Ameren Missouri 4 CSR 240-23.010 Electric Utility System Reliability Monitoring and Reporting Submission Requirements – Annual Reliability Report

Introduction

This report details Union Electric (dba Ameren Missouri) Company's annual reliability metrics and worst performing circuits for calendar year 2013 as required by Missouri Public Service Commission Rule 4 CSR 240-23.010, Electric Utility System Reliability Monitoring and Reporting Submission Requirements (referred to in the remainder of this document as "the Rule"). This report is required by Sections (2), (7), and (8) of the Rule which state, *"The information required by section (1) shall be filed annually by the last business day of April of the calendar year following the calendar year for which the information was accumulated…. The information developed in accordance with section (6) shall be reported as part of the annual report required by section (2)…. If on or after the time the annual report required by section (7) for calendar year 2011 is filled, a circuit has been on the worst performing circuit list for two (2) of the three (3) most recent consecutive calendar years the electrical corporation shall include detailed plans and schedules for improving the performance of that circuit in addition to the other information required by section (7)."* This report will provide the reliability measures requested by the Rule, the list of Worst Performing Circuits (WPCs), including Multi-Year Worst Performing Circuits (MWPCs), and the actions taken or planned to improve the performance of these circuits.

Definitions

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

1. System Average Interruption Frequency Index (SAIFI) – The average frequency of service interruptions in number of occurrences per customer (total number of customer interruptions divided by the total number of customers served).
2. Customer Average Interruption Frequency Index (CAIFI) – The average number of interruptions per customer interrupted (total number of customer interruptions divided by the total number of customers affected).
3. System Average Interruption Duration Index (SAIDI) – The average interruption in minutes per customer served (sum of all customer interruption durations divided by the total number of customers served).
4. Customer Average Interruption Duration Index (CAIDI) – The average interruption duration (sum of all customer interruption durations divided by the total number of customers interrupted).

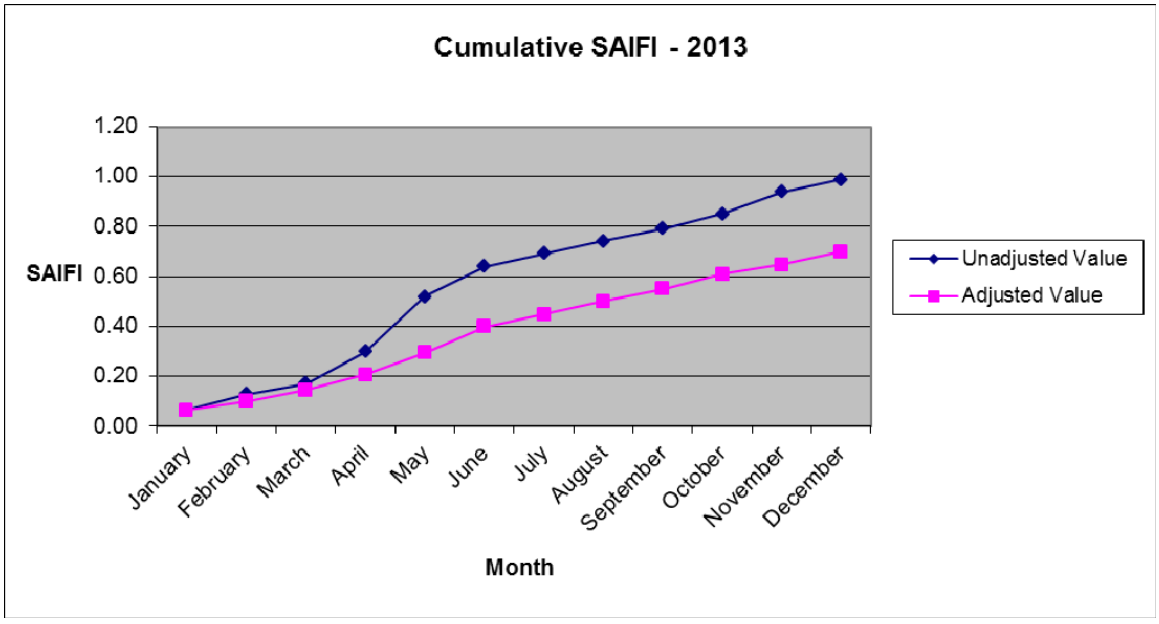
5. Worst Performing Circuit (WPC) – A distribution circuit whose SAIFI value, adjusted to exclude major storm events per IEEE Standard 1366-2003, when compared to the SAIFI values for the other circuits in the Ameren Missouri system places it among the 5% of circuits with the highest SAIFI values in the Ameren Missouri system.
6. Multi-Year Worst Performing Circuit (MWPC) – A distribution circuit whose SAIFI value has ranked it as a Worst Performing Circuit for any two (2) of the three (3) most recent consecutive calendar years.

Reliability Metrics

4 CSR 240-23.010, section 3 states "The information required by section (1) shall be filed both unadjusted and adjusted to exclude major storm events per IEEE Standard 1366-2003, Guide for Electric Power Distribution Reliability Indices." The following tables and graphs show Ameren Missouri's unadjusted and adjusted reliability metrics for calendar year 2013:

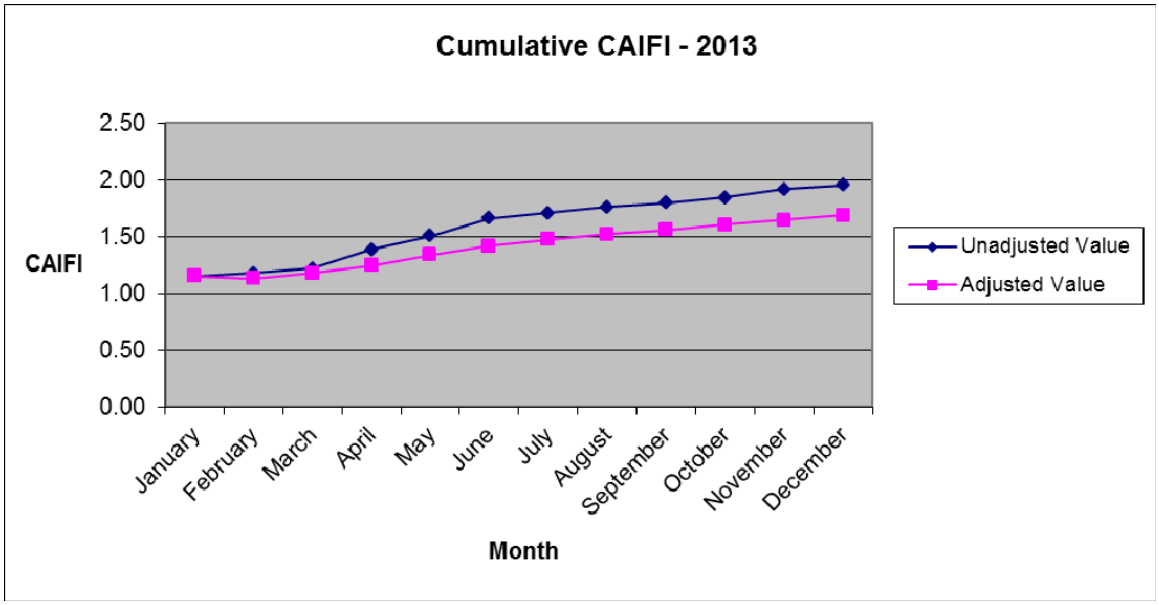
SAIFI:

Month	Unadjusted Value	Adjusted Value
January	0.06	0.06
February	0.13	0.10
March	0.17	0.15
April	0.30	0.21
May	0.52	0.29
June	0.64	0.40
July	0.69	0.45
August	0.74	0.50
September	0.79	0.55
October	0.85	0.61
November	0.94	0.65
December	0.99	0.70



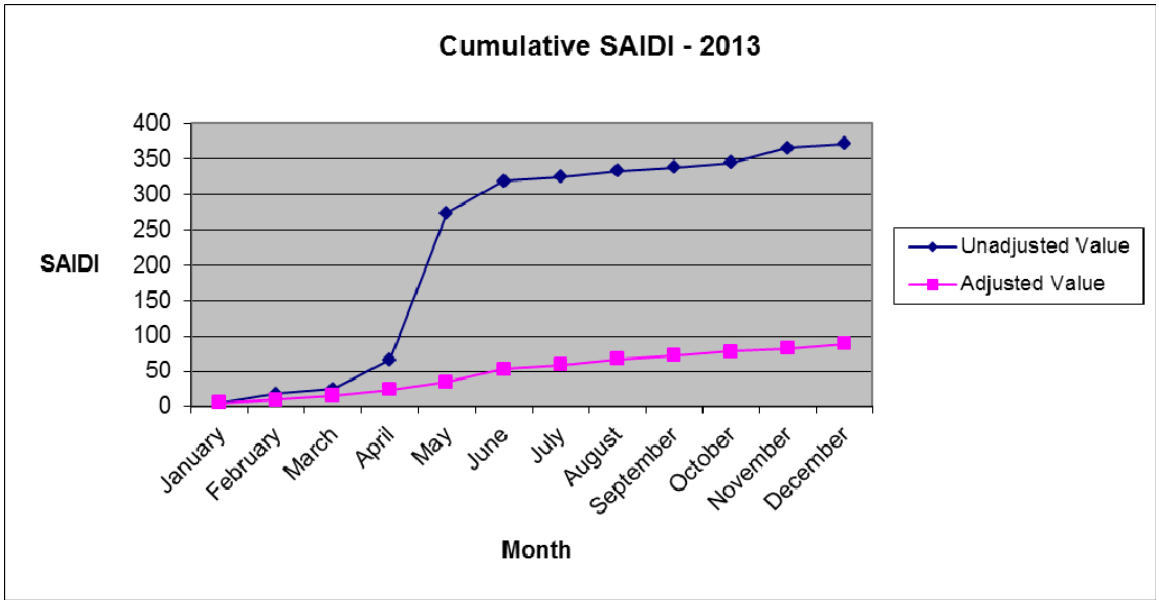
CAIFI:

Month	Unadjusted Value	Adjusted Value
January	1.16	1.16
February	1.18	1.13
March	1.22	1.18
April	1.39	1.25
May	1.51	1.34
June	1.66	1.42
July	1.71	1.47
August	1.76	1.53
September	1.80	1.56
October	1.85	1.61
November	1.92	1.65
December	1.96	1.69



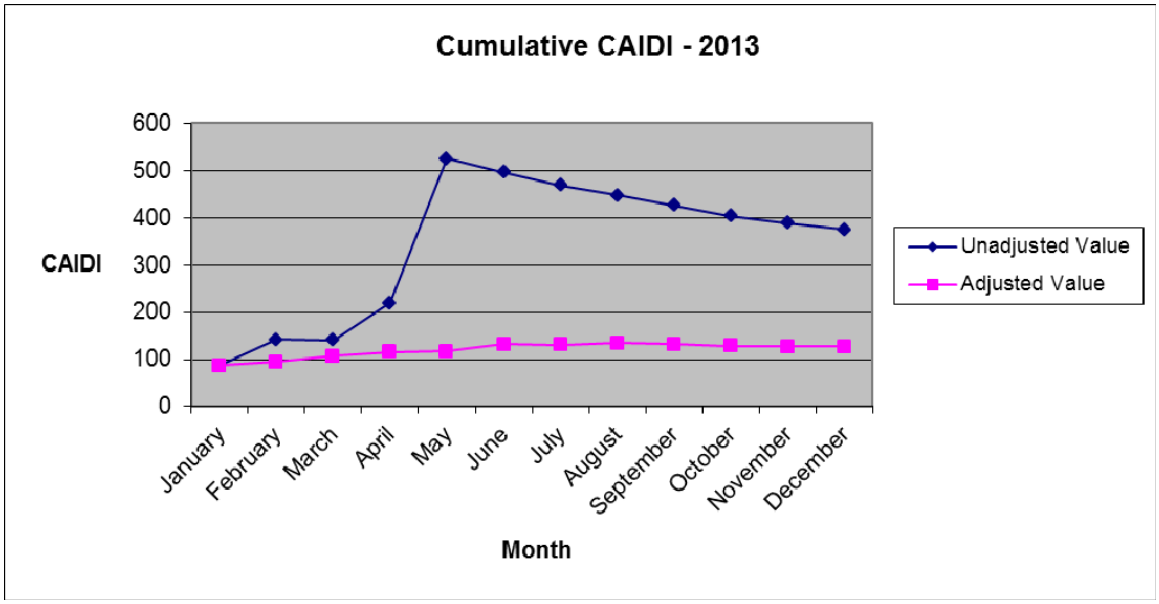
SAIDI:

Month	Unadjusted Value	Adjusted Value
January	6	6
February	18	10
March	24	16
April	66	24
May	273	35
June	318	53
July	324	59
August	333	67
September	338	72
October	344	78
November	365	82
December	371	88



CAIDI:

Month	Unadjusted Value	Adjusted Value
January	87	87
February	142	94
March	141	108
April	220	116
May	525	118
June	497	133
July	468	130
August	448	134
September	427	132
October	404	129
November	389	127
December	375	127



Ameren Missouri 2013 Worst Performing Circuits

Ameren Missouri has performed SAIFI calculations on all of its distribution circuits in accordance with section (6) of the Rule. The circuits have been ranked in order of descending 2013 SAIFI and the 5 percent of the circuits with the highest SAIFI values have been designated as Worst Performing Circuits (WPCs). Multi-Year Worst Performing Circuits (MWPCs) have also been identified. The 2013 WPCs, including those designated as MWPCs are listed in Appendix A. The circuit numbers for the MWPCs have been highlighted in red.

Ameren Missouri has analyzed each of the WPCs for the reasons the circuit qualifies as a WPC and the actions planned or taken to improve the WPC's performance have been included in Appendix B. Each of the MWPCs in Appendix B is identified with the title "Multi-Year WPC Analysis and Remedial Action Report". The MWPC reports contain detailed information regarding work completed or planned to improve the performance of each of the MWPCs as required by the Rule.

Multi-year Worst Performing Circuits not on the 2013 WPC list

The MWPCs circuits not identified as WPCs in 2013 but which were WPCs in 2011 and 2012 are listed in Appendix C. Appendix D details the actions taken and/or planned to improve the performance of these circuits.

Conclusion

This report satisfies the reporting requirements of 4 CSR 240-23.010 for the calendar year 2013. The reported reliability metrics demonstrate continued improvement in the reliability of Ameren Missouri's electric distribution system. With an adjusted SAIFI value of .70, Ameren Missouri's customers now experience, on average, less than one extended outage per year. The reported analyses and corrective actions for the Worst Performing Circuits also demonstrate Ameren Missouri's high level of focus on improving reliability and our full commitment to satisfying both the intent and the requirements of this rule.

DIVISION	OPERATING AREA	CIRCUIT	VOLT	CUSTOMERS	CI	SAIFI	2011	2012	2013	Years WPC
ARCHVIEW	GERALDINE	317004	4	585	3,023	5.17			WPC	1
GATEWAY	BERKELEY	270052	12	1,355	6,853	5.06		WPC	WPC	2
GATEWAY	BERKELEY	156001	4	141	706	5.01			WPC	1
BOONE TRAILS	LOUISIANA	672052	12	128	492	3.84			WPC	1
ARCHVIEW	MACKENZIE	280056	12	1,645	6,230	3.79			WPC	1
SEMO	CAPE GIRARDEAU	607051	12	437	1,469	3.36			WPC	1
GATEWAY	BERKELEY	162051	12	1,231	4,032	3.28		WPC	WPC	2
GATEWAY	BERKELEY	229052	12	1,733	5,641	3.26			WPC	1
CENTRAL OZARKS	JEFFERSON CITY	989055	12	1,264	4,102	3.25			WPC	1
CENTRAL OZARKS	JEFFERSON CITY	856052	12	387	1,254	3.24			WPC	1
BOONE TRAILS	WENTZVILLE	636053	12	11	35	3.18			WPC	1
SEMO	CAPE GIRARDEAU	680057	12	835	2,650	3.17			WPC	1
SEMO	POTOSI	451054	12	391	1,231	3.15	WPC	WPC	WPC	3
BOONE TRAILS	LOUISIANA	783051	12	489	1,520	3.11			WPC	1
CENTRAL OZARKS	JEFFERSON CITY	719051	12	88	269	3.06			WPC	1
MERAMEC VALLEY	JEFFERSON	560058	12	1,149	3,487	3.03			WPC	1
UNDERGROUND	UNDERGROUND	082053	12	44	125	2.84		WPC	WPC	2
SEMO	CAPE GIRARDEAU	602005	4	478	1,280	2.68			WPC	1
GATEWAY	BERKELEY	270051	12	625	1,642	2.63			WPC	1
MERAMEC VALLEY	JEFFERSON	546054	12	154	401	2.60	WPC		WPC	2
GATEWAY	BERKELEY	154003	4	398	1,015	2.55			WPC	1
SEMO	CAPE GIRARDEAU	607054	12	272	665	2.44	WPC	WPC	WPC	3
BOONE TRAILS	LOUISIANA	612054	12	268	647	2.41			WPC	1
MISSOURI VALLEY	MOBERLY	747052	12	228	550	2.41			WPC	1
ARCHVIEW	MACKENZIE	194056	12	1,675	4,038	2.41			WPC	1
SEMO	POTOSI	477051	12	189	454	2.40			WPC	1
UNDERGROUND	UNDERGROUND	082051	12	377	902	2.39	WPC	WPC	WPC	3
SEMO	POTOSI	488051	12	259	617	2.38			WPC	1
SEMO	ST FRANCOIS	563056	12	530	1,251	2.36			WPC	1
CENTRAL OZARKS	JEFFERSON CITY	854051	12	444	1,033	2.33	WPC	WPC	WPC	3
MERAMEC VALLEY	JEFFERSON	185057	12	653	1,519	2.33			WPC	1
GATEWAY	BERKELEY	260056	12	31	72	2.32		WPC	WPC	2
GATEWAY	BERKELEY	259055	12	2,147	4,972	2.32			WPC	1
GATEWAY	DORSETT	117054	12	480	1,104	2.30			WPC	1
GATEWAY	BERKELEY	215053	12	1,341	3,083	2.30			WPC	1
MERAMEC VALLEY	ELLISVILLE	279054	12	1,121	2,551	2.28	WPC		WPC	2
MERAMEC VALLEY	JEFFERSON	207053	12	834	1,896	2.27			WPC	1
GATEWAY	DORSETT	147058	12	570	1,295	2.27			WPC	1
GATEWAY	DORSETT	209055	12	247	558	2.26	WPC		WPC	2
ARCHVIEW	MACKENZIE	116001	4	811	1,811	2.23			WPC	1
MISSOURI VALLEY	EXCELSIOR SPRINGS	883001	4	26	58	2.23			WPC	1
MERAMEC VALLEY	FRANKLIN	503055	12	1,235	2,753	2.23			WPC	1
SEMO	DEXTER	622054	12	379	840	2.22	WPC	WPC	WPC	3
CENTRAL OZARKS	JEFFERSON CITY	818052	12	642	1,421	2.21			WPC	1
SEMO	CAPE GIRARDEAU	633058	12	980	2,154	2.20		WPC	WPC	2
SEMO	HAYTI	458008	4	218	478	2.19			WPC	1
SEMO	CAPE GIRARDEAU	887003	4	268	583	2.18			WPC	1
MISSOURI VALLEY	BOONEVILLE	873051	12	193	419	2.17			WPC	1
MERAMEC VALLEY	ELLISVILLE	217055	12	184	398	2.16			WPC	1
GATEWAY	BERKELEY	210052	12	118	252	2.14			WPC	1
SEMO	CAPE GIRARDEAU	633057	12	1,511	3,210	2.12			WPC	1
GATEWAY	DORSETT	209056	12	342	724	2.12			WPC	1
MERAMEC VALLEY	JEFFERSON	190054	12	1,234	2,610	2.12		WPC	WPC	2
CENTRAL OZARKS	JEFFERSON CITY	799053	12	1,067	2,251	2.11			WPC	1
GATEWAY	BERKELEY	229056	12	1,146	2,395	2.09			WPC	1
GATEWAY	BERKELEY	227001	4	117	242	2.07			WPC	1
ARCHVIEW	GERALDINE	198002	4	573	1,185	2.07			WPC	1
GATEWAY	DORSETT	266052	12	93	192	2.06	WPC		WPC	2
SEMO	DEXTER	734053	12	48	99	2.06		WPC	WPC	2
GATEWAY	BERKELEY	210056	12	396	814	2.06			WPC	1
GATEWAY	DORSETT	243052	12	110	225	2.05			WPC	1

MERAMEC VALLEY	JEFFERSON	560052	12	1,992	4,067	2.04		WPC	1
ARCHVIEW	MACKENZIE	151007	4	585	1,190	2.03		WPC	1
GATEWAY	DORSETT	266054	12	68	138	2.03		WPC	1
BOONE TRAILS	ST CHARLES	577055	12	172	347	2.02		WPC	1
SEMO	CAPE GIRARDEAU	621005	4	60	121	2.02	WPC	WPC	2
BOONE TRAILS	WENTZVILLE	389051	12	1,004	2,013	2.00		WPC	1
GATEWAY	DORSETT	256057	12	256	513	2.00		WPC	1
ARCHVIEW	GERALDINE	278005	4	159	315	1.98		WPC	1
GATEWAY	BERKELEY	167052	12	611	1,206	1.97		WPC	1
GATEWAY	DORSETT	203056	12	766	1,472	1.92		WPC	1
CENTRAL OZARKS	ELDON	654051	12	365	693	1.90		WPC	1
ARCHVIEW	MACKENZIE	135001	4	569	1,070	1.88		WPC	1
MERAMEC VALLEY	JEFFERSON	195054	12	1,029	1,913	1.86		WPC	1
GATEWAY	DORSETT	264057	12	974	1,770	1.82		WPC	1
GATEWAY	DORSETT	145053	12	544	983	1.81		WPC	1
BOONE TRAILS	ST CHARLES	564053	12	1,178	2,097	1.78	WPC	WPC	2
GATEWAY	BERKELEY	214051	12	937	1,657	1.77		WPC	1
SEMO	HAYTI	464054	12	924	1,607	1.74	WPC	WPC	2
BOONE TRAILS	LOUISIANA	629053	12	256	445	1.74		WPC	1
ARCHVIEW	GERALDINE	120006	4	729	1,266	1.74		WPC	1
GATEWAY	BERKELEY	259054	12	2,028	3,520	1.74	WPC	WPC	2
MERAMEC VALLEY	FRANKLIN	585052	12	281	477	1.70	WPC	WPC	2
CENTRAL OZARKS	JEFFERSON CITY	922054	12	491	830	1.69		WPC	1
SEMO	DEXTER	615007	4	317	535	1.69		WPC	1
GATEWAY	DORSETT	267058	12	886	1,491	1.68		WPC	1
MERAMEC VALLEY	FRANKLIN	132053	12	379	636	1.68		WPC	1
UNDERGROUND	UNDERGROUND	294052	12	3	5	1.67		WPC	1
GATEWAY	BERKELEY	210051	12	1,318	2,154	1.63	WPC	WPC	2
MISSOURI VALLEY	MEXICO	727052	12	57	93	1.63		WPC	1
BOONE TRAILS	WENTZVILLE	673053	12	580	941	1.62	WPC	WPC	2
BOONE TRAILS	WENTZVILLE	648052	12	507	821	1.62		WPC	1
GATEWAY	BERKELEY	260051	12	17	27	1.59		WPC	1
BOONE TRAILS	WENTZVILLE	648056	12	2,239	3,513	1.57		WPC	1
CENTRAL OZARKS	JEFFERSON CITY	923051	12	104	163	1.57		WPC	1
MERAMEC VALLEY	FRANKLIN	179055	12	1,318	2,064	1.57		WPC	1
ARCHVIEW	GERALDINE	293002	4	510	788	1.55		WPC	1
GATEWAY	BERKELEY	167055	12	541	824	1.52		WPC	1
SEMO	POTOSI	473051	12	319	485	1.52		WPC	1
ARCHVIEW	GERALDINE	142006	4	268	407	1.52		WPC	1
ARCHVIEW	GERALDINE	208002	4	639	969	1.52		WPC	1
ARCHVIEW	GERALDINE	106003	4	604	915	1.51		WPC	1
SEMO	CAPE GIRARDEAU	692053	12	1,269	1,921	1.51	WPC	WPC	2
MERAMEC VALLEY	JEFFERSON	546051	12	571	861	1.51	WPC	WPC	2
ARCHVIEW	GERALDINE	029004	4	153	230	1.50		WPC	1
SEMO	DEXTER	620056	12	2	3	1.50		WPC	1
ARCHVIEW	MACKENZIE	223051	12	1,304	1,950	1.50		WPC	1
MERAMEC VALLEY	JEFFERSON	559053	12	406	606	1.49		WPC	1
BOONE TRAILS	WENTZVILLE	638053	12	1,307	1,909	1.46		WPC	1
ARCHVIEW	MACKENZIE	135008	4	455	660	1.45		WPC	1

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 317004
Division – Archview
Area Served – North St. Louis, MO
SAIFI Value – 5.17

Analysis Results:

This circuit serves 585 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by public and other utility damage and an underground cable failure which resulted in 3,023 CI. Circuit 317004 experienced five significant outages in 2013 which resulted in 2,931 (97%) of the total CI. Two of the outages occurred when a trash truck made contact with a communications cable and caused a disturbance to the high voltage electric line. The third and fourth outages occurred when a boring contractor hit an underground cable. The remaining outage was caused by an underground cable fault.

Corrective Actions:

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2013.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 270052
Division – Gateway
Area Served – Hazelwood, MO
SAIFI Value – 5.06

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performances in 2012 and 2013. The SAIFI values on this circuit in the last two years were: 2.47 in 2012 and 5.06 in 2013. This circuit serves 1,355 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by tree contacts, operator errors, overhead equipment failures, and unknown causes which resulted in 6,583 CI. Circuit 270052 experienced four significant outages in 2013, which resulted in 3,094 (47%) of the total CI. The first outage occurred when a tree limb fell on the circuit. The second outage occurred due to a tree contact. The third outage was caused by a solid blade switch failure. The fourth outage occurred when four spans of primary fell for no apparent reason. Smaller overhead equipment failures resulted in 21% of the CI. Tree contacts accounted for 18% of the CI. Operator error was responsible for 10% of the CI. Lastly, prearranged and public vehicle related outages constituted less than 4% of the total CI.

Corrective Actions:

Previous reliability work performed on this circuit:

Tree trimming was performed on this circuit in 2012.

An overhead visual inspection was performed on this circuit in 2012. The repair work identified as a result of the inspection was completed in accordance with Ameren Missouri's infrastructure inspection policy.

The Vegetation Management Department performed prescriptive tree trimming on this circuit in 2013.

Division engineering personnel performed multiple inspections of the circuit and several improvement opportunities were identified. These included replacement of cracked or distorted cross-arms and V-braces. In addition, three automated switches were installed under DOJM Work Request numbers 21MT579938, 21MT579220, and 21MT579443, all of which were completed in September 2013.

Substation breakers which had a history of poor operation were replaced in November 2013.

Planned MWPC reliability improvement work:

An additional overhead visual inspection was performed on this circuit in 2014. The repair work identified as a result of this inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request number 21MT595620.

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WPC Analysis and Remedial Action Report

Circuit Number – 156001
Division – Gateway
Area Served – Berkeley, MO
SAIFI Value – 5.01

Analysis Results:

This circuit serves 141 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead and underground equipment malfunctions which resulted in 706 CI. Circuit 156001 experienced three significant outages in 2013, all occurring during adverse weather conditions which resulted in 579 (82%) of the total CI. The first outage occurred when an underground circuit entrance cable failed. The second outage occurred when a clamp on the circuit backbone near the terminal pole failed. The third outage occurred due to an unknown substation trip during a thunderstorm. In addition, approximately 14% of the CI experienced on this circuit was the result of prearranged outages for maintenance or safety. Adverse tree conditions accounted for less than 5% of the CI.

Corrective Actions:

Tree trimming was performed on this circuit in 2012.

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request numbers 21MT595741, and 21MT594515.

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WPC Analysis and Remedial Action Report

Circuit Number – 672052
Division – Boone Trails
Area Served – Clarksville, MO
SAIFI Value – 3.84

Analysis Results:

This circuit serves 128 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather, tree contacts, and an unknown cause which resulted in 492 CI. Circuit 672052 experienced three significant outages in 2013, which resulted in 384 (78%) of the total CI. The first outage occurred when a tree broke the primary during a thunderstorm. The second outage occurred when the circuit tripped during a thunderstorm. The circuit was patrolled and no problems were identified. The third outage occurred when a lightning strike during a thunderstorm caused the circuit to trip and lock out.

Corrective Actions:

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2012.

Division engineering personnel will patrol the circuit in 2014 to verify that all backbone transformers are properly fused and to determine if there are opportunities for additional sectionalizing of the circuit. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

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WPC Analysis and Remedial Action Report

Circuit Number – 280056
Division – Archview
Area Served – South St. Louis County, MO
SAIFI Value – 3.79

Analysis Results:

This circuit serves 1,645 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather, tree contacts, an underground cable failure, and a public vehicle accident which resulted in 6,230 CI. Circuit 280056 experienced five significant outages in 2013 which resulted in 6,041 (97%) of the total CI. The first three outages occurred when thunderstorms caused tree limbs to contact the primary. The fourth outage occurred when a public vehicle knocked down a pole. The fifth outage occurred when an underground primary cable failed at the Heintz Substation.

Corrective Actions:

Tree trimming was performed on this circuit in 2012.

Spot tree trimming was performed after each of the tree caused outages. The circuit was patrolled and no other tree problems were found.

The pole broken by the vehicle accident was replaced in September 2013.

The underground primary cable failure was repaired under DOJM Work Request number 21MT589821, which was completed in December 2013. The circuit was switched back to normal mode following this work.

Overhead and underground visual inspections were performed on this circuit in 2014. Specifically identified work included: two poles to be replaced, two poles to be straightened, and miscellaneous repairs/replacements of risers, lightning arresters, cross-arms, insulators, ground wires, guy wires, pole steps, pole top pins, and V-braces. Repair work identified as a result of these inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

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WPC Analysis and Remedial Action Report

Circuit Number – 607051
Division – SEMO
Area Served – Benton, MO
SAIFI Value – 3.36

Analysis Results:

This circuit serves 437 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather, tree contacts, animal intrusions, and overhead equipment malfunctions which resulted in 1,469 CI. Circuit 607051 experienced one significant outage in 2013. The outage occurred when high winds and storms caused the primary to fail which tripped the substation breaker.

Corrective Actions:

A special overhead visual inspection was performed on this circuit in 2013. The repair work identified as a result of the inspection was completed in accordance with Ameren Missouri's infrastructure inspection policy.

A 34kV viper recloser will be installed under DOJM Work Request number 2TSE106645 to prevent the ORAN-73 34kV circuit from tripping other 34kV circuits at Benton.

Additional 34kV viper reclosers will be installed on both sides of the Blodgett Substation under DOJM Work Request numbers 2TSE106643 and 2TSE106644 which will enable the Benton Substation to be served from the Miner Bulk Substation.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 162051
Division – Gateway
Area Served – Florissant, MO
SAIFI Value – 3.28

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2012 and 2013. The SAIFI values for this circuit in the last two years were: 2.39 in 2012 and 3.28 in 2013. This circuit serves 1,231 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment malfunctions and public damage which resulted in 4,032 CI. Circuit 162051 experienced three significant outages in 2013, which resulted in 3,492 (86.6%) of the total CI. The first two outages were caused by overhead equipment failures. The third outage occurred due to damage by the public. Tree contacts accounted for approximately 8% of the CI. Animal intrusions accounted for approximately 2% of the CI. Finally, unknown causes resulted in roughly 3% of the CI.

Corrective Actions:

Previous reliability work performed on this circuit:

Tree trimming was performed on this circuit in 2013.

Planned MWPC reliability improvement work:

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request number 21MT596173 and 21MT596175.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 229052
Division – Gateway
Area Served – Florissant, MO
SAIFI Value – 3.26

Analysis Results:

This circuit serves 1,733 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by an underground malfunction, tree contacts, and public damage which resulted in 5,049 CI. Circuit 229052 experienced three significant outages in 2013, which resulted in 4,519 (88.5%) of the total CI. The first outage was caused by an underground circuit double fault, in which the Y terminal pole burned. The second outage was caused by public damage. The third outage occurred when a tree broke the primary during a thunderstorm. In addition, approximately 1.5% of the total CI experienced was the result of prearranged outages for maintenance or safety. Adverse tree conditions accounted for approximately 3% of the total CI. Other underground malfunctions constituted 3% of the total CI. Finally, less than 4% of the CI was due to unknown causes.

Corrective Actions:

Tree trimming was performed on this circuit in 2012.

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request number 21MT595951.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 989055
Division – Central Ozarks
Area Served – Jefferson City, MO
SAIFI Value – 3.25

Analysis Results:

This circuit serves 1,264 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather, overhead equipment failures, and a 69kV subtransmission line failure which resulted in 4,102 CI. Circuit 989055 experienced three significant outages in 2013, which resulted in 3,774 (92%) of the total CI. The first outage was actually caused by the loss of the 69kV line to the substation during a storm. The other two outages were caused by wire and insulator failures on the main backbone during storms.

Corrective Actions:

The circuit line design was reviewed by Division engineering personnel and it was found to be designed correctly.

A ground line inspection was performed on this circuit in 2013. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

Automated fault indicators were installed on the main circuit backbone in 2014 to help identify the locations of any future faults. This will assist in quicker fault restoration.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 856052
Division – Central Ozarks
Area Served – Jefferson City, MO
SAIFI Value – 3.24

Analysis Results:

This circuit serves 387 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by tree contacts and overhead equipment malfunctions which resulted in 1,254 CI. Circuit 856052 experienced two significant outages in 2013. Both outages were caused by tree contacts. However, in both outages, a recloser and sectionalizer failed to operate properly which caused circuit outages that should have been only partial outages.

Corrective Actions:

The Vegetation Management Department performed special maintenance tree trimming on this circuit in 2013.

A project to change the protective coordination on this circuit by installing an S&C Intellirupter and removing the old recloser and sectionalizer was performed in 2013. The Intellirupter, located near the midpoint of the circuit, provides indication and control to the dispatch group to more quickly identify an outage location.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 636053
Division – Boone Trails
Area Served – Wentzville, MO
SAIFI Value – 3.18

Analysis Results:

This circuit serves 11 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by a substation service switch failure which resulted in 35 CI. Circuit 636053 experienced one significant outage in 2013 which resulted in 34 (97%) of the total CI. This outage occurred when a substation service switch failed. At the time of this outage, there were 35 customers on this circuit. This is an industrial circuit that was switched to 11 customers to relieve load on the W Unit at the Cool Springs Substation. Had the switching not taken place for load relief, there would have been 35 customers on the circuit and the SAIFI for this circuit would have been 1.02.

Corrective Actions:

The Vegetation Management Department will perform mid-cycle maintenance tree trimming on this circuit in 2014.

An overhead visual inspection was performed on this circuit in 2013. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. A project to improve switching to reduce outage time in the event of a circuit outage was performed under DOJM Work Request number 2WWZ159912 which was completed in March 2014. Another project to reduce the duration in the event of a circuit outage will be performed under DOJM Work Request number 2WWZ159914 in 2014.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 680057
Division – SEMO
Area Served – Cape Girardeau, MO
SAIFI Value – 3.17

Analysis Results:

This circuit serves 835 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather, vehicle accidents, animal contacts, and overhead failures which resulted in 2,650 CI. Circuit 680057 experienced three significant outages in 2013. The first two outages occurred when a three phase switch burned and caused the substation breaker to trip. The third outage occurred when a storm caused a primary insulator to fail and trip the substation.

Corrective Actions:

The district will install two S&C Intellirupters to automatically switch this circuit to the Gordonville 617052 circuit. This work will be performed under DOJM Work Request numbers 2TSE106637 and 2TSE106638 in 2014.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 451054
Division – SEMO
Area Served – Viburnum, MO
SAIFI Value – 3.15

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit based on its performance in 2011, 2012, and 2013. The SAIFI values on this circuit in the last three years were: 3.31 in 2011, 4.54 in 2012, and 3.15 in 2013. This circuit serves 391 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by tree contacts, overhead equipment malfunctions, public damage, animal intrusions, and prearranged maintenance outages which resulted in 1,231 CI. Circuit 451054 experienced several significant outages in 2013, which resulted in 923 (75%) of the total CI. These outages occurred due to tree contacts. Overhead equipment malfunctions such as primary wire failures and switch failures, caused another 17% of the CI. The remaining minor outages were caused by various small events ranging from public damage, animal intrusions, and prearranged maintenance which resulted in (8%) of the total CI. There are currently no conductor over-loads on this circuit.

Corrective Actions:

Previous reliability work performed on this circuit:

An overhead visual inspection and a ground line inspection were performed on this circuit in 2011. The repair work identified as a result of these inspections was completed in accordance with Ameren Missouri's infrastructure inspection policy. Over 150 poles were replaced as a result of these inspections.

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2012.

Automated switches were installed on two large single phase taps to create a tie to isolate and remotely restore some customers during outages in the area. This work was performed in 2012.

Fuses and animal guards were installed on this circuit in 2013. The substation breaker was replaced with a new SCADA controlled Viper recloser in 2013.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 783051
Division – Boone Trails
Area Served – Bowling Green, MO
SAIFI Value – 3.11

Analysis Results:

This circuit serves 489 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment failures and weather which resulted in 1,520 CI. Circuit 783051 experienced five significant outages in 2013 which resulted in 1,078 (71%) of the total CI. The first outage occurred when a section of primary failed. The second outage occurred when a section of primary failed near switch W9932. The third outage occurred when the neutral became wrapped with the primary. The fourth outage occurred when lightning struck a tie switch outside the substation. This caused the main breaker relay to see both circuit fault currents at the same time, which resulted in the main breaker tripping. The fifth outage occurred when a thunderstorm caused a recloser (9934) to fail.

Corrective Actions:

Tree trimming was performed on this circuit in 2013.

The first circuit outage was repaired under DOJM Work Request number 2WWZ153686, which was completed in January 2013.

The second circuit outage was repaired under DOJM Work Request number 2WWZ156099, which was completed in July 2013.

The third circuit outage was repaired under DOJM Work Request number 2WWZ156123, which was completed in July 2013.

Division engineering personnel will patrol the circuit in 2014 to verify that all backbone transformers are properly fused and to determine if there are opportunities for additional sectionalizing of the circuit. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 719051
Division – Central Ozarks
Area Served – Jefferson City, MO
SAIFI Value – 3.06

Analysis Results:

This circuit serves 88 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by tree contacts and overhead equipment failures which resulted in 269 CI. Circuit 719051 experienced three significant outages in 2013. The first two outages occurred due to tree contacts. The third outage occurred due to broken primary conductors.

Corrective Actions:

Tree trimming will be performed on this circuit in 2014.

A project to re-conductor the section of line where the broken primary caused the circuit outage is scheduled to begin in the summer of 2014.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 560058
Division – Meramec Valley
Area Served – Unincorporated Jefferson County (near Fenton), MO
SAIFI Value – 3.03

Analysis Results:

This circuit serves 1,149 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by a pole failure and a public vehicle accident which resulted in 3,487 CI. Circuit 560058 experienced two significant outages in 2013, which resulted in 3,278 (94%) of the total CI. The first outage occurred when the deterioration of a pole butt caused the pole to break. The second outage occurred when a public vehicle struck and broke a pole.

Corrective Actions:

Tree trimming was performed on this circuit in 2013.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 082053
Division – Underground
Area Served – Saint Louis, MO
SAIFI Value – 2.84

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (WPC) based on its performance in 2012 and 2013. The SAIFI values for this circuit in the past two years were: 3.70 in 2012 and 2.84 in 2013. This circuit serves 44 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by a cable failure which resulted in 125 CI. Circuit 082053 experienced one significant outage in 2013. This outage occurred when a cable failed.

Cole 53 (circuit 082053) has approximately 15,900 feet of primary cable that is a mix of PILC (paper insulated lead cable) and EPR (ethylene propylene rubber) type cables. A majority of the cable on this circuit is PILC, which is typically older and can be more prone to failures. In addition, this circuit is about twice the length of the average radial circuit in the downtown area, which creates more exposure to potential failures.

Corrective Actions:

Previous reliability work performed on this circuit:

See the information below.

Planned MWPC reliability improvement work:

A project was initiated in 2013 to replace 3,500 feet of aging PILC cable on the Cole 53 circuit. 2,600 linear feet (LF) of cable was replaced and put into service in 2013 with the balance to be installed in 2014. In addition, 7,800 LF of aging cable will be eliminated with the Martin Luther King (MLK) Switching Station project. After 2014, only 4,600 LF of the original 15,900 LF of PILC cable on the Cole 53 circuit will remain.

Additionally, as part of the MLK Switching Station project, the average circuit length will be shortened by increasing the number of Cole radial circuits from three to five. This reduces the average circuit length of the MLK radial system to 11,400 LF; the average Cole radial circuit length today is 23,100 LF. The reduction in overall circuit length and replacing PILC cable that is beyond its anticipated service life will reduce the risk of additional circuit outages. Additionally, automated sectionalizing switchgear will be installed as part of the MLK project to isolate failed cable sections between the switchgear and the substation, allowing the other sections to be restored automatically.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 602005
Division – SEMO
Area Served – Cape Girardeau, MO
SAIFI Value – 2.68

Analysis Results:

This circuit serves 478 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather, tree contacts, and overhead equipment failures which resulted in 1,280 CI. Circuit 602005 experienced three significant outages in 2013. The first outage occurred when a lightning strike tripped the substation breaker. The other two outages occurred when a storm caused the circuit primary to fall, which tripped the substation breaker.

Corrective Actions:

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2013.

A ground line inspection was performed on this circuit in 2013. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

An overhead visual inspection will be performed on this circuit in 2014. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 270051
Division – Gateway
Area Served – Hazelwood, MO
SAIFI Value – 2.63

Analysis Results:

This circuit serves 625 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment failures, weather, prearranged outages, and public vehicle accidents which resulted in 1,642 CI. Circuit 270051 experienced two significant outages in 2013, which resulted in 1,084 (66%) of the total CI. The first outage occurred when multiple poles broke during a thunderstorm. The second outage was caused by a public vehicle accident. In addition, approximately 19% of the CI were caused by other public vehicle accidents. Prearranged outages for maintenance or safety accounted for 11% of the CI. Other overhead equipment malfunctions constituted less than 3% of the total CI experienced on the circuit during 2013.

Corrective Actions:

Tree trimming was performed on this circuit in 2012.

An overhead visual circuit inspection was performed in 2012. The repair work identified as a result of the inspection was performed in accordance with Ameren Missouri's infrastructure inspection policy.

Substation breakers with a poor operating history were replaced in November 2013.

An additional overhead visual inspection was performed on this circuit in March 2014. The repair work identified as a result of these inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request number 21MT595635.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 546054
Division – Meramec Valley
Area Served – Unincorporated Jefferson County (near House Springs), MO
SAIFI Value – 2.60

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2011 and 2013. The SAIFI values on this circuit in the last three years were: 4.175 in 2011, 0.34 in 2012, and 2.60 in 2013. This circuit serves 154 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment failures and public vehicle accidents which resulted in 401 CI. Circuit 546054 experienced three significant outages in 2013. The first outage occurred when a jumper on the primary burned. The other two outages occurred when public vehicles struck poles.

Corrective Actions:

Previous reliability work performed on this circuit:

An overhead visual inspection was performed on this circuit in 2011. The repair work identified as a result of the inspection was completed in accordance with Ameren Missouri's infrastructure inspection policy.

Planned MWPC reliability improvement work:

Tree trimming will be performed on this circuit in 2014.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 154003
Division – Gateway
Area Served – Florissant, MO
SAIFI Value – 2.55

Analysis Results:

This circuit serves 398 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment failures, unknown causes, prearranged outages, and tree contacts which resulted in 1,015 CI. Circuit 154003 experienced three significant outages in 2013, which resulted in 985 (97%) of the total CI. The first outage occurred when a tree fell on the primary. The second outage was caused by a broken primary. The third outage occurred due to a substation trip of unknown cause. In addition, prearranged outages for maintenance or safety accounted for less than 3% of the total CI experienced on the circuit in 2013.

Corrective Actions:

An overhead visual circuit inspection and ground line inspection were completed in 2013. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

Division engineering personnel performed multiple inspections of the circuit and several improvement opportunities were identified. The repair work identified as a result of these inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request number 21MT595735.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 607054
Division – SEMO
Area Served – Benton, MO
SAIFI Value – 2.44

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2011, 2012, and 2013. The SAIFI values on this circuit in the last three years were: 2.26 in 2011, 2.64 in 2012, and 2.44 in 2013. This circuit serves 272 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather, animal intrusions, public vehicle accidents, and overhead malfunctions which resulted in 665 CI. Circuit 607054 experienced two significant outages in 2013. The first outage occurred when a cross-arm on the circuit backbone broke, which caused the station breaker to open. The second outage occurred when a car struck a pole which caused the station breaker to trip.

Corrective Actions:

Previous reliability work performed on this circuit:

Tree trimming was performed on this circuit in 2010.

A special overhead visual inspection was performed on this circuit in 2010 which inspected for animal guarding, tap-fusing, and maintenance issues. Repairs were performed under DOJM Work Request number 2TSE093454 which was completed in August 2010.

An overhead visual inspection was performed on this circuit in 2011 which inspected for animal guarding, tap fusing, and other maintenance issues. Repairs were completed under DOJM Work Request number 2TSE099528 which was completed in April 2012.

An overhead visual inspection and a ground line inspection were performed on this circuit in 2013. The repair work identified as a result of these inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

The Benton Substation was rebuilt in 2013. New steel was installed in the substation to replace the wood pole structure identified as needing replacement by Condition Based Maintenance (CBM). The three breakers were rebuilt and SCADA metering was added. The substation transformer high side bushing was repaired. Three new overhead feeder exits were added under DOJM Work Request number 2TSE101275, which was completed in March 2013. A new circuit tie was added under DOJM Work Request number 2TSE103102, which was completed in February 2013. Additionally, work to prevent wire contacts was performed under DOJM Work Request number 2TSE103179, which was completed in December 2013.

Planned MWPC reliability improvement work:

A 34kV viper recloser will be installed to prevent the ORAN-73 34kV circuit from tripping other 34kV circuits at Benton. This work will be performed under DOJM Work Request number 2TSE106645.

Additional 34kV viper reclosers will be installed on both sides of the Blodgett Substation which will enable the Benton Substation to be served from the Miner Bulk Substation. This work will be performed under DOJM Work Request numbers 2TSE106643 and 2TSE106644.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 612054
Division – Boone Trails
Area Served – Bowling Green, MO
SAIFI Value – 2.41

Analysis Results:

This circuit serves 268 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather, and a public vehicle accident which resulted in 647 CI. Circuit 612054 experienced three significant outages in 2013. The first outage occurred when a public vehicle accident broke a pole. The second outage occurred when a wind storm broke a span of primary near switch W6951. The third outage occurred when a wind storm caused the circuit to fail and lock out. The circuit was patrolled and no cause was found.

Corrective Actions:

Tree trimming was performed on this circuit in 2013.

Division engineering personnel will patrol the circuit in 2014 to verify that all backbone transformers are properly fused and to determine if there are opportunities for additional sectionalizing of the circuit. The repair work identified as a result of this inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 747052
Division – Missouri Valley
Area Served – Moberly, MO
SAIFI Value – 2.41

Analysis Results:

This circuit serves 228 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment failures, weather, tree contacts, public vehicle accidents, substation equipment failures, a relay error, and prearranged outages for maintenance which resulted in 1,880 CI. Circuit 747052 experienced nine significant outages in 2013 which resulted in 978 (52%) of the total CI. Three of the outages were caused by lightning strikes. Two of the outages were caused by overloaded transformer failures. Two of the outages were caused by tree contacts. One outage was caused by a broken stinger on a recloser. One outage was caused by a relay error. In addition, approximately 35% of the CI were caused by a failed potential transformer at the substation. Lastly, 12% of the CI were caused by a public vehicle accident, and the remaining CI were due to prearranged outages for maintenance.

Corrective Actions:

Spot tree trimming was performed on this circuit in 2013 due to the outages and an inspection of the circuit.

This circuit was visually inspected in 2013 and repair work was identified. This work included fusing of multiple transformers on the backbone, replacing lightning arresters, and installing animal guards. The work was completed under DOJM Work Request number 2DLD079947, which was completed in October 2013.

Tree trimming will be performed on this circuit in 2014.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 194056
Division – Archview
Area Served – South St. Louis County, MO
SAIFI Value – 2.41

Analysis Results:

This circuit serves 1,675 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by a public vehicle accident, public damage, animal intrusions, tree contacts, and overhead equipment malfunctions which resulted in 4,038 CI. Circuit 194056 experienced two significant outages in 2013 which resulted in 3,340 (82%) of the total CI. The first outage occurred when a car hit a pole. The second outage occurred when a customer cut down a tree which hit the primary and tripped the substation breakers. In addition, 132 CI were caused by fuses blown due to squirrel contacts, 128 CI were caused by blown lightning arresters, and 162 CI were caused by trees contacting the primary.

Corrective Actions:

The pole hit by the car was repaired under DOJM Work Request number 21MT571721, which was completed in March 2013.

The customer tree was cleared and primary conductors repaired within one hour by Troublemen.

Tree trimming was performed on this circuit in 2013.

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. A squirrel guard was installed on a transformer under DOJM Work Request number 21MT569193, which was completed in March 2013. Lightning arresters were installed under DOJM Work Request number 21MT581197 which was completed in November 2013. The end of a long tap on the circuit will be isolated by installing a 40T fuse. This work will be performed under DOJM Work Request number 21MT565009.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 477051
Division – SEMO
Area Served – Irondale, MO
SAIFI Value – 2.40

Analysis Results:

This circuit serves 189 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by pre-arranged maintenance outages, wire failures, tree contacts, and a substation malfunction which resulted in 454 CI. Circuit 477051 experienced several significant outages in 2013 which resulted in 195 (43%) of the total CI. Pre-arranged maintenance outages were the main cause of customer interruptions in 2013. These interruptions were required by construction while re-conductoring two miles of this circuit; replacing existing #6 copper primary wires with three phase 1/0 AAAC. A #6 copper wire failure accounted for an additional 24% of the total CI. A substation malfunction accounted for 24% of the total CI. Tree contacts accounted for 8% of the total CI. There are currently no conductor over-load or voltage issues on this circuit.

Corrective Actions:

The Irondale substation was overhauled in 2012, by replacing the 3 single phase substation transformers with a new larger single transformer, upgrading the existing voltage regulators, and replacing the existing circuit reclosers with SCADA controlled Vipers on both circuits. This project eliminated the existing single phase substation transformer overload during winter peak conditions and allowed for future load growth in the area.

Tree trimming was performed on this circuit in 2013.

Two miles of the existing single phase #6 copper circuit were re-conductored to three phase 1/0 AAAC along Scout Camp Rd in 2013. Fuses were also installed to further isolate future faults. This work was performed under DOJM Work Request numbers 28IR037433 and 28IR037434, which were completed in December 2013.

Reliability projects were created in 2014 to install additional fuses, animal guards, and switches on the circuit to further isolate outages. This work will be performed under DOJM Work Request numbers 28IR035886, 28IR038713, and 28IR038623.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 082051
Division – Underground
Area Served – Saint Louis, MO
SAIFI Value – 2.39

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (WPC) based on its performance in 2011, 2012, and 2013. The SAIFI values for this circuit in the past three years were: 2.83 in 2011, 2.73 in 2012, and 2.39 in 2013. This circuit serves 377 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by cable failures which resulted in 902 CI. Circuit 082051 experienced two significant outages in 2013. The first outage occurred when a cable failed for unknown reasons. The second outage occurred when a cable failed due to tree root congestion in the conduit.

Cole 51 (circuit 082051) has approximately 28,200 feet of primary cable that is a mix of PILC (paper insulated lead cable) and EPR (ethylene propylene rubber) type cable. Prior to 2013, approximately 18,900 linear feet (LF) of the total length was PILC cable, some of which was beyond its useful life. Furthermore, the Cole 51 circuit length was nearly three times the average cable length of all the other downtown radial circuit cables. The Cole 51 circuit is nearly three times the average circuit length. Nearly ⅔ of the entire length of the circuit is comprised of PILC cable, some of which is beyond its useful life. This results in an increased risk of a cable failure when compared to the other underground radial circuits.

Corrective Actions:

Previous reliability work performed on this circuit:

See the information below.

Planned MWPC reliability improvement work:

A project was initiated in 2013 to replace 5,900 LF of PILC cable that is beyond its useful life. 5,100 LF was replaced and put into service in 2013 with the balance to be installed in 2014. In addition, 5,700 LF of aging cable will be eliminated with the Martin Luther King (MLK) Switching Station project. After 2014, only 7,300 LF of the original 18,900 LF of PILC cable on the Cole 51 circuit will remain.

Additionally, as part of the MLK Switching Station project, the average circuit length will be reduced by increasing the number of Cole radial circuits from three to five. This reduces the average circuit length of for the MLK radial system to 11,400 LF; the average Cole radial circuit length today is 23,100 LF. The reduction in overall circuit length and replacing PILC cable that is beyond its anticipated service life will reduce the risk of additional circuit outages.

Additionally, automated sectionalizing switchgear will be installed as part of the MLK project to sectionalize failed cable sections between the switchgear and the substation, allowing the other sections to be restored automatically.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 488051
Division – SEMO
Area Served – Sunnen, MO
SAIFI Value – 2.38

Analysis Results:

This circuit serves 259 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment malfunctions, tree contacts, and pre-arranged maintenance outages which resulted in 617 CI. Circuit 488051 experienced several significant outages in 2013 which resulted in 315 (51%) of the total CI. Primary wire failures and fuse failures were the cause of the majority of the outages in 2013. Tree contacts accounted for an additional 27% of the CI, and pre-arranged maintenance outages were the cause of the remaining 22% of the CI.

Corrective Actions:

An overhead visual inspection and a ground line inspection were performed on this circuit in 2013. The repair work identified as a result of these inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2013.

Reliability projects were created in 2014 to install additional fuses, animal guards, and switches on the circuit to further isolate outages. This work will be performed under DOJM Work Request numbers 28IR038569 and 28IR038714.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 563056
Division – SEMO
Area Served – Bonne Terre, MO
SAIFI Value – 2.36

Analysis Results:

This circuit serves 530 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather, operator errors, animal intrusions, overhead equipment malfunctions, prearranged maintenance outages, and public damage which resulted in 1,251 CI. Circuit 563056 experienced several significant outages in 2013 which resulted in 688 (55%) of the total CI. Lightning damage during thunderstorms caused the majority of the outages in 2013. Relay switching and coordination errors caused another 42% of the total CI. Animals, overhead equipment malfunctions, pre-arranged maintenance outages, and public damage accounted for the remaining 3% of the CI.

Corrective Actions:

An underground detailed inspection was performed on this circuit in 2012. The repair work identified as a result of these inspections was completed in accordance with Ameren Missouri's infrastructure inspection policy.

An underground visual inspection was performed on this circuit in 2013. No repair work was identified as a result of this inspection.

A reliability project will be created in 2014 to install additional fuses, animal guards, and switches on the circuit to further isolate outages. This work will be performed under DOJM Work Request number 28SF038035.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 854051
Division – Central Ozarks
Area Served – Jefferson City, MO
SAIFI Value – 2.33

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2011, 2012, and 2013. The SAIFI values for this circuit in the last three years were: 2.39 in 2011, 1.98 in 2012, and 2.33 in 2013. This circuit serves 444 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment failures which resulted in 1,033 CI. Circuit 854051 experienced one significant outage in 2013. The outage occurred when a 34 kV conductor broke which caused the 34 kV substation to fail. No cause was found for the conductor failure. Other, smaller outages occurred due to wire breakage and problems in the Hwy YY area. The rest of the CI on this circuit were scattered events on the rural distribution system with no common cause.

Corrective Actions:

Previous reliability work performed on this circuit:

The 34 kV insulators were replaced during the outages and the circuit was patrolled for additional damaged insulators and none were found. This work was completed in 2011.

The circuit recloser which consisted of three single phase reclosers located outside the substation was replaced with a three phase electronic recloser with remote indication and control. This project was completed in April 2012 and the recloser has not operated since.

The tree and animal problems associated with the two fuses in the Whispering Valley Lake area were addressed under DOJM Work Request numbers 2JCP084543 and 2JCP085204 which installed animal protection on the transformers in the area and replaced aluminum dead-end insulators. Both jobs also included spot tree trimming of the area. These jobs were completed in August 2012 and November 2012 respectively.

Planned MWPC reliability improvement work:

The area along Hwy YY was rerouted and rebuilt to eliminate the conductor problems. This work was completed in 2013.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 185057
Division – Meramec Valley
Area Served – Unincorporated Jefferson County (near Imperial), MO
SAIFI Value – 2.33

Analysis Results:

This circuit serves 653 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment failures which resulted in 1,519 CI. Circuit 185057 experienced two significant outages in 2013 which resulted in 1,308 (86%) of the total CI. The first outage occurred when 1/0 ACSR conductor on the circuit backbone sagged into the neutral and caused the breaker to open. The second outage occurred when a transformer on the backbone failed and caused the circuit breaker to open.

Corrective Actions:

Tree trimming was performed on this circuit in 2013.

Two projects in 2014 should help to limit future issues on this circuit. A project will be performed under DOJM Work Request number 26JF126983 to investigate and correct a load imbalance that may have caused one of the outages.

In response to a continuous blinking light issue on a major residential three phase tap (Switch 1945), a project was performed under DOJM Work Request number 26JF126577 to address the multiple issues found during a detailed patrol of this tap. This work was completed in March 2014.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 260056
Division – Gateway
Area Served – Florissant, MO
SAIFI Value – 2.32

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2012 and 2013. The SAIFI values for this circuit in the last two years were: 2.03 in 2012 and 2.32 in 2013. This circuit serves 31 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by underground equipment malfunctions resulting in 72 CI. Circuit 260056 experienced two significant outages in 2013 which resulted in 65 (90%) of the total CI. The two outages occurred due to underground equipment failures.

Corrective Actions:

Previous reliability work performed on this circuit:

Tree trimming was performed on this circuit in 2012.

Planned MWPC reliability improvement work:

An underground visual inspection was performed on this circuit in 2013. The repair work identified as a result of these inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

An overhead ground line inspection will be performed on this circuit in 2014. The repair work identified as a result of these inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request numbers (21MT579898 and 21MT577977).

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 259055
Division – Gateway
Area Served – Florissant, MO
SAIFI Value – 2.32

Analysis Results:

This circuit serves 2,147 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead and underground equipment malfunctions, animal intrusions, prearranged outages, weather, and tree contacts which resulted in 4,972 CI. Circuit 259055 experienced two significant outages in 2013, which resulted in 4,176 (84%) of the total CI. The first outage occurred when a tree limb broke the primary during a storm. The second outage occurred due to an underground equipment malfunction. In addition, approximately 3% of the CI experienced were the result of prearranged outages for maintenance or safety. Adverse tree conditions accounted for less than 2% of the CI. Roughly 5% of the CI were due to animal intrusions. Other overhead and underground malfunctions constituted less than 6% of the total CI experienced on the circuit in 2013.

Corrective Actions:

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request number 21M595952.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 117054
Division – Gateway
Area Served – Maryland Heights, MO
SAIFI Value – 2.30

Analysis Results:

This circuit serves 480 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by a public vehicle accident and a loose switch connection resulting in 1,104 CI. Circuit 117054 experienced two significant outages in 2013. The first outage was caused by a loose connection on switch D12058 during snowy conditions. The second outage occurred when a public vehicle broke a pole during calm conditions.

Corrective Actions:

A pole, cross-arm, and transformer were damaged by the public vehicle accident. They were replaced under DOJM Work Request number 21MT584948, which was completed in September 2013.

This circuit was inspected in May 2013. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. The work will be performed under DOJM Work Request numbers 21MT587958, 21MT587957, 21MT587954, and 21MT587959. In addition, the following DOJM Work Request numbers were completed: 21MT584800 completed in October 2013, 21MT584799 completed in November 2013, 21MT587956 completed in February 2014, and 21MT587955 completed in February 2014.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 215053
Division – Gateway
Area Served – Black Jack, MO
SAIFI Value – 2.30

Analysis Results:

This circuit serves 1,341 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead and underground equipment malfunction, unknown causes, and tree contacts which resulted in 3,083 CI. Circuit 215053 experienced two significant outages in 2013, which resulted in 755 (24.5%) of the total CI. The first outage was caused by a tree contact on the circuit backbone. The second outage was caused by a tree contact on the circuit backbone during a storm. Adverse tree conditions accounted for more than 59.5% of the total CI. In addition, approximately 1.0% of the CI experienced were the result of prearranged outages for maintenance or safety. Roughly 4% of the CI were due to unknown causes. Other overhead malfunctions and underground malfunctions constituted less than 6% of the total CI experienced on the circuit during 2013.

Corrective Actions:

Tree trimming was performed on this circuit in 2013.

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. The repair work identified as a result of the inspection was completed in accordance with Ameren Missouri's infrastructure inspection policy. This work was performed under DOJM Work Request numbers 21MT580863, 21MT580942, and 21MT581892, which were all completed in September 2013.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 279054
Division – Meramec Valley
Area Served – Ellisville, MO
SAIFI Value – 2.28

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit based on its performance in 2011 and 2013. This circuit was not a WPC in 2012. The SAIFI values for this circuit in the most recent three year period were: 1.87 in 2011, 0.05 in 2012, and 2.28 in 2013. This circuit serves 1,121 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by underground cable faults, public damage, overhead malfunctions, tree contacts, and animal intrusions which resulted in 2,551 CI. Circuit 279054 experienced two significant outages in 2013 which resulted in 2,242 (88%) of the total CI. The first outage occurred when a public contractor cut the primary underground cable while excavating in the area. The second outage occurred when the primary failed on a feeder exit cable. The other CI which occurred on this circuit were due to underground cable faults, overhead malfunctions, tree contacts, animal intrusions, and other causes.

Corrective Actions:

Previous reliability work performed on this circuit:

Tree trimming was performed on this circuit in 2011.

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2013.

Planned MWPC reliability improvement work:

An overhead visual inspection and an underground detail inspection were performed on this circuit in 2013. The repair work identified as a result of these inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

Division engineering personnel will review circuit laterals which experienced primary cable faults for potential cable replacement. These reviews will be performed in 2014.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 207053
Division – Meramec Valley
Area Served – Unincorporated Jefferson County (near Ottoville), MO
SAIFI Value – 2.27

Analysis Results:

This circuit serves 834 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by tree contacts, public vehicle accidents, and weather which resulted in 1,896 CI. Circuit 207053 experienced five significant outages in 2013 which resulted in 1,774 (94%) of the total CI. The first two outages occurred during a storm when tree limbs contacted the primary. The three other outages were caused by a vehicle striking a pole. These three separate incidents resulted from partial restorations of the damage caused by the vehicle accident.

Corrective Actions:

An underground detailed inspection was performed on this circuit in 2013. The repair work identified as a result of this inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 147058
Division – Gateway
Area Served – Creve Coeur, MO
SAIFI Value – 2.27

Analysis Results:

This circuit serves 570 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by an underground cable failure and a broken cross-arm, which resulted in 1,295 CI. Circuit 147058 experienced two significant outages in 2013. The first outage was caused by a broken cross-arm on a circuit backbone pole. The second outage was caused by a failed underground feeder exit cable.

Corrective Actions:

The underground feeder exit cable was repaired under DOJM Work Request numbers 21MT576773, which was completed in June 2013.

An overhead visual inspection was performed on this circuit in 2013. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. The work will be performed under DOJM Work Request number 21MT581483.

An underground visual inspection was performed on this circuit in 2013. The repair work identified as a result of the inspection was completed in accordance with Ameren Missouri's infrastructure inspection policy. The work was completed under DOJM Work Request numbers 21MT585872, completed in December 2013, and 21MT585873, completed in March 2014.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 209055
Division – Gateway
Area Served – Bridgeton, MO
SAIFI Value – 2.26

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit based on its performance in 2011 and 2013. This circuit was not a WPC in 2012. The SAIFI values for this circuit in the most recent three year period were: 2.62 in 2011, 0.53 in 2012, and 2.26 in 2013. The circuit serves 247 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by tree contacts, weather, and overhead equipment failures which resulted in 558 CI. Circuit 209055 experienced two significant outages in 2013. The first outage occurred due to a pole fire. The second outage occurred when a tree contacted the primary and a jumper burned.

Corrective Actions:

Previous reliability work performed on this circuit:

An underground visual inspection was performed on this circuit in 2011. The repair work identified as a result of the inspection was completed in accordance with Ameren Missouri's infrastructure inspection policy.

Tree trimming was performed on this circuit in 2012.

Planned MWPC reliability improvement work:

No work is planned on this circuit in 2014.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 116001
Division – Archview
Area Served – South St. Louis City, MO
SAIFI Value – 2.23

Analysis Results:

This circuit serves 811 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by an underground cable failure and a public vehicle accident which resulted in 1,811 CI. Circuit 116001 experienced two significant outages in 2013 which resulted in 1,773 (97%) of the total CI. The first outage occurred when the underground primary cable failed near a joint in a manhole near the corner of Grand and Shenandoah. The second outage occurred when a trash truck hit a pole in an alley.

Corrective Actions:

The underground primary cable was repaired under DOJM Work Request number 21MT570860, which was completed in April 2013.

The pole hit by the truck was repaired under DOJM Work Request number 21MT587109, which was completed in November 2013.

Tree trimming will be performed on this circuit in 2014.

A ground line inspection and an overhead visual inspection were performed on this circuit in 2012. The repair work identified as a result of these inspections was completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 883001
Division – Missouri Valley
Area Served – Moorseville, MO
SAIFI Value – 2.23

Analysis Results:

This circuit serves 26 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by tree contacts, primary contact, weather, and overhead equipment failures which resulted in 58 CI. Circuit 883001 experienced two significant outages in 2013 which resulted in 23 (39%) of the total CI. Both circuit outages were caused by tree contacts during storms. In addition, approximately 37% of the CI were caused by an insulator failure on the 34.5kv radial feed to Moorseville which failed downstream of Moorseville. An additional 20% of the CI were caused by the phases in a slack span contacting each other. The remaining 5% of the CI were prearranged outages for customers.

Corrective Actions:

This circuit was spot tree trimmed in 2013 to address the tree contacts.

Tree trimming will be performed on this circuit in 2014.

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. These included replacement of cracked or distorted cross arms, insulators, lightning arresters, a transformer replacement, and animal guards. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. The work will be performed under DOJM Work Request number 2HGH045265.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 503055
Division – Meramec Valley
Area Served – Union, MO
SAIFI Value – 2.23

Analysis Results:

This circuit serves 1,235 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead malfunctions, substation malfunctions, weather, and tree contacts which resulted in 2,753 CI. Circuit 503055 experienced three significant outages in 2013 which resulted in 2,699 (98%) of the total CI. The first outage occurred when the primary failed and caused a line recloser to open. The second outage occurred when a pole broke during a thunderstorm and caused a line recloser to open. The third outage was caused by a failure on one of the two 34.5kV supplies to the substation which resulted in this circuit being dropped. Additional smaller outages occurred due to tree contacts and weather which resulted in the remaining 54 (2%) CI.

Corrective Actions:

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. A substation project to replace a relay on this circuit was completed in January 2014 and tree trimming was completed on selected areas of the circuit in March 2014.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 622054
Division – SEMO
Area Served – Charleston, MO
SAIFI Value – 2.22

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2011, 2012, and 2013. The SAIFI values for this circuit in the past three years were: 2.15 in 2011, 4.95 in 2012 and 2.22 in 2013. This circuit serves 379 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather, an animal intrusion, and defective equipment which resulted in 840 CI. Circuit 622054 experienced three significant outages in 2012. The first two outages occurred when storms and high winds caused the primary to fail. The third outage occurred when a squirrel tripped the substation circuit breaker.

Corrective Actions:

Previous reliability work performed on this circuit:

Un-fused taps were corrected and fuse coordination verified on this circuit in 2010 to minimize future outages. This work was performed under DOJM Work Request number 2TSE092582, which was completed in December 2010.

A special overhead visual inspection was performed on this circuit in 2010. This inspection focused on animal guarding, tap-fusing, and maintenance items. Repairs were performed under DOJM Work Request number 2TSE093546, which was completed in December 2010.

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2012.

An overhead visual inspection was performed on this circuit in 2012. The repair work identified as a result of the inspection was completed in accordance with Ameren Missouri's infrastructure inspection policy.

Planned MWPC reliability improvement work:

Additional Lightning Arresters will be installed on this circuit under DOJM Work Request number 2TSE106654 in 2014.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 818052
Division – Central Ozarks
Area Served – Jefferson City, MO
SAIFI Value – 2.21

Analysis Results:

This circuit serves 642 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather and underground cable failures which resulted in 1,421 CI. Circuit 818052 experienced two significant outages in 2013 which resulted in 1,150 (81%) of the total CI. The two outages were caused by high winds and ice which caused poles to fail in a section of the circuit. The remaining customer interruptions were due to underground cable failures.

Corrective Actions:

An overhead visual inspection was performed on this circuit in 2012. The repair work identified as a result of the inspection was completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 633058
Division – SEMO
Area Served – Cape Girardeau, MO
SAIFI Value – 2.20

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2012 and 2013. The SAIFI values for this circuit in the past two years were: 2.21 in 2012 and 2.20 in 2013. This circuit serves 980 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather, a public vehicle accident, tree contact, animal contacts, and overhead equipment failures which resulted in 2,154 CI. Circuit 633058 experienced two significant outages in 2013. The first outage occurred when trees contacted the primary during an ice storm. The second outage occurred when a tree limb fell into the primary.

Corrective Actions:

Previous reliability work performed on this circuit:

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2011.

A special overhead visual inspection was performed on this circuit in 2011. The inspection identified needed animal guarding, and other maintenance items. Repairs were performed under DOJM Work Request number 2TSE099532, which was completed in September 2013.

An underground detailed inspection was performed on this circuit in 2013. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

Planned MWPC reliability improvement work:

Tree trimming will be performed on this circuit in 2014.

A ground line detailed inspection was performed on this circuit in 2014. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 458008
Division – SEMO
Area Served – Gideon, MO
SAIFI Value – 2.19

Analysis Results:

This circuit serves 218 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by a vehicle accident and overhead equipment problems which resulted in 478 CI. Circuit 458008 experienced two significant outages in 2013. The first outage occurred when a primary switch burned and a maintenance outage was taken to replace it. The second outage occurred when a car hit and broke a pole.

Corrective Actions:

Tree trimming will be performed on this circuit in 2014.

Air spoilers to prevent galloping on the 34kV supply to the Gideon Substation will be installed under DOJM Work Request number 2TSE106444.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 887003
Division – SEMO
Area Served – Chaffee, MO
SAIFI Value – 2.18

Analysis Results:

This circuit serves 268 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather, tree contacts, a customer error, and overhead malfunctions which resulted in 583 CI. Circuit 887003 experienced three significant outages in 2013. The first outage occurred when a customer, trimming his tree, dropped the tree into the primary. The second outage occurred when a lightning strike during a thunderstorm tripped a recloser. The third outage was classified as a circuit outage when it was actually caused by a loss of 34kV supply.

Corrective Actions:

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2013.

Tie switches to Chaffee Main Substation were installed under DOJM Work Request number 2TSE106250, which was completed in February 2014.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 873051
Division – Missouri Valley
Area Served – New Franklin, MO
SAIFI Value – 2.17

Analysis Results:

This circuit serves 193 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment failures, underground equipment failure, weather, tree contacts, and prearranged outages for maintenance or safety which resulted in 419 CI. Circuit 873051 experienced three significant outages in 2013 which resulted in 210 (50%) of the total CI. The first and second outages occurred when two separate fuses blew for unknown reasons during a thunderstorm. The third outage was caused by a tree contact during a thunderstorm. In addition, approximately 30% of the CI were caused by prearranged outages for maintenance or safety. Other overhead equipment malfunctions constituted 20% of the total CI on the circuit in 2013.

Corrective Actions:

Tree trimming was performed on this circuit in 2013.

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. These included replacement of cracked or distorted cross arms, insulators, lightning arresters, deteriorated poles, fusing of all transformers on the backbone, and installation of animal guards. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. The work will be performed under DOJM Work Request number 2DLD081190.

A coordination study performed by Division engineering personnel has identified multiple areas of opportunity for improvements which will be pursued.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 217055
Division – Meramec Valley
Area Served – Ellisville, MO
SAIFI Value – 2.16

Analysis Results:

This circuit serves 184 customers. The customer interruptions (CI) experienced on the circuit in 2013 were caused by overhead equipment malfunctions and lightning which resulted in 398 CI. Circuit 217055 experienced two significant outages in 2013 which resulted in 290 (73%) of the total CI. The first outage occurred as a result of a downed primary, resulting in 49% of the 398 CI's. The second outage was caused by a broken cross-arm. This outage required another outage to restore the circuit to normal switching, resulting in 24% of the 398 CI's. The remaining 108 CI experienced on the circuit in 2013 were caused by failed fuses, faulty fuse holders, and failed lightning arresters.

Corrective Actions:

An underground visual inspection was performed on this circuit in 2012. The repair work identified as a result of the inspection was completed in accordance with Ameren Missouri's infrastructure inspection policy.

An overhead ground line and a visual inspection were performed on this circuit in 2013. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

Tree trimming will be performed on this circuit in 2014.

In 2014, Division engineering personnel will perform reviews of the four taps which experienced outages in 2013. These reviews will include analyses for increased sectionalizing, additional tap fusing, and a review of the general condition of the circuit poles and equipment.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 210052
Division – Gateway
Area Served – Berkeley, MO
SAIFI Value – 2.14

Analysis Results:

This circuit serves 118 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment failures and prearranged outages for maintenance or safety which resulted in 252 CI. Circuit 210052 experienced two significant outages in 2013 which resulted in 219 (87%) of the total CI. The first outage was caused by a faulty capacitor bank. The second outage occurred when a pole broke. In addition, approximately 9% of the CI were caused by other overhead equipment failures. Prearranged outages for maintenance or safety and outages resulting from unknown causes accounted for 4% of the CI experienced on the circuit in 2013.

Corrective Actions:

Tree trimming was performed on this circuit in 2012.

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. These included the replacement of cracked or distorted cross arms and deteriorated poles. In addition, opportunities to install fuse switches were identified at multiple locations. The repair work will be completed under DOJM Work Request number 21MT593176.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 633057
Division – SEMO
Area Served – Cape Girardeau, MO
SAIFI Value – 2.12

Analysis Results:

This circuit serves 1,511 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment failures, weather, a public vehicle accident, animal contacts, tree contacts, and a cold load pick up problem which resulted in 3,210 CI. Circuit 633057 experienced two significant outages in 2013. The first outage occurred when the primary failed during a storm and cold load pickup problems occurred when bringing the circuit back on line. The second outage occurred when a public vehicle hit a 34kV/12kV pole.

Corrective Actions:

A ground line inspection will be performed on this circuit in 2014. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 209056
Division – Gateway
Area Served – Bridgeton, MO
SAIFI Value – 2.12

Analysis Results:

This circuit serves 342 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by a downed primary which resulted in 724 CI. Circuit 209056 had three significant outages in 2013. However, two of the three significant outages occurred on major event days.

Corrective Actions:

Tree trimming was performed on this circuit in 2012.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 190054
Division – Meramec Valley
Area Served – Jefferson County (near High Ridge), MO
SAIFI Value – 2.12

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2012 and 2013. The SAIFI values for this circuit in the last two years were: 2.05 in 2012 and 2.12 in 2013. This circuit serves 1,234 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather and tree contacts which resulted in 2,610 CI. Circuit 190054 experienced two significant outages in 2013, which resulted in 2,375 (91%) of the total CI. The first outage occurred when a tree made contact with the primary during a storm. The second outage occurred when a tree made contact with the primary.

Corrective Actions:

Previous reliability work performed on this circuit:

Tree trimming was performed on this circuit in 2011.

An overhead visual inspection and an underground detail inspection were completed on this circuit in 2012. The repair work identified as a result of these inspections was completed in accordance with Ameren Missouri's infrastructure inspection policy.

An analysis of fuse number 2976 resulted in the installation of squirrel guards on several transformers on this circuit. This work was performed under DOJM Work Request number 26JF125309, which was completed in October 2013.

Planned MWPC reliability improvement work:

No work is planned on this circuit in 2014.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 799053
Division – Central Ozarks
Area Served – Jefferson City, MO
SAIFI Value – 2.11

Analysis Results:

This circuit serves 1,067 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather and public damage which resulted in 2,251 CI. Circuit 799053 experienced two significant outages in 2013, which resulted in 2,127 (94%) of the total CI. The first outage occurred when a public vehicle hit a guy wire. The second outage occurred during a storm when a single phase transformer on the backbone failed when a lightning strike blew a hole in the top of the transformer.

Corrective Actions:

The transformer was replaced and a fuse added to isolate the transformer from the backbone in the event of another lightning strike. No other work is planned at this time.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 229056
Division – Gateway
Area Served – Florissant, MO
SAIFI Value – 2.09

Analysis Results:

This circuit serves 1,146 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by underground equipment malfunctions which resulted in 2,395 CI. Circuit 229056 experienced two significant outages in 2013, which resulted in 2,239 (93.5%) of the total CI. The two outages were caused by underground malfunctions. In addition, approximately 2.0% of the CI experienced was the result of prearranged outages for maintenance or safety. A minor underground malfunction constituted less than 5% of the total CI experienced on the circuit in 2013.

Corrective Actions:

Tree trimming was performed on this circuit in 2012.

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request number 21MT595953.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 227001
Division – Gateway
Area Served – Overland, MO
SAIFI Value – 2.07

Analysis Results:

This circuit serves 117 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment failures, weather, and prearranged outages for maintenance or safety which resulted in 242 CI. Circuit 227001 experienced two significant outages in 2013, which resulted in 213 (88%) of the total CI. The first outage occurred due to a substation trip of unknown cause. The second outage occurred when a broken cross-arm allowed two primary phases to contact each other. In addition, approximately 12% of the CI occurred due to other overhead equipment failures.

Corrective Actions:

Tree trimming was performed on this circuit in 2014.

An overhead visual inspection was performed on this circuit in 2013. No repair work was identified as a result of this inspection.

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. Opportunities to install fuse switches were identified at multiple locations. The repair work identified as a result of these inspections will be completed under DOJM Work Request number 21MT595637.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 198002
Division – Archview
Area Served – Richmond Heights, MO
SAIFI Value – 2.07

Analysis Results:

This circuit serves 573 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by public damage, underground cable failures, and other faults which resulted in 1,185 CI. Circuit 198002 experienced two significant outages in 2013, which resulted in 1,149 (97%) of the total CI. The first outage occurred due to public damage. The second outage occurred due to a cable fault near the substation.

Corrective Actions:

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2013.

A ground line inspection will be performed on this circuit in 2014. The repair work identified as a result of this inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 266052
Division – Gateway
Area Served – Earth City, MO
SAIFI Value – 2.06

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2011, and 2013. This circuit was not a WPC in 2012. The SAIFI values for this circuit in the last three years were: 2.01 in 2011, 0.99 in 2012, and 2.06 in 2013. This circuit serves 93 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by tree contacts and a cable failure which resulted in 192 CI. Circuit 266052 experienced two significant outages in 2013. The first outage occurred when a circuit backbone cable failed. The second outage occurred due to tree contacts with the circuit backbone.

Corrective Actions:

Previous reliability work performed on this circuit:

Tree trimming was performed on this circuit in 2011.

The failed cable was replaced under DOJM Work Request number 21MT571782 which was completed in April 2013.

DOJM Work Request number 21MT585889 was identified from an overhead visual inspection which was performed on this circuit in 2013. It was completed in December 2013.

Planned MWPC reliability improvement work:

An overhead visual inspection was performed on this circuit in 2013. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request number 21MT585888.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 734053
Division – SEMO
Area Served – Catron, MO
SAIFI Value – 2.06

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2012 and 2013. The SAIFI values for this circuit in the past two years were: 3.76 in 2012 and 2.06 in 2013. This circuit serves 48 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather and overhead equipment failures which resulted in 99 CI. Circuit 734053 experienced two significant outages in 2013. The first outage occurred when ice broke the primary. The second outage occurred when a lightning strike tripped the 34kV breaker at the Lilbourn switching station.

Corrective Actions:

Previous reliability work performed on this circuit:

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2013.

An overhead visual inspection and a ground line inspection were performed on this circuit in 2013. The repair work identified as a result of these inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

Planned MWPC reliability improvement work:

Air spoilers to reduce galloping will be installed on the 34kV supply to this circuit in 2014. This work will be performed under DOJM Work Request numbers 2TSE106452 and 2TSE106631.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 210056
Division – Gateway
Area Served – Hazelwood, MO
SAIFI Value – 2.06

Analysis Results:

This circuit serves 396 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment failures and tree contacts which resulted in 814 CI. Circuit 210056 experienced two significant outages in 2013, which resulted in 781 (96%) of the total CI. The first outage occurred when a primary jumper burned. The second outage occurred when tree contacts broke the primary. In addition, approximately 4% of the CI were caused by other overhead equipment failures and prearranged outages for maintenance or safety.

Corrective Actions:

Tree trimming was performed on this circuit in 2012.

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. The repair work identified as a result of this inspection will be completed under DOJM Work Request number 21MT595738.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 243052
Division – Gateway
Area Served – Earth City, MO
SAIFI Value – 2.05

Analysis Results:

This circuit serves 110 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by an overhead equipment malfunction and an unknown outage which resulted in 225 CI. Circuit 243052 experienced two significant outages during adverse weather conditions in 2013. The first outage was believed to have been caused by a lightning strike, but could not be confirmed. The second outage was caused by an overhead equipment malfunction.

Corrective Actions:

The damage from the overhead equipment malfunction was repaired under DOJM Work Request number 21MT583628, which was completed in September 2013.

Overhead visual and underground visual inspections were performed on this circuit in 2013. The repair work identified as a result of the inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request numbers 21MT587122 and 21MT587121.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 560052
Division – Meramec Valley
Area Served – Unincorporated Jefferson County (near Fenton), MO
SAIFI Value – 2.04

Analysis Results:

This circuit serves 1,992 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment malfunctions which resulted in 4,067 CI. Circuit 560052 experienced two significant outages in 2013 which resulted in 3,978 (98%) of the total CI. The first outage occurred when the circuit locked out due to a terminal pole lightning arrester failure. The second outage occurred when the circuit tripped following a single phase backbone transformer failure.

Corrective Actions:

Tree trimming was performed on the circuit in 2013.

An overhead visual inspection and a ground line inspection will be performed on this circuit in 2014. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 151007
Division – Archview
Area Served – Affton, MO
SAIFI Value – 2.03

Analysis Results:

This circuit serves 585 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by a public vehicle accident, weather, and a broken tree which resulted in 1,190 CI. Circuit 151007 experienced two significant outages in 2013 which resulted in 1,075 (90%) of the total CI. The first outage occurred when a public vehicle hit a pole. The second outage occurred when a tree fell into the primary during a thunderstorm.

Corrective Actions:

The pole related to the vehicle accident was repaired.

The tree which caused the second outage was removed and the primary conductor was repaired.

The Vegetation Management Department will perform a mid-cycle maintenance tree trimming on this circuit in 2014.

An overhead visual inspection will be performed on this circuit in 2014. The repair work identified as a result of this inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 266054
Division – Gateway
Area Served – Earth City, MO
SAIFI Value – 2.03

Analysis Results:

This circuit serves 68 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by operator error and a failed cable which resulted in 138 CI. Circuit 266054 experienced two significant outages in 2013. The first outage occurred due to a failed cable. The second outage resulted from an accidental trip during arranged switching.

Corrective Actions:

The failed cable identified during the first circuit outage was repaired under DOJM Work Request number 21MT582635, which was completed in August 2013.

Overhead visual and underground visual inspections were performed on this circuit in 2013. The repair work identified as a result of these inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request numbers 21MT585891 and 21MT586662.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 577055
Division – Boone Trails
Area Served – St. Peters, MO
SAIFI Value – 2.02

Analysis Results:

This circuit serves 172 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by underground and overhead equipment failures which resulted in 347 CI. Circuit 577055 experienced two significant outages in 2013 which resulted in 345 (99%) of the total CI. The first outage occurred when a cable terminator failed on a pole. The second outage occurred when an overhead jumper failed on a switch pole.

Corrective Actions:

The cable terminator that failed on the pole was replaced under DOJM Work Request number 25SC055971, which was completed in August 2013.

The overhead jumper that failed on the switch pole was replaced under DOJM Work Request number 25SC056358, which was completed in October 2013.

A detailed inspection of overhead facilities was performed on this circuit in 2013. The repair work identified as a result of this inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

A separate patrol of this circuit will be conducted in 2014 to determine if any additional protection devices are needed as well as any necessary hot spot tree trimming.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 621005
Division – SEMO
Area Served – Cape Girardeau, MO
SAIFI Value – 2.02

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2012 and 2013. The SAIFI values for this circuit in the past two years were: 3.88 in 2012 and 2.02 in 2013. This circuit serves 60 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather which resulted in 121 CI. Circuit 621005 experienced two significant outages in 2013. One outage occurred during an ice storm when a tree branch fell into the primary. The other outage occurred during a storm when high winds blew a tree branch into the primary.

Corrective Actions:

Previous reliability work performed on this circuit:

An overhead visual inspection was performed on this circuit in 2012. The repair work identified as a result of the inspection was completed in accordance with Ameren Missouri's infrastructure inspection policy.

The Vegetation Management Department performed a mid-cycle patrol of this circuit in 2012 to identify any spot trim locations requiring attention prior to the four year cycle trim scheduled for 2014.

Planned MWPC reliability improvement work:

Tree trimming will be performed on this circuit in 2014.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 389051
Division – Boone Trails
Area Served – Wentzville and Moscow Mills, MO
SAIFI Value – 2.00

Analysis Results:

This circuit serves 1,004 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment failures which resulted in 2,013 CI. Circuit 389051 experienced two significant outages in 2013. The first outage occurred when a circuit phase fell on private property which made it difficult to find and fix the phase. The second outage occurred when a 34kV down guy failed due to rust, causing the 34kV guy to contact the 12kV under build.

Corrective Actions:

Tree trimming was performed on this circuit in 2013.

A ground line inspection was performed on this circuit in 2013. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

Division engineering personnel will patrol the circuit in 2014 to verify that all backbone transformers are properly fused and to determine if there are opportunities for additional sectionalizing of the circuit. The repair work identified as a result of this inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 256057
Division – Gateway
Area Served – Maryland Heights, MO
SAIFI Value – 2.00

Analysis Results:

This circuit serves 256 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by a mobile substation failure and a transformer failure which resulted in 513 CI. Circuit 256057 experienced two significant outages in 2013. The first outage occurred when a mobile substation failed due to a control wiring problem. The second outage occurred when the unit 1 transformer failed at the Dorsett Substation due to a winding problem.

Corrective Actions:

Dorsett Substation is a two unit substation. Unit 2 was being replaced with a new 45MVA transformer. Circuit 256057 was diverted onto unit 1 during the replacement of unit 2. Unit 2's new 45MVA transformer was placed in-service in April 2013.

Unit 1 transformer is being replaced with a 45MVA transformer. The in-service date is 2015.

An overhead visual inspection was performed on this circuit in 2013. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request numbers 21MT588057 and 21MT588056.

Tree trimming will be performed on the circuit in 2014.

Direct buried cable will be replaced with new cable and conduit to prevent future circuit outages under DOJM Work Request number 21MT594950.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 278005
Division – Archview
Area Served – Brentwood, MO
SAIFI Value – 1.98

Analysis Results:

This circuit serves 159 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by public damage and overhead equipment failures which resulted in 315 CI. Circuit 278005 experienced two significant outages in 2013, which resulted in 306 (97%) of the total CI. The first outage occurred when the public caused a device outage. The second outage occurred due to a breaker trip. The breaker was checked by the Relay Department and no problems were found.

Corrective Actions:

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2013.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 167052
Division – Gateway
Area Served – Bellefontaine Neighbors, MO
SAIFI Value – 1.97

Analysis Results:

This circuit serves 611 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by an underground equipment malfunction, overhead equipment malfunctions, prearranged outages, animal intrusions, weather, and tree contacts which resulted in 1,206 CI. Circuit 167052 experienced two significant outages in 2013, which resulted in 760 (63%) of the total CI. The first outage occurred when the B phase jumper burned during a rain storm. The second outage was caused by a tree limb falling on the backbone during a storm. In addition, approximately 2% of the CI experienced on the circuit were the result of prearranged outages for maintenance or safety. Adverse tree conditions accounted for more than 15% of the CI. Unknown causes resulted in approximately 17% of the total CI. Animal intrusions constituted less than 5% of the total CI experienced on this circuit in 2013.

Corrective Actions:

Tree trimming was performed on this circuit in 2012.

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request number 21MT596247.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 203056
Division – Gateway
Area Served – Bridgeton, MO
SAIFI Value – 1.92

Analysis Results:

This circuit serves 766 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by animal intrusions, burned jumpers, and unknown causes which resulted in 1,472 CI.

Corrective Actions:

Tree trimming was performed on this circuit in 2012.

An overhead visual inspection and an underground detailed inspection will be performed on this circuit in 2014. The repair work identified as a result of these inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

2-100A reclosers and one normally open switch will be installed on the circuit to reduce customer interruptions under DOJM Work Request number 21MT594936.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 654051
Division – Central Ozarks
Area Served – Eldon, MO
SAIFI Value – 1.90

Analysis Results:

This circuit serves 365 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather and overhead equipment malfunctions which resulted in 693 CI. Circuit 654051 experienced two significant outages in 2013 which resulted in 655 (94%) of the total CI. The first outage occurred when a circuit recloser tripped and locked out during a thunderstorm. No actual cause was found for this outage. The second outage occurred when a transformer on the circuit backbone failed. The line had to be switched out to repair the damage and to add a fuse to the transformer.

Corrective Actions:

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2013.

The division completed a fusing project on this circuit under DOJM Work Request number 2JCP087447 which was completed in November 2013.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 135001
Division – Archview
Area Served – South St. Louis City, MO
SAIFI Value – 1.88

Analysis Results:

This circuit serves 569 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by an underground primary failure and an overhead equipment failure which resulted in 1,070 CI. Circuit 135001 experienced two significant outages in 2013 which resulted in 1,070 (100%) of the total CI. The first outage occurred when an underground primary cable failed in a manhole across the street from the Hampton Substation. The second outage occurred when the C phase jumper burned and caused a fuse to blow.

Corrective Actions:

The underground primary cable was repaired under DOJM Work Request number 21MT566701, which was completed in January 2013.

The burned jumper was repaired under DOJM Work Request number 21MT567813, which was completed in January 2013.

An overhead visual inspection and underground visual inspection were performed on this circuit in 2013. Specifically identified were six pole replacements, along with miscellaneous cross-arms, insulators, ground wires, guy wires, pole steps, pole top pins, and V-braces. The repair work identified as a result of these inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 195054
Division – Meramec Valley
Area Served – Unincorporated Jefferson County (near Horine), MO
SAIFI Value – 1.86

Analysis Results:

This circuit serves 1,029 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather and tree contacts which resulted in 1,913 CI. Circuit 195054 experienced two significant outages in 2013 which resulted in 1,773 (93%) of the total CI. The first outage occurred when a tree fell across all three phases of the backbone during a storm. The second outage occurred when a lightning strike caused A and C phases of the circuit to trip.

Corrective Actions:

An overhead visual inspection and an underground visual inspection were performed on this circuit in 2013. The repair work identified as a result of these inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 264057
Division – Gateway
Area Served – St Louis County, Creve Coeur, MO
SAIFI Value – 1.82

Analysis Results:

This circuit serves 974 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by a switchgear failure and an overhead equipment failure which resulted in 1,770 CI. Circuit 264057 experienced two significant outages in 2013. The first outage occurred during calm weather when a switchgear failed. The switchgear was isolated from the circuit and replaced. The second outage occurred when a span guy broke and caused a circuit fault. Both events occurred during calm weather. Additional, smaller outages occurred due to animal intrusions and overhead equipment failures.

Corrective Actions:

Tree trimming was performed on this circuit in 2012.

A job to increase the clearance between the cable neutral and metal bracket mount at the pole and replace a failed lightning arrester was completed under DOJM Work Request number 21MT594694 in March 2014.

A secondary cable that failed and interrupted service to 24 residents in an apartment building was repaired under DOJM Work Request number 21MT569380, which was completed in March 2013.

A failed lightning arrester will be replaced under DOJM Work Request number 21MT589238.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 145053
Division – Gateway
Area Served – Town and Country, MO
SAIFI Value – 1.81

Analysis Results:

This circuit serves 544 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by a static wire failure which resulted in 983 CI. Circuit 145053 experienced one significant outage in 2013. The outage occurred when the static wire fell into the B-phase primary.

Corrective Actions:

The static wire was repaired under DOJM Work Request number 21MT577735 which was completed in July 2013.

Tree trimming was performed on this circuit in 2014.

An overhead visual inspection and an underground detailed inspection will be performed on this circuit in 2014. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 564053
Division – Boone Trails
Area Served – St. Charles, MO
SAIFI Value – 1.78

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2012 and 2013. The SAIFI values for this circuit in the last two years were: 2.06 in 2012 and 1.78 in 2013. This circuit serves 1,178 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by tree contacts, animals, and equipment failures resulting in 2,097 CI. Circuit 564053 had one significant outage in 2013 which resulted in 1,180 (56%) of the total CI. The outage was caused by a tree branch that broke during a storm and made contact with overhead lines. Other small failures where caused by animals and equipment failures.

Corrective Actions:

Previous reliability work performed on this circuit:

The underground primary cable failure that resulted in a feeder outage occurred on a terminal pole. Both the terminal pole and underground primary cable were replaced in 2012 under DOJM Work Request number 25SC053252.

Tree trimming was performed on this circuit in 2012.

Planned MWPC reliability improvement work:

The Vegetation Management Department will perform mid-cycle maintenance tree trimming on this circuit in 2014.

An underground detailed inspection was performed on this circuit in 2013. The repair work identified as a result of this inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

Division engineering personnel will patrol the circuit in 2014 to determine if any additional protection devices are needed.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 214051
Division – Gateway
Area Served – Bellefontaine Neighbors, MO
SAIFI Value – 1.77

Analysis Results:

This circuit serves 937 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by an underground equipment malfunction, tree contacts, prearranged outages, and animal contacts which resulted in 1,657 CI. Circuit 214051 experienced one significant outage in 2013, which resulted in 936 (56.5%) of the total CI. The outage was caused by a fault on the underground primary. In addition, animal intrusions constituted more than 26% of the total CI experienced on the circuit in 2013. Tree contacts accounted for more than 10% of the CI. Finally, approximately 1% of the CI were the result of prearranged outages for maintenance or safety.

Corrective Actions:

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request number 21MT596405.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 464054
Division – SEMO
Area Served – Portageville, MO
SAIFI Value – 1.74

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2012 and 2013. The SAIFI values for this circuit in the last two years were: 2.09 in 2012 and 1.74 in 2013. This circuit serves 924 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather, public vehicle accidents, animal intrusions, and overhead equipment failures which resulted in 1,607 CI. Circuit 464054 experienced three significant outages in 2013. The first outage occurred when a car struck a pole. The second outage occurred when a storm broke the primary. The third outage occurred when a tree contacted the primary underground riser during high winds.

Corrective Actions:

Previous reliability work performed on this circuit:

An overhead visual inspection was performed on this circuit in 2012. The repair work identified as a result of this inspection was completed in accordance with Ameren Missouri's infrastructure inspection policy.

The Portageville substation was rebuilt at a new location in 2012. Programing adjustments to the new substation switchgear were made after initial operation during a storm.

Tree trimming was performed on this circuit in 2013.

Planned MWPC reliability improvement work:

A ground line inspection will be performed on this circuit in 2014. The repair work identified as a result of this inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

Air spoilers will be installed on the 34kV supply to the Portageville City substation to prevent galloping. This work will be performed under DOJM Work Request number 2TSE106450.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 629053
Division – Boone Trails
Area Served – Paynesville and Clarksville, MO
SAIFI Value – 1.74

Analysis Results:

This circuit serves 256 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather and overhead equipment failures which resulted in 445 CI. Circuit 629053 experienced three significant outages in 2013. The first outage occurred when a jumper burned during a thunderstorm. The second and third outages occurred when a wind storm brought down a section of primary which caused a recloser to trip two separate times.

Corrective Actions:

Tree trimming was performed on this circuit in 2013.

A ground line inspection was performed on this circuit in 2013. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

Division engineering personnel will patrol the circuit in 2014 to verify that all backbone transformers are properly fused and to determine if there are opportunities for additional sectionalizing of the circuit. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 120006
Division – Archview
Area Served – Pine Lawn, MO
SAIFI Value – 1.74

Analysis Results:

This circuit serves 729 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by tree contacts and overhead equipment malfunctions which resulted in 1,266 CI. Circuit 120006 experienced one significant outage in 2013, which resulted in 734 (58%) of the total CI. The outage occurred when a broken tree limb caused the primary to fail. A broken cross-arm caused another 387 (31%) of the total CI.

Corrective Actions:

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2012.

Tree trimming will be performed on the circuit in 2014.

A ground line inspection will be performed on this circuit in 2014. The repair work identified as a result of this inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 259054
Division – Gateway
Area Served – Florissant, MO
SAIFI Value – 1.74

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2011 and 2013. The SAIFI values for this circuit in the last three years were: 1.93 in 2011, 0.37 in 2012, and 1.74 in 2013. This circuit serves 2,028 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment malfunctions, a fire, tree contacts, animal intrusions, prearranged outages, unknown causes, and public damage which resulted in 3,520 CI. Circuit 259054 experienced two significant outages in 2013, which resulted in 2,313 (65.7%) of the total CI. The two outages occurred during a fire that was not related to Ameren. In addition, tree conditions accounted for more than 12% of the CI. A prearranged outage accounted for 8% of the CI. Unknown causes resulted in 6.6% of the CI. Finally, animal intrusions accounted for 4% of the CI.

Corrective Actions:

Previous reliability work performed on this circuit:

Tree trimming was performed on this circuit in 2011.

Planned MWPC reliability improvement work:

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request number 21MT596184.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 585052
Division – Meramec Valley
Area Served – St. Albans, MO
SAIFI Value – 1.70

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2011 and 2013. This circuit was not a WPC in 2012. The SAIFI values for this circuit in the most recent three year period were: 2.82 in 2011, 1.02 in 2012, and 1.70 in 2013. This circuit serves 281 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead malfunctions and tree contacts which resulted in 477 CI. Circuit 585052 experienced one significant outage in 2013 which resulted in 284 (60%) of the total CI. This interruption occurred when a tree fell on the primary circuit and caused the circuit breaker to open. Additional smaller outages occurred due to tree contacts and overhead malfunctions which resulted in the remaining 193 (40%) CI.

Corrective Actions:

Previous reliability work performed on this circuit:

Animal guards were added to three transformers in 2011. This work was performed under DOJM Work Request numbers 21MT524424, 21MT529542, and 21MT538804 which were completed in March 2011, June 2011, and October 2011 respectively.

Division engineering personnel performed an inspection of the circuit in 2012. Animal guards were added to six transformers on the circuit under DOJM Work Request number 21MT546972 which was completed in April 2012.

Planned MWPC reliability improvement work:

Tree trimming will be performed on the circuit in 2014.

Division engineering personnel performed an inspection of the circuit in 2014 and several improvement opportunities were identified. A new switch on a single-phase tap was installed under DOJM Work Request number 21MT595006, which was completed in March 2014. A single-phase overhead transformer and a single-phase switch in the circuit will be removed under DOJM Work Request number 21MT595087 which will be completed in June 2014

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 922054
Division – Central Ozarks
Area Served – Jefferson City, MO
SAIFI Value – 1.69

Analysis Results:

This circuit serves 491 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment malfunctions and tree contacts which resulted in 830 CI. Circuit 922054 experienced one significant outage in 2013, which resulted in 489 (58%) of the total CI. The outage occurred due to the failure of the jumpers on a three phase transformer bank between the line and the fuses. In order to repair the jumpers the backbone had to be de-energized. In addition, another 244 (29%) of the total CI were caused by tree contacts along a creek.

Corrective Actions:

Tree trimming was performed on this circuit in 2012.

No further corrective action is planned at this time.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 615007
Division – SEMO
Area Served – Charleston, MO
SAIFI Value – 1.69

Analysis Results:

This circuit serves 317 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by an operator error, weather, and a substation malfunction which resulted in 535 CI. Circuit 615007 experienced two significant outages in 2013. The first outage occurred when a troubleman dropped load during switching due to in-correct maps. The second outage occurred when lightning tripped the substation breaker, but the breaker was found to be on manual.

Corrective Actions:

The Vegetation Management Department will perform mid-cycle maintenance tree trimming on this circuit in 2014.

A ground line inspection will be performed on this circuit in 2014. The repair work identified as a result of this inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 267058
Division – Gateway
Area Served – Chesterfield, MO
SAIFI Value – 1.68

Analysis Results:

This circuit serves 886 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by tree contacts which resulted in 1,491 CI. Circuit 267058 experienced one significant outage during 2013.

Corrective Actions:

An overhead visual inspection was performed on this circuit in 2013. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request number 21MT581661.

Other work from the overhead visual inspection was completed under DOJM Work Request numbers 21MT576317, 21MT581660, 21MT581659, 21MT579952, 21MT579797, 21MT579796, 21MT579620, 21MT579195, 21MT577497, 21MT577496, 21MT577495, 21MT577494, 21MT577493, 21MT576316, and 21MT576315, all of which were completed in 2013.

Existing switches will be removed and replaced with 100A reclosers for better reliability under DOJM Work Request number 21MT594657.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 132053
Division – Meramec Valley
Area Served – Villa Ridge, MO
SAIFI Value – 1.68

Analysis Results:

This circuit serves 379 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather, overhead malfunctions, animal intrusions, and tree contacts which resulted in 636 CI. Circuit 132053 experienced one significant outage in 2013 which resulted in 382 (60%) of the total CI. This interruption occurred when a tree fell on the primary, broke the conductor, and caused the circuit breaker to open. Additional smaller outages occurred due to tree contacts, animal intrusions, weather, and overhead malfunctions which resulted in the remaining 254 (40%) CI.

Corrective Actions:

Tree trimming will be performed on portions of this circuit in 2014.

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. Broken cross-arms and floating primary were repaired under DOJM Work Request numbers 23FR055517 and 23FR055518 which were completed in March 2014. Animal guards will be added to fourteen transformers under DOJM Work Request numbers 23FR0055523 and 23FR055524 which will be completed by September 2014.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 294052
Division – Underground
Area Served – St. Louis, MO
SAIFI Value – 1.67

Analysis Results:

This circuit serves 3 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by public damage which resulted in 5 CI. Circuit 294052 experienced one significant outage in 2013 which resulted in 5 (100%) of the total CI. The outage occurred when a customer's contractor dug into the circuit at Broadway and Walnut.

However, the SAIFI value for this circuit is misleading due to an error in the customer interruptions (CI) value. The CI count was assigned a count of 5 when it should have had a count of 3. As a result, the circuit was assigned an SAIFI value of 1.67 when it should have had an SAIFI of 1.00.

Corrective Actions:

No work is planned for this circuit in 2014.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 210051
Division – Gateway
Area Served – Hazelwood, MO
SAIFI Value – 1.63

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2011 and 2013. The SAIFI values for this circuit in the last three years were: 2.05 in 2011, 1.35 in 2012, and 1.63 in 2013. This circuit serves 1,318 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment failures, underground equipment failures, and prearranged outages for maintenance or safety which resulted in 2,154 CI. Circuit 210051 experienced two significant outages in 2013, resulting in 1,335 (62%) of the total CI. The first outage occurred due to a damaged solid blade switch. The second outage occurred when a prearranged outage was needed to repair primary that was down over a busy roadway. Other overhead equipment malfunctions constituted 28% of the total CI. Underground equipment failures constituted 7% of the total CI. Animal intrusions resulted in the remaining 3% of the total CI.

Corrective Actions:

Previous reliability work performed on this circuit:

Tree trimming was performed on this circuit in 2012.

An overhead visual inspection was performed on this circuit in 2012. The repair work identified as a result of the inspection was completed in accordance with Ameren Missouri's infrastructure inspection policy.

Planned MWPC reliability improvement work:

Division engineering personnel performed a visual inspection of the circuit and several improvement opportunities were identified. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request number 21MT595222.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 727052
Division – Missouri Valley
Area Served – New Florence, MO
SAIFI Value – 1.63

Analysis Results:

This circuit serves 57 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment failure, prearranged outages for maintenance or safety, and weather which resulted in 93 CI. Circuit 727052 experienced one significant outage in 2013 which resulted in 74 (80%) of the total CI. The outage was caused by a lightning arrester failure on a transformer and an unfused transformer failure. An additional 3 (3%) CI were the result of adverse weather. The remaining CI were the result of prearranged outages for maintenance or safety.

Corrective Actions:

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. These included replacement of cracked or distorted cross arms, insulators, lightning arresters, deteriorated poles, fusing of transformers on the backbone, and animal guards. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request number 2DLD081191.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 673053
Division – Boone Trails
Area Served – Moscow Mills/Troy, MO
SAIFI Value – 1.62

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2012 and 2013. The SAIFI values for this circuit in the last two years were: 1.87 in 2012 and 1.62 in 2013. This circuit serves 580 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by public vehicle accidents, weather, and tree contacts which resulted in 941 CI. Circuit 673053 experienced two significant outages in 2013. The first outage occurred due to a public vehicle accident. The second outage occurred when a thunderstorm broke a tree which caused a circuit outage.

Corrective Actions:

Previous reliability work performed on this circuit:

An overhead visual inspection and a ground line inspection were performed on this circuit in 2012. The repair work identified as a result of these inspections included five pole replacements as well as various hardware repairs or replacements. The repair work identified as a result of these inspections was completed in accordance with Ameren Missouri's infrastructure inspection policy. This work was performed under DOJM work request numbers 2WWZ153319, 2WWZ153321, 2WWZ153322, 2WWZ153323, which were completed in May 2013, 2WWZ153324, which was completed in June 2013, and 2WWZ153320, which was completed in July 2013.

Planned MWPC reliability improvement work:

Tree trimming will be performed on the circuit in 2014.

Division engineering personnel will patrol the circuit in 2014 to verify that all backbone transformers are properly fused and to determine if there are opportunities for additional sectionalizing of the circuit. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 648052
Division – Boone Trails
Area Served – Wentzville, MO
SAIFI Value – 1.62

Analysis Results:

This circuit serves 507 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment malfunctions and underground equipment failures which resulted in 821 CI. Circuit 648052 experienced three significant outages in 2013. The first outage occurred when distribution switchgear 8936 failed. The second outage occurred when a section of underground primary between switches W7709 and 7708 failed. The third outage occurred when four guy wires supporting a 34kV corner pole broke and contacted the 12kV under build.

Corrective Actions:

Tree trimming was performed on this circuit in 2013.

Switchgear 8936 was replaced under DOJM Work Request number 2WWZ155733, which was completed in July 2013.

Division engineering personnel will patrol the circuit in 2014 to verify that all backbone transformers are properly fused and to determine if there are opportunities for additional sectionalizing of the circuit. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 260051
Division – Gateway
Area Served – Florissant, MO
SAIFI Value – 1.59

Analysis Results:

This circuit serves 17 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by underground equipment malfunctions and flooding which resulted in 27 CI. Circuit 260051 experienced one significant outage in 2013, which resulted in 5 (18%) of the total CI. The outage was caused by an underground primary fault. The remaining 82% of the CI occurred due to adverse conditions such as underground malfunctions and flooding at the Jamestown Mall.

Corrective Actions:

Tree trimming was performed on this circuit in 2013.

The repair work associated with the Jamestown Mall flooding incident was performed under DOJM Work Request number 21MT578874, which was completed in July 2013.

Division engineering personnel performed an inspection of the circuit and no improvement opportunities were identified.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 648056
Division – Boone Trails
Area Served – Wentzville, MO
SAIFI Value – 1.57

Analysis Results:

This circuit serves 2,239 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by an operator error and an animal intrusion which resulted in 3,513 CI. Circuit 648056 experienced two significant outages in 2013. The first outage occurred when a switching error tripped the circuit. The second outage occurred when a snake entered switch pad 13023 which caused the switchgear to fail.

Corrective Actions:

Tree trimming will be performed on this circuit in 2014.

Division engineering personnel will patrol the circuit in 2014 to verify that all backbone transformers are properly fused and to determine if there are opportunities for additional sectionalizing of the circuit. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

An overhead visual inspection will be performed on this circuit in 2014. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 923051
Division – Central Ozarks
Area Served – Jefferson City, MO
SAIFI Value – 1.57

Analysis Results:

This circuit serves 104 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by animal intrusion and other failures which resulted in 163 CI. Circuit 923051 experienced one significant outage in 2013, which resulted in 104 (64%) of the total CI. The outage recorded as a circuit outage was actually a bird contact on the regulator bypass switch in the substation which blew the 34 kV fuses on the substation transformer.

Corrective Actions:

A review of the circuit failure determined that the bypass switch in the substation where the bird made contact is designed correctly. A review of the records from previous years showed no bird related outages had occurred.

No work will be performed on this circuit in 2014.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 179055
Division – Meramec Valley
Area Served – St. Clair, MO
SAIFI Value – 1.57

Analysis Results:

This circuit serves 1,318 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead malfunctions, animal intrusions, and tree contacts which resulted in 2,064 CI. Circuit 179055 experienced two significant outages in 2013 which resulted in 1,912 (93%) of the total CI. The first outage occurred when a recloser failed on the circuit and caused the circuit breaker to open. The second outage was caused by an overhead primary failure which tripped the circuit. Additional, smaller outages occurred due to tree contacts and animal intrusions which resulted in the remaining 152 (7%) CI.

Corrective Actions:

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. Fuse switches were added on single-phase taps under DOJM Work Request number 23FR055417, which was completed in March 2014, and DOJM Work Request number 23FR055503, which will be completed in June 2014. In addition, animal guards will be added to twenty transformers under DOJM Work Request numbers 23FR055502, 23FR055511, and 23FR055550 all of which will be completed by October 2014.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 293002
Division – Archview
Area Served – Brentwood, MO
SAIFI Value – 1.55

Analysis Results:

This circuit serves 510 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by an overhead equipment failure and an operating error which resulted in 788 CI. Circuit 293002 experienced two significant outages in 2013 which resulted in 721 (91%) of the total CI. The first outage occurred when a primary conductor failed. The second outage occurred due to an operator error during an attempt to restore circuit 293002 to normal operation after it was tied to circuit 293005. Jumpers were installed out of phase during this process which caused the circuit to trip.

Corrective Actions:

Tree trimming was performed on this circuit in 2013.

The failed primary conductor which caused the first outage was repaired under DOJM Work Request number 21MT582783 which was completed in August 2013.

The operator error during the jumper installation on the second outage was corrected and circuit 293002 was restored to normal operation.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 167055
Division – Gateway
Area Served – Bellefontaine Neighbors, MO
SAIFI Value – 1.52

Analysis Results:

This circuit serves 541 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by an overhead equipment malfunction, weather, unknown causes, animal intrusions, and tree contacts which resulted in 824 CI. Circuit 167055 experienced one significant outage in 2013, which resulted in 494 (60%) of the total CI. The outage occurred when a tree limb broke the circuit B&C phases. Adverse tree conditions accounted for more than 20% of the CI. Unknown causes resulted in approximately 17% of the CI. In addition, approximately 2% of the CI experienced on the circuit were due to prearranged outages for maintenance or safety. Animal intrusions constituted less than 1% of the total CI experienced on the circuit in 2013.

Corrective Actions:

Tree trimming was performed on this circuit in 2013.

Division engineering personnel performed an inspection of the circuit and several improvement opportunities were identified. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy. This work will be performed under DOJM Work Request number 21MT596189.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 473051
Division – SEMO
Area Served – Bismarck, MO
SAIFI Value – 1.52

Analysis Results:

This circuit serves 319 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment failures, weather, animal intrusions, and prearranged maintenance outages which resulted in 485 CI. Circuit 473051 experienced storms which caused primary wire and fuse failures which resulted in 315 (65%) of the total CI. Animals and pre-arranged maintenance outages accounted for the balance (34%) of the CI. While the #6 Copper backbone conductors are nearing their normal current limits (75% of rating), there are currently no conductor over-load or voltage issues on this circuit.

Corrective Actions:

An underground detailed and an overhead visual inspection was performed on this circuit in 2012. The repair work identified as a result of these inspections was completed in accordance with Ameren Missouri's infrastructure inspection policy.

A ground line inspection and overhead visual inspection will be performed on this circuit in 2014. The repair work identified as a result of the inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

Multiple projects were created to replace existing fuses with reclosers on portions of the circuit where nuisance fuse tripping has been observed. Other fuse tap and coordination projects were created to isolate faults and further decrease CI. This work will be performed under DOJM Work Request numbers 28IR035884, 28IR035885, and 28IR038711.

In 2014 Bismarck Substation will have the existing circuit reclosers changed to Viper reclosers, which will allow remote (SCADA) monitoring and control. Also, the two reserve 34kv sub-transmission supply breakers will be replaced to allow for remote (SCADA) monitoring, control, and reserve supply switching. These changes will further eliminate extended outages due to sub-transmission faults.

Spot tree trimming will be performed on this circuit in 2014.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 142006
Division – Archview
Area Served – St. Louis, MO
SAIFI Value – 1.52

Analysis Results:

This circuit serves 268 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment failures which resulted in 407 CI. Circuit 142006 experienced two significant outages in 2013 which resulted in 404 (99%) of the total CI. The first outage occurred when an A phase solid blade disconnect switch (D6883) fell open during normal operation. The second outage occurred when a primary conductor on a 3 phase tap near the end of the circuit failed.

Corrective Actions:

All three solid blade switches at D6883 were replaced under DOJM Work Request 21MT568935 which was completed in April 2013.

The primary conductor related to the second outage was repaired.

The tap fusing on circuit 142006 was reviewed and additional fusing on nine taps and additional fault indicators at four locations will be installed. This work will be performed under DOJM Work Request number 21MT593631.

Tree trimming will be performed on this circuit in 2014.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 208002
Division – Archview
Area Served – Bellefontaine Neighbors, MO
SAIFI Value – 1.52

Analysis Results:

This circuit serves 639 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by public vehicle accidents and overhead equipment malfunctions which resulted in 969 CI. Circuit 208002 experienced one significant outage in 2013 which resulted in 640 (66%) of the total CI. The outage occurred due to a public vehicle accident. A broken cross-arm on the backbone caused another 204 (21%) of the total CI.

Corrective Actions:

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2013.

An overhead visual inspection was performed on this circuit in 2013. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 106003
Division – Archview
Area Served – Jennings, MO
SAIFI Value – 1.51

Analysis Results:

This circuit serves 604 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by underground cable faults and overhead equipment failures which resulted in 915 CI. Circuit 106003 experienced one significant outage in 2013 which resulted in 604 (66%) of the total CI. The outage was caused by an underground cable fault. A broken switch caused an additional 193 (32%) of the total CI.

Corrective Actions:

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2013.

An overhead visual inspection was performed on this circuit in 2013. The repair work identified as a result of the inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 692053
Division – SEMO
Area Served – Scott City, MO
SAIFI Value – 1.51

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2012 and 2013. The SAIFI values for this circuit in the last two years were: 2.12 in 2012 and 1.51 in 2013. This circuit serves 1,269 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather, animal contacts, and tree contacts which resulted in 1,921 CI. Circuit 692053 experienced one significant outage in 2013. The outage occurred when an overhead transformer failed.

Corrective Actions:

Previous reliability work performed on this circuit:

Tree trimming was performed on this circuit in 2012.

An overhead visual inspection was performed on this circuit in 2013. The repair work identified as a result of this inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

Planned MWPC reliability improvement work:

The Vegetation Management Department will perform mid-cycle maintenance tree trimming on this circuit in 2014.

APPENDIX B

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 546051
Division – Meramec Valley
Area Served – Unincorporated Jefferson County (near House Springs), MO
SAIFI Value – 1.51

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2012 and 2013. The SAIFI values for this circuit in the last two years were: 1.98 in 2012 and 1.51 in 2013. This circuit serves 571 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather and tree contacts which resulted in 861 CI. Circuit 546051 experienced two significant outages in 2013. The first outage occurred when a storm caused a tree to contact the primary. The second outage occurred when a tree contact caused a circuit outage.

Corrective Actions:

Previous reliability work performed on this circuit:

Tree trimming will be performed on this circuit in 2014.

Planned MWPC reliability improvement work:

An underground visual inspection will be performed on this circuit in 2014. The repair work identified as a result of this inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 029004
Division – Archview
Area Served – Geraldine, MO
SAIFI Value – 1.50

Analysis Results:

This circuit serves 153 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by an underground cable fault which resulted in 230 CI. Circuit 029004 experienced one significant outage in 2013 which resulted in 209 (91%) of the total CI. The outage occurred due to an underground cable fault.

Corrective Actions:

Tree trimming was performed on this circuit in 2013.

The underground primary cable was repaired under DOJM Work Request number 21MT571191, which was completed in March 2013.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 620056
Division – SEMO
Area Served – Parma, MO
SAIFI Value – 1.50

Analysis Results:

This circuit serves 2 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather which resulted in 3 CI. Circuit 620056 experienced two significant outages in 2013. Both outages were caused by lightning strikes which blew a transformer fuse.

Corrective Actions:

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2013.

A ground line inspection will be performed on this circuit in 2014. The repair work identified as a result of this inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 223051
Division – Archview
Area Served – South St. Louis County, MO
SAIFI Value – 1.50

Analysis Results:

This circuit serves 1,304 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by a public vehicle accident, overhead equipment failures, tree contacts, and animal intrusions which resulted in 1,950 CI. Circuit 223051 experienced five significant outages in 2013 which resulted in 1,776 (91%) of the total CI. The first outage occurred when a public vehicle accident broke two poles which caused a circuit outage. The second outage occurred when an A phase primary connector failed and caused a fused tap outage. The third outage occurred due to a squirrel contact and an associated fused tap primary failure. The fourth outage occurred when a tree broke and fell into a fused tap primary causing it to fail. The fifth outage occurred when a fused tap primary jumper burned, on the same tap as the forth outage one day later, likely caused by stress encountered during the previous outage.

Corrective Actions:

Tree trimming was performed on this circuit in 2013.

The poles broken by the public vehicle accident were replaced under DOJM Work Request number 21MT571245 which was completed in March 2013. Fusing was installed on the tap feeding these poles under DOJM Work Request number 21MT593021 which was completed in February 2014.

The failed primary connector was replaced under DOJM Work Request number 21MT573423 which was completed in April 2013.

A squirrel guard was installed under DOJM Work Request number 21MT574932, which was completed in May 2013.

The tree which caused the forth outage was removed and the damaged primary was repaired under DOJM Work Request number 21MT575870, which was completed in May 2013.

The burned primary jumper on the fifth outage was replaced under DOJM Work Request number 21MT575891 which was completed in May 2013.

An overhead visual inspection will be performed on this circuit in 2014. The repair work identified as a result of this inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 559053
Division – Meramec Valley
Area Served – Jefferson County (South of Festus), MO
SAIFI Value – 1.49

Analysis Results:

This circuit serves 406 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by tree contacts, overhead equipment failures, an unknown cause, and a prearranged outage for safety which resulted in 606 CI. Circuit 559053 experienced three significant outages in 2013 which resulted in 564 (93%) of the total CI. The first outage occurred when a tree limb contacted the primary and caused a fuse to open. The second outage occurred when a lightning arrester on a single phase transformer failed and opened a circuit recloser. The third outage occurred when one phase of the three phase backbone failed and opened the B-phase substation circuit recloser. In order to safely repair the line, the A and C phase circuit reclosers were also opened. No cause was determined for the original loss of B-phase.

Corrective Actions:

An overhead visual inspection and an underground visual inspection were performed on this circuit in 2013. The repair work identified as a result of these inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

Tree trimming will be performed on this circuit in 2014.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 638053
Division – Boone Trails
Area Served – Warrenton, MO
SAIFI Value – 1.46

Analysis Results:

This circuit serves 1,307 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather, overhead equipment failures, and a public vehicle accident which resulted in 1,909 CI. Circuit 638053 experienced three significant outages in 2013. The first outage occurred when a fuse blew during a rain storm. The second outage occurred when a thunderstorm caused a tree limb to contact the three phase primary. The third outage occurred when a public vehicle accident caused a device outage.

Corrective Actions:

Tree trimming was performed on this circuit in 2013.

Division engineering personnel will patrol the circuit in 2014 to verify that all backbone transformers are properly fused and to determine if there are opportunities for additional sectionalizing of the circuit. The repair work identified as a result of these inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX B

WPC Analysis and Remedial Action Report

Circuit Number – 135008
Division – Archview
Area Served – South St. Louis City, MO
SAIFI Value – 1.45

Analysis Results:

This circuit serves 455 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by weather, tree contacts, and a substation equipment failure which resulted in 660 CI. Circuit 135008 experienced two significant outages in 2013 which resulted in 642 (97%) of the total CI. The first outage occurred when the substation breaker tripped. The second outage occurred when a Troubleman opened a set of solid blade switches to remove tree limbs from the overhead primary following a thunderstorm.

Corrective Actions:

The circuit was patrolled and no problems were found. The substation breaker was then reset and held. It is believed that lightning or a tree contact during the thunderstorm caused the breaker to trip.

After the tree limbs were removed from the primary the switches were closed and the circuit was placed back in service.

An overhead visual inspection and underground visual inspection were performed on this circuit in 2013. Specifically three poles were identified to be replaced, along with miscellaneous cross-arms, insulators, ground wires, guy wires, pole steps, pole top pins, and V-braces. The repair work identified as a result of these inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

DIVISION	OPERATING AREA	CIRCUIT	VOLT	CUSTOMERS	CI	SAIFI	2011	2012	2013	Years WPC
SEMO	HAYTI	452053	12	292	342	1.17	WPC	WPC		2
MISSOURI VALLEY	KIRKSVILLE	858052	12	1	1	1.00	WPC	WPC		2
BOONE TRAILS	LOUISIANA	629051	12	502	322	0.64	WPC	WPC		2
SEMO	HAYTI	455053	12	809	352	0.44	WPC	WPC		2
SEMO	POTOSI	473053	12	607	250	0.41	WPC	WPC		2
SEMO	CAPE GIRARDEAU	828056	12	321	127	0.40	WPC	WPC		2
BOONE TRAILS	WENTZVILLE	647052	12	321	26	0.08	WPC	WPC		2
SEMO	HAYTI	454055	12	1,095	75	0.07	WPC	WPC		2
SEMO	DEXTER	824003	4	426	24	0.06	WPC	WPC		2

APPENDIX D

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 452053
Division – SEMO
Area Served – Braggadocio, MO
SAIFI Value – 1.17

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2011 and 2012. This circuit was not a WPC in 2013. The SAIFI values for this circuit in the last three years were: 3.11 in 2011, 3.54 in 2012, and 1.17 in 2013. This shows that reliability on this circuit has greatly improved in 2013. This circuit serves 292 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by public vehicle accidents and overhead equipment which resulted in 342 CI. Circuit 452053 experienced no significant outages in 2013. Smaller outages were caused by public vehicle accidents and overhead equipment failures.

Corrective Actions:

Previous reliability work performed on this circuit:

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2010.

A project to coordinate and add fuses to this circuit was performed in 2010. The work was performed under DOJM Work Request number 2TSE092735 which was completed in October 2010.

An overhead visual inspection for animal guarding, tap fusing, and maintenance issues was performed on this circuit in 2011. Repairs were performed under DOJM Work Request numbers 2TSE096750 and 2TSE097700 which were completed in June 2011 and October 2011 respectively.

A substation rebuild of the Braggadocio substation was completed in 2013 with new 12kV viper reclosers.

Tree trimming was performed on this circuit in 2013.

Planned MWPC reliability improvement work:

The division has begun work to re-establish the 34kV looped system that was lost when the energy supply contract with Entergy expired. The easements have been acquired for the new Hayti-73 34kV line from the Hayti Bulk substation to the Steele substation.

APPENDIX D

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 858052
Division – Missouri Valley
Area Served – Canton (Culver Stockton College), MO
SAIFI Value – 1.00

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2011 and 2012. This circuit was not a WPC in 2013. The SAIFI values for this circuit in the last three years were: 2.00 in 2011, 2.00 in 2012, and 1.00 in 2013. This shows that reliability on this circuit has greatly improved in 2013. This circuit serves 1 customer. The customer interruptions (CI) experienced on this circuit in 2013 were caused by a customer transformer fault which resulted in 1 CI. Circuit 858052 experienced one outage in 2013. This outage occurred when a transformer failed on the customer's side of the meter.

Corrective Actions:

Tree trimming was performed on this circuit in 2010.

An overhead visual inspection of the two structures on this circuit was performed in 2011. The repair work identified as a result of the inspection was completed in accordance with Ameren Missouri's infrastructure inspection policy. Repairs were performed under DOJM Work Request number 2HGH040532, which was completed in September 2011.

APPENDIX D

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 629051
Division – Boone Trails
Area Served – Clarksville, MO
SAIFI Value – 0.64

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2011 and 2012. This circuit was not a WPC in 2013. The SAIFI values for this circuit in the last three years were: 2.19 in 2011, 2.01 in 2012, and 0.64 in 2013. This shows that reliability on this circuit has greatly improved in 2013. This circuit serves 502 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by minor failures which resulted in 322 CI. Circuit 629051 experienced no significant outages in 2013. Smaller outages resulted in the CI experienced on this circuit.

Corrective Actions:

Previous reliability work performed on this circuit:

A special overhead visual inspection was performed on this circuit in 2011. Defective cross-arms, insulators, and broken down guys were repaired or replaced. Animal guards and fuses were installed and some poles replaced. This work was performed under DOJM Work Request numbers 2WWZ146067 and 2WWZ147718 which were completed in November 2011.

A set of three phase reclosers were added to the circuit under DOJM Work Request number 2WWZ151872, which was completed in December, 2012.

Planned MWPC reliability improvement work:

Tree trimming was performed on this circuit in 2013.

An overhead visual inspection and a ground line inspection were performed on this circuit in 2013. The repair work identified as a result of these inspections will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX D

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 455053
Division – SEMO
Area Served – Caruthersville, MO
SAIFI Value – 0.44

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2011 and 2012. This circuit was not a WPC in 2013. The SAIFI values for this circuit in the last three years were: 3.36 in 2011, 2.16 in 2012, and 0.44 in 2013. This shows that reliability on this circuit has greatly improved in 2013. This circuit serves 809 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment malfunctions and animal intrusions which resulted in 352 CI. Circuit 455053 experienced no significant outages in 2013. Smaller outages were caused by overhead equipment malfunctions and animal intrusions.

Corrective Actions:

Previous reliability work performed on this circuit:

The Vegetation Management Department performed mid-cycle maintenance tree trimming on this circuit in 2011.

The following upgrades were made to the substation in 2011: Animal spinners were added to the overhead line and a Viper recloser was installed.

An overhead visual inspection was performed on this circuit in 2011. The repair work identified as a result of this inspection was completed in accordance with Ameren Missouri's infrastructure inspection policy. This work was performed under DOJM Work Request number 2TSE097988 which was completed in September 2011.

An Intellirupter recloser was installed on this circuit in 2012 to establish a tie with circuit 455055, Caruthersville West.

Tree trimming was performed on this circuit in 2013.

Planned MWPC reliability improvement work:

No work is planned on this circuit in 2014.

APPENDIX D

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 473053
Division – SEMO
Area Served – Bismarck, MO
SAIFI Value – 0.41

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2011 and 2012. This circuit was not a WPC in 2013. The SAIFI values for this circuit in the last three years were: 1.88 in 2011, 1.73 in 2012, and 0.41 in 2013. This shows that reliability on this circuit has greatly improved in 2013. This circuit serves 607 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by overhead equipment malfunctions, prearranged maintenance outages, tree contacts, and public damage which resulted in 250 CI. Circuit 473053 experienced no significant outages in 2013. The small outages that did occurred on the circuit were caused by recloser, primary wires, and pole failures, prearranged maintenance, tree contacts, and public damage.

Corrective Actions:

Additional fuses, reclosers, and switches were installed on various sections of this circuit in 2010 and early 2011 to improve reliability and increase fault isolation during outages.

A new tie was established between circuits 473053 and 475052 in 2011 which enabled switching operations and improved reliability for the southern half of the 473053 circuit.

The Vegetation Management department performed a mid-cycle patrol of this circuit in 2012 to identify and remove tree hazards.

An underground detailed inspection, an overhead visual inspection, and a ground line inspection were performed on this circuit in 2012. The repair work identified as a result of these inspections was completed in accordance with Ameren Missouri's infrastructure inspection policy.

Reliability projects to replace poles, add animal protection, and install fuses in the Bismarck Ridge Rd. and Hwy 32 areas of this circuit were completed in 2012.

A project to install additional fuses and reclosers on portions of the circuit to further isolate outages will be performed under DOJM Work Request number 28IR038712.

Bismarck Substation will have the existing circuit reclosers replaced with Viper reclosers in 2014. This will allow remote (SCADA) monitoring and control. Also, the two reserve 34kv subtransmission supply breakers will be replaced to allow for remote (SCADA) monitoring,

control, and reserve supply switching; further eliminating extended outages due to subtransmission faults.

APPENDIX D

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 828056
Division – SEMO
Area Served – Blodgett, MO
SAIFI Value – 0.40

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2011 and 2012. This circuit was not a WPC in 2013. The SAIFI values for this circuit in the last three years were: 3.88 in 2011, 2.80 in 2012, and 0.40 in 2013. This shows that reliability on this circuit has greatly improved in 2013. This circuit serves 321 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by animal intrusions and overhead equipment failures which resulted in 127 CI. Circuit 828056 experienced no significant outages in 2013. Smaller outages were caused by animal intrusions and overhead equipment failures

Corrective Actions:

Previous reliability work performed on this circuit:

An overhead visual and ground line inspection was performed on this circuit in 2012. The repair work identified as a result of this inspection was completed in accordance with Ameren Missouri's infrastructure inspection policy. This work was performed under DOJM Work Request number 2TSE099535 which was completed in August 2013.

A 2.75 mile section of the circuit from Vanduser to Crowder was converted from #6 Copper wire to 1/0AAAC. This work was performed under DOJM Work Request numbers 2TSE102325, 2TSE102326, and 2TSE102327 which were all completed in May 2013.

Defective regulators at Vanduser were replaced under DOJM Work Request number 2TSE103171 which was completed in May 2013.

The Vegetation Management Department performed a mid-cycle patrol of this circuit in 2013 to identify any spot trim locations requiring attention.

Planned MWPC reliability improvement work:

No work is planned on this circuit in 2014.

APPENDIX D

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 647052
Division – Boone Trails
Area Served – Defiance, MO
SAIFI Value – 0.08

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2011 and 2012. This circuit was not a WPC in 2013. The SAIFI values for this circuit in the last three years were: 1.99 in 2011, 2.22 in 2012, and 0.08 in 2013. This shows that reliability on this circuit has greatly improved in 2013. This circuit serves 321 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by various small faults which resulted in 26 CI. Circuit 647052 experienced no significant outages in 2013.

Corrective Actions:

Previous reliability work performed on this circuit:

Tree trimming was performed on this circuit in 2011.

An overhead visual and a ground line inspection were performed on this circuit in 2012. There were a total of 217 individual DOJM jobs created for this circuit as a result of the inspections. There was one 1,086 man-hour DOJM job created for the overhead hardware and device problems which required repair. The other 216 DOJM jobs were individual pole repairs or replacements. The repair work identified as a result of the inspections was completed in accordance with Ameren Missouri's infrastructure inspection policy.

The Vegetation Management Department performed spot tree trimming on areas identified by division engineering personnel in 2013.

Division engineering personnel performed an inspection of this circuit in 2013, and several improvement opportunities were identified. These included spot tree trimming, a capacitor with an open switch, fusing CSP transformers on the backbone, and some mapping corrections. This work was performed under DOJM Work Request number 2WWZ154419 which was completed in November 2013.

APPENDIX D

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 454055
Division – SEMO
Area Served – Caruthersville, MO
SAIFI Value – 0.07

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2011 and 2012. This circuit was not a WPC in 2013. The SAIFI values for this circuit in the past three years were: 3.32 in 2011, 2.22 in 2012, and 0.07 in 2013. This shows that reliability on this circuit has greatly improved in 2013. This circuit serves 1,095 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by animal intrusions and overhead equipment failures which resulted in 75 CI. Circuit 454055 experienced no significant outages in 2013. The small outages that did occur were caused by animal contacts and overhead equipment failures.

Corrective Actions:

Previous reliability work performed on this circuit:

Tree trimming was performed on this circuit in 2011.

A special overhead visual inspection was performed on this circuit in 2011 which inspected for animal guarding, tap fusing, and maintenance issues. Repairs were performed under DOJM Work Request number 2TSE097702 which was completed in December 2011.

An Intellirupter recloser was installed on this circuit in 2012 to establish a tie with the Caruthersville West (455053) circuit.

An underground visual inspection was performed on this circuit in 2013. The repair work identified as a result of this inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

Planned MWPC reliability improvement work:

The Vegetation Management Department will perform mid-cycle tree trimming on this circuit in 2014.

An overhead ground line inspection will be performed on this circuit in 2014. The repair work identified as a result of this inspection will be completed in accordance with Ameren Missouri's infrastructure inspection policy.

APPENDIX D

Multi-Year WPC Analysis and Remedial Action Report

Circuit Number – 824003
Division – SEMO
Area Served – Bernie, MO
SAIFI Value – .06

Analysis Results:

This circuit is a Multi-Year Worst Performing Circuit (MWPC) based on its performance in 2011 and 2012. This circuit was not a WPC in 2013. The SAIFI values for this circuit in the past three years were: 2.97 in 2011, 5.04 in 2012, and .06 in 2013. This shows that reliability on this circuit has greatly improved in 2013. This circuit serves 426 customers. The customer interruptions (CI) experienced on this circuit in 2013 were caused by a tree contact and an overhead equipment failure which resulted in 24 CI. Circuit 824003 experienced no significant outages in 2013. The small outages that did occur were caused by a tree contact and an overhead equipment failure.

Corrective Actions:

Previous reliability work performed on this circuit:

Tree trimming was performed on this circuit in 2011.

A visual inspection of this circuit was performed by division personnel in 2012. This inspection identified needed animal guarding, tap fusing, and other maintenance items. Repairs were performed under DOJM Work Request number 2TSE099753 which was completed in November 2012.

An overhead visual and ground line inspection was performed on this circuit in 2013. The repair work identified as a result of the inspection was completed in accordance with Ameren Missouri's infrastructure inspection policy.

Planned MWPC reliability improvement work:

No work is planned for this circuit in 2014.