

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of Union Electric Company)	
d/b/a Ameren Missouri's LED Street)	<u>Case No. ET-2016-0152</u>
Lighting Update and Tariff Filing)	Tariff No. YE-2016-0159
)	

STAFF'S RECOMMENDATION FOR APPROVAL OF TARIFF SHEET

COMES NOW the Staff of the Missouri Public Service Commission ("Staff"), by and through counsel, and submits this Staff Recommendation ("Recommendation") to the Missouri Public Service Commission ("Commission"). In support of the Recommendation, Staff respectfully states the following:

1. On December 17, 2015, Ameren Missouri filed its *LED Lighting Update Filing – LED Street Area Lighting Report* pursuant to the terms of the *Nonunanimous Stipulation and Agreement Regarding MEEIA Low Income Exemption and LED Streetlighting Issues* in File No. ER-2014-0258, and also filed its *Revised Tariff Sheets*¹ seeking approval of its proposed tariff sheets to go into effect on January 16, 2016. The Commission assigned the tariff sheets to Tariff Tracking No. YE-2016-0159.

2. On December 17, 2015, the Commission issued its *Notice of Tariff Filing and Order Establishing Time to File Recommendations*, instructing Staff to file a recommendation regarding Ameren Missouri's LED Lighting Update Report and associated tariff no later than December 31, 2015.

Authority and Recommendation

3. Section 393.140 (11), RSMo 2000 requires utilities to file a tariff or tariff sheets with an effective date of at least 30-days from issuance.

¹ Ameren Missouri supplemented its tariff sheet filing with its *Substitute Tariff* revisions, filed December 23, 2015.

4. The Commission has the statutory authority to supervise, regulate and control public utilities within its jurisdiction by approval of rate schedules filed with the Commission.²

5. As stated in the *Staff Recommendation*, Staff supports Ameren Missouri's decision to make this filing and agrees with the calculation of the LED rates for the Service Classification No. 5(M) Street and Outdoor Area Lighting – Company-Owned (“5(M) Company-Owned Street Lighting”) rate class. As such Staff recommends the Commission issue an order approving the tariff sheets to go into effect on January 16, 2016.

6. However, Staff opposes Ameren Missouri's argument that it is no longer required to submit annual LED reports on the proposition that it has satisfied the terms of its *Nonunanimous Stipulation and Agreement Regarding MEEIA Low Income Exemption and LED Streetinglighting Issues*, approved on March 20, 2015, in File No. ER-2014-0258. The Commission should deny Ameren Missouri's request that it be relieved from the requirement to submit annual LED reports. The Stipulation relied on by Ameren contains no terms that would extinguish the annual LED reporting requirement established in the Commission's *Order Approving Tariff* directing Ameren Missouri to “update its analysis annually, and to report the results of its annual update to Staff.”³ Ameren Missouri has asserted its intent to implement a five-year LED conversion plan of its enclosed and open bottom street lighting which Staff contends preserves a Commission interest in receiving the annual LED report of the cost

² *State ex. rel Utility Consumers Council of Missouri, Inc. v. Public Service Commission*, 585 S.W.2d 41 (1979).

³ EO-2013-0367

effectiveness of the planned conversion within the bounds set forth in the initial Commission order.

7. Therefore, Staff recommends that the Commission order Ameren to continue to provide Staff with annual updates to its economic analysis of LED street lights. However, starting in 2016, this report need only to contain: 1) An analysis on the cost-effectiveness of converting the remaining 5(M) Company-Owned Street Lighting to LED and Ameren's intentions to do so; and 2) a status report on the progress Ameren has made in conversion of its enclosed and open bottom light types to LED. 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.

8. Further, Staff recommends the Commission instruct Ameren to 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.

9. Staff has verified that Ameren Missouri has filed its calendar year 2014 Annual Report and is not delinquent on any assessment. Staff is unaware of any other matter before the Commission that affects or is affected by this filing.

10. On December 31, 2015, the Office of Public Counsel (“OPC”) filed its *Motion to Reject Tariffs* alleging that the establishment of a new LED lighting service rate is single issue ratemaking and therefore impermissible outside of a general rate case proceeding. Staff disagrees and points out that Ameren is seeking to establish a new more cost-efficient LED lighting service to replace higher cost traditional lighting services as directed by the Commission in its *Report and Order*, EFIS No. 594, File No. ER-2011-0028. Staff will respond separately to OPC’s Motion in a subsequent filing. Staff agrees with OPC’s argument regarding Ameren Missouri’s obligation to submit annual LED reports.

WHEREFORE, Staff files this Recommendation for the Commission’s information and consideration and, based on the aforementioned reasons, recommends the Commission approve the following tariff sheets with Tariff Tracking No. YE-2014-0152:

MO. P.S.C. Schedule No. 6 Sheet Nos. 2 58 – 58.5

Second Revised Sheet No. 58 Cancelling First Revised Sheet No. 58

Second Revised Sheet No. 58.1 Cancelling First Revised Sheet No. 58.1

Second Revised Sheet No. 58.2 Cancelling First Revised Sheet No. 58.2

First Revised Sheet No. 58.3 Cancelling Original Sheet No. 58.3

First Revised Sheet No. 58.4 Cancelling Original Sheet No. 58.4

First Revised Sheet No. 58.5 Cancelling Original Sheet No. 58.5

to go into effect on January 16, 2016, and order Ameren Missouri to continue to submit annual LED reports to the Commission, as described in Paragraph 7, and direct Ameren Missouri to uniquely identify the LED fixtures within the overall lighting asset account, as described in Paragraph 8.

Respectfully submitted,

/s/ Hampton Williams

Wm Hampton Williams

Assistant Staff Counsel

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Missouri Public Service Commission

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CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing have been mailed or hand-delivered, transmitted by facsimile or electronically mailed to all counsel of record on this 31st day of December, 2015.

/s/ Hampton Williams

MEMORANDUM

TO: Missouri Public Service Commission Official Case File
File No. ET-2016-0152, Tracking No. YE-2016-0159
Union Electric Company d/b/a Ameren Missouri

FROM: Brad J. Fortson, Regulatory Economist III

/s/ John A. Rogers 12/31/2015 /s/ Hampton Williams 12/31/2015
Manager Energy Resources Department Staff Counsel Department

SUBJECT: Recommendation Regarding Ameren Missouri's LED Lighting Update Report
and Associated Tariff Changes.

DATE: December 31, 2015

OVERVIEW

On December 17, 2015, Union Electric Company d/b/a Ameren Missouri ("Ameren") filed with the Missouri Public Service Commission ("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. 58¹ – 58.5) for Service Classification No. 5(M) Street and Outdoor Area Lighting – Company-Owned ("5(M) Company-Owned Street Lighting"). The revisions being requested will add light-emitting diode ("LED") rates to the 5(M) Company-Owned Street Lighting services for enclosed and open bottom type lights and provide for converting customers from existing high-pressure sodium ("HPS") and mercury vapor ("MV") services to LED services for those same type lights. Ameren is requesting the Commission accept the 2015 Report and either approve or allow the 5(M) Company-Owned Street Lighting tariff sheets go into effect on January 16, 2016. Ameren also requests the Commission order that no further LED reports need to be submitted.

Staff recommends that the Commission issue an order approving the proposed tariff sheets to go into effect on January 16, 2016. Staff further recommends that the Commission order Ameren to continue to provide Staff with annual updates to its economic analysis of LED street lights to include information specified in the Staff Recommendation section of this memorandum.

BACKGROUND and PROCEDURAL HISTORY

In its July 13, 2011, *Report and Order* in File No. ER-2011-0028, the Commission ordered Ameren to either file an LED street lighting tariff by July 31, 2012, or to provide a status report to Missouri Public Service Commission Staff ("Staff") by that date, indicating when it will be able to file such a tariff. On July 31, 2012, Ameren provided a short *Report to Staff* ("2012 Report") stating that it had not yet determined that it was appropriate to offer an LED tariff and that there were still many issues that needed to be resolved before such a tariff could be offered.

¹ On December 23, 2015, Ameren filed a substitute tariff sheet for MO. P.S.C. Schedule No. 6 Sheet No. 58 to incorporate a language change suggested by Staff.

Ameren's list of issues included regulatory framework issues, initial costs, operations issues, procurement issues, lighting types, and cost-effectiveness.

In File No. ER-2012-0166, a *Nonunanimous Stipulation and Agreement Regarding Certain Revenue Requirement Issues* ("Stipulation") was filed on September 28, 2012. In the Stipulation, Ameren accepted the Staff recommendation to complete and provide to Staff, not later than January 31, 2013, its evaluation of all issues Ameren identified in its 2012 Report to Staff and either file an LED street lighting tariff or a status report as to when Ameren anticipates filing such a tariff no later than March 31, 2013. The Stipulation was approved by the Commission on October 10, 2012 to become effective on October 20, 2012.

On January 25, 2013, Ameren filed a motion asking the Commission to extend the date by which Ameren is to provide information and file a tariff regarding LED street lighting pursuant to the Stipulation filed in File No. ER-2012-0166. Ameren filed that motion in File No. ER-2012-0166, but as that case was under appeal at the time, the Commission moved Ameren's motion into a new case file.

On January 28, 2013, the Commission issued a *Notice of New Proceeding* in the matter of Ameren's request to extend the date to provide LED street lighting information in new File No. EO-2013-0367. Ameren's previously filed motion in File No. ER-2012-0166 was moved to File No. EO-2013-0367. In Ameren's motion, Ameren asked to have until July 31, 2013 to complete its evaluation of all issues identified in its 2012 Report to Staff. Additionally, Ameren requested to have until September 30, 2013, to file an LED street lighting tariff or status report. The Commission issued an order granting the motion on January 30, 2013.

On July 31, 2013, Ameren filed with the Commission its *Light Emitting Diode (LED) Street and Area Lighting Report* ("2013 Report") in File No. EO-2013-0367. The results of the 2013 Report show that a replacement of all existing 5(M) Company-Owned Street Lighting with LED lights was not expected to be cost-effective at the time. However, Ameren recognized that some customers may have installed or may wish to install LED lighting. Ameren filed the 2013 Report in compliance with the Stipulation filed in File No. ER-2012-0166.

On September 30, 2013, Ameren filed with the Commission a *Notice of Tariff Filing and Tariff (YE-2014-0152)* in File No. EO-2013-0367. This tariff filing offers unmetered LED lighting rates as an energy-only option under Ameren's Service Classification No. 6(M) Street and Outdoor Area Lighting – Customer-Owned ("6(M) Customer-Owned Street Lighting") rate schedule. Under this tariff filing, customers have the choice to install LED street and area lights which are purchased, owned, and maintained by the customer. Ameren made the LED 6(M) Customer-Owned Street Lighting tariff filing in compliance with the Stipulation from File No. ER-2012-0166.

On October 1, 2013, the Commission ordered Staff to file a recommendation regarding Ameren's 6(M) Customer-Owned Street Lighting tariff no later than October 18, 2013. Additionally, the Commission ordered that any other party wanting to file a recommendation to do so no later than October 18, 2013.

On October 18, 2013, Staff filed its *Staff Recommendation to Approve Tariff Sheets* in File No. EO-2013-0367. Staff recommended that the Commission issue an order approving the proposed 6(M) Customer-Owned Street Lighting tariff sheets to go into effect on October 30, 2013. Staff also recommended that the Commission order Ameren to continue to monitor the various critical assumptions identified through the analyses in the 2013 Report, to update its analysis annually, and to report the results of its annual update to Staff.

On October 23, 2013, the Commission issued its *Order Approving Tariff* to become effective on October 30, 2013. In the order, the Commission approved the 6(M) Customer-Owned Street Lighting tariff sheets and also ordered Ameren to monitor the various critical assumptions identified through the analysis in its 2013 Report, to update its analysis annually, and to report the results of its annual update to Staff.

On December 22, 2014, Staff received the *Ameren Missouri LED Lighting Update* (“2014 Report”) which concluded that “While the value proposition of LEDs continues to increase, it is not yet compelling, and the prudent decision is to defer implementation of an LED program for company-owned lights.” However, there were key observations determined from the analysis in the 2014 Report, including: 1) key uncertain factors regarding LED street and area lighting cost-effectiveness include the effective useful life of existing lighting options, maintenance trip savings, LED price trends, and the effective useful life of LED street and area lighting; 2) potential stranded costs and regulatory lag in Missouri are additional implementation barriers for LED street and area lighting; and 3) Ameren should continue the current path of taking steps to prepare for the time when a conversion program becomes attractive by: developing an equipment specification for LED, securing firm prices from the market through a formal inquiry, monitoring conversion issues identified through other utilities experience and monitoring potential external impacts such as adoption of an EPA rule on carbon.

In File No. ER-2014-0258, Staff recommended the Commission order Ameren to continue to study the cost-effectiveness of replacement of all or parts of existing 5(M) Company-Owned Street Lighting with LED lights and, no later than twelve months following the Commission’s Report and Order in that case, to file either proposed LED lighting tariffs or an update to the Commission on when it will file a proposed LED lighting tariff to replace existing 5(M) Company-Owned Street Lighting. In response, Ameren stated that it would submit an update before the end of 2015 and since it is already required to provide Staff with an economic analysis of LED street lights, no further action was needed by the Commission.

2015 REPORT AND TARIFF FILING

On December 17, 2015, Ameren filed with the Commission its 2015 Report and revised 5(M) Company-Owned Street Lighting tariff sheets. The 2015 Report is Ameren’s third annual evaluation of cost-effectiveness for LED lighting. This year is the first time the outcome shows that LED street lighting is cost-effective for a large portion of Ameren’s 5(M) Company-Owned Street Lighting.

Executive Summary

Key insights in the 2015 Report included:

1. The price of LED fixtures continues to decline as manufacturing volumes increase.
2. About two-thirds of the 5(M) Company-Owned Street Lighting now has LED alternatives that are technically and economically feasible.
3. Ameren plans to install approximately 25,000 enclosed and open bottom LED lights per year over a period of approximately five years beginning in the second quarter of 2016.
4. Rates for the most common LED lights will be about one dollar (\$1) per month less than the current lighting offerings, which is nearly a ten percent (10%) reduction in the monthly charge.
5. Conversion of the enclosed and open bottom lights to LED will, once complete, result in a reduction of approximately sixty-two thousand (62,000) megawatt hours (“MWh”) in energy use and almost sixty thousand (60,000) metric tons of carbon production annually.

Technology Assessment Update

The 2015 Report mentions three major trends in LED lighting technology in recent years: 1) prices have been decreasing; 2) efficiency and rated life have been increasing; and 3) color temperatures have become “warmer.” In addition, a recent Ameren competitive bidding event indicated that pricing for traditional street and outdoor lighting products, such as HPS, has increased and will continue to increase into the future.

Cost-Effectiveness Analysis

The cost-effectiveness analysis performed for 5(M) Company-Owned Street Lighting compared the additional up-front cost of LED street lighting fixtures to the additional benefits of those LEDs over their expected useful life. The additional benefits mentioned in the 2015 Report for LED street lighting are: 1) the avoided energy costs associated with the lower energy consumption of LED street lighting; and 2) the avoided maintenance costs associated with the expectation that only a very small percentage of LED fixtures will require a maintenance trip to their location during the first fifteen (15) years of their life. The avoided energy costs are the difference between the input watts of the existing light less the input watts of the comparable LED light with the result multiplied by the expected annual operating hours (4,000) and the future avoided energy rates from Ameren’s 2014 Integrated Resource Plan (“IRP”) filing in File No. EO-2015-0084. The avoided maintenance costs are the cost of replacing bulbs and/or photocells on traditional lights every five years on average. Results for enclosed and open bottom street lighting indicated that ninety-five percent (95%) of the HPS lights installed, once converted to LED,² become cost-effective on or before the second time that maintenance would

² Will be replaced upon failure.

have been required,³ and two-thirds of the MV lights installed, once converted to LED,⁴ will become cost-effective on or before the first time that maintenance would have been required.⁵

The 2015 Report states that conversion of directional and decorative post top lights is not cost-effective at this time because: 1) the number of manufacturers offering LED directional fixtures is more limited and the costs have not declined to the same degree as for enclosed and open bottom LEDs; 2) post top LED fixtures, while readily available, still have a very high price premium compared to traditional post top fixtures, which is likely due to much small production volumes; and 3) many of the current post top products have a rated life expectancy that is far lower than enclosed and open bottom LEDs.

Customer Rates

Concurrent with the 2015 Report, Ameren filed revised 5(M) Company-Owned Street Lighting tariff sheets. The tariff includes four (4) new LED options and a revision of the provision that allows lighting customers to elect for conversion⁶ of their existing light to a different Ameren offering. The four new LED options represent an LED equivalent for each size of currently available horizontal enclosed lighting option as well as an LED equivalent for the predominant open bottom lighting option. The 2015 Report indicates that the LED alternatives use fifty-five percent (55%) to sixty-five percent (65%) less energy than the existing lighting options offered by Ameren. With Ameren's proclamation that after approximately five years nearly two-thirds of the lighting system will be converted to LEDs, total energy consumption for the 5(M) Company-Owned Street Lighting rate class would decrease by more than forty percent (40%). If this holds true, the 2015 Report claims this reduction in kilowatt hours will have a material impact on the fixed costs allocated to the 5(M) Company-Owned Street Lighting rate class in a future class cost of services study.

Implementation Timing

LED lighting installations are anticipated to begin in the second quarter of 2016. The competitive bidding process was launched in late October 2015 with a target of selecting preferred vendor(s) by the end of 2015⁷ and having contracts in place by mid-February 2016. Additionally, the 2015 Report states that initial indications are that building inventory quantities necessary to launch LED installations will require approximately six (6) to eight (8) weeks considering vendor lead times. If contracts are in place around mid-February and building inventory quantities takes roughly six weeks, LED lighting installation beginning in the second quarter of 2016 is attainable.

³ Eleven (11) years.

⁴ Will be replaced upon failure.

⁵ Six (6) years.

⁶ Ameren will convert to LED up to 1,000 lights per year requested by customers with a limit of only 25 lights per customer account per calendar year.

⁷ Ameren stated in a December 21, 2015 conversation that final selection may not actually take place until early 2016.

Conclusions

The 2015 Report concludes that the economic analysis demonstrates that it is now cost-effective to transition horizontal enclosed and open bottom style lights to LED alternatives. Ameren asserts that the savings in costs with this implementation approach and the immediate bill savings to customers will outweigh the medium-term mixing of lighting differences between HPS and LED technologies. The 2015 Report also claims that as existing lights fail and new lights are installed, customers will immediately save approximately ten percent (10%) per month for the new LED lights. In addition, while post top and directional style lights are not cost-effective today, Ameren proclaims it will continue to evaluate the economics of these light types and look for future implementation opportunities as these products evolve.

STAFF RECOMMENDATION

Staff has reviewed the proposed tariff sheets and the related supporting 2015 Report, as filed on December 17, 2015,⁸ and recommends that the Commission issue an order approving the following proposed tariff sheets to go into effect on January 16, 2016, the requested effective date:

MO. P.S.C. Schedule No. 6 Sheet Nos. 58 – 58.5

Second Revised Sheet No. 58 Cancelling First Revised Sheet No. 58

Second Revised Sheet No. 58.1 Cancelling First Revised Sheet No. 58.1

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Staff further recommends that the Commission order Ameren to continue to provide Staff with annual updates to its economic analysis of LED street lights. However, starting in 2016, this report need only to contain: 1) an analysis on the cost-effectiveness of converting the remaining 5(M) Company-Owned Street Lighting to LED and Ameren's intentions to do so; and 2) a status report on the progress Ameren has made in conversion of its enclosed and open bottom light types to LED. 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 recommends that Ameren 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.

⁸ A substitute Second Revised Sheet No. 58 Cancelling First Revised Sheet No. 58 was submitted on December 23, 2015.

Staff has verified that Ameren has filed its 2014 annual report and is not delinquent on any assessment. Staff is not aware of any other matter before the Commission that affects or is affected by this filing.

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of Union Electric)
Company d/b/a Ameren Missouri's LED)
Street Lighting Update and Tariff Filing) File No. ET-2016-0152

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 attached Staff Recommendation in memorandum form; and that the same is true and correct according to his best knowledge and belief.

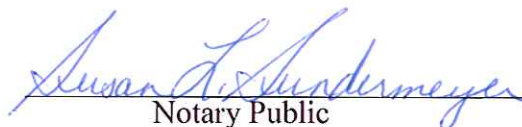
Further the Affiant sayeth not.



Brad J. Fortson

Subscribed and sworn to before me this 31st day of December, 2015.

SUSAN L. SUNDERMEYER
Notary Public - Notary Seal
State of Missouri
Commissioned for Callaway County
My Commission Expires: October 28, 2018
Commission Number: 14942086



Notary Public