Exhibit No.: _____
Issue: Decommissioning Plan for Asbury; Creation of Asbury Renewable Operations Center by Repurposing Asbury
Witness: Drew W. Landoll
Type of Exhibit: Direct Testimony
Sponsoring Party: The Empire District Electric Company
Case No.: 21-EPDE-_444___-RTS
Date Testimony Prepared: May 27, 2021

Before the State Corporation Commission
of the State of Kansas

Direct Testimony

of

Drew W. Landoll

on behalf of

The Empire District Electric Company

May 27, 2021

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DIRECT TESTIMONY OF DREW W. LANDOLL
THE EMPIRE DISTRICT ELECTRIC COMPANY
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I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Drew W. Landoll. My business address is 602 S Joplin Ave. Joplin, MO, 64801.

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

A. I am employed by Liberty Utilities Service Corp. ("LUSC"), a subsidiary of Liberty Utilities Co. ("LUCo"), as the Director of Strategic Projects for The Empire District Electric Company ("Empire" or the "Company").

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

A. I am testifying on behalf of Empire.

Q. Please describe your educational and professional background.

A. I completed my Bachelor of Science in Civil Engineering at the University of Missouri – Rolla, now known as Missouri University of Science and Technology. My civil engineering emphasis was in construction and environmental with a minor in communications. I am a registered Professional Engineer within the State of Missouri.

Until 2012, I was employed by Aquaterra Environmental Solutions, a civil and environmental consulting firm within the Midwest as a Project Engineer. As a Project Engineer, I designed and permitted landfill expansions, wastewater pumping systems, air emissions permit applications, and operational support for multiple clients within the waste and environmental industries.

In May of 2012, I joined Empire at the Asbury Power Plant ("Asbury") as a Local Projects Manager planning and managing projects and outages for the plant. In May of 2015, I was promoted to Manager of Strategic Projects. In that role, I was the lead for: the demolition of Riverton Units 7, 8, and 9; the completion of the Riverton 12 Combined Cycle Conversion Project; the early development of the Missouri wind farms, Kings Point and North Fork Ridge; and multiple other smaller projects within the Company. Then, in July of 2019, I was promoted to my current position of Director of Strategic Projects. As Director of Strategic Projects, I oversee environmental compliance, certain large projects, capital expenditure budgeting, and project accounting and forecasting, and I provide support for regulatory filings related to certain projects.

Q. Have you previously testified before the Kansas Corporation ("Commission") or any other regulatory agency?

A. No. This is the first opportunity I have had to testify before this Commission.

Q. What is the purpose of your Direct Testimony in this proceeding?

A. I provide an update on the status of the Company's decommissioning plan for Asbury. Asbury Unit 1 first became operational in 1970 and was originally an approximately 200 MegaWatt ("MW") mine-mouth, coal-fired electric power plant located in Jasper County, Missouri. My Direct Testimony also addresses the creation of the Asbury Renewable Operations Center and the repurposing of certain assets to support ongoing operations.

Q. Do additional Empire witnesses address issues related to the retirement of Asbury?

A. Yes. Empire witnesses Timothy N. Wilson, Aaron J. Doll, and Shaen T. Rooney address various components of the Company's decision to retire Asbury. Mr. Frank Graves addresses the appropriateness of the Company's request to recover the undepreciated retired investments at Asbury. Finally, Company witness Tisha Sanderson addresses the impact of the retirement of Asbury on the Company's revenue requirement.

Q. What is the current status of Asbury?

A. Asbury was de-designated from the Southwest Power Pool ("SPP") and retired in March of 2020. The Asbury campus includes facilities and buildings that were necessary to support the operations of the original plant. Some of these facilities are now repurposed to support the Asbury Renewable Operations Center.

Q. What is the purpose of the Asbury Renewable Operations Center?

A. The Company repurposed certain Asbury facilities to host the operations and maintenance activities of the Kings Point, North Fork Ridge, and Neosho Ridge wind farms (collectively, the "Wind Projects"), and other renewable generation facilities that may be contemplated in the future. To support the personnel that are operating and maintaining the Wind Projects, the Asbury Renewable Operations Center is using the former Asbury office and break room facilities, the maintenance buildings, parking areas, and supporting infrastructure. An aerial photograph showing the assets remaining in use is provided in Figure 2 on page 14 of my testimony.

II. ASBURY DECOMMISSIONING AND REPURPOSING

Q. Is the decommissioning and repurposing at Asbury complete?

A. No. The Company has received the decommissioning study from Black and Veatch and has developed a plan for the decommissioning of the plant in a safe and efficient

manner. Under the current plan, it will take approximately 3 to 4 years to decommission and dismantle the plant. Concurrently with executing this plan, the Company continues to evaluate the potential for repurposing certain plant components.

Q. Please briefly describe the scope and status of Asbury decommissioning and repurposing activities.

A. The Company has been working towards three goals recently: (A) creating a safe and compliant work location; (B) developing a decommissioning plan for the final disposition of the unused physical facilities on site; and (C) repurposing certain facilities onsite to support the operations of the Wind Projects.

A. <u>CREATING A SAFE AND COMPLIANT FACILITY</u>

Q. What activities have been done on site since Asbury Unit 1's de-designation in March of 2020?

A. Once the unit was de-designated, the Company prioritized removal of environmentally sensitive items. This first step was needed to protect the environment, increase safety to employees and neighbors, reduce risks of potential contamination, and meet, and in some instances, reduce the Company's environmental permit obligations. The work completed to date includes:

a. removal of anhydrous ammonia;

b. removal of oil from oil filled equipment;

c. removal of Coal Combustion Residuals ("CCR") waste within plant ductwork;

d. removal of certain chemicals stored onsite and within equipment;

e. removal of residual coal from the coal piles;

f. modifications to water discharge Outfalls;

g. isolation and Lock-Out Tag-Out on certain plant systems; and

h. modifications of environmental and operating permits.

Q. Please describe the ongoing modifications of environmental and operating permits.

A. The facility's air emission Part 70 Permit to Operate (OP2018-001), enforced through the Missouri Department of Natural Resources ("MDNR") Air Program, became non-effective on March 1, 2020. This action also removed all other associated air permits including, but not limited to, the facility's Acid Rain Permit and construction permits. The facility is in the process of renewing its National Pollutant Discharge Elimination System Permit (NPDES) MO-0095362 with the MDNR that will expire March 31, 2022. The Company and MDNR have been working together to remove certain operating parameters that no longer apply to the facility since it is no longer a coal-fired electric generating facility. This will eliminate certain monitoring and testing requirements of water discharges from the facility. In response to recent changes and extensions to the federal Coal Combustion Residuals Rule (CCR Rule), the Company has updated the operating record and is revising the closure plan for the applicable ash impoundment. Also, since the Company is not storing anhydrous ammonia on site, there is no longer a requirement to maintain a Risk Management Plan ("RMP"). For that reason, Asbury's RMP has been deregistered with the Environmental Protection Agency.

Q. What tasks remain to accomplish the goal of maintaining a safe and compliant facility?

A. The Company has obligations to comply with all safety requirements, remaining permits, and all regulations pertaining to the facility, and will meet these requirements as we have for the last fifty years at Asbury. The Company and onsite personnel will

continue permit compliance reporting and keep the facility maintained to provide a workplace that is safe for our employees, contractors and the general public.

As the above work proceeds, Empire will continue identifying and proactively mitigating (where feasible) any risks posed by the age and condition of the remaining equipment and facilities. Some examples that may require emergency intervention (and may affect the scope and timing of the overall project) include ruptured piping, broken hoses, leaking roofs, inoperable elevators, exposed asbestos or other items that require immediate attention.

The Company is currently in the process of removing the residual coal from the previous two coal piles and creating a rainwater detention pond that will comply with the NPDES permit. Additional improvements may be necessary to comply with the terms of the new permit and are not known at this time. In addition, ongoing stormwater sampling remains a requirement. The NPDES permit renewal application will be submitted to the MDNR in late 2021 and will follow the public comment process as required by federal and state regulations, with an anticipated effective date of May 1, 2022.

Q. Does the work described above include the work required for the ash impoundment closure?

A. No, the ash impoundment closure is required regardless of whether Asbury Unit 1 was retired or not. The ongoing compliance for the ash impoundment under the CCR rule, in general, has not changed over the last several years. The Company still plans to close the impoundment in place. The final Impoundment Closure Plan is being revised to

comply with the most recently promulgated changes in deadlines and reporting obligations to the CCR Rule.[1]

B. DEVELOPING A DECOMMISSIONING PLAN

Q. Has the Company developed a plan of final disposition for the facility?

A. Yes, Empire has developed a three-phased plan to be executed over the coming years. The Company completed Phase 1, the initial decommissioning analysis and studies of the facility. The studies completed were to determine the final disposition of Unit 1 within the Company's overall decommissioning plan. Based on these findings, the Company plans to demolish the unused portions of Unit 1 while maintaining operations of the Asbury Renewable Operations Center for the Company's renewable generation plants. The memo contained in **Confidential Schedule DWL-1** includes the summary, findings, schedule, preliminary cost estimates, and supporting reports for the Phase 1 Studies.

Phase 2 includes the development of work plans, schedules, engineering plans and specifications, expound on and execution of the Isolation Study, asbestos removal, completion of NPDES modifications, and risk register mitigations. Phase 2 will conclude with the preparation of the bid documents for the demolition of the selected facilities and is anticipated to be complete by the Q4-2021 to Q1-2022. The Company is currently working on certain scopes of Phase 2.

[1] See https://www.federalregister.gov/documents/2020/08/28/2020-16872/hazardous-and-solid-waste-management-system-disposal-of-coal-combustion-residuals-from-electric Phase one part one: https://www.federalregister.gov/documents/2018/07/30/2018-16262/hazardous-and-solid-waste-management-system-disposal-of-coal-combustion-residuals-from-electric. *"A Holistic Approach to Closure Part A: Deadline to Initiate Closure and Enhancing Public Access to Information."*[1]

Phase 3 is planned to include finalization of bid documents, revision of cost estimates, bid administration, construction management, demolition of the facilities, reporting, and project accounting. Phase 3 is tentatively scheduled to be completed in 2024 subject to the scope and timing of required engineering work and the results of Phase 2.

Q. Did the Company engage a qualified consulting firm to assist in developing the Phase 1 plan?

A. Yes, the Company retained Black and Veatch ("B&V"), one of the top-ranked design firms in fossil fuels and the original engineering firm that designed Asbury Unit 1. B&V was retained in August 2019 to perform a multi-part study to support Phase 1 of the Asbury decommissioning. This work included the initial retirement planning process and provided technical guidance and support to the Company's decision-making process for the final disposition of the facility.

Q. Please describe the findings of Phase 1.

A. Phase 1 included an internal meeting to discuss the possibility of repurposing Asbury into the Asbury Renewable Operations Center and document major items to be cognizant of should the process move forward. Phase 1 also included two market studies to determine "bookend" values of the facility; one if the operating facility was to be sold on the open market to another owner-operator and the other to determine an estimate of razing the facility.

The Fair Market Valuation Report found that the facility had a **[redacted],** meaning the Company would have to pay someone **[redacted]** to purchase and operate the facility in its state at the time and assume all associated liabilities. The Demolition Order of Magnitude Report estimated the cost to

raze the in-scope facilities to be approximately ** [redacted] ** An aerial photograph from this report which depicts these facilities is provided below:

Figure 1 – Facilities Identified for Demolition

A study of Unit 1's equipment was performed to establish potential for secondary markets and begin the work for isolating Unit 1 from the remaining onsite facilities to support Asbury Renewable Operations Center. The Equipment Study was also shared with external vendors through B&V to explore whether any additional markets existed for the unit. This endeavor was not successful. Upon identifying no viable markets for the operating facility, the Company then explored the middle-ground of the "bookends", Abandon-In-Place ("AIP").

AIP uses a minimalistic approach for securing the plant and equipment that will no longer be used. A cost estimate and summary report were performed to analyze the scope of work needed to safely abandon the structures while still operating the Asbury

Renewable Operations Center over the coming ten years. Risk registers were then created to summarize and document the risks associated with demolition and abandoning Unit 1. Finally, a summary letter was prepared by B&V of the work completed. The B&V reports are found in attachments within **Confidential Schedule DWL-1**.

Q. Why was demolition chosen over abandoning-in-place?

A. While the AIP scenario has a lower initial cost, the ongoing safety and environmental risks outweigh the temporary savings. To maintain an abandoned fifty-year-old power plant at an operating facility, the Asbury Renewable Operations Center, there would be an initial expense and ongoing expenses to keep the facility compliant and safe. These expenses borne by the Company, and ultimately our customers, over the next ten years has been estimated at approximately ** [redacted] ** – see **Confidential Schedule DWL-1**, Abandon-In-Place Cost Estimate (2020), p. 115. The AIP scenario should also not be considered an in lieu of demolition plan, but instead delaying the eventual demolition of Unit 1. Within the Abandon-In-Place Cost Estimate Report, B&V provided the following:

> It should be noted that the cumulative cost in 2030 at the end of the 10-year period does not significantly approach the estimated demolition cost of ** [redacted] ** However, these should be considered costs to Liberty Utilities (and the rate payers) for deferral of the demolition project, thus adding to the overall cost of the Asbury Plant.

In addition to increasing the ultimate cost of retirement and removal of the plant, a ten-year delay in final removal would also further contribute to inter-generational customer inequity, by distancing the customers that benefitted from Asbury's Unit 1 energy production from those customers paying for its demolition.

To support options analysis and prioritize the scope and sequencing of activities, the Company and B&V developed risk registers for both AIP and demolition scenarios, see **Confidential Schedule DWL-1**, Abandon-In-Place Risk Register (2020), p. 117 and Demolition Risk Register (2020), p. 120. When comparing the risks of each scenario, the demolition scenario appears to carry less long-term risk exposure to employees, contractors, customers, the general public, and the Company. The greatest risks identified for this option involve the potential of physical harm to humans from deteriorating structures and potential exposure to remaining environmentally sensitive items, which may get worse over time. The AIP scenario would have also required frequent re-assessments and risk register updates in the event of future events affecting the site, such as regulation changes, damage to remaining facilities, extreme weather or other events impacting the Company's decisions.

Having considered these risks and their economic implications, the Company decided to proceed with the demolition of Unit 1.

Q. What activities are involved in Phase 2?

A. Over the next year, we anticipate performing the following scopes of work:

a. asbestos identification and quantification study;

b. Unit 1 engineering for isolation of the utilities;

c. construction work to isolate and repower the Asbury Renewable Operations Center from Unit 1;

d. continued compliance-driven modifications;

e. certain risk register mitigations;

f. on-going development of demolition plans and associated work specifications; and

g. Removal of asbestos.

Q. When does the Company expect to complete Phase 3 and what is the estimated cost?

A. Upon completion of Phase 2, the Company will prepare an execution strategy, which will include the demolition scope of work. This execution strategy will be dependent on what is found during the removal of asbestos, timing of the original stack removal, and other items that the contractor is to perform. The Company will follow an approach for contracting and execution of the demolition of Asbury similar to the approach used for the Riverton Units 7, 8, and 9 demolition performed in 2017. Currently, the Company anticipates completing the demolition of Unit 1 in 2024.

Current cost estimates have been provided within **Confidential Schedule DWL-1,** Demolition Order of Magnitude Cost Estimate, Table 3-1, p. 77. This estimate amounts to ** [redacted] ** in costs and is a Class 5 Budget Estimate per the Association of Cost Engineering guidelines, or -50% to +100% accuracy. Cost estimates will be updated as the scope of work is established, quantities are determined, and bids are received. The Company will continue exploring cost savings, contracting, and execution strategies while developing these plans. Work for Phase 1 and Phase 2 is expected to be completed by Q1-2022 and is forecasted to cost approximately** [redacted] ** - which represents a part of the total ** [redacted] **-million estimate. Empire witness Sanderson is proposing that the costs for the decommissioning and retirement of Asbury Unit 1 be captured in a deferred account under an Accounting Authority Order and recovered in Empire's future general rate case filings.

C. REPURPOSING EXISTING ASBURY ASSETS

Q. How is the Asbury Renewable Operations Center being utilized?

A. The Asbury Renewable Operations Center is the main operations and maintenance center for the Company's renewable generation fleet and the Company's Site Support Services group. The facility houses approximately 25 employees responsible for inventory management, engineering, operations, purchasing, and maintenance of these facilities. It also is the location of the primary warehouse for inventory, tools and equipment. The Vestas long-term maintenance-contract employees and their associated equipment and inventory are located on the site as well. Company witness Shaen Rooney provides further details of the contract work that will be conducted by Vestas relating to the Wind Projects.

Q. What renewable generation resources will be operated from the Asbury Renewable Operations Center?

A. The Company's Wind Projects, other renewable generation, future community solar facilities, and future solar and battery distributed energy resources will be operated from the former Asbury plant site.

A control room has been established in the administration building that will be operated 24/7 and currently has control of the Company's owned and operated renewable generation. The control room can be expanded to include future renewable generation assets, if necessary.

Q. What facilities have been repurposed?

A. The following items are being utilized by the Asbury Renewable Operations Center: administration building, maintenance building, break room building, old admin building, land, fire suppression and detection, rail spur, warehouses, and the related

infrastructure supporting these facilities. These repurposed facilities represent approximately $15.5million in assets currently included in base rates. An aerial photograph, with items identified in purple remaining in use, is provided in Figure 2.

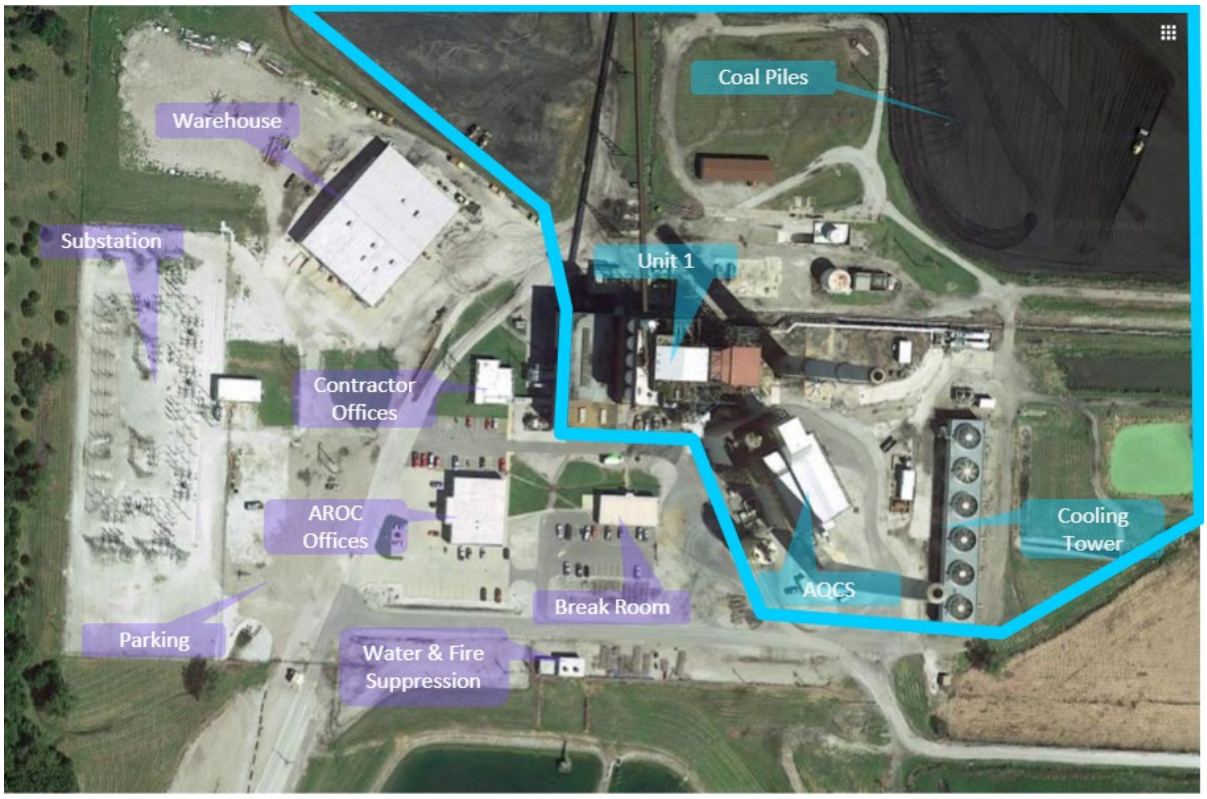


Figure 2 – Remaining Facilities Indicated in Purple

Q. Why was Asbury chosen for the renewable operations center?

A. Asbury's centralized location relative to the Wind Projects made the site an ideal candidate on location alone. Other attributes that led to the decision to host the renewable operations center at Asbury include warehouse and office facilities that met Vestas' minimum space requirements, ample parking, no schedule impacts due to building construction, existing fiber communication lines, co-located point of interconnection with North Fork Ridge, existing Company networking infrastructure, offices and break rooms meeting Company requirements, and no additional permitting or zoning requirements. The repurposing of these assets came with minimal additional

investment which would have otherwise been required nearly immediately, saving our customers money.

A large part of the workforce that previously supported Asbury Unit 1 had spent most of their careers there, and, as such, had housing and family plans built around working from the Asbury location. Maintaining the operations center at Asbury and primarily staffing with legacy employees allowed an easy and welcomed transition for those employees. Company witness Timothy N. Wilson provides more detail on the staffing transition. For all of these reasons, Empire was excited to choose the Asbury campus for repurposing.

Q. What work must be completed to operate the Asbury Renewable Operations Center?

A. Currently, the Asbury Renewable Operations Center is fully operational. Minimal improvements were made to create a new control room in the existing office building. However, as the decommissioning and demolition plan proceeds for Unit 1, the infrastructure providing power, water, sewer, fire protection, etc. to the plant must be de-energized and isolated to safely perform the demolition work. This will create the need to install a new 12kV power source and install new utilities at the Asbury Renewable Operations Center. These items are identified and described within the **Confidential Schedule DWL-1**, Isolation Study, p. 78. The Asbury Renewable Operations Center staff are currently expanding upon the Isolation Study as part of Phase 2 work to create engineered plans and specifications to perform the isolations. While the full scoping of the work has not been completed, current cost estimates of these improvements are approximately ** [redacted] ** and anticipated to be in service in 2021.

Q. What other items will the Asbury Renewable Operations Center support for the Company?

A. The Asbury Renewable Operations Center will also host the Company's Site Services Group. This is a group of skilled union employees that will maintain the balance of plant for the Wind Projects and support the Company's other generation plants. These employees report to the Plant Director – Wind. Company witness Wilson will provide additional details on the Site Services Group's responsibilities.

Q. Has the Company explored other options for the facility?

A. Yes, during the Phase 1 study a lot of effort was put into the potential to repurpose Asbury Unit 1 to host additional renewables and/or battery storage. The Company went as far as soliciting proposals to perform an energy storage assessment to repurpose the structure for flow batteries and other technologies. These efforts to reuse the plant systems and the steel and concrete structure of Unit 1 were abandoned before performing any detailed study or engineering. It did not take long to find that reusing specific purpose-built systems and structures that contain asbestos, fifty-year-old motors, valves, wires and pipes, with limited detailed digital drawings did not align with the Company's current preferred plan for renewable generation additions. The Company continues to search for economic and value-enhancing proposals for expanding the reuse of the remaining facilities and infrastructure and expects to do so well into the future. The Company's Integrated Resource Plan will continue to be the platform by which these opportunities are analyzed. It is one of Empire's key focuses to continue the drive of sustainability and reuse of our natural resources. Finding a secondary use for a mine-mouth coal-fired power plant's land, substructure,

superstructure, and campus would be a great reuse of our resources. Should an opportunity present itself, the Company will keep stakeholders informed.

III. CONCLUSION

Q. Please briefly summarize your Direct Testimony.

A. The Company is currently working on a three-phased decommissioning plan of the retired Asbury Power Plant. The decision has been made, with support from Black and Veatch, to demolish the Unit 1 structure and ancillary facilities, at an estimated cost of ** [redacted] **. Phase 2 is currently underway to prepare for and develop the scope of work for the demolition. Phase 3 will entail the demolition of Unit 1 estimated to be completed in 2024. In order to reduce costs and utilizing existing infrastructure to support our customers, the Company established a renewable operations center at Asbury. In doing so, the Company successfully repurposed tens of millions of dollars in assets while avoiding additional investments. Finally, the Company has and will continue to analyze and search for new opportunities for additional repurposing of retired assets at this location.

Q. Does this conclude your Direct Testimony at this time?

A. Yes.

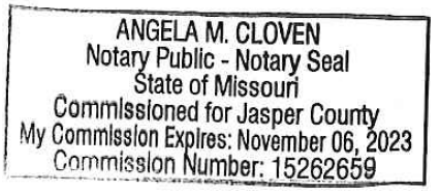
AFFIDAVIT OF DREW LANDOLL

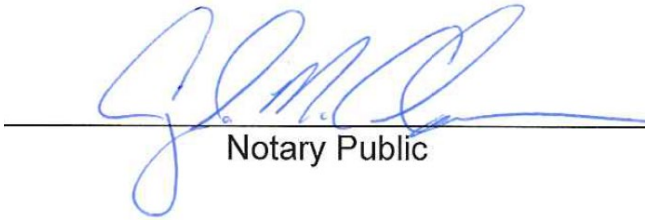
STATE OF MISSOURI)
) ss
COUNTY OF JASPER)

On the 25 day of May, 2021, before me appeared Drew Landoll, to me personally known, who, being by me first duly sworn, states that he is Director, Strategic Projects of The Empire District Electric Company – Liberty Utilities Central and acknowledges that he has read the above and foregoing document and believes that the statements therein are true and correct to the best of his information, knowledge and belief.

Drew Landoll

Subscribed and sworn to before me this 25 day of May, 2021.





Notary Public

My commission expires: November 06, 2023.