

Grayson Rural Electric Cooperative Corporation

109 Bagby Park • Grayson, KY 41143-1292
Telephone 606-474-5136 • 1-800-562-3532 • Fax 606-474-5862

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**PUBLIC SERVICE
COMMISSION**

April 22, 2020

**Director of Engineering
Kentucky Public Service Commission
211 Sower Boulevard
P.O. Box 615
Frankfort, Kentucky 40602-0615**

Re: Administrative Case NO. 2011-00450

Dear Director:

Please find enclosed for filing with the Commission a revised copy of Grayson Rural Electric Cooperative Corporation's Distribution Utility Annual Reliability and Accountability Report for the year ending 2019.

Corrections have been made on Page 2 of the report. SAIDI and SAIFI minutes for the Reporting Year Including MED have been corrected. We apologize for the mistake.

If any additional information is needed, please let us know.

Very truly yours,



**Brian Poling
Manager of Technical Services**

Enclosure

KENTUCKY PUBLIC SERVICE COMMISSION

Electric Distribution Utility Annual Reliability Report

SECTION 1: CONTACT INFORMATION

UTILITY NAME	Grayson Rural Electric Cooperative Corporation
REPORT PREPARED BY	Brian Poling/Mike Martin/Kyle Clevenger
E-MAIL ADDRESS OF PREPARER	brian.poling@graysonrecc.com
E-MAIL ADDRESS OF PREPARER	mike.martin@graysonrecc.com
E-MAIL ADDRESS OF PREPARER	kyle.clevenger@graysonrecc.com
PHONE NUMBER OF PREPARER	606-474-5136

SECTION 2: REPORTING YEAR

CALENDAR YEAR OF REPORT	2019
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SECTION 3: MAJOR EVENT DAYS (MED)

	T _{MED}	42.999
FIRST DATE USED TO DETERMINE	T _{MED}	1/1/2019
LAST DATE USED TO DETERMINE	T _{MED}	12/31/2019
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: 14,363 TOTAL CIRCUITS 42

Excluding MED

	5 YEAR AVERAGE		REPORTING YEAR
SAIDI	<u>459.5</u>	SAIDI	<u>381.3</u>
SAIFI	<u>3.37</u>	SAIFI	<u>2.60</u>

Including MED

	5 YEAR AVERAGE		REPORTING YEAR
SAIDI	<u>1174.1</u>	SAIDI	<u>381.3</u>
SAIFI	<u>3.99</u>	SAIFI	<u>2.60</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. 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 43 miles of primary line.
6. 689 active consumers.
7. Circuit was cut in 2011
8. Causes of last years outages:

431 Tree Failure-off ROW	37.9%
600 Small animal/bird	10.6%
420 Tree growth	9.1%
999 Cause unknown	9.1%
400 Decay/age of material/equipment	7.6%
110 Maintenance	6.1%
800 Other	4.5%
300 Material or equipment fault/failure	3.0%
510 Wind, not trees	3.0%
340 Overload	1.5%
410 Corrosion/abrasion of material/equipment	1.5%
430 Tree failure from overhang or dead tree without ice/snow	1.5%
470 Borrower crew cuts tree	1.5%
500 Lightning	1.5%
590 Weather, other	1.5%
9. The average SAIDI is 549.40
10. The SAIDI for 2019 was 683.43
11. The average SAIFI is 2.29
12. The SAIFI for 2019 was 3.54
13. The number of off Right-of-way events have increased due to the wet year causing the SAIDI to increase. This circuit is scheduled to be cut this year and we will look for obvious off ROW trees that may a problem in the future.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 5: CIRCUIT REPORTING

Continued

1. Carter City (Sub #10)
2. Located approx 0.2 miles north of Jct of 474 on Rt. 2 & 7
3. Feeder 3
4. Smith Creek
5. There are approximately 24.9 miles of primary line.
6. 132 active consumers.
7. Circuit was cut in 2015
8. Causes of last years outages:

431 Tree Failure-off ROW	48.5%
110 Maintenance	15.2%
400 Decay/age of material/equipment	9.1%
510 Wind, not trees	9.1%
600 Small animal/bird	6.1%
999 Cause unknown	6.1%
320 Conductor sag or inadequate clearance	3.0%
800 Other	3.0%
9. The average SAIDI is 840.16
10. The SAIDI for 2019 was 770.53
11. The average SAIFI is 2.67
12. The SAIFI for 2019 was 5.01
13. The wet year has caused more off Right-of-way trees to fall. The majority were not dead trees so we will be watching for potentially dangerous trees during our line inspections.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 5: CIRCUIT REPORTING

Continued

1. Elliottville (Sub #7)
2. Located at the end of Fouch Rd of Rt. 32 near Elliottville
3. Feeder 3
4. CCC Trail to Bangor
5. There are approximately 99.01 miles of primary line.
6. 753 active consumers.
7. Circuit was cut in 2019
8. Causes of last years outages:

431 Tree Failure-off ROW	46.1%
110 Maintenance	11.8%
500 Lightning	7.9%
600 Small animal/bird	7.9%
300 Material or equipment fault/failure	6.6%
800 Other	3.9%
400 Decay/age of material/equipment	2.6%
610 Large animal	2.6%
999 Cause unknown	2.6%
100 Construction	1.3%
190 Other planned	1.3%
420 Tree growth	1.3%
430 Tree failure from overhang or dead tree without ice/snow	1.3%
470 Borrower crew cuts tree	1.3%
510 Wind, not trees	1.3%
9. The average SAIDI is 1230.95
10. The SAIDI for 2019 was 702.69
11. The average SAIFI is 4.88
12. The SAIFI for 2019 was 5.72
13. The wet year has caused more off Right-of-way trees to fall. The majority were not dead trees so we will be watching for potentially dangerous trees during our line inspections.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 5: CIRCUIT REPORTING

Continued

1. Leon (Sub #2)
2. The sub is located on Rt. 1661 approximately 1.8 miles from Jct Rt. 7
3. Feeder 2
4. Four Mile toward Adkins Loop
5. There are approximately 44.1 miles of primary line.
6. 229 active consumers.
7. Circuit was cut in 2015
8. Causes of last years outages:

431 Tree Failure-off ROW	36.2%
600 Small animal/bird	21.3%
110 Maintenance	12.8%
800 Other	10.6%
510 Wind, not trees	4.3%
999 Cause unknown	4.3%
000 Power supply	2.1%
400 Decay/age of material/equipment	2.1%
420 Tree growth	2.1%
500 Lightning	2.1%
590 Weather, other	2.1%
9. The average SAIDI is 1939.55
10. The SAIDI for 2019 was 7.46.20
11. The average SAIFI is 3.19
12. The SAIFI for 2019 was 4.77
13. The wet year has caused more off Right-of-way trees to fall. The majority were not dead trees so we will be watching for potentially dangerous trees during our line inspections.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 5: CIRCUIT REPORTING

Continued

1. Leon (Sub #2)
2. The sub is located on Rt. 1661 approximately 1.8 miles from Jct Rt. 7
3. Feeder 3
4. South Rt. 7 toward Lake
5. There are approximately 6.93 miles of primary line.
6. 241 active consumers.
7. Circuit was cut in 2013
8. Causes of last years outages:

431 Tree Failure-off ROW	28.6%
600 Small animal/bird	20.0%
500 Lightning	14.3%
110 Maintenance	11.4%
400 Decay/age of material/equipment	5.7%
510 Wind, not trees	5.7%
999 Cause unknown	5.7%
100 Construction	2.9%
420 Tree growth	2.9%
430 Tree failure from overhang or dead tree without ice/snow	2.9%
9. The average SAIDI is 1594.20
10. The SAIDI for 2019 was 226.34
11. The average SAIFI is 2.76
12. The SAIFI for 2019 was 3.64
13. The wet year has caused more off Right-of-way trees to fall. The majority were not dead trees so we will be watching for potentially dangerous trees during our line inspections.

KENTUCKY PUBLIC SERVICE COMMISSION

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 3
4. Low Gap Rd to Rt. 1/Argillite
5. There are approximately 45.78 miles of primary line.
6. 460 active consumers.
7. Circuit was cut in 2014
8. Causes of last years outages:

431 Tree Failure-off ROW	42.86%
600 Small animal/bird	17.46%
110 Maintenance	15.87%
300 Material or equipment fault/failure	7.94%
400 Decay/age of material/equipment	3.17%
500 Lightning	3.17%
800 Other	3.17%
100 Construction	1.59%
430 Tree failure from overhang or dead tree without ice/snow	1.59%
470 Borrower crew cuts tree	1.59%
999 Cause unknown	1.59%
9. The average SAIDI is 101.11
10. The SAIDI for 2019 was 756.28
11. The average SAIFI is 3.27
12. The SAIFI for 2019 was 7.00
13. The wet year has caused more off Right-of-way trees to fall. The majority were not dead trees so we will be watching for potentially dangerous trees during our line inspections.

KENTUCKY PUBLIC SERVICE COMMISSION

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 23.02 miles of primary line.
6. 129 active consumers.
7. Circuit was cut in 2019
8. Causes of last years outages:

431 Tree Failure-off ROW	50.00%
999 Cause unknown	21.43%
110 Maintenance	7.14%
430 Tree failure from overhang or dead tree without ice/snow	7.14%
500 Lightning	7.14%
600 Small animal/bird	7.14%
9. The average SAIDI is 428.00
10. The SAIDI for 2019 was 498.94
11. The average SAIFI is 2.96
12. The SAIFI for 2019 was 4.01
13. The wet year has caused more off Right-of-way trees to fall. The majority were not dead trees so we will be watching for potentially dangerous trees during our line inspections.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 5: CIRCUIT REPORTING

Continued

1. Pactolus (Sub #8)
2. Located on Substation Road about 0.4 miles south of Jct of Rt. 9 and 1959
3. Feeder 2
4. Along 1947/Sunset Hill/Radio Station
5. There are approximately 14.67 miles of primary line.
6. 267 active consumers.
7. Circuit was cut in 2009
8. Causes of last years outages:

600 Small animal/bird	33.33%
431 Tree Failure-off ROW	14.29%
510 Wind, not trees	14.29%
100 Construction	9.52%
110 Maintenance	4.76%
420 Tree growth	4.76%
430 Tree failure from overhang or dead tree without ice/snow	4.76%
500 Lightning	4.76%
800 Other	4.76%
999 Cause unknown	4.76%
9. The average SAIDI is 621.03
10. The SAIDI for 2019 was 194.44
11. The average SAIFI is 2.44
12. The SAIFI for 2019 was 3.00
13. We have installed animal guards in a subdivision that was causing us issues with small animal contacts. We plan on installing more of these devices as trouble areas are identified.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 5: CIRCUIT REPORTING

Continued

1. Pactolus (Sub #8)
2. Located on Substation Road about 0.4 miles south of Jct of Rt. 9 and 1959
3. Feeder 4
4. Rt. 1 toward Oldtown
5. There are approximately 72.78 miles of primary line.
6. 623 active consumers.
7. Circuit was cut in 2015
8. Causes of last years outages:

431 Tree Failure-off ROW	29.23%
600 Small animal/bird	29.23%
110 Maintenance	12.31%
300 Material or equipment fault/failure	7.69%
500 Lightning	7.69%
400 Decay/age of material/equipment	6.15%
100 Construction	4.62%
800 Other	1.54%
999 Cause unknown	1.54%
9. The average SAIDI is 713.77
10. The SAIDI for 2019 was 454.39
11. The average SAIFI is 3.90
12. The SAIFI for 2019 was 4.43
13. The wet year has caused more off Right-of-way trees to fall. The majority were not dead trees so we will be watching for potentially dangerous trees during our line inspections. We will also try to identify areas where small animals are causing repetitive outages.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 5: CIRCUIT REPORTING

Continued

1. Warnock (Sub #6)
2. Located on Hoods Run Road located 1.7 miles from Jct of Rt. 7 & 2 off Rt. 2
3. Feeder 3
4. North Fork to Rt. 207
5. There are approximately 45.76 miles of primary line.
6. 351 active consumers.
7. Circuit was cut in 2015
8. Causes of last years outages:

300 Material or equipment fault/failure	31.11%
600 Small animal/bird	22.22%
431 Tree Failure-off ROW	17.78%
110 Maintenance	11.11%
800 Other	4.44%
100 Construction	2.22%
400 Decay/age of material/equipment	2.22%
470 Borrower crew cuts tree	2.22%
500 Lightning	2.22%
530 Flood	2.22%
999 Cause unknown	2.22%
9. The average SAIDI is 1549.13
10. The SAIDI for 2019 was 724.25
11. The average SAIFI is 3.90
12. The SAIFI for 2019 was 5.16
13. We will be watching for recurring outages at locations where animal guards can be installed to prevent outages. There were not consistancies in these outages for such actions.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 5: CIRCUIT REPORTING

Continued

1. Warnock (Sub #6)
2. Located on Hoods Run Road located 1.7 miles from Jct of Rt. 7 & 2 off Rt. 2
3. Feeder 4
4. Rt. 2 & 7 South toward Lost Creek
5. There are approximately 81.05 miles of primary line.
6. 501 active consumers.
7. Circuit was cut in 2009
8. Causes of last years outages:

431 Tree Failure-off ROW	38.03%
600 Small animal/bird	28.17%
110 Maintenance	11.27%
500 Lightning	5.63%
430 Tree failure from overhang or dead tree without ice/snow	4.23%
999 Cause unknown	4.23%
100 Construction	1.41%
300 Material or equipment fault/failure	1.41%
400 Decay/age of material/equipment	1.41%
410 Corrosion/abrasion of material/equipment	1.41%
590 Weather, other	1.41%
800 Other	1.41%
9. The average SAIDI is 1410.52
10. The SAIDI for 2019 was 528.56
11. The average SAIFI is 3.11
12. The SAIFI for 2019 was 3.69
13. The wet year has caused more off Right-of-way trees to fall. The majority were not dead trees so we will be watching for potentially dangerous trees during our line inspections.

SECTION 6: VEGETATION MANAGEMENT PLAN REVIEW

INCLUDE CURRENT VEGETATION MANAGEMENT PLAN

Additional pages may be attached as needed.

In 2019 we cleared 63.92 miles of line in our circuit cutting program. We also bush hogged 64.59 miles, removed 14,043 trees and trimmed 9334 yard trees.

We plan to cut circuit number 1 out of Warnock, circuit number 3 out of Elliottville and circuit number 2 out of Argentum in 2020.

SECTION 7: UTILITY COMMENTS

We have seen an historical amount of rain this past year that has caused many oak trees that appear to be live to break or fall. Off right-of-way trees have caused 27% of our outages making it difficult to identify potential problems, and in some cases, difficult to persuade the land owner to allow them to be cut instead of trimmed. We will be placing more emphasis on identifying these problems and working with the land owners to remove these potential problem trees.

As we identify specific areas where small animals are the persistent cause of outages, guards will be added to prevent future outages in those locations. There were only a couple areas of persistence this year but we will be watching closely for trending areas.

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