

**KENTUCKY PUBLIC SERVICE COMMISSION**

**Electric Distribution Utility Annual Reliability Report**

**SECTION 1: CONTACT INFORMATION**

UTILITY NAME	<u>BIG SANDY RECC</u>
REPORT PREPARED BY	<u>JEFF PRATER</u>
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PHONE NUMBER OF PREPARER	<u>606-791-4095</u>

**SECTION 2: REPORTING YEAR**

CALENDAR YEAR OF REPORT	<u>2018</u>
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**SECTION 3: MAJOR EVENT DAYS (MED)**

$T_{MED}$	<u>33.9</u>
FIRST DATE USED TO DETERMINE $T_{MED}$	<u>January 1,2018</u>
LAST DATE USED TO DETERMINE $T_{MED}$	<u>31-Dec-18</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>12,693</u>	TOTAL CIRCUITS	<u>36</u>
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**Excluding MED**

	<b>5 YEAR AVERAGE</b>		<b>REPORTING YEAR</b>
SAIDI	<u>337.04</u>	SAIDI	<u>448.73</u>
SAIFI	<u>2.85</u>	SAIFI	<u>3.77</u>

**Including MED**

	<b>5 YEAR AVERAGE</b>		<b>REPORTING YEAR</b>
SAIDI	<u>718.39</u>	SAIDI	<u>780.061</u>
SAIFI	<u>3.44</u>	SAIFI	<u>4.514</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 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

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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

A Touchstone Energy® Cooperative 

## BIG SANDY RECC 2018 REPORTING OUTAGE CAUSES FOR CIRCUIT AND PERCENTAGES

### SAIDI/ SAIFI

ARKANSAS #655	MILES-35 / MEMBERS-812	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
<i>Bill Wells-Substation(Floyd County) US 23, Bull Creek KY</i>				
<b>SAIDI- 228.47/SAIFI 1.26</b>		<b>2010</b>		
<b>Five Year Average: SAIDI- 141.89 /SAIFI- 1.17</b>				
Equipment or Installation		50%		6
Maintenance		36%		15
Cause unknown		4%		8
Planned outage		4%		4
Amimals		2%		5

#### CORRECTIVE ACTION:

Out of right of way trees falling was the largest cause of outage time. Right of way to patrol for area's to remove out of ROW trees. Possible Helicopter work.

COW CREEK #992	MILES-62/ MEMBERS-1171	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
<i>Bill Wells-Substation(Floyd County) Prestonsburg, KY</i>				
<b>SAIDI-801.12/ SAIFI- 7.68</b>		<b>2018</b>		
<b>Five Year Average: SAIDI- 380.84 /SAIFI-4.312</b>				
Maintenance		62%		64
Public		10%		19
Amimals		9%		4
Equipment or Installation		9%		3
Other		3%		16
420-Tree growth		5%		10
Cause unknown		1%		16
Planned outage		1%		8

#### CORRECTIVE ACTION:

Most outages causes were Right-of-way. This circuit was trimmed in 2018. Circuit will be monitored, but no corrective action planned at this time.

MT. PARKWAY #608	MILES-25/ MEMBERS-350	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
<b>Bonanza Substation (Floyd County) RT 1427, Prestonsburg</b>				
<b>SAIDI-264.85/ SAIFI -2.05</b>		<b>2019</b>		
<b>Five Year Average: SAIDI- 200.12 /SAIFI-2.016</b>				
Maintenance		90%		28
Planned outage		3%		2
Cause unknown		2%		3
Equipment or Installation		1%		2

**CORRECTIVE ACTION:**

Cut Right-of-way in 2019. Will monitor. No other corrective action planned.

BEECH FORK #416	MILES-36 / MEMBERS-519	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
<b>Jenny Wiley (Floyd County) KY RT 3, Prestonsburg Ky</b>				
<b>SAIDI-670.93/ SAIFI-4.16</b>		<b>2009</b>		
<b>Five Year Average: SAIDI- 532.0 /SAIFI-3.56</b>				
430- Tree failure from overhang or dead without ice/snow		86%		19
Cause Unknown		6%		13
Equipment or Installation		3%		5
Weather		2%		5
Public		1%		6

**CORRECTIVE ACTION:**

Hot Spot- Evaluate out of Right-of-way trees.

MIDDLE CREEK #211	MILES-32/ MEMBERS-474	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
<b>Jenny Wiley (Floyd County) KY RT 3, Prestonsburg Ky</b>				
<b>SAIDI-284.0/SAIFI-2.68</b>		<b>2011</b>		
<b>Five Year Average: SAIDI- 211.56 /SAIFI-2.046</b>				
Maintenance		79%		29
Cause Unknown		9%		6
Planned outage		4%		3
Animals		2%		6
Weather		1%		4
Other		1%		3

**CORRECTIVE ACTION:**

Weather caused majority of out time. No action planned.

<b>CALLOWAY# 756</b>	<b>MILES-35/ MEMBERS-608</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Martin CO. (Johnson County) RT 40, Tomahawk KY</b>				
<b>SAIDI-418.85/SAIFI-3.07</b>			<b>Pre- 2009</b>	
<b>Five Year Average: SAIDI- 317.09 /SAIFI-22.04</b>				
Planned outage		32%		1
Power Supply		32%		1
Maintenance		19%		32
Cause Unknown		8%		7
Equipment or Installation		3%		9
Animals		2%		2

**CORRECTIVE ACTION:**

Trees are the largest cause of outages. Hot spot work and evaluate out of Right-of-way trees.

<b>MILO #551</b>	<b>MILES-15/ MEMBERS-318</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Martin CO. (Johnson County) RT 40, Tomahawk KY</b>				
<b>SAIDI-1219.02/SAIFI-5.20</b>			<b>2013</b>	
<b>Five Year Average: SAIDI- 431.4 /SAIFI-2.528</b>				
Maintenance		28%		15
Equipment or Installation		24%		3
Cause Unknown		19%		3
Power Supply		18%		1
Public		5%		1
Animals		1%		7

**CORRECTIVE ACTION:**

This Circuit has heavy out of Right of way tree exposure. No Action Planned.

<b>WHITE HOUSE #550</b>	<b>MILES-51/MEMBERS-552</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Martin CO. (Johnson/Martin Co) White house RT 3390</b>				
<b>SAIDI-992.82/SAIFI-8.65</b>			<b>2013</b>	
<b>Five Year Average: SAIDI- 627.08 /SAIFI-4.94</b>				
Maintenance		73%		41
Power Supply		11%		1
Equipment or Installation		8%		9
Planned outage		3%		11
Animals		1%		9

**CORRECTIVE ACTION:**

Hot spot work and evaluated out of Right-of-way trees.

SALT LICK # 308	MILES- 52/ MEMBERS-989	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
Middle Creek-substation (Floyd Co) Prestonsburg Rt 114				
SAIDI-266.24/SAIFI-3.85			<b>2015</b>	
<i>Five Year Average: SAIDI- 356.09 /SAIFI-3.264</i>				
Maintenance		49%		20
Planned outage		45%		2
Cause Unknown		3%		18

**CORRECTIVE ACTION:**

Two mudslides and out of Right-of-way tree failure contributed. Evaluate unknown outage category.

HARGUS #256	MILES-49/ MEMBERS-458	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
Redbush-substation (Johnson County) Flat Gap Rt 172				
SAIDI-1197.49/SAIFI-5.42			<b>2012</b>	
<i>Five Year Average: SAIDI- 784.55 /SAIFI-5.398</i>				
Maintenance		60%		23
Planned outage		16%		12
Equipment or Installation		11%		4
Cause Unknown		10%		18
Animals		1%		4

**CORRECTIVE ACTION:**

Remote areas with dead trees was causing problems. Late 2018 we side trimmed and topped dead trees VIA Helicopter. No other action planned.

OIL FIELD# 34	MILES-12/ MEMBERS-57	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
Redbush-substation (Johnson County) Keaton KY Rt 1092				
SAIDI-798.24/SAIFI-3.04			<b>Pre- 2009</b>	
<i>Five Year Average: SAIDI- 457.77/SAIFI-3.034</i>				
Maintenance		98%		5

**CORRECTIVE ACTION:**

Rugged Terrain makes Restoration difficult. No action Planned.

COAL COMPANY # 678	MILES-16/ MEMBERS-91	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
<b>2017</b>				
Salt Lick-substation (Knott Co) KY HWY 2029 Hueysville KY				
SAIDI-60.39 /SAIFI-0.53				
<i>Five Year Average: SAIDI- 65.0/SAIFI-.378</i>				
Planned outage		54%		2
Maintenance		34%		4
Weather		6%		2
Equipment or Installation		4%		1

**CORRECTIVE ACTION:**

Five of Nine outages were construction or maintenance. No action planned.

Decoy # 1173	MILES-32/ MEMBERS-167	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
<b>2016</b>				
Salt Lick-substation (Knott County) Rt 2029/ Hueysville KY				
SAIDI-1346/SAIFI-60				
<i>Five Year Average: SAIDI- 860.35/SAIFI-3.11</i>				
Planned outage		97%		8

**CORRECTIVE ACTION:**

This feeder is very long with heavy exposure to trees. No action Planned.

MIDDLE CREEK #90	MILES-42/ MEMBERS-675	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
<b>2006</b>				
Salt Lick-substation (Knott County) Rt 2029/ Hueysville KY				
SAIDI-423.86/SAIFI-4.45				
<i>Five Year Average: SAIDI-162.12 /SAIFI-1.60</i>				
Maintenance		51%		26
Planned outage		16%		8
Cause Unknown		10%		10
Equipment or Installation		8%		5
Other		7%		4
Weather		4%		4
Animals		4%		4

**CORRECTIVE ACTION:**

No clear cause of excessive outages. Evaluate for Hot Spots.



RT 7 MINE #169	MILES-9 /MEMBERS-109	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
Salt Lick-substation (Knott County) Rt 7 / Hueysville KY				
SAIDI-267.75/SAIFI-2.85		<b>2017</b>		
<i>Five Year Average: SAIDI-142.88 /SAIFI-1.326</i>				
Maintenance		66%		1
Equipment or Installation		28%		3
Cause Unknown		3%		3
Animals		1%		2

**CORRECTIVE ACTION:**  
No action Planned.

BOONS CAMP #63	MILES-15/MEMBERS-216	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
Thelma-substation (Johnson County) Thelma KY				
SAIDI-672.89 /SAIFI-7.74		<b>2019</b>		
<i>Five Year Average: SAIDI-392.01 /SAIFI-3.38</i>				
Maintenance		44%		13
Planned outage		26%		7
Animals		13%		2
Equipment or Installation		12%		1
Other		1%		4

**CORRECTIVE ACTION:**  
Right-of-way cut and cleared 2019. No other action planned.

REHAB #107	MILES-9/MEMBERS-312	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
Thelma-substation (Johnson County) Thelma KY				
SAIDI-153.93 /SAIFI-3.22		<b>2016</b>		
<i>Five Year Average: SAIDI-97.186 /SAIFI-1.528</i>				
Animals		33%		2
Power Supply		31%		2
Maintenance		18%		8
Cause Unknown		7%		4
Weather		5%		4
Planned outage		2%		2

**CORRECTIVE ACTION:**  
Varied cause/Monitor in 2019.

<b>River #62</b>	<b>MILES-39/MEMBERS-615</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-792.80 /SAIFI-11.31</b>			<b>2019</b>	
<b>Five Year Average: SAIDI-289.50/SAIFI-3.894</b>				
Maintenance		59%		35
Planned outage		10%		10
Cause Unknown		9%		10
Animals		8%		3
Power Supply		8%		1
Equipment or Installation		1%		9

**CORRECTIVE ACTION:**

Right-of-way being cut and trimmed in 2019.

<b>VOLGA #95</b>	<b>MILES-29/MEMBERS-459</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-382.99 /SAIFI-3.87</b>			<b>2011</b>	
<b>Five Year Average: SAIDI-330.21/SAIFI-3.18</b>				
Maintenance		33%		15
Animals		26%		3
Planned outage		13%		7
Equipment or Installation		13%		2
Power Supply		10%		8
Cause Unknown		2%		10

**CORRECTIVE ACTION:**

Cut dead Pines in areas where out of Right-of-way outages have occurred.

<b>DENVER #466</b>	<b>MILES-33/MEMBERS-502</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Volga-substation (Johnson County) Stone Coal Ky Rt 460</b>				
<b>SAIDI-567.51 /SAIFI-4.04</b>			<b>2016</b>	
<b>Five Year Average: SAIDI-456.42/SAIFI-3.632</b>				
Maintenance		68%		17
Equipment or Installation		15%		3
Planned outage		13%		6
Cause Unknown		1%		11

**CORRECTIVE ACTION:**

Adding new OCR Coordination/ Faulted Circuit indicators. Evaluate out of Right-of-way crew removal.

STATE HIGHWAY #497	MILES-12/MEMBERS-166	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
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Volga-substation (Johnson County) Staffordsville Rt 172
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SAIDI-406.59 /SAIFI-2.55
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**2011**

<i>Five Year Average: SAIDI-437.66/SAIFI-2.474</i>
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Cause Unknown	48%	4
Maintenance	43%	10
Public	7%	3

**CORRECTIVE ACTION:**

Large Tree from out of Right-of-way caused long outage times. Evaluate out of ROW tree removal.



## 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 is designed to 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.

Circuit cutting is being scheduled with a goal of development of a 7-year rotations. Spraying is scheduled with a goal of 4-year rotations.

Spraying of vines that overtake poles and guys is a 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

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VP Operations