



**Big Sandy Rural Electric  
Cooperative Corporation**

504 11th Street  
Paintsville, Kentucky 41240-1422  
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PUBLIC SERVICE  
COMMISSION

March 31, 2017

Dr. Talina Matthews, Executive Director  
Kentucky Public Service Commission  
211 Sower Blvd.  
Frankfort, KY 40602

RE: Administrative Case No. 2011-00450

Dear Dr. Matthews:

Please find an original paper copy and an electronic version of Big Sandy's 2016 Distribution Reliability Report in the April 1, 2014 Order pertaining to Administrative Case No. 2011-00450.

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

Sincerely,

*Jeff Prater*

Vice President/Operation Manager  
Big Sandy RECC  
504 11<sup>th</sup> Street  
Paintsville, KY 41240  
606-789-4095 EXT 227  
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Enclosures

# KENTUCKY PUBLIC SERVICE COMMISSION

## Electric Distribution Utility Annual Reliability Report

### SECTION 1: CONTACT INFORMATION

UTILITY NAME	Big Sandy RECC
REPORT PREPARED BY	Jeff Prater
E-MAIL ADDRESS OF PREPARER	<a href="mailto:jprater@bigsandyrecc.com">jprater@bigsandyrecc.com</a>
PHONE NUMBER OF PREPARER	606-791-4095

### SECTION 2: REPORTING YEAR

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

$T_{MED}$	33.18
FIRST DATE USED TO DETERMINE $T_{MED}$	1-Jan-12
LAST DATE USED TO DETERMINE $T_{MED}$	31-Dec-16
NUMBER OF MED IN REPORT YEAR	2

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	12,900	TOTAL CIRCUITS	36
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#### Excluding MED

	5 YEAR AVERAGE		REPORTING YEAR
SAIDI	200.70	SAIDI	322.6
SAIFI	2.56	SAIFI	2.4

#### Including MED

	5 YEAR AVERAGE		REPORTING YEAR
SAIDI	615	SAIDI	426.5
SAIFI	2.53	SAIFI	2.8

#### 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
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. LIST OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE N  
NUMBERS REPRESENTED 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

SEE ATTACHMENTS



# Big Sandy RECC

A Touchstone Energy® Cooperative 

## BIG SANDY RECC 2016 REPORTING OUTAGE CAUSES FOR CIRCUIT AND PERCENTAGES

### SAIDI/ SAIFI

<b>VOLGA #95</b>	<b>MILES-29 / MEMBERS-402</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Thelma-substation(Johnson County) Tutor Key, Rt. 581</b>				
<b>SAIDI- 433/SAIFI 3.6</b>				
430-Tree from overhang or dead tree without ice/snow		27%		8
300- Material or equipment fault/failure		13%	R/W Complete Trim	4
700- Customer -caused		10%	cycle 2011	3
740-Public cuts tree		10%		3
999-Cause unknown		10%		3
110-Maintenance		7%		2
600- Small animal/bird		7%		2
440-Trees with ice/snow		3%		1
500-Lightning		3%		1
510-Wind, not trees		3%		1
520- Ice, Sleet, Frost, not trees		3%		1
<b>CORRECTIVE ACTION:</b>				
NONE,at this time				

<b>BEECHFORK # 416</b>	<b>MILES- 36/ MEMBERS-456</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Jenny Wiley-substation (Johnson County)KY RT 3 VanLear</b>				
<b>SAIDI-597/ SAIFI 3.5</b>				
430-Tree from overhang or dead tree without ice/snow		33%		14
999- Cause unknown		12%	Complete cut 2009	5
300- Material or equipment fault/failure		10%	Hot Spots 2017	4
420- Tree growth		7%		3
100- Construction		7%		3
300-Material or equipment fault/failure		5%		3
790- Public, other		2%		2
510- Wind, not trees		2%		1
100-Maintenance		2%		1
500- Lightning		2%		1
600-Small animal/bird		2%		1
610- Large animal		2%		1
700- customer caused		2%		1

**CORRECTIVE ACTION:**

Out-of-Right/way Tree removal performed.

Re-coordination of breakers and line relocation.

<b>DENVER # 466</b>	<b>MILES- 33/ MEMBERS- 452</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Volga-substation (Johnson County) KY RT 460</b>				
<b>SAIDI-260.2/ SAIFI 1.85</b>				
430-Tree from overhang or dead tree without ice/snow		45%		25
999- Cause unknown		22%		12
440- Trees with ice/snow		5%	R/W Complete trim	3
700- Customer caused		5%	cycle-2016	3
300- Material or equipment fault/failure		4%		2
420-Tree growth		4%		2
470-Borrower crew cuts tree		4%		2
100- Construction		2%		1
510- Wind, not trees		2%		1
600- Small animal/bird		2%		1
730- Fire		2%		1
740- Public cuts tree		2%		1
790-Public, other		2%		1

**CORRECTIVE ACTION:**

NONE, at this time

<b>ST.HIGHWAY #497</b>	<b>MILES- / MEMBERS- 456</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Volga-substation (Johnson County) Staffordsville</b>				
<b>SAIDI-902/ SAIFI-3.0</b>				
430- Tree failure from overhang or dead without ice/snow		42%		5
110-Maintenance		17%	R/W Complete cut	2
999- cause unknown		17%	2011	2
420- Tree growth		8%		1
520-Ice, Sleet, Frost, not trees		8%		1
610- Large animal		8%		1

**CORRECTIVE ACTION:**

NONE, at this time

<b>Thelma #392</b>	<b>MILES-76/ MEMBERS- 1030</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Volga-substation (Johnson County) KY RT 201 Sitka</b>				
<b>SAIDI-510/SAIFI-2.88</b>				
430- Tree failure from overhang or dead without ice/snow		21%		18
110- Maintenance		16%		14
440-Trees with ice/snow		15%	Hot Spot work 2016	13
300- Material or equipment fault/failure		13%	Sprayed 2014	11
999-Cause unknown		8%		7
420- Tree growth		6%		5
590- Weather, other		6%		5

190- Other Planned	3%	3
600- Small animal, bird	3%	3
490- Maintenance, other	2%	2
500- Lightning	1%	1
510 Wind, not trees	1%	1
700- Customer-caused	1%	1
710- Motor Vehicle	1%	1

**CORRECTIVE ACTION:**

Hot spot Right-of-way work for 2017

HARGUS # 256	MILES- 49/ MEMBERS-423	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
<b>Red Bush-substation (Johnson County) Hargus/Oil Springs</b>				
<b>SAIDI-479/SAIFI-5.4</b>				

430- Tree failure from overhang or dead without ice/snow	33%			14
100-Construction	12%	R/W Complete Trim		5
700- Customer caused	10%	cycle 2012		4
440-Trees with ice/snow	7%			3
500- Lightning	7%	spray 2016		3
590- Weather, other	7%			3
999- cause unknown	7%			3
110- Maintenance	5%			2
300- Material or equipment fault/failure	2%			1
400-Decay/age of material/equipment	2%			1
420- Tree growth	2%			1
710- Motor vehicle	2%			1

**CORRECTIVE ACTION:**

NONE, at this time

OILFIELD # 34	MILES- 12/ MEMBERS-52	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
<b>Red Bush-substation (Johnson County) Martha</b>				
<b>SAIDI-591/SAIFI-5.6</b>				

430- Tree failure from overhang or dead without ice/snow	30%			6
100- Construction	25%			5
600- Small animal/bird	10%	Hot Spots 2015		2
110- Maintenance	5%			1
300- Material or equipment fault/failure	5%	Spray scheduled		1
420-Tree growth	5%	2017		1
440- Trees with ice/snow	5%			1
520- Ice, sleet, frost, not trees	5%			1
510- Wind, not trees	5%			1
590-Weather, other	5%			1
999- Cause unknown	5%			1

**CORRECTIVE ACTION:**

NONE, at this time

<b>RENO'S #656</b>	<b>MILES-4/MEMBERS-81</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Middle Creek-substation (Floyd County) Prestonsburg</b>				
<b>SAIDI-272/SAIFI-2.2</b>				
999- cause unknown		40%		2
420- Tree growth		20%	Complete R/W Trim	1
510- Wind, not trees		20%	Scheduled 2017	1
600- Small animal, bird		20%		1
<b>CORRECTIVE ACTION:</b>				
Right-of-way clearing scheduled for 2017				

<b>TIGERMART # 287</b>	<b>MILES- 12/ MEMBERS-221</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Middle Creek-substation (Floyd County) Cliff/ US 23</b>				
<b>SAIDI-509/SAIFI-2.8</b>				
999- Cause unknown		31%		11
430- Tree failure from overhang or dead without ice/snow		23%		8
340- Overload		17%	R/W Complete Trim	6
700- Customer caused		9%	2015	3
300- Material or equipment fault/failure		6%		2
440- Trees with ice/snow		6%	Spray 2016	2
100- Construction		3%		1
110- Maintenance		3%		1
500- Lightning		3%		1
<b>CORRECTIVE ACTION:</b>				
Out of Right -of-way tree removal done in 2016				

<b>SPURLOCK # 311</b>	<b>MILES-18/ MEMBERS-285</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Middle Creek-substation (Floyd County) Spurlock road</b>				
<b>SAIDI-595/SAIFI-1.42</b>				
999- Cause unknown		25%		3
100- Construction		17%		2
110- Maintenance		17%	Hot Spots 2011	2
300- Material or equipment fault/failure		8%		1
420- Tree growth		8%	Spray 2011	1
430- Tree failure from overhang or dead without ice/snow		8%		1
710- Motor vehicle		8%		1
800- Other		8%		1
<b>CORRECTIVE ACTION:</b>				
NONE, at this time				

<b>Denver # 708</b>	<b>MILES-37/ MEMBERS-439</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Bonanza-substation (Floyd/Johnson Co) Denver</b>				

<b>SAIDI-265/SAIFI-2.1</b>
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430- Tree failure from overhang or dead without ice/snow	48%		13
420- Tree growth	11%		3
300- Material or equipment fault/failure	7%	Hot spots 2016	2
510- Wind, not trees	7%		2
999- Cause unknown	7%	Additional work	2
320- Conductor sag or inadequate clearance	4%	Scheduled 2017	1
600- Small animal, bird	4%		1
700- Customer caused	4%		1
740- Public cut trees	4%		1
800- Other	4%		1

**CORRECTIVE ACTION:**

Right-of-way work scheduled for 2017

<b>Abbott # 346</b>	<b>MILES-23/ MEMBERS-418</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Bonanza-substation (Floyd County) Abbott Road</b>				
<b>SAIDI-330 /SAIFI-3.03</b>				

430- Tree failure from overhang or dead without ice/snow	24%		8
420- Tree growth	21%		7
999- Cause unknown	12%	R/W Complete trim	4
300- Material or equipment fault/failure	9%	2013	3
600- Small animal, bird	6%		2
100- Construction	3%		1
110- Maintenance	3%		1
740- Trees with ice/snow	3%		1
470- Borrower crew cuts tree	3%		1
590- Weather, other	3%		1
700- Customer-caused	3%		1
730- Fire	3%		1
740- Public cuts tree	3%		1
800- Other	3%		1

**CORRECTIVE ACTION:**

NONE, at this time

<b>Decoy # 1173</b>	<b>MILES-32/ MEMBERS-156</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Salt Lick-substation (Knott County) Decoy/ Quicksand</b>				
<b>SAIDI-1346/SAIFI-60</b>				

430- Tree failure from overhang or dead without ice/snow	38%		12
790- Public, other	16%	R/W Complete Trim	5
300- Material or equipment fault/failure	9%	2016	3
999- Cause unknown	9%		3
100- Construction	6%		2
110- Maintenance	6%		2
320- conductor sag or inadequate clearance	3%		1
420- Tree growth	3%		1



490- Maintenance, other 3% 1  
 CORRECTIVE ACTION:  
 NONE, at this time

Boonscamp # 552	MILES-31/ MEMBERS-331	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
<b>Martin County-substation (Johnson County) Boonscamp</b>				
<b>SAIDI-402/SAIFI-4.8</b>				
430- Tree failure from overhang or dead without ice/snow		29%		14
800-Other		22%	R/W Complete Trim 2014	11
999- Cause unknown		10%		5
110- Maintenance		8%	Spray 2015	4
300- Material or equipment fault/failure		8%		4
100- Construction		6%		3
420- Tree growth		6%		3
710-Motor vehicle		4%		2
440- Trees with ice/snow		2%		1
500-Lightning		2%		1
600- Small animal, bird		2%		1
CORRECTIVE ACTION: NONE, at this time				

WHITEHOUSE # 550	MILES-51/MEMBERS-481	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
<b>Martin Co-substation(Johnson/Martin Co)Whitehouse</b>				
<b>SAIDI-951/SAIFI-3.68</b>				
430- Tree failure from overhang or dead without ice/snow		29%		17
999- Cause unknown		16%	Complete R/W 2013	9
440- Trees with ice/snow		9%		5
590- Weather, other		9%		5
800- Other		9%		5
300- Material or equipment fault/failure		7%		4
110- Maintenance		5%		3
420- Tree growth		5%		3
700- Customer-caused		5%		3
100- Construction		2%		1
310- Installation fault		2%		1
600- Small animal/bird		2%		1
740- Public cuts tree		2%		1
CORRECTIVE ACTION: Line Maintenance work performed in 2016				

Calloway # 756	MILES-35/MEMBERS-543	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
<b>Martin Co-substation (Martin County) Inez</b>				
<b>SAIDI-483 /SAIFI-3.68</b>				

430- Tree failure from overhang or dead without ice/snow	33%		17
700- Customer caused	17%	Hot Spot and Spray	9
300- Material or equipment fault/failure	15%	2013	8
999- Cause unknown	13%		7
420- Tree growth	10%		5
440- Trees with ice/snow	2%		1
500-Lightning	2%		1
510- Wind, not trees	2%		1
590- Weather, other	2%		1
730- Fire	2%		1
740- Public cuts tree	2%		1
<b>CORRECTIVE ACTION:</b>			
NONE, at this time			

# 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.

SEE ATTACHMENTS

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## SECTION 7: UTILITY COMMENTS



# Big Sandy RECC Vegetation Management Plan and Procedures

Monday, March 27, 2017

Big Sandy RECC has 968 miles of distribution line.

Vegetation Management clearing is scheduled on individual feeder circuits from each substation with clearing to the end of each feeder.

#### Schedule Goals:

Cutting & Clearing	7-year Cycle
Herbicide Brush Treatment	5-year Cycle
Mid-cycle yard tree work	3.5-year Cycle

Big Sandy RECC utilizes hourly paid and firm price contracts for all right of way cutting and herbicide application.

#### Circuit Prioritization

Big Sandy's staff is responsible for establishing a preventative maintenance strategy, identifying an appropriate routine maintenance cycle, prioritizing, scheduling and completing routine maintenance systematically and on the desired cycle.

Vegetation maintenance records, service interruption data, detailed Line Worker Reports, ground patrols and member-customer input all contribute to assigning priorities for vegetation maintenance each year.

There are several factors the Big Sandy's staff must consider when evaluating vegetation management needs. These include the frequency of service interruptions, vegetation quantities and characteristics, time elapsed since last treatment and member-customer requests.

#### Right-of-Way Clearance Standards

1. Pruning Guidelines for On-R/W Trees - Effective tree clearance for line reliability is dependent on the voltage of the conductor, the type of tree, its growth rate and habit. Clearance shall be accomplished by ground cutting and removing all tall-growing tree species from within the R/W, whenever approved. Where pruning of residential or landscape trees become necessary, prune so as to provide a minimum of three (3) years of clearance. The guidelines for tree clearances apply at the time of pruning and clearing and are intended to protect the wires under normal operating conditions. Special clearances may be needed at times because of field conditions. Additional allowance should be made for wires with excess sag.

2. Pruning Along Distribution R/W Edge or Off-R/W Trees - Every tree shall be trimmed ground-to-sky in accordance with ANSI A-300. To the extent practicable, these limbs shall be trimmed back to the trunk of the tree except on species that are susceptible to sun scald. Clear the R/W of all trees or brush thirty-five (35) feet wide for three phase lines and thirty (30) feet wide for single phase lines.
3. Shaping or rounding-over trees beyond the extent required to achieve the desired conductor/vegetation clearance shall not be performed, unless specifically approved by BIG SANDY or it's REPRESENTATIVE.
4. Only trees that are directly involved with BIG SANDY' overhead lines, as defined by this specification shall be pruned. Pruning trees for privately owned lines, other utility lines, or consumer lines or wiring is not permitted.
5. On all secondary lines and service drops, as directed by BIG SANDY or its REPERSENTATIVE, drops shall be cleared to the extent that the conductor can swing free of obstructions.
6. Big Sandy shall not prune trees solely for area lighting illumination.
7. All low growing desirable species, if present, may be left unless:
  - a. they create clearance problems,
  - b. mechanical, non-selective equipment (e.g. mowing) is used, or
  - c. they block access to the rights-of-way or prevent facilities maintenance.
8. Ingested wilting foliage of wild cherry is poisonous to livestock. Remove all wild cherry foliage from fields where livestock graze.
9. All stumps from manual clearing operations shall be treated with herbicides approved by BIG SANDY.

Jeff Prater



VP Operations