

Exhibit No.: _____
Issue: Lighting Tariffs
Witness: Samuel S. McGarrah
Type of Exhibit: Surrebuttal Testimony
Sponsoring Party: The Empire District
Electric Company
Case No.: ER-2019-0374
Date Testimony Prepared: March 2020

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

Surrebuttal Testimony

of

Samuel S. McGarrah

on behalf of

**The Empire District Electric Company -
a Liberty Utilities Company**

March 2020



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OF
SAMUEL S. MCGARRAH
THE EMPIRE DISTRICT ELECTRIC COMPANY
BEFORE THE
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1 **I. INTRODUCTION**

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

3 A. My name is Samuel S. McGarrah, and my business address is 602 Joplin Street,
4 Joplin, MO, 64802.

5 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

6 A. I am employed by Liberty Utilities Service Corp. as the Director of System
7 Performance for The Empire District Electric Company (“Liberty-Empire” or the
8 “Company”).

9 **Q. ARE YOU THE SAME SAMUEL S. MCGARRAH WHO FILED DIRECT**
10 **AND REBUTTAL TESTIMONY IN THIS MATTER ON BEHALF OF**
11 **LIBERTY-EMPIRE?**

12 A. Yes. With my Direct and Rebuttal Testimonies filed with the Missouri Public Service
13 Commission (“Commission”), I address the continuation of Liberty-Empire’s light
14 emitting diode (“LED”) municipal street lighting tariff, a proposed change to the
15 original municipal street lighting tariff, and an LED option that Liberty-Empire
16 proposes to offer its customers for private lighting.

17 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY IN**
18 **THIS PROCEEDING?**

19 A. I respond to a portion of the Rebuttal Testimony filed in this matter by Kim Bolin on
20 behalf of the Staff of the Commission (“Staff”). In her Rebuttal Testimony, Ms. Bolin

1 addresses “Staff’s opposition to deferrals requested in Empire witness Samuel
2 McGarrah’s direct testimony concerning the replacement of mercury vapor lights
3 with light emitting diode (LED) lighting for municipal and private lighting
4 customers.”

5 **II. LIBERTY-EMPIRE’S PROPOSALS**

6 **Q. WHAT IS LIBERTY-EMPIRE PROPOSING WITH REGARD TO THE**
7 **RELACEMENT OF MERCURY VAPOR LIGHTS?**

8 A. With regard to Liberty-Empire’s (1) Municipal Street Lighting Tariff, Schedule SPL,
9 PSC Mo. No. 5, Sec. 3, 17th Revised Sheet No. 1 and 7th Revised Sheet No. 1a, and
10 (2) Private Lighting Service, Schedule PL, PSC Mo. No. 5, Sec. 3, Revised Sheet No.
11 2, Liberty-Empire proposes to replace all Company-owned, mercury vapor (“MV”)
12 light fixtures with LED light fixtures (or High Pressure Sodium (“HPS”) fixtures if
13 specified by a lighting customer).

14 **Q. WHAT IS LED LIGHTING, AND HOW DO LED FIXTURES COMPARE TO**
15 **MV AND HPS FIXTURES?**

16 A. LED lighting is a low maintenance lighting that produces a white light that provides
17 directional illumination and is designed to match natural daytime light. LED lighting
18 is more aesthetically pleasing and is known to be more efficient over other lighting
19 options, including both MV and HPS. While MV light bulbs are still available, the
20 MV fixtures are not available in the market. MV lights are becoming obsolete, while
21 LED lights are more energy efficient than MV lights, have reduced maintenance costs
22 and a longer life, and are more energy efficient and environmentally friendly. During
23 Liberty-Empire’s LED pilot program, the LED streetlights demonstrated much lower
24 energy usage in comparison to HPS lights of similar lumens. In fact, Liberty-Empire

1 found that the LED lights used less than half of the kWh used by HPS lights over the
2 course of a year. Not only are the LED lights more efficient and use less energy, the
3 LED lights last longer, are more durable, have the ability to operate at lower
4 temperatures, and provide a higher quality light output. The improvement in the
5 quality of light is expected to reduce crime, as well as, prevent the color distortion
6 associated with the HPS lights. This improvement in light quality may also assist law
7 enforcement, with reports of activities in these improved lighted areas more
8 accurately describing the color of garments, vehicles, and other objects.

9 **Q. IS LIBERTY-EMPIRE REQUESTING REGULATORY TREATMENT TO**
10 **TRACK THE COSTS OF REPLACING MV LIGHTS?**

11 A. Yes. Liberty-Empire would like the Commission to approve regulatory treatment to
12 capture the costs associated with the MV light fixture replacement programs. For its
13 Municipal Lighting Service, Liberty-Empire requests that a regulatory asset or
14 liability be established to account for the difference between the actual cost incurred
15 and the actual revenues collected from customers as they move to the LED light
16 fixtures. The difference would be recovered or returned as determined in a subsequent
17 rate case. For its Private Lighting Service, Liberty-Empire is requesting that the
18 Commission approve regulatory treatment to (i) capture the costs associated with the
19 MV light fixture replacement program and (ii) track the difference between estimated
20 and actual revenues and costs of the LED light fixtures. Liberty-Empire requests that
21 a regulatory asset or liability be established to account for the difference between the
22 actual cost incurred and the actual revenues collected from customers that choose to
23 move to the LED light fixtures. The difference would be recovered or returned as
24 determined in a subsequent rate case.

1 **III. STAFF'S OPPOSITION**

2 **Q. ON PAGE 9 OF HER REBUTTAL TESTIMONY, MS. BOLIN**
3 **ACKNOWLEDGES THAT LED LIGHTS ARE A BETTER CHOICE THAN**
4 **MV LIGHTS, BUT SHE STATES LIBERTY-EMPIRE WANTS TO REPLACE**
5 **MV LIGHTS THAT ARE IN WORKING CONDITION. DO YOU AGREE**
6 **WITH THESE STATEMENTS?**

7 A. The Company certainly agrees with Ms. Bolin that LED lights are a better choice than
8 MV lights. In addition to the benefits already discussed, changing a MV light to LED
9 will save 422 KWH per year. Over 20 years, changing the light will save 8,400
10 KWH. Changing 8500 MV lights to LED, as proposed by the Company, will save
11 3,500 MWH per year, or almost 72,000 MWH over 20 years. The Company,
12 however, disagrees with Ms. Bolin's second statement. Most of the MV lights on the
13 Company's system are 30 to 40 years old. Although they have not failed, as that term
14 is generally used, they are not serving their intended purpose. The MV lights glow,
15 but they fail to produce light on the street. For safety reasons, they should be replaced
16 at this time. Additionally, costs will increase if the MV lights are replaced piecemeal,
17 due to additional costs for testing and truck rolls.

18 **Q. ON PAGE 10 OF HER REBUTTAL TESTIMONY, MS. BOLIN STATES**
19 **THAT THE IMPACT OF INSTALLING THE LED LIGHTS IS NOT**
20 **MATERIAL. DO YOU AGREE WITH THIS STATEMENT?**

21 A. No. The Company estimates that it will cost approximately \$4.5 million to replace the
22 8,500 municipal MV lights. During the development of the LED tariff, the cost for
23 installing the minimum size light was \$372.88. As such, the cost to install 8,500 LED
24 lights may be over \$3.1 million, without adjusting for inflation. Added to that amount

1 would be the cost to identify all locations where MV lights are located on the system
2 and the cost to remove and dispose of the old fixtures. There will also be additional
3 costs for locations with series circuits that will require the installation of a new
4 conductor. The Company considers both the costs and the benefits to be material to
5 the Company and its customers.

6 **Q. WHAT ARE THE COSTS INVOLVED WITH REPLACING MV LIGHTS**
7 **WITH LED LIGHTS UNDER THE PRIVATE LIGHTING SERVICE?**

8 A. There are over 13,500 MV private lights, and the cost for installation is
9 approximately \$240 per light, with the cost varying depending on size. As such, the
10 installation cost at a minimum is \$3.25 million, not accounting for the cost to remove
11 and dispose of the old fixtures. The LED “charge per lamp” proposed in this
12 proceeding is based on the proposed HPS municipal street light rate adjusted for
13 lower energy usage and maintenance costs derived from the prior Missouri LED pilot
14 study. The amounts are estimates, and actual costs need to be determined and will not
15 be known until the Company is granted permission to perform the conversion. Again,
16 the Company considers both the costs and the benefits of the proposed LED
17 replacement program to be material to the Company and its customers.

18 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

19 A. Yes, it does.

VERIFICATION OF SAMUEL S. MCGARRAH

Samuel S. McGarrah, under penalty of perjury, declares that the foregoing surrebuttal testimony is true and correct to the best of her/his knowledge, information, and belief.

/s/Samuel S. McGarrah _____
Samuel S. McGarrah
Director of System Performance