Exhibit No.: _____
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Witness: Jeffrey Westfall
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Sponsoring Party: The Empire District Electric Company
Case No.: ER-2021-0312
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Before the Public Service Commission
of the State of Missouri

Direct Testimony

of

Jeffrey Westfall

on behalf of

The Empire District Electric Company

May 2021

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THE EMPIRE DISTRICT ELECTRIC COMPANY
BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION
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I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Jeffery Westfall, and my business address is 602 S. Joplin Avenue, Joplin, Missouri, 64801.

Q. By whom are you employed and in what capacity?

A. I am employed by Liberty Utilities Service Corp. as the Central Region Director of Electric Operation – T&D (Transmission & Distribution). My primary responsibilities include line and substation transmission and distribution operations, transmission planning and operations, reliability, vegetation, construction design, dispatch and meters. I am responsible for engineering and maintenance expenses for the Liberty Central Region electric transmission and distribution assets.

Q. On whose behalf are you testifying in this proceeding?

A. I am testifying on behalf of The Empire District Electric Company ("Empire" or "Company").

Q. Please describe your professional background.

A. I began my employment with Empire in December of 1989 in the Building Services department as a night janitor, switchboard operator and mail clerk. In August 1990, I became a warehouseman in the Company's Stores department. In March of 1991, I transferred to the Asbury plant where I held the position of Labor and Labor semi-skilled. I accepted the position of ground man at the service center in Aurora, Missouri

in March 1992. I progressed in classification and obtained Journeyman Lineman status in June of 1995, which I held until I was named Manager of Line Operations in July of 2008. As the Manager of Line Operations, I oversaw the line operations and maintenance for the Aurora service area, which included managing the workload and outage response for four line crews and three service trucks. In addition, I was responsible for the capital and operation and maintenance budgets for the Aurora service area. In June of 2015, I accepted the position of Director Operations – East where my responsibilities were expanded to include our 4 operating areas on the east side of Empire's electric service area. In October of 2016, I was promoted to Director of Operations and my responsibility was expanded to include all 8 of the operating service areas. Finally, in October of 2017, I was named the Central Region Director of Operations – T&D.

Q. Have you previously testified before the Missouri Public Service Commission ("Commission") or any other regulatory agency?

A. Yes, I provided testimony before the Commission in Empire's last rate case, Case No. ER-2019-0374, and I provided testimony on behalf of the Company before the Oklahoma Corporation Commission.

Q. What is the purpose of your direct testimony in this proceeding?

A. My testimony provides an overview of the transmission and distribution investments made by Empire to provide increased reliability to our customers and improve system operability and safety. I also provide practical examples of the Company's strategy to proactively mitigate outage risk by replacing equipment found to be in poor or otherwise non-conforming condition based on objective evidence collected through field inspections. For instance, solutions that increase sectionalization of our

transmission and distribution system, including adding fuses and substation breakers, help reduce the number of customers impacted by outages when they do occur and enable faster restoration times. Construction of new substations and reconductoring projects also provide additional system redundancy and switching paths, to make the system more operable under a variety of normal operating conditions and weather events. Replacing aging and deteriorating infrastructure is a key component of assuring that we can continue to provide safe reliable service for our customers. The results of these investments are evident from the system's relatively strong performance during the recent extreme weather events in our service area.

Q. Are you sponsoring any schedules with your testimony?

A. Yes, I am sponsoring **Schedule JW-1**, which provides a listing of Transmission and Distribution projects that are expected to be in service by the end of the Company's update period of June 30, 2021. In addition, I am sponsoring **Schedule JW-2**, which is a copy of the Company's revised Vegetation Management Procedures, and **Schedule JW-3**, which is a reliability benchmarking exhibit.

II. TRANSMISSION AND DISTRIBUTION INVESTMENTS

Q. Why does Empire invest in projects on Transmission and Distribution Systems?

A. There are many reasons underlying transmission and distribution reinforcements – driven by standard compliance, past reliability data, load growth accommodation, and the results of field inspections. A common theme across all investment drivers is the Company's commitment to maintain and improve the reliability of the grid. More specifically, the Company's transmission and distribution investments seek to perform the following functions:

- sectionalize the existing circuits to quickly and efficiently reduce the number of customers affected by outages by restoring the service to adjacent areas through alternate supply paths;
- harden the system and make it more resilient to extreme weather events by replacing deteriorated assets with reduced mechanical strength, reducing line sag, trimming adjacent vegetation, etc.;
- upgrade system voltages by reconductoring existing circuits and replacing older station assets with higher-rated equipment to enable load growth, reduce system losses and increase line transfer capability during the times of high loading;
- comply with relevant North American Reliability Corporation (NERC) standards and directives of the Southwest Power Pool ("SPP") associated with system capacity, redundancies, and other priorities;
- undertake reactive repairs to line and station assets caused by weather, faulty equipment and other common outage causes;
- replacing or refurbishing deteriorated or obsolete station equipment no longer deemed to be operable as a result of inspections; and
- other types of proactive and reactive work associated with transmission and distribution infrastructure and supporting equipment and facilities.

Q. What is "Operation Toughen-Up"

A. In 2010, Empire developed a multi-year plan to undertake a series of system reliability performance enhancements by replacing aged and deteriorated assets and undertaking other types of upgrades, such as sectionalizing line infrastructure to reduce the impact of outages, as well as protection, control and remote operation and monitoring

improvements. This reliability plan is often referred to as Operation Toughen-Up. Empire continues implementing this plan.

Q. In the last case, you provided an update on Missouri projects that are included in "Operation Toughen-Up." Have there been any additional Operation Toughen-Up projects since you provided an update in the last case?

A. Yes. Empire continues to implement the Operation Toughen-Up plan. Some examples of the Missouri projects constructed since the last rate case are discussed below.

DR0930 - Marionville Reconductor City Square (Completed 2020), replaced 0.35 miles of deteriorated conductor.

DR0932 - Walnut Grove Reconductor (Completed 2020), replaced 1.51 miles of deteriorated conductor.

TA0928 - Install (3) 161kV Breakers and (1) 12kV Breaker at Purcell #421 (Completed 2020), sectionalized the 161kV line, improved protection of the substation transformer and added Supervisory Control and Data Acquisition (SCADA) to the substation to enable certain remote sensing and operation capabilities.

TA0935 - Install 2-Way Transfer Scheme & Replace (3) 12kV Breakers at Monett H.T. #152 (Completed 2020), sectionalized the 69kV line and added SCADA capabilities to the substation.

TA0943 - Install Auto-Transfer Scheme at Racine Junction (Completed 2020), sectionalized the 69kV line and provided automatic restoration capability by installing an auto recloser device capable of automatically cleating faults on a radial transmission tap serving Seneca, Missouri.

TR0152 – Installing Optical Groundwire (OPGW) on 161 kV Neosho to Noel/TR0154 OPGW on 161 kV Noel to Dacatur, This multi-phase project will

replace all aged wood structures to adhere to 2018 NESC Grade B construction standards. The project will also leverage the scope economies created by pole replacements to install OPGW on the existing 161kV line segment from Neosho to #435 to Decatur South #392 to Flint Creek to improve network communications and thus help support system reliability and operability. There are currently no communications to the areas south of the Neosho area which inhibits the Company's ability to properly clear transmission line faults remotely, or obtain loading and other operating data during system reliability events.

Q. Will Operation Toughen-Up be extended beyond the originally scheduled ten years?

A. Yes. Empire has a handful of projects which will extend beyond the original 10-year timeframe. The modification to Pillsbury substation #447, the installation of transmission breakers at Rocketdyne #296, and the rebuild of 69kV line between Golden City #251 and Lockwood #400 will extend into 2022. The addition of transmission breakers at Hermitage #209 will continue into 2023. The 34.5kV to 69kV conversion between Stockton and Fairplay will require work into 2025. The planned projects have a corresponding budget of $8,414,000 in 2022, $252,000 in 2023, $4,769,000 in 2024 and $9,482,000 in 2025. The extension of the project's timeframe beyond the originally anticipated schedule will help pace the requisite volume of work and help manage the ensuing rate impact for the Company's customers.

Q. In addition to the ongoing "Operation Toughen-Up" reliability program, what other investments since Empire's last case has it made to help improve system reliability?

A. The Company continually seeks to reinvest in its infrastructure to ensure that its transmission and distribution systems are providing reliable and adequate service to customers. While it is certainly difficult to address all capital investments on the transmission and distribution systems in testimony, **Schedule JW-1** provides a list of capital investments in excess of $1 million made in Empire's transmission and distribution systems since February 1, 2020 through the end of the update period in this case. This list includes a description and justification for each capital project. This list includes many of the "Operation Toughen-Up" projects, as well as other capital investments.

Q. Please describe some of the other capital investments in the transmission and distribution system that have been made since Empire's last general rate case, Case No. ER-2019-0374?

A. Outside of the Operation Toughen-Up program, the Company has also undertaken the following projects to improve the transmission and distribution systems serving Missouri customers.

TR0910 Rebuild 69kV between Boston and Greenfield: This is a multi-phase project to rebuild 69kV line at 33-0 from Sub #614 to Sub #400, Boston Sub #249 to Golden City Sub #251 to Boston Sub #400 and install automated switch at Boston Sub #400. This line requires upgrades to meet the National Electrical Safety Code's (NESC) Grade B construction standard and enhance the integrity of the line and structures due to average age of the assets being around 70+ years. The automated switch allows for better sectionalizing and faster restoration times in the event of outages, by restoring power to a portion of affected consumers faster. This project was identified through the Company's pole inspection program which determined that the

majority of the poles and crossarms showed extensive signs of physical deterioration and required near-term replacement. This rebuild project also includes the addition of automated transmission switching around Golden City and Lockwood to further enable operational flexibility and adjacent circuits under a variety of operating conditions.

TR0901 Rebuild 69kV #186 to #388: This project replaces sub 271 which was constructed in the 1940's and warrants replacement on balance of multiple operating and risk management issues. The station's assets include a 69kV ring bus, 4-69kV breakers, and relay enclosure among other equipment. The project entails retiring the existing Sub 271, while leaving the existing fence for a future storage site. The rebuilt Sub 271 equipment would be converted from 34.5 to a higher 69kV, having previously rebuilt the transmission line emanating from the station from 27-0 to 69kV. Given the vintage of the critical equipment comprising the substation, continued operation would have to rely on the Company being able to obtain in a timely manner critical spare parts that are no longer manufactured and are increasingly difficult and costly to procure. Aside from the increasing probability and impact of future outages driven by deteriorating condition and difficulty in procuring spares, the substation already experienced multiple outages that are suspected to have been caused by faulty and obsolete protection relay schemes. These avoidable outages that are not attributable to any other operating causes have already caused inconvenience and disruption of normal business activities of affected customers, while leading to incremental reactive expenditures for the Company Prolonging the status quo would expose the Company to further increasing probability of outages caused by aged and deteriorated equipment, while also increasing the potential impact of outages, should critical spare equipment be unobtainable in short order. By retiring deteriorated assets and converting the

station to a higher operating voltage the Company and its customers stand to gain multiple benefits, including reduced outage risk, supply chain efficiencies through further standardization of spare substation equipment, and reduction of technical losses. Moreover, substation and line infrastructure renewal are also expected to improve the system communications capability and provide capacity for future load growth.

TA0923- Inst 2-69kV Brkrs #447 & $258: This project consists of expanding the substation footprint to allow the installation of a new two-bay 69kV standard box structure with (4) 69kV circuit breakers, and (5) 69kV Power Transformers. The expansion includes installing a new prefabricated control enclosure, relay protection panels, a communications panel, and replacement of AC/DC panels. These upgrades enhance the station's capacity to accommodate the anticipated customer growth, while providing adequate protection and reducing transmission line risk exposure to potential causes of outages.

TA0942 – Install 161kV Subst & Retire #291: This project entails constructing as a new substation near Baxter Springs Kansas in a new location, the existing substation 291 can be retired. The footprint of the existing Sub 291 is "landlocked" and cannot accommodate the space required to replace a number of large assets that are at the ends of their useful lives. New land was purchased to have the new substation under the 161kV transmission line and to allow adequate room for future anticipated expansions. The project involves installation pf includes (3) 161kV breakers, (4) distribution breakers, (4) 12 kV underground exits, (1) control enclosure, (1) mobile substation hookup and associated site improvements. The substation serving the city of Baxter Springs is currently equipped with 2 10.5 MVA transformers. While the new station will have a single 22.4 MVA transformer, it will be looped from

the 161kV transmission line instead of the radial 69kV line that currently feeds sub 291, providing additional reliability. Additional load service redundancy serving Baxter Springs, Quapaw sub 377 will have 1 circuit that will serve load in Baxter Springs.

DB0001 – Extensions: This portfolio consists of multiple small-scale projects that involve line extensions to accommodate service requests for new and/or existing customers. The number of extensions for new or reconfigured services can vary from year to year, and as such, historical volumes are used for budgeting purposes. The dynamic nature of connection requests is not correlated with any single investment driver, but rather entails an interplay of various elements which influence the number of projects and associated costs. Among others, economic growth (both nationally and locally) is a significant parameter determining the ultimate volume of work in any given year.

DR0002 – Replace Bad Order Distribution Poles: This portfolio targets replacement of distribution poles identified by the Company's inspection program as being in poor condition and warranting imminent replacement to avoid failure. Damaged and decayed poles pose a significant risk to the overall system reliability, and by extension – the health and wellbeing of the Company's customers. By proactively removing deteriorated poles with reduced mechanical strength to withstand increased loading caused by ice buildup and high wind speeds, the Company reduces the probability of equipment-caused outage events, improves system operability during both normal and poor weather conditions and proactively reduces the reactive maintenance expenditures caused by outages.

DR0009 – Misc Rebuilds/Add to Dist Subs: This portfolio incorporates investments to replace distribution equipment in substations that occur during the year that either fails in service or is no longer deemed to be operable on the basis of inspections. The number of replacements at distribution substations can vary from year to year, and is typically driven by the volume and results of field testing and inspections as well as a number of external events that cannot be reliably predicted year-to-year.

DR0190- Replace Wood Structure at Humansville #308: This project replaced the aged and deteriorated wood structure equipment at the substation to maintain structural integrity and reduce the probability of equipment-related outages. The wood structure renewal also sets the stage for future 34.5 kV to 69 kV voltage conversion in this area, which is consistent with the Company's strategy in other areas to ensure reliability.

AMI1001 – AMI: As part of its comprehensive grid modernization efforts, Empire is undertaking a major upgrade of its metering network to an Advanced Metering Infrastructure ("AMI"), which will enable two-way communication between customer meters and Empire, remote meter reading, near-real-time consumption data review, improve outage identification and other operational and customer-facing benefits. For more details related to this specific project please refer to the Direct Testimony of Company witness's Chad Hook and Tisha Sanderson.

DS0130 – Service Center Improvements/Additions: This portfolio includes an annual amount designated for each area for miscellaneous capital improvements to Empire's operating facilities. Also included within this budget is the establishment of a new service center in Aurora, Missouri. The current service center was constructed in the late 1950's. The building is poorly suited for contemporary work space and

technology requirements, while the existing office and storage spaces are no longer adequate to accommodate the scope and nature of daily tasks. Moreover, the truck bays require backing with limited maneuvering space and are not deep enough to accommodate newer trucks, thereby creating an added employee safety risk. Parking for employees and the public at the existing facility is difficult due to confined parking lots and lack of easily accessible parking spots. Additionally, many of the areas within the existing facility are unsecured, while there is no storm shelter to provide sufficient protection in the event of severe weather. The new building will serve as the base for the area's operation crews and support office staff for construction design, management, as well as business and community development personnel. The improved physical and spatial requirements for office and storage spaces, along with upgrades to the employee and vehicular safety features will improve the efficiency of all activities taking place in the service center, resulting in better customer service and reliability outcomes. The addition of a storm shelter will provide much needed refuge from tornadoes for employees and any community members in/around the facility at times of danger. This project is included in the plant pro-forma adjustment with an anticipated completion date on or before June 2021.

III. RELIABILITY INSPECTION PROGRAM AND VEGETATION MANAGEMENT PROCEDURES

Q. In addition to the capital investments discussed above, what other programs help improve system reliability?

A. The Commission implemented reliability inspection standards in 2008 that dictate the frequency and scope of system inspections and repair activities. Since the implementation of these standards, Empire has elected to implement the Missouri

standards for inspections and repairs for facilities in all jurisdictions served by Empire. The Company performs scheduled inspections and vegetation clearing to maintain the reliability of transmission and distribution circuits. Since the inception of these standards, over 178,000 poles were subjected to a pole ground-line (intrusive) inspection which involves excavating and drilling the pole below the ground surface to determine the remaining strength of the structure (and thus condition-based probability of failure). Moreover, more than 562,000 poles and devices were subjected to a detailed inspection which includes visual inspection and infrared scanning of pole-mount and pad-mount equipment to identify and rectify any hotspots indicative of impending outages. Over 702,000 poles and devices were subjected to a patrol inspection (visual inspection). In the past 5 years because of these inspections, over 6,000 poles and devices have been replaced, helping prevent outage events. In addition to the field inspection work, Empire also monitors reliability information on a monthly basis to determine to identify and rectify any emerging trends that may warrant other forms of proactive asset intervention.

Q. Please provide an update on Empire's vegetation management procedures?

A. In 2020, the Company updated its vegetation management procedures. The major change related to moving the 4-year cycle for urban circuits to a shorter 3-year cycle. Aside from reducing the probability of vegetation-related outages, this change also helps consolidate the maintenance cycles on the same substations, reducing the need for crews to come back to the same area due to the previously inconsistent inspection cycles (four or six years) on different circuits originating from the same substation. In doing so, it will also reduce the associated lifecycle maintenance costs for the circuits in question. A related change incorporated into the procedures involve determining

maintenance schedules based on a number of units (trees) per circuit. As vegetation types and density vary across the system (or even the length of a single circuit), basing our maintenance cycle frequency on the expected number of units requiring trimming provides stability in budgeting and crew composition, and helps prioritize the areas that are more likely to result in outages. The Company expects to see a minor improvement in reliability due to the patrol frequency changes and activities related to remediating potential tree fall-ins from outside of the active right-of-ways, as well as proactive removal of Emerald Ash Borer-infested trees. The Company also added Substation Vegetation Management and Research and Development sections to the guidelines, to further drive performance improvements to its field activities. Please refer to **Schedule JW-2** for the updated vegetation management procedures which was submitted to the Commission in December 2020.

IV. SERVICE RELIABILITY AND QUALITY IMPROVEMENTS

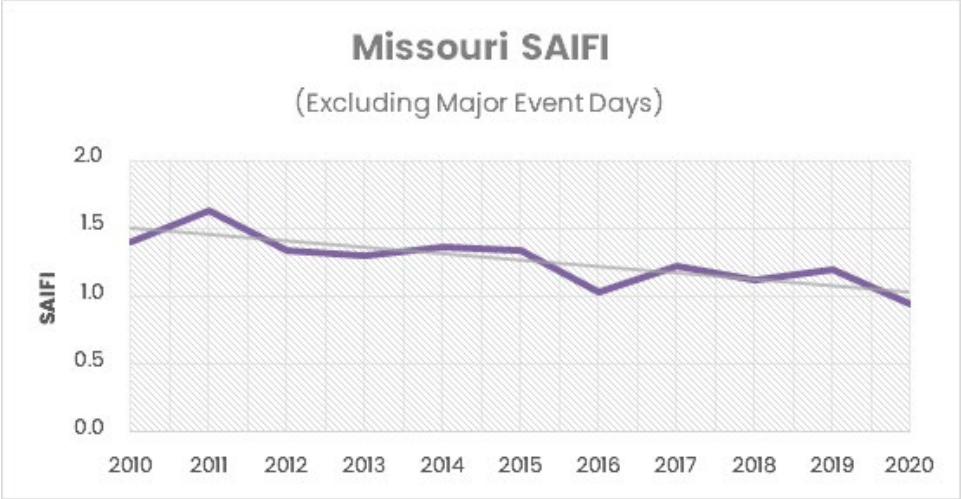
Q. Since the last rate case, has Empire undertaken any projects to improve reliability for Missouri customers?

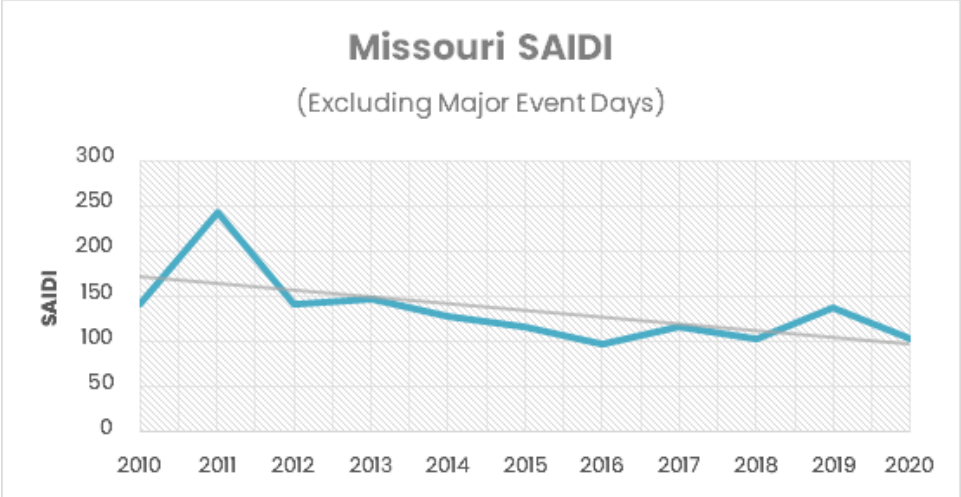
A. Yes. Empire continues to invest in reliability for its Missouri customers. In 2020, an additional 20 circuits were sectionalized, and 1,549 poles were reinforced or replaced. Additionally, approximately 3,000 devices have received wildlife guards to protect against animal related outages.

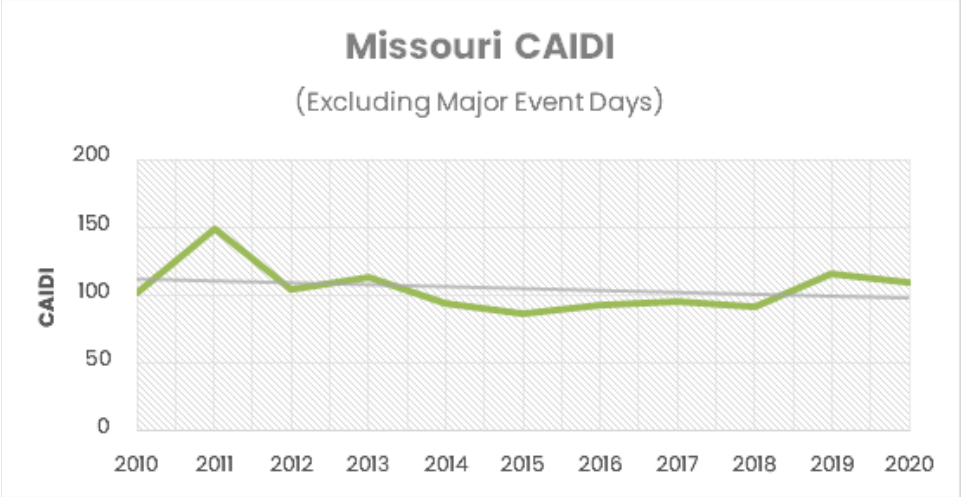
Q. Please provide an update on Empire's SAIDI, SAIFI, and CAIDI results?

A. In 2020, Empire customers benefitted from robust service reliability. The 2020 reliability performance metrics were as follows; SAIDI of 103.54, SAIFI of 0.941, and CAIDI of 110.06. While this positive performance was aided by favorable weather

conditions, it was fundamentally supported by Empire's infrastructure renewal investments, ongoing vegetation clearing, and Operation Toughen Up projects.







Q. In Empire's last general rate case, did the Company agree to certain benchmarking with regard to reliability metrics?

A. Yes. Per paragraph 10 of the Global Stipulation and Agreement signed by the parties on April 15, 2020 in ER-2019-0374, Empire agreed to the following:

> The Company will benchmark across utilities for reliability and present this information in its direct testimony in its next rate case and in subsequent reliability reports (annual basis) for the years 2021 and 2022. The Company will provide a 6-year retrospective benchmarking analysis of investor-owned utilities in Kansas, Arkansas, Oklahoma and the utilities identified in Table 1 of the surrebuttal testimony of Geoff Marke in its next rate case based on publicly available EIA data and to then be filed in the Company's Reliability Reports for 2021 and 2022. Metrics include SAIDI, SAIDI w/out Major Event Days, SAIFI, SAIFI w/out Major Event Days. To the extent known to the Company and based on publicly available information, the Company will indicate whether the utilities used for benchmarking are reporting using the IEEE-1366 standard or some other standard.

Q. Please provide the results of that benchmarking.

A. Empire's Missouri customers experienced an average SAIDI (including major events) of 144.47 minutes and ranked third among the twenty-one reporting utilities. Empire's Missouri customers experienced an average SAIFI (including major events) of 1.289 interruptions and ranked eighth among the nineteen reporting utilities.

The six-year comparison of regional utility reliability performance indicates Empire's Missouri customers experienced an average SAIDI (excluding major events) of 116.27 minutes and ranked tenth among the twenty reporting utilities. Empire's Missouri customers experienced an average SAIFI (excluding major events) of 1.212 interruptions and ranked thirteenth among the eighteen reporting utilities.

The inclusion of outages associated with major events provides a true representation of the customers' actual overall experience. Comparison of the including and excluding major events performance indicates Empire customers are

benefiting from a more resilient infrastructure and enhanced restoration capabilities, as the result of system improvements, when major events occur.

Empire continues to focus its capital investments on its infrastructure to ensure its infrastructure continues to operate safely and reliably. It should be noted that while the latest publication of the Energy Information Administration's Form 861 used to populate and benchmark only includes 2019 performance values, Empire is able to report it experienced a significant reliability improvement in 2020.

The Company filed the Benchmarking Study as directed by the Commission with its 2021 Reliability Report. For additional details on the Benchmarking Study, please refer to **Schedule JW-3**, which is the complete reliability benchmarking analysis.

V. LINEMAN RETENTION PROGRAM

Q. Last year Empire implemented a Lineman Retention Program. Was that initiative successful?

A. Yes, in 2019, 16 linemen left the company before the retention program was implemented and approved by the Commission. After the implementation of that program, the Company only lost 2 linemen. Having this program in place also helped Empire retain the remainder of these positions and attract and replace the positions that were vacated.

Q. Is this program still ongoing?

A. Entering into this program, Empire felt it would be temporary in nature, and in the fall of 2020, the Company confirmed the labor market for these positions had returned to a more normalized level. Therefore, in January 2021, the Company discontinued the temporary retention program.

VI. EMPIRE'S PROCUREMENT POLICIES AND PROCEDURES

Q. Are Empire's procurement policies and procedures adhering to the "Responsible Contractor Policy" which was implemented following the conclusion of Case No. EM-2016-0213?

A. Yes. Empire continues to be in compliance with the below stipulation provision:

> Empire commits to implementing a Responsible Contractor Policy for construction and maintenance projects that include fixed-price contracts in excess of $1 million. The policy shall consider the inclusion of the following principles and guidelines including experience with past projects; robustness of safety programs; commitment to quality; a skilled workforce; financial integrity; cost and overall prudency; and local sourcing. When assessing bids from contractors who meet the principles included herein, Empire will consider additional cost savings on a project as a result of contractor-funded training, apprenticeship, and certification programs. To further this objective, Empire will quantify the costs associated with providing similar training, apprenticeship, and certification services in-house.

Q. Were the capital projects identified in Schedule JW-1 evaluated in accordance with the Procurement Policy?

A. Yes, except for blanket projects which are grouped together when approved.

Q. Does this conclude your direct testimony at this time?

A. Yes.

VERIFICATION

I, Jeffery Westfall, under penalty of perjury, on this 28th day of May, 2021, declare that the foregoing is true and correct to the best of my knowledge and belief.

/s/ Jeffrey Westfall