

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

In the Matter of Union Electric Company d/b/a            )  
Ameren Missouri's 2011 Infrastructure                    )       Case No. EO-2012-\_\_\_\_\_  
Inspection Annual Report.                                    )

**UNION ELECTRIC COMPANY d/b/a  
AMEREN MISSOURI'S 2011 INFRASTRUCTURE  
INSPECTION ANNUAL REPORT**

**COMES NOW**, Union Electric Company, d/b/a Ameren Missouri (AmerenUE or the Company) and in compliance with 4 CSR 240-23.020(3)(C) submits the attached report.

Respectfully submitted,

**UNION ELECTRIC COMPANY,  
d/b/a AMEREN MISSOURI**

/s/ *Thomas M. Byrne*

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Dated: July 1, 2012

## CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing have been electronically mailed to all counsel of record this 1st day of July, 2012.

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/s/ Thomas M. Byrne

Thomas M. Byrne



## Ameren Missouri 4 CSR 240-23.020 Electrical Corporation Infrastructure Standards Annual Inspection Report for Calendar Year 2011

### Introduction

This document is Union Electric (dba Ameren Missouri) Company's annual report detailing its compliance with Missouri Public Service Commission Rule 4 CSR 240-23.020, 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 calendar year 2011.

### 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).



## Transmission System Inspections

Ameren Missouri conducted inspections on its Transmission System during calendar year 2011 as required by Missouri Public Service Commission Rule 4 CSR 240-23.020, Electrical Corporation Infrastructure Standards. The inspections conducted, as well as the deficiencies discovered and repaired as a result of these inspections, are described below.

### Transmission Circuits Inspected in 2011:

Inspection Type	Inspections Scheduled	Inspections Completed	Inspections Not Completed
“Patrol”	140	140	0
“Detailed”	22	12	10
Ground Line	12	12	0

The following lines were scheduled to be inspected in 2011 but were not:

Inspection Type	Line Number	Reason Inspection Not Completed	Date Inspection Will be Completed
Detailed	Adair - Wapello	Crew resources allocated to ratings dependent high priority construction project.	8/31/12
Detailed	Guthrie - Mariosa Delta	Crew resources allocated to ratings dependent high priority construction project.	8/31/12
Detailed	Hannibal - Palmyra	Crew resources allocated to ratings dependent high priority construction project.	8/31/12
Detailed	Labadie - Montgomery	Crew resources allocated to ratings dependent high priority construction project.	8/31/12
Detailed	Palmyra - Viele	Crew resources allocated to ratings dependent high priority construction project.	8/31/12
Detailed	Peno Creek - Spalding	Crew resources allocated to ratings dependent high priority construction project.	8/31/12
Detailed	Pike - Dundee	Crew resources allocated to ratings dependent high priority construction project.	8/31/12
Detailed	Pike - Peno Creek	Crew resources allocated to ratings dependent high priority construction project.	8/31/12
Detailed	Thomas Hill - Adair	Crew resources allocated to ratings dependent high priority construction project.	8/31/12
Detailed	Troy - Pike	Crew resources allocated to ratings dependent high priority construction project.	8/31/12



The results of the lines inspected are summarized as follows:

Results of Inspections

Component	Number Inspected	Number Requiring Repairs	%
Wood Poles	2,734	39	1.4
Wood Structures	14,645	14	0.1
Non-Wood Structures	5,637	7	0.1
Conductors*	20,282	3	0.01
Insulators*	20,282	5	0.02

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

Component	Number Requiring Repairs in the Period	Number of Repairs Completed in the Period	%	Number of Repairs Not Completed in the Period	%
Wood Poles	7	7	100	0	0.0
Wood Structures	1	4	400	0	0.0
Non-Wood Structures	4	4	100	0	0.0
Conductors*	0	0	100	0	0.0
Insulators*	2	0	0.0	2	100

\*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 not repaired as scheduled:

Component	Component Number	Reason Repairs Not Completed	Date Repairs Will be Completed
Insulator	Belleau - Troy 173	Outage not available at time when crew resources were available.	9/30/2012
Insulator	Belleau - Troy 213	Outage not available at time when crew resources were available.	9/30/2012



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

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
			3Q13	4Q13	1Q14	2Q14	3Q14	4Q14	Later	
Wood Poles*	32	32	1	7	2	0	0	6	16	100
Wood Structures*	10	10	0	5	0	0	0	3	2	100
Non-Wood Structures*	3	3	0	1	0	0	0	1	1	100
Conductors*	3	3	0	2	0	0	0	1	0	100
Insulators*	3	3	0	0	0	0	0	0	3	100

\*Note: Wood pole changes scheduled beyond 4Q14 are being deferred to coincide with the NERC ground clearance study and remediation effort. The NERC effort is expected to be completed by 2Q15. Other repair activities deferred beyond 4Q14 are low priority items such as reduced insulation still within operating limits and missing structure number signs.



## Distribution System Inspections

Ameren Missouri conducted inspections on its Distribution System during calendar year 2011 as required by Missouri Public Service Commission Rule 4 CSR 240-23.020, 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 2011

Inspection	Inspection Units	Inspections Scheduled	Inspections Completed	Inspections Not Completed
Overhead Visual*	Circuit	684	684	0
Overhead Ground Line*	Circuit	254	254	0
Capacitors	Equipment	4,681	4,808	0
Reclosers	Equipment	2,473	2,473	0
Sectionalizers	Equipment	62	62	0
Voltage Regulators	Equipment	525	525	0
Underground Patrol* #	Circuit	235	235	0
Underground Detailed* #	Circuit	274	274	0
Network Vaults	Equipment	119	119	0
Manholes	Equipment	1,865	1,865	0
Other Underground Structures**	Equipment	93	92	1

\*Note: Streetlight inspections were performed in conjunction with Overhead Visual and Ground Line inspections, as well as the Underground Patrol and Detailed inspections.

\*\*Note: Other Underground Structures include Indoor Rooms and Manhole Transformers.

#Note: During the Underground Patrol and Detailed circuit inspections, Ameren Missouri inspectors encountered various obstructions that prevented inspection of some individual pieces of equipment such as pad-mounted transformers. The obstructions encountered were customer facilities such as fences or landscaping in close proximity to equipment, thereby preventing its full inspection. Many of these situations require negotiations with customers to determine the best remedy for the customer and Ameren Missouri. Ameren Missouri has resolved most of the issues and continues to work with customers to resolve the remaining obstructions in order to complete the inspections of the equipment.



The following inspection was scheduled to be completed in 2011 but was not:

Inspections Scheduled But Not Completed in 2011

Inspection Type	Circuit Number	Component Number	Reason Inspection Not Completed	Date Inspection Completed
Indoor Room	N/A	TLM # 02160460020	Inaccessible due to a vacant building and unavailability of owner to gain access to our facilities.	Completed 1/21/2012





The results of the inspections are summarized as follows:

Results of Inspections

Component	Number Inspected	Number Requiring Repairs	Percentage
Poles/Towers	186,614	4,676	2.5
Lightning Arresters*	186,614	552	0.3
Crossarms*	186,614	483	0.3
Crossarm Braces*	186,614	263	0.1
Fuses*	186,614	48	0.03
Insulators*	186,614	386	0.2
Overhead Transformers*	186,614	1,321	0.7
Conductors*	186,614	576	0.3
Switches*	186,614	35	0.02
Guy Wires*	186,614	21,294	11.4
Grounding*	186,614	5410	2.9
Anchors*	186,614	233	0.1
Minor Hardware*#	186,614	6,187	3.3
Capacitors	4,681	265	5.7
Reclosers	2,473	37	1.5
Sectionalizers	62	0	0
Voltage Regulators	525	39	7.4
UG Pad-Mounted Equipment**	44,375	7,284	16.4
Vaults	119	0	0
Manholes	1,865	202	3.8
Other Underground Structures***	93	0	0.0
Streetlights	52,531	2,908	5.5

\*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 reclosers, sectionalizers, 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, flying loops, 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.

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

Component	Number of Repairs Scheduled in the Period	Number of Repairs Completed in the Period	%	Number of Repairs Not Completed in the Period	%
Poles/Towers	1,992	1,992	100	0	0.0
Lightning Arresters	65	65	100	0	0.0
Crossarms	53	53	100	0	0.0
Crossarm Braces	40	40	100	0	0.0
Fuses	4	4	100	0	0.0
Insulators	45	45	100	0	0.0
Overhead Transformers	209	209	100	0	0.0
Conductors	112	112	100	0	0.0
Switches	4	4	100	0	0.0
Guy Wires	3203	3203	100	0	0.0
Grounding	998	998	100	0	0.0
Anchors	40	40	100	0	0.0
Minor Hardware	926	926	100	0	0.0
Capacitors	131	131	100	0	0.0
Reclosers	24	24	100	0	0.0
Sectionalizers	0	0	100	0	0.0
Voltage Regulators	27	27	100	0	0.0
UG Pad-Mounted Equipment	2454	2454	100	0	0.0
Vaults	0	0	100	0	0.0
Manholes	202	202	100	0	0.0
Other Underground Structures	0	0	100	0	0.0
Streetlights	782	782	100	0	0.0

All equipment repairs required in the reporting period were completed in the period.



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

Component	Total Number Requiring Repairs Outside the Reporting Period (Completed or Scheduled)	Number of Open Repairs Outside the Reporting Period	Corrective Action Scheduled To Be Completed						Percent of Equipment in Need of Corrective Action, but with a Scheduled Date Beyond the Reporting Period
			1Q12	2Q12	3Q12	4Q12	2013	2014	
Poles/Towers	2,684	1,079	79	149	443	407	1	0	40.2
Lightning Arresters	487	295	42	36	105	112	0	0	60.6
Crossarms	430	241	49	36	80	76	0	0	56.0
Crossarm Braces	223	112	18	19	37	38	0	0	50.2
Fuses	44	26	0	0	9	17	0	0	59.1
Insulators	341	173	19	32	51	71	0	0	50.7
Overhead Transformers	1,112	679	144	116	179	240	0	0	61.1
Conductors	464	274	84	35	86	69	0	0	60.0
Switches	31	16	1	0	6	9	0	0	51.6
Guy Wires	18,091	9,514	1,890	1,890	2,824	2,910	0	0	52.6
Grounding	4,412	2,494	762	440	541	751	0	0	56.5
Anchors	193	117	14	12	30	61	0	0	60.6
Minor Hardware	5,261	2,968	566	476	845	1,081	0	0	56.4
Capacitors	134	45	13	26	3	14	34	0	66.4
Reclosers	13	3	0	5	4	1	0	0	76.9
Sectionalizers	0	0	0	0	0	0	0	0	0.0
Voltage Regulators	12	6	1	2	2	1	0	0	50.5
UG Pad-Mounted Equipment	4,830	1,702	204	188	368	942	0	0	35.2
Vaults	0	0	0	0	0	0	0	0	0.0
Manholes	0	0	0	0	0	0	0	0	100
Other Underground Structures	0	0	0	0	0	0	0	0	100
Streetlights	2,126	51	8	10	6	27	0	0	2.40



### Changes to Ameren Missouri's Inspection Program Beginning In 2012

In 2012, Ameren Missouri revised the inspection cycles for distribution system device inspections and subtransmission circuit inspections. All of the revised inspection cycles remain in compliance with 4 CSR 240-23.020 requirements. These changes will be reflected in the 2012 infrastructure inspection report to be submitted in 2013 and are noted here for informational purposes only. The changes are as follows:

- Distribution system device inspections – Beginning in 2012, all capacitors, reclosers, sectionalizers and voltage regulators will be inspected on 4-year urban and 6-year rural circuit inspection cycles as an integral part of the overall visual circuit inspection performed by Ameren Missouri's inspection contractor. Previously, these devices were inspected by in-house personnel on an annual or semi-annual cycle. In addition to the 4/6 year cycle inspections for all devices, capacitors without communications capabilities and voltage regulators will continue to be inspected on an annual basis by in-house personnel as necessary.
- Subtransmission circuit inspections – Beginning in 2012, visual inspections of subtransmission circuits, previously performed on a 2 year cycle have been moved to a 4 year inspection cycle and will continue to be completed by an outside contractor. For critical subtransmission circuits, with known reliability issues, Ameren Missouri will conduct special off-cycle inspections as needed to identify and remediate those issues.

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d/b/a Ameren Missouri's 2010                )  
Infrastructure Inspection Annual Report.    )  
  )

Case No. EO-2012-\_\_\_\_\_

**AFFIDAVIT OF DAVID N. WAKEMAN**

**STATE OF MISSOURI    )**  
  )**ss**  
**CITY OF ST. LOUIS    )**

David N. Wakeman, being first duly sworn on his oath, states:

1.       My name is David N. Wakeman. I work in the City of St. Louis, Missouri, and I am employed by Union Electric Company d/b/a Ameren Missouri as Vice President, Energy Delivery & Distribution Services.

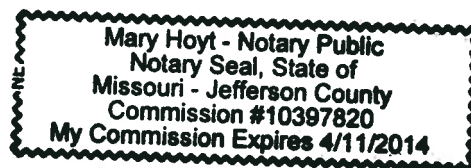
2.       I hereby swear and affirm that I am the individual who sponsors the attached report filed in accordance with 4 CSR 240-23.020; that said report was prepared under my direction and supervision; that if inquiries are made as to the facts, I would respond as therein set forth; and that the aforesaid is true and correct to the best of my knowledge, information, and belief.

  
\_\_\_\_\_  
David N. Wakeman

Subscribed and sworn to before me this 1st day of July, 2012.

  
\_\_\_\_\_  
Notary Public

My commission expires: 4-11-2014



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**AFFIDAVIT OF DAVID N. WAKEMAN**

**STATE OF MISSOURI     )**  
   )**ss**  
**CITY OF ST. LOUIS     )**

David N. Wakeman, being first duly sworn on his oath, states:

1.       My name is David N. Wakeman. I work in the City of St. Louis, Missouri, and I am employed by Union Electric Company d/b/a Ameren Missouri as Vice President, Energy Delivery & Distribution Services.

2.       I hereby swear and affirm that I am the individual who sponsors the attached report filed in accordance with 4 CSR 240-23.020; that said report was prepared under my direction and supervision; that if inquiries are made as to the facts, I would respond as therein set forth; and that the aforesaid is true and correct to the best of my knowledge, information, and belief.

  
\_\_\_\_\_  
David N. Wakeman

Subscribed and sworn to before me this 1st day of July, 2012.

  
\_\_\_\_\_  
Notary Public

My commission expires: 4-11-2014

