



**Big Sandy Rural Electric  
Cooperative Corporation**

504 11th Street  
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Toll Free (888) 789-RECC (7322)

**RECEIVED**

**MAR 28 2018**

**PUBLIC SERVICE  
COMMISSION**

**March 23, 2018**

**Attention: Gwen R. Pinson, Executive Director**

**Kentucky Public Service Commission**

**211 Sower Blvd.**

**P. O. Box 615**

**Frankfort, KY 40602-0615**

**Dear Ms. Pinson,**

**Please find the enclosed document for Big Sandy RECC. This is our 2017 Electric Distribution Utility Annual Reliability Report.**

**If you have any questions or need anything further, please don't hesitate to contact our office.**

**Thank you,**

A handwritten signature in black ink that reads "Jeff Prater".

**Jeff Prater**

**VP of Operations**

**Big Sandy RECC**

**606-789-4095, ext #227**

**Enclosures**

**JP/jm**

# KENTUCKY PUBLIC SERVICE COMMISSION

## Electric Distribution Utility Annual Reliability Report

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### 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

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### SECTION 2: REPORTING YEAR

CALENDAR YEAR OF REPORT	2017
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### SECTION 3: MAJOR EVENT DAYS (MED)

$T_{MED}$	34.09
FIRST DATE USED TO DETERMINE $T_{MED}$	January 1,2013
LAST DATE USED TO DETERMINE $T_{MED}$	31-Dec-17
NUMBER OF MED IN REPORT YEAR	1

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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	12,768	TOTAL CIRCUITS	36
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#### Excluding MED

	5 YEAR AVERAGE		REPORTING YEAR
SAIDI	303.04	SAIDI	371.55
SAIFI	5.59	SAIFI	3.03

#### Including MED

	5 YEAR AVERAGE		REPORTING YEAR
SAIDI	635.58	SAIDI	501.08
SAIFI	3.08	SAIFI	3.33

#### 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 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

# 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

A Touchstone Energy® Cooperative

## BIG SANDY RECC 2017 REPORTING OUTAGE CAUSES FOR CIRCUIT AND PERCENTAGES

### SAIDI/ SAIFI

<b>VOLGA #95</b>	<b>MILES-29 / MEMBERS-457</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- 412.19/SAIFI 3.52</b>				
<b>Five year Average SAIDI- 274.02/SAIFI-2.51</b>				
<b>2011</b>				
Maintenance		69%		7
Unknown		17%		9
Equipment Installation Design		10%		6
Planned Outage		2%		3
<b>CORRECTIVE ACTION:</b>				
Evaluate Circuit for R/W Trouble Spots				

<b>RIVER # 62</b>	<b>MILES- 39/ MEMBERS-634</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-190/ SAIFI 2.77</b>				
<b>Five year Average SAIDI-158.14/SAIFI-1.75</b>				
<b>2009</b>				
Maintenance		72%		17
Equipment Installation Design		15%		11
Planned Outage		6%		5
Unknown		2%		9
Weather		1%		4
<b>CORRECTIVE ACTION:</b>				
Scheduled for 2019 ROW Clearing				

<b>DENVER # 466</b>	<b>MILES- 33/ MEMBERS- 498</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-687/ SAIFI 6.65</b>				
<b>Five year Average SAIDI-391.04 /SAIFI-3.31</b>				
<b>2016</b>				
Maintenance		63%		16
Weather		17%		1
Public		7%		3
Planned Outage		5%		8
Equipment Installation Design		3%		1
Unknown		2%		1
<b>CORRECTIVE ACTION:</b>				
No Actions deemed necessary				

ST.HIGHWAY #497	MILES-12 / MEMBERS-166	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
Volga-substation (Johnson County) Staffordsville RT 172				
SAIDI-220.62/ SAIFI-2.44			2011	
Five year Average SAIDI-379.82 /SAIFI-2.28				
Maintenance		90%		3
Planned Outage		4%		1
Weather		3%		1
<b>CORRECTIVE ACTION:</b>				
<i>No Actions deemed necessary</i>				

Thelma #392	MILES-76/ MEMBERS- 1051	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
Volga-substation (Johnson County) KY RT 201 Sitka				
SAIDI-326/SAIFI-2.65			2009	
Five year Average SAIDI-388.20 /SAIFI-2.72				
Maintenance		49%		27
Weather		36%		7
Planned Outage		6%		11
Equipment Installation Design		2%		6
Animals		1%		4
Public		1%		3
<b>CORRECTIVE ACTION:</b>				
<i>Planning complete circuit Trim 2019</i>				

Flatgap # 661	Miles-56/ Members-582	PERCENT	DATE OF LAST CIRCUIT TRIM	OUTAGES
Volga-substation (Johnson County) Flatgap RT 172				
SAIDI-145/ SAIFI-1.93			2014	
Five year Average SAIDI-138.88 /SAIFI-1.56				
Planned Outage		64%		20
Public		15%		5
Maintenance		9%		10
Unknown		4%		8
Weather		2%		5
Equipment Installation Design		1%		4
Animals		1%		3
<b>CORRECTIVE ACTION:</b>				
<i>No actions deemed necessary</i>				

<b>OILFIELD # 34</b>	<b>MILES- 12/ MEMBERS-57</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Red Bush-substation (Johnson County) Keaton KY RT 1092</b>			<b>2009</b>	
<b>SAIDI-581.18/SAIFI-3.89</b>				
<b>Five year Average SAIDI- 302.06 /SAIFI-2.46</b>				
Maintenance		43%		3
Animals		19%		1
Unknown		17%		2
Weather		11%		2
Public		7%		1
<b>CORRECTIVE ACTION:</b>				
Evalvate for ROW trouble spots				

<b>HARGUS # 256</b>	<b>MILES-49/MEMBERS-456</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Redbush-substation (Johnson County) Flatgap RT 172</b>			<b>2012</b>	
<b>SAIDI-1569.34/SAIFI-10.32</b>				
<b>Five year Average SAIDI-706.10/SAIFI-5.17</b>				
Maintenance		47%		31
Planned Outages		33%		29
Unknown		7%		13
Equipment Installation Design		1%		7
Other		1%		3
<b>CORRECTIVE ACTION:</b>				
Work Plan Project is ongoing for this circuit. We plan to retire an unaccessible section of line.				

<b>VOLGA # 225</b>	<b>MILES- 29/ MEMBERS-320</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Redbush-substation (Johnson County) Flatgap RT 172</b>			<b>2014</b>	
<b>SAIDI-589.03/SAIFI-4.54</b>				
<b>Five year Average SAIDI-365.41 /SAIFI-3.44</b>				
Maintenance		77%		11
Equipment Installation Design		22%		2
<b>CORRECTIVE ACTION:</b>				
No actions deemed necessary				

<b>SALT LICK # 308</b>	<b>MILES-52/ MEMBERS-985</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Middle Creek-substation(Floyd County)Prestonsburg RT114</b>			<b>2015</b>	
<b>SAIDI-549.90/SAIFI-4.16</b>				
<b>Five year Average SAIDI-413.59 /SAIFI-3.43</b>				
Weather		60%		7
Maintenance		28%		18
Planned Outages		6%		4
Unknown		2%		6
Public		1%		6
<b>CORRECTIVE ACTION:</b>				
Review Co-ordination of OCR's out ROW tree removals at two problem locations				

<b>WAL-MART # 591</b>	<b>MILES-3/ MEMBERS-67</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Middle Creek-substation(Floyd County)Prestonsburg RT23</b>				
<b>SAIDI-293.62/SAIFI-1.19</b>			<b>2018</b>	
<b>Five year Average SAIDI-78.23 /SAIFI-0.47</b>				
Planned Outagae		88%		2
Weather		7%		2
Unknown		1%		1
<b>CORRECTIVE ACTION:</b>				
Trimmed in 2018. No actions deemed necessary.				

<b>MIDDLE CREEK # 90</b>	<b>MILES-42/ MEMBERS-674</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Salt Lick-substation (Knott County) Hueysville RT 2029</b>				
<b>SAIDI-70.63 /SAIFI-0.46</b>			<b>2009</b>	
<b>Five year Average SAIDI-128.86 /SAIFI-1.22</b>				
Maintenance		52%		11
Public		29%		5
Equipment Installation Design		10%		2
Unknown		4%		7
Planned Outage		1%		1
Weather		1%		1
<b>CORRECTIVE ACTION:</b>				
No actions deemed necessary				

<b>ROUTE 7 MINE # 169</b>	<b>MILES-9/ MEMBERS-100</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Salt Lick-substation (Knott County) Hueysville RT 7</b>				
<b>SAIDI-185.06/SAIFI-2.28</b>			<b>2017</b>	
<b>Five year Average SAIDI-92.09 /SAIFI-0.79</b>				
Maintenance		50%		8
Planned Outage		25%		2
Public		16%		3
Equipment installation Design		5%		1
<b>CORRECTIVE ACTION:</b>				
Circuit trimmed in 2017. No further actions deemed necessary.				

<b>MILO # 551</b>	<b>MILES-15/ MEMBERS-321</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Martin County-substation(Johnson County)TomahawkRT40</b>				
<b>SAIDI-510.92/SAIFI-1.45</b>			<b>2013</b>	
<b>Five year Average SAIDI-195.45 /SAIFI-1.54</b>				
Weather		74%		3
Maintenance		19%		3
Public		1%		3
<b>CORRECTIVE ACTION:</b>				
No actions deemed necessary. Heavy exposure to out of ROW trees.				



<b>WHITEHOUSE # 550</b>	<b>MILES-51/MEMBERS-544</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Martin Co-substation(Johnson/Martin Co)WhitehouseRT3390</b>				
<b>SAIDI-745.48/SAIFI-5.87</b>			<b>2013</b>	
<b>Five year Average SAIDI-456.57 /SAIFI-3.48</b>				
Maintenance		74%		16
Weather		4%		2
Equipment installation Design		1%		5
Planned Outage		1%		3
<b>CORRECTIVE ACTION:</b>				
Evaluate ROW trouble spots				

<b>ARKANSAS # 655</b>	<b>MILES-35/MEMBERS-817</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Bill Wells-substation (Floyd County) Prestonsburg RT 23</b>				
<b>SAIDI-244.60 /SAIFI-1.89</b>			<b>2010</b>	
<b>Five year Average SAIDI-135.06 /SAIFI-1.50</b>				
Planned Outage		79%	Spray 2016	6
Maintenance		17%		11
Equipment installation Design		2%		5
Unknown		1%		7
<b>CORRECTIVE ACTION:</b>				
No actions deemed necessary				

<b>COW CREEK # 992</b>	<b>MILES-62/MEMBERS-1177</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Bill Wells-substation (Floyd County) Prestonsburg RT 1035</b>				
<b>SAIDI-339.16 /SAIFI-3.50</b>			<b>2009</b>	
<b>Five year Average SAIDI-258.41 /SAIFI-3.05</b>				
Maintenance		79%		28
Other		20%		3
Unknown		2%		12
Weather		2%		4
<b>CORRECTIVE ACTION:</b>				
Currently being trimmed, will complete in 2018.				
No further actions deemed necessary				

<b>MOTEL # 658</b>	<b>MILES-2/MEMBERS-45</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Bill Wells-substation (Floyd County) Prestonsburg RT 1035</b>				
<b>SAIDI-70.28 /SAIFI-0.66</b>			<b>2009</b>	
<b>Five year Average SAIDI-34.73 /SAIFI-0.35</b>				
Maintenance		67%		19
Equipment installation Design		28%		8
Animals		3%		1
<b>CORRECTIVE ACTION:</b>				
Will address specific problem spots in 2018				

<b>HOSPITAL # 417</b>	<b>MILES-2/MEMBERS-92</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Jenny Wiley-substation(Floyd County)Prestonsburg RT321</b>				
<b>SAIDI-41.78 /SAIFI-0.39</b>			<b>2009</b>	
<b>Five year Average SAIDI- 39.38 /SAIFI-0.45</b>				
Other		61%		2
Animals		26%		1
Equipment installation Design		11%		1
<b>CORRECTIVE ACTION:</b>				
No actions deemed necessary.				

<b>Middle Creek # 211</b>	<b>MILES-32/MEMBERS-473</b>	<b>PERCENT</b>	<b>DATE OF LAST CIRCUIT TRIM</b>	<b>OUTAGES</b>
<b>Jenny Wiley-substation(Floyd County)Prestonsburg RT 3</b>				
<b>SAIDI-369.06 /SAIFI-3.92</b>			<b>2009</b>	
<b>Five year Average SAIDI-186.23 /SAIFI-1.74</b>				
Maintenance		42%		36
Weather		26%		5
Public		26%		2
Unknown		1%		4
Planned Outage		1%		2
<b>CORRECTIVE ACTION:</b>				
ROW work on various problem spots				

## CAUSE CODES

### POWER SUPPLY

000-Power Supply

### PLANNED OUTAGE

100-Construction

110-Maintenance

190-Other planned

### EQUIPMENT OR Installation/Design

300- Material or equipment fault/failure

310-Installation fault

320- Conductor sag or inadequate clearance

340-Overload350 Miscoordination of protection devices

360-Other equipment installation/design

### MAINTENANCE

400-Decay/age of material/equipment

410-Corrosion/abrasion of material/equipment

420-Tree Growth

430-Tree failure from overhang or dead tree without ice/snow

440-Trees with ice/snow

450-Contamination (leakage/external)

460-Moisture

470-Borrower crew cuts tree

490-Maintenance, Other

### WEATHER

500-Lightning

510-Wind, not trees

520-Ice, sleet, frost, not trees

530-Flood

590-Weather, Other

### ANIMALS

600-Small animal/bird

610-Large animal

620-Animal damage-gnawing or boring

590 Animal, Other

### PUBLIC

700-Customer caused

710-Motor vehicle

720-Aircraft

730-Fire

740-Public cuts tree

750-Vandalism

760-Switching error or caused by construction or caused by construction or maintenance

### OTHER

800-Other

### UNKNOWN

900-Unknown



## 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 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 its 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 REPRESENTATIVE, 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