



February 16, 2016

Mr. Jeff Derouen, Executive Director  
Kentucky Public Service Commission  
211 Sower Blvd.  
PO Box 615  
Frankfort, KY 40602

RECEIVED

FEB 18 2016

Public Service  
Commission

RE: Administrative Case No. 2011-00450

Dear Mr. Derouen:

Please find an original paper copy and an electronic version of Shelby Energy's 2015 Distribution Reliability Report as outlined in the May 30, 2013 Order and the April 1, 2014 Order pertaining to Administrative Case No. 2011-00450.

Please let me know should you have any questions or need further information.

Sincerely,

A handwritten signature in black ink that reads "Nick Morris".

*Nick Morris*

*Engineering Manager*

Work: 502-633-4420

[Nick@shelbyenergy.com](mailto:Nick@shelbyenergy.com)

Enclosures

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[www.shelbyenergy.com](http://www.shelbyenergy.com)

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*Shelby Energy is an equal opportunity provider and employer.*

# KENTUCKY PUBLIC SERVICE COMMISSION

## Electric Distribution Utility Annual Reliability Report

### SECTION 1: CONTACT INFORMATION

UTILITY NAME	<u>Shelby Energy Cooperative, Inc</u>
REPORT PREPARED BY	<u>Nick Morris, Manager of Engineering</u>
E-MAIL ADDRESS OF PREPARER	<u><a href="mailto:Nick@shelbyenergy.com">Nick@shelbyenergy.com</a></u>
PHONE NUMBER OF PREPARER	<u>502-633-4420 Ext. 523</u>

### SECTION 2: REPORT YEAR

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

$T_{MED}$	<u>12.07</u>
FIRST DATE USED TO DETERMINE $T_{MED}$	<u>1-Jan-10</u>
LAST DATE USED TO DETERMINE $T_{MED}$	<u>31-Dec-14</u>
NUMBER OF MED IN REPORT YEAR	<u>6</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>15,854</u>	TOTAL CIRCUITS <u>41</u>

Excluding MED	
5 YEAR AVERAGE	REPORTING YEAR
SAIDI <u>109.22</u>	SAIDI <u>106.56</u>
SAIFI <u>0.98</u>	SAIFI <u>0.99</u>

Including MED	
5 YEAR AVERAGE	REPORTING YEAR
SAIDI <u>239.91</u>	SAIDI <u>225.81</u>
SAIFI <u>1.45</u>	SAIFI <u>1.46</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 April 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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## Electric Distribution Utility Annual Reliability Report

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### SECTION 5: CIRCUIT REPORTING

(CIRCUITS WITH SAIDI AND/OR SAIFI EXCEEDING 5 YEAR AVERAGE)  
(CIRCUITS NUMBERS SHOULD BE REPORTED EXCLUDING MED)

Circuit #

- 1 SUBSTATION NAME AND NUMBER
- 2 SUBSTATION LOCATION (COUNTY-ROAD-TOWN)
- 3 CIRCUIT NAME AND NUMBER
- 4 CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)
- 5 TOTAL CIRCUIT LENGTH (MILES)
- 6 CUSTOMER COUNT FOR THIS CIRCUIT
- 7 DATE OF LAST CIRCUIT TRIM (VM)
- 8 OUTAGE CAUSES W/ % OF TOTAL OUTAGE NUMBERS BY EACH CAUSE
- 9 CIRCUIT 5 YEAR AVERAGE (SAIDI)
- 10 REPORTING YEAR (SAIDI)
- 11 CIRCUIT 5 YEAR AVERAGE (SAIFI)
- 12 REPORTING YEAR (SAIFI)
- 13 CORRECTIVE ACTION PLAN

REPEAT INFORMATION FOR EACH CIRCUIT EXCEEDING ITS 5 YEAR AVERAGE  
FOR SAIDI AND/OR SAIFI

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## Electric Distribution Utility Annual Reliability Report

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Additional pages may be attached as necessary

SECTION 6: VEGETATION MANAGEMENT PLAN REVIEW  
INCLUDE CURRENT VEGETATION MANAGEMENT PLAN

Additional pages may be attached as necessary

Please see attachment

# KENTUCKY PUBLIC SERVICE COMMISSION

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## Electric Distribution Utility Annual Reliability Report

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### SECTION 7: UTILITY COMMENTS

**Section 5: Circuit Reporting**

Circuits with SAIDI and/or SAIFI Exceeding 5 Year Average  
(Excluding Major Event Days)

1	Sub Name & Number	<b>Logan #1 – Sub 1</b>
2	Substation Location	Brunerstown Road
3	Circuit Name & Number	Finchville – Olive Branch: Circuit #2
4	Circuit Location (County)	Shelby County
5	Total Circuit Length (Miles)	20.37
6	Customers on Circuit	153
7	Date of Last Circuit Trim (VM)	2015
8	Outage Cause w/ % of Total	Trees: 64% / Equipment: 20% / Power Supplier: 10%
9	SAIDI 5-Year Average	74.11
10	Reporting Year SAIDI	427.23
11	SAIFI 5-Year Average	0.85
12	Reporting Year SAIFI	2.22
13	Corrective Action, If Any, Taken or to be Taken	Cut ROW in 2015

1	Sub Name & Number	<b>Logan #1 – Sub 1</b>
2	Substation Location	Brunerstown Road
3	Circuit Name & Number	Simpsonville: Circuit #3
4	Circuit Location (County)	Shelby County
5	Total Circuit Length (Miles)	70.02
6	Customers on Circuit	561
7	Date of Last Circuit Trim (VM)	2011
8	Outage Cause w/ % of Total	Power Supplier: 60% / Lightning: 12% / Wind: 10%
9	SAIDI 5-Year Average	132.49
10	Reporting Year SAIDI	72.73
11	SAIFI 5-Year Average	0.99
12	Reporting Year SAIFI	1.24
13	Corrective Action, If Any, Taken or to be Taken	None at this time

1	Sub Name & Number	<b>Clayvillage – Sub 2</b>
2	Substation Location	Benson Pike
3	Circuit Name & Number	Cedarmore: Circuit #3
4	Circuit Location (County)	Shelby County
5	Total Circuit Length (Miles)	150.52
6	Customers on Circuit	1,130
7	Date of Last Circuit Trim (VM)	2012
8	Outage Cause w/ % of Total	Ice, Sleet, Frost: 29% / Wind: 27% / Trees: 9%
9	SAIDI 5-Year Average	109.99
10	Reporting Year SAIDI	145.09
11	SAIFI 5-Year Average	1.34
12	Reporting Year SAIFI	0.82
13	Corrective Action, If Any, Taken or to be Taken	None at this time

1	Sub Name & Number	<b>Clayvillage – Sub 2</b>
2	Substation Location	Benson Pike
3	Circuit Name & Number	Rocket Lane: Circuit #5
4	Circuit Location (County)	Shelby County
5	Total Circuit Length (Miles)	9.45
6	Customers on Circuit	266
7	Date of Last Circuit Trim (VM)	2013
8	Outage Cause w/ % of Total	Vehicles-Machinery: 46% / Sch. Construction: 30%
9	SAIDI 5-Year Average	40.60
10	Reporting Year SAIDI	61.52
11	SAIFI 5-Year Average	0.63
12	Reporting Year SAIFI	2.12
13	Corrective Action, If Any, Taken or to be Taken	Portion of line was relocated to underground in 2015

1	Sub Name & Number	<b>Campbellsburg – Sub 4</b>
2	Substation Location	Orem Lane
3	Circuit Name & Number	Perry Park: Circuit #2
4	Circuit Location (County)	Henry & Owen County
5	Total Circuit Length (Miles)	96.92
6	Customers on Circuit	591
7	Date of Last Circuit Trim (VM)	2013
8	Outage Cause w/ % of Total	Vehicles-Machinery: 80%
9	SAIDI 5-Year Average	113.16
10	Reporting Year SAIDI	399.12
11	SAIFI 5-Year Average	0.89
12	Reporting Year SAIFI	2.46
13	Corrective Action, If Any, Taken or to be Taken	None at this time

1	Sub Name & Number	<b>Campbellsburg – Sub 4</b>
2	Substation Location	Orem Lane
3	Circuit Name & Number	Hillsborough: Circuit #3
4	Circuit Location (County)	Henry County
5	Total Circuit Length (Miles)	56.95
6	Customers on Circuit	469
7	Date of Last Circuit Trim (VM)	2014
8	Outage Cause w/ % of Total	Unknown-Other: 44% / Equipment Failure: 38%
9	SAIDI 5-Year Average	92.03
10	Reporting Year SAIDI	381.21
11	SAIFI 5-Year Average	1.11
12	Reporting Year SAIFI	3.59
13	Corrective Action, If Any, Taken or to be Taken	None at this time

1	Sub Name & Number	<b>Bedford – Sub 5</b>
2	Substation Location	Cutshaw Lane
3	Circuit Name & Number	Kings Ridge-Palmyra: Circuit #1
4	Circuit Location (County)	Trimble & Carroll County
5	Total Circuit Length (Miles)	68.81
6	Customers on Circuit	617
7	Date of Last Circuit Trim (VM)	2015
8	Outage Cause w/ % of Total	Trees: 99%
9	SAIDI 5-Year Average	108.80
10	Reporting Year SAIDI	387.68
11	SAIFI 5-Year Average	0.69
12	Reporting Year SAIFI	2.09
13	Corrective Action, If Any, Taken or to be Taken	Cut ROW in 2015

1	Sub Name & Number	<b>Southville – Sub 6</b>
2	Substation Location	Hempridge Road
3	Circuit Name & Number	Pea Ridge: Circuit #2
4	Circuit Location (County)	Shelby & Spencer County
5	Total Circuit Length (Miles)	40.78
6	Customers on Circuit	243
7	Date of Last Circuit Trim (VM)	2012
8	Outage Cause w/ % of Total	Vehicles-Machinery: 44% / Equip: 29% / Lightning: 19%
9	SAIDI 5-Year Average	76.51
10	Reporting Year SAIDI	105.77
11	SAIFI 5-Year Average	0.60
12	Reporting Year SAIFI	0.51
13	Corrective Action, If Any, Taken or to be Taken	None at this time

1	Sub Name & Number	<b>Budd – Sub 8</b>
2	Substation Location	Old Brunerstown Road
3	Circuit Name & Number	Budd Company: Circuit #1
4	Circuit Location (County)	Shelby County
5	Total Circuit Length (Miles)	.08
6	Customers on Circuit	1
7	Date of Last Circuit Trim (VM)	2013
8	Outage Cause w/ % of Total	Power Supplier: 100%
9	SAIDI 5-Year Average	14.64
10	Reporting Year SAIDI	43.80
11	SAIFI 5-Year Average	0.20
12	Reporting Year SAIFI	1.00
13	Corrective Action, If Any, Taken or to be Taken	None at this time

1	Sub Name & Number	<b>Bekaert #1 – Sub 9</b>
2	Substation Location	Shelby Country Industrial Park
3	Circuit Name & Number	Alcan: Circuit #2
4	Circuit Location (County)	Shelby County
5	Total Circuit Length (Miles)	4.13
6	Customers on Circuit	4
7	Date of Last Circuit Trim (VM)	2013
8	Outage Cause w/ % of Total	Power Supplier: 100%
9	SAIDI 5-Year Average	73.84
10	Reporting Year SAIDI	43.80
11	SAIFI 5-Year Average	0.67
12	Reporting Year SAIFI	1.00
13	Corrective Action, If Any, Taken or to be Taken	None at this time

1	Sub Name & Number	<b>Logan #2 – Sub 10</b>
2	Substation Location	Brunerstown Road
3	Circuit Name & Number	Industrial Park – Circuit #5
4	Circuit Location (County)	Shelby County
5	Total Circuit Length (Miles)	83.45
6	Customers on Circuit	915
7	Date of Last Circuit Trim (VM)	2011
8	Outage Cause w/ % of Total	Small Animals: 50% / Power Supplier: 39%
9	SAIDI 5-Year Average	1.78
10	Reporting Year SAIDI	1.97
11	SAIFI 5-Year Average	168.05
12	Reporting Year SAIFI	113.68
13	Corrective Action, If Any, Taken or to be Taken	None at this time

1	Sub Name & Number	<b>Jericho – Sub 11</b>
2	Substation Location	Lake Jericho Road
3	Circuit Name & Number	Veneer Plant: Circuit #1
4	Circuit Location (County)	Henry County
5	Total Circuit Length (Miles)	64.30
6	Customers on Circuit	707
7	Date of Last Circuit Trim (VM)	2013
8	Outage Cause w/ % of Total	Small Animals: 58% / Wind: 17% / Equipment: 9%
9	SAIDI 5-Year Average	48.19
10	Reporting Year SAIDI	91.67
11	SAIFI 5-Year Average	0.34
12	Reporting Year SAIFI	1.10
13	Corrective Action, If Any, Taken or to be Taken	None at this time



1	Sub Name & Number	<b>Jericho – Sub 11</b>
2	Substation Location	Lake Jericho Road
3	Circuit Name & Number	Pendleton: Circuit #2
4	Circuit Location (County)	Henry & Trimble County
5	Total Circuit Length (Miles)	28.49
6	Customers on Circuit	513
7	Date of Last Circuit Trim (VM)	2011
8	Outage Cause w/ % of Total	Small Animals: 72% / Trees 5% / Sch. Construction 5%
9	SAIDI 5-Year Average	44.95
10	Reporting Year SAIDI	77.60
11	SAIFI 5-Year Average	0.40
12	Reporting Year SAIFI	1.41
13	Corrective Action, If Any, Taken or to be Taken	ROW Trim – Scheduled for 2016

1	Sub Name & Number	<b>Jericho – Sub 11</b>
2	Substation Location	Lake Jericho Road
3	Circuit Name & Number	Smithfield: Circuit #3
4	Circuit Location (County)	Henry & Shelby County
5	Total Circuit Length (Miles)	51.66
6	Customers on Circuit	439
7	Date of Last Circuit Trim (VM)	2011
8	Outage Cause w/ % of Total	Small Animals: 76% / Vehicles-Machinery: 21%
9	SAIDI 5-Year Average	39.88
10	Reporting Year SAIDI	64.80
11	SAIFI 5-Year Average	0.51
12	Reporting Year SAIFI	1.21
13	Corrective Action, If Any, Taken or to be Taken	CWP Project: Re-build approximately 5.8 miles

1	Sub Name & Number	<b>Bekaert #2 – Sub 12</b>
2	Substation Location	Shelby Country Industrial Park
3	Circuit Name & Number	Lowes/Walmart: Circuit #2
4	Circuit Location (County)	Shelby County
5	Total Circuit Length (Miles)	4.87
6	Customers on Circuit	18
7	Date of Last Circuit Trim (VM)	2013
8	Outage Cause w/ % of Total	Power Supplier: 93% / Small Animals: 7%
9	SAIDI 5-Year Average	64.28
10	Reporting Year SAIDI	47.13
11	SAIFI 5-Year Average	0.91
12	Reporting Year SAIFI	1.06
13	Corrective Action, If Any, Taken or to be Taken	None at this time

1	Sub Name & Number	<b>Bekaert #2 – Sub 12</b>
2	Substation Location	Shelby Country Industrial Park
3	Circuit Name & Number	Omega #1: Circuit #3
4	Circuit Location (County)	Shelby County
5	Total Circuit Length (Miles)	1.42
6	Customers on Circuit	13
7	Date of Last Circuit Trim (VM)	2013
8	Outage Cause w/ % of Total	Power Supplier: 100%
9	SAIDI 5-Year Average	67.45
10	Reporting Year SAIDI	43.80
11	SAIFI 5-Year Average	0.91
12	Reporting Year SAIFI	1.00
13	Corrective Action, If Any, Taken or to be Taken	None at this time

1	Sub Name & Number	<b>Long Run – Sub 13</b>
2	Substation Location	Aiken Road
3	Circuit Name & Number	Persimmon Ridge: Circuit #1
4	Circuit Location (County)	Jefferson & Shelby County
5	Total Circuit Length (Miles)	11.68
6	Customers on Circuit	326
7	Date of Last Circuit Trim (VM)	2014
8	Outage Cause w/ % of Total	Scheduled Maintenance: 100%
9	SAIDI 5-Year Average	56.02
10	Reporting Year SAIDI	14.84
11	SAIFI 5-Year Average	0.67
12	Reporting Year SAIFI	1.21
13	Corrective Action, If Any, Taken or to be Taken	None at this time

1	Sub Name & Number	<b>Bekaert #3 – Sub 14</b>
2	Substation Location	Shelby Country Industrial Park
3	Circuit Name & Number	Sigma: Circuit #2
4	Circuit Location (County)	Shelby County
5	Total Circuit Length (Miles)	0.64
6	Customers on Circuit	1
7	Date of Last Circuit Trim (VM)	2013
8	Outage Cause w/ % of Total	Power Supplier: 66% / Lightning: 34%
9	SAIDI 5-Year Average	47.58
10	Reporting Year SAIDI	66
11	SAIFI 5-Year Average	0.55
12	Reporting Year SAIFI	2.00
13	Corrective Action, If Any, Taken or to be Taken	None at this time

1	Sub Name & Number	<b>Veechdale – Sub 15</b>
2	Substation Location	Interstate 64
3	Circuit Name & Number	Simpsonville/Truck Stop: Circuit #1
4	Circuit Location (County)	Shelby County
5	Total Circuit Length (Miles)	3.86
6	Customers on Circuit	99
7	Date of Last Circuit Trim (VM)	2013
8	Outage Cause w/ % of Total	Power Supplier: 100%
9	SAIDI 5-Year Average	0.17
10	Reporting Year SAIDI	43.20
11	SAIFI 5-Year Average	0.00
12	Reporting Year SAIFI	1.00
13	Corrective Action, If Any, Taken or to be Taken	None at this time

1	Sub Name & Number	<b>Veechdale – Sub 15</b>
2	Substation Location	Interstate 64
3	Circuit Name & Number	Mall North: Circuit #2
4	Circuit Location (County)	Shelby County
5	Total Circuit Length (Miles)	2.04
6	Customers on Circuit	57
7	Date of Last Circuit Trim (VM)	2013
8	Outage Cause w/ % of Total	Power Supplier: 100%
9	SAIDI 5-Year Average	0.00
10	Reporting Year SAIDI	43.20
11	SAIFI 5-Year Average	0.00
12	Reporting Year SAIFI	1.00
13	Corrective Action, If Any, Taken or to be Taken	None at this time

1	Sub Name & Number	<b>Veechdale – Sub 15</b>
2	Substation Location	Interstate 64
3	Circuit Name & Number	Mall South: Circuit #3
4	Circuit Location (County)	Shelby County
5	Total Circuit Length (Miles)	2.09
6	Customers on Circuit	56
7	Date of Last Circuit Trim (VM)	2013
8	Outage Cause w/ % of Total	Power Supplier: 100%
9	SAIDI 5-Year Average	0.00
10	Reporting Year SAIDI	43.20
11	SAIFI 5-Year Average	0.00
12	Reporting Year SAIFI	1.00
13	Corrective Action, If Any, Taken or to be Taken	None at this time

## Section 6: Vegetation Management Plan Review

### VEGETATION MANAGEMENT PLAN (VMP)

Shelby Energy Cooperative ("Shelby") is an electric distribution system serving ten (10) counties in north-central Kentucky: Shelby, Henry, Trimble, Carroll, Owen, Oldham, Jefferson, Franklin, Spencer, and Anderson. The system consists of approximately 15,854 meters / accounts and approximately 1,788 miles of overhead and underground primary conductor. Shelby has approximately 384 miles of secondary and services. Members are served by fifteen (15) substations that are owned and operated by East Kentucky Power Cooperative with headquarters in Winchester, KY. An attachment showing the service territory and substations for Shelby is included (Exhibit 1).

Vegetation management (VM) plays an integral role in accomplishing the mission statement for Shelby Energy Cooperative:

*"Shelby Energy Cooperative will provide safe, reliable and cost-effective energy service, while preserving our environment. Our mission is to educate members, employees, and the public with knowledge and tools to use energy safely and efficiently to enhance their quality of life."*

Maintaining effective VM is a major factor in promoting a safer environment within Shelby's certified territory. VM reduces the possibility of accidental contact with energized power lines thus providing safer conditions for the public, for employees and for contractors. Reliability and power quality enhancements are also afforded by proper VM.

### RIGHT OF WAY (ROW) CLEARING CYCLE

Shelby uses a clearing cycle of five (5) to six (6) years that combines ROW trimming, spraying and mowing. The variance of five (5) to six (6) years is used to adjust the clearing cycle based on yearly growing conditions. This in turn helped Shelby prioritize the circuits to be managed. Hourly contract cutting crews (crews) are utilized by Shelby with no less than one (1) crew working year around as weather and/or work permits.

Routinely one (1) spray crew is used several months during the summer season to control undergrowth in areas where the ROW was trimmed/cut the previous year. The spraying is focused in cross country areas where high undergrowth problems are recognized. On average, 350 circuit-miles are cleared of vegetation by trimming, cutting and/or spraying annually. Shelby elected in 2012 to bid feeders to different tree service companies. These companies utilize their employees and equipment to ensure the ROW is maintained in the manner we require.

These crews and equipment enables Shelby to cover more rough terrain and clear ROW issues in many cross country locations. Shelby complies with the RUS ROW Clearing Guide ~ M1.30G.

#### **PERFORMANCE OF MAINTENANCE**

The ROW clearing cycle is established and adjusted as needed to manage the ROW cycle and maintain a high standard of service, quality and reliability. Trouble areas receive timely attention to resolve associated outage or service issues as discovered. Shelby O&E personnel and contractors report problems during their routine work and patrolling efforts to define locations requiring attention to ROW issues. These issues are handled on a case-by-case basis depending upon the severity of the issue.

#### **RELIABILITY CRITERIA AND REPORTS**

Shelby's Operations and Engineering (O&E) employees monitor daily, monthly, and annual outage reports and service requests initiated by employees, contractors and cooperative members. This information is reviewed to determine if trends exist indicating a deterioration of service quality or reliability within any specific area. In addition, Shelby utilizes the services of a professional engineering consultant to review outage data and assist in resolving service quality or reliability issues.

#### **PLAN EVALUATION**

Shelby regularly monitors outages to determine their underlying cause(s). These findings are reviewed monthly, annually, and over a rolling five (5) year period to determine if trending indicates a decline in service quality or reliability is developing within an area of the cooperative's system. Employees of Shelby's O&E department work with a professional engineering consultant to calculate, review, and evaluate standard reliability indices of SAIFI, SAIDI, and CAIDI. Shelby's O&E personnel and its professional engineering consultant continuously monitor and verify that reliability issues are resolved in such a manner that best benefits the members of the cooperative.

Exhibit #1



## SHELBY ENERGY COOPERATIVE SERVICE AREA

Exhibit #2

