Ameren Missouri 20 CSR 4240-23.020 Electrical Corporation Infrastructure Standards Annual Inspection Report for Calendar Year 2024

Introduction

This document is Union Electric (dba Ameren Missouri) Company's annual report detailing its compliance with Missouri Public Service Commission Rule 20 CSR 4240-23.020, Electrical Corporation Infrastructure Standards (referred to in the remainder of this document as "the Rule"). This annual report is required by Section (3) (C) of the Rule which states, *"Each electrical corporation subject to this rule shall file…an annual report detailing its compliance with this rule during the prior calendar year…."* This report details the results of the infrastructure inspections conducted in the calendar year 2024.

Definitions

For the purposes of this report, the following definitions shall apply:

1. Patrol – A simple visual inspection of applicable electrical corporation equipment and structures, which is designed to identify obvious structural problems and hazards. Patrols may be carried out in the course of other electrical corporation business.
2. Visual Inspection – A careful visual examination of equipment and structures designed to identify structural problems, hazards, and defective or improperly operating equipment. Equivalent to "Detailed Inspection" as defined in Section (2) (B) of the Rule.
3. Ground Line Inspection – A complete intrusive inspection of overhead poles whereby the pole is excavated to a depth of 18 to 24 inches, tested for internal and external decay, treated with a preservative, and then backfilled. Equivalent to "Intrusive Inspection" as defined in Section (2) (C) of the Rule.
4. Overhead Equipment – Equipment used in the operation of the transmission and distribution system mounted on overhead poles including, but not limited to, conductors, transformers, fuses, switches, insulators, and lightning arresters.
5. Underground Pad-Mounted Equipment – Underground Residential Distribution (URD) system equipment including single phase and three phase pad-mounted transformers, pad-mounted switchgear, junction boxes, non-traffic rated vaults, and pedestals. Equivalent to "Underground-direct buried and conduit" and the equipment noted under Note 3 on the table entitled, "Electrical Corporation System Inspection Cycles (Maximum Intervals in Years)" included with the Rule.
6. Transmission System – That portion of the Ameren Missouri system operated at voltages of 100 kilovolts (kV) and above.
7. Distribution System – That portion of the Ameren Missouri system operated at voltages below 100kV.
8. Streetlights – Automatically controlled lighting for lighting of streets, alleys, walkways, and other thoroughfares open to and reserved for general public use when such lighting facilities are operated and maintained as an extension of Ameren Missouri's distribution system as described in Service Classification 5(M). This definition does not apply to lighting installed on public or private premises for the purpose of providing area or security lighting (i.e., "dusk-to-dawn" lights), customer-owned street and outdoor lighting as described in Service Classification 6(M), and incandescent municipal streetlighting or private streetlighting described under Service Classifications 7(M) and 8(M).

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Transmission System Inspections

Ameren Missouri conducted inspections on its Transmission System during calendar year 2024 as required by Missouri Public Service Commission Rule 20 CSR 4240-23.020, Electrical Corporation Infrastructure Standards. The inspections conducted, as well as the deficiencies discovered and repaired as a result of these inspections, are described below.

Table 1
Transmission Circuits Inspected in 2024:

Inspection Type	Inspections Scheduled	Inspections Completed	Inspections Not Completed
"Patrol"	128	128	0
"Detailed"	12	12	0
Ground Line	4	4	0

The results of the lines inspected are summarized as follows:

Table 2
Results of Inspections

Component	Number Inspected	Number Requiring Repairs	%
Wood Poles	1,346	10	0.74%
Wood Structures	12,074	424	3.51%
Non-Wood Structures	5,420	7	0.13%
Conductors*	17,494	3	0.02%
Insulators*	17,494	12	0.07%

The numbers of components requiring repairs in the period are summarized below:

Table 3

Component	Number Requiring Repairs in the Period	Number of Repairs Completed in the Period	%	Number of Repairs Not Completed in the Period	%
Wood Poles	0	30	100%	0	0.0%
Wood Structures	29	29	100%	0	0.0%
Non-Wood Structures	0	0	100%	0	0.0%
Conductors*	0	0	100%	0	0.0%
Insulators*	0	0	100%	0	0.0%

*Note: Because Ameren Missouri's Transmission System Inspection Program is carried out on a per line basis and only those components which required repair are recorded, the number of individual conductors and insulators inspected is not recorded. The number of wood structures (which includes poles) and non-wood structures inspected will be used as the reference for the percentage of equipment requiring corrective action in this annual report.

The following equipment was scheduled for repairs outside the reporting period:

Table 4

Component	Total Number Requiring Repairs Outside the Reporting Period	Number of Open Repairs Outside the Reporting Period	Corrective Action Scheduled Complete			Percent of Equipment in Need of Corrective Action, but with a Scheduled Date Beyond the Reporting Period
			2025	2026	Later	
Wood Poles*	10	10	10	0	0	100%
Wood Structures*	396	388	100	150	146	98.0%
Non-Wood Structures*	7	7	2	3	2	100%
Conductors*	3	3	0	1	2	100%
Insulators*	12	12	4	4	4	100%

Distribution System Inspections

Ameren Missouri conducted inspections on its Distribution System during calendar year 2024 as required by Missouri Public Service Commission Rule 20 CSR 4240-23.020, Electrical Corporation Infrastructure Standards. The inspections conducted, as well as the deficiencies discovered and repaired as a result of these inspections, are described below

Distribution Circuits and Components Inspected in 2024
Table 5

Inspection	Inspection Units	Inspections Scheduled	Inspections Completed	Inspections Not Completed
Overhead Visual *	Circuit	358	358	0
Overhead Ground Line *	Circuit	219	219	0
Capacitors	Equipment	1160	1160	0
Voltage Regulators	Equipment	623	623	0
Underground Patrol	Circuit	206	206	0
Underground Detailed	Circuit	232	232	0
Network Vaults ^	Equipment	119	119	0
Manholes #	Equipment	1552	1552	0
Other Underground Structures	Equipment	65	64	1**

*Note: Streetlight inspections were performed in conjunction with Overhead Visual and Ground Line inspections, as well as the Underground Patrol and Detailed inspections.
**1834 MLK - Ongoing water main issue. Vault fails to pump down enough for crew to access. Has since been relocated across the street

The results of the inspections are summarized as follows:

Table 6
Results of Inspections

Component	Number Inspected	Number Requiring Repairs	Percentage
Poles/Towers*	160,827	2531	1.58%
Anchors*	160,827	6	0.00%
Conductors*	160,827	219	0.14%
Crossarm Braces*	160,827	350	0.22%
Crossarms*	160,827	1983	1.23%
Fuses*	160,827	139	0.09%
Grounding*	160,827	1771	1.10%
Guy Wires*	160,827	654	0.41%
Insulators*	160,827	793	0.49%
Lightning Arresters*	160,827	423	0.26%
Minor Hardware*#	160,827	1290	0.80%
Overhead Transformers*	160,827	48	0.03%
Reclosers*	160,827	0	0.00%
Sectionalizes*	160,827	0	0.00%
Switches	160,827	8	0.005%
Capacitors*	1160	201	17.33%
Voltage Regulators	623	37	5.94%
UG Pad-Mounted Equipment**	41,446	2348	5.67%
Network Vaults^	119	2	1.68%
Manholes*	1552	11	0.71%
Other Underground Structures***	64	3	4.68%
Streetlights	24,762	498	2.01%

*Note: Because Ameren Missouri's Distribution System Circuit Inspection and Ground Line Inspection programs were performed on a per circuit basis and only those components which required repair were recorded, the numbers of these individual devices inspected were not recorded. For these components, the number of poles where problems were identified divided by the number of poles inspected was used as the reference for the percentage of equipment requiring corrective action. Where the actual number of components inspected, such as voltage regulators and capacitors could be ascertained, these numbers were used to calculate the percentage of equipment requiring corrective action.
#Note: Minor Hardware includes risers, pins, jumpers, connectors, splices, terminations, and spacer cable brackets.
**Note: Underground Pad-Mounted Equipment includes pad-mounted transformers, switchgear, junction boxes, non-traffic rated vaults, and pedestals.
***Note: Other Underground Structures includes indoor rooms and manhole transformers.
^This may be adjusted as structural engineers complete secondary inspections determining the necessity of repair.

The numbers of components requiring repairs in the period are summarized below:

Table 7

Component	Number of Repairs Scheduled in the Period	Number of Repairs Completed in the Period	% Repairs Completed in Period	Number of Repairs Not Completed in the Period	% Repairs Not Completed in Period
Poles/Towers*	306	304	99.35%	2*	0.65%
Anchors*	0	0	N/A	0	0.00%
Conductors*	0	0	N/A	0	0.00%
Crossarm Braces*	0	0	N/A	0	0.00%
Crossarms*	1	1	100%	0	0.00%
Fuses*	0	0	N/A	0	0.00%
Grounding*	0	0	N/A	0	0.00%
Guy Wires*	0	0	N/A	0	0.00%
Insulators*	1	1	100%	0	0.00%
Lightning Arresters*	0	0	N/A	0	0.00%
Minor Hardware*#	0	0	N/A	0	0.00%
Overhead Transformers*	0	0	N/A	0	0.00%
Reclosers*	0	0	N/A	0	0.00%
Sectionalizers*	0	0	N/A	0	0.00%
Switches	0	0	N/A	0	0.00%
Capacitors*	90	90	100%	0	0.00%
Voltage Regulators	13	13	100%	0	0.00%
UG Pad-Mounted Equipment**	236	227	96.19%	9**	3.81%
Network Vaults	0	0	N/A	0	0.00%
Manholes*	0	0	N/A	0	0.00%
Other Underground Structures***	2	2	100%	0	0.00%
Streetlights	304	304	100%	0	0.00%

*KB07497 - Pole is being rescheduled due to wet terrain conditions creating unsafe access conditions

*KB40559 - Pole replacement deferred for work coordination and permitting with the railroad

**KB40029, KB27574, KB14345 rescheduled for customer access and back-ordered materials

The following equipment was scheduled for repairs outside the reporting period:

Table 8

Component	Total Number Requiring Repairs Outside the Reporting Period (Completed or Scheduled)	Number of Open Repairs Outside the Reporting Period	Corrective Action Scheduled in 2025	Corrective Action Scheduled Later	Percent of Equipment in Need of Corrective Action but with a Scheduled Date Beyond the Reporting Period
Poles/Towers*	2225	2163	2163	0	87.9%
Anchors*	6	6	6	0	100%
Conductors*	219	219	219	0	100%
Crossarm Braces*	350	348	348	0	100%
Crossarms*	1982	1969	1969	0	99.9%
Fuses*	139	139	139	0	100%
Grounding*	1771	1769	1769	0	100%
Guy Wires*	654	652	652	0	100%
Insulators*	792	783	783	0	99.8%
Lightning Arresters*	423	417	417	0	100%
Minor Hardware*#	1290	1286	1286	0	100%
Overhead Transformers*	48	48	48	0	100%
Reclosers*	0	0	0	0	N/A
Sectionalizes*	0	0	0	0	N/A
Switches	8	8	8	0	100%
Capacitors*	111	84	84	0	55.2%
Voltage Regulators	24	18	18	0	64.9%
UG Pad-Mounted Equipment**	2117	1807	1807	0	90.16%
Network Vaults	2	2	0	2	100%
Manholes*	11	11	11	0	100%
Other Underground Structures***	3	3	0	3	100%

Streetlights	194	111	111	0	38.9%

*Note: Because Ameren Missouri's Distribution System Circuit Inspection and Ground Line Inspection programs were performed on a per circuit basis and only those components which required repair were recorded, the numbers of these individual devices inspected were not recorded. For these components, the number of poles where problems were identified divided by the number of poles inspected was used as the reference for the percentage of equipment requiring corrective action. Where the actual number of components inspected, such as voltage regulators and capacitors could be ascertained, these numbers were used to calculate the percentage of equipment requiring corrective action.
#Note: Minor Hardware includes risers, pins, jumpers, connectors, splices, terminations, and spacer cable brackets.
**Note: Underground Pad-Mounted Equipment includes pad-mounted transformers, switchgear, junction boxes, non-traffic rated vaults, and pedestals.
***Note: Other Underground Structures includes indoor rooms and manhole transformers.