

# KENTUCKY PUBLIC SERVICE COMMISSION

## Electric Distribution Utility Annual Reliability Report

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### SECTION 1: CONTACT INFORMATION

UTILITY NAME	Meade County RECC
REPORT PREPARED BY	David Poe
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### SECTION 2: REPORTING YEAR

CALENDAR YEAR OF REPORT	2016
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### SECTION 3: MAJOR EVENT DAYS (MED)

$T_{MED}$	9.75
FIRST DATE USED TO DETERMINE $T_{MED}$	1/1/2011
LAST DATE USED TO DETERMINE $T_{MED}$	12/31/2015
NUMBER OF MED IN REPORT YEAR	5

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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.

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### SECTION 4: SYSTEM RELIABILITY INFORMATION AND RESULTS

#### System-wide Information

TOTAL CUSTOMERS	<u>29236</u>	TOTAL CIRCUITS	<u>72</u>
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#### Excluding MED

5 YEAR AVERAGE		REPORTING YEAR	
SAIDI	<u>90.36</u>	SAIDI	<u>102.15</u>
SAIFI	<u>1.23</u>	SAIFI	<u>1.82</u>

#### Including MED

5 YEAR AVERAGE		REPORTING YEAR	
SAIDI	<u>219.65</u>	SAIDI	<u>217.21</u>
SAIFI	<u>2.26</u>	SAIFI	<u>2.08</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

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## 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  
Cloverport
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
At the end of L M Basham Rd in Cloverport of Breckinridge County
3. CIRCUIT NAME AND NUMBER  
Fdr 4: West Cloverport ckt
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
West side of Cloverport, west of Clover Creek
5. TOTAL CIRCUIT LENGTH (MILES)  
5.5 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
273
7. DATE OF LAST CIRCUIT TRIM (VM)  
2013

8	Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
	Storms	3	50.00	1008.67	280.00	221.69	1.03
	Birds/Animals	1	16.67	19.38	21.00	4.26	0.08
	KVA	1	16.67	11.52	1.00	2.53	0.00
	Line Hardware	1	16.67	1.38	1.00	0.30	0.00

9. CIRCUIT 5 YEAR AVERAGE (SAIDI): 48.26

10. REPORTING YEAR (SAIDI): 228.78

11. CIRCUIT 5 YEAR AVERAGE (SAIFI): 0.42

12. REPORTING YEAR (SAIFI): 1.11

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

No actions are deemed necessary. The majority of the outages were due to one tree falling into the line during a storm, taking about 4 hours to safely clear due to its location.

# 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 0.25 south of Custer along Hwy 86
3. CIRCUIT NAME AND NUMBER  
    Fdr 1: Dyer ckt
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
    South along Hwy 86 to Dyer, then southwest along Hwy 401 to Hudson
5. TOTAL CIRCUIT LENGTH (MILES)  
    64.6 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
    501
7. DATE OF LAST CIRCUIT TRIM (VM)  
    2013

8	Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
	Power Supplier	2	10.00	210.00	700.00	25.15	1.40
	Pre-Arranged	5	25.00	153.97	308.00	18.44	0.61
	Storms	6	30.00	213.71	144.00	25.59	0.29
	Unknown	1	5.00	208.34	102.00	24.95	0.20
	Public Cause	2	10.00	134.19	52.00	16.07	0.10
	Birds/Animals	1	5.00	10.03	10.00	1.20	0.02
	Line Hardware	1	5.00	5.67	7.00	0.68	0.01
	KVA	2	10.00	5.89	3.00	0.70	0.01

9. CIRCUIT 5 YEAR AVERAGE (SAIDI):      135.21
10. REPORTING YEAR (SAIDI):              112.79
11. CIRCUIT 5 YEAR AVERAGE (SAIFI):      0.88
12. REPORTING YEAR (SAIFI):              2.65
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

No actions deemed necessary. One pre-arranged outage accounted for the majority of SAIFI except for power supplier causes; it was due to a wire tie on an insulator failing and the pole had to be climbed in a wet field, therefore it was de-energized for safety reasons.

# 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)  
    Along Hwy 1638 approximately 3 miles east of Brandenburg Station in Meade County
3. CIRCUIT NAME AND NUMBER  
    Fdr 1: Rock Ridge ckt
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
    North of substation along Hwy 933 towards the back entrance of Doe Valley Resort
5. TOTAL CIRCUIT LENGTH (MILES)  
    14.4 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
    303
7. DATE OF LAST CIRCUIT TRIM (VM)  
    2012

8

Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Birds/Animals	1	14.29	245.75	302.00	48.66	1.00
Power Supplier	1	14.29	80.53	302.00	15.95	1.00
Storms	2	28.57	249.15	90.00	49.34	0.30
Line Hardware	1	14.29	18.51	12.00	3.66	0.04
Pre-Arranged	1	14.29	10.93	6.00	2.16	0.02
Unknown	1	14.29	3.39	6.00	0.67	0.02

9. CIRCUIT 5 YEAR AVERAGE (SAIDI):      58.62
10. REPORTING YEAR (SAIDI):              120.45
11. CIRCUIT 5 YEAR AVERAGE (SAIFI):      1.36
12. REPORTING YEAR (SAIFI):                2.37
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

No action deemed necessary. One animal caused and one power supplier event were responsible for >50% of the customer hours and >85% of the events.

# 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 Falls of Rough
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
Approximately 0.5 miles west of Hwy 79 along Hwy 110 in Grayson County
3. CIRCUIT NAME AND NUMBER  
Fdr 3: Concord/Duff ckt
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
East along Hwy 110, across Rough River resevoir to Duff
5. TOTAL CIRCUIT LENGTH (MILES)  
65.1 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
1334
7. DATE OF LAST CIRCUIT TRIM (VM)  
2013

8

Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Unknown	5	19.23	3945.76	2721.00	177.47	2.04
Storms	7	26.92	1545.40	858.00	69.51	0.64
Trees out of R/W	3	11.54	212.95	67.00	9.58	0.05
Pre-Arranged	5	19.23	76.43	65.00	3.44	0.05
Line Hardware	1	3.85	34.91	23.00	1.57	0.02
Birds/Animals	2	7.69	19.56	18.00	0.88	0.01
KVA	3	11.54	12.96	7.00	0.58	0.01

9. CIRCUIT 5 YEAR AVERAGE (SAIDI): 82.71
10. REPORTING YEAR (SAIDI): 263.03
11. CIRCUIT 5 YEAR AVERAGE (SAIFI): 0.88
12. REPORTING YEAR (SAIFI): 2.82
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

No action deemed necessary. One `unknown' was probably due to an overheight truck or breaking a neutral, flipping it into the circuit and one other `unknown' that caused a whole feeder outage was never found, but could have been a car/truck striking a pole during the morning commute.

# 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 0.5 miles west of Hwy 79 along Hwy 110 in Grayson County
3. CIRCUIT NAME AND NUMBER  
Fdr 4: Fordsville/Pattyville ckt
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
Westalong Hwy 110 to Hwy 54
5. TOTAL CIRCUIT LENGTH (MILES)  
37.3 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
177
7. DATE OF LAST CIRCUIT TRIM (VM)  
2013
- 8

Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Storms	10	71.43	1606.93	573.00	544.72	3.24
Unknown	2	14.29	14.05	11.00	4.76	0.06
Pre-Arranged	1	7.14	0.31	1.00	0.10	0.01
KVA	1	7.14	2.02	1.00	0.69	0.01

9. CIRCUIT 5 YEAR AVERAGE (SAIDI): 76.09
10. REPORTING YEAR (SAIDI): 550.27
11. CIRCUIT 5 YEAR AVERAGE (SAIFI): 0.65
12. REPORTING YEAR (SAIFI): 3.31
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

No action deemed necessary. Majority is storm related.

# 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      Fordsville
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
    Approximately 0.5 mile east of Fordsville along Hwy 54 in Ohio County
3. CIRCUIT NAME AND NUMBER  
    Fdr 1: Dunaway/town ckt
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
    West into town along Hwy 54, then north west along Hwys 69 and 1700
5. TOTAL CIRCUIT LENGTH (MILES)  
    48.9 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
    591
7. DATE OF LAST CIRCUIT TRIM (VM)  
    2014

8 Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Storms	7	26.92	1187.51	762.00	120.56	1.29
Unknown	2	7.69	743.03	618.00	75.43	1.05
Power Supplier	1	3.85	79.20	594.00	8.04	1.01
Pre-Arranged	9	34.62	38.95	26.00	3.95	0.04
Birds/Animals	2	7.69	19.07	15.00	1.94	0.03
Cutouts/OCB	1	3.85	12.46	11.00	1.27	0.02
KVA	2	7.69	4.53	3.00	0.46	0.01
Trees out of R/W	1	3.85	2.84	2.00	0.29	0.00
Conductor	1	3.85	3.20	2.00	0.32	0.00

9. CIRCUIT 5 YEAR AVERAGE (SAIDI):      47.02
10. REPORTING YEAR (SAIDI):              212.26
11. CIRCUIT 5 YEAR AVERAGE (SAIFI):      0.29
12. REPORTING YEAR (SAIFI):              3.44

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

No actions deemed necessary. A high side fuse barrel failed for no apparent reason in July, but actual cause was not found; no history of this type of failure to this date.

# 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      Fordsville
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
    Approximately 0.5 mile east of Fordsville along Hwy 54 in Ohio County
3. CIRCUIT NAME AND NUMBER  
    Fdr 2: North Hwy 261
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
    North along Hwy 261 towards McQuady
5. TOTAL CIRCUIT LENGTH (MILES)  
    70.4 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
    365
7. DATE OF LAST CIRCUIT TRIM (VM)  
    2014

8	Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
	Unknown	3	9.09	422.09	374.00	69.38	1.02
	Power Supplier	1	3.03	49.20	369.00	8.09	1.01
	Trees out of R/W	2	6.06	187.09	243.00	30.75	0.67
	Public Cause	1	3.03	317.84	215.00	52.25	0.59
	Pre-Arranged	17	51.52	58.01	48.00	9.54	0.13
	Storms	6	18.18	112.11	45.00	18.43	0.12
	Birds/Animals	1	3.03	45.22	37.00	7.43	0.10
	Line Hardware	2	6.06	26.24	16.00	4.31	0.04

9. CIRCUIT 5 YEAR AVERAGE (SAIDI):      89.21
10. REPORTING YEAR (SAIDI):              200.19
11. CIRCUIT 5 YEAR AVERAGE (SAIFI):      0.69
12. REPORTING YEAR (SAIFI):              3.69
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

No actions deemed necessary. A high side fuse barrel failed for no apparent reason in July, but actual cause was not found; no history of this type of failure to this date.



# 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 0.5 mile east of Fordsville along Hwy 54 in Ohio County
3. CIRCUIT NAME AND NUMBER  
    Fdr 3: Pattyville ckt
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
    East along Hwy 54 to Pattyville
5. TOTAL CIRCUIT LENGTH (MILES)  
    42.6 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
    220
7. DATE OF LAST CIRCUIT TRIM (VM)  
    2014

8

Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Power Supplier	1	10.00	29.20	219.00	7.96	1.00
Unknown	1	10.00	109.50	219.00	29.86	1.00
Public Cause	1	10.00	99.13	218.00	27.04	0.99
Storms	3	30.00	128.42	94.00	35.02	0.43
Trees out of R/W	1	10.00	6.87	8.00	1.87	0.04
Birds/Animals	1	10.00	2.62	2.00	0.71	0.01
KVA	1	10.00	2.10	2.00	0.57	0.01
Pre-Arranged	1	10.00	1.91	1.00	0.52	0.00

9. CIRCUIT 5 YEAR AVERAGE (SAIDI):      75.8
10. REPORTING YEAR (SAIDI):              103.57
11. CIRCUIT 5 YEAR AVERAGE (SAIFI):      0.71
12. REPORTING YEAR (SAIFI):              3.47
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

No immediate actions are deemed necessary. A high side fuse barrel failed for no apparent reason in July, but actual cause was not found. However, MCRECC will be changing out and upgrading high-side fuse assemblies and switches in the future due to their age. Also, a car struck and broke a pole in April.

# KENTUCKY PUBLIC SERVICE COMMISSION

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## 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      Hardinsburg1
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
    Immediately behind the Hardinsburg branch office in Hardinsburg in Breckinridge Count
3. CIRCUIT NAME AND NUMBER  
    Fdr 2: New Bethel ckt
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
    North along Hwy 259 to New Bethel Church and then north along Hwy 2779
5. TOTAL CIRCUIT LENGTH (MILES)  
    30.0 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
    308
7. DATE OF LAST CIRCUIT TRIM (VM)  
    2015

8

Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Power Supplier	1	7.14	61.80	309.00	12.04	1.00
Line Hardware	2	14.29	120.46	304.00	23.47	0.99
Birds/Animals	2	14.29	237.27	303.00	46.22	0.98
Storms	1	7.14	184.54	129.00	35.95	0.42
Broken Pole	1	7.14	63.91	38.00	12.45	0.12
Pre-Arranged	4	28.57	45.00	38.00	8.77	0.12
Unknown	1	7.14	8.10	18.00	1.58	0.06
Public Cause	2	14.29	8.40	6.00	1.64	0.02

9. CIRCUIT 5 YEAR AVERAGE (SAIDI):      62.69
10. REPORTING YEAR (SAIDI):              142.1
11. CIRCUIT 5 YEAR AVERAGE (SAIFI):      0.99
12. REPORTING YEAR (SAIFI):              3.72
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

No actions are deemed necessary. A snake crawled into the substation and wrapped itself around the metering equipment, causing a full substation outage in June. In March, the feeder was de-energized for 10 minutes to safely correct a hardware failure downline

# 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      Hardinsburg1
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
    Immediately behing the Hardinsburg branch office in Hardinsburg in Breckinridge Count
3. CIRCUIT NAME AND NUMBER  
    Fdr 3: Downtown ckt
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
    West along Old Hwy 60 in Hardinsburg and south along Hwy 261 to the FFA Camp
5. TOTAL CIRCUIT LENGTH (MILES)  
    3.8 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
    281
7. DATE OF LAST CIRCUIT TRIM (VM)  
    2015
- 8

Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Power Supplier	1	6.67	56.20	281.00	12.00	1.00
Birds/Animals	1	6.67	218.55	279.00	46.67	0.99
Other	1	6.67	94.27	105.00	20.13	0.37
Pre-Arranged	11	73.33	275.44	36.00	58.81	0.13
KVA	1	6.67	4.61	7.00	0.98	0.02

9. CIRCUIT 5 YEAR AVERAGE (SAIDI):      23.07
10. REPORTING YEAR (SAIDI):              138.59
11. CIRCUIT 5 YEAR AVERAGE (SAIFI):      0.44
12. REPORTING YEAR (SAIFI):              2.52
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

No actions are deemed necessary. A snake crawled into the substation and wrapped itself around the metering equipment, causing a full substation outage in June.

# 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 #11:**

1. SUBSTATION NAME AND NUMBER      Hardinsburg1
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
    Immediately behing the Hardinsburg branch office in Hardinsburg in Breckinridge Count
3. CIRCUIT NAME AND NUMBER  
    Fdr 6: Hospital/Fairgrounds ckt
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
    One half of a double ckt southeast along Old Hwy 60 in Hardinsburg to the fairgrounds
5. TOTAL CIRCUIT LENGTH (MILES)  
    6.7 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
    276
7. DATE OF LAST CIRCUIT TRIM (VM)  
    2015
- 8

Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Birds/Animals	1	33.33	218.55	279.00	47.51	1.01
Power Supplier	1	33.33	53.80	269.00	11.70	0.97
Line Hardware	1	33.33	3.03	2.00	0.66	0.01

9. CIRCUIT 5 YEAR AVERAGE (SAIDI):      43.97
10. REPORTING YEAR (SAIDI):              59.86
11. CIRCUIT 5 YEAR AVERAGE (SAIFI):      0.83
12. REPORTING YEAR (SAIFI):              1.99
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

No actions are deemed necessary. A snake crawled into the substation and wrapped itself around the metering equipment, causing a full substation outage in June.

# 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 #12:**

1. SUBSTATION NAME AND NUMBER      Hardinsburg1
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
    Immediately behing the Hardinsburg branch office in Hardinsburg in Breckinridge Count
3. CIRCUIT NAME AND NUMBER  
    Fdr 7: FFA Camp ckt
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
    Across Old US 60 southwest to the FFA camp
5. TOTAL CIRCUIT LENGTH (MILES)  
    2.5 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
    131
7. DATE OF LAST CIRCUIT TRIM (VM)  
    2015
- 8

Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Birds/Animals	4	66.67	131.65	188.00	60.30	1.44
Power Supplier	1	16.67	26.40	132.00	12.09	1.01
Unknown	1	16.67	8.88	13.00	4.07	0.10

9. CIRCUIT 5 YEAR AVERAGE (SAIDI):      32.31
10. REPORTING YEAR (SAIDI):                      76.46
11. CIRCUIT 5 YEAR AVERAGE (SAIFI):      0.62
12. REPORTING YEAR (SAIFI):                      2.54
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

No actions are deemed necessary. A snake crawled into the substation and wrapped itself around the metering equipment, causing a full substation outage in June.

# 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 #13:**

1. SUBSTATION NAME AND NUMBER      Hardinsburg1
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
    Immediately behind the Hardinsburg branch office in Hardinsburg in Breckinridge Count
3. CIRCUIT NAME AND NUMBER  
    Fdr 8: Codyville ckt
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
    Southeast along Old US 60 and new US 60 to Harned
5. TOTAL CIRCUIT LENGTH (MILES)  
    16.8 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
    533
7. DATE OF LAST CIRCUIT TRIM (VM)  
    2015

8

Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Birds/Animals	5	31.25	541.36	676.00	60.94	1.27
Power Supplier	1	6.25	106.40	532.00	11.98	1.00
Other	1	6.25	70.25	281.00	7.91	0.53
Storms	3	18.75	72.42	116.00	8.15	0.22
Pre-Arranged	1	6.25	52.17	43.00	5.87	0.08
KVA	3	18.75	14.58	8.00	1.64	0.02
Line Hardware	1	6.25	3.08	5.00	0.35	0.01
Unknown	1	6.25	0.83	1.00	0.09	0.00

9. CIRCUIT 5 YEAR AVERAGE (SAIDI):      32.38
10. REPORTING YEAR (SAIDI):              96.93
11. CIRCUIT 5 YEAR AVERAGE (SAIFI):      0.58
12. REPORTING YEAR (SAIFI):              3.12
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

No actions are deemed necessary. A snake crawled into the substation and wrapped itself around the metering equipment, causing a full substation outage in June.

# 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 #14:**

1. SUBSTATION NAME AND NUMBER      Hardinsburg2
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
Northeast corner of US-60 and Old US-60 intersection in west Hardinsburg in
3. CIRCUIT NAME AND NUMBER      Breckinridge County  
Fdr 1: South Hwy 261/McQuady ckt
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
South from sub to Hwy 261, then south on Hwy 261 past McQuady; also south along
5. TOTAL CIRCUIT LENGTH (MILES)      Hwy 108 to Hwy 105  
92.2 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
661
7. DATE OF LAST CIRCUIT TRIM (VM)  
2016

8	Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
	Unknown	7	15.56	701.32	747.00	63.66	1.13
	Storms	15	33.33	1867.63	686.00	169.53	1.04
	Birds/Animals	5	11.11	335.33	671.00	30.44	1.02
	Public Cause	3	6.67	42.44	78.00	3.85	0.12
	Trees out of R/W	2	4.44	82.73	61.00	7.51	0.09
	Line Hardware	1	2.22	100.56	50.00	9.13	0.08
	Pre-Arranged	10	22.22	16.32	27.00	1.48	0.04
	Trees in R/W	1	2.22	10.40	11.00	0.94	0.02
	KVA	1	2.22	1.25	1.00	0.11	0.00

9. CIRCUIT 5 YEAR AVERAGE (SAIDI):      55.97
10. REPORTING YEAR (SAIDI):      286.65
11. CIRCUIT 5 YEAR AVERAGE (SAIFI):      0.57
12. REPORTING YEAR (SAIFI):      3.53
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

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 #15:**

1. SUBSTATION NAME AND NUMBER      McDaniels
2. SUBSTATION LOCATION (COUNTY-ROAD-TOWN)  
On Hwy 259 approximately 1.5 miles east of the Hwy 259 intersection in southern
3. CIRCUIT NAME AND NUMBER      Breckinridge County  
Fdr 1: Hinton Hills ckt
4. CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)  
West along Hwy 259, then west along Hwy 79 to Hwy 105
5. TOTAL CIRCUIT LENGTH (MILES)  
31.7 miles
6. CUSTOMER COUNT FOR THIS CIRCUIT  
843
7. DATE OF LAST CIRCUIT TRIM (VM)  
2012
- 8

Cause	Count	Percentage	Customer-hours	Customers	SAIDI	SAIFI
Storms	12	50.00	2396.90	1349.00	170.60	1.60
Line Hardware	2	8.33	301.88	177.00	21.49	0.21
Pre-Arranged	6	25.00	69.37	94.00	4.94	0.11
Trees out of R/W	2	8.33	156.23	66.00	11.12	0.08
Unknown	1	4.17	10.00	10.00	0.71	0.01
Birds/Animals	1	4.17	1.24	2.00	0.09	0.00

9. CIRCUIT 5 YEAR AVERAGE (SAIDI):      91.87
10. REPORTING YEAR (SAIDI):      208.94
11. CIRCUIT 5 YEAR AVERAGE (SAIFI):      1.00
12. REPORTING YEAR (SAIFI):      2.01
13. LIST OF CORRECTIVE ACTION, IF ANY, TAKEN OR TO BE TAKEN

No actions are deemed necessary





# 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 concerning trends regarding vegetation related outages in 2016. Scheduled substation trimming has progressed as planned and no changes to the 2017 schedule are anticipated. There is also no change in the vegetation management plan.

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## SECTION 7: UTILITY COMMENTS

Power supplier related outages were evident again in 2016 with two separate system-wide incidents. Some substations experienced outages less than 5 minutes, therefore they were not counted into the totals. Big Rivers Electric (BREC) is experiencing a higher rate of failures of lightning arrestors of a particular vintage and is gearing up to replace them. BREC is installing additional radio controlled motor-operated switches within the MCRECC system to help improve reliability also.

The pre-arranged outages are down due to the near completion the copper conductor change-out within the MCRECC system. MCRECC will begin a 69 KV high-side fuse assembly and switch replacement in 2017 due to the age of these devices in the older substations within the system.

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