-day, 90-day, and 180-day average stock prices. These dividend yields are provided in Panel A of page 2 of Exhibit JRW-10. For the Electric Proxy Group, the median dividend yields using the 30-day, 90-day, and 180-day average stock prices range from 3.4% to 3.5%. I am using the average of the medians - 3.45% - as the dividend yield for the Electric Proxy Group. The dividend yields for the Hevert Proxy Group are shown in Panel B of page 2 of Exhibit JRW-10. The median dividend yields range from 3.3% to 3.4% using the 30-day, 90-day, and 180-day average stock prices. I am using the average of the medians – 3.40% - as the dividend yield for the Hevert Proxy Group.

According to the traditional DCF model, the dividend yield term relates to the dividend yield over the coming period. As indicated by Professor Myron Gordon, who is commonly associated with the development of the DCF model for popular use, this is obtained by: (1) multiplying the expected dividend over the coming quarter by 4, and (2) dividing this dividend by the current stock price to determine the appropriate dividend yield for a firm that pays dividends on a quarterly basis.[32]

In applying the DCF model, some analysts adjust the current dividend for growth over the coming year as opposed to the coming quarter. This can be complicated because firms tend to announce changes in dividends at different times during the year. As such, the dividend yield computed based on presumed growth over the coming quarter as opposed to the coming year can be quite different. Consequently, it is common for analysts to adjust the dividend yield by some fraction of the long-term expected growth rate.

Given this discussion, I adjust the dividend yield by one-half (1/2) of the expected growth so as to reflect growth over the coming year. The DCF equity cost rate ("K") is computed as:

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

4. The DCF Growth Rate

There is debate as to the proper methodology to employ in estimating the growth component of the DCF model. By definition, this component reflects investors' expectation of the long-term dividend growth rate. Presumably, investors use some combination of historical and/or projected growth rates for earnings and dividends per share and for internal or book-value growth to assess long-term potential.

I have analyzed a number of measures of growth for companies in the proxy groups. I reviewed *Value Line's* historical and projected growth rate estimates for earnings per share ("EPS"), dividends per share ("DPS"), and book value per share ("BVPS"). In addition, I utilized the average EPS growth rate forecasts of Wall Street analysts as provided by Yahoo, Reuters and Zacks. These services solicit five-year earnings growth rate projections from securities analysts and compile and publish the means and medians of these forecasts. Finally, I also assessed prospective growth as measured by prospective earnings retention rates and earned returns on common equity.

Historical growth rates for EPS, DPS, and BVPS are readily available to investors and are presumably an important ingredient in forming expectations concerning future growth. However, one

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[32] *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).

must use historical growth numbers as measures of investors' expectations with caution. In some cases, past growth may not reflect future growth potential. Also, employing a single growth rate number (for example, for five or ten years) is unlikely to accurately measure investors' expectations, due to the sensitivity of a single growth rate figure to fluctuations in individual firm performance as well as overall economic fluctuations (i.e., business cycles). However, one must appraise the context in which the growth rate is being employed. According to the conventional DCF model, the expected return on a security is equal to the sum of the dividend yield and the expected long-term growth in dividends. Therefore, to best estimate the cost of common equity capital using the conventional DCF model, one must look to long-term growth rate expectations.

Internally generated growth is a function of the percentage of earnings retained within the firm (the earnings retention rate) and the rate of return earned on those earnings (the return on equity). The internal growth rate is computed as the retention rate times the return on equity. Internal growth is significant in determining long-run earnings and, therefore, dividends. Investors recognize the importance of internally generated growth and pay premiums for stocks of companies that retain earnings and earn high returns on internal investments.

Analysts' EPS forecasts for companies are collected and published by a number of different investment information services, including Institutional Brokers Estimate System ("I/B/E/S"), Bloomberg, FactSet, Zacks, First Call, and Reuters, among others. Thompson Reuters publishes analysts' EPS forecasts under different product names, including I/B/E/S, First Call, and Reuters. Bloomberg, FactSet, and Zacks publish their own set of analysts' EPS forecasts for companies. These services do not reveal: (1) the analysts who are solicited for forecasts; or (2) the identity of the analysts who actually provide the EPS forecasts that are used in the compilations published by the services. I/B/E/S, Bloomberg, FactSet, and First Call are fee-based services. These services usually provide detailed reports and other data in addition to analysts' EPS forecasts. Thompson Reuters and Zacks do provide limited EPS forecast data free-of-charge on the internet. Yahoo finance (http://finance.yahoo.com) lists Thompson Reuters as the source of its summary EPS forecasts. The Reuters website (www.reuters.com) also publishes EPS forecasts from Thompson Reuters, but with more detail. Zacks (www.zacks.com) publishes its summary forecasts on its website. Zacks estimates are also available on other websites, such as msn.money (http://money.msn.com).

The following example provides the EPS forecasts compiled by Reuters for Alliant Energy Corp. (stock symbol "LNT"). The figures are provided on page 2 of Exhibit JRW-9. Line one shows that one analyst has provided EPS estimates for the quarter ending December 31, 2016. The mean, high and low estimates are $0.28, $0.31, and $0.24, respectively. The second line shows the quarterly EPS estimates for the quarter ending March 31, 2017 of $0.44 (mean), $0.45 (high), and $0.42 (low). Line three shows the annual EPS estimates for the fiscal year ending December 2016 ($1.89 (mean), $1.90 (high), and $1.84 (low). Line four shows the annual EPS estimates for the fiscal year ending December 2017 $2.00 (mean), $2.03 (high), and $1.95 (low).The quarterly and annual EPS forecasts in lines 1-4 are expressed in dollars and cents. As in the LNT case shown here, it is common for more analysts to provide estimates of annual EPS as opposed to quarterly EPS. The bottom line shows the projected long-term EPS growth rate, which is expressed as a percentage. For LNT, three analysts have provided a long-term EPS growth rate forecast, with mean, high, and low growth rates of 6.60%, 7.20%, and 6.00%, respectively.

The DCF growth rate is the long-term projected growth rate in EPS, DPS, and BVPS. Therefore, in developing an equity cost rate using the DCF model, the projected long-term growth rate is the projection used in the DCF model. However, there are several issues with using the EPS growth rate forecasts of Wall Street analysts as DCF growth rates. First, the appropriate growth rate in the DCF model is the dividend growth rate, not the earnings growth rate. Nonetheless, over the very long-term, dividend and earnings will have to grow at a similar growth rate. Therefore, consideration must be given to other indicators of growth, including prospective dividend growth, internal growth, as well as projected earnings growth. Second, a recent study by Lacina, Lee, and Xu (2011) has shown that analysts' long-term earnings growth rate forecasts are not more accurate at forecasting future earnings than naïve random walk forecasts of future earnings.[33] Employing data over a twenty-year period, these authors demonstrate that using the most recent year's EPS figure to forecast EPS in the next 3-5 years proved to be just as accurate as using the EPS estimates from analysts' long-term earnings growth rate forecasts. In the authors' opinion, these results indicate that analysts' long-term earnings growth rate forecasts should be used with caution as inputs for valuation and cost of capital purposes. Finally, and most significantly, it is well known that the long-term EPS growth rate forecasts of Wall Street securities analysts are overly optimistic and upwardly biased. This has been

[33] 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.

demonstrated in a number of academic studies over the years.[34] Hence, using these growth rates as a DCF growth rate will provide an overstated equity cost rate. On this issue, a study by Easton and Sommers (2007) found that optimism in analysts' growth rate forecasts leads to an upward bias in estimates of the cost of equity capital of almost 3.0 percentage points.[35]

Page 3 of Exhibit JRW-10 provides the 5- and 10-year historical growth rates for EPS, DPS, and BVPS for the companies in the two proxy groups, as published in the *Value Line Investment Survey*. The median historical growth measures for EPS, DPS, and BVPS for the Electric Proxy Group, as provided in Panel A, range from 3.5% to 5.5%, with an average of the medians of 4.2%. For the Hevert Proxy Group, as shown in Panel B of page 3 of Exhibit JRW-10, the historical growth measures in EPS, DPS, and BVPS, as measured by the medians, range from 3.5% to 6.5%, with an average of the medians of 4.5%.

Value Line's projections of EPS, DPS, and BVPS growth for the companies in the proxy groups are shown on page 4 of Exhibit JRW-10. As stated above, due to the presence of outliers, the medians are used in the analysis. For the Electric Proxy Group, as shown in Panel A of page 4 of Exhibit JRW-10, the medians range from 4.0% to 5.5%, with an average of the medians of 4.9%. The range of the medians for the Hevert Proxy Group, shown in Panel B of page 4 of Exhibit JRW-10, is from 4.0 % to 5.5 %, with an average of the medians of 5.0%.

Also provided on page 4 of Exhibit JRW-10 are the prospective sustainable growth rates for the companies in the two proxy groups as measured by *Value Line*'s average projected retention rate and return on shareholders' equity. As noted above, sustainable growth is a significant and a primary driver of long-run earnings growth. For the Electric and Hevert Proxy Groups, the median prospective sustainable growth rates are 3.8% and 3.7%, respectively.

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[34] The studies that demonstrate analysts' long-term EPS forecasts are overly-optimistic and upwardly biased include: R.D. Harris, "The Accuracy, Bias, and Efficiency of Analysts' Long Run Earnings Growth Forecasts," *Journal of Business Finance & Accounting*, pp. 725-55 (June/July 1999); P. DeChow, A. Hutton, and R. Sloan, "The Relation Between Analysts' Forecasts of Long-Term Earnings Growth and Stock Price Performance Following Equity Offerings," *Contemporary Accounting Research (2000);* K. Chan, L., Karceski, J., & Lakonishok, J., "The Level and Persistence of Growth Rates," *Journal of Finance* pp. 643−684, (2003); M. Lacina, B. Lee and Z. Xu, *Advances in Business and Management Forecasting (Vol. 8),* Kenneth D. Lawrence, Ronald K. Klimberg (ed.), Emerald Group Publishing Limited, pp.77-101; and Marc H. Goedhart, Rishi Raj, and Abhishek Saxena, "Equity Analysts, Still Too Bullish," *McKinsey on Finance*, pp. 14-17, (Spring 2010).

[35] 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).

As noted above, Yahoo, Zacks, and Reuters collect, summarize, and publish Wall Street analysts' long-term EPS growth rate forecasts for the companies in the proxy groups. These forecasts are provided for the companies in the proxy groups on page 5 of Exhibit JRW-10. I have reported both the mean and median growth rates for the groups. Since there is considerable overlap in analyst coverage between the three services, and not all of the companies have forecasts from the different services, I have averaged the expected five-year EPS growth rates from the three services for each company to arrive at an expected EPS growth rate for each company. The mean/median of analysts' projected EPS growth rates for the Electric and Hevert Proxy Groups are 4.4/5.3% and 5.4%/5.5%, respectively.[36]

Page 6 of Exhibit JRW-10 shows the summary DCF growth rate indicators for the proxy groups. The historical growth rate indicators for my Electric Proxy Group imply a baseline growth rate of 4.2%. The average of the projected EPS, DPS, and BVPS growth rates from *Value Line* is 4.9%, and *Value Line*'s projected sustainable growth rate is 3.8%. The projected EPS growth rates of Wall Street analysts for the Electric Proxy Group are 4.4% and 5.3% as measured by the mean and median growth rates. The overall range for the projected growth rate indicators (ignoring historical growth) is 3.8% to 5.3%. Giving primary weight to the projected EPS growth rate of Wall Street analysts, I believe that the appropriate projected growth rate is 5.0%. This growth rate figure is clearly in the upper end of the range of historic and projected growth rates for the Electric Proxy Group.

For the Hevert Proxy Group, the historical growth rate indicators indicate a growth rate of 4.5%. The average of the projected EPS, DPS, and BVPS growth rates from *Value Line* is 5.0%, and *Value Line*'s projected sustainable growth rate is 3.7%. The projected EPS growth rates of Wall Street analysts are 5.4% and 5.5% as measured by the mean and median growth rates. The overall range for the projected growth rate indicators is 3.7% to 5.5%. Giving primary weight to the projected EPS growth rate of Wall Street analysts, I believe that the appropriate projected growth rate is in the range of 5.25% to 5.50%. I will use the midpoint of this range – 5.375%, as my DCF growth rate for the Hevert Proxy Group. This growth rate figure is clearly in the upper end of the range of historic and projected growth rates for the Hevert Proxy Group.

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[36] Given variation in the measures of central tendency of analysts' projected EPS growth rates proxy groups, I have considered both the means and medians figures in the growth rate analysis.

5. <u>DCF Equity Cost Rate Summary</u>

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

Table 1
DCF-derived Equity Cost Rate/ROE

	Dividend Yield	1 + ½ Growth Adjustment	DCF Growth Rate	Equity Cost Rate
Electric Proxy Group	**3.45%**	**1.02500**	**5.00%**	**8.55%**
Hevert Proxy Group	**3.40%**	**1.02690**	**5.38%**	**8.85%**

The result for the Electric Proxy Group is the 3.45% dividend yield, times the one and one-half growth adjustment of 1.025, plus the DCF growth rate of 5.0%, which results in an equity cost rate of 8.55%. The result for the Hevert Proxy Group is 8.85% which includes a dividend yield of 3.40%, an adjustment factor of 1.0269, and a DCF growth rate of 5.375%.

H. Capital Asset Pricing Model

1. <u>Overview</u>

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 is the sum of the interest rate on a risk-free bond (R_f) and a risk premium (RP), as in the following:

$$k = R_f + RP$$

The yield on long-term U.S. 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.

According to the CAPM, the expected return on a company's stock, which is also the equity cost rate (K), is equal to:

$$\boldsymbol{K = (R_f) + ß * [E(R_m) - (R_f)]}$$

Where:

- K represents the estimated rate of return on the stock;
- $E(R_m)$ represents the expected return on the overall stock market. Frequently, the 'market' refers to the S&P 500;
- (R_f) represents the risk-free rate of interest;
- $[E(R_m) - (R_f)]$ represents the expected equity or market risk premium—the excess return that an investor expects to receive above the risk-free rate for investing in risky stocks; and
- *Beta*—(ß) is a measure of the systematic risk of an asset.

To estimate the required return or cost of equity using the CAPM requires three inputs: the risk-free rate of interest (R_f), the beta (ß), and the expected equity or market risk premium $[E(R_m) - (R_f)]$. R_f is the easiest of the inputs to measure – it is represented by the yield on long-term U.S. Treasury bonds. ß, the measure of systematic risk, is a little more difficult to measure because there are different opinions about what adjustments, if any, should be made to historical betas due to their tendency to regress to 1.0 over time. And finally, an even more difficult input to measure is the expected equity or market risk premium $(E(R_m) - (R_f))$. I will discuss each of these inputs below.

Exhibit JRW-11 provides the summary results for my CAPM study. Page 1 shows the results, and the following pages contain the supporting data.

2. <u>The Risk-Free Interest Rate</u>

The yield on long-term U.S. Treasury bonds has usually been viewed as the risk-free rate of interest in the CAPM. The yield on long-term U.S. Treasury bonds, in turn, has been considered to be the yield on U.S. Treasury bonds with 30-year maturities.

As shown on page 2 of Exhibit JRW-11, the yield on 30-year U.S. Treasury bonds has been in the 2.5% to 4.0% range over the 2013–2016 time period. The 30-year Treasury yield is currently in the bottom half of this range. Given the recent range of yields and the possibility of higher interest rates, I use 4.0% as the risk-free rate, or R_f, in my CAPM.

My 4.0% risk-free interest rate takes into account the range of interest rates in the past and effectively synchronizes the risk-free rate with the market risk premium ("MRP"). I am not making an explicit forecast of higher interest rates. The risk-free rate and the MRP are interrelated in that the MRP is developed in relation to the risk-free rate. As discussed below, my MRP is based on the results of many studies and surveys that have been published over time. Therefore, my risk-free interest rate of 4.0% is effectively a normalized risk-free rate of interest.

3. **Beta**

Beta (ß) is a measure of the systematic risk of a stock. The market, usually taken to be the S&P 500, has a beta of 1.0. The beta of a stock with the same price movement as the market also has a beta of 1.0. A stock whose price movement is greater than that of the market, such as a technology stock, is riskier than the market and has a beta greater than 1.0. A stock with below average price movement, such as that of a regulated public utility, is less risky than the market and has a beta less than 1.0. Estimating a stock's beta involves running a linear regression of a stock's return on the market return.

As shown on page 3 of Exhibit JRW-11, the slope of the regression line is the stock's ß. A steeper line indicates that the stock is more sensitive to the return on the overall market. This means that the stock has a higher ß and greater-than-average market risk. A less steep line indicates a lower ß and less market risk.

Several online investment information services, such as Yahoo and Reuters, provide estimates of stock betas. Usually these services report different betas for the same stock. The differences are usually due to: (1) the time period over which ß is measured; and (2) any adjustments that are made to reflect the fact that betas tend to regress to 1.0 over time. In estimating an equity cost rate for the proxy groups, I am using the betas for the companies as provided in the *Value Line Investment Survey*. As shown on page 3 of Exhibit JRW-11, the median betas for the companies in the Electric and Hevert Proxy Groups are 0.70 and 0.70, respectively.

4. **The Market Risk Premium ("MRP")**

The MRP is equal to the expected return on the stock market (e.g., the expected return on the S&P 500, $E(R_m)$ minus the risk-free rate of interest (R_f)). The MRP is the difference in the expected total return between investing in equities and investing in "safe" fixed-income assets, such as long-term government bonds. However, while the MRP is easy to define conceptually, it is difficult to measure because it requires an estimate of the expected return on the market - $E(R_m)$. As is discussed below, there are different ways to measure $E(R_m)$, and studies have come up with significantly different magnitudes for $E(R_m)$. As Merton Miller, the 1990 Nobel Prize winner in economics indicated, $E(R_m)$ is very difficult to measure and is one of the great mysteries in finance.[37]

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

Page 4 of Exhibit JRW-11 highlights the primary approaches to, and issues in, estimating the expected MRP. The traditional way to measure the MRP was to use the difference between historical average stock and bond returns. In this case, historical stock and bond returns, also called ex post returns, were used as the measures of the market's expected return (known as the *ex ante* or forward-looking expected return). This type of historical evaluation of stock and bond returns is often called the "Ibbotson approach" after Professor Roger Ibbotson, who popularized this method of using historical financial market returns as measures of expected returns. Most historical assessments of the equity risk premium suggest an equity risk premium range of 5% to 7% above the rate on long-term U.S. Treasury bonds. However, this can be a problem because: (1) ex post returns are not the same as *ex ante* expectations; (2) market risk premiums can change over time, increasing when investors become more risk-averse and decreasing when investors become less risk-averse; and (3) market conditions can change such that ex post historical returns are poor estimates of *ex ante* expectations.

The use of historical returns as market expectations has been criticized in numerous academic studies as discussed later in my testimony. The general theme of these studies is that the large equity risk premium discovered in historical stock and bond returns cannot be justified by the fundamental data. These studies, which fall under the category "Ex Ante Models and Market Data," compute *ex ante* expected returns using market data to arrive at an expected equity risk premium. These studies have also been called "Puzzle Research" after the famous study by Mehra and Prescott in which the authors first questioned the magnitude of historical equity risk premiums relative to fundamentals.[38]

In addition, there are a number of surveys of financial professionals regarding the MRP. There have also been several published surveys of academics on the equity risk premium. *CF Magazine* conducts a quarterly survey of CFOs, which includes questions regarding their views on the current expected returns on stocks and bonds. Usually, over 500 CFOs participate in the survey.[39] Questions regarding expected stock and bond returns are also included in the Federal Reserve Bank of Philadelphia's annual survey of financial forecasters, which is published as the *Survey of Professional Forecasters*.[40] This survey of professional economists has been published for

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

[39] *See* DUKE/CFO Magazine Global Business Outlook Survey, www.cfosurvey.org, (September, 2016).

[40] Federal Reserve Bank of Philadelphia, *Survey of Professional Forecasters (Feb, 2016).* 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

almost fifty years. In addition, Pablo Fernandez conducts annual surveys of financial analysts and companies regarding the equity risk premiums they use in their investment and financial decision-making.[41]

Derrig and Orr (2003), Fernandez (2007), and Song (2007) have completed the most comprehensive reviews to date of the research on the MRP.[42] Derrig and Orr's study evaluated the various approaches to estimating MRPs, as well as the issues with the alternative approaches and summarized the findings of the published research on the MRP. Fernandez examined four alternative measures of the MRP – historical, expected, required, and implied. He also reviewed the major studies of the MRP and presented the summary MRP results. Song provides an annotated bibliography and highlights the alternative approaches to estimating the MRP.

Page 5 of Exhibit JRW-11 provides a summary of the results of the primary risk premium studies reviewed by Derrig and Orr, Fernandez, and Song, as well as other more recent studies of the MRP. These include the results of: (1) the various studies of the historical risk premium; (2) *ex ante* MRP studies; (3) MRP surveys of CFOs, financial forecasters, analysts, companies and academics; and (4) the Building Blocks approach to the MRP. There are results reported for over thirty studies, and the median MRP is 4.63%.

The studies cited on page 5 of Exhibit JRW-11 include every MRP study and survey I could identify that was published over the past decade and that provided an MRP estimate. Most of these studies were published prior to the financial crisis. In addition, some of these studies were published in the early 2000s at the market peak. It should be noted that many of these studies (as indicated) used data over long periods of time (as long as fifty years of data) and so were not estimating an MRP as of a specific point in time (e.g., the year 2001). To assess the effect of the earlier studies on the MRP, I have reconstructed page 5 of Exhibit JRW-11 on page 6 of Exhibit JRW-11; however, I have eliminated all studies dated before January 2, 2010. The median for this subset of studies is 4.95%.

1968, is conducted each quarter. The Federal Reserve Bank of Philadelphia, in cooperation with the NBER, assumed responsibility for the survey in June 1990.

[41] Pablo Fernandez, Alberto Ortiz and Isabel Fernandez Acín, "Market Risk Premium used in 71 countries in 2016: a survey with 6,932 answers: survey," (May 9, 2016).

[42] *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).

Much of the data indicates that the market risk premium is in the 4.0% to 6.0% range. Several recent studies (such as Damodaran, American Appraisers, Duarte and Rosa, Duff & Phelps, and the CFO Survey) have suggested an increase in the market risk premium. Therefore, I will use 5.5%, which is in the upper end of the range, as the market risk premium or MRP. This MRP is consistent with the following MRPs:

1. The September 2016 CFO survey conducted by *CFO Magazine* and Duke University, which included about 450 responses, the expected 10-year MRP was 4.25%.[43]

2. The financial forecasters in the previously referenced Federal Reserve Bank of Philadelphia survey projected both stock and bond returns. In the February 2016 survey, the median long-term expected stock and bond returns were 5.34% and 3.44%, respectively. This provides an expected MRP of 1.90% (5.34%-3.44%).

3. Pablo Fernandez published the results of his 2016 survey of academics, financial analysts, and companies.[44] This survey included over 4,000 responses. The median MRP employed by U.S. analysts and companies was 5.3%.

4. Duff & Phelps is a well-known valuation and corporate finance advisor that publishes extensively on the cost of capital. As of 2016, Duff & Phelps recommended using a 5.5% MRP for the U.S.[45]

5. <u>CAPM Equity Cost Rate</u>

The results of my CAPM study for the proxy groups are summarized on page 1 of Exhibit JRW-11 and in Table 2 below.

Table 2
CAPM-derived Equity Cost Rate/ROE
$$K = (R_f) + ß * [E(R_m) - (R_f)]$$

	Risk-Free Rate	Beta	Equity Risk Premium	Equity Cost Rate
Electric Proxy Group	**4.0%**	**0.70**	**5.5%**	**7.9%**
Hevert Proxy Group	**4.0%**	**0.70**	**5.5%**	**7.9%**

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43 *Id.* p. 67.

44 *Id.* p. 3.

45 http://www.duffandphelps.com/insights/publications/cost-of-capital/index.

For the Electric Proxy Group, the risk-free rate of 4.0% plus the product of the beta of 0.70 times the equity risk premium of 5.5% results in a 7.9% equity cost rate. For the Hevert Proxy Group, the risk-free rate of 4.0% plus the product of the beta of 0.70 times the equity risk premium of 5.5% results in a 7.9% equity cost rate.

I. Equity Cost Rate Summary

1. Overview

My DCF analyses for the Electric and Hevert Proxy Groups indicate equity cost rates of 8.55% and 8.85%, respectively. The CAPM equity cost rates for the Electric and Hevert Proxy Groups are both 7.9%.

Table 3
ROEs Derived from DCF and CAPM Models

	DCF	CAPM
Electric Proxy Group	**8.55%**	**7.90%**
Hevert Proxy Group	**8.85%**	**7.90%**

Given these results, I conclude that the appropriate equity cost rate for companies in the Electric and Hevert Proxy Groups is in the 7.90% to 8.85% range. However, since I rely primarily on the DCF model, I am using the upper end of the range as the equity cost rate. Therefore, I conclude that the appropriate equity cost rate for the groups is 8.75%. This recommendation gives primary weight to the DCF results for the Proxy Groups.

There are a number of reasons why an equity cost rate of 8.75% is appropriate and fair for Ameren Missouri in this case:

1. I have employed a capital structure that has a slightly higher common equity ratio and therefore slightly lower financial risk than the capital structures of the two proxy groups;

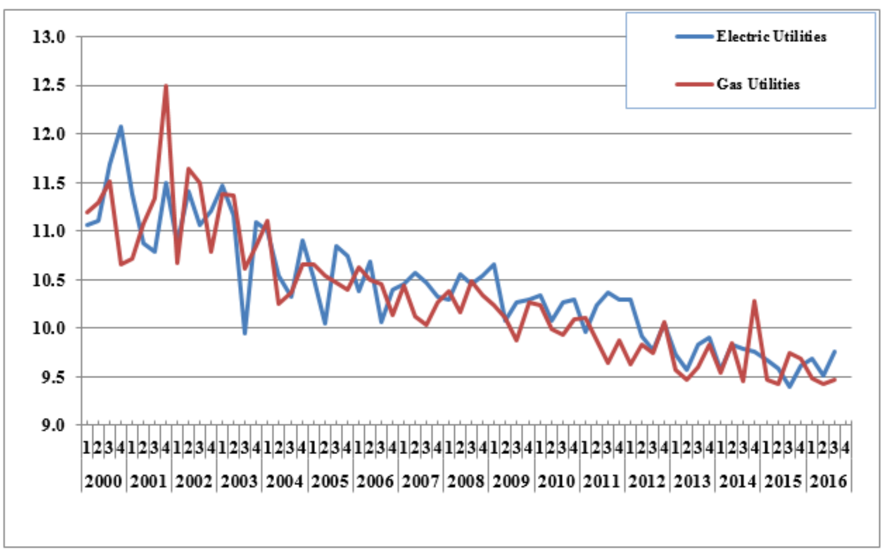
2. As shown in Exhibits JRW-2 and JRW-3, capital costs for utilities, as indicated by long-term bond yields, are still at low levels. In addition, given low inflationary expectations and slow global economic growth, interest rates are likely to remain at low levels for some time;

3. As shown in Exhibit JRW-8, the electric utility industry is among the lowest risk industries in the U.S. as measured by beta. As such, the cost of equity capital for this industry is amongst the lowest in the U.S., according to the CAPM;

4. The investment risk of Ameren Missouri, as indicated by its S&P and Moody's issuer credit rating of BBB+ and Baa1, are equal to the averages of the Electric and Hevert Proxy Groups; and

5. These authorized ROEs for electric utilities have decreased over the years. As shown in Figure 5, the average authorized ROE for electric utilities has declined from 10.01% in 2012, to 9.8% in 2013, to 9.76% in 2014, 9.58% in 2015, and 9.64% in the first three quarters of 2016, according to Regulatory Research Associates.[46] In my opinion, these authorized ROEs have lagged behind capital market cost rates, or in other words, authorized ROEs have been slow to reflect low capital market cost rates. This has been especially true in recent years as some state commissions have been reluctant to authorize ROEs below 10%. However, the <u>trend</u> has been towards lower ROEs, and the <u>norm</u> now is below ten percent. Hence, I believe that my recommended ROE reflects our present low capital cost rates, and these low capital cost rates are finally being recognized by state utility commissions.

Figure 5
Authorized ROEs for Electric Utility and Gas Distribution Companies
2000-2016



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[46] *Regulatory Focus*, Regulatory Research Associates, January, 2016. The electric utility authorized ROEs exclude the authorized ROEs in Virginia which include generation adders and thus are inflated and also inappropriate comparisons for a company like Delmarva.

2. **Authorized ROEs and Credit Quality**

Moody's recently published an article on utility ROEs and credit quality. In the article, Moody's recognizes that authorized ROEs for electric and gas companies are declining due to lower interest rates.[47]

> The credit profiles of US regulated utilities will remain intact over the next few years despite our expectation that regulators will continue to trim the sector's profitability by lowering its authorized returns on equity (ROE). Persistently low interest rates and a comprehensive suite of cost recovery mechanisms ensure a low business risk profile for utilities, prompting regulators to scrutinize their profitability, which is defined as the ratio of net income to book equity. We view cash flow measures as a more important rating driver than authorized ROEs, and we note that regulators can lower authorized ROEs without hurting cash flow, for instance by targeting depreciation, or through special rate structures.

Moody's indicates that with the lower authorized ROEs, electric and gas companies are earning ROEs of 9.0% to 10.0%, but this is not impairing their credit profiles and is not deterring them from raising record amounts of capital. With respect to authorized ROEs, Moody's recognizes that utilities and regulatory commissions are having trouble justifying higher ROEs in the face of lower interest rates and cost recovery mechanisms.[48]

> Robust cost recovery mechanisms will help ensure that US regulated utilities' credit quality remains intact over the next few years. As a result, falling authorized ROEs are not a material credit driver at this time, but rather reflect regulators' struggle to justify the cost of capital gap between the industry's authorized ROEs and persistently low interest rates. We also see utilities struggling to defend this gap, while at the same time recovering the vast majority of their costs and investments through a variety of rate mechanisms.

Overall, this article further supports the prevailing/emerging belief that lower authorized ROEs are unlikely to hurt the financial integrity of utilities or their ability to attract capital.

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[47] Moody's Investors Service, "Lower Authorized Equity Returns Will Not Hurt Near-Term Credit Profiles," March 10, 2015.

[48] Moody's Investors Service, "Lower Authorized Equity Returns Will Not Hurt Near-Term Credit Profiles," March 10, 2015.

3. Hope and Bluefield Standards

As previously noted, according to the *Hope* and *Bluefield* decisions, returns on capital should be: (1) comparable to returns investors expect to earn on other investments of similar risk; (2) sufficient to assure confidence in the company's financial integrity; and (3) adequate to maintain and support the company's credit and to attract capital. Ameren Missouri's S&P and Moody's credit ratings are in line with the average of the Electric and Hevert Proxy Groups. While my recommendation is below the average authorized ROEs for electric utility companies, it reflects the downward trend in authorized and earned ROEs of electric utility companies. As is highlighted in the Moody's publication cited above, despite authorized and earned ROEs below 10%, the credit quality of electric and gas companies has not been impaired and, in fact, has improved and utilities are raising about $50 billion per year in capital. Major positive factors in the improved credit quality of utilities are regulatory ratemaking mechanisms. Therefore, my ROE recommendation meets the criteria established in the *Hope* and *Bluefield* decisions.

Figure 6 provides a market-based test on the adequacy of my 8.65% ROE recommendation. The current earned ROE's for electric utilities has been in the 9.0% range (9.1% for the Electric Proxy Group and 9.2% for the Hevert Proxy Group). In Figure 5, I show the performance of the Dow Jones Utilities ("DJU") versus the S&P 500 since January 1, 2016. Clearly an earned ROE of about 9.0% is more than adequate to meet investors' return requirements. The DJU is up 9.75% year-to-date, while the S&P 500 (labelled as GSPC in the graph in Figure 2) is up 7.55%. As such, my 8.75% ROE recommendation, which is less than 50 basis points below these earned ROEs, is adequate to meet investors' return requirements.

continued on next page

Figure 6
Dow Jones Utilities vs. the S&P 500
January 1 – November 21, 2016
Source: https://finance.yahoo.com/

Staff Expert/Witness: J. Randall Woolridge

VI. Rate Base

A. Plant in Service- Accounting Schedule 3

The balances in this schedule have been adjusted, by account, to reflect the estimated rate base value of Ameren Missouri's plant-in-service accounts through December 31, 2016. These estimates will be replaced by actual amounts as part of Staff's true-up audit. The plant balances exclude the utility waste landfill at the Labadie Energy Center, now under construction. Staff will include such costs once construction of the landfill is complete and Missouri Department of Natural Resources has issued the necessary permits to authorize it to be in-service. Staff adjusted Ameren Missouri's plant balances to allocate a portion of Ameren Missouri's general plant to Ameren Missouri's retail natural gas business. Staff also made an adjustment to remove land that is being "held for future use" as a part of a land exchange between the Army Corps of Engineers and Ameren Missouri. As this land is not providing service to ratepayers, Staff removed the land from account 310 – Land and Land Rights and correctly booked it to account 150 – Land Held for Future Use. All adjustments to the test year balances are reflected in Adjustments to Plant – Accounting Schedule 4.

Staff Expert/Witness: Erin M. Carle

B. Depreciation Reserve- Accounting Schedule 6

The balances in Accounting Schedule 6, Depreciation Reserve, have been adjusted, by account, to reflect the estimated rate base value of Ameren Missouri's depreciation reserves through December 31, 2016. These estimates will be replaced with actual amounts as part of Staff's true-up audit. As it did with plant in service, Staff adjusted Ameren Missouri's depreciation reserve balances to allocate a portion of the general plant depreciation reserve to Ameren Missouri's retail natural gas business. Staff also made multiple adjustments to correct miss-bookings of reserve that were made on Ameren Missouri's books that should have been booked to gains/losses. All adjustments to test-year balances are reflected in Adjustments to Depreciation Reserve – Accounting Schedule 7.

Staff Expert/Witness: Erin M. Carle

C. DOE Reimbursements

For a detailed narrative synopsis of the origins of the spent-fuel fee previously (but no longer) paid by Ameren Missouri to DOE, the eventual discontinuance of the fee, and the resulting lawsuits filed by Ameren Missouri against the government, please refer to pages 82, line 21 through page 86, line 20 of Staff's Cost of Service Report filed in the last Ameren Missouri rate case, No. ER-2014-0258.

Since the conclusion of Case No. ER-2014-0258, Ameren Missouri has received two additional reimbursements from DOE—one in October 2015, in the amount of $13,847,006, and another in September 2016, in the amount of $23,586,656. Staff has verified that these reimbursements were related to dry cask storage capital projects, were recorded as a reduction to construction work-in-progress, and will ultimately reduce the overall plant-in-service balance for these projects. Staff agrees with the Ameren Missouri on this method of accounting for these costs and does not recommend any adjustments regarding this issue at this time.

Staff Expert/Witness: Brian Wells

D. Cash Working Capital (CWC)

Cash working capital ("CWC") represents the amount of cash required for day-to-day expenses incurred in providing service to ratepayers. In some instances, payments for goods and services are paid shortly after, or even before, the goods are received / utilized or the services are performed. In other instances, the payment for a good or service may occur long after the good or service is received. If, on average, the payment for goods or services utilized in the provision of utility service is made before receipt of related customer revenues, the utility will have a relatively constant investment in cash working capital (i.e., an investment in the prepayment of cash expenses made in advance of the receipt of related service revenue). In this instance, the utility's shareholders are compensated for the funds they provide in advance by inclusion of these funds in rate base. In that way, the shareholders earn a return on the funds they have invested. Conversely, if, on average, the payment for goods or services utilized in the provision of utility service is made after receipt of related customer revenues, the utility will enjoy a relatively constant source of cost-free funds supplied by ratepayers (i.e., ratepayers provide cost-free capital to the utility in the form of payment for utility service prior to the time that the utility is required to pay "cash" for goods and services consumed in providing the utility service). Ratepayers under this circumstance are compensated for the funds they provide by reducing rate base consistent with the amount of the customer-provided cash working capital.

To determine the amount of cash working capital provided by both the ratepayers and shareholders, Staff performs a lead/lag study. The lead/lag study involves analysis of the timing of when expenses are paid to suppliers, employees, etc., and when the utility receives revenues from customers for the services it provides. A positive cash working capital requirement indicates that the shareholders provided the working capital for the test year. This means, on average, the utility paid the expenses incurred to provide the electric service to the ratepayers before the ratepayers paid for the service. A negative cash working capital requirement indicates that the ratepayers provided the working capital during the test year. This means, on average, the ratepayers paid for their electric service before the utility paid the expenses incurred to provide that service.

In this proceeding, Staff did not conduct a full lead/lag study for the purpose of determining the CWC requirement. However, Staff conducted an analysis of the various leads/lags as approved by the Commission in Ameren Missouri's most recent prior rate case, Case No. ER-2014-0258, in an effort to determine their applicability for use in this current rate proceeding. Staff adopted the collection lag of 25.79 days as approved by the Commission in Case No. ER-2014-0258. Staff finds the lead/lag analyses utilized in Ameren Missouri's last rate case and the collection lag calculated by Ameren Missouri in that rate case to be appropriate and reasonable lead and lag factors for use in this rate case. Staff utilized those lead/lag calculations and applied them to the adjusted test year amounts as determined by Staff in this rate case to calculate its recommended current CWC requirement for Ameren Missouri.

Ameren Missouri rolled out a plan in July 2016 that changed customers' billing due dates from 10 days to 21 days, to be consistent with their billing delinquent dates. This change is expected to result in an additional eleven days for customers to pay their bills. While the new due date may have some effect in future collection lag, Staff is unable to assess the definitive impact of this change at this time as there is currently no available data on which to perform an analysis. Staff will review the actual study that Ameren Missouri intends to perform in respect to customer payment patterns as part of its true-up filing in this rate proceeding.

Staff proposes to set the federal income tax expense lag to zero (0) in this case as Ameren Missouri currently reports a net operating loss in regards to its federal income tax filings, resulting in no liability for payment of income taxes. Further, Ameren Missouri has stated that it does not expect to pay any income taxes until the year 2021.

Staff's overall lead/lag study resulted in a positive CWC requirement for Ameren Missouri. This means that the shareholders are currently providing the working capital, in the aggregate, to Ameren Missouri. Therefore, the shareholders will be compensated for the working capital through an increase to rate base.

Staff Expert/Witness: Kofi A. Boateng

E. Prepayments and Materials and Supplies

Ameren Missouri utilizes shareholder funds for prepaid items such as insurance premiums. These items are included in rate base, so that the up-front investment made by Ameren Missouri related to prepayments is recognized in customer rates. Staff has included prepayments in rate base at the 13-month average level ending September 30, 2016.

Ameren Missouri also maintains a variety of materials and supplies in its inventory in order to meet the day-to-day needs of its utility operations. Staff has included Ameren Missouri's average balance of materials and supplies inventory that was maintained during the 13-months ending September 30, 2016.

Staff will reexamine the level of both materials and supplies and prepayments as part of its true-up audit.

Staff Expert/Witness: Erin M. Carle

F. Customer Deposits

Customer deposits represent funds received from Ameren Missouri's customers as a security against potential loss arising from failure to pay for utility service received. Until refunded, customer deposits represent a source of funds available to Ameren Missouri and are included as an offset to the rate base investment. Generally, interest is calculated on customer deposits and paid to the customers for the use of their money. Customers earn an interest rate equal to the prime rate, as published in the Wall Street Journal, plus an additional one percent, on their deposits. The amount of customer deposits in Accounting Schedule 2, Rate Base, represents a 13-month average (September 2015 – September 2016) of Ameren Missouri's customer deposits. In Accounting Schedule 10, Staff adjusted expense to include interest calculated on Staff's level of customer deposits reflected in rate base. Staff will reexamine the amount of customer deposits to include in rate base as part of its true-up audit.

Staff Expert/Witness: Erin M. Carle

G. Customer Advances

Customer advances are funds provided by individual customers of Ameren Missouri to assist in the costs of the provision of electric service to them. As customer advances are never refunded, and no interest is paid to the customers for the use of their money, unlike the case with customer deposits, these funds represent an interest-free source of capital to Ameren Missouri. Therefore, it is appropriate to include these funds as an offset to rate base. The amount of customer advances reflected on Accounting Schedule 2, Rate Base, represents a 13-month average (September 2015 – September 2016). The level of Customer Advances will be reexamined as part of Staff's true-up audit.

Staff Expert/Witness: Erin M. Carle

H. Coal Inventory On-Site and Coal In-Transit

For the Labadie, Rush Island, and Sioux Energy Centers, Staff calculated thirteen-month averages of the usable, on-the-ground coal inventory levels through September 30, 2016, to be included in rate base. Meramec Energy Center's units 1 and 2 were converted from coal-burning to gas-burning in May 2016. Staff recommends that the last known coal inventory level at Meramec be included in rate base so that this change in operations at the facility is captured by Staff's recommended cost of service.

At the Meramec site, but separate from Meramec's primary coal pile, Ameren Missouri maintains a coal pile known as the "Hillcrest pile." The coal composing the Hillcrest pile can be transported by truck for use at any of Ameren Missouri's four coal plants. ** ____________________

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Ameren Missouri personnel have indicated to Staff that Ameren Missouri will no longer purchase coal to add to the Hillcrest pile and that the inventory level will only decrease going forward. For this reason, Staff recommends that the last known level of coal inventory for the Hillcrest pile be included in rate base.

For all coal plants, Staff has excluded all coal-in-transit balances from coal inventory. Coal-in-transit is coal that is in-route to Ameren Missouri facilities, either by train or by barge, but has not yet arrived at the plant. Staff's position is that coal which is not usable to Ameren Missouri should not be included in coal inventory balances that are included in rate base.

Staff will later examine coal inventory data through the true-up cut-off date of December 31, 2016 in this case.

Staff Expert/Witness: Brian Wells

I. Non Coal Fuel Inventories

Staff included a thirteen-month average through September 30, 2016, to determine Ameren Missouri's ongoing inventory level of natural gas. Staff's review of historical oil inventory data shows a declining trend. Therefore Staff recommends that the oil inventory level as of September 30, 2016, be included in rate base. For nuclear fuel inventory, Staff used an eighteen-month average of the value of the nuclear fuel that was contained in the fuel core of the Callaway Nuclear Generating Unit through September 30, 2016, as well as an eighteen-month average of the most current value of nuclear fuel onsite. Staff will continue to examine the actual inventory levels for oil, natural gas, and nuclear fuel through the end of the true-up cut-off period, December 31, 2016.

Staff Expert/Witness: Brian Wells

J. Pensions and Other Post Employment Benefit - Rate Base

See the discussion in Section VIII. D – Payroll and Benefits, Subsections 4 and 5.

Staff Expert/Witness: Kofi A. Boateng

K. Accumulated Deferred Income Taxes ("ADIT")

Ameren Missouri's Accumulated Deferred Income Tax Reserve ("ADIT") represents, in effect, a prepayment of income taxes by Ameren Missouri's customers to Ameren Missouri prior to payment being made by Ameren Missouri to taxing authorities. As an example, because Ameren Missouri is allowed to deduct depreciation expense on an accelerated basis for income tax purposes, the depreciation expense deduction used for income taxes paid by Ameren Missouri is considerably higher than depreciation expense used for ratemaking purposes. This results in what is referred to as a "book-tax timing difference" and creates a deferral of income taxes to the future. The net credit balance in the deferred tax reserve represents a source of cost-free funds to Ameren Missouri. Therefore, Ameren Missouri's rate base is reduced by the deferred tax reserve balance to avoid having customers pay a return on funds that are provided cost-free to Ameren Missouri. As part of its true-up audit, Staff will re-examine the ADIT balances to make sure all items included in those balances are consistent with the other components of the cost of service and that they reflect the current balances at the true-up cut-off date, December 31, 2016. Based on this true-up examination, Staff may make additional adjustments to the cost of service as necessary.

Staff Expert/Witness: Lisa M. Ferguson

L. Energy Efficiency Regulatory Assets Balances

In several previous rate proceedings, Ameren Missouri was allowed to treat DSM expenditures related to EE programs as a depreciable asset through booking the amounts to a regulatory asset account and accruing a carrying charge equal to Ameren Missouri's Allowance for Funds Used During Construction ("AFUDC") rate on those balances. Staff has included the unamortized portion of all previous Ameren Missouri DSM regulatory assets included in the rate base section of Staff's Accounting Schedules. Staff has included approximately $18,070,905 in rate base for the unamortized portions of these DSM regulatory assets.

Staff Expert/Witness: John P. Cassidy

VII. Allocations

A. Corporate Allocations

A subsidiary of Ameren Corporation, Ameren Services Company ("AMS"), provides various management and administrative services for Ameren Missouri and affiliate companies. In its audit, Staff reviewed the methods used by AMS to assign and allocate its costs to Ameren Missouri's electric operations. Under AMS's corporate cost allocation system, costs are categorized into four types: Direct, Direct Allocated, Indirect Corporate, and Indirect Functional. The allocations of costs and the methods used to allocate costs from AMS are outlined in Ameren Missouri's cost allocation manual ("CAM"). Ameren Missouri, Staff, and OPC, have agreed through a Non-Unanimous Stipulation and Agreement filed on December 6, 2016, to remove issues specific to Ameren Missouri's cost allocation manual and affiliated transactions rule from the immediate rate case and open a new docket in order for the parties to establish an agreed upon CAM after this rate case.

AMS evaluates and updates the allocation factors included in the Ameren Missouri CAM at the beginning of each calendar year, unless a significant change in circumstances occurs which would require an intermediate factor update. In addition, the AMS Service Request Manual requires that AMS's Internal Audit Department perform an audit and report each year of AMS's Service Request System and Service Request policies, operating procedures, and controls. The Illinois Commerce Commission ("ICC") in its Order On Rehearing in Docket No.06-0070, et al. on May 16, 2007 directed that the Ameren Illinois utilities submit the reports to the ICC's Manager of Accounting within 30 days of the date each report is completed.

Staff has two concerns regarding allocations as part of setting rates in this rate proceeding. First is the impact of the recent reduction in load by the Noranda Aluminum smelter as reflected in the current allocation factor measured using **________ **. The second concern is the development of the cost allocation factors and how those different percentages determine how common costs are allocated to each affiliate. It is possible Ameren Missouri may be relying to an inappropriate degree on indirect allocation methodologies to allocate common costs as compared to directly charging such costs to each affiliate. This may be particularly true considering the new transmission affiliates (discussed below) that have been developed. It is logical that more time and resources may be spent by AMS on the newer affiliates than would be spent on a well-established affiliate such as Ameren Missouri. Based on how the current allocation factor system is calculated, use of indirect allocation methodologies could penalize Ameren Missouri due to its size.

In this proceeding, Ameren Missouri provided Staff with data regarding its allocations for the twelve month period through June 2016 for review, as well as copies of the internal audit reports required by the ICC. On November 29, 2016, Ameren Missouri provided Staff with allocations data for the period covering July 1, 2016, through September 30, 2016; however Staff has not had an opportunity to review and analyze this 2016 third quarter data.

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Noranda Load

In March 2016, during the test year, the Noranda Aluminum smelter significantly reduced its operations, which in turn significantly reduced Ameren Missouri's load. This change in Noranda's load and sales has affected how costs are allocated to Ameren Missouri from AMS. ** ________ ** For purposes of direct testimony, Staff will use Ameren Missouri's calculation of the effect of Noranda load on the AMS allocation factors as presented in the response to Staff Data Request No. 455 HC to reduce allocated costs by ** ________ **.

Transmission Affiliates

Ameren Transmission Company of Illinois ("ATXI"), incorporated in 2006, was formed to invest in transmission infrastructure in Illinois. Subsequently, ATXI's purpose was expanded to identify, develop, construct, own and operate transmission infrastructure in the MISO region as a whole. ATXI currently has business operations in both Missouri and Illinois. If ATXI is awarded a competitive transmission project as a result of the FERC Order 1000 competitive bidding process in other areas of MISO, then ATXI could have business operations in additional states in the MISO footprint.

Ameren Transmission Company, LLC ("ATX"), a separate affiliate from ATXI, was formed in 2010 but was merged into ATX, LLC in October 2013. ATX was formed to be an intermediate holding company to own companies involved in the transmission of energy. It has two wholly owned subsidiaries; ATX East, LLC ("ATE") and ATX Southwest, LLC ("ATS"). ATE was formed in 2015 for purposes of participating and bidding on competitive transmission opportunities in the PJM Interconnect, LLC ("PJM") regional transmission footprint. If awarded a competitive project, ATE would construct, own and operate transmission assets in PJM. ATS was formed in 2014 for purposes of participating and bidding on competitive transmission opportunities in the Southwest Power Pool ("SPP") footprint. If awarded a competitive project, ATS would construct, own and operate transmission assets in SPP. ATX is an intermediate holding company and accordingly does not and will not construct, own, operate or manage transmission operations in either Missouri or Illinois. ATE and ATS expect to receive financing from ATX in the form of equity contributions and intercompany loans.

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If ATS was awarded a competitive transmission project as a result of the FERC Order 1000 competitive bidding process in SPP, then ATS would most likely construct those facilities using services provided by Ameren Services and third party contractors. If ATE was awarded a competitive transmission project as a result of the FERC Order 1000 competitive bidding process in PJM, then ATE would most likely operate and maintain those assets using services provided by Ameren Services and third party contractors.

Therein lays Staff's concern in that non-regulated transmission affiliates as well as other regulated and non-regulated affiliates also use AMS services in order to conduct business. Staff has concerns in that the current allocation factors may not be developed in a manner that correctly allocates common costs, resulting in regulated affiliates effectively subsidizing unregulated affiliates. Many allocation factors are used to divide costs among several regulated and non-regulated affiliates, such as the ** ______________________________ ** It may not be accurate to use an allocation factor such as ** ____________ ** in some circumstances to allocate AMS costs between regulated and non-regulated affiliates because one affiliate may incur costs disproportionately as compared to the number of employees it has. In that situation, by default the affiliates with more employees would be charged with more costs. A better allocation factor in this circumstance may be labor dollars, because then time worked by AMS employees could be charged to the affiliate the work is being performed for, rather than assign those costs based on the number of employees it has, regardless of whether the costs stemmed from that corporation. At this time an adjustment to reallocate costs cannot be quantified by Staff. Staff recently received additional allocation information and will continue reviewing the underlying data to determine if the AMS costs are being divided among the affiliates in a fair and accurate way.

2017 Allocation Factors

All allocation factors, as they are currently calculated, will be recomputed by AMS in January 2017 for use in 2017. Ameren Missouri does not anticipate any material changes in method will be implemented (other than ensuring that any underlying calculation has Noranda load removed), but the allocation percentages will change based on changes in the underlying data that exists at the beginning of January 2017. ** **

In addition to the Noranda adjustment above, pending further modification, Staff recommends the Commission order Ameren Missouri to continue to provide its monthly CAM report in the format itemized in the *Amended Non-Unanimous Stipulation and Agreement Regarding Certain Revenue Requirement Issues* in File No. ER-2014-0258 and in the *Non-Unanimous Stipulation and Agreement Regarding Cost Allocation Manual and Affiliate Transactions* filed in the instant proceeding.

The separate CAM docket discussed above will address Staff's common cost allocation concerns on a prospective basis. However, pending further review of data that has recently been provided, Staff at this time has been unable to quantify an adjustment concerning indirect allocation methodologies. Staff will continue to review data and data request responses to determine if further adjustments need to be made through the true-up cutoff date, if at all, in this area.

Staff Expert/Witness: Lisa M. Ferguson

VIII. Income Statement

A. Rate Revenues

1. Introduction

Since the largest component of operating revenues results from rates charged to Ameren Missouri's retail customers, a comparison of operating revenues with cost of service is fundamentally a test of the adequacy of the currently effective Missouri jurisdictional retail electricity rates. If the overall cost of providing service to Missouri retail customers exceeds operating revenues, an increase in the current rates Ameren Missouri charges its Missouri retail customers for electricity is required.

One of the major tasks in a rate case is not only to determine whether a deficiency (or excess) between cost of service and operating revenues exists, but also to determine the magnitude of any such deficiency (or excess). Any deficiency (or excess) identified can only be made up (or otherwise addressed) by adjusting Missouri retail rates (i.e., rate revenues) prospectively, on a going-forward basis.

Staff Expert/Witness: Kofi A. Boateng

2. Definitions

Operating Revenues are composed of Rate Revenue, Revenue from Off-System Sales and Other Operating Revenues. Each is defined respectively as follows:

Rate Revenues: Test year rate revenues consist solely of the revenues derived from the current rates Ameren Missouri charges for providing electric service to its Missouri retail customers (i.e., native load and customer charges). Ameren Missouri's charges are determined by multiplying each customer's usage by the per unit rates established in its tariff. Missouri retail customers are charged summer rates (June – September) and winter rates (October – May) during the year. These charges are broken down for Missouri retail customers into two categories: (1) a demand charge; and (2) an energy charge. Missouri retail customers' rates are also broken down by rate class based upon type and amount of usage. These rate classes include: (1) Residential; (2) Commercial; (3) Small General Services; (4) Large General Services; (5) Large Primary Services (11M); and (6) Public and Private Lighting. In addition to these rate classes, there are separate categories for large industrial customers: (1) Noranda (12M); and (2) Metropolitan Sewer District ("MSD"). Revenues from the fuel adjustment clause ("FAC") represent collections or refunds of prior period fuel costs and are excluded in determining the annualized level of ongoing rate revenues.

Revenue from Off-System Sales: Revenue from off-system sales is realized as a result of Ameren Missouri's sales of electricity to other utilities at non-regulated prices. The gross revenue from these sales, less the generation or purchased power expense incurred by Ameren Missouri to make these sales, is known as the profit margin on off-system sales. The rationale for assigning this profit to ratepayers and including it in operating revenues is that the electricity sold by Ameren Missouri is generated by power plants being paid for by the ratepayers through electric rates charged by Ameren Missouri.

Other Operating Revenues: This category includes the revenue from such items as the rental of pole space, leased land and other miscellaneous charges.

Staff Expert/Witness: Kofi A. Boateng

3. The Development of Rate Revenue in this Case

This section discusses Staff's determined normalized and annualized test year usage and revenues by rate class. The intent of Staff's adjustments is to determine the level of revenue that Ameren Missouri would have collected on an annual, normal-weather basis, based on information "known and measurable" at the end of the test year (in this case, updated through June 2016, as explained below). The two major categories of revenue adjustments are known as "normalizations" and "annualizations."

Staff Expert/Witness: Joseph P. Roling

a. Annualization and Normalization Revenue Results

Results of the annualization and normalization adjustments below are located at the Rate Revenue Summary tab of the Staff Accounting Schedules.

Staff Experts/Witnesses: Kofi A. Boateng, Joseph P. Roling

b. Revenue Annualization

Staff made customer growth adjustments to test year kWh sales and rate revenue to reflect the additions to and, in certain instances, reductions to kWh sales and rate revenue that would have occurred if the number of customers taking service at the end of September 30, 2016, had existed throughout the entire year. Staff calculated customer growth for the Res Time-of-Use and Non-Time-of-Use, SGS Time-of-Use and Non-Time-of-Use, LGS Time-of-Use and Non-Time-of-Use, as well as SPS Non-Time-of-Use and SPS Time-of-Use customer classes. The customer growth annualization takes into account weather and usage normalizations, as well as the adjustments for 365 days and rate changes that occur during the test year. Other customer classes that did not exhibit growth were left at test year customer levels instead of being annualized at the September 30, 2016, levels. These are the LPS, Outdoor Lighting, and LTS / IAS classes. Staff will re-examine the level of customer growth through December 31, 2016, during the true-up cut-off period and make adjustments to the cost of service as necessary to reflect these updated levels.

Staff Expert/Witness: Kofi A. Boateng

4. <u>Regulatory Adjustments to Test Year Sales and Rate Revenue</u>

a. Remove Unbilled Revenues

Staff has eliminated unbilled revenue from its determination of revenue requirement to ensure only 365 days of revenue are included and to reflect revenues stated on an "as billed" basis. The recording of unbilled revenue on the books of Ameren Missouri recognizes sales of electricity that have occurred, but have not yet been billed to the customer. Therefore, it is necessary for Staff to remove unbilled revenue in order to reach an accurate revenue requirement based upon electricity sales billed to and revenues collected from Missouri ratepayers.

Staff Expert/Witness: Kofi A. Boateng

b. Remove Gross Receipts Tax

Ameren Missouri acts as a collector for taxes imposed on utility service revenues by municipalities and other taxing authorities. The Gross Receipts Tax ("GRT") included on a customer's bill is collected by Ameren Missouri and remitted to the appropriate taxing authority. The GRT is recorded as revenue on the books of Ameren Missouri, with a corresponding charge booked to GRT expense. Theoretically, the revenue and expense offset one another and, therefore, have no effect on net income. However, the expense accrual for GRT does not always match perfectly with the GRT included in revenue due to timing differences in the collection and payment of GRT. Eliminating the GRT recorded in revenue and expense through companion adjustments assures that GRT will have no impact on the calculation of net income for revenue requirement purposes.

Staff Expert/Witness: Kofi A. Boateng

c. Update Period Adjustment

To provide a more current basis for normalization, annualization, and growth calculations, Staff determined that usage data used to determine revenue in this case should be updated to reflect the 12-month period ending June 2016, and should include minor billing adjustments.

Staff Expert/Witness: Joseph P. Roling

d. Large Customers Annualization

Staff's adjustments to billing units and revenues were based upon an "update period" of July 1, 2015, through June 30, 2016, to be adjusted for known and measurable changes through the true-up period ending December 31, 2016.

There were 66 customers in the LPS rate class during the update period. Staff performed a data check for billing corrections prior to doing other adjustments and annualized LPS customers on an individual customer (account) basis. Their individual monthly demand and energy use, measured over multiple years prior to the update period and the twelve (12) months of the update period, were examined graphically to determine if an adjustment was needed to reflect an annualized/normalized level of demand and energy use for the 12-month update period, as well as to identify the type of adjustment required to reflect the appropriate annualized/normalized level.

Staff did not make any adjustments to revenues for the Economic Development Rider ("EDR"). This rider provides for discounts to be "paid" to customers (in the form of credits on their electricity bill) who locate or expand operations in certain areas of Ameren Missouri's service territory. EDR credits are provided to the customer over a five-year period. The value of the credits is a declining percentage of the customer's electric bill calculated on the appropriate general application rate schedule. Usually, these discounts are included in the determination of Ameren Missouri's revenues because Staff considers fostering economic development to be a benefit to all ratepayers. As of the end of the updated period, Staff determined there were no EDR customers; therefore, no EDR discount to revenues was included in this rate case.

The other LPS adjustments are as follows:

(a) Interclass Rate Switching Adjustment

During the update period no customers moved into the Large Primary Service (LPS) rate class from other classes, and three LPS customers moved to Small Primary Service. Therefore, adjustments were made to reduce billing units and revenues for interclass rate switching.

(b) Annualization

The general intent of an annualization is to restate the update period billing units results as if conditions known at the end of the update period had existed throughout the entire time period taken into consideration. Staff reviews each of Ameren's largest customers to determine if adjustments need to be made to reflect any major growth or decline in kWh usage and rate revenues due to the entrance of new customers, the exit of existing customers, and load growth or decline of specific existing customers. These customers' billing units and revenues were annualized for all twelve (12) months.

(c) Weather Normalization

Staff normalized update period usage data provided by Ameren Missouri by applying weather normalization factors calculated by Staff witness Seoung Joun Won for each month. Staff adjusted the billing units by these factors, and applied current rates to determine weather-normalized revenue. The difference between these weather-normalized revenues and the update period revenues determined the amount of the Weather Normalization Adjustment.

(d) 365-Days Adjustment

Staff measured rate revenues and billing units by billing month (the period of time over which the staggered bill cycles result in each customer being billed precisely once) rather than by calendar month. The number of days in the twelve (12) billing months comprising the update period for each customer was compared to a 365-day calendar year. For those LPS customers with greater or less than 365 days, a per-day kWh adjustment was made, with Staff applying the appropriate rates to determine the revenue adjustment. 365-Days adjustments are also known as "unbilled" sales and "unbilled" revenues on financial statements.

Staff Expert/Witness: Joseph P. Roling

e. Weather Normalization of Revenue and 365 Day Adjustment

Staff normalized and annualized update period usage data provided by Ameren Missouri for the Res, SGS, LGS and SPS rate classes. Staff applied a regression to model the relationship between average usage per customer and the percentage of update period usage that is priced in the first rate block for the Res and SGS rate classes. The relationship was then applied to monthly usage per customer before and after the weather and 365-day adjustments using the normalization factors provided by Staff witness Seoung Joun Won.[49] This computation resulted in normalized usage by rate block, which was then converted to the total normalized revenues by multiplying rate block usage by the appropriate rates found in Ameren Missouri's effective tariff sheets. For the LGS and SPS class the weather adjustment factor was combined with the 365-day adjustment factor and applied to each hour's use block. The difference between these normalized and annualized revenues and the update period revenues determined the amount of the overall revenue adjustment.

Staff Expert/Witness: Joseph P. Roling

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[49] The results of the regression analysis were also consistent with the cumulative frequency distribution data provided by Ameren Missouri for the Residential class.

f. Weather Normalization

In many of the classes of service, electricity consumption is highly responsive to the weather, specifically temperature. As the temperature reaches higher levels, the demand for cooling, air conditioning and fans increases the customers' consumption of electricity. As the weather becomes cold and temperature falls, the demand for additional heating, electric space heating for example, also forces an increase in electricity consumption. Electric air conditioning and space heating is prevalent in Ameren Missouri's service territory, therefore, it follows that Ameren Missouri's electric load is linked with and responsive to temperature.

Ameren Missouri's test year ran from April 1, 2015, through March 31, 2016. In an attempt to capture a more likely forward-looking indictor of non-weather electricity usage per customer, Staff decided to use the most recent temperature and load data available and, therefore, based its analysis on an updated period of July 1, 2015, through June 30, 2016.

From November 2015 through March 2016, these months experienced mild temperatures resulting in electric energy usage below that which would have been expected under normal weather conditions. September 2015 and June 2016 experienced temperatures hotter than normal resulting in usage above that which would have been anticipated under normal conditions. Since the temperatures in the twelve month updated period ending June 30, 2016, used by Staff deviated from normal, and since Staff chose a more recent time period to review than the one used by Ameren Missouri, Staff performed its own weather impact analysis.

However, the method and model used by Staff is similar to those used by Ameren Missouri. Staff's model and methodology contained elements important in the class-level weather normalization process: use of daily load research data to determine non-linear, class-specific responses to changes in temperature with the incorporation of different base usage parameters to account for different days of the week, months of the year and holidays. The results of Staff's analysis were provided to Staff witness Joseph Roling to be used in the normalization of revenues for weather sensitive classes, Residential (RES), Small General Service (SGS), Large General Service (LGS), Small Primary Service (SPS) and Large Primary Service (LPS).

Staff Expert/Witness: Seoung Joun Won, PhD

g. Weather Variables

This information was provided to Staff witness Seoung Joun Won for weather normalization of the test year kWh usage and update period hourly loads.

Historical Data Used to Calculate Weather Variables - Each year's weather is unique; consequently, test year usage, hourly loads, revenue, and fuel and purchased power expense need to be adjusted to "normal" weather so that rates will be designed on the basis of normal weather rather than any anomalous weather in the test year. In the quantification of the relationship between test year weather and energy sales, Staff used weather observations of Lambert - St. Louis International Airport ("STL"), Missouri for the update period, July 1, 2015, through June 30, 2016.

As a measure of "normal" weather, Staff used a 30-year period of "climate normals" ("normals") published in July 2011 by the National Climatic Data Center ("NCDC") of the U.S. National Oceanic and Atmospheric Administration ("NOAA"). According to NOAA, a climate normal is defined as the arithmetic mean of a climatological element computed over three consecutive decades.[50] To conform to the NOAA's three consecutive decades for determining normal temperatures, Staff used observed maximum and minimum daily temperatures for the 30-year period of January 1, 1981, through December 31, 2010. Therefore, Staff bases its calculations on the time period of the most recent climate normals produced by NCDC.[51]

Although the definition of normal weather is relatively simple, the actual calculations may be more complicated. Inconsistencies and biases in the 30-year time series of daily temperature observations occur if weather instruments are relocated, replaced or recalibrated. Changes in observation procedures or an instrument's environment may also occur during the 30-year period. NOAA specifically identified three major instrument and location changes for STL in 1988, 1996 and 2002 during the 30-year period of 1981 - 2010.[52] It is necessary for Staff to quantify these anomalies and subsequently adjust the time series in calculating the normal temperatures for STL. For changes in 1988, 1996 and 2002, Staff utilizes the adjustments used in Ameren Missouri's most recent rate case (Case No. ER-2014-0285).

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[50] Retrieved on July 26, 2016, http://www ncdc.noaa.gov/data-access/land-based-station-data/land-based-datasets/climate-normals.

[51] Retrieved on July 26, 2016, http://www ncdc.noaa.gov/data-access/land-based-station-data/land-based-datasets/climate-normals/1981-2010-normals-data.

[52] Retrieved on July 26, 2016, from NOAA website, http://www.ncdc.noaa.gov/homr.

As explained above, there are three major anomalies that require adjustments to the STL 1981 - 2010 daily temperature time series. First, on January 18, 2002, a change of the instrument elevation occurred that resulted in monthly average temperature values around 0.21ºF warmer than before, so Staff adjusted upward the observations from 1981 to 2002. Second, on May 15, 1996, a change occurred that resulted in temperature values around 1.69ºF cooler than before, so Staff adjusted downward the observations from 1981 to 1996. Finally, on February 1, 1988, a change occurred that resulted in temperature values that were around 0.45ºF warmer than before, so Staff adjusted upward the observations from 1981 to 1988. Cumulatively, Staff identified the average of the correction value of approximately -1.03ºF for the time period 1981 - 1988, approximately -1.48ºF for the time period 1988 - 1996, and approximately 0.21ºF for the time period 1996 - 2002 to the historical daily temperature time series. Staff derived the daily mean temperature time series, daily two-day weighted mean temperatures, and normal daily temperatures from these adjusted daily temperatures.

Definition of Weather Variables - Because weather fluctuates greatly from day-to-day, the STL temperature variables required to weather-normalize sales are two-day weighted daily mean temperatures of the update period actual and the 30-year normal. The day's daily mean temperature is generally defined as the simple average of the day's maximum daily temperature and minimum daily temperature. The daily two-day weighted mean temperature is calculated using the previous day's mean daily temperature with a one-third weight and the current day's mean daily temperature with a two-thirds weight.

This was done because yesterday's weather effects how electricity is used today in Ameren Missouri's service area. This is likely due to heat retention by the structures in the service area. For example, if today's temperature is mild, but yesterday's temperature was hot and the air conditioner was on, it is likely that the air conditioner will also be used today. Similarly, if yesterday's temperature was mild and air conditioning was not used, then if today's temperature is slightly warmer, air conditioning may not be used until later in the day. Staff used the STL daily two-day weighted mean temperature data series to normalize both class usages and hourly net system loads.

Calculation of Normal Weather - Staff used a ranking method to calculate normal weather estimates of daily normal temperature values, ranging from the temperature that is "normally" the hottest to the temperature that is "normally" the coldest, thus estimating "normal extremes." Staff ranked the two-day weighted temperatures for each year of the 30-year history from hottest to coldest and then calculated the normal daily temperature values by averaging the ranked two-day weighted mean temperatures for each rank, irrespective of the calendar date.

This results in the normal extreme being the average of the most extreme temperatures in each year of the 30-year normals period. The second most extreme temperature is based on the average of the second most extreme day of each year, and so forth. Staff's calculation of daily normal temperatures is not the same as NOAA's calculation of smoothed daily normal temperatures. Because the test year temperatures do not follow smooth patterns from day to day, Staff calculated normal daily temperatures based on the rankings of the actual temperatures of the test year period. Staff has used this calculation procedure of weather variables in STL in past rate cases including the last the Ameren Missouri rate case, ER-2014-0285.

Staff Expert/Witness: Seoung Joun Won, PhD

h. 365-Days Adjustment

Calendar months and revenue months differ from one another because the periods they cover begin and end at different times. Calendar months coincide with the calendar, beginning on the first day of the month and ending on the last day of the month. Staff calculated a normalization adjustment to Ameren Missouri's kWh usage to reflect a calendar year's (i.e., 365 days') worth of usage. Ameren Missouri's customers' usage is measured and rate revenues are collected over a period known as a revenue month, which is the interval over which Ameren Missouri reads customers' meters and issues bills. A bill rendered for a given revenue month may charge for usage in parts of two calendar months. Revenue months take their names from the calendar month in which the customer's bill is rendered. For example, assume a customer's meter was read and usage determined on June 8 and then again on July 8 and that the bill was sent to the customer on July 15. The revenue month for this bill is July even though 22 days of the usage measured for this bill occurred from June 9 through June 30 and it contained only eight days of usage in July.

The length of a revenue month is dependent upon the interval between meter readings and does not necessarily have the same number of days that occur in a given calendar month of the same name; that is, a revenue month may have more than or less than the number of days for the same-named calendar month. For the example given above, the usage is for 30 days (June 9 through July 8), even though the revenue month is July, which has 31 days. When revenue month usage is totaled over the year, the resulting revenue year will include usage from the immediately prior calendar year and assign usage to the next calendar year, meaning a revenue year may contain more than or less than 365 days' usage. Therefore, since the costs and expenses are accounted over a calendar year, Staff calculates an annualization adjustment to bring the revenue year kWh into a 365-days interval. This adjustment is stated in kWh and is referred to as the 365-Days Adjustment. Staff calculates the 365-Days Adjustment by subtracting the weather-normalized revenue month kWh from the weather-normalized calendar month kWh for the test year; the difference, or the 365-Days Adjustment, may be either positive or negative.

The 365-Days Adjustment for RES, SGS, LGS and SPS were provided to Staff witness Joseph P. Roling, who used the 365-Days Adjustment to adjust the revenues of the weather-normalized class revenues months to the twelve months ended June 30, 2016. For 365-Days adjustments of LPS customers, please see the large customer sections of Staff witness Joseph P. Roling.

Staff Expert/Witness: Seoung Joun Won, PhD

i. Load Requirement at Transmission

Hourly load requirement is the hourly electric supply necessary to meet the energy demand needs of both Ameren Missouri and its customers. The hourly loads used in the analysis of the update period July, 2015, through June, 2016, were provided from Staff witness Erin L. Maloney, PE and adjusted using the annualized hourly load of Noranda provided by Staff witness Sarah L. Kliethermes.

Due to the high saturation of air conditioning, and the presence of significant electric space heating in Ameren Missouri's electric service territory, the magnitude and shape of Ameren Missouri's load requirement are directly related to daily temperatures. The actual daily temperatures for the update period differed from normal conditions. Therefore, to reflect normal weather, daily peak and average load requirement are adjusted independently, but using the same methodology.

Independent adjustments are necessary because average loads and peak loads respond differently to weather. Daily average load is calculated as the daily energy divided by twenty-four hours and the daily peak is the maximum hourly load for the day. Separate regression models estimate both a base component, which is allowed to fluctuate across time, and a weather sensitive component, which measures the response to daily fluctuations in weather for daily average loads and peak loads. The regression parameters, along with the difference between normal and actual cooling and heating measures, are used to calculate weather adjustments to both the average and peak loads for each day.

The adjustments for each day are added respectively to the actual average and peak loads for each day. Staff witness Seoung Joun Won, PhD provided actual and normal daily temperatures used in this analysis.

The starting point for allocating both the weather-normalized daily peak and the weather-normalized average loads to the hours is the actual hourly loads. A unitized load curve is calculated for each day as a function of the actual peak and average loads for that day. The corresponding weather-normalized daily peak and average loads, along with the unitized load curves, are used to calculate weather-normalized hourly loads. This process includes many checks and balances, which are included in the spreadsheets that are used. In addition, the analyst is required to examine the data at several points in the process. For more information, the process is described in greater detail in the document "Weather Normalization of Electric Loads, Part A: Hourly Net System Loads".[53]

Once Staff's normalized, annualized test year usage for Ameren Missouri's retail customer classes is completed, weather-normalized wholesale usage is added. Then, the non-LTS class annual usage was increased by the average annual loss factor supplied by Staff witness Alan J. Bax. The LTS class' annualized usage was added to the non-LTS annual usage to produce an annual sum of the hourly load requirement that equals the adjusted test year usage and is consistent with Staff's normalized revenues.

A factor was applied to each hour of the weather-normalized loads to produce an annual sum of the hourly load requirement that equals the adjusted test year usage, plus losses, and is consistent with normalized revenues. Once completed, the test-year hourly normalized system loads were given to Staff witness Shawn E. Lange to be used in developing the test year fuel and purchased-power expense. Staff witness Alan J. Bax used the annual requirement of the load requirement hours in developing Staff's jurisdictional energy allocator.

Staff Experts/Witnesses: Shawn E. Lange and Seoung Joun Won, PhD

j. LTS/IAS Rate Class

During the test period there was only one customer on the Large Transmission Service ("LTS") / Industrial Aluminum Smelter ("IAS") rate schedules. In Case No. ER-2014-0258, the IAS

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[53] "Weather Normalization of Electric Loads, Part A: Hourly Net System Loads" (November 28, 1990), written by Dr. Michael Proctor, Manager of the Economic Analysis Department.

rate schedule was created for the Noranda aluminum smelter facility in New Madrid County. In its Report and Order effective May 12, 2015, in Case No. ER-2014-0258, the Commission stated:

> [i]n future rate cases, the Commission will once again assess whether Noranda should be allowed to continue to receive a reduced load retention rate, and may continue this rate and these conditions as it finds appropriate based on the competent and substantial evidence presented in such cases, including the economic conditions at the time of that case.

During the test period, the New Madrid facility took service under the IAS rate schedule. Given the exceptional changes in the character of service taken at the New Madrid facility since Case No. ER-2014-0258, Staff has made an annualization adjustment to determine revenue from the facility based on the LTS rate schedule, as an adjustment to test year revenues.

Given the exceptional reductions in load experienced during the test year and up-date period relative to Ameren Missouri's total load, Staff has annualized the billing determinants for this customer based on the most-recently available hourly usage. This annualized hourly usage was provided to Staff witnesses Seoung Joun Won and Shawn E. Lange for computation of Hourly Net System Input. The level of revenues resulting from the annualized determinants is ** ________ **. The annualized demand is approximately ** ___ ** MW with annualized energy of approximately ** ____ ** MWh.

Staff Expert/Witness: Sarah L. Kliethermes

k. Adjustment to Eliminate MEEIA Revenue

The Missouri Energy Efficiency Investment Act ("MEEIA"), § 393.1075, RSMo Supp. 2010, was passed by the Missouri legislature and signed by the governor in 2009. The MEEIA program is designed to encourage Missouri's investor-owned electric utilities to offer energy efficiency programs and projects designed to reduce the amount of electricity used by the utility's customers. The Commission rules (4 CSR 240-20.093 and 4 CSR 240-3.163) promulgated a mechanism that allows for periodic rate recovery of the MEEIA program costs as well as the recovery of lost revenues related to the programs and a utility performance incentive for investment in demand-side programs. During the test year, Ameren Missouri collected MEEIA program costs as part of revenue through the base rates from ratepayers. However, the recovery of MEEIA program costs from customers is now accomplished through a MEEIA Rate Rider mechanism, rather than through the base rates.

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Accordingly, Staff has made an adjustment to eliminate the test year MEEIA revenues from the electric retail revenues.

Staff Expert/Witness: Kofi A. Boateng

B. Adjustments to Non-Rate Revenues

1. Lake of the Ozarks Shoreline Management Other Revenues

During the test year, Ameren Missouri recorded other electric revenues associated with annual fees, certified-dock-builder fees, enforcement fees, and processing fees, all associated with its Lake of the Ozarks shoreline management activities. Staff examined the level that Ameren Missouri collected for these management activities through August 31, 2016, and believes that no adjustment is warranted at this time. Staff will review this issue further when it performs a true-up audit for Ameren Missouri through December 31, 2016, if an adjustment to this revenue source is necessary.

Staff Expert/Witness: Kofi A. Boateng

2. Coal Refinement Projects

The Cross-State Air Pollution Rule ("CSAPR") issued by the Environmental Protection Agency, requires reductions in emissions of pollutants, such as Sulfur Dioxide ("SO_2") and Nitrogen Oxide ("NOx"). To this end, Ameren Missouri has installed measures at its Rush Island and Sioux Energy Centers to treat its coal through a refinement process to reduce regulated emissions. However, as of May 1, 2016, refined coal is no longer being utilized at Labadie Energy Center.

Ameren Missouri has contracted with outside parties for utilization of refined coal at Rush Island and Sioux. The coal-refinement process is designed to reduce emissions of NO_X and SO_2, which are generated from burning coal. The coal refiners lease a portion of the property at each location to obtain the space needed to place their equipment for the refinement process. This process involves Ameren Missouri selling its coal to a third party who applies the refinement process and then in turn sells the refined coal back to Ameren Missouri. The contracts which Ameren Missouri has entered into produce revenues in the form of lease payments to Ameren Missouri, coal handling costs and license fees. There are no incremental costs to Ameren Missouri associated with this process. However, an initial consequence of utilizing the refined coal was additional costs related to maintenance and capital costs as a result of corrosion and increased slagging rates. Ameren Missouri has replaced certain boiler items with improved materials in order to combat this corrosion, and maintenance costs have decreased.

a. Rush Island Energy Center

On December 14, 2011, Ameren Missouri was granted approval by the Commission in Case No. EO-2012-0146 to undertake the coal-refinement process, through a third party, Buffington Partners, LLC ("BP"), at its Rush Island Energy Center. In January 2013, Ameren Missouri began the coal-refinement process at the Rush Island facility and continues this process today.

b. Sioux Energy Center

In Case No. EA-2013-0502 Ameren Missouri was granted approval on July 27, 2013, for a similar project at its Sioux Energy Center. Due to the variances in the type of boilers at the Sioux facility, Ameren Missouri has contracted with GS RC Sioux, LLC, to provide refinement of the coal for its Sioux Energy Center based on different technology than that of the Rush Island Energy Center refinement process. The coal refinement process continues at this energy center today.

c. Labadie Energy Center

Ameren Missouri was granted approval on December 28, 2013, in Case No. EO-2014-0149 for refinement of coal, through the third party Larkwood Energy, LLC, at its Labadie Energy Center similar to the process at the Rush Island Energy Center. Larkwood Energy LLC, based on the tax environment surrounding refined coal, discontinued the agreement with Ameren Missouri through issuance of a suspension letter to suspend refined coal operations at the Labadie Energy center as of May 1, 2016. Staff was informed through Ameren Missouri's response to Staff Data Request No. 0223 that **

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Additionally, Ameren Missouri's response to Staff Data Request No. 0365 describes ** ____ ** Staff witness Brian Wells has included an increased level of fuel additives for the Labadie energy center as part of his annualization. Staff has included an annualized ongoing amount in its cost of service calculation related to the amounts received by Ameren Missouri for lease payments, coal handling charges and license fees for the Sioux and Rush Island energy centers. Staff has included a level of fixed lease revenue only for the Labadie Energy Center. Staff Data Request No. 0223 demonstrates that Ameren Missouri continues to receive that payment. In addition, Staff included an annualized amount of actual expense incurred for the 12-months ending October 31, 2016, related to any additional maintenance costs experienced by Ameren Missouri. This annualization includes a one-time reimbursement from CERT Operations, which is the operator of the refined coal operations at Rush Island plant for the improved boiler materials at Rush Island energy center.

Staff will re-examine this issue as part of its true-up audit to determine if any additional changes regarding Ameren Missouri's expenses or revenues have taken place in conjunction with the refinement process or if issuance of a TAM will have an impact on how coal refinement is utilized.

Staff Expert/Witness: Lisa M. Ferguson

3. <u>Off-System Sales ("OSS")</u>

Off-system sales are sales of electricity on the MISO market made after Ameren Missouri has met all obligations to serve its native load customers, both retail and wholesale. By engaging in off-system sales, Ameren Missouri generates profits which represent the net of gross proceeds and the associated cost of generation or purchased power. It is appropriate to include the revenues earned from off-system sales in the cost of service because the facilities used in generating the electricity sold are paid for by ratepayers, as is the electricity purchased off-system in order to meet Ameren Missouri's native load. For these reasons, the customers should benefit from these revenues earned by Ameren

Missouri. Off-system sales represent an efficient utilization of Ameren Missouri's electric facilities and systems that have been put in place to meet the electricity needs of its customers.

Off-system sales revenues were calculated in Staff's production cost model by using the hourly-market energy prices as determined by Staff witness Erin L. Maloney, PE. Staff's cost of service calculation includes the annualized off-system sales revenue as calculated by Staff witness Shawn E. Lange using Staff's production cost model. It should be noted that Staff has reflected contracts for sale of power to Missouri municipalities as off-system sales, consistent with its treatment for these contracts in previous rate proceedings. Staff will continue to examine off-system sales revenues through December 31, 2016, which represents the true-up cut-off date.

Staff Expert/Witness Brian Wells

a. OSS - Capacity Sales

When not necessary to serve its own load, Ameren Missouri is able to sell a portion of its generation capacity to other utility companies. Receipt of revenues from capacity sales to other utilities reduces Ameren Missouri's cost-of-service. Ameren Missouri is able to sell its capacity first through independent contracts with other utility parties. Any remaining capacity is sold through the Midcontinent Independent System Operator ("MISO") planning resource auction ("PRA"). The MISO planning year spans the period of June 1 to May 31. The MISO resource adequacy auction is annual, with the PRA only covering the immediate planning year. Ameren Missouri's capacity revenue changes each year as of June 1 as that date coincides with the start of the next planning year. Ameren Missouri clears all available generation remaining after independent contracts in each planning year's PRA. The MISO resource adequacy construct does not differentiate capacity requirements by month, but does establish an annual value. The capacity which satisfies the requirements as set by MISO is a fixed annual volume.

Staff will discuss a recent return on equity ("ROE") ruling handed down from the Federal Energy Regulatory Commission ("FERC") in this report. Ameren Missouri's current capacity revenues are not affected by this ruling.

In this case Staff has included the levels of capacity sales from current contracts as well as capacity revenue from the MISO 2016-2017 planning year. This level reflects the ongoing level of capacity sales which already takes into account the new level of capacity available for sale that relates to the reduction of Noranda load. Staff will re-examine the level of capacity sales as part of its true-up audit using information through year-end 2016.

Staff Expert/Witness: Lisa M. Ferguson

b. Bilateral Sales, Financial Swaps, and Real-time Deviation Adjustments

Staff made three adjustments outside the production cost model to account for revenues earned from net physical bilateral energy trades, financial swaps, and real time market transactions. The bilateral adjustment is for net sales (sales minus purchases) made by Ameren Missouri to counterparties outside the MISO market to increase revenues. The financial swap adjustment is for transactions made by Ameren Missouri to lock-in the sales price of underlying generation assets. The real-time market adjustment is for those transactions that took place at real time prices rather than the day-ahead prices used in the production cost modeling. These adjustments were calculated as a three-year normalized value with adjustments made for the volatility which occurred in the MISO market during what has been known as the "polar vortex" of January through March of 2014. Physical bilateral margins, financial swaps, and real time deviation of ** ____________________________ ____________________ ** should be utilized for these adjustments. Staff will continue to review the bilateral transactions, financial swaps and real time adjustments through the true-up period ending December 31, 2016, and will update these adjustments as necessary.

Staff Expert/Witness: Erin L. Maloney, PE

4. <u>Midcontinent Independent System Operator ("MISO")</u>

a. Capacity Expenses

Similar to Staff's discussion of off system sales capacity revenue, the MISO utilizes an annual resource adequacy method to determine the amount of capacity expenses Ameren Missouri incurs. Ameren Missouri owns sufficient generation to meet the MISO resource adequacy requirements; however, to meet MISO's capacity planning requirements during each planning year (June – May), Ameren Missouri utilizes "self-scheduling" for capacity offers and purchases as opposed to using a Fixed Resource Adequacy Plan ("FRAP"), which must be used in "retail choice" states, such as Illinois. Ameren Missouri incurs capacity expense due to self-scheduling whereas it would not from utilizing the FRAP, because with a FRAP all capacity is offered and purchased in the auction versus only the capacity in excess of demand (and the reserve requirement) with self-scheduling method.

However, Ameren Missouri also experiences benefits from self-scheduling that it would not be able to enjoy if it utilized the FRAP. The capacity expense for the entirety of the 2016-2017 planning year which ends May 31, 2017, is fixed as a result of the MISO auction. Staff adjusted capacity expense based on the new planning year information which already includes any effect of the reduction in Noranda load. Ameren Missouri's current capacity expenses are not affected by the FERC ROE complaint ruling discussed below. Staff will re-examine the level of capacity expense as part of its true-up audit using information through year-end 2016.

Staff Expert/Witness: Lisa M. Ferguson

b. Day 2 Revenues and Expenses

Ameren Missouri participates in MISO activities, including the MISO day-ahead and real-time energy markets (often called the MISO "Day 2 Market"). As part of its participation in the MISO Day 2 market, Ameren Missouri received payments during the test year from the MISO related to the Revenue Sufficiency Guarantee ("RSG") provision of MISO's tariff. These payments are determined hourly and are designed to ensure that companies participating in the MISO Day 2 markets are made whole when utilities' total energy offer prices in the market are not covered by the actual market prices. MISO Day 2 revenue is purely energy market related and is not affected by changes in load. However, that is not the case for MISO Day 2 expenses, so Staff took into account the reduction in Noranda load when annualizing MISO Day 2 expenses. MISO Day 2 expenses are based on the amount of energy settled at the "AMMO.UE" Commercial Pricing node. The proper method of normalizing these expenses when taking into account the loss of the Industrial Aluminum Smelter ("IAS") load of Noranda is to utilize the ratio of the IAS metered load adjusted for losses to Ameren Missouri's total real time load settled with the MISO. Staff used this ratio to adjust MISO Day 2 charges, ancillary and inadvertent expenses.

Since these offer prices include a margin for profits, it is important not to exclude the profit margins in the calculation. Currently, Staff is utilizing a 48% profit margin rate based on the calculations of margins embedded in the RSG make-whole payments during the recent 12-months ending August 31, 2016. In addition, Staff has annualized both test year revenue and expense levels for Day 2 Market items based on data provided for the 12-months ending August 31, 2016. Staff will re-examine these adjustments through December 31, 2016, during its true-up audit.

In addition, Price Volatility and Net Regulation revenues were received by Ameren Missouri during the test year. Price Volatility payments are received when there is a deviation from real-time prices and Net Regulation Adjustment revenues are received to make generators price neutral for deploying energy above or below the dispatch target price. Staff has removed this amount from its cost of service calculations and Net Base Energy Cost ("NBEC") calculations given the fact that Staff's fuel model does not model non-economic dispatch; therefore, these revenues would not be reflected in the model's output. However, these items are taken into account in subsequent FAC filings to ensure that the actual revenues and costs experienced by Ameren Missouri are being flowed through to ratepayers.

Staff Expert/Witness: Lisa M. Ferguson

c. Transmission Revenue and Expense

Staff has adjusted the test year level of MISO transmission revenue and expenses, with the exception of Transmission schedule 26A charges, by using data provided for the 12-months ending August 2016, which annualizes each item to a current ongoing level. Schedule 26A charges deal with Multi-Value Projects ("MVPs") that are determined by the MISO and for which costs are allocated to the individual transmission owner ("TO") members. These projects are regional projects that originally began as reliability projects and have since developed into market efficiency projects. When determining costs for the next year, MISO will estimate a total "revenue requirement" early on each year. Around September or October of the year prior to the new MISO rates being put into effect, the individual TOs will estimate what their individual cost allocation responsibility for the total MISO revenue requirement costs will be regarding schedule 26A charges. This estimate is usually closer to the actual cost than MISO's initial estimate. For purposes of direct filing, Staff annualized the schedule 26A expenses based on the TOs' estimated total MISO revenue requirement of 2017 charges for Ameren Missouri's allocated portion. This estimated "revenue requirement" by the TOs is lower than Ameren Missouri's original estimate in its direct filing, but the TOs' estimate is approximately ** ____ ** higher than the actual 2016 MISO revenue requirement for schedule 26A charges. The 2017 charges reflect the impact of further construction of the MVPs as well as the lower ROE as recently ordered by the FERC (see discussion below). Staff will continue to review all of Ameren Missouri's transmission transactions and the transmission transactions affecting Ameren Missouri as additional information becomes available through the true-up period. In addition, Staff does not support Ameren Missouri's proposal for use of a transmission tracker mechanism for accounting and rate purposes in Missouri. Staff will discuss Ameren Missouri's transmission tracker proposal in detail as part of its rebuttal testimony in this case.

FERC Return On Equity ("ROE") Complaint Cases

Below is some background on two FERC complaint cases that have affected Ameren Missouri's MISO transmission costs. The first complaint case was filed regarding section 206 of the Federal Power Act ("FPA") challenging the MISO TOs' base return on equity ("ROE") reflected in MISO's Open Access Transmission, Energy and Operating Reserve Markets. Below are excerpts from FERC Order On Initial Decision, Opinion No. 551, issued September 28, 2016, in Docket No. EL14-12-002, 156 FERC ¶61234, 2016 WL 5799957. These first paragraphs address the initial complaint case:

> 2. On September 23, 2002, the Commission [FERC] affirmed an initial decision that approved a base ROE of 12.38 percent for MISO TOs, but the Commission [FERC] modified the initial decision to include an upward adjustment of 50 basis points for turning over operational control of transmission facilities. On remand from the U.S. Court of Appeals for the District of Columbia Circuit, among other things, the Commission [FERC] vacated its prior order concerning the 50 basis point adder and stated that MISO TOs may make filings under section 205 of the FPA to include an incentive adder. The 12.38 percent base ROE continued to be the applicable ROE under Attachment O of the MISO Tariff used by all MISO TOs except for American Transmission Company, LLC (ATC).
>
> 3. On November 12, 2013, a complaint (Complaint) alleging that the current base ROE was unjust and unreasonable. Additionally, Complainants argued that the capital structures of certain MISO TOs featured unreasonably high amounts of common equity and that MISO TOs' capital structures should be capped at 50 percent common equity. Finally, Complainants contended that the ROE incentive adders received by ITC Transmission for being a member of a regional transmission organization (RTO) and by both ITC Transmission and Michigan Electric Transmission Company, LLC (METC) for being independent transmission owners were unjust and unreasonable and should be eliminated.
>
> 4. On October 16, 2014, the Commission [FERC] set for hearing the issue of whether MISO TOs' base ROE is unjust and unreasonable and established the refund effective date at November 12, 2013. The Commission [FERC] denied the Complaint with respect to the capital structure issue, finding that

Complainants had neither demonstrated that such existing capital structures are not just and reasonable nor cited any precedent for capping, for ratemaking purposes, the level of common equity in such capital structures for individual utilities, much less groups of utilities. The Commission [FERC] also denied the Complaint with respect to ROE incentive adders.

5. On July 21, 2016, the Commission [FERC] generally denied requests for rehearing and clarification of the Hearing Order. However, the Commission [FERC] clarified that non-public utility transmission owners are subject to the outcome of this proceeding. Therefore, the Commission [FERC] stated that, if the Commission [FERC] finds that MISO TOs' existing base ROE is unjust and unreasonable and requires them to amend their Attachment Os. [sic] Accordingly, the Commission [FERC] will also require those non-public utility transmission owners that incorporate the existing base ROE in their rates to amend their Attachment Os to incorporate the just and reasonable base ROE on a prospective basis. However, the Commission [FERC] stated that the MISO non-public utility transmission owners would only be subject to any refund obligations imposed in this proceeding to the extent they have voluntarily committed to make such refunds in prior FPA section 205 proceedings relating to the inclusion of the transmission revenue requirement in MISO's jurisdictional rates.

* * * *

7. On December 22, 2015, the Presiding Judge issued the Initial Decision finding, *inter alia,* that MISO TOs' existing 12.38 percent base ROE is unjust and unreasonable and should be reduced to 10.32 percent. The Presiding Judge also prescribed refunds, with interest, for the period from November 12, 2013 through February 11, 2015. In the Initial Decision, the Presiding Judge explained that the 10.32 percent base ROE represents the midpoint of the upper half of the zone of reasonableness (upper midpoint) of 7.23 percent to 11.35 percent.

[Footnotes omitted.]

The second complaint case is addressed in the following paragraph as follows:

6. On February 12, 2015, in Docket No. EL15-45-000, a different set of complainants filed a second complaint challenging the public utility MISO TOs' base ROE. By order dated June 18, 2015, the Commission set this matter for hearing and established a refund effective date of February 12, 2015, the day after the expiration of the refund period established by the Hearing Order. That refund period ended expired May 11, 2016.

[Footnote omitted.]

The September 28, 2016 FERC Order On Initial Decision, Opinion No. 551 in Docket No. EL14-12-002 affirmed the Presiding Judge's Initial Decision made on December 22, 2015, including ordering that: (A) MISO TOs' base ROE was set at 10.32 percent with a total or maximum ROE including incentives not to exceed 11.35 percent, effective on the date of the order; (B) MISO and MISO TOs were directed to submit compliance filings with revised rates to be effective the date of the order reflecting a 10.32 percent base ROE and a total or maximum ROE not exceeding 11.35 percent (inclusive of transmission incentive ROE adders), within thirty (30) days of the date of this order; (C) MISO and MISO TOs were directed to provide refunds, with interest calculated pursuant to 18 C.F.R. § 35.19a (2016), within thirty (30) days of the date of the order, for the 15-month refund period from November 13, 2013 through February 11, 2015; and (D) MISO and MISO TOs are hereby directed to file a refund report detailing the principal amounts plus interest paid to each of their customers within forty-five (45) days of the date of the order.

On September 19, 2016, the MISO TOs' sought U.S. Court of Appeals for the District of Columbia Circuit review of two FERC orders in Docket No. EL14-12-000. The Petition for review is still pending:

> Association of Businesses Advocating Tariff Equity, et al. v. Midcontinent Independent System Operator, Inc., et al., Order on Complaint, Establishing Settlement and Hearing Judge Procedures, and Establishing Refund Effective Date, Docket No. EL14-12-000, 149 FERC ¶ 61,049 (Oct. 16, 2014); and

> Association of Businesses Advocating Tariff Equity, et al. v. Midcontinent Independent System Operator, Inc., et al., Order on Rehearing, Docket No. EL14-12-001, 156 FERC ¶ 61,060 (July 21, 2016).

On October 28, 2016, various Requests for Hearing were filed in Docket No. EL12-14-000 respecting the FERC's September 28, 2016, Order On Initial Decision, Opinion No. 551. On November 28, 2016, the FERC issued an Order Granting Rehearings for Further Consideration in Docket No. EL12-14-000 stating: "In order to afford additional time for consideration of the matters raised or to be raised, rehearing of the Commission's [FERC's] order is hereby granted for the limited purpose of further consideration, and timely-filed rehearing requests will not be deemed denied by operation of law."

In order to comply with the Order On Initial Decision from the first complaint regarding ROE, Ameren Missouri had to calculate what was initially charged to customers through either the FAC or base rates for the time period in the order. Staff reviewed this calculation and has included in its cost of service a regulatory liability to be returned to customers over three years beginning with the effective date of rates in this case. However, because of the transmission settlement process, the actual amounts for this refund will not be known until after the true-up date in this case. Staff proposes to defer the difference between the actual refund amount and the estimate of the regulatory liability built into this case, until Ameren Missouri's next rate case. In addition, since the second complaint case at the FERC has not been litigated and will likely not be until after the effective date of rates in this immediate rate case, Staff proposes to defer any refund that is eventually determined from that case until Ameren Missouri's next general rate case where it would also be treated by Staff as a regulatory liability.

Entergy Complaint

** ** Staff has removed the accrual that was booked during the test year and has included an amortization to return the revenue previously received by Ameren Missouri over three years beginning with the effective date of rates in this rate proceeding.

Staff Expert/Witness: Lisa M. Ferguson

d. Ancillary Services Market Revenue and Expense

Ameren Missouri also participates in MISO's Ancillary Services Market ("ASM"). Ameren Missouri entered the ASM to acquire ancillary services for its retail load and to be able to sell the ancillary services from its generation. Staff has annualized test year ASM revenue levels by using data for the 12-months ending August 2016. There is no effect on ASM revenue for the reduction in Noranda load; however, there is an impact on ancillary expense so Staff utilized the same annualization method as for MISO Day 2 expenses to adjust ASM expense. Staff will continue to review Ameren Missouri's ASM transactions as additional information becomes available through the true-up period.

Staff Expert/Witness: Lisa M. Ferguson

e. MISO Inadvertent Related Revenues and Expenses

Ameren Missouri also incurs revenues and expenses that are determined daily as a result of receiving/providing inadvertent energy from MISO. Staff has annualized these revenues based on the actual amounts for the 12-months ending August 2016. There is no effect on inadvertent revenue for the reduction in Noranda load. Staff will continue to review Ameren Missouri's revenues resulting from inadvertent energy from MISO as additional information becomes available through the true-up period. Staff annualized inadvertent expense using the same method that was used to annualize MISO Day 2 and ASM expense, including any adjustments for the reduction in Noranda load.

Staff Expert/Witness: Lisa M. Ferguson

5. Removal of Gain on Disposition Allowances

During the test year, Ameren Missouri recorded a gain on sales of emission (nitrogen oxide) allowances under the U.S. Environmental Protection Agency's ("EPA") Clean Air Interstate Rule ("CAIR") program. The Commission has traditionally excluded gains or losses on the sale of utility property from the recommended cost of service calculation. Staff proposes to eliminate this revenue as it relates to a non-recurring revenue stream, to properly reflect actual billed retail revenue and non-retail revenue that is recognized for revenue normalization purposes.

Staff Expert/Witness: Kofi A. Boateng

6. Supervisory Control and Data Acquisition (“SCADA”) Equipment Revenues

Staff has made an adjustment to remove $238,599 of revenue for Ameren Missouri’s leasing of its supervisory control and data acquisition (“SCADA”) equipment to its affiliate Ameren Illinois. In her direct testimony, Ameren Missouri witness Laura M. Moore made an adjustment to remove the SCADA revenues and expenses because the equipment was fully depreciated and no longer in use. During discovery, Staff learned that the equipment was still being used by Ameren Missouri, but was no longer being used by any of its affiliates. Staff has made an adjustment to remove the related expenses and revenues as Ameren Missouri has indicated that Ameren Illinois has acquired its own SCADA equipment and is no longer using the Ameren Missouri owned equipment.

Staff Expert/Witness: Jason Kunst

7. Miscellaneous Other Revenues

Ameren Missouri’s miscellaneous other revenues consist of forfeited discounts, rents from property, change and disconnection fees, customer installation fees, late fees, etc. Staff’s analysis included a review of these revenue levels over a four-and-one-half-year period including the test year and update period for this case through August 31, 2016. Based upon Staff’s review, the miscellaneous other revenue levels at the twelve-month period ending March 31, 2016, appear reasonable for inclusion in customer cost of service. Staff will review this area during its true-up audit for Ameren Missouri in this proceeding.

Staff Expert/Witness: Kofi A. Boateng

C. Fuel and Purchased Power Expense

1. Fuel and Purchased Power Prices

As part of its audit in this rate case, Staff reviewed Ameren Missouri’s coal commodity and coal transportation contracts, as well as nuclear, natural gas, and fuel oil prices as provided in Ameren Missouri’s fuel reports, workpapers, and responses to Staff data requests. Staff witness Erin L. Maloney also reviewed multiple years of market energy prices. Staff’s annualized and normalized level of fuel and purchased power expense was calculated to be sufficient for Ameren Missouri to serve its native load and to enable it to make off-system sales through the MISO day-ahead market. Staff’s fuel expense adjustment includes all changes to coal commodity and transportation costs based upon contracts in effect January 1, 2017. Staff’s fuel expense adjustment for nuclear fuel is based on generation and cost data for June 2016 through September 2016 (Callaway's most recent refueling operation concluded in May 2016).

Staff's annualized level of fuel expense also is based upon a three-year average of natural gas and fuel oil commodity prices through July 31, 2016, as sponsored by Staff witness Erin L. Maloney. Staff's fuel cost calculation also includes the fixed demand cost of natural gas and costs associated with fly ash, both of which are discussed in their respective sections of testimony in this cost of service report. Staff's annualized purchased power expense is based upon a three-year average of day-ahead market energy prices, through July 31, 2016, as sponsored by Staff witness Erin L. Maloney. Staff will continue to examine each component of fuel expense through the true-up period ending December 31, 2016, so that any significant changes that occur through that date are addressed.

Staff Expert/Witness: Brian Wells

a. Coal Prices

i. Accounting Coal Prices

Staff's coal prices are used to compute Ameren Missouri's fuel costs based on the total coal unit generation that is determined by Staff's production cost model. Staff performed a review of all of Ameren Missouri's current coal commodity and transportation contracts. Staff's coal prices on a per-MMBtu basis reflect Ameren Missouri's mine-specific coal commodity and coal rail and barge transportation contracts that will be in effect as of January 1, 2017. Staff also included an ongoing level of expense of fuel hedge surcharges associated with rail transportation. These hedges are tied to the prices of on-highway diesel as reported by the Energy Information Administration, an agency of the U.S. Department of Energy ("DOE"). Finally, Staff included all other railcar-related costs in its calculated fuel cost as components of the coal prices used in Staff's production cost model.

Staff Expert/Witness: Brian Wells

ii. Fly Ash

Historically, Ameren Missouri's expenses associated with fly ash have been partially or entirely offset by revenues generated by selling the fly ash to third parties. However, due to Ameren Missouri's recent use of activated carbon as a fuel additive, there have been questions as to whether the fly ash generated by Ameren Missouri's coal plants would retain its marketability to those third parties. ** ____

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** Staff has accepted Ameren Missouri's test year level of fly ash expense in its cost of service. Staff will continue to review information regarding fly ash costs and sales through the true-up cut-off in this case.

Staff Expert/Witness: Brian Wells

b. Nuclear Fuel Prices

i. Nuclear Fuel Rod Assembly Prices

Uranium is a naturally radioactive metal that undergoes a complex three-stage process, involving conversion, enrichment, and fabrication, in order to be transformed into fuel rod assemblies (long metal tubes filled with precisely fashioned small fuel pellets) that are used in the Callaway reactor as its source of fuel. The nuclear fuel price calculated by Staff represents the cost of all of the fuel rod assemblies that are currently loaded into the reactor. Staff used available data through September 30, 2016, to calculate the fuel price used in its direct filing. Staff will reexamine the actual nuclear fuel prices through December 2016 as part of its true-up audit, and will reflect these costs as part of its true-up filing.

Staff Expert/Witness: Brian Wells

c. Natural Gas Cost

i. Natural Gas Prices

Staff analyzed and developed natural gas prices to be used as inputs to the production cost model. Staff looked at the three-year period ending June 2016 to develop average monthly values per pipeline. Staff will continue to review natural gas prices through the true-up period and will make adjustments as necessary.

Staff Expert/Witness: Erin L. Maloney, PE

ii. Fixed Natural Gas Cost

Staff has included the fixed demand cost of gas for the twelve months ending September 30, 2016, in its recommended revenue requirement. Staff's production cost model only includes variable commodity gas costs. Therefore, the cost of fixed gas must be added to the production cost model's results to determine the total net fuel and purchased-power expense. Staff will examine this cost through the true-up cut-off date of December 31, 2016, in this case.

Staff Expert/Witness: Brian Wells

d. Fuel Oil Prices

Fuel oil plays a very small part in the total fuel costs of Ameren Missouri. It is mainly used for start-up and auxiliary purposes at the generating stations. A single fuel oil price was developed to be used in the production cost model. Staff will continue to review fuel oil prices through the true-up period and will make adjustments as necessary.

Staff Expert/Witness: Erin L. Maloney, PE

e. Market Prices

The market price represents the dollar-per-megawatt-hour amount paid for electric energy in the Midcontinent Independent System Operator ("MISO") market in any given hour. A market price for each hour of the test year is used as a key input in Staff's fuel modeling. For each hour the fuel model is programmed to determine whether it is more economical for the utility to generate power or buy power from the market. The market price therefore sets the marginal generator and determines which of Ameren Missouri's generators will run, the cost of fuel for those generators, the amount of purchases made and the amount of sales made to non-retail customers.

Staff developed a set of prices by looking at three-years of market data ending June 2016 and calculating monthly peak and off-peak prices and then developing factors for each month based on the ratio of the three-year averages to the monthly averages in the test year. This method eliminates extreme price points caused by such things as weather, new market operation, hurricanes, economic down turns, flooding and etc. Staff made an adjustment to eliminate the extreme prices that occurred during January through March of 2014 due to what has been known as the "polar vortex".

Staff Expert/Witness: Erin L. Maloney, PE

2. Fuel and Purchased Power Cost Modeling

a. Normalization of Hourly Load Requirements at Transmission

i. System Energy Losses

In the Midcontinent Independent System Operator ("MISO") market, Ameren Missouri "bids" its load into the associated market at the transmission level, rather than at the generation level. Hence, transmission losses are not accounted for when Ameren Missouri bids its loads into the MISO market. In order to model fuel and purchased power costs appropriately, hourly loads utilized in the fuel models used to estimate fuel and purchased power expense need to be determined at the transmission level rather than at the generation level, identified as the Load Requirement at Transmission ("LRT"). The LRT needs to include the customers' energy requirements and associated primary and secondary losses ("System Energy Losses").

The basis for calculating energy losses is that LRT equals the sum of Total Sales, Company Use, and System Energy Losses. This can be expressed mathematically as:

LRT = Total Sales + Company Use + System Energy Losses

LRT, Total Sales, and Company Use are known, measured values. System Energy Losses (at the transmission level) may be calculated as follows:

System Energy Losses = LRT – Total Sales – Company Use

The System Energy Loss percentage is the ratio of the System Energy Losses at the transmission level to LRT multiplied by 100:

System Energy Loss Percentage = (System Energy Losses ÷ LRT) X 100

LRT is also equal to the sum of Ameren Missouri's net generation and net interchange, considered at the transmission level. Net interchange is the difference between off-system purchases and sales. Net generation is the total energy output of each generating plant minus the energy consumed internally to enable its production of electricity at each plant. The output of each generation plant is monitored continuously, as is the net of off-system purchases and sales.

Using this methodology, Staff calculated a loss percentage of 4.85% of LRT for the twelve-month period ending June 2016. Staff witness Seoung Joun Won, PhD, used Staff's calculated loss percentage in the development of hourly loads for Staff's fuel model.

Staff Expert/Witness: Alan J. Bax

b. Variable Fuel Expense

Staff estimates the variable fuel and purchased power expense for Ameren Missouri for the update period, as defined in the Rate Revenue Section of Staff's Cost of Service Report, ending June 30, 2016, to be $580,562,374 including off-system sales, and $603,954,489 excluding off-system sales. For this rate case, the model was run with and without off-system sales to estimate the level of off-system sales.

Staff uses the Plexos production cost model to perform an hour-by-hour chronological simulation of a utility's generation and power purchases. Staff uses this model to determine annual variable cost of fuel and net purchased power energy costs and fuel consumption. These amounts are supplied to Auditing Department Staff, who use this input in the annualization of fuel expense.

Staff used market prices in its fuel model dispatch to simulate Ameren Missouri's operations in the Midcontinent Independent System Operator ("MISO") integrated marketplace ("IM"). The price for energy in the IM dictates the amount of energy Ameren Missouri sells in the IM. Consequently, Staff's fuel run dispatches Ameren Missouri's generation to match the MISO market price, thus simulating how the MISO would dispatch generation if it were being dispatched into the MISO IM based on prices set by the MISO's regional load requirements.

The model operates in a chronological fashion, meeting each hour's energy demand before moving to the next hour.

Model inputs calculated by Staff are: fuel prices, spot market purchased power prices and availability, hourly load requirements at transmission, and unit planned and forced outages. Staff relied on Ameren Missouri's responses to data requests and workpapers for factors relating to each generating unit. These factors include: capacity of the unit, unit heat rate curve, primary and startup fuels, ramp-up rate, startup costs, fixed operating and maintenance expense, as well as information from Ameren Missouri's wholesale loads. Firm purchased power contract information, such as hourly energy available and prices, is also an input to the model.

Staff Expert/Witness: Shawn E. Lange

c. Planned and Forced Outages

Planned and forced outages are infrequent in occurrence, and variable in duration. In order to capture this variability, the Ameren Missouri generating unit outages were normalized by averaging six years (January 2010 through June 2016) of actual values taken from data Ameren Missouri supplied to comply with 4 CSR 240-3.190.

Staff Expert/Witness: Shawn E. Lange

d. Capacity Contract Prices and Energy

Capacity contracts are contracts for a specific amount of capacity ("megawatts" or "MW") and a maximum amount of hourly energy ("megawatt hours" or "MWh"). Prices for the energy from these capacity contracts are based on either a fixed contract price or the generating costs of providing the energy. The capacity contract relevant to this case is the Horizon Pioneer Prairie wind contract.

Actual hourly contract transaction prices were obtained from the Horizon Pioneer Prairie contract provided by Ameren Missouri. The hourly energy was developed by averaging the actual hourly energy from January 2010 through June 2016 from data Ameren Missouri supplied to comply with 4 CSR 240-3.190 Reporting Requirements for Electric Utilities and Rural Cooperatives.

Staff Expert/Witness: Shawn E. Lange

3. <u>Other Fuel-Related Items</u>

a. Fuel Additives – Limestone for Sioux Scrubbers

In order to properly operate the Sulfur Dioxide ("SO_2") scrubbers at the Sioux Energy Center ("Sioux"), Ameren Missouri utilizes limestone as a fuel additive. After being purchased, but before being transported to Sioux, the limestone must undergo a pulverization process in order to meet the standards of quality necessary for use in the scrubbers. Ameren Missouri maintains contracts with three vendors for this operation—one from whom the limestone is purchased, one to process the limestone so that it is useable, and one who will transport the processed limestone to Sioux.

Staff calculated the quantity of limestone that Ameren Missouri requires to meet environmental standards based on Ameren Missouri's target SO_2 removal rate of 92%. Multiplying this limestone quantity by the current limestone price per ton, Staff calculated the ongoing level of expense associated with purchasing limestone. To this amount, Staff added normalized processing and transportation expenses, resulting in Staff's recommended level of ongoing limestone expense.

During the proceedings of Ameren Missouri's last rate case, Case No. ER-2014-0258, the implementation of the Cross-State Air Pollution Rule ("CSAPR") had been stayed by court actions. Since that time, the courts have lifted this stay and CSAPR regulations for SO_2 and Nitrogen Oxide

("NOx") emissions were put in place, with Phase 1 being implemented in 2015 and Phase 2 beginning in 2017. The above-quoted percentage of SO_2 removal was provided by Ameren Missouri and is based on calculations made for limestone usage in 2017 with CSAPR regulations taken into consideration.

Staff will continue to review limestone data through December 2016 to be reflected in its true-up filing.

Staff Expert/Witness: Brian Wells

b. Fuel Additives - Activated Carbon

In order for Ameren Missouri to comply with mercury emission limits established by the EPA's Mercury and Air Toxics Standards ("MATS"), powdered activated carbon is used at Ameren Missouri's generating units to reduce mercury emissions. The activated carbon is processed (or "activated") so that it produces carbon particles with high porosity and greater surface area. The activated carbon is injected into and absorbed by the flue gas and is then captured in the electrostatic precipitators at the Labadie, Rush Island, Meramec, and Sioux Energy Centers. In December 2014, the Rush Island and Sioux Energy Centers were the first of Ameren Missouri's coal plants to be required to meet the EPA's MATS regulations and began using activated carbon. The Meramec and Labadie Energy Centers were not required to meet MATS until April 2016. Ameren Missouri has contracted with a handful of vendors to acquire and transport activated carbon to its plants as necessary.

Staff normalized the cost of activated carbon by calculating a normalized level of consumption for each specific activated carbon product at each coal plant, and multiplying the normalized consumption by the current contract price per pound of activated carbon. To normalize activated carbon consumption at Sioux and Rush Island, Staff took an eighteen-month average (having obtained eighteen months of historical data) of the pounds of additive consumed. Since Meramec was only required to comply with MATS starting in April 2016, a six-month average of historical consumption data was calculated. Labadie also began using activated carbon in April 2016, but increased the amount used starting in June 2016 due to the elimination of the coal refinement process at that plant. Therefore, Staff used a four-month average to normalize activated carbon consumption at Labadie.

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__________ ** Staff will continue to review activated carbon use data at all energy centers through December 2016 to be reflected in its true-up filing, and will likely have the necessary information at that time to correct the August 2016 error discussed above.

Staff Expert/Witness: Brian Wells

D. Payroll and Benefits

1. <u>Missouri Energy Efficiency Investment Act ("MEEIA") Labor</u>

Staff is opposed to Ameren Missouri's proposed labor adjustment related to proposed MEEIA labor costs being sought for recovery under its MEEIA Rider in its Direct filing. Staff will fully address the adjustment during Staff rebuttal in this case.

Staff Expert/Witness: Dana E. Eaves

2. <u>Payroll</u>

Staff computed annualized payroll expense by adjusting the amount booked during the test year ending March 31, 2016, to account for the: a) changes in employee levels through September 30, 2016; b) increase in wage rates; c) ** ______________________________

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______________________________ **. Staff distributed its payroll adjustment based upon the actual payroll distribution experienced by Ameren Missouri during the test year ending March 31, 2016.

During the test year ending March 31, 2016, several non-recurring bonus payments were made to employees including ** ______________________________

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_____ **. Staff has submitted Data Request No. 493 requesting additional information regarding these bonus payments. Staff has removed these bonus payments from its cost-of-service calculation until it can review the response to the above data request.

** ____

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Auditing Staff made no adjustment for the labor associated with Ameren Missouri's MEEIA program. Please see the testimony of Staff witness Dana E. Eaves for Staff's recommended treatment of MEEIA labor.

Additionally, Staff made an adjustment to normalize the overtime expense associated with the periodic refueling of the Callaway nuclear facility, which occurs every 18 months.

Finally, as part of it's true-up audit, Staff will re-examine Ameren Missouri's employee levels and actual salary data as of the true-up cut-off date to determine if any further adjustments to the cost of service are necessary.

Staff Expert/Witness: Jason Kunst

3. <u>CIP 5 Security Labor Adjustment</u>

Staff made no adjustment to increase labor expense for the employees who were assigned to work on the latest revision of the North American Electric Reliability Corporation's ("NERC") Critical Infrastructure Protection standards. While these employees' labor was booked to capital accounts in the test year ending March 31, 2016, from year to year, the time any individual employee's time is booked to capital projects can vary. It is Staff's position that applying an overall Operations & Maintenance ("O&M") factor to an updated employee headcount will capture an appropriate ongoing allocation of labor between capital projects and O&M.

Staff Expert/Witness: Jason Kunst

4. <u>Payroll Taxes</u>

Staff's annualized level of payroll taxes reflects an overall reduction in the test year amounts for Federal Insurance Contributions Act ("FICA"), Old Age Survivors and Disability Insurance ("OASDI"), FICA Medicare, Federal Unemployment Tax Act ("FUTA"), and State Unemployment Tax Act ("SUTA") payroll taxes. This reduction is primarily due to the reduction of the number of employees at the Ameren Missouri level. As part of its true-up audit, Staff will re-examine its analysis of payroll tax expense to determine if any further adjustments are necessary for the cost-of-service calculation.

Staff Expert/Witness: Jason Kunst

5. <u>Pension Costs</u>

a. Accounting Standards Codification 715-30 Pension Tracker

Staff, Ameren Missouri, and other parties entered into a Stipulation and Agreement ("the 2007 Agreement") in Case No. ER-2007-0002 that addressed the ongoing ratemaking treatment for annual qualified pension cost under the Financial Accounting Standards Board's ("FASB") Accounting Standards Codification ("ASC") Subtopic 715-30, formerly known as Financial Accounting Standard No. 87 ("FAS 87").

The 2007 Agreement requires Ameren Missouri to fund its annual pension expense through an external trust and track the difference between its annual funded pension expense and the level included in Ameren Missouri's rates. In this proceeding, the difference between the annual funded pension cost and the amount included in rates, as accumulated in the tracker, has been included in rate base and amortized over a period of five years as an addition or reduction to pension expense. As Ameren Missouri's management and administrative functions are provided by Ameren Services employees, all components of Ameren Missouri's pension expense and rate base amounts include costs that are allocated from Ameren Services.

In Ameren Missouri's last rate case, No. ER-2012-0166, the parties agreed to combine all of the prior pension tracker differences established in Case Nos. ER-2008-0318, ER-2010-0316, and ER-2011-0028 into one combined amount for purposes of amortization. Consistent with the 2007 Agreement and stipulations in Ameren Missouri's subsequent rate cases, Staff is proposing to reflect pension tracker amounts in rate base as follows: (1) rate base will be reduced by ($14,376,913), which represents a regulatory liability resulting from the over-collection in rates of pension expense as compared to the actual expense and funding incurred in this current rate case from January 1, 2015, through September 30, 2016; (2) rate base will be increased by $2,954,740, which represents an estimated unamortized regulatory asset at the true-up cut-off date of December 31, 2016, for the cumulative pension tracker established in Case No. ER-2012-0166; and (3) rate base will again be reduced by ($4,334,270) for the unamortized regulatory liability from Case No. ER-2014-0258.

Staff Expert/Witness: Kofi A. Boateng

b. Annualization

Staff adjusted test year qualified pension expense to reflect the Plan Year 2017 estimated expense for FAS 87 recommended by the actuarial firm of Towers Watson[54] for Ameren Missouri's qualified pension plan. Staff used this amount to determine the adjustment necessary to ensure that the amount collected in rates is sufficient to recover the estimated pension expense provided by Towers Watson. This is the base expense level that will be utilized in the pension tracker, after rates are established in this case, to determine the difference between pension expense included in rates and the amount actually incurred and funded by Ameren Missouri on an ongoing basis for qualified pension expense. In this proceeding, Staff is proposing to decrease test year expense by an amount of $11,798,649, due to declining pension costs. Additionally, Staff is proposing: (1) an adjustment to reset the pension amortization expense balance of $1,723,598 in respect to the combined pension tracker difference established in Case No. ER-2012-0166, beginning with the effective date of rates in this rate proceeding. The balance of this amortization is due to expire in December 2017; roughly seven (7) months after rates go into effect in this rate case. ** ______________________________

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____ ** (2) an adjustment of ($211,428) to reduce pension amortization expense in respect to pension tracker difference established in Case No. ER-2014-0258; and (3) an adjustment of ($2,875,383), which represents the annualized amortization related to the current pension tracker, which has been in effect since Ameren Missouri's last rate case, Case No. ER-2014-0258.

Staff Expert/Witness: Kofi A. Boateng

6. <u>Other Post Employment Benefit Costs ("OPEBs")</u>

a. Accounting Standards Codification 715.60 OPEBs Tracker

Staff, Ameren Missouri, and other parties entered into a Stipulation and Agreement ("the 2007 Agreement") in Case No. ER-2007-0002 that addressed the ongoing ratemaking treatment for annual other post-employment benefit costs ("OPEB") under the Financial Accounting Standards Board's

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[54] *See* Ameren Missouri's response to MPSC Data Request No. 0065.

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("FASB") Accounting Standards Codification ("ASC") Subtopic 715-60, formerly known as Financial Accounting Standard No. 106 ("FAS 106").

As with pension expense, the 2007 Agreement requires Ameren Missouri to externally fund annual OPEB expense and establish a tracker. The difference between the annual OPEB expense funded by Ameren Missouri and the amount of OPEBs expense included in rates, as accumulated in the tracker, has been included in rate base and amortized over a period of five years as an addition or reduction to OPEBs expense.

As with the pension tracker, the parties agreed to combine all prior OPEB tracker differences established in Case Nos. ER-2008-0318, ER-2010-0036, and ER-2011-0028 into one combined amount in Case No. ER-2012-0166 for purposes of amortization. Consistent with the 2007 Agreement and similar stipulations agreed to in prior Ameren Missouri rate cases, Staff is proposing to reflect the differences in rate base as follows: (1) rate base will be reduced by ($3,339,484), which represents a regulatory liability resulting from the over-collection in rates of OPEBs expense as compared to the actual expense and funding incurred in this current rate case from January 1, 2015, through September 30, 2016; (2) rate base will be reduced by ($6,499,736), which represents an estimated unamortized regulatory liability at the true-up cut-off date of December 31, 2016, for the cumulative OPEBs tracker established in Case No. ER-2012-0166; and (3) rate base will again be reduced by ($4,738,984) in respect of the unamortized regulatory liability established in Case No. ER-2014-0258.

Staff Expert/Witness: Kofi A. Boateng

b. Annualization

Staff adjusted test year OPEBs expense to reflect the Plan Year 2017 estimated expense for FAS 106 provided by the actuarial firm of Towers Watson for Ameren Missouri's post-retirement benefit plan. Staff used this estimated amount to determine the adjustment necessary to ensure the amount collected in rates is sufficient to recover the estimated OPEBs expense provided by Towers Watson. In this proceeding, Staff is proposing to decrease the amount currently collected in rates by an amount of $2,002,606. This reduction reflects a decline in estimated OPEB costs as of the valuation date of June 30, 2016 compared to previous levels.

In addition, Staff is proposing: (1) an adjustment to re-set the OPEB amortization expense balance of ($3,971,513) in respect to the combined OPEB tracker difference established in Case No. ER-2012-0166 beginning with the effective date of rates in this rate proceeding. Without the reset, this amortization is due to expire in December 2017; roughly seven (7) months after rates go into effect in this rate case. ** ____ ____ ____ ____ ____** (2) an adjustment of ($229,311) to reduce OPEB amortization expense in respect to the OPEB tracker difference established in Case No. ER-2014-0258; and (3) an adjustment of ($667,897), which represents the annualized amortization related to the current OPEB tracker in effect since Ameren Missouri's last rate case, No. ER-2014-0258.

Staff Expert/Witness: Kofi A. Boateng

7. Non-Qualified Pensions Expense

In addition to offering qualified pension plan benefits to all of its employees, Ameren Missouri also has a non-qualified pension plan paid to certain officers / executives called the Ameren Supplemental Retirement Plan. This plan is designed to attract and retain employees as well as motivate selected executives. Ameren Missouri states that the non-qualified plan is unfunded and that the plan benefit payments are made on a monthly disbursement basis. The plan also provides for a lump sum payment in lieu of annuity payments. The lump sum payments can be significant and the timing of these payments are often difficult to predict. To calculate Staff's annualized / normalized non-qualified pension expense, Staff used the total monthly annuity payments for calendar year 2015, plus a normalized amount of actual lump-sum payments for the same period after applying a conversion factor of 15. This is to convert the prior lump-sum payments to an amount that approximates the equivalent annuity payments to qualifying employees over 15 years as if that lump-sum payment option were not elected.

Staff Expert/Witness: Kofi A. Boateng

8. Other Employee Benefits

Ameren Missouri offers a number of benefits to its employees including medical, dental, vision, 401-k, and long-term disability. Staff has reflected the costs for these items for the twelve months ending September 30, 2016, in its cost of service calculation. Staff will continue to analyze employee levels and actual benefits cost data as part of its true-up audit through December 31, 2016, as information becomes available.

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Staff Expert/Witness: Jason Kunst

9. Short-Term and Long-Term Incentive Compensation

Ameren Missouri offers three types of incentive compensation to its employees: short-term compensation, long-term compensation, and an exceptional performance bonus award. The annual incentive compensation expense consists of incentive compensation paid to Ameren Missouri employees as well as costs that are allocated from Ameren Services Corporation ("Ameren Services"), who provide various management and administrative functions to Ameren Missouri.

Staff has relied upon the criteria established by the Commission in the Report and Order for *In re Union Electric Co*., Case No. EC-87-114: "At a minimum, an acceptable management performance plan should contain goals that improve existing performance and the benefits of the plan should be ascertainable and reasonably related to the plan." 29 Mo. P.S.C. (N.S.) 313, 325, (1987). Additionally, Staff took guidance from the Report and Order issued in Kansas City Power & Light Case No. ER-2006-0314 where the Commission noted, that "maximizing EPS could compromise service to ratepayers, such as by reducing customer service or tree-trimming costs, the ratepayers should not have to bear that expense." Based upon the guidance received in those two cases, Staff recommends the disallowance of any incentive compensation that is based on Ameren Missouri achieving EPS goals.

a) Short Term Incentive Compensation

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b) Long-Term Incentive Compensation

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c) Exceptional Performance Bonus (EBP)

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d) Capitalized Incentive Compensation

Staff's adjustments for each plan listed above were made for disallowances to expense as well as for capital. The adjustments to Plant-in-Service and Accumulated Reserve remove all incentive compensation that has been disallowed by Staff from 2002 through an estimated December 2016 amount. Staff will update this adjustment as part of its true-up audit to remove the actual disallowed incentive compensation that was capitalized as of December 31, 2016.

Staff Expert/Witness: Jason Kunst

10. <u>Severance Payments</u>

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Staff Expert/Witness: Jason Kunst

E. Other Expenses

1. <u>Rate Case Expenses</u>

Utility companies incur various expenses in the preparation and presentation of a rate case before the Commission. Included in these costs are expenses for outside counsel, expert witnesses, and miscellaneous expenses for items such as travel expenses and copying costs.

a. Normalization

Staff has reviewed Ameren Missouri's rate case expenses related to this current case for reasonableness and prudence for all of the services and actual costs incurred. Staff has calculated a normalized level of expense to include in its cost-of-service calculation based on costs incurred through October 31, 2016, to be normalized over 24 months. Staff's 24-month normalization period is supported by Ameren Missouri's recent case history and ** ______________________________ ____ **.

Due to the fact that Staff is calculating a normalized level of expense based on the costs incurred to process the current rate case, which is ongoing, Staff will continue to review Ameren Missouri's incurred rate case expenses for prudence and reasonableness as the case progresses. Staff will review expenses incurred through the reply brief date of **April 7, 2017** in this case. Staff requests that Ameren Missouri provide all documentation of rate case expense no later than one week after the true-up reply brief date above, or April 14, 2017. This will allow Ameren Missouri one week to gather the final costs incurred. Staff will require a reasonable amount of time to review all provided expenses and documentation and, as soon as practical after receiving such data, intends to update the normalized rate case expense amount to include only Ameren Missouri's actual incurred expenses.

b. Sharing Recommendation

In Staff Investigative Report on Rate Case Expense ("Report") filed in Case No. AW-2011-0330 in September 2013, Staff examined recent trends in incurred rate case expense and made recommendations regarding ongoing policies for utility recovery of rate case expenses. Staff made an assertion in the report that rate case expense can be beneficial to both a utility's ratepayers and shareholders. In the Report, Staff noted that the practice of granting full recovery of rate case

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expense to utilities does not incentivize the utilities to limit their expenditures in that area. Additionally, Staff expressed concern that allowing the full recovery of expenses gives utility companies a financial advantage over other parties within the case who must operate within budgets or other financial restrictions. It was Staff's conclusion in the Report that "structural incentives measures" be implemented in order to incentivize utilities to limit rate case expense. Based on Staff's Investigative Report and recent guidance from the Commission, Staff is recommending that rate case expense be shared between the ratepayers and shareholders in this proceeding.

One of the options suggested by Staff in the Report was for rate case expense to be shared between shareholders and ratepayers according to the percentage of the utility's rate increase that is ultimately awarded by the Commission. That is the approach that Staff is recommending in this case to normalize rate case expense. By using this approach, ratepayers are only assigned costs that they receive benefit from and that are reasonable. Additionally, this approach incentivizes utilities to control their expenditures.

In the Report and Order in ER-2014-0370, the Commission stated the following:

> The Commission finds that in order to set just and reasonable rates under the facts in this case, the Commission will require KCPL shareholders to cover a portion of KCPL's rate case expense. One method to encourage KCPL to limit its rate case expenditures would be to link KCPL's percentage of recovery of rate case expense to the percentage of its rate increase request the Commission finds just and reasonable.[47] The Commission determines that this approach would directly link KCPL's recovery of rate case expense to both the reasonableness of its issue positions and the dollar value sought from customers in this rate case.[48]
>
> The Commission concludes that KCPL should receive rate recovery of its rate case expenses in proportion to the amount of revenue requirement it is granted as a result of this Report and Order, compared to the amount of its revenue requirement rate increase originally requested. (Footnotes omitted)

Based upon the recent guidance from the Commission, Staff is recommending that rate case expense be shared by Ameren Missouri's ratepayers and shareholders by utilizing the same method ordered by the Commission in ER-2014-0370. Staff is recommending that the percentage of rate case expense that will be borne by the ratepayers should be set equal to the percentage of Ameren Missouri's initial rate request that is ultimately awarded by the Commission.

Staff Expert/Witness: Jason Kunst

2. Dues and Donations

Staff reviewed the list of membership dues paid and donations made to various organizations that were charged to its utility accounts by Ameren Missouri during the test year. Staff is recommending the disallowance of various amounts of dues and donations that were included by Ameren Missouri in its test year expenses. Staff disallowed these dues and donations because they were not necessary for the provision of safe and adequate service, and thus provide no direct benefit to ratepayers. Allowing the recovery of these expenses by Ameren Missouri through rates causes the ratepayers to involuntarily contribute to these organizations. Examples of items disallowed by Staff are amounts paid to civic groups such as Civic Progress Inc., and the Partnership for Downtown St. Louis, and dues paid to groups that advocate for environmental policy such as Utility Water Act Group, Midwest Ozone Group, and Illinois Environmental Regulatory Group.

Staff's disallowance is consistent with prior Commission practice. In *Re: Missouri Public Service, a Division of UtiliCorp United, Inc.,* Case Nos. ER-97-394, et al., Report and Order, 7 Mo.P.S.C.3d 178, 212 (1998), the Commission stated:

> The Commission has traditionally disallowed donations such as these. The Commission finds nothing in the record to indicate any discernible ratepayer benefit results from the payment of these donations. The Commission agrees with Staff in that the various organizations involved in this issue is not necessary for the provision of safe and adequate service to MPS ratepayers.

In addition to the above disallowances, Staff removed all costs related to lobbying that were included in the membership dues to the various organizations as well as dues related to the Edison Electric Institute ("EEI"); these items are discussed in further detail in the following paragraphs.

Staff Expert/Witness: Jason Kunst

3. Lobbying

As part of its analysis of dues, Staff determined that some of the organizations to which Ameren Missouri belongs use a portion of member payments received to fund government affairs or lobbying activities. Staff traditionally disallows the cost of these activities and, therefore, has removed the associated amounts from Ameren Missouri's test year expense level.

Staff Expert/Witness: Jason Kunst

4. **Edison Electric Institute ("EEI") Dues**

According to the information obtained from EEI's website (www.eei.org), EEI is an association that represents investor-owned electric utilities and their industrial affiliates. The information reviewed by Staff related to EEI clearly shows that part of EEI's function is to represent the electric utility industry in legislative and regulatory matters before federal, state, and local government entities. By necessity, this role includes engagement in lobbying activities by EEI.

In Case No. ER-83-49, *In Matter of Kansas City Power & Light Co.*, 26 Mo. P.S.C. (N.S.) 233 (Aug. 30, 1983) the Commission stated its position respecting EEI dues:

> In the Company's late rate case, ER-82-66, the Commission reiterated its position that while there may be some possible benefit to the Company's ratepayers from the Company's membership in EEI, the dues would be excluded as an expense until the Company could better quantify the benefit accruing to both the Company's ratepayers and shareholders.

The Commission has re-affirmed Staff's position in subsequent rate proceedings.

In Re: Kanas City Power & Light Co., Case Nos. EO-85-185 et al., *Report and Order*, 28 Mo.P.S.C. (N.S.) 228, 259 (1986), the Commission stated:

> The argument that allocation is not necessary if the benefits lessen the cost of service to the ratepayers by more than the cost of the dues, misses the point.
>
> It is not determinative that the quantification of benefits to the ratepayer is greater that the EEI dues themselves. The determining factor is what proportion of those benefits should be allocated to the rate payers as opposed to the shareholder. It is obvious that the interests of the electric industry are not consistently the same as those of the ratepayers. The ratepayers should not be required to pay the entire amount of the EEI dues if there is benefit accruing to the shareholders from the EEI membership as well. The Commission finds this to be the case. The Company has been informed in prior rate cases that it must allocate its quantified benefits from membership in EEI. That has not been done herein. Therefore, no portion of EEI dues will be allowed in this case.

Ameren Missouri has not provided Staff with any allocation analysis of the benefits of EEI membership. Based on the above guidance, Staff has disallowed the entire amount of EEI dues recorded in the test year by Ameren Missouri.

Staff Expert/Witness: Jason Kunst

5. Insurance Expense

Ameren Missouri maintains insurance policies with various third-party insurance providers for the purpose of mitigating potential risk of financial loss. Insurance coverage for Ameren Missouri includes crime, nuclear property, non-nuclear property, nuclear liability, boiler and machinery, directors and officers, workers' compensation, fiduciary, marine, and cyber liability. Staff adjusted the expenses associated with each of these policies to take into account the most current premium amounts in order to determine an ongoing level of insurance expense.

Staff Expert/Witness: Erin M. Carle

6. Vegetation Management and Infrastructure Inspection Program

Prior to Case No. ER-2014-0258, rate treatment for Ameren Missouri's Vegetation Management and Infrastructure Inspection Program costs included several different components, namely; the annual expense level, the current results of the tracker mechanism, and the amortizations related to prior reconciliations of the tracker mechanism. However, in Case No. ER-2014-0258, Ameren Missouri's last rate case, the Commission approved an Order to discontinue the tracking mechanism that was originally established in Ameren Missouri's 2008 rate case, Case No. ER-2008-0318, related to the Vegetation Management and Infrastructure Inspection Programs. In this instance, Staff will reflect in rates only an amortization of the tracked differences that occurred between January 1, 2015, through May 30, 2015, prior to when the Commission's Order to discontinue the tracker mechanism in Case No. ER-2014-0258 became effective on May 30, 2015.

a. Annual Expense

Staff adjusted the non-labor test year expense level related to Ameren Missouri's vegetation management and infrastructure inspections programs and reflected a normalized level based on a three-year average of each of these expense levels at June 30, 2016.

Staff will continue to examine the actual costs for each of these programs through the end of the true-up period of December 31, 2016, to determine if further adjustment is necessary and/or appropriate based upon updated information.

b. Tracker

As indicated earlier, the Commission in Case No. ER-2014-0258 ordered the discontinuation of the Vegetation Management and Infrastructure Inspection Programs trackers, effective May 30, 2015. Ameren Missouri recorded a tracking difference of ($212,307) at the end of May 30, 2015.

Staff amortized this amount over a three-year period and has reflected ($70,769) in the cost of service calculation.

c. Amortizations

In Ameren Missouri's 2012 rate case, Case No. ER-2012-0166, all Vegetation Management and Infrastructure Inspection amortizations from that case and previous cases were combined into one amount. The combined amount was then amortized over a three-year period with an end date of December 31, 2015. Staff in that case recommended that any unamortized amount related to that case be rolled into Case No. ER-2014-0258 and be amortized over a three-year period so that only one tracker amount remained. The unamortized balance as of May 30, 2015, in Case No. ER-2014-0258 was $1,539,810, which has been amortized over a three-year period for a yearly amortization amount of $513,270. Given that only $427,725 of the yearly amortization amount was recorded during the test year, Staff has made an adjustment to the test year amortization amount by $85,545. Staff has also included an adjustment of ($70,769) as the amortization amount for the tracker balance that occurred between January 1, 2015 through May 30, 2015, before the tracker program was discontinued. At the end of May 30, 2015, the tracker difference was ($212,307), which has been reflected in the cost of service calculation over a three-year period.

Staff Expert/Witness: Kofi A. Boateng

7. <u>Interest on Customer Deposits</u>

See discussion in Section VI. F, Rate Base-Customer Deposits.

Staff Expert/Witness: Erin M. Carle

8. <u>Property Tax Expense</u>

For property tax assessment purposes, each utility company is required to file with each of its respective taxing authorities a valuation of utility property at the beginning of each assessment year, which is January 1. Several months later, based on information provided by the utility, the taxing authority will in turn send the company what are known as "assessed values" for every category of the company's property. The taxing authority will issue to the utility company a property tax rate later in the year. The final step in the process is when the taxing authority issues a property tax bill to the company late in each calendar year with a "due date" of December 31. The billed amount of property taxes is based on the property tax rate applied to the previously determined assessed values of the utility's plant-in-service balances as of January 1of the same year. Staff developed the amount of property tax expense to be included in its cost-of-service calculations based on Ameren Missouri's actual taxes paid as of December 31, 2015, which are based on investment as of January 1, 2015. Staff will continue to review this issue through the December 31, 2016, true-up in this case and update this expense with the actual amount paid as of December 31, 2016.

Staff Expert/Witness: Erin M. Carle

9. Uncollectible Expense

Uncollectible expense is the portion of retail rate revenues that Ameren Missouri is unable to collect from retail customers by reason of bill non-payment. After a certain amount of time has passed, delinquent customer accounts are written off by Ameren Missouri and turned over to a third party collection agency for recovery. Through the efforts of a third party collection agency, Ameren Missouri is sometimes successful in collecting a portion of the delinquent amounts owed.

Staff examined Ameren Missouri's actual billed revenues that were never collected (net write-offs) from July 1995 through August 2016 and has included in the cost of service calculation a balance of adjusted electric net write-offs for uncollectible expense for the twelve-months ending August 2016. Staff observed through its review that Ameren Missouri is experiencing an overall decline of net write-offs since the true-up cut-off date December 31, 2014, in Case No. ER-2014-0258. However, despite the declining balance, Staff believes there is still potential to further reduce the balance and recommends that Ameren Missouri continue to review the net write-offs and collection policies and institute effective measures as necessary to reduce the high amount of net-write-offs on its books.

Staff Expert/Witness: Kofi A. Boateng

10. Advertising Expense

In determining its recommended level of allowed advertising expense for Ameren Missouri, Staff applied the principles it has consistently relied on by adhering to the Commission's decision in Re: Kansas City Power and Light Company, Case Nos. EO-85-185 et al., 28 Mo.P.S.C. (N.S.) 228, 269-71 (1986). In that case, the Commission adopted an approach that classifies advertisements into five categories and provides rate treatment of recovery or disallowance based upon a specific rationale. The five categories of advertisements recognized by the Commission are as follows:

1. General: informational advertising that is useful in the provision of adequate service;
2. Safety: advertising which conveys the ways to safely use electricity and to avoid accidents;
3. Promotional: advertising used to encourage or promote the use of electricity;
4. Institutional: advertising used to improve the company's public image;
5. Political: advertising associated with political issues.

The Commission utilized these categories of advertisements to explain that a utility's revenue requirement should: 1) always include the reasonable and necessary cost of general and safety advertisements; 2) never include the cost of institutional or political advertisements; and 3) include the cost of promotional advertisements only to the extent the utility can provide cost-justification for the advertisements (Report and Order in KCPL Case Nos. EO-85-185, et al., 28 Mo.P.S.C. (N.S.) 228, 269-271 (April 23, 1986)).

In a prior Ameren Missouri rate case, No. ER-2008-0318, the Commission issued a Report and Order that indicated that the KCPL standard for advertising continued to be useful but also introduced an additional test which essentially required that advertising costs should also be reviewed and analyzed on a campaign basis. Specifically, the Commission's Order in ER-2008-0318 indicated the following:

> If on balance a campaign is acceptable then the cost of individual advertisements within that campaign should be recoverable in rates. If the campaign as a whole is unacceptable under the Commission's standards, then the cost of all advertisements within that larger campaign should be disallowed.

In accordance with the standards set out in KCPL Case Nos. EO-85-185, et al., 28 Mo.P.S.C. (N.S.) 228, 269-71 (1986), as well as the Report and Order issued in Case No. ER-2008-0318, Staff recommends adjustments to exclude the costs of institutional, political, and promotional advertising from recovery in rates in the current case. A quantification of Staff's disallowed advertising adjustments as well as the advertisements themselves are attached as Appendix 3. General and safety advertising costs that were directed towards benefiting existing customers were not adjusted by Staff. Additionally, Staff reviewed advertising related items that were allocated from the Ameren corporate level. Consistent with the categorization of Ameren Missouri direct advertising, Staff recommends adjustments to remove the allocated advertising costs with items found to be promotional or institutional in nature.

During the test year ending March 31, 2016, Ameren Missouri developed what it has characterized as one primary advertising campaign, Energy at Work. This advertising campaign was broken into three segments: Reliability, Clean Energy, and Community. Staff recognizes the guidance established in Ameren Missouri case number ER-2008-0318; however, Staff's position is that reviewing advertising strictly on a "campaign" basis would not be appropriate in this particular circumstance, given the very broad nature of Ameren Missouri's advertising campaign in question. It is Staff's position that the Energy at Work "campaign" is most appropriately viewed as three separate advertising campaigns - Clean Energy, Reliability, and Community - and should be treated as such for ratemaking purposes. Ameren Missouri has structured this one campaign in such a manner that full recovery of the campaign costs would allow inclusion of costs that would be classified as institutional in nature. The Energy at Work campaign encompasses advertisements that would be clearly allowable under the KCPL Standard, but also includes cost categories that have consistently not been allowed in the past by the Commission, such as costs associated with a St. Louis Rams sponsorship agreement and holiday events, such as Ballpark Villages Season of Giving. Therefore, Staff's position in this case is that it is appropriate to allow only the costs of the individual ads that qualify for rate recovery under the guidance from the KCPL standard. However should the Commission choose to allow the entire amount of the campaign as structured by Ameren Missouri, Staff has also attached a workpaper reflecting costs on the campaign basis.

Staff Expert/Witness: Jason Kunst

11. <u>External Audit Fees</u>

As a publicly traded company, Ameren Missouri is required to disclose financial information that is independently audited. In addition to audits, the external audit firm provides other services related to tax advice and consulting work. Staff analyzed historical external auditor costs from January 2013 through October 2016 to determine an annualized amount. Staff determined this amount by using an average of the three years ending October 31, 2014, 2015, and 2016 to determine a normalized level of outside auditor expense to include in its cost of service calculation. Staff will continue to review this issue as part of its true-up audit.

Staff Expert/Witness: Jason Kunst

12. Storm Cost Tracker, Base and Amortization

In Ameren Missouri's Case No. ER-2012-0166, the Commission approved Ameren Missouri's request to implement a two-way tracking mechanism for its non-labor major storm restoration costs. As part of the approval, the Commission established a base level of non-labor related major storm restoration operations and maintenance ("O&M") costs of $6,800,000 in rates. Ameren Missouri's actual non-labor storm costs, either above or below the base level established by the Commission, were to be tracked to create either a regulatory asset or liability, which would then be amortized for recovery in Ameren Missouri's next rate case. Additionally, the Commission ordered Ameren Missouri to credit storm assistance revenue as an offset to major storm expenses within the two-way storm cost tracker. However, in Ameren Missouri's last case, Case No. ER-2014-0258, the Commission ordered the discontinuation of the two-way storm tracking mechanism, effective May 30, 2015. Staff will therefore determine the tracked differences for this cost that occurred from January 1, 2015, through May 30, 2015, when the rates in Case No. ER-2014-0258 went into effect. Staff accepts Ameren Missouri's proposed five-year amortization period for this storm regulatory liability.

To establish an ongoing level of storm costs in rates in the absence of the storm tracking mechanism, Staff has reflected a normalized level of non-labor major storm expenses in its case based upon a 60-month average ending on September 30, 2016. Staff will continue to review actual non-labor related major storm costs through December 31, 2016, which represents the Commission's established true-up cut-off in this rate proceeding.

Staff Expert/Witness: Kofi A. Boateng

13. Callaway Refueling Non-Labor Adjustment

Ameren Missouri's Callaway nuclear power plant undergoes refueling and maintenance outages on an eighteen-month cycle. During these outages, in addition to the refueling process, Ameren Missouri typically performs maintenance tasks, inspections, and testing that can only be completed when the reactor is offline. The most recent outage of this nature occurred in April and May of 2016 and is known as "Refuel 21." Staff performed a normalization of non-labor O&M expense related to Callaway refueling based on the expense incurred in this most recent refueling. Staff did this by dividing total non-labor costs associated with Refuel 21 by eighteen to calculate a monthly expense level, and multiplying the result by twelve to arrive at an annual expense level of $20,408,855.

All labor-related costs associated with Callaway refueling are addressed in Staff's payroll annualization as discussed by Staff witness Jason Kunst.

Staff Expert/Witness: Brian Wells

14. Callaway II Construction & Operating License Agreement Write-Off

In 2009, Ameren Missouri, then AmerenUE, filed a combined Construction and Operating License Application ("COLA") with the U.S. Nuclear Regulatory Commission ("NRC") to preserve the option to build a second power generating unit at its Callaway Nuclear Power Plant. AmerenUE also supported Missouri Senate Bill 228 ("SB 228") in 2009 that would have amended legislation to allow Construction Work In Progress ("CWIP") or plant construction costs into utility rates prior to the power plant being in service and providing electricity to customers. AmerenUE believed it would be impossible to finance construction of a second plant without changes in legislation, but after much resistance eventually decided to no longer pursue the legislation. AmerenUE notified the NRC of plans to suspend building a second nuclear power plant and considered construction options for its COLA. Since that time, Ameren Missouri has attempted to partner with different stakeholders and secure funding to develop small modular reactors ("SMRs"). However, with the failure of SB 228, federal funding being reduced on SMRs, no partnership interests, sustained low prices for natural gas, and the increase in distributed generation, Ameren Missouri decided to withdraw its COLA and recorded a second quarter 2015 pre-tax charge to earnings. In order to book the charge to earnings, Ameren Missouri removed the original COLA costs from CWIP and charged them to FERC USOA account 524, Miscellaneous Nuclear Power Expense. In order to book the write-off for regulatory purposes, Staff accepts Ameren Missouri's adjustment to remove approximately $69 million from the cost of service.

Staff Expert/Witness: Lisa M. Ferguson

15. Nuclear Regulatory Commission ("NRC") Fees

The Nuclear Regulatory Commission ("NRC") is an agency that regulates the operation of nuclear power plants. Because it owns the Callaway nuclear power plant, Ameren Missouri is subject to the NRC's regulation, and must also pay fees to fund such regulation. There are two components to the NRC Fees: 1) a fixed annual fee, which Ameren Missouri pays in quarterly installments, for the maintenance of its license to operate the Callaway nuclear facility; and 2) a variable fee, based on the number of hours billed to Ameren Missouri by the NRC for costs such as baseline inspections, resident inspector expenses, and operator licensing activities. Both of these fees are set each year by statute.

Staff annualized the cost of this fee by using the most recent, effective fixed annual fee ($4,856,000) and per-hour fee ($265) amounts. Staff reviewed invoices provided by Ameren Missouri, multiplied the number of hours billed to Ameren Missouri during the twelve-months ended September 30, 2016, by the per-hour fee referenced above, and added the result to the fixed annual fee identified above. The result of this calculation is the total annualized expense level associated with NRC fees that Staff has included in its cost of service calculation. Staff will continue to review data associated with NRC fees as part of its true-up audit.

Staff Expert/Witness: Brian Wells

16. **Board of Directors Expense**

During the test year ending March 31, 2016, Ameren Missouri was allocated approximately ** ________ ** for certain expenses related to the Ameren Corporation Board of Directors. ** ____ ____ ____ ____________________ ** Ameren Missouri witness Laura M. Moore made an adjustment to remove $421,000 of these expenses in her direct filing. During its review, Staff found an additional ** ________ ** for expenses of the same nature that had not been removed by Ameren Missouri. In Staff Data Request No. 0255, Ameren Missouri communicated that they are not seeking recovery of these costs and in Staff Data Request No. 0370, ** ____________________ ____ **

Additionally Staff made an adjustment to normalize the abnormally high level of expense related to Advisors to the Board of Directors that Ameren incurred in the test year ending March 30, 2016. Staff reviewed the historical costs from January 2012 through July 2016, and normalized the costs using an average of the 12 months ending July 30, for years 2013 through 2016. Staff had submitted Data Request Nos. 0518 and 0309.2, seeking additional information regarding these costs. Staff may make additional changes as part of its true-up audit after reviewing the aforementioned data requests.

Staff Expert/Witness: Jason Kunst

17. Lease Expense

During the test year, Ameren Missouri incurred expenses related to leases on land, equipment, and facilities utilized to provide service. During its review, Staff found several leases that were not being renewed once they expired. Staff removed the amount for each lease not being renewed and included the annualized level of expense for each ongoing lease in effect in Ameren Missouri's cost of service calculation.

Staff Expert/Witness: Erin M. Carle

18. PSC Assessment

The operations of the Commission are funded by assessments levied upon the utility companies under its jurisdiction. The required funding level from each utility is re-evaluated each year, and a new assessment is billed to each regulated utility on July 1. All of the assessments collected in total are used to meet the Commission's operating costs for regulating those utilities. Staff's PSC assessment adjustment represents the difference between the amount of PSC assessment recorded on Ameren Missouri's electric books during the test year, or the twelve months ending March 31, 2016, and the most recent PSC assessment that went into effect as of July 1, 2016 (fiscal year 2017), which is within the Commission-established true-up cut-off of December 31, 2016. Staff has annualized Ameren Missouri's PSC assessment expense by using the most current assessment that was issued on July 1, 2016.

Staff Expert/Witness: Erin M. Carle

19. Corporate Franchise Tax

Corporate franchise taxes are paid as a cost of doing business within the state. Ameren Missouri has assets in the state of Missouri and assets franchised in the state of Illinois. The annualization included in the cost-of-service reflects all taxes related to Ameren Missouri assets that reside in Illinois. Staff's adjustment for the on-going expense level is based upon the actual paid taxes for 2016, as filed per Form CDBCAF with the state of Illinois. Staff made an adjustment to remove the level of corporate franchise tax from the test year for Missouri, as this tax began being phased out from 2012 to 2015 and was completely eliminated as of January 1, 2016.

Staff Expert/Witness: Erin M. Carle

20. Miscellaneous Expenses

During the test year, Ameren Missouri booked numerous costs to various Federal Energy Regulatory Commission ("FERC") Uniform System of Accounts ("USOA") expense accounts. After reviewing these expenditures, Staff has removed a total of ** ________ ** from Ameren Missouri' test year costs for items that provided no benefit to ratepayers. ** ______________________________

____ **

Staff Expert/Witness: Jason Kunst

21. Mark Twain Transmission Costs

Ameren Missouri applied for a certificate of convenience and necessity ("CCN") to construct transmission lines that would carry 345,000 volts of electricity 100 miles from Palmyra, Missouri through Northeast Missouri to the Iowa border. The project also includes a 161,000 volt line to interconnect the existing Adair substation to the new Zachary Substation. This project was approved by the Missouri Public Service Commission on April 27, 2016, and the project is being constructed by Ameren Missouri's affiliate, Ameren Transmission Company of Illinois ("ATXI"). The Mark Twain Transmission Project is a MISO multi-value project ("MVP") approved in 2011 that was developed to address grid reliability, relieve congestion, promote renewable energy and meet local load serving needs.

As part of this rate proceeding, Staff must make an adjustment to account for the Commission's Order in Case No. EO-2011-0128. In that case, the Commission agreed with The Office of the Public Counsel's ("OPC") concern about potential conflicts of interest between Ameren Missouri and its affiliates regarding capacity markets and construction of transmission resources. Under FERC Order 1000, a utility with a certificated service territory, such as Ameren Missouri, no longer has a right of first-refusal to construct transmission projects within its service territory if the reliability projects are subject to regional cost allocation. That means that both Ameren Missouri's affiliate company, ATXI, and other transmission companies not affiliated with Ameren Missouri, may be allowed to develop such projects within Ameren Missouri's service territory. Due to FERC Order 1000 and Ameren Missouri's participation in MISO, ATXI or another Ameren subsidiary could build transmission projects in Missouri, including MVP projects such as the Mark Twain Transmission Project. MISO would allocate a part of the cost of those projects to Ameren Missouri, with the costs ultimately to be recovered from Ameren Missouri's ratepayers.

Another complication is the "filed rate doctrine" which ensures that sellers of wholesale power governed by FERC can recover the costs incurred by their payment of just and reasonable FERC-set rates. When FERC sets a rate between a seller of power and a wholesaler-as-buyer, a state may not exercise its undoubted jurisdiction over retail sales to prevent the wholesaler-as-seller from recovering the costs of paying the FERC-approved rate; such so-called "trapping" of costs is prohibited. This means that Ameren Missouri cannot be denied the ability to recover in rates the amounts that it must pay to transmission owners for FERC-established rates for power transmission, even if those FERC-established transmission rates are higher than would have been approved by the Missouri Public Service Commission. That is also true even if the transmission owner with a FERC-established rate is affiliated with Ameren Missouri. In order for Ameren Missouri to follow the "filed rate doctrine", and for Missouri ratepayers to not be disadvantaged in rates for affiliates using ROE values authorized by FERC that are higher than what has been established by the Missouri Public Service Commission, the Commission ordered in EO-2011-0128, pages 29-30 part S:

> For transmission facilities located in Ameren Missouri's certificated service territory that are constructed by an Ameren affiliate and that are subject to regional cost allocation by the MISO, for ratemaking purposes in Missouri, the costs allocated to Ameren Missouri by the MISO shall be adjusted by an amount equal to the difference between: (i) the annual revenue requirement for such facilities that would have resulted if Ameren Missouri's Commission-authorized ROE and capital structure had been applied and there had been no CWIP (if applicable), or other FERC Transmission Rate Incentives, including Abandoned Plant Recovery, recovery on a current basis instead of capitalizing pre-commercial operations expenses and accelerated depreciation, applied to such facilities and (ii) the annual FERC-authorized revenue requirement for such facilities.

Because Ameren Missouri is being allocated costs for construction of the Mark Twain Transmission Project that ATXI is constructing, Staff has accepted Ameren Missouri's adjustment to remove the revenue requirement difference between FERC's established ROE, now 10.82 percent (after taking into account the FERC ROE order from September 28, 2016), and Ameren Missouri's ROE that was established as part of their last general rate case, 9.53 percent. The Mark Twain Transmission Project is ongoing, which means that Ameren Missouri will continue to be billed its allocated portion of costs for a period into the future. Staff will continue to review the amount to be removed and will update that value based on the latest billings from MISO during the true-up phase of this rate case.

Staff Expert/Witness: Lisa M. Ferguson

22. Taum Sauk Failure Expense Removal

Ameren Missouri has previously agreed to hold ratepayers harmless for costs associated with the Taum Sauk reservoir failure in 2005 and related clean-up activities. In the Report and Order issued in Case No. ER-2007-0002, the Commission stated:

> On December 14, 2005, the upper reservoir at AmerenUE's Taum Sauk pumped storage facility in Reynolds County, Missouri ruptured, allowing 1.5 billion gallons of water to rush down the side of a mountain and through Johnson's Shut-Ins State Park. AmerenUE claims to accept full responsibility for the reservoir failure and the resulting damages. Since AmerenUE will not be allowed to include the Taum Sauk expenses in its cost of service calculation for this case, those costs will not be recovered from ratepayers and will instead have to be paid with shareholder funds.

In accordance with the decision in ER-2007-0002, Staff has removed $532,974 of expenses related to the ongoing liability and litigation costs related to the Taum Sauk failure incurred in the test year from its cost of service calculation.

Staff Expert/Witness: Jason Kunst

23. Renewable Energy Standard

The Missouri Renewable Energy Standard ("RES")[55] was enacted as a voter initiative petition in November 2008. Provisions of the resulting statute and regulations require Ameren Missouri (and the other investor-owned utilities) to meet certain requirements regarding the use of renewable energy, while not exceeding the one percent (1%) retail rate impact limit. The RES requires Ameren Missouri to provide a rebate[56] to its retail customers for installation of solar electric systems on their premises. Ameren Missouri filed a request to suspend solar rebate payments on October 11, 2013, in Case No. ET-2014-0085. The Commission approved a non-unanimous stipulation and agreement, by an order effective November 23, 2013, which set a specified level[57] for solar rebate payments.[58] The Commission approved a tariff, effective September 19, 2014, allowing Ameren Missouri to suspend

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[55] Mo. Rev. Stat. § 393.1020 (2000).

[56] Currently, the solar rebate is $0.50 per watt for systems becoming operational between or before July 1, 2016 and June 30, 2019.

[57] $91.9 million incurred subsequent to July 31, 2012.

[58] ET-2014-0085.

payment of solar rebate payments in 2014 and beyond once they reach the specified level.[59] As of November 15, 2016, Ameren Missouri has not yet paid out the specified level of solar rebate payments.

Utilization of a Standard Offer Contract ("SOC") for the purchase of Solar Renewable Energy Certificates ("S-RECs") from customer-owned solar electric systems is optional for the utility companies.[60] The Commission approved tariffs for 2013 to provide for a SOC at five dollars ($5) per S-REC with an annual expenditure limit of one million dollars ($1,000,000). Missouri House Bill 142, effective August 28, 2013, includes a condition on solar rebates requiring customers to transfer the first ten (10) years of S-RECs to the utility which eliminated the need for Ameren Missouri to utilize a SOC, so the tariffs were revised to limit the SOC funding to those customers who submitted interconnection applications by August 27, 2013.

For calendar years 2014 through 2017, the RES requires Ameren Missouri to generate or purchase five percent (5%) of its retail sales using renewable energy resources.[61] Ameren Missouri must derive two percent (2%) of the renewable energy requirement from solar energy.[62] RECs can be banked for three (3) years and utilized for future compliance purposes.[63] Ameren Missouri files annually a RES Compliance Plan and RES Compliance Report.[64] Each RES Compliance Plan provides information regarding the utility's plan for the current calendar year and the subsequent two (2) calendar years. The RES Compliance Report is a status report on the utility's compliance for the preceding calendar year. For the 2015 calendar year, Ameren Missouri retired RECs from Keokuk Hydro-electric Generation Station, the Pioneer Prairie wind PPA, and Maryland Heights Renewable Energy Center for the non-solar requirement and retired S-RECs from its customer-generators and the O'Fallon Renewable Energy Center for the solar requirement.[65]

Staff Expert/Witness: Claire M. Eubanks, PE

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[59] ET-2014-0350.

[60] 4 CSR 240-100 (4)(H)1.

[61] Mo. Rev. Stat. § 393.1030 .1(1) (2000).

[62] Mo. Rev. Stat. § 393.1030.1 (2000).

[63] "An unused credit may exist for up to three years from the date of its creation." Mo. Rev. Stat. § 393.1030.2 (2000).

[64] Ameren Missouri filed its RES Plan for 2015-2017 and its RES Report for calendar year 2015 in EO-2016-0286.

[65] EO-2016-0286, *Renewable Energy Standard Compliance Report 2015*, page 9.

a. Renewable Energy Standard Costs

Renewable Energy Standard ("RES") costs consist of items such as customer solar renewable energy credits ("RECs"),[66] non-customer solar RECs, wind RECs and Maryland Heights Energy Center fuel costs.

For purposes of its direct filing, Staff has reflected Ameren Missouri's approximate $9.7 million actual level for RES costs for the twelve months ending September 30, 2016, which includes the cost of methane fuel used to power its Maryland Heights Energy Center. Staff will analyze actual RES spending through the December 31, 2016, true-up cut-off, and will propose further adjustment to this level as a result of the true-up audit.

Staff Expert/Witness: John P. Cassidy

b. RES Accounting Authority Order ("AAO") Regulatory Asset/(Liability) Amortizations

As part of its review of one existing RES AAO regulatory asset amortization and one existing RES AAO regulatory liability amortization, Staff is proposing three adjustments.

With regard to the RES AAO regulatory asset that was established in Case No. ER-2012-0166, Ameren Missouri was permitted to amortize a regulatory asset balance of approximately $6.3 million over three years, beginning January 2, 2013. In Case No. ER-2014-0258, the $1.23 million remaining in the regulatory asset was reset to be amortized over a two year period, beginning May 30, 2015. As a result, Ameren Missouri will fully recover the balance of this regulatory asset by the May 28, 2017, the effective date of rates in this rate case, and there will be no over or under-recovery associated with the amortization. Because this regulatory asset will be fully recovered by Ameren Missouri, Staff must perform two adjustments to remove the impact of the amortizations from the test year in this rate case. Staff has reduced the cost of service calculation by approximately $350,707 in order to remove two months of the ER-2012-0166 amortization, which was recorded by Ameren Missouri during April and May 2015 of the test year. Staff has also reduced the cost of service calculation to remove the reset of the ER-2012-0166 amortization over two years performed during ER-2014-0258. This adjustment removed approximately $511,448, which was recorded by Ameren Missouri during the period covering June 2015 through March 2016 within the test year.

[66] Through the use of Standard Offer Contract ("SOC").

In Case No. ER-2014-0258, an approximate $1.24 million regulatory liability balance, representing over-recovered RES costs[67], was established and was amortized over a three-year period beginning May 30, 2015. By the May 28, 2017, effective date of rates in this rate proceeding, Ameren Missouri will have returned approximately two-thirds of this balance to rate payers. ** **

For the current case, Staff has reviewed the actual RES costs that have been incurred in comparison to the base level of RES costs included in rates in the prior rate case, for the period covering January 1, 2015, through September 30, 2016, and determined a regulatory asset balance of approximately $7.3 million. Staff has included a three-year amortization of this regulatory asset balance in the cost of service calculation but with no inclusion of the unamortized balance in rate base. This ratemaking treatment is consistent with the Commission's decision regarding deferred RES costs in Case No. ER-2012-0166. Staff has continued to follow the Commission's guidance from that Order concerning all RES AAO regulatory asset and liability balances. Staff will continue to examine actual costs through the December 31, 2016, true-up cut-off in this case and will further adjust this amortization once that information is available.

Staff Expert/Witness: John P. Cassidy

24. Solar Rebates

The Commission approved a *Non-Unanimous Stipulation and Agreement* in Ameren Missouri Case No. ET-2014-0085, allowing Ameren Missouri to record solar rebate spending up to $91.9 million, plus a 10% cost adder account for "carrying costs," in a regulatory asset to be considered for recovery in a general rate case at a later date, utilizing a three-year amortization. The Stipulation also

[67] Ameren Missouri's actual RES costs were approximately $1.24 million below the base level that was established in ER-2012-0166. These are the costs tracked through the RES AAO and represent an over-recovery that must be returned to ratepayers. This amount was first returned to ratepayers through an amortization beginning with the effective date of rates in Case No. ER-2014-0258.

[68] ** **

stated that if Ameren Missouri had not paid $91.9 million by the completion of its next rate case, then one or more regulatory assets shall be subsequently reflected on Ameren Missouri's books to record additional solar rebate payments made, equaling the difference between the amount of solar rebate payments deferred in the initial regulatory asset and $91.9 million, plus a 10% adder.

a. Solar Rebate Regulatory Asset Balance Established in Case No. ER-2014-0258

In Ameren Missouri's previous rate case, Case No. ER-2014-0258, Staff determined that through the December 31, 2014, true-up cut-off in that case, Ameren Missouri deferred and accumulated approximately $88.1 million for solar rebates in a regulatory asset account. Coupled with the 10% cost adder of approximately $8.8 million, Ameren Missouri was eligible to seek recovery of approximately $96.9 million over a three-year amortization period. Therefore, in the last rate case, Ameren Missouri received approximately $32.3 million in amortization expense in the cost-of-service calculation, consistent with the terms of the *Non-Unanimous Stipulation and Agreement* in Case No. ET-2014-0085. This three-year amortization began on May 30, 2015, and will continue until May 28, 2017, the operation-of-law date in the current rate case. Therefore by May 28, 2017, Ameren Missouri will have a balance of approximately $10.8 million in the regulatory asset that will still need to be recovered from ratepayers. ** ______________________________ **

b. Solar Rebate Regulatory Asset Balance to be Established in Case No. ER-2016-0179

Staff has determined that Ameren Missouri has deferred and accumulated approximately $3.4 million for solar rebates in a regulatory asset account for the period covering January 1, 2015, (the first day following the true-up cut-off established by the Commission in Case No. ER-2014-0258) through September 30, 2016. Coupled with the 10% cost adder of approximately of approximately $338,966, Ameren Missouri is eligible to seek recovery of approximately $3.7 million over a three-year amortization period, beginning with the May 28, 2017, effective date of rates in this rate case. Therefore, as part of its direct testimony filing, Staff has included approximately $1.24 million in amortization expense in the cost-of-service calculation to be consistent with the terms of the stipulation in Case No. ET-2014-0085. Staff will make further adjustments in the true-up audit in order to address any additional solar rebate spending through that point in time.

In summary, for the period covering August 1, 2012, through September 30, 2016, Ameren Missouri has spent approximately $91.52 million for solar rebates ($88.1 million in Case No. ER-2014-0258 plus $3.4 million in Case No. ER-2016-0179). Ameren Missouri is still approximately $380,000 short of the $91.9 limit for total solar rebate spending based upon the terms of the stipulation in Case No. ET-2014-0085.

c. Over or Under-Collection of Solar Rebates

Ameren Missouri estimates that it may under-collect approximately $4.1 million of solar rebates due to differences in billing units. Ameren Missouri proposes to include in the cost of service calculation an approximately $1.36 million annual amortization over three years to address this estimated shortfall. Staff opposes Ameren Missouri's proposed adjustment as part of this rate case and will fully address this issue in revenue requirement rebuttal testimony that will be filed on January 20, 2017.

Staff Expert/Witness: John P. Cassidy

25. Energy Efficiency ("EE") / Demand-Side Management ("DSM") Regulatory Asset Amortizations:

The following chart summarizes the five EE DSM regulatory assets balances quantified as of the May 28, 2017, operation of law date for this case that was established by the Commission in its *Order Adopting Procedural Schedule and Delegating Authority* issued on August 10, 2016:

Total Amount First Established	Date Started, Length of Amort. and Rate Case Established	Current Annual Amortization	Balance at 5/28/2017 OLD
$ 876,000	3/2009; 10 years; ER-2008-0318	$ 87,600	$ 153,300
$ 11,430,501	7/2010; 6 years; ER-2010-0036	$ 1,032,048	$ 0
$ 32,625,850	8/2011; 6 years; ER-2011-0028	$ 5,437,644	$ 906,274
$ 36,878,640	1/2013; 6 years; ER-2012-0166	$ 6,146,436	$ 9,731,868
$ 3,540,312	6/2015; 6 years; ER-2014-0258	$ 590,052	$ 2,360,208

Ameren Missouri has five existing EE regulatory asset amortizations pertaining to deferred pre-MEEIA program costs. ** ____

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Staff addresses the EE regulatory asset balances to be included in rate base in the DSM Costs for Energy Efficiency –Rate Base section found earlier in this Report.

Staff Expert/Witness: John P. Cassidy

26. Proposed Noranda Lost Revenue Amortization

Ameren Missouri proposes to defer and amortize an estimated level of lost revenue related to the loss of load at the Noranda Aluminum Smelter facility during the period covering April 2015 through May 2017. Ameren Missouri seeks recovery of approximately $81.47 million of total estimated lost revenue through a ten year amortization, or $8.1 million annually. Staff opposes Ameren Missouri's proposed adjustment and will fully address this issue in revenue requirement rebuttal testimony that will be filed on January 20, 2017.

Staff Expert/Witness: John P. Cassidy

27. Callaway License Extension and Regulatory Asset Amortization

On March 6, 2015, the Nuclear Regulatory Commission ("NRC") issued a license extension that will allow Ameren Missouri to continue to operate its Callaway Nuclear Power Plant through 2044. Ameren Missouri recorded the costs associated with obtaining the Callaway license extension from the NRC in FERC plant account 302, Franchises and Consents, soon after the NRC issued the license extension. None of these costs were included in the cost of service calculation in Ameren Missouri's prior rate case, Case No. ER-2014-0258.

In Case No. ER-2014-0258, as part of an *Amended Nonunanimous Stipulation And Agreement Regarding Certain Revenue Requirement Issues,* filed on March 3, 2015, and approved by the Commission on March 19, 2015, the signatory parties agreed to the following:

> …Ameren Missouri should be granted accounting authority to defer carrying costs (at its short-term interest rate) and amortization accruals related to the cost of the Callaway relicensing request balance at the effective date of the Report and Order in this case. The parties agree this accounting authority should be effective until rates are implemented in Ameren Missouri's next rate case. The parties agree Ameren Missouri should be allowed to recover the deferred costs beginning with the first rate case after the license extension is issued consistent with the authority granted in this case. Finally, the parties agree the costs should be amortized over the life of the license extension and that the deferred amounts should be included in rate base in a regulatory asset account in the first rate case after the license extension is issued.

The approved stipulation allowed Ameren Missouri to defer and amortize certain items pertaining to its successful efforts to extend Callaway's operating license through 2044. Staff has reflected an amortization of these costs in its cost of service calculation to be recovered over the remaining life of the Callaway license, which is effective through October 2044. Staff will examine actual costs through the December 31, 2016, true-up cut-off as part of its true-up audit, and may make further adjustments to this amortization. Any amortization and short term interest costs incurred beyond the December 31, 2016, true-up cut-off and the May 28, 2017, effective date of rates established by the Commission in this case, will be examined and addressed by Staff as part of Ameren Missouri's next general rate case.

Staff Expert/Witness: John P. Cassidy

28. <u>Ten Year Amortization of Mandatory Nuclear Safety Study Costs</u>

In Case No. ER-2014-0258, a ten-year amortization of costs associated with a mandatory study to address nuclear power safety in the aftermath of the Fukushima incident was established. The amortization began on May 30, 2015, the effective date rates established in that rate case. In this case, the test year ending March 31, 2016, includes only ten months of amortization expense associated with this study. Staff has included an adjustment to increase the cost of service calculation to annualize the test year to reflect a full twelve-month amortization for the nuclear power safety study costs.

Staff Expert/Witness: John P. Cassidy

29. Sioux Construction Accounting Amortization

Ameren Missouri began construction of the Sioux Wet Flue Gas Desulfurization Project ("Sioux WFGD" or "scrubbers") during April 2005. The *First Nonunanimous Stipulation and Agreement* approved by the Commission in Ameren Missouri's rate case, Case No.ER-2010-0036, stated that Ameren Missouri could receive construction accounting for this project until costs were reflected in rates at the effective date of rates as part of its next rate proceeding or January 1, 2012, whichever occurred earlier. On September 3, 2010, Ameren Missouri filed a subsequent application before the Commission seeking a rate increase as part of Case No. ER-2011-0028. As part of that rate case, the Commission established a July 31, 2011, effective date of rates. The scrubbers were installed at the Sioux station in a major construction project that was declared in service during November 2010.

As a result, two separate construction accounting deferral amounts were amortized over 22 years and 20 years, respectively, in prior rate proceedings. In this case, Staff reviewed the test year amortization expense levels and verified Ameren Missouri is correctly amortizing these two amounts. In addition, Staff reviewed amounts related to contra accounts set up to reflect the equity portion of the amortizations. While Generally Accepted Accounting Principles ("GAAP") forbid booking by non-regulated entities of any of the equity component of a carrying-cost calculation, regulatory accounting allows it for accrual of Allowance for Funds Used During Construction ("AFUDC") for utilities; therefore, Staff has made adjustments to remove the contra accounts used during the test year to allow both the equity and debt components of AFUDC to be in included in the revenue requirement.

Staff Expert/Witness: Lisa M. Ferguson

30. FASB Interpretation No. 48 ("FIN 48") Amortization

Generally Accepted Accounting Principles ("GAAP") provide rules for recording the effect of tax deferrals resulting from temporary book-tax differences in Financial Accounting Standards Board Interpretation No. 48 ("FIN 48") and Statement of Financial Accounting Standard 109 ("SFAS 109").

FIN 48 (mostly codified at ASC 740-10) is an official interpretation of United States accounting rules that requires businesses to analyze and disclose income tax risks. During the course of Ameren Missouri's tax filings with the Internal Revenue Service ("IRS"), certain amounts will be proposed for inclusion related to uncertain tax positions that Ameren Missouri has taken with respect to temporary book-tax differences. At the time they file their taxes, Ameren Missouri will not know whether the uncertain tax positions will be allowed or disallowed until the completion of the audits of its tax returns by the IRS. When a business takes uncertain tax positions, which may not be sustained by tax authorities, those risks must be disclosed for financial reporting purposes. Income tax expense, just as any other expense, must be generally recognized when income is earned. Credits or other items that reduce this tax are recognized only if it is more likely than not that the reductions will be sustained by tax authorities.

Per the 2011 Stipulation and Agreement[69] in Ameren Missouri Case No. ER-2011-0028, in order to resolve ratemaking issues involving Ameren Missouri's FIN 48 liability balance for that case, reflecting uncertain tax positions, it was agreed that:

> The Company shall establish a tracking mechanism to account for the time value of the differences, if any, between the amounts accrued to reflect uncertain tax positions in the FIN 48 liability balance, and the amounts that the Company actually must pay pursuant to final, unappealable resolution of the uncertain tax positions based on final settlements with the Internal Revenue Service ("IRS") or final, unappealable rulings from administrative agencies or courts to which IRS audits are appealed ("Final Resolution").

If the IRS determines that the uncertain tax position is allowable, then Ameren Missouri will receive a settlement based on the amount that was filed as uncertain.

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______________________________ ** In the current case, Staff is recommending a rebase of this amortization over two years.

[69] The Commission approved the *Nonunanimous Stipulation and Agreement Regarding Tax Issues* in an Order effective on June 1, 2011.

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** ____ ____ ____ ____ ** In the current Ameren Missouri rate case, Staff has rebased this tracker over two years.

** ____ ____ ______________ ** As part of this general rate proceeding, Staff has followed the guidance of the 2011 Stipulation and Agreement to establish a three-year amortization of this regulatory asset. In all three tax settlements the unamortized balance has been included in rate base.

Ameren Missouri has indicated to Staff that there are no more outstanding uncertain tax positions at this time. Ameren Missouri applied to the IRS for "continual audit" treatment/status, which allows Ameren Missouri to receive a decision from the IRS about uncertain tax positions prior to filing its yearly tax return.

Staff Expert/Witness: Lisa M. Ferguson

31. Amortization of Netted Regulatory Asset and Liability Amortizations Addressed in Case No. ER-2014-0258

As part of Case No. ER-2014-0258, Staff proposed a netting of nine amortizations that had collectively resulted in Ameren Missouri over-collecting approximately ** _________ ** at that time. In that case, the parties agreed that the over-collection would be returned to ratepayers over a period covering three years beginning May 30, 2015, the effective date of rates established by the Commission in that case. By the May 28, 2017, effective date of rates in this case, Ameren Missouri will have returned roughly two-thirds of the ** _________ ** over-collection to ratepayers, leaving a balance of approximately ** _______ ** that will still need to be returned to ratepayers. Staff recommends that the ** ____ ______________________ **

Staff Expert/Witness: John P. Cassidy

32. Flood Costs

During December 2015 and January 2016, areas of Missouri experienced record-breaking floods throughout portions of Ameren Missouri's service territory. As a result, Ameren Missouri had to make certain capital investments and emergency repairs in order to repair/replace equipment that was damaged.

Staff has included the capital investment incurred due to this flood event and amortized the expenses associated with the repairs over a five-year period.

Staff Expert/Witness: Erin M. Carle

33. Missouri Energy Efficiency Investment Act Costs in Test Year

As part of Ameren Missouri's Missouri Energy Efficiency Investment Act ("MEEIA") application, Case No. EO-2012-0142, the parties to the case agreed to a unanimous stipulation and agreement resolving the manner in which Ameren Missouri would recover the costs of its MEEIA program going forward. The parties agreed that in Ameren Missouri's next rate case, Case No. ER-2012-0166, Ameren Missouri should recover MEEIA related program costs in base rates. However, at the time the terms of the stipulation were being negotiated, there was a pending challenge to the lawfulness of the use of a Demand Side Investment Mechanism ("DSIM") rate rider mechanism being heard in front of the Missouri Western District Court of Appeals (Case No. WD 74676). The stipulation contained a provision stating should the challenge be resolved in favor of the DSIM being lawful, program costs would be recovered from customers pursuant to such a rider, and not through base rates, from that point forward.

Pursuant to the stipulation and agreement, in Case No. ER-2012-0166 Staff recommended that the Commission approve an overall inclusion of approximately $80 million for MEEIA-related program costs in base rates. In 2013 the Missouri Western District Court of Appeals found the DSIM rider to be lawful;[70] and subsequently, consistent with the terms of the settlement in EO-2012-0142, Ameren Missouri implemented a DSIM rider in January 2014.

Due to the ongoing use of the DSIM rider, it is necessary to remove all MEEIA-related revenues and expenses from the test year to avoid double counting these revenues and expenses for purposes of rate recovery. Therefore, Staff has removed from inclusion in the cost-of-service calculation in this rate case approximately $53.44 million of non-labor MEEIA-related expenses that were incurred during the test year. Ameren Missouri also proposes to remove approximately $4.0 million of test year MEEIA labor related expenses. For a discussion of Staff's treatment of MEEIA test year labor related expenses, please refer to the MEEIA Labor Section in this report

[70] State ex rel. Public Counsel v. Public Service Com'n, 397 3d 441 (Mo. App. W.D. 2013).

as addressed by Staff witnesses Dana E. Eaves. For a complete discussion of Staff's exclusion of MEEIA-related revenues that were removed from the test year, please refer to the MEEIA Revenues in the Test Year section of this Report, as sponsored by Staff witness Kofi A. Boateng.

Staff Expert/Witness: John P. Cassidy

34. Low-Level Radioactive Waste Expense

For a detailed narrative synopsis of the nature of low-level radioactive waste, a history of its disposal practices, and historical accounting practices for these costs, refer to pages 131, line 19 through page 133, line 12 of Staff's Cost of Service Report filed in the last Ameren Missouri rate case, No. ER-2014-0258.

In its cost of service calculation, Staff has included the amount of actual expense incurred by Ameren Missouri associated with low-level radioactive waste disposal during the test year. Staff will continue to examine these costs through the true-up cut-off date in this case and evaluate whether revision of its recommendation is warranted.

Staff Expert/Witness: Brian Wells

35. Paperless Billing Credit Adjustment

In the hopes of increasing enrollment in the paperless billing program, Ameren Missouri is proposing a "paperless bill credit" that will be given to all customers, current and new, that are enrolled in paperless billing. The amount of the credit will be $0.40 per bill per month. The amount of the credit is the amount of savings that Ameren Missouri receives by not having to issue a paper bill to each ratepayer. Ameren Missouri witness Laura Moore made an adjustment to reduce revenues by $907,099. This adjustment reflects a reduction to revenue for the amount of this incentive for ratepayers already enrolled in this option.

Staff has removed $19,050 that is associated with an e-bill campaign to encourage customers to enroll in paperless billing and has not made an adjustment to reduce revenues to reflect the $907,099 credit. Staff does not believe that Ameren Missouri's customers should pay the increase in revenue requirement that will result from reducing revenue for the bill credit.

Staff Expert/Witness: Erin M. Carle

36. Accrued Call Center Costs

During the test year ending March 31, 2016, Ameren Missouri accrued costs for its third party call center. An accrual entry is made on Ameren Missouri's books at the end of each month based on the actual amount of the prior month's invoice. The accrued entry is then reversed after the next month's invoice is paid. Staff has made an adjustment to remove $103,693 of accrued costs for third party call center services. Staff's adjustment recognizes the actual costs that occurred during the test year and eliminates the accrual.

Staff Epxert/Witness: Jason Kunst

37. Cybersecurity Expenses

Ameren Missouri incurred expenses in the test year to meet the requirements established by the North American Electric Reliability Corporation ("NERC"). These requirements were established to protect the critical electric infrastructure of North America from physical attacks as well as cyber-attacks. Staff has analyzed the historical non-labor costs for the period of January 1, 2011, through August 31, 2016, and determined there has been an upward trend in cyber security and critical infrastructure protection costs. Staff has made an adjustment to use the 12 months ending October 31, 2016, as it is the most recent information available; however Staff will continue to review this issue through the true-up cut-off date, December 31, 2016.

Staff Expert/Witness: Jason Kunst

38. Maintenance Expense – Power Plant Maintenance

Ameren Missouri retired its Howard Bend generation facility in January 2016. Therefore, Staff has excluded all power plant maintenance associated with the Howard Bend generation facility incurred during the test year ending March 31, 2016, since this power plant is no longer in service. Staff will continue to review power plant maintenance costs through the true-up cut-off period in this case.

Staff Expert/Witness: Brian Wells

39. Distribution Maintenance

Staff has reviewed distribution maintenance expense information through September 30, 2016, and is not recommending an adjustment to the test year level of expense at this time. Staff will continue to review expense data through the true-up cut-off date of December 31, 2016.

Staff Expert/Witness: Brian Wells

40. <u>Supervisory Control and Data Acquisition ("SCADA") Equipment Affiliate Rental Expense</u>

Staff has made an adjustment to remove $114,577 of SCADA related expenses related to Ameren Missouri leasing its SCADA equipment to its affiliates from the test year as they have acquired their own SCADA equipment.

Staff Expert/Witness: Jason Kunst

41. <u>Keeping Current Low-Income Pilot Program</u>

Ameren Missouri first introduced its Keeping Current Low-Income Pilot Program ("Program") in October 2010 as a 2-year low-income pilot program approved in Case No. ER-2010-0036. The Program was approved for another 2 years in Case No. ER-2012-0166 effective June 2013 and again in Case No. ER-2014-0258 effective May 2015. The Program was developed in collaboration with AARP, Consumers Council of Missouri, Missouri Office of Public Counsel, Missouri Public Service Commission, Missouri Industrial Energy Consumers, and the Missouri Retailers Association.

Customers are screened for income eligibility by the local Keeping Current agency ("Agency") in their area. Two important features of the program are: 1) a year-round program that provides monthly bill credits and reduces arrearages for customers who stay current on monthly payments; and 2) a cooling program that provides bill credits in June, July, and August to offset air conditioning costs.

The objectives of the Program are to improve affordability for very low-income customers, promote a healthy and safe level of energy usage, utilize agencies that already serve low-income households, and link participation to applications for Weatherization and the Low Income Home Energy Assistance Program ("LIHEAP").

The Program currently provides electric bill payment assistance to customers meeting the income eligibility requirements while assessing the delivery methods used for the Program and the impacts on revenues and costs. The availability of this Program is limited to residential customers: a) who have an income level at or below 125 percent of the Federal Poverty Level ("FPL") for the heating provisions; or b) have an income level up to 135 percent of the FPL who use electricity for cooling and are either elderly, disabled or with a chronic medical condition, or live in households with children five (5) years of age or younger.

The monthly heating bill credits, monthly arrearage bill credit, and Keeping Cool (a program within the Keeping Current Low-Income Pilot Program to encourage elderly customers to turn on their air conditioners) bill credits are determined by range of FPL, each as listed below.

Electric Heating Customers Monthly Bill Credit	
0%-25% FPL	$90.00
26%-50% FPL	$90.00
51%-75% FPL	$60.00
76%-100% FPL	$60.00
101%-125% FPL	$60.00

Non-Electric Heating Customers Monthly Bill Credit	
0%-25% FPL	$30.00
26%-50% FPL	$30.00
51%-75% FPL	$25.00
76%-100% FPL	$25.00
101%-125% FPL	$25.00

Keeping Cool Bill Credits	
0-100% FPL	$25.00
101%-135$ FPL (Seniors, Diabled, Chronically Ill per Doctor's Letter, or Households with Children 5 years or younger)	$25.00

Evaluations

Apprise Inc. has completed two evaluations, in November 2012 and May 2015, respectively. Apprise is currently in the final draft stage of its third evaluation of the Program.

During the November 2012 evaluation, an assessment was performed of the Program's design, operations, and impact; and an evaluation was completed of the Collaboratives planning conference calls, program documents, interviews of Ameren Missouri's managers, and two sets of interviews were held concerning the program's operations. The evaluators also conducted telephone interviews of participants and conducted an analysis of the effect of the Program on affordability, bill payment, and collections actions. An overview of the findings of that evaluation was discussed in Staff's Revenue Requirement Cost-of-Service report in Case No. ER-2014-0258.[71]

The May 2015 evaluation of the Program compared the impacts of the changes implemented due to the recommendations contained in the November 2012 evaluation:

[71] Case No. ER-2014-0258 *Staff's Revenue Requirement Cost-of-Service report*, Staff witness Kory Boustead Testimony, pages 142-147.

Findings Impacts:

1. Improved bill payment regularity and reduced collections;
2. Keeping Cool helps participants afford air conditioning;
3. More bill credits received than in phase I;
4. Greater arrearage reduction than previous evaluation;
5. Improved impacts on affordability due to increased benefits;
6. Less likely to receive LIHEAP and other assistance; and,
7. Greater reductions in collections actions than previous evaluation.

Apprise Inc. conducted an analysis of the Keeping Current and Keeping Cool Program, using data available on the United Way website that was entered by the Keeping Current Agency enrolling the customer. Customers who enrolled from June 1, 2013 through June 30, 2016 were included in the analysis. Key findings from this analysis are summarized below:

- Enrollments: From June 2013 through June 2016 there were a total of 5,908 enrollments, and 5,241 unique customers (an individual customer counted once, even if enrolled in the program more than once due to default) were enrolled.
- Poverty Level: While 87 percent of active electric heat and alternative heat (non-electric) participants had income below the poverty level, only 71 percent of cooling participants had income below the poverty level.
- Vulnerable Status: As designed, virtually all Keeping Cool participants had an elderly or disabled household member. While about 20 percent of the heating participants had an elderly household member, about 50 percent had a disabled household member, and about 25 percent had a child five or younger.
- Arrearages at Enrollment: The mean level of arrears at enrollment was about $900 for all participants and about $800 for the active participants. About 20 percent of active participants had arrears over $1,250 at enrollment. While 26 percent of active electric heat customers had arrears of $250 or less at enrollment, 16 percent of alternative heat customers had arrears of $250 or less at enrollment.
- Monthly Keeping Current Credit: The mean monthly credit was $71 for electric heat participants and $27 for alternative heat participants. Most electric heat participants received a monthly credit of $60 and most alternative heat participants received a monthly credit of $25.
- Energy Burden: The energy burden is the percent of income that is spent on energy. The mean energy burden for active electric heat participants would be 20 percent without the Keeping Current credit and was 14 percent with the Keeping Current credit. The burden for active alternative heat customers would be 21 percent without the credit and was 18 percent with the credit.

- Arrearage Credit: The monthly arrearage credit is equal to 1/12 of the customer's account balance at the time of Keeping Current enrollment. The mean arrearage credit was $72 for active electric heat customers and $74 for active alternative heat customers.
- Agency Enrollment: The majority of enrollments were completed by the Community Action Agency ("CAA") of St. Louis County, which enrolled 2,117 customers, and People's Community Action Agency, which enrolled 1,883 customers. All of the other agencies enrolled 232 or fewer customers over the three-year period reviewed.

Recommendation

Staff recommends funding the Keeping Current Low-Income Pilot Program at the current level. The total funding is $1,081,000 annually with the rate payers' customer surcharge of $581,000 and Ameren Missouri contribution of $500,000. Staff has reviewed the Program evaluations summary and recommendations of the evaluators, Apprise, Inc.

Staff also recommends Ameren Missouri: 1) work with the Ameren Keeping Current Advisory group and implement the recommendations made by the evaluators; and 2) discuss increasing the Keeping Current portion of the Program eligibility from 125 percent of federal poverty level to the LIHEAP eligibility of 135 percent of federal poverty level.

Staff Expert Witness: Kory Boustead

a. "Keeping Current" Revenue and Expense

Staff has removed all test year revenue and expense amounts related to Ameren Missouri's low-income surcharge, titled the "Keeping Current" program. This program's costs and revenues are accounted for outside of Staff's cost of service calculation.

Staff Expert/Witness: Erin M. Carle

42. <u>Low-Income Weatherization Assistance Program ("LIWAP")</u>

Ameren Missouri's Low-Income Weatherization Assistance Program ("Program" or "LIWAP") was first initiated as a result of the Stipulation and Agreement in the Staff excess earnings complaint case, Case No. EC-2002-1, where Ameren Missouri, the Missouri Department of Natural

Resources ("DNR")[72] and the Missouri Public Service Commission ("Commission") entered into an agreement for Ameren Missouri to fund weatherization activities in Ameren Missouri's service territory This agreement provided for $2.0 million and an additional $0.5 each year for four years to be deposited in an account maintained by the State Environmental Improvement and Energy Resources Authority ("EIERA"). The transactions were recorded below-the-line and were not treated as a regulated expense on Ameren Missouri's books. DE is responsible for allocating these funds to the 13 weatherization agencies operating in Ameren Missouri's service territory. The Program was authorized to continue in Case No. ER-2007-0002 per the Commission's Report and Order issued May 22, 2007, effective June 1, 2007. The Program was funded on an annual basis of $1.2 million, half by shareholders and half by ratepayers. The Program has been amended several times; for among other reasons to change how often the Program performance is evaluated.

In Case No. ER-2011-0028, Public Counsel opposed the joint position of Ameren Missouri and DNR that Ameren Missouri would contract with an independent third party contractor to conduct an evaluation of the Program every two years which would be funded by withholding up to $60,000 per year from the annual $1.2 million amount. The Commission in its Report and Order, pages 44-47, issued July 13, 2011, directed that Ameren Missouri should (1) continue its annual payments of $1.2 million to the EIERA, (2) contract with an independent third party contractor to conduct an evaluation of the Program, (3) withhold up to $60,000 per year from the annual $1.2 million amount for the contract with the independent third party contractor, and (4) have the independent third party contractor conduct an evaluation of the Program every two years. The $1.2 million annual payments by Ameren Missouri to EIERA are in ratepayer funds.

The first LIWAP program evaluation was conducted by Applied Public Policy Research Institute for Study and Evaluation with a publication date of December 2009. In July 2012, The Cadmus Group, Inc. completed a similar evaluation as authorized by Case No. ER-2011-0028. In Case No. ER-2014-0370, the funds were authorized to continue at $1.2 million with up to $120,000 of Program funds ($60,000 annually) to be used for performing process and impact evaluations of the Program by July 31, 2015.

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[72] The Missouri Department of Natural Resources originally administered the LIWAP through its Division of Energy ("DE"). LIWAP is currently administered by the Missouri Department of Economic Development ("DED"). DE was moved to DED on August 28, 2013, by an executive order signed by the Governor Jay Nixon.

On February 6, 2015, the *Non-Unanimous Stipulation and Agreement Regarding Ameren Missouri's Low Income Weatherization Program* of Ameren Missouri, Staff, DE, and OPC was filed in Case No. ER-2014-0258 amending LIWAP, in part, as follows:

1. The evaluation of the Ameren's Low Income Weatherization Program ("LIWAP") currently underway shall be completed by July 31, 2015. Any evaluation thereafter shall occur no more frequently than once every three years, but must be conducted at least every five years unless all members of the Ameren Missouri Electric Energy Efficiency Stakeholder Advisory Group ("Advisory Group") agree that an evaluation is not needed.
2. Ameren Missouri shall not withhold any ratepayer-provided funding for LIWAP evaluation purposes until at least January 1, 2017. After that date, and subject to agreement as provided in paragraph 1, Ameren Missouri may withhold up to $60,000 from the $1.2 million that it receives annually in LIWAP funds to hire an Evaluation, Measurement and Verification ("EM&V") contractor for future evaluation(s). The cost to Ameren Missouri ratepayers of any evaluation shall not exceed $120,000 and Ameren Missouri's total accumulated withholdings shall not exceed $120,000 at any given time. If additional funds are expected to be needed to perform a future evaluation, the Advisory Group consisting of Ameren Missouri, OPC, DE, and Staff may request Ameren Missouri Gas or Laclede Gas Company ("Laclede") to supplement the funds provided by Ameren Missouri electric to hire the EM&V contractor. The agreement does not obligate Ameren Missouri Gas or Laclede to provide supplemental funds, and any such provision of supplemental funding by either entity would be entirely at the discretion of that entity.

On February 25, 2015, in Case No. ER-2014-0258, the Commission issued an *Order Approving Stipulation and Agreement Regarding Ameren Missouri's Low Income Weatherization Program*.

Ameren Missouri's third evaluation of the LIWAP Program was conducted by Evergreen Economics and completed July 2015. However, the third evaluation did not include natural gas data from Ameren Missouri Gas or Laclede due to time constraints of incorporating the data for the evaluation.

It is Staff's recommendation the Commission (1) authorize LIWAP Program funding at the current level of $1.2 million annually and (2) direct LIWAP to continue to deposit the funds in an account maintained by the EIERA. If the Commission adopts the preceding recommendations, Staff also recommends the Commission direct (1) the Secretary of the Commission send a copy of the Report and Order to the Laclede Legal Department and (2) Staff and Ameren Missouri Electric inform Ameren Missouri Gas and Laclede in a timely manner of the data needed to allow Ameren Missouri

Gas and Laclede the time necessary to gather and submit the data required for natural gas savings to be included in the evaluation that should be performed.

Staff Expert/Witness: Kory Boustead

F. Depreciation Expense

1. Capitalized O&M Depreciation Expense

Expenses related to construction are accumulated in construction-work-in-progress accounts, and are only eligible to be included in rates subsequent to the completion of the project. The capitalized expenses include depreciation expense associated with assets used in construction, such as power operated equipment and transportation equipment. Capitalized depreciation expenses must be subtracted from the depreciation expense calculated using Ameren Missouri's total plant-in-service balances in order to prevent double recovery. Therefore, Staff has deducted capitalized depreciation from its total depreciation expense in order to arrive at the amount of depreciation expense associated with operations and maintenance related functions.

Staff Expert/Witness: Erin M. Carle

2. Elimination of Depreciation on Coal Cars

Staff removed from its case the estimated amount of depreciation expense accrued for Ameren Missouri's coal cars as of December 31, 2016. Because this cost is reflected as part of fuel costs that are included as an input in Staff's production cost model, it should be excluded from annualized depreciation expense to avoid double-counting.

Staff Expert/Witness: Brian Wells

G. Income Tax

Income tax expense, as calculated by Staff, begins by taking adjusted net operating income before taxes and adding to or subtracting from net income various timing differences in order to obtain net taxable income for ratemaking purposes. These "add back" and/or subtraction adjustments are necessary to identify new amounts for the tax deductions that are different from those levels reflected in the income statement as revenues or expenses. The adjustments are the result of various book versus tax timing differences and the effect of such differences under separate tax ratemaking methods: flow-through versus normalization. A tax timing difference occurs when the timing used in reflecting a cost (or revenue) for financial reporting purposes (book purposes) is different than the timing required by the IRS in determining taxable income (tax purposes). Current income tax reflects timing differences consistent with the timing required by the IRS. The tax timing differences used in calculating taxable income for computing current income tax are as follows:

Add Back to Operating Income Before Taxes:

- Book Depreciation Expense
- Book Depreciation Charged to O&M
- Transmission Amortization
- Hydraulic Amortization
- Callaway Post Operational Costs
- Intangible Amortization

Subtractions from Operating Income:

- Interest Expense – Weighted Cost of Debt X Rate Base
- Tax Straight-Line Depreciation
- Nuclear Decommissioning
- Production Income Deduction
- Preferred Dividend Deduction

For ratemaking purposes, the tax normalization method defers the deduction taken for tax purposes for certain tax timing differences. The effect of using tax normalization is to allow utilities the net benefit of certain net tax deductions for a period of time before those benefits are passed on to the utility's customers in rates. The flow-through tax method essentially provides for the same tax deduction taken as a deduction for ratemaking purposes as is taken for tax purposes.

In this case, normalized deductions and credits were unable to be used due to the Net Operating Loss situation that Ameren has due to filing consolidated tax returns. Ameren Missouri must first use its loss before it is able to take advantage of its normalized credits or deductions. Staff has included the flow-through preferred dividend deduction, domestic production deduction, research tax credit, production tax credit, city tax credit and the St. Louis Payroll credit. Under either the tax normalization or tax flow-through approach, the resulting net taxable income for ratemaking is then multiplied by the appropriate federal, state and city tax rates to obtain the current liability for income taxes. A federal tax rate of 35 percent, a state income tax rate of 6.25 percent, and a city tax rate of 0.1057 percent were used in calculating Ameren Missouri's current income tax liability. The difference between the calculated current income tax provision and the per book income tax provision is the current income tax provision adjustment.

Staff will review income tax expense as part of its true-up audit and make additional adjustments as necessary.

Staff Expert/Witness: Lisa M. Ferguson

IX. Fuel Adjustment Clause ("FAC")

A. Policy

In summary, Staff makes the following recommendations to the Commission regarding Ameren Missouri's Fuel Adjustment Clause ("FAC"):

- Continue Ameren Missouri's FAC; and
- Order Ameren Missouri to continue to provide monthly filings that will aid Staff in performing FAC tariff, prudence and true-up reviews.

Staff Expert/Witness: Dana E. Eaves

B. History

Senate Bill 179[73] ("SB 179") was passed and enacted in 2005. It authorizes investor-owned electric utilities to file applications with the Commission requesting authority to make periodic rate adjustments outside of general rate proceedings for their prudently-incurred fuel and purchased-power costs. SB 179 granted the Commission the authority to approve, modify, or reject the electric utility's request. SB 179 also states that the rate schedules implementing these rate adjustments outside of rate cases may provide the electric utility with incentives to improve the efficiency and cost-effectiveness of its fuel and purchased-power procurement activities.

Prior to the passage of SB 179, fuel and purchased-power costs were estimated and included in the determination of the utility's annual revenue requirement in general rate proceedings. If the electric utility managed its fuel and purchased-power procurement activities in a manner that allowed it to reliably serve its customers at a cost lower than what was included in its annual revenue requirement in its last general rate proceeding, the savings were retained by the electric utility.

[73] Section 386.266, RSMo. 2010 Cum. Supp.

If actual fuel and purchased-power costs were greater than the cost included in the annual revenue requirement in its last general rate proceeding, the electric utility absorbed the increased cost.

Ameren Missouri, then doing business as AmerenUE, first requested that the Commission authorize it to use a FAC when it filed a general electric rate increase case, Case No. ER-2007-0002, on July 3, 2006. This request was made prior to the finalization of the Commission's FAC rules.[74] In its May 22, 2007, *Report and Order* in that case, the Commission concluded:

> After carefully considering the evidence and arguments of the parties, and balancing the interests of ratepayers and shareholders, the Commission concludes that AmerenUE's fuel and purchased power costs are not volatile enough [to] justify the implementation of a fuel adjustment clause at this time.

Ameren Missouri filed another general electric rate increase case on April 4, 2008, docketed as Case No. ER-2008-0318. In its February 2009, *Report and Order* in that case, the Commission authorized Ameren Missouri, still then doing business as AmerenUE, to begin implementation of a FAC. Ameren Missouri filed another general rate increase case on July 24, 2009, docketed as Case No. ER-2010-0036. In its *Report and Order* in Case No. ER-2010-0036, the Commission concluded AmerenUE should be allowed to continue its FAC with modifications. Revised tariff sheets, including FAC tariff sheets, became effective in that case on June 21, 2010.

On August 31, 2010, Staff filed in Case No. EO-2010-0255 the results of its first FAC prudence audit which covered Ameren Missouri's accumulation periods 1 and 2 (March 1, 2009, through September 30, 2009). In its *Report and Order* issued on April 27, 2011, in that case, the Commission determined that "Ameren Missouri acted imprudently, improperly and unlawfully when it excluded revenues derived from power sales agreements with [American Electric Power Operating Companies ("AEP")] and [Wabash Valley Power Association ("Wabash")] from off-system sales revenue when calculating the rates charged under its fuel adjustment clause." Ameren Missouri began returning to customers the revenues from the AEP and Wabash contracts, plus accrued interest, of approximately $18 million in the twelve-month recovery period beginning with its October 2011 billing month.

On July 30, 2010, just 37 days after the changes to the rates in Ameren Missouri's general rate case (Case No. ER-2010-0036) became effective; Ameren Missouri filed another rate case docketed

[74] 4 CSR 240-3.161 and 4 CSR 240-20.090.

as Case No. ER-2011-0028. In that case Ameren Missouri requested, and received, authority to continue its FAC with modifications. The tariff changes from Case No. ER-2011-0028 became effective July 31, 2011.

On December 1, 2010, Ameren Missouri initiated Case No. ER-2010-0274, seeking to true-up its first recovery period. As a part of this true-up filing, Ameren Missouri asserted that the Base Factor ("BF") rates in the original FAC tariff sheets were calculated incorrectly and that it was entitled to the additional revenue that would have been collected had the BF rates been correctly calculated. In its June 29, 2011, *Report and Order* issued in that case, the Commission authorized Ameren Missouri to include the under-collection amount for that true-up period and for all subsequent true-up filings in which the incorrect BF rates calculations had an impact. This positive adjustment to the true-up amount was also included in the twelve-month recovery period beginning October 2011 and, as ordered, subsequent true-up filings included the corrected BF rates, as applicable.

On October 28, 2011, Staff filed in Case No. EO-2012-0074 its report of the results of its second prudence audit with respect to the revenue margins[75] from Ameren Missouri's contracts to sell energy to AEP and Wabash for the time period of October 1, 2009, through May 31, 2011. In its report, Staff recommended that the Commission order Ameren Missouri to refund the revenue margins with interest from the AEP and Wabash contracts for the time period of October 1, 2009, through May 31, 2011, based on the Commission's decision in Case No. EO-2010-0255. A hearing in that case was held on June 21, 2012 and the Commission issued a *Report and Order* ordering Ameren Missouri to refund the revenue margins with interest from the AEP and Wabash contracts for the time period of October 1, 2009, through May 31, 2011, based on the Commission's decision in Case No. EO-2010-0255.

On February 3, 2012, Ameren Missouri initiated a general rate case, Case No. ER-2012-0166, seeking changes to Ameren Missouri's rates. In that case Ameren Missouri requested, and received, authority to continue its FAC with modifications for inclusion of transmission expenses, re-basing of the BFs, adjustments for reduction of service classification 12(M) billing determinants and additional language related to Midcontinent Independent System Operator ("MISO") charges for inclusion in Ameren Missouri's FAC. The tariff changes from Case No. ER-2012-0166 became effective January 2, 2013.

[75] Revenue margins are defined as revenue from the sale of energy minus the cost of production.

On February 3, 2014, Ameren Missouri initiated a general rate case, Case No. ER-2014-0258, seeking changes to Ameren Missouri's rates. In that case Ameren Missouri requested, and received, authority to continue its FAC with modifications for inclusion of a percentage of transmission costs related to purchased power for retail customers and off-system sales, re-basing of the BFs, and additional language related to MISO charges for inclusion in Ameren Missouri's FAC. The tariff changes from Case No. ER-2014-0258 became effective May 2, 2015.

Staff Expert/Witness: Dana E. Eaves

C. Summary of Ameren Missouri's Fuel and Purchased Power Costs Net of Off-System Sales Revenues

Chart 1 below shows, for each full accumulation period[76] since the Commission authorized Ameren Missouri's FAC, a summary of Ameren Missouri's Actual Net Energy Cost ("ANEC"),[77] Net Base Energy Cost ("NBEC"), and the under-collection of fuel and purchased-power costs minus off-system sales revenues through its permanent rates. The least squares linear regression line, also known as a linear regression trendline, represents a rising trend for Ameren Missouri's ANEC, NBEC, and the under-collection amount for each accumulation period.

continued on next page

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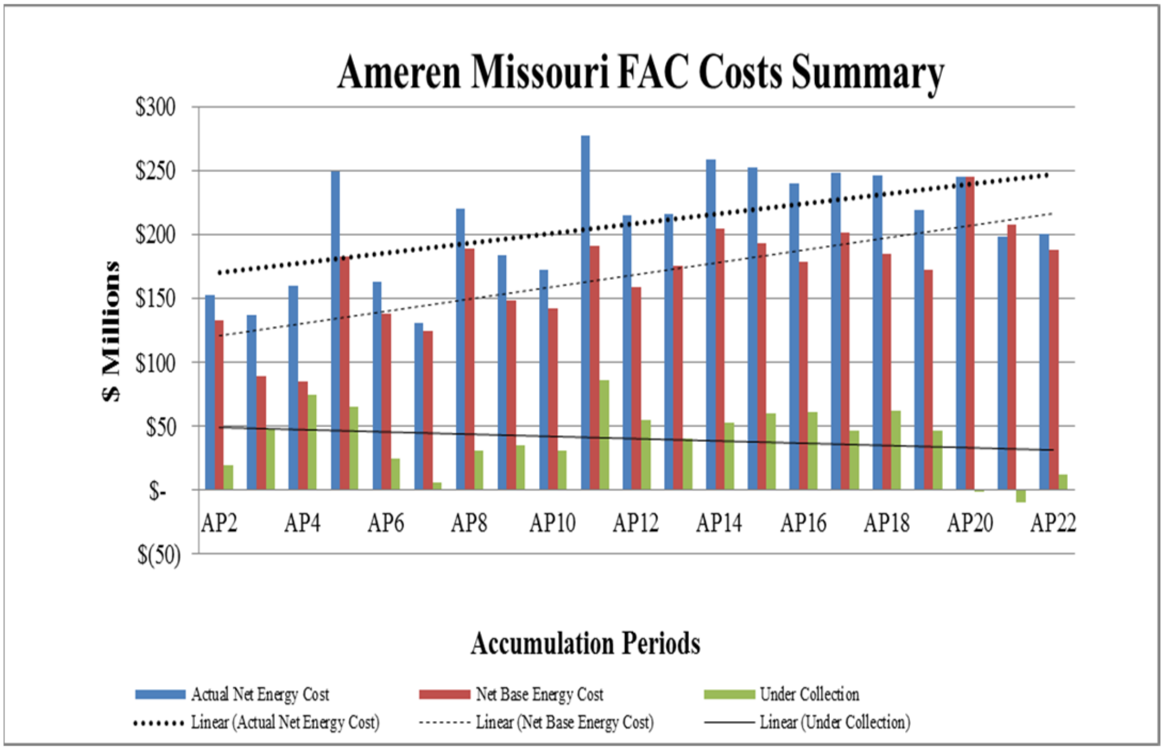
[76] Accumulation Period 1 was not a full accumulation period because it only covered the three calendar months of March 2009 through May 2009. All other accumulation periods cover four calendar months.

[77] Actual Net Energy Cost is defined in Ameren Missouri's FAC tariff sheet, MO. P.S.C. Schedule 6, Original Sheet No. 73.1, as: Fuel costs and revenues (FC) plus purchased-power costs and revenues (PP) plus costs and revenues for SO_2 and NO_x emissions allowances (E) minus off-system sales revenues (OSSR). The formula appears as: ANEC = FC + PP + E – OSSR.

Chart 1



The time periods of the accumulation periods ("APs") are as follows:

AP2	Jun 2009 - Sep 2009	AP3	Oct 2009 - Jan 2010
AP4	Feb 2010 - May 2010	AP5	Jun 2010 - Sep 2010
AP6	Oct 2010 - Jan 2011	AP7	Feb 2011 - May 2011
AP8	Jun 2011 - Sep 2011	AP9	Oct 2011 - Jan 2012
AP10	Feb 2012 - May 2012	AP11	Jun 2012 - Sep 2012
AP12	Oct 2012 - Jan 2013	AP13	Feb 2013 - May 2013
AP14	Jun 2013 - Sep 2013	AP15	Oct 2013 - Jan 2014
AP16	Feb 2014 - May 2014	AP17	Jun 2014 - Sep 2014
AP18	Oct 2014 - Jan 2015	AP19	Feb 2015 - May 2015
AP20	Jun 2015 - Sep 2015	AP21	Oct 2015- Jan 2016
AP22	Feb 2016 - May 2016		

At the conclusions of its general electric rate cases, during AP5, AP8, and AP11 – Case Nos. ER-2010-0036, ER-2011-0028, ER-2012-0166, ER-2014-0258, respectively – the BFs in Ameren Missouri's FAC were re-set. Over all full accumulation periods except for AP20 and AP21, Ameren

Missouri under-collected its fuel and purchased-power costs in its permanent rates as a result of Ameren Missouri's ANEC exceeding the NBEC for the accumulation period.

Chart 1 also shows that the range of Ameren Missouri's ANEC varies from just less than $130 million for AP7 (February 2011 – May 2011), to approximately $278 million for AP11 (June 2012 – September 2012).

Chart 2, below, shows Ameren Missouri's 12-month rolling ANEC, NBEC, and under-collection of fuel and purchased-power costs minus off-system sales revenues through its permanent rates since its FAC was approved by the Commission. Chart 2 shows that Ameren Missouri's ANECs have continued to be large and volatile.

<u>Chart 2</u>

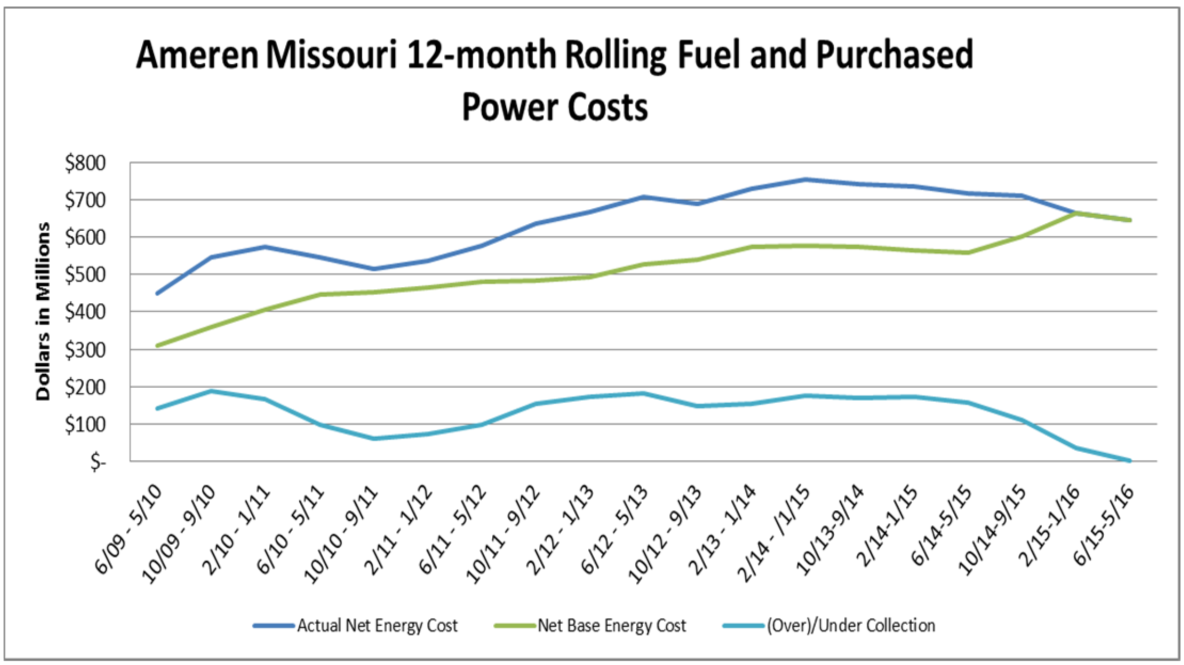


Chart 3, Chart 4, and Chart 5 below show Ameren Missouri's 12-month rolling off-system sales revenues ("OSSR"), kWh off-system sales, and off-system dollars or revenue per kWh since the Commission first authorized Ameren Missouri's FAC. Energy market prices have declined as a result of a weakening of the off-system sales market.

Chart 3

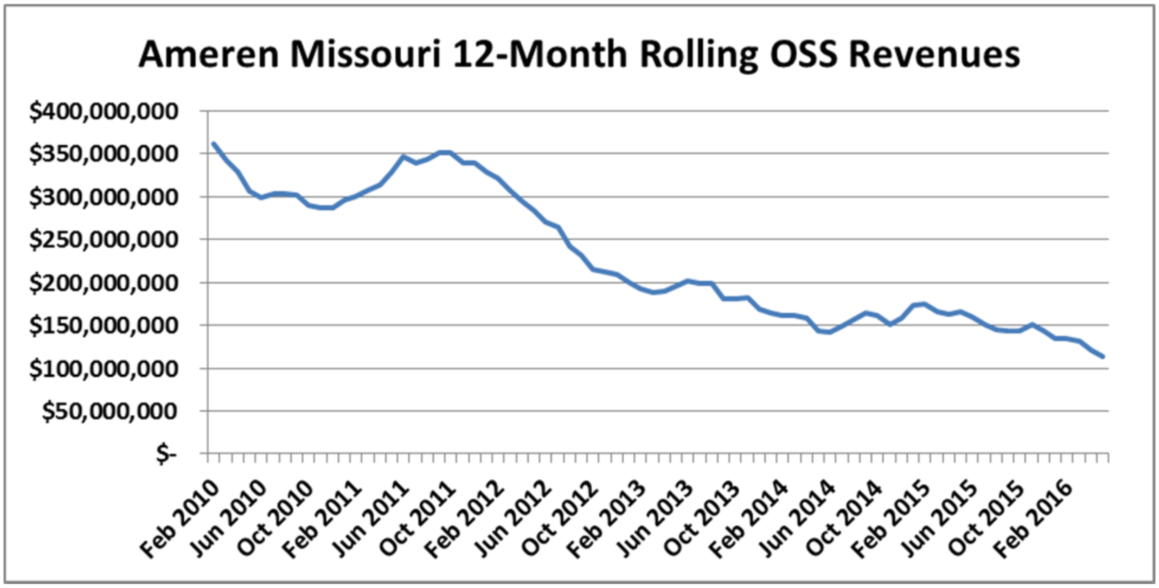


Chart 4

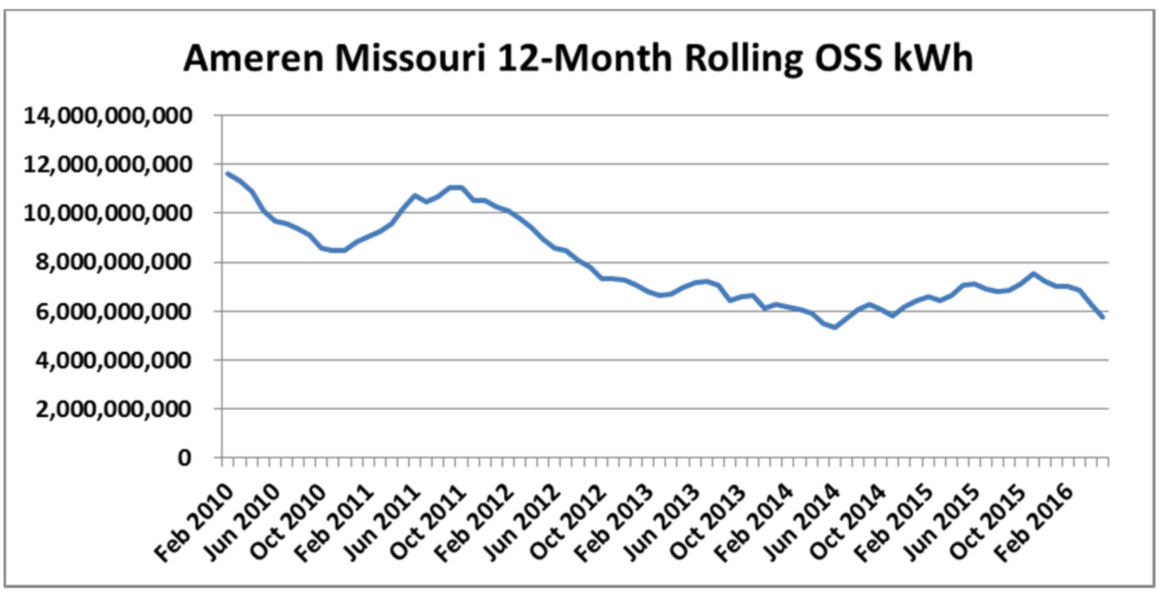


Chart 5

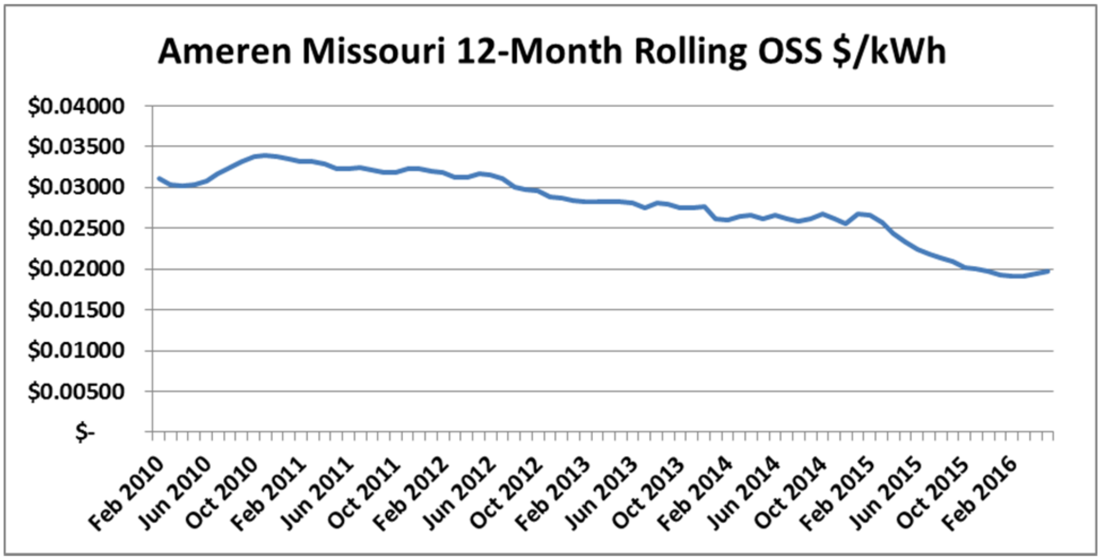


Table 1

Comparison of Ameren Missouri's NBEC From ER-2014-0258 to ER-2016-0179

		ER-2014-0258	ER-2016-0179	Difference	Percent Difference
FERC Account Expenses	**501 Coal**	$ 724,079,869	$ 736,590,872	$ 12,511,003	1.73%
	502 AQCS	$ 3,525,487	$ 11,721,821	$ 8,196,334	232.49%
	518 Nuclear	$ 86,320,450	$ 89,269,000	$ 2,948,550	3.42%
	547 Natural Gas	$ 31,146,518	$ 11,711,386	$ (19,435,132)	-62.40%
	555 Purchased Power	$ 73,698,299	$ 37,596,599	$ (36,101,700)	-48.99%
	565 Transmission by Others	$ 1,031,524	$ 1,163,179	$ 131,655	12.76%
	Capacity Expense		$ 198,905,147	$ 198,905,147	100.00%
	925 Replacement Power Ins.	$ -	$ -	$ -	0.00%
Total FERC Account Expenses		**$ 919,802,147**	**$ 1,086,958,004**	**$ 167,155,857**	**18.17%**
FERC Account Revenues	**447 OSSR Energy**	$ 227,327,332	$ 260,149,000	$ 32,821,668	14.44%
	447 Capacity Sales	$ 5,843,949	$ 243,814,713	$ 237,970,764	4072.09%
	447 Other (Note 1)	$ 13,154,829	$ 21,524,908	$ 8,370,079	63.63%
	456 Transmission Revenues		$ -	$ -	0.00%
Total FERC Account Revenues		**$ 246,326,110**	**$ 525,488,621**	**$ 279,162,511**	**113.33%**
Net Base Energy Costs		**$ 673,476,037**	**$ 561,469,383**	**$ (112,006,654)**	**-16.63%**
	Annual kWh	38,422,489,000	33,589,296,552	(4,833,192,448)	-12.58%
	Annual Cents per kWh	$ 17.53	$ 16.72	$ (0.812)	-4.64%
	Winter 1 Cents per kWh	$ 1.454	$ 1.739	$ 0.285	19.60%
	Winter 2 Cents per kWh		$ 1.587	$ 1.587	
	Summer Cents per kWh	$ 1.496	$ 1.679	$ 0.183	12.23%

Note 1: Other revenues in FERC Account 447 include the following:
- MISO Day 2 Revenues - Make Whole Payments Margins
- MISO Day 2 Revenues - Inavertent Distribution
- Ancillary Services Revenue
- Bilateral Energy Sales Margins
- Financial Swaps
- Ancillary Services Revenue
- Real-Time Load and Generation Deviation

Source: Column ER-2014-0258 amounts were approved per order by the Commission in Case No. ER-2014-0258.
Column ER-2016-0179 amounts are from Company Witness Laura M. Moor's Schedule LMM-17.

Table 1 contains a comparison of Ameren Missouri's FERC account expenses and revenues, annual kWh's, cents per kWh, and NBEC approved in the last general rate case, Case No. ER-2014-0258 and Ameren Missouri's proposed NBEC in this case. Ameren Missouri's proposed fuel and purchased-power expenses increased a total of 18.17 percent compared to the fuel and purchased-power expenses approved in Case No. ER-2014-0258. Ameren Missouri's proposed FAC revenues increased a total of 113.33 percent compared to the revenues approved in Case No. ER-2014-0258. This increase in revenues is a reflection of Ameren Missouri's entrance into MISO's capacity market[78] and the expenses and revenues generated by this market that were not fully developed at the conclusion of the prior rate case. The net impact (capacity expense minus capacity sales) on the FAC is a $44,909,566 increase in revenues. The main drivers for Ameren Missouri's proposed increase in BF rates is the decrease of projected sales and large increases in Air Quality Control System ("AQCS") chemicals in the test year for Case No. ER-2014-0258, relative to the increase of 14.44 percent in off-system sales revenues approved in Case No. ER-2014-0258.

Staff recommends continuation of Ameren Missouri's FAC. Ameren Missouri's fuel and purchased-power costs, less off-system sales revenues, continue to be volatile, beyond the control of Ameren Missouri, and are large at $1,085,794,824; representing approximately 54 percent of Ameren Missouri's proposed annual revenue requirement for this case.

Staff Expert/Witness: Dana E. Eaves

D. Loss Study As It Applies to the Fuel Adjustment Clause

Ameren Missouri filed a request to continue its Fuel Adjustment Clause ("FAC") in the current case. Rule 4 CSR 240-20.090(9)[79] requires Ameren Missouri to supply Staff with a loss study in conjunction with any request to continue a Rate Adjustment Mechanism ("RAM"), such as a FAC. Ameren Missouri complied with this requirement by supplying Staff with its loss study containing

[78] MISO's Resource Adequacy construct provides forward transparent capacity pricing signals, recognizes congestion that limits aggregate deliverability, and complements state resource planning processes. This construct creates opportunities for all resources to supply energy based on aligned regulations and provides for efficient market outcomes across MISO's seams.

[79] 4 CSR 240-20.090(9) Rate Design of the RAM. The design of the RAM rates shall reflect differences in losses incurred in the delivery of electricity at different voltage levels for the electric utility's different rate classes. Therefore, the electric utility shall conduct a Missouri jurisdictional system loss study within twenty-four (24) months prior to the general rate proceeding in which it requests its initial RAM. The electric utility shall conduct a Missouri jurisdictional loss study no less often than every four (4) years thereafter, on a schedule that permits the study to be used in the general rate proceeding necessary for the electric utility to continue to utilize a RAM.

analysis based on data collected during calendar year 2014, in response to Staff Data Request No. 0190.

Utilizing information included in the aforementioned loss study, Staff has calculated the following voltage adjustment factors:

- Transmission – 0.9921
- Primary – 1.0238
- Secondary – 1.0549

These voltage adjustment factors account for the energy losses experienced in the delivery of electricity from the transmission level to the retail customer (secondary level). These factors will be utilized in Staff's determination of Fuel Adjustment Rates ("FAR"), applicable to the individual voltage service classification of a particular customer in the corresponding FAC tariff, should the Commission authorize Ameren Missouri to continue its FAC tariff as a result of this case.

Staff Expert/Witness: Alan J. Bax

E. Additional Filing Requirements

Due to the accelerated Staff review process necessary with FAC adjustment filings,[80] just as it did in the last Ameren Missouri rate cases, Case Nos. ER-2010-0036, ER-2011-0028, ER-2012-0166, and ER-2014-0258, Staff is recommending the Commission order Ameren Missouri to do the following to aid Staff in performing FAC tariff, prudence, and true-up reviews:

- As part of the information Ameren Missouri submits when it files a tariff modification to change its Fuel and Purchased Power Adjustment rate, include Ameren Missouri's calculation of the interest included in the proposed rate;
- In addition to the monthly reports required by 4 CSR 240-3.161(5), provide Ameren Missouri's MISO Ancillary Services Market ("AMS") market settlements and revenue neutrality uplift charges;
- Maintain at Ameren Missouri's corporate headquarters, or at some other mutually-agreed-upon place within a mutually-agreed-upon time for review, a copy of each and every nuclear fuel, coal, and transportation contract Ameren Missouri has that is or was in effect for the previous four years;
- Within 30 days of the effective date of each and every nuclear fuel, coal, and transportation contract Ameren Missouri enters into, provide both notice to

[80] Ameren Missouri must file its FAC adjustment 60 days prior to the effective date of its proposed tariff sheet. Staff has 30 days to review the filing and make a recommendation to the Commission. The Commission then has 30 days to approve or deny Staff's recommendation.

Staff of the contract and opportunity to review the contract at Ameren Missouri's corporate headquarters or at some other mutually-agreed-upon place;

- Maintain at Ameren Missouri's corporate headquarters, or provide at some other mutually-agreed-upon place within a mutually-agreed-upon time, a copy for review of each and every natural gas contract Ameren Missouri has that is in effect;
- Within 30 days of the effective date of each and every natural gas contract Ameren Missouri enters into, provide both notice to Staff of the contract and an opportunity for review of the contract at Ameren Missouri's corporate headquarters or at some other mutually-agreed-upon place;
- Provide a copy of each and every Ameren Missouri hedging policy that is in effect at the time the tariff changes ordered by the Commission in this rate case go into effect for Staff to retain;
- Within 30 days of any change in an Ameren Missouri hedging policy, provide a copy of the changed hedging policy for Staff to retain;
- Provide a copy of Ameren Missouri's internal policy for participating in the MISO ASM, including any Ameren Missouri sales/purchases from that market that is in effect at the time the tariff changes ordered by the Commission in this rate case go into effect for Staff to retain;
- If Ameren Missouri revises any internal policy for participating in the MISO ASM, within 30 days of that revision, provide a copy of the revised policy with the revisions identified for Staff to retain; and
- The monthly as-burned fuel report supplied by Ameren Missouri required by 4 CSR 3.190(1)(B) shall explicitly designate fixed and variable components of the average cost per unit burned including commodity, transportation, emission, tax, fuel blend, and any additional fixed or variable costs associated with the average cost per unit reported (Staff is willing to work with Ameren Missouri on the electronic format of this report).

Staff Expert/Witness: Dana E. Eaves

F. Heat Rate and Efficiency Testing

Whenever an electric utility requests that a Rate Adjustment Mechanism ("RAM") such as a Fuel Adjustment Clause ("FAC") be continued or modified, Commission Rule 4 CSR 240-3.161(3)(Q) specifies that the electric utility *shall* file specific information as part of its direct testimony in a general rate proceeding:

> (Q) The results of heat rate tests and/or efficiency tests on all the electric utility's nuclear and non-nuclear steam generators,

HRSG[81], steam turbines and combustion turbines conducted within the previous twenty-four (24) months;

The Commission first authorized Ameren Missouri's FAC in Case No. ER-2008-0318. The FAC was continued with modifications in Case Nos. ER-2010-0036, ER-2011-0028, ER-2012-0166, and ER-2014-0258. Ameren Missouri is requesting that its FAC again be continued with modifications in the current general rate proceeding, Case No. ER-2016-0179.

Ameren Missouri witness Lynn M. Barnes filed testimony that included Schedule LMB-2 with several attachments that identify supply-side and demand-side resources expected to meet Ameren Missouri's load requirements and which also contain the results of the most recent heat rate/efficiency tests for many of Ameren Missouri's generating units.

** ______________________________ **

Staff's review of the testimony of Lynn M. Barnes confirms each generating unit meets the "previous 24-month" heat rate testing rule requirement.

Staff Expert/Witness: J Luebbert

X. Other Issues

A. Ameren Missouri Light Emitting Diode ("LED") Street Lighting and Area Lighting ("SAL")

On December 17, 2015, Ameren Missouri filed with the Commission an LED Lighting Update Filing – LED Street and Outdoor Area Lighting Report ("2015 Report") along with revised tariff sheets (MO. P.S.C. Schedule No. 6 Sheet Nos. 58 – 58.5) for Service Classification No. 5(M) Street and Outdoor Area Lighting – Company-Owned ("5(M) Company-Owned Street Lighting"). The requested revisions added LED rates to the 5(M) Company-Owned Street Lighting services for enclosed and open bottom type lights and provided for converting customers from existing high-pressure sodium ("HPS") and mercury vapor ("MV") services to LED services for those same type lights. Approximately 25,000 enclosed and open bottom LED lights will be installed each year over a

[81] Heat recovery steam generator.

period of approximately five years beginning in the second quarter of 2016. Ameren Missouri requested the Commission accept the 2015 Report and either approve or allow the 5(M) Company-Owned Street Lighting tariff sheets to go into effect on January 16, 2016. Ameren Missouri also requested the Commission order that no further LED reports need to be submitted.

Staff reviewed the proposed tariff sheets and the related supporting 2015 Report and recommended that the Commission issue an order approving the proposed tariff sheets. Staff further recommended that the Commission order Ameren Missouri to continue to provide Staff with annual updates to its economic analysis of LED street lights. However, starting in 2016, this report need only contain: 1) an analysis on the cost-effectiveness of converting the remaining 5(M) Company-Owned Street Lighting to LED lighting and Ameren Missouri's intentions to do so; and 2) a status report on the progress Ameren Missouri has made in the conversion of its enclosed and open bottom light types to LED lighting. The status report shall contain a detailed description of the following information with annual incremental and cumulative data whenever appropriate: 1) the number of fixtures replaced with LEDs; 2) any maintenance related issues with the LED replacements; 3) all costs associated with the LED conversion; 4) total revenue of the 5(M) Company-Owned Street Lighting rate class; 5) kilowatt-hour consumption of the 5(M) Company-Owned Street Lighting rate class; and 6) number of customers making early conversion requests. Furthermore, Staff recommended that Ameren Missouri uniquely identify the LED fixtures within the overall lighting asset account that also includes poles, wires, etc. so that all costs and revenues associated with the LED conversion within the 5(M) Company-Owned Street Lighting rate class can be exclusively identified for future class cost of service studies.

On January 6, 2016, the Commission filed its Order Regarding Tariff in which it accepted Ameren Missouri's 2015 Report, approved the proposed tariff sheets to be effective on and after January 16, 2016, and denied Ameren Missouri's request to discontinue the requirement to submit annual LED reports. However, the requirement to submit annual LED reports beginning in 2016 is modified as Staff proposed. Based on this Commission order, Staff makes no further recommendations at this time related to LED lighting.

Staff Expert/Witness: Brad J. Fortson

B. Electric Vehicle Charging Stations – True-up Audit

As part of Case No. ET-2016-0246, Ameren Missouri proposed a tariff for five electric vehicle charging islands to be sited along Interstate 70, and a sixth electric vehicle charging island planned for Jefferson City, Missouri; each charging island is to be located within Ameren Missouri's electric service territory. As part of the filing Ameren Missouri indicated that it might complete construction of one of these charging islands prior to the December 31, 2016, true-up cut-off for this rate case. Since the time of its proposed tariff filing, a procedural schedule has been adopted for the case with an evidentiary hearing that will occur on January 12, 2017. Ameren Missouri informed Staff that construction will not commence on any electric vehicle charging island until a Commission Report and Order is issued in Case No. ET-2016-0246 and, therefore, it will not be seeking recovery of any costs associated with the proposed charging islands as part of the true-up audit in this rate case. Staff is addressing the ratemaking treatment for EV charging stations in its report addressing various issues raised by the Commission's Order Directing Consideration of Certain Questions in Testimony.

Staff Expert/Witness: John P. Cassidy

XI. Appendices

Appendix 1 - Staff Credentials

Appendix 2 - Support for Staff Cost of Capital Recommendation

Appendix 3 –Advertising

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase Its Revenues for Electric Service	)))	Case No. ER-2016-0179

AFFIDAVIT OF ALAN J. BAX

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW ALAN J. BAX and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Staff Report - Revenue Requirement- Cost of Service; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Alan J Bax

ALAN J. BAX

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 8th day of December, 2016.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2016
Commission Number: 12412070

D Suzie Mankin

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase Its Revenues for Electric Service	)))	Case No. ER-2016-0179

AFFIDAVIT OF KOFI A. BOATENG, CPA, CIA, CFE

STATE OF MISSOURI COUNTY OF COLE	)))	ss.

COMES NOW KOFI A. BOATENG, CPA, CIA, CFE and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Staff Report - Revenue Requirement- Cost of Service; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

KOFI A. BOATENG, CPA, CIA, CFE

JURAT

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OF THE STATE OF MISSOURI

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AFFIDAVIT OF KORY BOUSTEAD

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW KORY BOUSTEAD and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing Staff Report - Revenue Requirement - Cost of Service; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Kory Boustead

KORY BOUSTEAD

JURAT

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AFFIDAVIT OF ERIN M. CARLE

STATE OF MISSOURI COUNTY OF COLE	)))	ss.

COMES NOW ERIN M. CARLE and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing Staff Report - Revenue Requirement - Cost of Service; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Erin M. Carle
ERIN M. CARLE

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 8th day of December, 2016.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
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D Suzie Mankin
Notary Public

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OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase Its Revenues for Electric Service	)))	Case No. ER-2016-0179

AFFIDAVIT OF JOHN P. CASSIDY

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW JOHN P. CASSIDY and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Staff Report - Revenue Requirement- Cost of Service; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

John P. Cassidy

JOHN P. CASSIDY

JURAT

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OF THE STATE OF MISSOURI

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AFFIDAVIT OF DANA E. EAVES

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW DANA E. EAVES and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Staff Report - Revenue Requirement- Cost of Service; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Dana E. Eaves

DANA E. EAVES

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 9th day of December, 2016.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
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Commission Number: 12412070

D Suzie Mankin

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase Its Revenues for Electric Service	)))	Case No. ER-2016-0179

AFFIDAVIT OF CLAIRE M. EUBANKS, PE

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW CLAIRE M. EUBANKS, PE and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing Staff Report - Revenue Requirement - Cost of Service; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Claire M Eubanks

CLAIRE M. EUBANKS, PE

JURAT

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OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase Its Revenues for Electric Service	)))	Case No. ER-2016-0179

AFFIDAVIT OF LISA M. FERGUSON

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW LISA M. FERGUSON and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing Staff Report - Revenue Requirement - Cost of Service; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Lisa M. Ferguson
LISA M. FERGUSON

JURAT

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D Suzie Mankin
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OF THE STATE OF MISSOURI

In the Matter of Union Electric Company	)	
d/b/a Ameren Missouri's Tariffs to Increase	)	Case No. ER-2016-0179
Its Revenues for Electric Service	)	

AFFIDAVIT OF BRAD J. FORTSON

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW BRAD J. FORTSON and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Staff Report - Revenue Requirement- Cost of Service; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Brad J. Fortson

BRAD J. FORTSON

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AFFIDAVIT OF SARAH L. KLIETHERMES

STATE OF MISSOURI COUNTY OF COLE	)))	ss.

COMES NOW SARAH L. KLIETHERMES and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing Staff Report - Revenue Requirement - Cost of Service; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Sarah L Kliethermes

SARAH L. KLIETHERMES

JURAT

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D Suzie Mankin

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AFFIDAVIT OF JASON KUNST

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW JASON KUNST and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Staff Report - Revenue Requirement- Cost of Service; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

JASON KUNST

JURAT

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AFFIDAVIT OF SHAWN E. LANGE

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW SHAWN E. LANGE and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Staff Report - Revenue Requirement- Cost of Service; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Shawn E. Lange

SHAWN E. LANGE

JURAT

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D Suzie Mankin

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AFFIDAVIT OF J LUEBBERT

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW J LUEBBERT and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Staff Report - Revenue Requirement- Cost of Service; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

J Luebbert

J LUEBBERT

JURAT

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AFFIDAVIT OF ERIN L. MALONEY, PE

STATE OF MISSOURI COUNTY OF COLE	)))	ss.

COMES NOW ERIN L. MALONEY, PE and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing Staff Report - Revenue Requirement - Cost of Service; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

E. L. Maloney PE

ERIN L. MALONEY, PE

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D Suzie Mankin

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase Its Revenues for Electric Service	)))	Case No. ER-2016-0179

AFFIDAVIT OF DAVID MURRAY

STATE OF MISSOURI COUNTY OF COLE	)))	ss.

COMES NOW DAVID MURRAY and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Staff Report - Revenue Requirement- Cost of Service; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

David Murray

DAVID MURRAY

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 8th day of December, 2016.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2016
Commission Number: 12412070

D Suzie Mankin

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase Its Revenues for Electric Service	)))	Case No. ER-2016-0179

AFFIDAVIT OF JOSEPH P. ROLING

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW JOSEPH P. ROLING and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Staff Report - Revenue Requirement- Cost of Service; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Joseph P. Roling

JOSEPH P. ROLING

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 8th day of December, 2016.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2016
Commission Number: 12412070

D Suzie Mankin

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase Its Revenues for Electric Service	)))	Case No. ER-2016-0179

AFFIDAVIT OF JERRY SCHEIBLE, PE

STATE OF MISSOURI COUNTY OF COLE	)))	ss.

COMES NOW JERRY SCHEIBLE, PE and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Staff Report - Revenue Requirement- Cost of Service; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Jerry Scheible

JERRY SCHEIBLE, PE

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 8th day of December, 2016.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2016
Commission Number: 12412070

D Suzie Mankin

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase Its Revenues for Electric Service	)))	Case No. ER-2016-0179

AFFIDAVIT OF MICHAEL L. STAHLMAN

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW MICHAEL L. STAHLMAN and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Staff Report - Revenue Requirement-Cost of Service; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

MICHAEL L. STAHLMAN

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 8th day of December, 2016.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2016
Commission Number: 12412070

D Suzie Mankin
Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase Its Revenues for Electric Service	)))	Case No. ER-2016-0179

AFFIDAVIT OF BRIAN WELLS

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW BRIAN WELLS and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Staff Report - Revenue Requirement- Cost of Service; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

BRIAN WELLS

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 8th day of December, 2016.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2016
Commission Number: 12412070

D Suzie Mankin
Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase Its Revenues for Electric Service	)))	Case No. ER-2016-0179

AFFIDAVIT OF SEOUNG JOUN WON, PhD

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW SEOUNG JOUN WON, PhD and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Staff Report - Revenue Requirement-Cost of Service; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

SEOUNG JOUN WON, PhD

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 8th day of December, 2016.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2016
Commission Number: 12412070

D Suzie Mankin
Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company's Request for Authority to Implement A General Rate Increase for Electric Service	))))	Case No. ER-2016-0179

AFFIDAVIT OF J. RANDALL WOOLRIDGE

COMMONWEALTH OF PENNSYLVANIA)
) ss.
COUNTY OF CENTRE)

COMES NOW J. RANDALL WOOLRIDGE and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Staff Report - Revenue Requirement-Cost of Service; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

J. RANDALL WOOLRIDGE

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Centre, Commonwealth of Pennsylvania, at my office in State College, PA, on this 23rd day of November, 2016.

Notary Public

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
RONALD E FLEBOTTE
Notary Public
STATE COLLEGE BORO, CENTRE COUNTY
My Commission Expires Nov 10, 2019