



# Meade County RECC

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2/10/16

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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

Case No. 2011-00450

To Whom it May Concern,

Attached is the annual reliability report for 2015 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>dpo@mcreecc.com</u>
PHONE NUMBER OF PREPARER	<u>270-422-2162</u>

### SECTION 2: REPORTING YEAR

CALENDAR YEAR OF REPORT	<u>2015</u>
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### SECTION 3: MAJOR EVENT DAYS (MED)

$T_{MED}$	<u>9.24</u>
FIRST DATE USED TO DETERMINE $T_{MED}$	<u>1/1/2010</u>
LAST DATE USED TO DETERMINE $T_{MED}$	<u>12/31/2014</u>
NUMBER OF MED IN REPORT YEAR	<u>1</u>

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	<u>29261</u>	TOTAL CIRCUITS	<u>72</u>
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#### Excluding MED

	5 YEAR AVERAGE		REPORTING YEAR
SAIDI	<u>90.96</u>	SAIDI	<u>107.89</u>
SAIFI	<u>1.24</u>	SAIFI	<u>1.21</u>

#### Including MED

	5 YEAR AVERAGE		REPORTING YEAR
SAIDI	<u>214.36</u>	SAIDI	<u>135.33</u>
SAIFI	<u>2.24</u>	SAIFI	<u>1.37</u>

#### 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: Andyville
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
Approximately 1 mile North of Andyville at intersection of Hwys 144 and 228 in Meade County
3. CIRCUIT NAME AND NUMBER  
Feeder 3 (Rhodelia circuit)
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
West along Hwy 144 towards Rhodelia
5. TOTAL CIRCUIT LENGTH (MILES)  
60 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
444
7. DATE OF LAST CIRCUIT TRIM (VM)  
2014

8

Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Trees out of R/W	4	19.05	965.23	732.00	130.44	1.65
Line Hardware	2	9.52	370.48	628.00	50.06	1.41
Storms	8	38.10	172.91	156.00	23.37	0.35
Pre-Arranged	3	14.29	68.97	46.00	9.32	0.10
Birds/Animals	1	4.76	3.66	5.00	0.49	0.01
Unknown	1	4.76	0.71	1.00	0.10	0.00
Public Cause	1	4.76	1.17	1.00	0.16	0.00
KVA	1	4.76	1.67	1.00	0.23	0.00

9. CIRCUIT 5 YEAR AVERAGE (SAIDI): 52.70
10. REPORTING YEAR (SAIDI) 204.84
11. CIRCUIT 5 YEAR AVERAGE (SAIFI) 0.53
12. REPORTING YEAR (SAIFI): 3.43

#### 13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

Two of the 'Trees out of R/W' events accounted for 711 of the member outages on windy days. The two 'line hardware' events' was really one, but the entire feeder had to be de-energized to repair a broken insulator on a rainy day. Feeder averages are below system averages. 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 #2:**

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)  
60 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
462
7. DATE OF LAST CIRCUIT TRIM (VM)  
2013
- 8

Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Public Cause	6	50.00	3364.15	935.00	436.90	2.02
Storms	2	16.67	11.92	9.00	1.55	0.02
Pre-Arranged	2	16.67	2.21	4.00	0.29	0.01
KVA	1	8.33	2.42	1.00	0.31	0.00
Line Hardware	1	8.33	1.83	1.00	0.24	0.00

9. CIRCUIT 5 YEAR AVERAGE (SAIDI) 109.44
10. REPORTING YEAR (SAIDI) 439.00
11. CIRCUIT 5 YEAR AVERAGE (SAIFI) 0.72
12. REPORTING YEAR (SAIFI): 2.05
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

Vehicles struck and broke three-phase poles along Hwy 86 on 3 separate incidences, outaging 928 members.  
Have contacted the KY DOT to look into this issue along Hwy 86; no resolution yet.  
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 #3:**

1. SUBSTATION NAME AND NUMBER      Doe Valley
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
    Approximately 4 miles east of Brandenburg along Hwy 1638 in Meade County
3. CIRCUIT NAME AND NUMBER  
    Feeder 3 (Weldon circuit)
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
    West along Hwy 1638 into Doe Valley resort; supplies west Doe Valley and Weldon
5. TOTAL CIRCUIT LENGTH (MILES)  
    12 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
    229
7. DATE OF LAST CIRCUIT TRIM (VM)  
    2012

8

Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Public Cause	2	33.33	196.67	249.00	51.53	1.09
Birds/Animals	2	33.33	188.28	239.00	49.33	1.04
Unknown	1	16.67	11.64	12.00	3.05	0.05
KVA	1	16.67	1.54	2.00	0.40	0.01

9. CIRCUIT 5 YEAR AVERAGE (SAIDI)      38.72
10. REPORTING YEAR (SAIDI)              104.31
11. CIRCUIT 5 YEAR AVERAGE (SAIFI)      0.81
12. REPORTING YEAR (SAIFI):              2.19
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

In July, the Brandenburg Telephone Company were installing equipment along our route and pulled our neutral into the phase.

In October, a squirrel got into the substation and blew two high-side fuses.

At this time, 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 #4:**

1. SUBSTATION NAME AND NUMBER      Doe Valley
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
    Approximately 4 miles east of Brandenburg along Hwy 1638 in Meade County
3. CIRCUIT NAME AND NUMBER  
    Feeder 4 (Condo circuit)
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
    West along Hwy 1638 into Doe Valley resort; supplies south Doe Valley
5. TOTAL CIRCUIT LENGTH (MILES)  
    10 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
    242
7. DATE OF LAST CIRCUIT TRIM (VM)  
    2012

8

Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Birds/Animals	2	33.33	225.48	248.00	55.90	1.02
KVA	2	33.33	597.91	239.00	148.24	0.99
Trees out of RW	1	16.67	19.71	18.00	4.89	0.07
Pre-Arranged	1	16.67	1.40	1.00	0.35	0.00

9. CIRCUIT 5 YEAR AVERAGE (SAIDI)      53.58
10. REPORTING YEAR (SAIDI)              209.03
11. CIRCUIT 5 YEAR AVERAGE (SAIFI)      1.04
12. REPORTING YEAR (SAIFI)              2.09
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

Downline distribution transformer primary winding failed, faulted the entire feeder. In October, a squirrel got into the substation and blew two high-side fuses. At this time, 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      Falls of Rough
- 2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
    Approximately 1/3 miles west of intersection of Hwys 79 and 110 in Grayson County
- 3. CIRCUIT NAME AND NUMBER  
    Feeder 2 (Short Creek circuit)
- 4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
    Along south Hwy 79 towards Short Creek
- 5. TOTAL CIRCUIT LENGTH (MILES)  
    31 miles
- 6. CUSTOMER COUNT FOR THIS CIRCUIT  
    195
- 7. DATE OF LAST CIRCUIT TRIM (VM)  
    2014

8

Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Line Hardware	2	16.67	543.64	203.00	167.27	1.04
Trees out of R/W	3	25.00	51.38	27.00	15.81	0.14
Pre-Arranged	2	16.67	24.97	22.00	7.68	0.11
Storms	2	16.67	35.32	11.00	10.87	0.06
Birds/Animals	1	8.33	8.27	9.00	2.54	0.05
Unknown	1	8.33	10.40	5.00	3.20	0.03
Cutouts/OCB	1	8.33	1.14	1.00	0.35	0.01

- 9. CIRCUIT 5 YEAR AVERAGE (SAIDI)      38.95
- 10. REPORTING YEAR (SAIDI)              200.05
- 11. CIRCUIT 5 YEAR AVERAGE (SAIFI)    0.31
- 12. REPORTING YEAR (SAIFI)              1.31
- 13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

Insulator failed downline; outaged entire feeder.

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      Falls of Rough
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
Approximately 1/3 miles west of intersection of Hwys 79 and 110 in Grayson County
3. CIRCUIT NAME AND NUMBER  
Feeder 3 (Autumn Ridge circuit)
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA): East along Hwy 110, crosses Rough River Reservoir, then towards Duff along along Beauchamp Cemetary
5. TOTAL CIRCUIT LENGTH (MILES)  
65 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
1311
7. DATE OF LAST CIRCUIT TRIM (VM)  
2014

8 Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Cutouts/OCB	1	2.04	1914.52	1297.00	87.62	0.99
Pre-Arranged	7	14.29	827.32	686.00	37.86	0.52
Line Hardware	4	8.16	499.56	546.00	22.86	0.42
Trees out of R/W	11	22.45	757.17	338.00	34.65	0.26
Birds/Animals	9	18.37	302.08	236.00	13.83	0.18
Unknown	6	12.24	151.88	112.00	6.95	0.09
Trees in R/W	2	4.08	15.37	52.00	0.70	0.04
KVA	5	10.20	41.95	23.00	1.92	0.02
Storms	3	6.12	14.47	7.00	0.66	0.01
Conductor	1	2.04	4.02	1.00	0.18	0.00

9. CIRCUIT 5 YEAR AVERAGE (SAIDI)      77.18
10. REPORTING YEAR (SAIDI)                      169.38
11. CIRCUIT 5 YEAR AVERAGE (SAIFI)      0.79
12. REPORTING YEAR (SAIFI)                      1.99

13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

Recloser control failed in substation during an isolated rainstorm; bypassed recloser and replaced control.  
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 #7:**

1. SUBSTATION NAME AND NUMBER      Flaherty
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
    At north edge of Flaherty along Hwy 144
3. CIRCUIT NAME AND NUMBER  
    Feeder 2 (St. Martin's Rd)
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
    West along Hwy 1600 and then south along Hwy 333 to Big Springs
5. TOTAL CIRCUIT LENGTH (MILES)  
    55 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
    721
7. DATE OF LAST CIRCUIT TRIM (VM)  
    2010

8

Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Trees out of R/W	2	15.38	1120.63	265.00	93.26	0.37
Other	1	7.69	17.52	29.00	1.46	0.04
Unknown	2	15.38	20.77	24.00	1.73	0.03
Birds/Animals	1	7.69	20.25	23.00	1.69	0.03
Pre-Arranged	3	23.08	39.21	20.00	3.26	0.03
Storms	1	7.69	18.48	19.00	1.54	0.03
KVA	2	15.38	3.97	3.00	0.33	0.00
Public Cause	1	7.69	1.10	2.00	0.09	0.00

9. CIRCUIT 5 YEAR AVERAGE (SAIDI)      33.96
10. REPORTING YEAR (SAIDI)                      100.09
11. CIRCUIT 5 YEAR AVERAGE (SAIFI)      0.87
12. REPORTING YEAR (SAIFI)                      0.51

#### 13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

Tree out of the R/W fell and tore down the three-phase lines near the end of the feeder.  
Sub was trimmed during 2015.  
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 #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 3 (Pattyville circuit)
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
    East on Hwy 54 and northeast on Hwy 110
5. TOTAL CIRCUIT LENGTH (MILES)  
    42 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
    219
7. DATE OF LAST CIRCUIT TRIM (VM)  
    2014

8

Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Trees out of R/W	2	28.57	842.23	266.00	230.75	1.21
Storms	1	14.29	9.26	9.00	2.54	0.04
Unknown	3	42.86	5.12	4.00	1.40	0.02
KVA	1	14.29	1.65	1.00	0.45	0.00

9. CIRCUIT 5 YEAR AVERAGE (SAIDI)      72.49
10. REPORTING YEAR (SAIDI)              235.14
11. CIRCUIT 5 YEAR AVERAGE (SAIFI)      0.69
12. REPORTING YEAR (SAIFI)              1.28
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

Wind knocked over a tree out of the R/W in July, pushed pole over and damaged it.

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 #9:**

1. SUBSTATION NAME AND NUMBER      Hardinsburg 2
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
    West edge of Hardinsburg along old US-60
3. CIRCUIT NAME AND NUMBER Feeder  
    Feeder 1 (Breckwood/Kirk circuit)
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
    South through town and then south along Hwy 261 through McQuady
5. TOTAL CIRCUIT LENGTH (MILES)  
    93 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
    653
7. DATE OF LAST CIRCUIT TRIM (VM)  
    2011

8 Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Unknown	8	22.86	674.41	681.00	61.97	1.04
Line Hardware	2	5.71	1026.15	647.00	94.29	0.99
Storms	4	11.43	113.58	92.00	10.44	0.14
Trees out of R/W	2	5.71	177.58	72.00	16.32	0.11
Pre-Arranged	7	20.00	68.77	44.00	6.32	0.07
Conductor	1	2.86	76.05	39.00	6.99	0.06
Public Cause	1	2.86	24.14	25.00	2.22	0.04
Trees in R/W	1	2.86	6.58	10.00	0.60	0.02
Birds/Animals	5	14.29	4.84	7.00	0.44	0.01
KVA	4	11.43	4.16	5.00	0.38	0.01

9. CIRCUIT 5 YEAR AVERAGE (SAIDI)      45.57
10. REPORTING YEAR (SAIDI)              193.64
11. CIRCUIT 5 YEAR AVERAGE (SAIFI)    0.47
12. REPORTING YEAR (SAIFI)              2.42
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

Entire circuit locked out on 6/23 near midnight; no reason was found.  
Connector failed on main line and burned the line down on 10/11.  
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 #10:**

1. SUBSTATION NAME AND NUMBER      McDaniels
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
    0.8 mile northwest of McDaniels along Hwy 259
3. CIRCUIT NAME AND NUMBER  
    Feeder 1 (Hinton Hills circuit)
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
    West along Hwys 259 and 79 towards Axtel
5. TOTAL CIRCUIT LENGTH (MILES)  
    31 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
    836
7. DATE OF LAST CIRCUIT TRIM (VM)  
    2012

8						
	<b>Cause</b>	<b>Count</b>	<b>Percentage</b>	<b>Customer-hours</b>	<b>Customers</b>	<b>SAIDI</b>
	Unknown	2	6.90	1955.82	921.00	140.37
	Other	1	3.45	225.72	329.00	16.20
	Cutouts/OCB	1	3.45	672.40	328.00	48.26
	Storms	5	17.24	511.72	216.00	36.73
	Trees out of R/W	3	10.34	208.17	153.00	14.94
	Pre-Arranged	10	34.48	428.06	150.00	30.72
	Line Hardware	1	3.45	129.07	88.00	9.26
	Birds/Animals	5	17.24	9.89	13.00	0.71
	KVA	1	3.45	3.60	3.00	0.26

9. CIRCUIT 5 YEAR AVERAGE (SAIDI)      77.50
10. REPORTING YEAR (SAIDI)              266.73
11. CIRCUIT 5 YEAR AVERAGE (SAIFI)      0.85
12. REPORTING YEAR (SAIFI)              2.45

13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN
  - On 7/29, storm caused outage, but energization was hindered due to high loads; reconfigured feeds and performed sectionalizing study to resolve the issue.
  - On 8/26, the Deer Trail area went out for unknown reasons and re-energization was hampered due to high loads; plans were already in place to three-phase area; completed in December.

# Kentucky Public Service Commission

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## 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 2015. Scheduled substation trimming has progressed as planned and no changes to the 2016 schedule are anticipated.

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## SECTION 7: UTILITY COMMENTS

Power supplier issues declined significantly from the previous years, mainly due to extensive overhaul of breakers, cabling, relays, and other equipment at the Big Rivers Hardinsburg Substation.

2016 will conclude the huge copper replacement project MCRECC has worked on for several years. Only small lines and taps will remain which will be replaced as time and efforts allow. Replacement of the aging small copper lines have been a huge boost for reliability.