

KENTUCKY PUBLIC SERVICE COMMISSION

Electric Distribution Utility Annual Reliability Report

SECTION 1: CONTACT INFORMATION

UTILITY NAME	Grayson Rural Electric Cooperative Corporation
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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}	56.48
FIRST DATE USED TO DETERMINE	T _{MED}	1/1/2017
LAST DATE USED TO DETERMINE	T _{MED}	12/31/2017
NUMBER OF MED IN REPORT YEAR		0

NOTE: Per IEEE Tmed 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:	<u>15,515</u>	TOTAL CIRCUITS	<u>42</u>
Excluding MED			
	5 YEAR AVERAGE		REPORTING YEAR
SAIDI	<u>221.3</u>	SAIDI	<u>545.1</u>
SAIFI	<u>3.04</u>	SAIFI	<u>3.68</u>
Including MED			
	5 YEAR AVERAGE		REPORTING YEAR
SAIDI	<u>1139.2</u>	SAIDI	<u>545.1</u>
SAIFI	<u>3.80</u>	SAIFI	<u>3.71</u>

NOTES:

- 1) All durations 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) issued 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)

1. Airport Road (Sub #12)
2. Located approximately 0.2 miles off Rt. 7 on Rt. 986
3. Feeder 1
4. South along Rt. 7 toward Elliott County
5. There are approximately 79.07 miles of primary line.
6. 522 active consumers.
7. Circuit was cut in 2015
8. Causes of last years outages:

430 Tree failure from overhang or dead tree without ice/snow	18.6%
000 Power supply	14.0%
431 Tree Failure-off ROW	14.0%
600 Small animal/bird	11.6%
190 Other planned	9.3%
590 Weather, other	7.0%
110 Maintenance	4.7%
420 Tree growth	4.7%
500 Lightning	4.7%
300 Material or equipment fault/failure	2.3%
400 Decay/age of material/equipment	2.3%
410 Corrosion/abrasion of material/equipment	2.3%
700 Customer-caused	2.3%
800 Other	2.3%
9. The average SAIDI is 1522.66
10. The SAIDI for 2017 was 638.79
11. The average SAIFI is 3.42
12. The SAIFI for 2017 was 4.06
13. Will inspect line for overhanging tree limbs and take appropriate action.

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SECTION 5: CIRCUIT REPORTING

Continued

1. Airport Road (Sub #12)
2. Located approximately 0.2 miles off Rt. 7 on Rt. 986
3. Feeder 3
4. North along Rt. 7 toward Grayson Lake
5. There are approximately 14.79 miles of primary line.
6. 80 active consumers.
7. Circuit was cut in 2014
8. Causes of last years outages:

431 Tree Failure-off ROW	37%
110 Maintenance	32%
999 Cause unknown	11%
400 Decay/age of material/equipment	5%
510 Wind, not trees	5%
600 Small animal/bird	5%
800 Other	5%
9. The average SAIDI is 4050.07
10. The SAIDI for 2017 was 1880.88
11. The average SAIFI is 7.50
12. The SAIFI for 2017 was 11.96
13. Will inspect line for obvious 'off-right of way' trees and work with property owners to have them removed.

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SECTION 5: CIRCUIT REPORTING

Continued

1. Argentum (Sub #1)
2. Located on Rt. 7, 0.6 miles north of the junction of AA Highway.
3. Feeder 2
4. South along Rt. 7 toward gas plant
5. There are approximately 91.6 miles of primary line.
6. 677 active consumers.
7. Circuit was cut in 2011
8. Causes of last years outages:

431 Tree Failure-off ROW	46.4%
400 Decay/age of material/equipment	8.7%
999 Cause unknown	8.7%
110 Maintenance	7.2%
300 Material or equipment fault/failure	5.8%
430 Tree failure from overhang or dead tree without ice/snow	4.3%
600 Small animal/bird	4.3%
100 Construction	2.9%
590 Weather, other	2.9%
190 Other planned	1.4%
420 Tree growth	1.4%
500 Lightning	1.4%
610 Large animal	1.4%
730 Fire	1.4%
790 Public, other	1.4%
9. The average SAIDI is 570.65
10. The SAIDI for 2017 was 423.26
11. The average SAIFI is 2.10
12. The SAIFI for 2017 was 2.93
13. We will be cutting this circuit in 2018.

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SECTION 5: CIRCUIT REPORTING

Continued

1. Low Gap (Sub #11)
2. Located just off Rt. 2 approximately 1 mile from the junction of Rt. 1459
3. Feeder 1
4. Rt. 2 toward North Fork/Warrock Sub
5. There are approximately 6.86 miles of primary line.
6. 92 active consumers.
7. Circuit was cut in 2014
8. Causes of last years outages:

431 Tree Failure-off ROW	33.3%
999 Cause unknown	33.3%
100 Construction	8.3%
110 Maintenance	8.3%
300 Material or equipment fault/failure	8.3%
600 Small animal/bird	8.3%
9. The average SAIDI is 629.00
10. The SAIDI for 2017 was 253.60
11. The average SAIFI is 2.43
12. The SAIFI for 2017 was 3.59
13. Will inspect line for obvious 'off-right of way' trees and work with property owners to have them removed.

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SECTION 5: CIRCUIT REPORTING Continued

1. Mazie (Sub #4)
2. Located approximately 11.5 miles east of Sandy Hook on Rt. 32.
3. Feeder 2
4. Rt. 32 toward Blaine
5. There are approximately 94.45 miles of primary line.
6. 597 active consumers.
7. Circuit was cut in 2014
8. Causes of last years outages:

431 Tree Failure-off ROW	46.4%
400 Decay/age of material/equipment	8.7%
999 Cause unknown	8.7%
110 Maintenance	7.2%
300 Material or equipment fault/failure	5.8%
430 Tree failure from overhang or dead tree without ice/snow	4.3%
600 Small animal/bird	4.3%
100 Construction	2.9%
590 Weather, other	2.9%
190 Other planned	1.4%
420 Tree growth	1.4%
500 Lightning	1.4%
610 Large animal	1.4%
730 Fire	1.4%
790 Public, other	1.4%
9. The average SAIDI is 725.75
10. The SAIDI for 2017 was 1197.30
11. The average SAIFI is 2.92
12. The SAIFI for 2017 was 6.40
13. Will inspect line for obvious 'off-right of way' trees and work with property owners to have them removed.

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SECTION 5: CIRCUIT REPORTING Continued

1. Mazie (Sub #4)
2. Located approximately 11.5 miles east of Sandy Hook on Rt. 32.
3. Feeder 3
4. Across hill toward Terryville
5. There are approximately 23.24 miles of primary line.
6. 134 active consumers.
7. Circuit was cut in 2016
8. Causes of last years outages:

500 Lightning	26.7%
999 Cause unknown	13.3%
431 Tree Failure-off ROW	13.3%
430 Tree failure from overhang or dead tree without ice/snow	13.3%
000 Power supply	13.3%
590 Weather, other	6.7%
400 Decay/age of material/equipment	6.7%
110 Maintenance	6.7%
9. The average SAIDI is 390.64
10. The SAIDI for 2017 was 472.49
11. The average SAIFI is 2.13
12. The SAIFI for 2017 was 3.61
13. We will be cutting this circuit in 2018. Potentially dangerous off Right of way trees will be addressed with property owners.

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SECTION 5: CIRCUIT REPORTING Continued

1. Newfoundland (Sub #3)
2. Located on Rt. 32 just south of the Junction of Rt. 7
3. Feeder 3
4. follows Rt. 32 to Sandy Hook
5. There are approximately 17.04 miles of primary line.
6. 222 active consumers.
7. Circuit was cut in 2016
8. Causes of last years outages:

431 Tree Failure-off ROW	41%
000 Power supply	13%
110 Maintenance	13%
400 Decay/age of material/equipment	9%
500 Lightning	6%
300 Material or equipment fault/failure	3%
410 Corrosion/abrasion of material/equipment	3%
430 Tree failure from overhang or dead tree without ice/snow	3%
600 Small animal/bird	3%
710 Motor vehicle	3%
790 Public, other	3%
9. The average SAIDI is 1511.45
10. The SAIDI for 2017 was 357.15
11. The average SAIFI is 2.13
12. The SAIFI for 2017 was 4.92
13. Will inspect line for obvious 'off-right of way' trees and work with property owners to have them removed.

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SECTION 5: CIRCUIT REPORTING

Continued

1. Newfoundland (Sub #3)
2. Located on Rt. 32 just south of the Junction of Rt. 7
3. Feeder 4
4. to Rt, 755 (Ruin)
5. There are approximately 40.19 miles of primary line.
6. 298 active consumers.
7. Circuit was cut in 2017
8. Causes of last years outages:

400 Decay/age of material/equipment	30.8%
000 Power supply	12.8%
600 Small animal/bird	12.8%
110 Maintenance	10.3%
790 Public, other	7.7%
300 Material or equipment fault/failure	5.1%
420 Tree growth	5.1%
430 Tree failure from overhang or dead tree without ice/snow	5.1%
510 Wind, not trees	5.1%
410 Corrosion/abrasion of material/equipment	2.6%
500 Lightning	2.6%
9. The average SAIDI is 1357.25
10. The SAIDI for 2017 was 217.87
11. The average SAIFI is 2.53
12. The SAIFI for 2017 was 3.68
13. Most of these were focused around aging equipment in the substation. The equipment was identified and replaced.

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SECTION 5: CIRCUIT REPORTING

Continued

1. Pelfrey (Sub #5)
2. Located on US 60 0.8 miles west from the Junction of Grahn Road (Rt. 182)
3. Feeder 2
4. East toward Cascade Road/Biggs Hill
5. There are approximately 25.9 miles of primary line.
6. 335 active consumers.
7. Circuit was cut in 2017
8. Causes of last years outages:

431 Tree Failure-off ROW	24.1%
600 Small animal/bird	19.0%
110 Maintenance	12.7%
430 Tree failure from overhang or dead tree without ice/snow	12.7%
700 Customer-caused	6.3%
999 Cause unknown	6.3%
400 Decay/age of material/equipment	5.1%
500 Lightning	5.1%
000 Power supply	2.5%
100 Construction	2.5%
490 Maintenance, other	1.3%
590 Weather, other	1.3%
800 Other	1.3%
9. The average SAIDI is 1364.27
10. The SAIDI for 2017 was 538.99
11. The average SAIFI is 3.62
12. The SAIFI for 2017 was 4.23
13. Will inspect line for obvious 'off-right of way' trees and work with property owners to have them removed

SECTION 6: VEGETATION MANAGEMENT PLAN REVIEW

INCLUDE CURRENT VEGETATION MANAGEMENT PLAN

Additional pages may be attached as needed.

In 2017 we cleared 113.5 miles through our circuit cutting program. We also re-cleared 90.6 miles, bush hogged 52 miles, removed 10,993 individual trees and trimmed 10,107 yard trees.

Our plans for 2018 include cutting two full circuits: Sandy Hook Feeder 3 and Elliottville Feeder 4. We will bush hog all three circuits on the Mazie sub and spot cut Mazie Feeder 2. We will also spray Newfoundland feeders 3 and 4 as well as Argentum Feeder 2.

SECTION 7: UTILITY COMMENTS

We have completed updating the maps of our system. The outage maps were updated with the new data in March of 2018. Our next reporting period to the Public Service Commission should give us much more accurate data and the ability to pinpoint the issues with much more accuracy.

Our goal, as always, is to provide reliable power to our consumers at an affordable price.