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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	2013
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SECTION 3: MAJOR EVENT DAYS (MED)

	T _{MED}	31.37
FIRST DATE USED TO DETERMINE	T _{MED}	11/1/2013
LAST DATE USED TO DETERMINE	T _{MED}	11/1/2013
NUMBER OF MED IN REPORT YEAR		1

NOTE: Per IEEE 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: 15,375 TOTAL CIRCUITS 42

Excluding MED

	<u>5 YEAR AVERAGE</u>		<u>REPORTING YEAR</u>
SAIDI	<u>266.5</u>	SAIDI	<u>268.8</u>
SAIFI	<u>2.18</u>	SAIFI	<u>2.57</u>

Including MED

	<u>5 YEAR AVERAGE</u>		<u>REPORTING YEAR</u>
SAIDI	<u>895.1</u>	SAIDI	<u>324.8</u>
SAIFI	<u>3.04</u>	SAIFI	<u>2.73</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. The sub is located on Rt. 986 (Airport Road)
 3. Feeder 1
 4. South along Rt. 7 toward Elliott County
 5. Approximately 28.1 Primary Miles
 6. 196 Active Consumers
 7. Circuit has been 'hot spot' cut for years. Records don't indicate a full cut year.
 8. Causes of last years outages:

100 Construction	22.2%
110 Maintenance	28.9%
360 Other equipment installation/design	2.2%
420 Tree growth	8.9%
500 Lightning	6.7%
510 Wind, not trees	8.9%
590 Weather, other	4.4%
740 Public cuts tree	2.2%
800 Other	2.2%
999 Cause unknown	13.3%
 - *9. The 4 year average SAIDI is 3.00
 10. The SAIDI for 2013 was 6.01
 - *11. The 4 year average SAIFI is .03
 12. The SAIFI for 2013 was .06
 13. The entire feeder was out only twice. Once from power supplier and once from public cutting tree on line. We have re-cut ROW in troubled areas where more than one outage occurred.
- * Grayson has only tracked per feeder data for 4 years.

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SECTION 5: CIRCUIT REPORTING

Continued

1. Carter City Substation (Sub 10)
2. Located on Rt. 2 & 7 at Carter City
3. Feeder 3
4. Circuit feeds Rt. 474 (Smith Creek)
5. Approximately 27 Primary Miles
6. 154 Active Consumers
7. Circuit has been 'hot spot' cut for years. Records don't indicate a full cut year.
8. Causes of last years outages:

110 Maintenance	2.6%
300 Material or equipment fault/failure	10.3%
320 Conductor sag or inadequate clearance	5.1%
340 Overload	2.6%
420 Tree growth	12.8%
430 Tree failure from overhang or dead tree without ice/snow	5.1%
490 Maintenance, other	2.6%
520 Ice, sleet, frost, not trees	10.3%
590 Weather, other	17.9%
600 Small animal/bird	15.4%
999 Cause unknown	15.4%
- *9. The 4 year average SAIDI is 3.00
10. The SAIDI for 2013 was 6.01
- *11. The 4 year average SAIFI is .03
12. The SAIFI for 2013 was .06
13. This feeder is scheduled for a full circuit cut in 2014

* Grayson has only tracked per feeder data for 4 years.

SECTION 5: CIRCUIT REPORTING

Continued

1. Elliottville (Sub 7)
2. Located on Rt. 32 in Rowan County
3. Feeder 1
4. Rt. 32 toward Elliott Co/ Wagoner Corner
5. Approximately 56 Primary Miles
6. 392 Active Consumers
7. Circuit has been 'hot spot' cut for years. Records don't indicate a full cut year.
8. Causes of last years outages:

100 Construction	1.7%
110 Maintenance	5.2%
300 Material or equipment fault/failure	13.8%
400 Decay/age of material/equipment	3.4%
420 Tree growth	13.8%
430 Tree failure from overhang or dead tree without ice/snow	3.4%
500 Lightning	10.3%
510 Wind, not trees	10.3%
590 Weather, other	6.9%
600 Small animal/bird	19.0%
800 Other	1.7%
999 Cause unknown	10.3%
- *9. The 4 year average SAIDI is 5.58
10. The SAIDI for 2013 was 7.2
- *11. The 4 year average SAIFI is .07
12. The SAIFI for 2013 was .09
13. The main single phase line where a majority of these problems occurred is scheduled to be upgraded in our next work plan year 2016.

* Grayson has only tracked per feeder data for 4 years.

SECTION 5: CIRCUIT REPORTING

Continued

1. Elliottville (Sub 7)
2. Located on Rt. 32 in Rowan County
3. Feeder 2
4. Rt. 32 toward Morehead/Triangle Tower
5. Approximately 39.5 Primary Miles
6. 556 Active Consumers
7. Circuit was cut in 2007
8. Causes of last years outages:

100 Construction	6.8%
110 Maintenance	13.6%
300 Material or equipment fault/failure	10.2%
360 Other equipment installation/design	5.1%
400 Decay/age of material/equipment	1.7%
410 Corrosion/abrasion of material/equipment	1.7%
430 Tree failure from overhang or dead tree without ice/snow	1.7%
440 Trees with ice/snow	1.7%
500 Lightning	3.4%
510 Wind, not trees	1.7%
590 Weather, other	10.2%
600 Small animal/bird	10.2%
610 Large animal	1.7%
700 Customer-caused	5.1%
740 Public cuts tree	1.7%
800 Other	3.4%
999 Cause unknown	20.3%
- *9. The 4 year average SAIDI is 8.0
10. The SAIDI for 2013 was 14.98
- *11. The 4 year average SAIFI is .06
12. The SAIFI for 2013 was .11
13. Will monitor this circuit to look for consistent issues. Majority of outages were Maintenance , construction and unknown so pin-pointing an issue to resolve isn't possible yet.

* Grayson has only tracked per feeder data for 4 years.

SECTION 5: CIRCUIT REPORTING

Continued

1. Elliottville (Sub 7)
2. Located on Rt. 32 in Rowan County
3. Feeder 4
4. Rt. 504
5. Approximately 81.5 Primary Miles
6. 443 Active Consumers
7. Circuit was cut in 2008
8. Causes of last years outages:

110 Maintenance	12.8%
300 Material or equipment fault/failure	8.5%
340 Overload	4.3%
400 Decay/age of material/equipment	4.3%
420 Tree growth	10.6%
430 Tree failure from overhang or dead tree without ice/snow	6.4%
500 Lightning	6.4%
510 Wind, not trees	2.1%
590 Weather, other	8.5%
600 Small animal/bird	6.4%
610 Large animal	2.1%
700 Customer-caused	4.3%
730 Fire	4.3%
999 Cause unknown	19.1%
- *9. The 4 year average SAIDI is 2.72
10. The SAIDI for 2013 was 3.49
- *11. The 4 year average SAIFI is .03
12. The SAIFI for 2013 was .02
13. Will monitor this circuit to look for consistent issues. Majority of outages were Maintenance , construction and unknown so pin-pointing an issue to resolve isn't possible yet.

* Grayson has only tracked per feeder data for 4 years.

SECTION 5: CIRCUIT REPORTING

Continued

1. Low Gap (Sub 11)
2. Junction Rt. 2 and Rt. 1459 (Low Gap Road)
3. Feeder 1
4. Rt. 2 toward North Fork/Warnock Sub
5. Approximately 8.5 Primary Miles
6. 98 Active Consumers
7. Circuit is scheduled to be cut in 2014
8. Causes of last years outages:

190 Other planned	7.7%
510 Wind, not trees	7.7%
600 Small animal/bird	30.8%
800 Other	30.8%
999 Cause unknown	23.1%
- *9. The 4 year average SAIDI is 0.43
10. The SAIDI for 2013 was 0.53
- *11. The 4 year average SAIFI is .01
12. The SAIFI for 2013 was .01
13. Need to identify outages issues better since 53.9% are other and unknown.

* Grayson has only tracked per feeder data for 4 years.

SECTION 5: CIRCUIT REPORTING

Continued

1. Low Gap (Sub 11)
2. Junction Rt. 2 and Rt. 1459 (Low Gap Road)
3. Feeder 2
4. Rt. 2 toward Whetstone/River Park
5. Approximately 46.4 Primary Miles
6. 733 Active Consumers
7. Circuit is scheduled to be cut in 2014
8. Causes of last years outages:

100 Construction	3.1%
110 Maintenance	10.8%
300 Material or equipment fault/failure	20.0%
400 Decay/age of material/equipment	4.6%
410 Corrosion/abrasion of material/equipment	4.6%
430 Tree failure from overhang or dead tree without ice/snow	9.2%
510 Wind, not trees	3.1%
520 Ice, sleet, frost, not trees	3.1%
590 Weather, other	9.2%
600 Small animal/bird	7.7%
700 Customer-caused	1.5%
710 Motor vehicle	1.5%
800 Other	10.8%
999 Cause unknown	10.8%
- *9. The 4 year average SAIDI is 15.85
10. The SAIDI for 2013 was 16.26
- *11. The 4 year average SAIFI is .09
12. The SAIFI for 2013 was .13
13. Will work with dispatch to get better records of materials that are failing. These were not identified on outage reports.

* Grayson has only tracked per feeder data for 4 years.

SECTION 5: CIRCUIT REPORTING

Continued

1. Pactolus (Sub 8)
2. Substation Road off Rt. 1959
3. Feeder 1
4. Everman's Creek toward Iron Hill
5. Approximately 83 Primary Miles
6. 574 Active Consumers
7. Circuit was cut in 2012
8. Causes of last years outages:

100 Construction	3.7%
110 Maintenance	10.2%
300 Material or equipment fault/failure	8.3%
400 Decay/age of material/equipment	0.9%
420 Tree growth	0.9%
430 Tree failure from overhang or dead tree without ice/snow	14.8%
500 Lightning	2.8%
510 Wind, not trees	2.8%
590 Weather, other	8.3%
600 Small animal/bird	27.8%
700 Customer-caused	0.9%
800 Other	12.0%
999 Cause unknown	6.5%
- *9. The 4 year average SAIDI is 17.94
10. The SAIDI for 2013 was 28.06
- *11. The 4 year average SAIFI is 0.18
12. The SAIFI for 2013 was 0.14
13. The majority of issues were caused by a subdivision that will not allow tree trimming.

* Grayson has only tracked per feeder data for 4 years.

SECTION 5: CIRCUIT REPORTING

Continued

1. Pactolus (Sub 8)
2. Substation Road off Rt. 1959
3. Feeder 2
4. Along 1947/Sunset Hill/Radio Station
5. Approximately 11.2 Primary Miles
6. 238 Active Consumers
7. Circuit was cut in 2009
8. Causes of last years outages:

100 Construction	8.1%
110 Maintenance	13.5%
300 Material or equipment fault/failure	10.8%
340 Overload	2.7%
400 Decay/age of material/equipment	2.7%
410 Corrosion/abrasion of material/equipment	2.7%
430 Tree failure from overhang or dead tree without ice/snow	13.5%
590 Weather, other	5.4%
600 Small animal/bird	16.2%
610 Large animal	2.7%
800 Other	10.8%
999 Cause unknown	10.8%
- *9. The 4 year average SAIDI is 5.10
10. The SAIDI for 2013 was 5.33
- *11. The 4 year average SAIFI is 0.05
12. The SAIFI for 2013 was 0.04
13. Better identification of causes is necessary since 21.9% fell in Other and unknown

* Grayson has only tracked per feeder data for 4 years.

SECTION 5: CIRCUIT REPORTING

Continued

1. Pactolus (Sub 8)
2. Substation Road off Rt. 1959
3. Feeder 3
4. Smithfield
5. Approximately 1.4 Primary Miles
6. 1 Active Consumer
7. Circuit was cut in 2011
8. Causes of last years outages:

300 Material or equipment fault/failure	14.3%
420 Tree growth	14.3%
600 Small animal/bird	14.3%
800 Other	14.3%
999 Cause unknown	42.9%
- *9. The 4 year average SAIDI is .02
10. The SAIDI for 2013 was .03
- *11. The 4 year average SAIFI is 0.0002
12. The SAIFI for 2013 was 0.0004
13. We have trimmed ROW, changed cutouts and fuse sizes as well as replaced primary underground for this customer. No prolonged outages have been reported since modifications.

* Grayson has only tracked per feeder data for 4 years.

SECTION 5: CIRCUIT REPORTING
Continued

1. Pactolus (Sub 8)
2. Substation Road off Rt. 1959
3. Feeder 4
4. Rt. 1 toward Oldtown
5. Approximately 77.5 Primary Miles
6. 601 Active Consumers
7. Scheduled to be cut in 2014
8. Causes of last years outages:

100 Construction	7.6%
110 Maintenance	13.0%
300 Material or equipment fault/failure	18.5%
400 Decay/age of material/equipment	1.1%
420 Tree growth	3.3%
430 Tree failure from overhang or dead tree without ice/snow	12.0%
500 Lightning	6.5%
520 Ice, sleet, frost, not trees	2.2%
590 Weather, other	8.7%
600 Small animal/bird	10.9%
700 Customer-caused	1.1%
710 Motor vehicle	3.3%
800 Other	5.4%
999 Cause unknown	6.5%
- *9. The 4 year average SAIDI is 17.94
10. The SAIDI for 2013 was 28.06
- *11. The 4 year average SAIFI is 0.18
12. The SAIFI for 2013 was 0.14
13. This feeder is scheduled to have a full circuit cut in 2014.

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SECTION 6: VEGETATION MANAGEMENT PLAN REVIEW

INCLUDE CURRENT VEGETATION MANAGEMENT PLAN

Additional pages may be attached as needed.

The 2013 we cleared 47 miles of line, sprayed 61 miles, mowed 48 miles, re-cleared 82 miles, trimmed 7,858 trees and removed 7,376 individual trees.

In 2014 we will spray the circuits that were cut in 2013 plus circuit cut Pactolus Feeder 4, Airport Road Feeder 2, Leon Feeder 3.



SECTION 7: UTILITY COMMENTS
