

2011-00450



Meade County RECC

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4/17/15

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PUBLIC SERVICE
COMMISSION

Director of Engineering
Kentucky Public Service Commission
211 Sower Blvd
P.O. Box 615
Frankfort, Ky 40602-0615

To Whom it May Concern,

Attached is the annual reliability report for 2014 for Meade County RECC. If you should have any questions or concerns, you may contact me at (270) 422-2162.

Sincerely,

David R. Poe, P.E.
Vice President of Operations & Engineering

KENTUCKY PUBLIC SERVICE COMMISSION

Electric Distribution Utility Annual Reliability Report

SECTION 1: CONTACT INFORMATION

UTILITY NAME	Meade County RECC
REPORT PREPARED BY	David Poe
E-MAIL ADDRESS OF PREPARER	<u>dpoe@mcrecc.com</u>
PHONE NUMBER OF PREPARER	270-422-2162

SECTION 2: REPORTING YEAR

CALENDAR YEAR OF REPORT	2014
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SECTION 3: MAJOR EVENT DAYS (MED)

T_{MED}	8.55
FIRST DATE USED TO DETERMINE T_{MED}	1/1/2010
LAST DATE USED TO DETERMINE T_{MED}	12/31/2013
NUMBER OF MED IN REPORT YEAR	9

NOTE: Per IEEE 1366 T_{MED} should be calculated using the daily SAIDI values for the five prior years. If five years of data are not available, then utilities should use what is available until five years are accumulated.

SECTION 4: SYSTEM RELIABILITY INFORMATION AND RESULTS

System-wide Information

TOTAL CUSTOMERS	28810	TOTAL CIRCUITS	72
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Excluding MED

	5 YEAR AVERAGE		REPORTING YEAR
SAIDI	76.78	SAIDI	77.18
SAIFI	1.10	SAIFI	0.95

Including MED

	5 YEAR AVERAGE		REPORTING YEAR
SAIDI	193.39	SAIDI	298.23
SAIFI	2.20	SAIFI	2.39

Notes:

- 1) All duration indices (SAIDI) are to be reported in units of minutes.
- 2) Reports are due on the first business day of May of each year
- 3) Reports cover the calendar year ending in the December before the reports are due.
- 4) IEEE 1366 (latest version) is used to define SAIDI, SAIFI, and T_{MED}

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 5: CIRCUIT REPORTING

(CIRCUITS WITH SAIDI AND/OR SAIFI EXCEEDING 5 YEAR AVERAGE)

(CIRCUIT NUMBERS SHOULD BE REPORTED EXCLUDING MED)

CIRCUIT #1:

1. SUBSTATION NAME AND NUMBER: Battletown
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN):
Approximately 2 miles north of Battletown along Hwy 228 in Meade County
3. CIRCUIT NAME AND NUMBER: Feeder 3 (Cedar Flats Circuit)
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA): North of Battletown sub along Hwy 228
5. TOTAL CIRCUIT LENGTH (MILES): 36.7 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT: 149
7. DATE OF LAST CIRCUIT TRIM (VM): 2010

8 Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Line Hardware	1	8.33	234.79	148	94.55	0.99
Storms	3	25.00	50.90	8	20.50	0.05
Other	1	8.33	1.13	6	0.45	0.04
Unknown	1	8.33	17.30	6	6.97	0.04
KVA	2	16.67	3.94	3	1.59	0.02
Public Cause	1	8.33	1.51	1	0.61	0.01
Birds/Animals	1	8.33	1.03	1	0.42	0.01
Trees out of R/W	1	8.33	3.02	1	1.22	0.01
Cutouts/OCB	1	8.33	1.67	1	0.67	0.01

9. CIRCUIT 5 YEAR AVERAGE (SAIDI): 54.36
10. REPORTING YEAR (SAIDI): 126.96
11. CIRCUIT 5 YEAR AVERAGE (SAIFI): 0.30
12. REPORTING YEAR (SAIFI): 1.17
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

High winds on 11/4 precipitated a failure of a wire tie at an insulator. No further actions deemed necessary.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 5: CIRCUIT REPORTING

(CIRCUITS WITH SAIDI AND/OR SAIFI EXCEEDING 5 YEAR AVERAGE)

(CIRCUIT NUMBERS SHOULD BE REPORTED EXCLUDING MED)

CIRCUIT #3:

1. SUBSTATION NAME AND NUMBER: Brandenburg
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN): In Brandenburg at the intersection of Hwy
1051 and Old Ekron Roads
3. CIRCUIT NAME AND NUMBER: Feeder 1 (Old Ekron Road)
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA): South from sub along Old Ekron Road
5. TOTAL CIRCUIT LENGTH (MILES): 27.6 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT: 455
7. DATE OF LAST CIRCUIT TRIM (VM): 2012

8 Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Power Supplier	1	12.50	453.88	455	59.85	1.00
Public Cause	1	12.50	47.12	52	6.21	0.11
Birds/Animals	1	12.50	26.40	48	3.48	0.11
Unknown	2	25.00	23.04	26	3.04	0.06
Storms	1	12.50	14.59	12	1.92	0.03
Pre-Arranged	2	25.00	7.13	7	0.94	0.02

9. CIRCUIT 5 YEAR AVERAGE (SAIDI): 45.44
10. REPORTING YEAR (SAIDI): 75.45
11. CIRCUIT 5 YEAR AVERAGE (SAIFI): 0.57
12. REPORTING YEAR (SAIFI): 1.32
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN:

Our power supplier had a defect in the construction of a newly built transmission line to a new nearby substation (Buttermilk Falls). The Brandenburg sub was subsequently outaged until the fault was isolated.

No further action is deemed necessary.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 5: CIRCUIT REPORTING

(CIRCUITS WITH SAIDI AND/OR SAIFI EXCEEDING 5 YEAR AVERAGE)

(CIRCUIT NUMBERS SHOULD BE REPORTED EXCLUDING MED)

CIRCUIT #4:

1. SUBSTATION NAME AND NUMBER: Brandenburg
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN): In Brandenburg at the intersection of Hwy
1051 and Old Ekron Roads
3. CIRCUIT NAME AND NUMBER: Feeder 4 (Hwy 710)
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA): South of Brandenburg along Hwy 710.
5. TOTAL CIRCUIT LENGTH (MILES): 37.35 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT: 604
7. DATE OF LAST CIRCUIT TRIM (VM): 2012

8 Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Unknown	3	15.79	607.11	1156	60.31	1.91
Power Supplier	1	5.26	572.62	582	56.88	0.96
Pre-Arranged	7	36.84	67.39	62	6.69	0.10
Other	1	5.26	37.82	35	3.76	0.06
Conductor	1	5.26	13.69	8	1.36	0.01
Line Hardware	2	10.53	5.23	6	0.52	0.01
Storms	1	5.26	2.92	3	0.29	0.00
Birds/Animals	2	10.53	0.94	2	0.09	0.00
Trees out of R/W	1	5.26	2.16	1	0.21	0.00

9. CIRCUIT 5 YEAR AVERAGE (SAIDI): 39.97
10. REPORTING YEAR (SAIDI): 130.12
11. CIRCUIT 5 YEAR AVERAGE (SAIFI): 0.64
12. REPORTING YEAR (SAIFI): 3.07
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN:

There were two major contributors to the outage numbers. On 12/19 our power supplier had a defect in a recently built transmission line to a new nearby substation (Buttermilk Falls) causing an outage on the Brandenburg sub.

On 6/23 an MCRECC contractor was changing a pole. The protecting recloser supplying the circuit was placed on 'non-reclose' and due to some anomaly (the contractor claimed they did nothing to cause it), the recloser tripped and locked out twice that day.

No further actions are deemed necessary.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 5: CIRCUIT REPORTING

(CIRCUITS WITH SAIDI AND/OR SAIFI EXCEEDING 5 YEAR AVERAGE)

(CIRCUIT NUMBERS SHOULD BE REPORTED EXCLUDING MED)

CIRCUIT #5:

1. SUBSTATION NAME AND NUMBER: Brandenburg
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN): In Brandenburg at the intersection of Hwy
1051 and Old Ekron Roads
3. CIRCUIT NAME AND NUMBER: Feeder 5 (Midway Road)
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA): Along Hwy 79 to Midway
5. TOTAL CIRCUIT LENGTH (MILES): 34.09 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT: 513
7. DATE OF LAST CIRCUIT TRIM (VM): 2012

8 Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Storms	6	33.33	303.95	571	35.55	1.11
Power Supplier	1	5.56	527.46	535	61.69	1.04
Birds/Animals	4	22.22	44.48	54	5.20	0.11
Pre-Arranged	4	22.22	13.16	43	1.54	0.08
Trees in R/W	1	5.56	11.35	15	1.33	0.03
Cutouts/OCB	1	5.56	0.68	2	0.08	0.00
Line Hardware	1	5.56	1.40	1	0.16	0.00

9. CIRCUIT 5 YEAR AVERAGE (SAIDI): 78.08
10. REPORTING YEAR (SAIDI): 105.55
11. CIRCUIT 5 YEAR AVERAGE (SAIFI): 0.78
12. REPORTING YEAR (SAIFI): 2.38
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN:

Our power supplier had a defect in the construction of a new transmission line to a new nearby substation (Buttermilk Falls). The Brandenburg sub as subsequently outages until the fault was isolated. No further actions are deemed necessary.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 5: CIRCUIT REPORTING

(CIRCUITS WITH SAIDI AND/OR SAIFI EXCEEDING 5 YEAR AVERAGE)

(CIRCUIT NUMBERS SHOULD BE REPORTED EXCLUDING MED)

CIRCUIT #6:

1. SUBSTATION NAME AND NUMBER Custer
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN): Approximately 1/4 mi. south of Custer
along Hwy 86 in Breckinridge County
3. CIRCUIT NAME AND NUMBER: Feeder 1 (Hensley Circuit)
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA): North along Hwy 86 to US-60
5. TOTAL CIRCUIT LENGTH (MILES): 59.29 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT: 463
7. DATE OF LAST CIRCUIT TRIM (VM): 2013

8 Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Public Cause	2	16.67	2034.62	488	263.67	1.05
Line Hardware	1	8.33	88.83	63	11.51	0.14
Storms	2	16.67	91.71	40	11.89	0.09
Other	1	8.33	41.08	19	5.32	0.04
Birds/Animals	2	16.67	11.23	8	1.46	0.02
Conductor	1	8.33	9.95	5	1.29	0.01
Pre-Arranged	1	8.33	8.27	4	1.07	0.01
KVA	2	16.67	27.07	3	3.51	0.01

9. CIRCUIT 5 YEAR AVERAGE (SAIDI): 50.29
10. REPORTING YEAR (SAIDI): 299.71
11. CIRCUIT 5 YEAR AVERAGE (SAIFI): 0.55
12. REPORTING YEAR (SAIFI): 1.36
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN:

On 10/6 a car struck and broke a three-phase pole during a rainy day.

No actions are deemed necessary.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 5: CIRCUIT REPORTING

(CIRCUITS WITH SAIDI AND/OR SAIFI EXCEEDING 5 YEAR AVERAGE)

(CIRCUIT NUMBERS SHOULD BE REPORTED EXCLUDING MED)

CIRCUIT #7:

1. SUBSTATION NAME AND NUMBER: Flaherty
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN): Along Hwy 144 in Flaherty in Meade Coui
3. CIRCUIT NAME AND NUMBER: Feeder 3 (Vine Grove Circuit)
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA): Hwys 144 and 1600 to the Hardin County line.
5. TOTAL CIRCUIT LENGTH (MILES): 41.0 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT: 736
7. DATE OF LAST CIRCUIT TRIM (VM): 2010

8 Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Storms	5	23.81	943.10	147	76.88	0.20
Public Cause	2	9.52	188.67	145	15.38	0.20
Birds/Animals	5	23.81	52.97	73	4.32	0.10
Pre-Arranged	4	19.05	13.25	18	1.08	0.02
Trees in R/W	1	4.76	9.67	11	0.79	0.01
Unknown	2	9.52	14.87	11	1.21	0.01
Other	1	4.76	1.62	2	0.13	0.00
Trees out of R/W	1	4.76	0.88	1	0.07	0.00

9. CIRCUIT 5 YEAR AVERAGE (SAIDI): 45.75
10. REPORTING YEAR (SAIDI): 99.87
11. CIRCUIT 5 YEAR AVERAGE (SAIFI): 1.25
12. REPORTING YEAR (SAIFI): 0.55
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN:

Storms in May, July, and August wer the largest contributors of outages.

On 9/26 a vehicle struck a pole.

No actions are deemed necessary.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 5: CIRCUIT REPORTING

(CIRCUITS WITH SAIDI AND/OR SAIFI EXCEEDING 5 YEAR AVERAGE)

(CIRCUIT NUMBERS SHOULD BE REPORTED EXCLUDING MED)

CIRCUIT #8:

1. SUBSTATION NAME AND NUMBER: Fordsville
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN): Approximately 1 mi. east of Fordsville
along Hwy 54 in Ohio County
3. CIRCUIT NAME AND NUMBER: Feeder 4 (Reynolds Station Circuit)
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA): West from sub, along Hwy 54 towards
Davies County
5. TOTAL CIRCUIT LENGTH (MILES): 31.06 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT: 329
7. DATE OF LAST CIRCUIT TRIM (VM): 2014

8 Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Trees out of RW	3	17.65	228.81	174	41.73	0.53
Storms	3	17.65	159.82	48	29.15	0.15
Public Cause	2	11.76	161.48	34	29.45	0.10
Pre-Arranged	2	11.76	5.00	11	0.91	0.03
Birds/Animals	3	17.65	11.65	8	2.12	0.02
Unknown	4	23.53	6.00	5	1.09	0.02

9. CIRCUIT 5 YEAR AVERAGE (SAIDI): 60.81
10. REPORTING YEAR (SAIDI): 104.45
11. CIRCUIT 5 YEAR AVERAGE (SAIFI): 0.81
12. REPORTING YEAR (SAIFI): 0.85
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN:

A tree outside of the right-of-way fell into the line, accounting for more than 1/3 of the circuit's SAIDI and more than 1/2 of its SAIFI. The substation right-of-way was cleared in late 2014.

No action is deemed necessary.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 5: CIRCUIT REPORTING

(CIRCUITS WITH SAIDI AND/OR SAIFI EXCEEDING 5 YEAR AVERAGE)

(CIRCUIT NUMBERS SHOULD BE REPORTED EXCLUDING MED)

CIRCUIT #9:

1. SUBSTATION NAME AND NUMBER: Garrett
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN): South edge of Garrett on Hwy 144 in Meade County
3. CIRCUIT NAME AND NUMBER: Feeder 2 (Johnstown Circuit)
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA): North from sub along Hwy 144 to Brandenburg
5. TOTAL CIRCUIT LENGTH (MILES): 10.8 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT: 156
7. DATE OF LAST CIRCUIT TRIM (VM): 2010

8 Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Trees in R/W	2	20.00	182.33	176	70.13	1.13
Unknown	1	10.00	165.78	160	63.76	1.03
Birds/Animals	1	10.00	148.40	159	57.08	1.02
Storms	4	40.00	516.86	73	198.79	0.47
Trees out of R/W	2	20.00	5.33	4	2.05	0.03

9. CIRCUIT 5 YEAR AVERAGE (SAIDI): 41.17
10. REPORTING YEAR (SAIDI): 391.81
11. CIRCUIT 5 YEAR AVERAGE (SAIFI): 0.28
12. REPORTING YEAR (SAIFI): 3.67
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN:

On 3/27 a fast growing tree in the ROW caused the feeder recloser to trip and lock out. The substation ROW is being cleared in 2015 to address any ROW issues.

On 6/22 a downline fault occurred but the cause was never found.

On 7/12 birds on a transformer bank created a flash and fault that outaged the entire feeder.

In late 2014/early 2015 a sectionalizing study was performed and subsequent mitigation followed to better sectionalize down-line faults on the Garrett substation.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 5: CIRCUIT REPORTING

(CIRCUITS WITH SAIDI AND/OR SAIFI EXCEEDING 5 YEAR AVERAGE)

(CIRCUIT NUMBERS SHOULD BE REPORTED EXCLUDING MED)

CIRCUIT #10:

1. SUBSTATION NAME AND NUMBER: Garrett
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN): South edge of Garrett on Hwy 144 in
Meade County
3. CIRCUIT NAME AND NUMBER: Feeder 6 (Guston Circuit)
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA): West along Hwy 1238 and then west
along US-60 to Guston
5. TOTAL CIRCUIT LENGTH (MILES): 53.66
6. CUSTOMER COUNT FOR THIS CIRCUIT: 635
7. DATE OF LAST CIRCUIT TRIM (VM): 2010

8 Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Storms	5	22.73	1006.99	693	95.15	1.09
Unknown	2	9.09	1893.58	668	178.92	1.05
Conductor	1	4.55	1179.86	611	111.48	0.96
Birds/Animals	5	22.73	110.13	94	10.41	0.15
Trees in R/W	2	9.09	47.26	40	4.47	0.06
Pre-Arranged	4	18.18	31.59	26	2.98	0.04
Public Cause	1	4.55	8.59	12	0.81	0.02
Line Hardware	1	4.55	11.41	9	1.08	0.01
KVA	1	4.55	2.19	1	0.21	0.00

9. CIRCUIT 5 YEAR AVERAGE (SAIDI): 79.25
10. REPORTING YEAR (SAIDI): 405.51
11. CIRCUIT 5 YEAR AVERAGE (SAIFI): 1.51
12. REPORTING YEAR (SAIFI): 3.39
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN:

In early January, snow and extreme cold precipitated a conductor failure, causing poles to break.

On 8/23 the circuit tripped and locked out but the cause was never found.

In late 2014/early 2015 a sectionalizing study was performed and subsequent mitigation followed to better sectionalize down-line faults on the Garrett substation.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 6: VEGETATION MANAGEMENT PLAN REVIEW

INCLUDE CURRENT VEGETATION MANAGEMENT PLAN

Additional page may be attached as needed.

There were no alarming trends regarding vegetation related outages in 2014. The scheduled substation trimming for 2014 was completed on schedule and no changes to the 2015 schedule are anticipated.

SECTION 7: UTILITY COMMENTS

In 2010, MCRECC converted to a new Outage Management System (OMS). Because of the noticeable manner and precision the outages are now tracked versus the prior method and due to the massive effort required to convert the old data into the new OMS, the Tmed, average, and standard deviation calculations and other comparisons are performed for the years of 2010 through 2014.

Power supplier issues were among the most prominent and have been for a few years; however, Big Rivers Electric is replacing all of the control cabling and relaying in their Hardinsburg Substation in an effort to combat the recent failures that have occurred.

Copper conductor replacement is progressing but is nearing the end. It is anticipated to have approximately 25-50 miles of old copper lines left in the system by the end of 2015.