

2011-00450

KENTUCKY PUBLIC SERVICE COMMISSION

Electric Distribution Utility Annual Reliability Report

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COMMISSION

SECTION 1: CONTACT INFORMATION

UTILITY NAME	BIG SANDY RECC
REPORT PREPARED BY	JEFF PRATER
E-MAIL ADDRESS OF PREPARER	<u>jprater@bigsandyrecc.com</u>
PHONE NUMBER OF PREPARER	606-791-4095

SECTION 2: REPORTING YEAR

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

T_{MED}	<u>17.05</u>
FIRST DATE USED TO DETERMINE T_{MED}	<u>January 1, 2015</u>
LAST DATE USED TO DETERMINE T_{MED}	<u>31-Dec-15</u>
NUMBER OF MED IN REPORT YEAR	<u>2</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>13,000</u>	TOTAL CIRCUITS	<u>36</u>
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Excluding MED

	5 YEAR AVERAGE		REPORTING YEAR
SAIDI	<u>172.12</u>	SAIDI	<u>284.2</u>
SAIFI	<u>2.56</u>	SAIFI	<u>2.79</u>

Including MED

	5 YEAR AVERAGE		REPORTING YEAR
SAIDI	<u>575</u>	SAIDI	<u>1542</u>
SAIFI	<u>2.91</u>	SAIFI	<u>3.88</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}

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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 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

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SECTION 6: VEGETATION MANAGEMENT PLAN REVIEW

INCLUDE CURRENT VEGETATION MANAGEMENT PLAN

Additional page may be attached as needed.

SEE ATTACHMENTS



SECTION 7: UTILITY COMMENTS



Big Sandy RECC

A Touchstone Energy® Cooperative

BIG SANDY RECC 2015 REPORTING OUTAGE CAUSES FOR CIRCUIT AND PERCENTAGES

SAIDI

COW CREEK # 992

MILES- 81/ MEMBERS-1060

DATE OF LAST CIRCUIT TRIM

430-Tree from overhang or dead tree without ice/snow	8%
999- Cause unknown	7%
300- Material or equipment fault/failure	6%
510-Wind, not trees	4%
590- Weather, other	2%
420- Tree growth	2%
700- Customer caused	1%
600- Small animal/bird	1%
110- maintenance	0%

(Pre-2009) Complete cutting
Mid Cycle work in
2014 and 2015

ABBOTT # 346

MILES- 23/ MEMBERS- 418

430-Tree from overhang or dead tree without ice/snow	9%
999- Cause unknown	4%
300- Material or equipment fault/failure	3%
600- Small animal/bird	2%
420- Tree growth	2%
110- maintenance	1%
700- Customer caused	1%
510- Wind, not trees	1%
500- Lighting	0%

2013 Complete cutting

MT. PARKWAY # 608

MILES- 25/ MEMBERS- 316

430-Tree from overhang or dead tree without ice/snow	8%
300- Material or equipment fault/failure	3%
420- Tree growth	3%
999- Cause unknown	3%
510- Wind, not trees	2%
590- Weather, other	2%
110- maintenance	1%
500- Lighting	1%
600- Small animal/bird	1%
700- Customer caused	0%

Pre-2009 Complete cutting

2014 Spray

BEECH FORK # 416

MILES- 36/ MEMBERS- 456

430- Tree failure from overhang or dead without ice/snow	12%	
300- Material or equipment fault/failure	6%	
999- cause unknown	6%	
420- Tree growth	3%	
600- Small animal, bird	3%	2009 Complete cutting
590- Weather, other	3%	
110- Maintenance	2%	
510- Wind, not trees	2%	2011 Spray
500- Lightning	1%	
700- Customer caused	0%	

MIDDLE CREEK # 211	MILES- 32/ MEMBERS- 406
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430- Tree failure from overhang or dead without ice/snow	21%	
999- cause unknown	6%	
300- Material or equipment fault/failure	4%	
420- Tree growth	4%	2009 Complete cutting
600- Small animal, bird	4%	
590- Weather, other	3%	
500- Lightning	2%	
110- Maintenance	1%	
700- Customer caused	1%	
530- Flood	1%	
100- Construction	0%	

BOONES CAMP # 552	MILES- 31/ MEMBERS-331
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430- Tree failure from overhang or dead without ice/snow	13%	
420- Tree growth	9%	
300- Material or equipment fault/failure	7%	
510- Wind, not trees	3%	
999- cause unknown	4%	2014 Complete cutting
000-Power Supply	3%	
600- Small animal, bird	3%	
700- Customer caused	2%	
110- Maintenance	2%	
740- Public cut trees	1%	
590- Weather, other	0%	

CALLOWAY # 756	MILES- 35/ MEMBERS-543
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430- Tree failure from overhang or dead without ice/snow	7%	
999- cause unknown	4%	
300- Material or equipment fault/failure	3%	
420- Tree growth	3%	Pre-2009 complete cutting
590- Weather, other	2%	

600- Small animal, bird	2%	Mid cycle work on going 2016
700- Customer caused	2%	
510- Wind, not trees	2%	
500- Lightning	1%	
110- Maintenance	1%	
740- Public cuts tree	0%	

WHITEHOUSE # 550	MILES- 51/ MEMBERS-481
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430- Tree failure from overhang or dead without ice/snow	11%	2013 Complete cutting
999- cause unknown	7%	
300- Material or equipment fault/failure	4%	
420- Tree growth	3%	
510- Wind, not trees	2%	
590- Weather, other	2%	
500- Lightning	1%	
600- Small animal, bird	1%	
700- Customer caused	1%	
730- Fire	1%	
440- Tree with ice/snow	0%	

RENO'S # 234	MILES- 1/ MEMBERS-29
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420- Tree growth	6%	2015 Mid Cycle trim
300- Material or equipment fault/failure	6%	
600- Small animal, bird	6%	
700- Customer caused	6%	
999- Cause unknown	6%	
750- Vandalism	3%	
700- Customer caused	3%	
500- Lightning	3%	

SALT LICK # 308	MILES-52/ MEMBERS-895
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430- Tree failure from overhang or dead without ice/snow	7%	2015 Complete cutting
420- Tree growth	5%	
590- Weather, other	5%	
300- Material or equipment fault/failure	3%	
700- Customer caused	3%	
999- Cause unknown	2%	
110- Maintenance	2%	
510- Wind, not trees	1%	
600- Small animal, bird	1%	
000- Power Supply	1%	
500- Lightning	1%	
520- Ice, sleet, frost, not trees	0%	

SPURLOCK # 311	MILES-18/ MEMBERS-285
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430- Tree failure from overhang or dead without ice/snow	11%
300- Material or equipment fault/failure	5%
999- Cause unknown	3%
420- Tree growth	3%
110- Maintenance	1%
590- Weather, other	1%
600- Small animal, bird	1%
700- Customer caused	1%
500-Lightning	1%
740- Public cut trees	0%

2011 Spray
Mid Cycle work

HARGUS # 256	MILES-49/ MEMBERS-423
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700- Customer caused	11%
420- Tree growth	8%
300- Material or equipment fault/failure	6%
430- Tree failure from overhang or dead without ice/snow	6%
999- Cause unknown	5%
590- Weather, other	4%
000- Power Supply	1%
110- Maintenance	1%
510- Wind, not trees	1%
500-Lightning	1%
600- Small animal, bird	0%

2012 Complete cutting

VOLGA # 225	MILES-29/ MEMBERS-252
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999- Cause unknown	21%
590- Weather, other	9%
600- Small animal, bird	6%
700- Customer caused	4%
740- Public cut trees	3%
730- Fire	1%
800- Other	1%
690- Animal, other	0%

2014 Complete cutting

ROCKFORK # 679	MILES-22/MEMBERS-378
-----------------------	-----------------------------

430- Tree failure from overhang or dead without ice/snow	8%
999- Cause unknown	6%
590- Weather, other	5%
300- Material or equipment fault/failure	3%
420- Tree growth	3%
510- Wind, not trees	2%
700- Customer caused	2%

Pre-2009

Mid Cycle 2015 work

600- Small animal, bird	1%
520- Ice, sleet, frost, not trees	1%

BOONES CAMP #63	MILES-15/MEMBERS-210
------------------------	-----------------------------

430- Tree failure from overhang or dead without ice/snow	10%	
420- Tree growth	9%	
300- Material or equipment fault/failure	6%	
999- Cause unknown	6%	2015 Mid Cycle work
590- Weather, other	6%	
700- Customer caused	3%	
510- Wind, not trees	2%	
500-Lightning	2%	
600- Small animal, bird	1%	

VOLGA # 95	MILES-29/MEMBERS-402
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999- Cause unknown	6%	
430- Tree failure from overhang or dead without ice/snow	5%	
600- Small animal, bird	3%	2011 Complete cutting
300- Material or equipment fault/failure	3%	
420- Tree growth	3%	
500-Lightning	1%	
740- Public cut trees	0%	

DENVER # 466	MILES-29/MEMBERS-402
---------------------	-----------------------------

430- Tree failure from overhang or dead without ice/snow	15%	
420- Tree growth	5%	
999- Cause unknown	5%	
500-Lightning	3%	Scheduled for 2016
510- Wind, not trees	2%	
000- Power Supply	2%	
300- Material or equipment fault/failure	2%	
600- Small animal, bird	2%	
590- Weather, other	1%	
700- Customer caused	1%	

ST HWY # 497	MILES-12/MEMBERS-159
---------------------	-----------------------------

430- Tree failure from overhang or dead without ice/snow	10%	
110- Maintenance	4%	
600- Small animal, bird	4%	
000- Power Supply	3%	
510- Wind, not trees	3%	2011 Complete cutting
999- Cause unknown	3%	
100- Construction	1%	

300- Material or equipment fault/failure	1%
530- Flood	1%
740- Public cut trees	0%

THELMA # 392	MILES-76/MEMBERS-1030
---------------------	------------------------------

430- Tree failure from overhang or dead without ice/snow	5%
300- Material or equipment fault/failure	5%
590- Weather, other	4%
999- Cause unknown	4%
420- Tree growth	3%
510- Wind, not trees	3%
700- Customer caused	2%
110- Maintenance	2%
600- Small animal, bird	1%
000- Power Supply	1%
500-Lightning	0%

Pre-2009

Mid Cycle work 2015



Big Sandy RECC

A Touchstone Energy® Cooperative

BIG SANDY RECC 2015 REPORTING OUTAGE CAUSES FOR CIRCUIT AND PERCENTAGES

SAIFI

COW CREEK # 992 MILES- 81/ MEMBERS-1060

DATE OF LAST CIRCUIT TRIM

430-Tree from overhang or dead tree without ice/snow	8%
999- Cause unknown	7%
300- Material or equipment fault/failure	6%
510-Wind, not trees	4%
590- Weather, other	2%
420- Tree growth	2%
700- Customer caused	1%
600- Small animal/bird	1%
110- maintenance	0%

Pre-2009 Complete cutting

Mid Cycle work in
2014 and 2015

ABBOTT # 346 MILES- 23/ MEMBERS- 418

430-Tree from overhang or dead tree without ice/snow	9%
999- Cause unknown	4%
300- Material or equipment fault/failure	3%
600- Small animal/bird	2%
420- Tree growth	2%
110- maintenance	1%
700- Customer caused	1%
510- Wind, not trees	1%
500- Lighting	0%

2013 Complete cutting

MT. PARKWAY # 608 MILES- 25/ MEMBERS- 316

430-Tree from overhang or dead tree without ice/snow	8%
300- Material or equipment fault/failure	3%
420- Tree growth	3%
999- Cause unknown	3%
510- Wind, not trees	2%
590- Weather, other	2%
110- maintenance	1%
500- Lighting	1%
600- Small animal/bird	1%
700- Customer caused	0%

Pre-2009 Complete cutting

2014 Spray

BOONES CAMP # 552	MILES- 31/ MEMBERS-331
--------------------------	-------------------------------

430- Tree failure from overhang or dead without ice/snow	13%	
420- Tree growth	9%	
300- Material or equipment fault/failure	7%	
510- Wind, not trees	3%	
999- cause unknown	4%	2014 Complete cutting
000-Power Supply	3%	
600- Small animal, bird	3%	
700- Customer caused	2%	
110- Maintenance	2%	
740- Public cut trees	1%	
590- Weather, other	0%	

CALLOWAY # 756	MILES- 35/ MEMBERS-543
-----------------------	-------------------------------

430- Tree failure from overhang or dead without ice/snow	7%	
999- cause unknown	4%	
300- Material or equipment fault/failure	3%	
420- Tree growth	3%	Pre-2009 complete cutting
590- Weather, other	2%	
600- Small animal, bird	2%	
700- Customer caused	2%	Mid Cycle work on going
510- Wind, not trees	2%	2016
500- Lightning	1%	
110- Maintenance	1%	
740- Public cuts tree	0%	

SALT LICK # 308	MILES-52/ MEMBERS-895
------------------------	------------------------------

430- Tree failure from overhang or dead without ice/snow	7%	
420- Tree growth	5%	
590- Weather, other	5%	
300- Material or equipment fault/failure	3%	2015 Complete cutting
700- Customer caused	3%	
999- Cause unknown	2%	
110- Maintenance	2%	
510- Wind, not trees	1%	
600- Small animal, bird	1%	
000- Power Supply	1%	
500-Lightning	1%	
520- Ice, sleet, frost, not trees	0%	

SPURLOCK # 311	MILES-18/ MEMBERS-285
-----------------------	------------------------------

430- Tree failure from overhang or dead without ice/snow	11%
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300- Material or equipment fault/failure	5%	
999- Cause unknown	3%	
420- Tree growth	3%	2011 Spray
110- Maintenance	1%	
590- Weather, other	1%	Mid Cycle work
600- Small animal, bird	1%	
700- Customer caused	1%	
500-Lightning	1%	
740- Public cut trees	0%	

VOLGA # 225	MILES-29/ MEMBERS-252
--------------------	------------------------------

999- Cause unknown	21%	
590- Weather, other	9%	
600- Small animal, bird	6%	
700- Customer caused	4%	2014 Complete cutting
740- Public cut trees	3%	
730- Fire	1%	
800- Other	1%	
690- Animal, other	0%	

ST HWY # 497	MILES-12/MEMBERS-159
---------------------	-----------------------------

430- Tree failure from overhang or dead without ice/snow	10%	
110- Maintenance	4%	
600- Small animal, bird	4%	
000- Power Supply	3%	2011 Complete cutting
510- Wind, not trees	3%	
999- Cause unknown	3%	
100- Construction	1%	
300- Material or equipment fault/failure	1%	
530- Flood	1%	
740- Public cut trees	0%	

THELMA # 392	MILES-76/MEMBERS-1030
---------------------	------------------------------

430- Tree failure from overhang or dead without ice/snow	5%	
300- Material or equipment fault/failure	5%	
590- Weather, other	4%	
999- Cause unknown	4%	Pre- 2009
420- Tree growth	3%	
510- Wind, not trees	3%	Mid Cycle work 2015
700- Customer caused	2%	
110- Maintenance	2%	
600- Small animal, bird	1%	
000- Power Supply	1%	
500-Lightning	0%	

DENVER # 708

MILES-37/MEMBERS-439

430- Tree failure from overhang or dead without ice/snow	16%
999- Cause unknown	5%
300- Material or equipment fault/failure	3%
420- Tree growth	3%
510- Wind, not trees	2%
110- Maintenance	2%
590- Weather, other	2%
700- Customer caused	2%
500-Lightning	1%
600- Small animal, bird	0%

Pre-2009

Mid Cycle work 2015



Big Sandy RECC Right-of-Way Plan and Procedures

Big Sandy RECC has 968 miles of distribution line.

Big Sandy's Right-of-Way plan has been revised in order to re-establish a systematic and sustainable maintenance schedule. Right-of-Way clearing is being scheduled on individual feeder circuits from each substation with clearing to the end of each feeder.

An updated schedule beginning in 2009 and ending in 2018 is planned to cut a complete cycle through the system.

System Herbicide Application began in 2010 to augment Vegetation Management Plan.

Spraying of vines that overtake poles and guys is included as part of Big Sandy's vegetation Plan.

Big Sandy RECC plans to utilize 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

Jeff prater
VP Operations



Big Sandy Rural Electric Cooperative Corporation

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CORRECTIVE ACTION PLAN

Big Sandy will continue to aggressively trim and spray our right- of-way in an effort to reduce outage time.

RUS Code 430 is the largest amount of outage time. Code 430 is assigned to an outage where an out of ROW tree has fallen into line. Big Sandy is actively working with our line clearance contractors in an effort to identify and remove trees outside the standard ROW zone which pose a danger to the distribution system.

Herbicide work is being expanded to control woody brush under the distribution system and to treat vine growth on poles and guy wires to prevent outages.

Small animal outages are a consistent source of outages. Big Sandy has begun installing small animal guards where small animal outages have occurred.

Circuits will be patrolled in an effort to identify other system improvements such as span length reduction which has proven to help reliabilities.

Thank you,

Jeff Prater