

LICKING VALLEY

RURAL ELECTRIC COOPERATIVE CORPORATION

P. O. Box 605 • 271 Main Street West Liberty, KY 41472-0605 (606) 743-3179



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FEB 1 4 2019

PUBLIC SERVICE COMMISSION

February 12, 2019

Director of Engineering Public Service Commission 211 Sower Boulevard P.O. Box 615 Frankfort, KY 40602

Dear Sir:

Enclosed you will find Licking Valley Rural Electric Cooperative Corporation's Electric Distribution Utility Annual Reliability Report for the year ending 2018.

If additional information is needed, please let us know.

Sincerely,

Chris Murphy

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Superintendent of Operations

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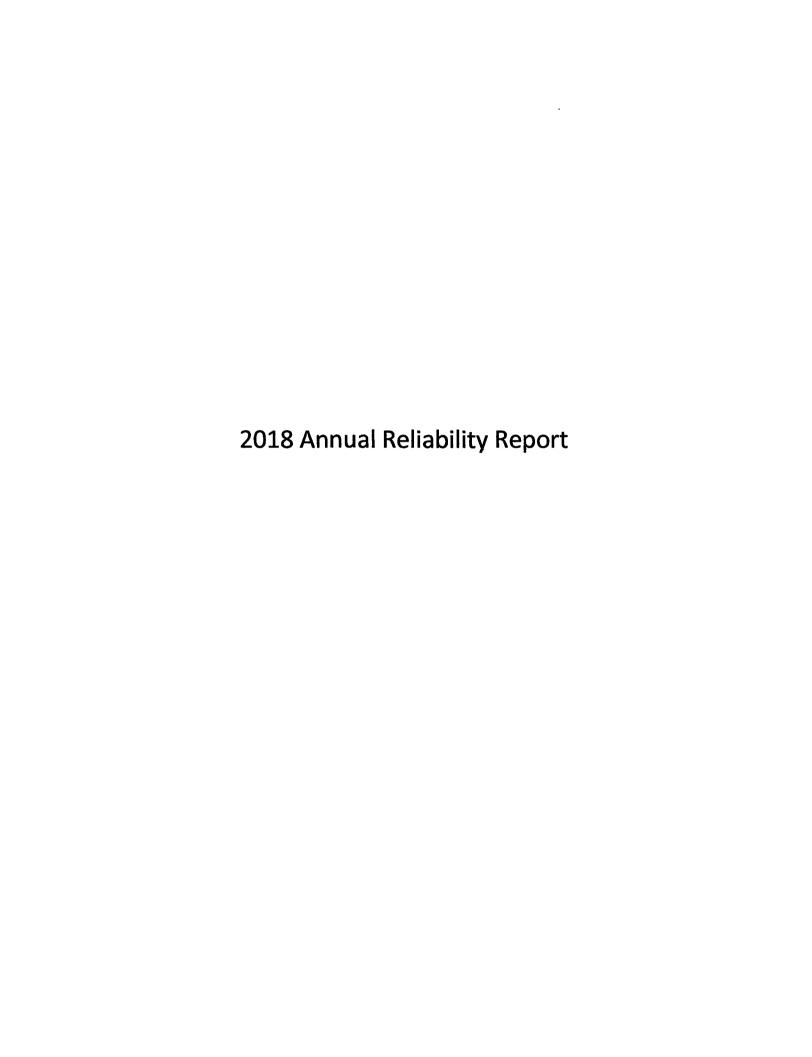
PUBLIC SERVICE COMMISSION

Report prepared for:

LICKING VALLEY RURAL ELECTRIC COOPERATIVE CORPORATION

Prepared by:

Oneida Haney, Service Office Supervisor <u>ohaney@lvrecc.com</u> 606-743-7500



Major Event Days

SAIDI Value 478.6744

First Date Used to Determine T'Med------January 23, 2018

Last Date to Determine T'Med-----November 06, 2018

Number of MED in Report Year-----40

System Reliability Information and Results

System-Wide Information

Total Consumers 17,198

Total Circuits 36

System-Wide Results

Excluding MED

Reporting Year 5 Year Average

SAIDI 160.9228 155.4355

SAIFI 1.2702 1.3755

Including MED

Reporting Year 5 Year Average

SAIDI 639.5972 395.7435

SAIFI 1.9134 2.0695

Ten Worst Performing Circuits and Major Outage Category Without T'Med for SAIFI Index

| Substation | Circuit | SAIFI Value | Major Cause |
|------------|----------------|-------------|-------------------|
| Oakdale ** | War Creek | 5.2537 | Pre-Arranged |
| Oakdale ** | Elkatawa | 3.3194 | Pre-Arranged |
| Oakdale ** | Athol | 2.9459 | Pre-Arranged |
| Oakdale ** | Highland | 2.6707 | Pre-Arranged |
| Campton | Vortex | 2.5260 | R-O-W Outside |
| Hot Mix | Elkfork | 2.5055 | R-O-W Outside |
| Index | School | 2.2500 | Pre-Arranged |
| Crockett | Williams Creek | 2.0132 | R-O-W Inside |
| Helechawa | Hazel Green | 1.9453 | Equipment Failure |
| Helechawa | Cannel City | 1.7799 | R-O-W Inside |

^{**}East Kentucky Power had Oakdale Substation down while they were relocating their transmission lines, was out longer than expected.

Ten Worst Performing Circuits and Major Outage Category Without T'Med for SAIDI Index

| Substation | Circuit | SAIDI Value | Major Cause |
|------------|----------------|-------------|---------------|
| Oakdale ** | War Creek | 1100.3547 | Pre-Arranged |
| Oakdale ** | Athol | 613.8018 | Pre-Arranged |
| Oakdale ** | Highland | 468.9761 | Pre-Arranged |
| Index | Mize | 338.1005 | R-O-W Outside |
| Maggard | Rockhouse | 313.0755 | Unknown |
| Maggard | Flat Fork | 267.9869 | Pre-Arranged |
| Campton | Vortex | 252.4380 | R-O-W Out |
| Index | School | 251.0000 | Pre-Arranged |
| Crockett | Williams Creek | 249.0188 | R-O-W Inside |
| Helechawa | Cannel City | 227.7424 | Pre-Arranged |

^{**} EKP has Oakdale Substation out while they relocated their transmission lines.

Ten Worst Performing Circuits and Major Cause Category Without T'Med for CAIDI Value

| Substation | Circuit | CAIDI Value | Major Cause |
|------------|------------|-------------|----------------------|
| Index | Prison | 752.00 | Animals |
| Maggard | Rockhouse | 393.85 | Equipment Failure |
| Index | Mize | 231.48 | Line Down |
| Oakdale | War Creek | 209.44 | Unknown |
| Oakdale | Athol | 208.36 | Pre-Arranged |
| Maggard | Lick Creek | 198.51 | Animals |
| Oakdale | Highland | 175.60 | Animals |
| Maytown | Ezel | 170.21 | Pre-Arranged |
| Maggard | Flat Fork | 169.89 | Unknown |
| Campton | Pine Ridge | 157.85 | Right of Way Outside |

System-Wide SAIFI, SAIDI, and CAIDI for the past 5 years, Includes T'Med

| | 2014 | 2015 | 2016 | 2017 | 2018 |
|-------|----------|----------|----------|----------|----------|
| SAIFI | 2.0962 | 2.2879 | 1.6367 | 2.4136 | 1.9134 |
| SAIDI | 352.2157 | 434.8157 | 207.9844 | 344.1047 | 639.5972 |
| CAIDI | 168.02 | 190.05 | 127.07 | 142.57 | 334.27 |

System-Wide SAIFI, SAIDI, and CAIDI for the past 5 years, Excludes T'Med

| | 2014 | 2015 | 2016 | 2017 | 2018 |
|-------|----------|----------|----------|----------|----------|
| SAIFI | 1.4337 | 1.6890 | 1.1743 | 1.3105 | 1.2702 |
| SAIDI | 145.9446 | 203.4541 | 129.5736 | 137.2827 | 160.9228 |
| CAIDI | 101.80 | 120.46 | 110.34 | 104.76 | 126.69 |

| | ! | SAIFI Values for eve | ry circuitexcludi | ng MED's | | |
|----------------------|--------|----------------------|-------------------|--------------|--------|----------------|
| | | | | | | |
| | | | | | | |
| | 2014 | 2015 | 2016 | 2017 | 2018 | 5 Year Average |
| Zachariah Substation | | | | | | |
| Leeco Circuit | 1.3181 | 1.2010 | 1.4888 | 0.2611 | 0.3501 | 0.9238 |
| Pine Ridge Circuit | 3.0835 | 0.5303 | 0.7266 | 2.4993 | 1.3175 | 1.6314 |
| Oakdale Substation | | | | | | |
| Athol Circuit | 0.6000 | 4.3652 | 1.2222 | 0.4068 | 2.9459 | 1.9080 |
| Highland Circuit | 7.6267 | 12.6854 | 1.4552 | 10.7568 | 2.6707 | 7.0390 |
| Elkatawa Circuit | 0.9886 | 1.3736 | 1.5467 | 1.3612 | 3.3194 | 1.7080 |
| War Creek Circuit | 1.2550 | 0.9173 | 0.9779 | 0.5867 | 5.2537 | 1.7981 |
| Helechawa Substation | | | | | | |
| Hazel Green Circuit | 2.5088 | 0.7192 | 0.5908 | 1.4920 | 1.9453 | 1.4512 |
| Cannel City Circuit | 0.7062 | 1.2483 | 0.5183 | 1.7853 | 1.7799 | 1.2076 |
| Vancleve Circuit | | | 4.0664 | 1.2929 | 0.4336 | |
| Belknap Circuit | | | 1.2206 | 0.7396 | 1.3609 | |
| Hot Mix Substation | _ | | | | | |
| Elkfork Circuit | 1.4415 | 3.6804 | 1.1761 | 0.8000 | 2.5055 | 1.9207 |
| Liberty Road Circuit | 2.2054 | 0.9178 | 0.0563 | 0.6250 | 0.6032 | 0.8815 |
| 519 Circuit | 0.7000 | 1.1219 | 1.3728 | 0.5472 | 0.5887 | 0.8661 |
| Wrigley Circuit | 0.2411 | 1.1617 | 0.3063 | 2.3975 | 0.4231 | 0.9059 |
| Maggard Substation | | | | | | |
| Rockhouse Circuit | 0.2137 | 0.6735 | 0.5629 | 0.5248 | 0.7949 | 0.5540 |
| Flat Fork Circuit | 0.5097 | 0.4614 | 0.7076 | 0.3314 | 1.5774 | 0.7175 |
| Lick Creek Circuit | 0.7139 | 0.9790 | 0.3612 | 0.5812 | 0.5544 | 0.6379 |
| Sublett Substation | | | | | | |
| Carver Circuit | 0.8004 | 0.8995 | 0.2604 | 1.3418 | 1.1130 | 0.8830 |
| Lakeville Circuit | 0.7332 | 1.3910 | 1.9942 | 2.0751 | 0.9908 | 1.4369 |
| Gunlock Circuit | 0.9689 | 3.6553 | 1.4918 | 2.3189 | 0.5558 | 1.7981 |
| Gun Creek Circuit | 0.6415 | 4.8953 | 0.5595 | 4.2683 | 0.7791 | 2.2287 |
| | | | | | | |
| | | | | | | |

| | SAI | FI Values for every | circuitexcludin | g MED's | | |
|------------------------|--------|--|-----------------|---------|--|--------------|
| | 2014 | 2015 | 2016 | 2017 | 2018 | 5 Year Avera |
| Campton Substation | | | 2020 | 2027 | 2010 | 3 Teal Avere |
| Pine Ridge Circuit | 2.8004 | 1.0703 | 0.9086 | 0.3879 | 0.2123 | 1.0 |
| Stillwater Circuit | 0.9352 | 1.8557 | 0.5273 | 1.2634 | 0.5061 | 1.0 |
| Vortex Circuit | 1.6862 | 1.5258 | 3.9019 | 1.0873 | 2.5260 | 2.: |
| Elkins Road Circuit | 1.3786 | 0.4539 | 3.1760 | 0.8887 | 0.2582 | 1.2 |
| Index Substation | | | | | | |
| Caney Circuit | 0.7513 | 0.8947 | 0.7251 | 0.9260 | 0.2871 | 0.7 |
| Index Circuit | 0.2092 | 0.2229 | 0.8492 | 1.3290 | 0.3914 | 0.6 |
| Mize Circuit | 4.9844 | 3.7369 | 2.7332 | 0.4073 | 1.4606 | 2.6 |
| Prison Circuit | | | 0.5000 | 0.2500 | 0.2500 | |
| School Circuit | | 0.1666 | | | 2.2500 | |
| Maytown Substation | | | | | | |
| Ezel Circuit | 0.6817 | 1.3606 | 0.5829 | 0.2437 | 0.5912 | 0.6 |
| Hazel Green Circuit | 0.7250 | 0.5722 | 0.5727 | 0.4821 | 1.0955 | 0.6 |
| Pomeroyton Circuit | 2.2359 | 0.7363 | 1.1783 | 0.3437 | 0.7174 | 1.0 |
| Crockett Substation | | | | | | |
| Lenox Circuit | 0.3943 | 1.5215 | 0.4784 | 0.3038 | 1.1250 | 0.7 |
| Williams Creek Circuit | 1.4069 | 1.1608 | 0.4027 | 1.6181 | 2.0132 | 1.3 |
| Crockett Circuit | 1.0932 | 2.1979 | 1.0000 | 1.8828 | 1.1099 | 1.4 |
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| Zachariah Substation Leeco Circu Pine Ridge Oakdale Substation Athol Circu Highland Circu Highland Circu Highland Circu Hatawa Civar Creek Helechawa Substation Hazel Gree Cannel City Vancleve Circult Belknap Ci Hot Mix Substation Elkfork Circult Urigley Circult Wrigley Circult Maggard Substation | Circuit iit ircuit ircuit in Circuit circuit rcuit | 2014 110.4974 261.3724 69.3912 1051.1060 159.7356 130.8586 222.6618 82.2362 | 2015 172.1195 52.2862 696.5217 2135.8053 136.7890 74.5614 64.6960 154.0432 | 2016 192.5083 76.9220 276.7094 161.4179 128.9409 77.6871 60.6123 54.2373 451.8839 129.5499 | 2017 36.0694 133.4572 18.9322 1384.1699 141.6928 74.3765 105.7902 176.4362 129.6004 92.9732 | 2018 43.9629 84.3900 613.8018 468.9761 119.3921 1100.6547 160.5718 227.7424 55.4974 162.1656 | 5 Year Average 111.0315 121.6855 335.0713 1040.2950 137.3101 291.5677 122.8664 138.9391 |
|--|--|---|--|--|---|--|--|
| Leeco Circu Pine Ridge Oakdale Substation Athol Circu Highland C Elkatawa C War Creek Helechawa Substation Hazel Gree Cannel City Vancleve C Belknap Ci Hot Mix Substation Elkfork Circ Liberty Roa 519 Circuit Wrigley Cir | Circuit iit ircuit ircuit in Circuit circuit rcuit | 110.4974 261.3724 69.3912 1051.1060 159.7356 130.8586 222.6618 82.2362 | 172.1195 52.2862 696.5217 2135.8053 136.7890 74.5614 | 192.5083 76.9220 276.7094 161.4179 128.9409 77.6871 60.6123 54.2373 451.8839 | 36.0694 133.4572 18.9322 1384.1699 141.6928 74.3765 105.7902 176.4362 129.6004 | 43.9629 84.3900 613.8018 468.9761 119.3921 1100.6547 160.5718 227.7424 55.4974 | 111.0315 121.6855 335.0713 1040.2950 137.3101 291.5677 |
| Leeco Circu Pine Ridge Oakdale Substation Athol Circu Highland C Elkatawa C War Creek Helechawa Substation Hazel Gree Cannel City Vancleve C Belknap Ci Hot Mix Substation Elkfork Circ Liberty Roa 519 Circuit Wrigley Cir | Circuit iit ircuit ircuit in Circuit circuit rcuit | 261.3724 69.3912 1051.1060 159.7356 130.8586 222.6618 82.2362 | 52.2862 696.5217 2135.8053 136.7890 74.5614 64.6960 | 76.9220 276.7094 161.4179 128.9409 77.6871 60.6123 54.2373 451.8839 | 18.9322 1384.1699 141.6928 74.3765 105.7902 176.4362 129.6004 | 84.3900 613.8018 468.9761 119.3921 1100.6547 160.5718 227.7424 55.4974 | 121.6855 335.0713 1040.2950 137.3101 291.5677 122.8664 |
| Pine Ridge Oakdale Substation Athol Circu Highland C Elkatawa C War Creek Helechawa Substation Hazel Gree Cannel City Vancleve C Belknap Ci Hot Mix Substation Elkfork Circ Liberty Roa 519 Circuit Wrigley Cir | Circuit iit ircuit ircuit in Circuit circuit rcuit | 261.3724 69.3912 1051.1060 159.7356 130.8586 222.6618 82.2362 | 52.2862 696.5217 2135.8053 136.7890 74.5614 64.6960 | 76.9220 276.7094 161.4179 128.9409 77.6871 60.6123 54.2373 451.8839 | 18.9322 1384.1699 141.6928 74.3765 105.7902 176.4362 129.6004 | 84.3900 613.8018 468.9761 119.3921 1100.6547 160.5718 227.7424 55.4974 | 121.6855 335.0713 1040.2950 137.3101 291.5677 122.8664 |
| Oakdale Substation Athol Circu Highland C Elkatawa C War Creek Helechawa Substation Hazel Gree Cannel City Vancleve C Belknap Ci Hot Mix Substation Elkfork Circ Liberty Roa 519 Circuit Wrigley Cir | iit ircuit ircuit n Circuit / Circuit ircuit | 69.3912 1051.1060 159.7356 130.8586 222.6618 82.2362 | 696.5217 2135.8053 136.7890 74.5614 64.6960 | 276.7094 161.4179 128.9409 77.6871 60.6123 54.2373 451.8839 | 18.9322 1384.1699 141.6928 74.3765 105.7902 176.4362 129.6004 | 613.8018 468.9761 119.3921 1100.6547 160.5718 227.7424 55.4974 | 335.0713 1040.2950 137.3101 291.5677 |
| Athol Circu Highland C Elkatawa C War Creek Helechawa Substation Hazel Gree Cannel City Vancleve C Belknap Ci Hot Mix Substation Elkfork Circ Liberty Roa 519 Circuit Wrigley Cir | ircuit ircuit n cr Circuit y Circuit ircuit rcuit | 1051.1060 159.7356 130.8586 222.6618 82.2362 | 2135.8053 136.7890 74.5614 64.6960 | 161.4179 128.9409 77.6871 60.6123 54.2373 451.8839 | 1384.1699 141.6928 74.3765 105.7902 176.4362 129.6004 | 468.9761 119.3921 1100.6547 160.5718 227.7424 55.4974 | 1040.2950 137.3101 291.5677 122.8664 |
| Highland Control Elkatawa Control War Creek Helechawa Substation Hazel Greet Cannel City Vancleve Control Elknap City Hot Mix Substation Elkfork Circuity Elyrigley Circuity Elkrap City Elberty Road | ircuit ircuit n cr Circuit y Circuit ircuit rcuit | 1051.1060 159.7356 130.8586 222.6618 82.2362 | 2135.8053 136.7890 74.5614 64.6960 | 161.4179 128.9409 77.6871 60.6123 54.2373 451.8839 | 1384.1699 141.6928 74.3765 105.7902 176.4362 129.6004 | 468.9761 119.3921 1100.6547 160.5718 227.7424 55.4974 | 1040.2950 137.3101 291.5677 122.8664 |
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| War Creek Helechawa Substation Hazel Gree Cannel City Vancleve C Belknap Ci Hot Mix Substation Elkfork Circ Liberty Ros 519 Circuit Wrigley Cir | n Circuit y Circuit ircuit rcuit | 130.8586 222.6618 82.2362 | 74.5614 64.6960 | 77.6871 60.6123 54.2373 451.8839 | 74.3765 105.7902 176.4362 129.6004 | 1100.6547 160.5718 227.7424 55.4974 | 291.5677 122.8664 |
| Helechawa Substation Hazel Gree Cannel City Vancleve C Belknap Ci Hot Mix Substation Elkfork Circ Liberty Roa 519 Circuit Wrigley Cir | n Circuit / Circuit ircuit rcuit | 222.6618 82.2362 | 64.6960 | 60.6123 54.2373 451.8839 | 105.7902 176.4362 129.6004 | 160.5718 227.7424 55.4974 | 122.8664 |
| Hazel Gree Cannel City Vancleve C Belknap Ci Hot Mix Substation Elkfork Circ Liberty Ros 519 Circuit Wrigley Cir | n Circuit / Circuit ircuit rcuit | 82.2362 | | 54.2373 451.8839 | 176.4362 129.6004 | 227.7424 55.4974 | |
| Cannel City Vancleve C Belknap Ci Hot Mix Substation Elkfork Circ Liberty Roa 519 Circuit Wrigley Cir | / Circuit ircuit rcuit | 82.2362 | | 54.2373 451.8839 | 176.4362 129.6004 | 227.7424 55.4974 | |
| Vancleve C Belknap Ci Hot Mix Substation Elkfork Circ Liberty Roa 519 Circuit Wrigley Cir | ircuit rcuit | | 154.0432 | 451.8839 | 129.6004 | 55.4974 | 138.9391 |
| Belknap Ci Hot Mix Substation Elkfork Circ Liberty Ros 519 Circuit Wrigley Cir | rcuit | | | | | | |
| Hot Mix Substation Elkfork Circ Liberty Roa 519 Circuit Wrigley Cir | | | | 129.5499 | 92.9732 | 162.1656 | |
| Elkfork Circ Liberty Ros 519 Circuit Wrigley Cir | cuit | | | | | | |
| Liberty Roa 519 Circuit Wrigley Cir | cuit | | | | | | |
| 519 Circuit Wrigley Cir | | 65.5471 | 193.2707 | 120.6654 | 46.5714 | 201.3891 | 125.4887 |
| Wrigley Cir | d Circuit | 197.3288 | 48.3698 | 3.3803 | 56.0157 | 35.9048 | 68.1999 |
| | | 51.8047 | 102.9759 | 136.3018 | 89.0025 | 83.7567 | 92.7683 |
| Manager of Cubatation | cuit | 28.4171 | 108.7686 | 27.5443 | 337.9366 | 34.7898 | 107.4913 |
| waggaru Substation | | | | | | | |
| Rockhouse | Circuit | 69.9310 | 71.1169 | 68.2167 | 58.8829 | 313.0755 | 116.2446 |
| Flat Fork C | ircuit | 91.7345 | 42.4448 | 66.1081 | 37.6443 | 267.9869 | 101.1837 |
| Lick Creek | Circuit | 78.1350 | 104.1343 | 29.7822 | 66.9253 | 110.0528 | 77.8059 |
| Sublett Substation | | | | | | | |
| Carver Circ | uit | 60.1401 | 107.0751 | 18.5645 | 184.3841 | 98.9872 | 93.8302 |
| Lakeville C | ircuit | 87.5054 | 132.8783 | 351.2470 | 228.7862 | 106.3564 | 181.3547 |
| Gunlock Ci | rcuit | 125.5344 | 652.1632 | 333.3587 | 254.8228 | 65.3942 | 286.2547 |
| Gun Creek | Circuit | 71.9811 | 866.0755 | 67.6786 | 370.7622 | 66.4233 | 288.5841 |

| | | | SAIDI Values for ever | y circuitexcludii | ng MED's | | |
|---------|------------------------|----------|-----------------------|-------------------|----------|----------|----------------|
| | | | | | | | |
| | | 2014 | 2015 | 2016 | 2017 | 2018 | 5 Year Average |
| Campt | on Substation | | | | | | |
| | Pine Ridge Circuit | 94.1814 | 56.8558 | 101.1563 | 41.7274 | 33.5112 | 65.4864 |
| | Stillwater Circuit | 112.6524 | 208.8360 | 44.5341 | 96.1985 | 52.5457 | 102.9533 |
| | Vortex Circuit | 174.9289 | 293.2477 | 557.3380 | 90.2226 | 252.4380 | 273.6350 |
| | Elkins Road Circuit | 178.0000 | 51.7021 | 220.0352 | 120.7291 | 21.1634 | 118.3260 |
| Index S | Substation | | | | | | |
| | Caney Circuit | 62.7513 | 70.4868 | 72.6010 | 66.3265 | 38.4080 | 62.1147 |
| | Index Circuit | 20.8154 | 11.7956 | 68.9507 | 75.5798 | 44.1217 | 44.2526 |
| | Mize Circuit | 412.1109 | 352.2212 | 159.5184 | 29.8132 | 338.1005 | 258.3528 |
| | Prison Circuit | | | | | 188.0000 | |
| | School Circuit | | 30.0000 | | | 2.2500 | |
| Mayto | wn Substation | | | | | | |
| | Ezel Circuit | 84.9183 | 117.0970 | 54.1790 | 17.6252 | 100.6312 | 74.8901 |
| _ | Hazel Green Circuit | 133.8972 | 76.3127 | 35.371 | 79.6557 | 144.5493 | 93.9572 |
| | Pomeroyton Circuit | 242.1235 | 53.5035 | 58.8554 | 20.0938 | 93.3734 | 93.5899 |
| Crocke | ett Substation | | | | | | |
| | Lenox Circuit | 32.2571 | 94.0735 | 40.7669 | 45.9177 | 167.8000 | 76.163 |
| | Williams Creek Circuit | 86.2045 | 52.6992 | 42.6087 | 178.2226 | 249.0188 | 121.7508 |
| | Crockett Circuit | 136.4512 | 99.1437 | 47.5911 | 276.2323 | 160.9704 | 144.0777 |

Circuit Reporting Circuits With SAIFI or SAIDI Value Higher Than 5 Year Average

Substation # 2; Oakdale Substation, located on RT 52 at Oakdale in Breathitt County.

Circuit #1, Athol Circuit; this circuit serves the areas of Athol, Oakdale and Cope Branch.

The circuit has approximately 17.6 miles of line and serves approximately 111 consumers.

This circuit was cut out in 2016.

Causes and percentages for this circuit:

| Cause | % SAIFI | % SAIDI |
|--------------------------|---------|---------|
| Pre-Arranged Maintenance | 94% | 97% |
| Unknown | 4% | 2% |
| Animals | 2% | 1% |

Circuit 5 Year Average SAIFI---1.9080

Reporting Year 2018 SAIFI---2.9459

Circuit 5 Year Average SAIDI---335.0713

Reporting Year 2018 SAIDI---613.8018

East Kentucky Power had Substation out while they relocated their transmission lines.

Substation #2; Oakdale Substation, located on RT 52 at Oakdale in Breathitt County.

Circuit # 3, Elkatawa Circuit; this circuit serves the areas of Five-Mile, Wolverine, Elkatawa, Belcher Fork, and Cane Creek.

This circuit has approximately 57.3 miles of line and serves approximately 811 consumers.

This circuit was cut out in 2016.

Causes and percentages for this circuit:

| Cause | % SAIFI | % SAIDI |
|--------------------------|---------|---------|
| Pre-Arranged Maintenance | 87% | 54% |
| Unknown | 10% | 36% |
| Animals | 2% | 4% |
| Right of Way Outside | 1% | 3% |
| Line Down | <1% | 2% |
| Equipment Failure | <1% | 1% |

Circuit 5 Year Average SAIFI---1.7080

Reporting Year 2018 SAIFI---2.6707

Circuit 5 Year Average SAIDI---137.3101

Reporting Year 2018 SAIDI---119.3921

East Kentucky Power had Substation out while they relocated their transmission lines.

Substation # 2; Oakdale Substation, located on Rt. 52 at Oakdale in Breathitt County.

Circuit # 4; War Creek Circuit; this circuit serves the areas of Lower Twin, Trace Fork, Rock Fork, Mill Creek, and Mt Carmel.

This circuit has approximately 40.7 miles of line and serves approximately 406 consumers.

This circuit was cut out in 2016.

Causes and percentages for this circuit:

| Cause | % SAIFI | % SAIDI |
|--------------------------|---------|---------|
| Pre-Arranged Maintenance | 98% | 98% |
| Right of Way Outside | 2% | <1% |
| Unknown | <1% | 2% |
| Right of Way Inside | <1% | <1% |
| Equipment Failure | <1% | <1% |
| Animals | <1% | <1% |

Circuit 5 Year Average SAIFI---1.7981

Reporting Year 2018 SAIFI---5.2537

Circuit 5 Year Average SAIDI---291.5677

Reporting Year 2018 SAIDI---1100.3547

East Kentucky Power had Substation out while they relocated their transmission lines.

Substation # 3, Helechawa Substation, located on Hwy 205 in Wolfe County, near exit 57 off Mountain Parkway.

Circuit # 1; Hazel Green Circuit; this circuit serves areas of Helechawa, Hazel Green, Red River and Lacy Creek.

This circuit has approximately 83.4 miles of line and serves approximately 696 consumers.

Last circuit trim was in 2011.

Causes and percentages for this circuit:

| Cause | % SAIFI | % SAIDI |
|--------------------------|---------|---------|
| Equipment Failure | 33% | 35% |
| Right of Way Inside | 22% | 17% |
| Right of Way Crew | 16% | 18% |
| Right of Way Outside | 10% | 14% |
| Pre-Arranged Maintenance | 7% | 2% |
| Animals | 5% | 6% |
| Consumer Caused | 4% | 5% |
| Unknown | 3% | 3% |

Equipment failure is something beyond our control.

Substation # 3; Helechawa Substation, located on Hwy 205 in Wolfe County, near exit 57 off Mountain Parkway.

Circuit #2, Cannel City Circuit; this circuit serves areas of Upper Stacy Fork, Cannel City, Johnson Fork, Adele and Cow Creek.

This circuit has approximately 104.9 miles of line and serves approximately 854 consumers.

This circuit was cut out in 2018.

Causes and percentages for this circuit:

| Cause | % SAIFI | % SAIDI |
|--------------------------|---------|---------|
| Right of Way Inside | 41% | 25% |
| Pre-Arranged Maintenance | 39% | 59% |
| Right of Way Outside | 11% | 9% |
| Right of Way Crew | 4% | 2% |
| Unknown | 3% | 3% |
| Consumer Caused | 2% | 1% |
| Animals | <1% | 1% |
| Line Down | <1% | <1% |
| Equipment Failure | <1% | <1% |

Circuit 5 Year Average SAIFI---1.2076

Reporting Year- 2018 SAIFI---1.7799

Circuit 5 Year Average SAIDI---138.9391

Reporting Year - 2018 SAIDI-227.7424

This right of way was cut out in 2018, so now that is complete, there should be less outages concerning right of way inside for next year.

Substation #4; Hot Mix Substation, located on Sugar Camp Road in Morgan County.

Circuit # 1, Elkfork Circuit; this circuit serves areas of Elkfork, Lick Branch, Cow Branch and Cottle.

This circuit has approximately 36.2 miles of line and serves approximately 275 consumers.

Last hot spot trim was in 2013.

Causes and percentages for this circuit:

| Cause | % SAIFI | % SAIDI |
|--------------------------|---------|---------|
| Right of Way Outside | 41% | 41% |
| Unknown | 21% | 24% |
| Right of Way Inside | 21% | 20% |
| Pre-Arranged Maintenance | 15% | 11% |
| Equipment Failure | <1% | 2% |
| Line Down | 1% | 1% |
| Consumer Caused | 1% | 1% |
| Animals | <1% | <1% |

Circuit 5 Year Average SAIFI---1.9207

Reporting Year, 2018 SAIFI---2.5055

Circuit 5 Year Average SAIDI---125.4887

Reporting Year, 2018 SAIDI---201.3891

Right of Way Outside our cutting range is hard to control.

Substation # 5, Maggard Substation, located on Rt. 1081 at Coon Creek in Magoffin County.

Circuit # 1; Rockhouse Circuit; this circuit serves areas of Improvement Fork, Rockhouse, and Logville.

This circuit has approximately 32.5 miles of line and serves approximately 278 consumers.

Last circuit trim was in 2013.

Causes and percentages for this circuit:

| Cause | % SAIFI | % SAIDI |
|--------------------------|---------|---------|
| Equipment Failure | 47% | 31% |
| Unknown | <1% | 56% |
| Pre-Arranged Maintenance | 27% | 3% |
| Right of Way Outside | 25% | 9% |
| Animals | 1% | 1% |

Circuit 5 Year Average SAIFI---.5540

Reporting Year, 2018 SAIFI---.7949

Circuit 5 Year Average SAIDI---116.2446

Reporting Year, 2018 SAIDI---313.0755

Equipment Failure is beyond our control.

Substation # 5, Maggard Substation, located on Rt. 1081 at Coon Creek in Magoffin County.

Circuit # 2; Flat Fork Circuit; this circuit serves areas of Coon Creek, Mud Lick, Flat Fork, Mine Fork and Litteral.

This circuit has approximately 43 miles of line and serves approximately 535 consumers.

This circuit was cut out in 2013.

Causes and percentages for this circuit:

| Cause | % SAIFI | % SAIDI |
|--------------------------|---------|---------|
| Pre-Arranged Maintenance | 70% | 60% |
| Right of Way Outside | 17% | 14% |
| Unknown | 3% | 17% |
| Equipment Failure | 5% | 5% |
| Consumer Caused | 2% | 2% |
| Right of Way Inside | 2% | 1% |
| Animals | 1% | 1% |

Circuit 5 Year Average SAIFI---.7175

Reporting Year, 2018 SAIFI—1.5774

Circuit 5 Year Average SAIDI---101.1837

Reporting Year, 2018 SAIDI---267.9869

In order for needed repairs to be completed safely, servicemen had to turn power off during repairs.

Substation # 5, Maggard Substation, located on Rt 1081 at Coon Creek Road in Magoffin County.

Circuit # 3; Lick Creek Circuit; this circuit serves areas of Lick Creek Road, Buffalo, Brushy Fork and Cripple Creek.

This circuit has approximately 48.5 miles of line and serves approximately 606 consumers.

Last circuit trim was in 2013.

Causes and percentages for this circuit:

| Cause | % SAIFI | % SAIDI |
|--------------------------|---------|---------|
| Right of Way Outside | 39% | 31% |
| Equipment Failure | 31% | 47% |
| Pre-Arranged Maintenance | 13% | 3% |
| Animals | 5% | 13% |
| Right of Way Inside | 7% | 4% |
| Unknown | 5% | 3% |

Circuit 5 Year Average SAIFI---.6379

Reporting Year 2018, SAIFI---.5544

Circuit 5 Year Average SAIDI---77.8059

Reporting Year 2018, SAIDI---110.0528

Right of Way Outside and Equipment Failure is beyond our control.

Substation # 6, Sublett Substation, located on Rt 7 near Royalton in Magoffin County.

Circuit # 1, Carver Circuit; this circuit serves areas of Sublett, Stinson, Foraker and Hendricks.

This circuit has approximately 71.4 miles of line and serves approximately 779 consumers.

Last circuit trim was in 2012.

Causes and percentages for this circuit:

| Cause | % SAIFI | % SAIDI |
|--------------------------|---------|---------|
| Right of Way Outside | 42% | 46% |
| Animals | 18% | 20% |
| Right of Way Inside | 17% | 18% |
| Pre-Arranged Maintenance | 14% | 4% |
| Unknown | 7% | 7% |
| Equipment Failure | 1% | 3% |
| Line Down | 1% | 2% |

Circuit 5 Year Average SAIFI---.8830

Reporting Year 2018, SAIF!---1.1130

Circuit 5 Year Average SAIDI---93.8302

Reporting Year 2018, SAIDI---98.9872

Right of Way Outside is beyond our control.

Substation #7, Campton Substation, located on Rt. 15 in Campton, Wolfe County.

Circuit # 3; Vortex Circuit; this circuit serves areas of Hwy 15, Flat Mary, Big Bloody and Bethany.

This circuit has approximately 83 miles of line and serves approximately 557 consumers.

This circuit was cut out in 2015.

Causes and percentages for this circuit:

| Cause | % SAIFI | % SAIDI |
|--------------------------|---------|---------|
| Right of Way Outside | 50% | 76% |
| Equipment Failure | 42% | 16% |
| Animals | 3% | 3% |
| Pre-Arranged Maintenance | 2% | 2% |
| Consumer Caused | 2% | 2% |
| Right of Way Inside | 1% | 1% |
| Unknown | <1% | <1% |

Circuit 5 Year Average SAIFI---2.1454

Reporting Year 2018, SAIFI---2.5260

Circuit 5 Year Average SAIDI---273.6350

Reporting Year 2018, SAIDI---252.4380

Right of Way Problems Outside of our cutting range we have no control over.

Substation #8, Index Substation, located on Rt. 191 near Index in Morgan County.

Circuit # 3; Mize Circuit; this circuit serves areas of 460W, Greer, Grassy Creek, and Woodsbend.

This circuit has approximately 75.6 miles of line and serves approximately 686 consumers.

Last hot spot trim was in 2011.

Causes and percentages for this circuit:

| Cause | % SAIFI | % SAIDI |
|--------------------------|---------|---------|
| Right of Way Outside | 75% | 88% |
| Pre-Arranged Maintenance | 12% | 3% |
| Unknown | 4% | 3% |
| Animals | 3% | 2% |
| Right of Way Crew | 3% | <1% |
| Right of Way Inside | 2% | 1% |
| Equipment Failure | 1% | 1% |
| Line Down | <1% | 2% |

Circuit 5 Year Average SAIFI---2.6645

Reporting Year 2018, SAIFI---1.4606

Circuit 5 Year Average SAIDI---258.3528

Reporting Year 2018, SAIDI---338.1005

We have no control over Right of Way Outside of our cutting area.

Substation # 9, Maytown Substation, located on Rt. 1010 in Morgan County.

Circuit # 1; Ezel Circuit; this circuit serves areas of Ezel, Greasy, Little Blackwater, Hwy 772 and Upper Long Branch.

This circuit as approximately 98.2 miles and serves approximately 751 consumers.

This circuit was cut out in 2015.

Causes and percentage for this circuit:

| Cause | % SAIFI | % SAIDI |
|--------------------------|---------|---------|
| Pre-Arranged Maintenance | 52% | 67% |
| Equipment Failure | 18% | 13% |
| Right of Way Outside | 12% | 11% |
| Right of Way Inside | 7% | 2% |
| Unknown | 6% | 3% |
| Animals | 5% | 4% |
| Consumer Caused | <1% | <1% |

Circuit 5 Year Average SAIFI---.6920

Reporting Year 2018, SAIFI---.5912

Circuit 5 Year Average SAIDI---74.8901

Reporting Year 2018, SAIDI---100.6312

In order to do the necessary repairs safely, the servicemen had to turn the power off until repairs were complete.

Substation # 9, Maytown Substation, located on Rt. 1010 in Morgan County.

Circuit # 2; Hazel Green Circuit; this circuit serves areas of Rt 1010, Murphy Fork, Swango Fork, Maytown, Valeria and Big Branch.

This circuit has approximately 50.2 miles of line and serves approximately 335 consumers.

This circuit was cut out in 2015.

Causes and percentage for this circuit:

| Cause | % SAIFI | % SAIDI |
|--------------------------|---------|---------|
| Pre-Arranged Maintenance | 54% | 25% |
| Equipment Failure | 29% | 40% |
| Right Of Way Outside | 11% | 30% |
| Animals | 4% | 4% |
| Consumer Caused | 1% | 1% |
| Unknown | 1% | <1% |

Circuit 5 Year Average SAIFI---.6895

Reporting Year 2018, SAIFI---1.0955

Circuit 5 Year Average SAIDI---93.9572

Reporting Year 2018, SAIDI---144.5493

In order to complete necessary repairs safely, servicemen had to turn electric off until repairs was complete.

Substation # 10, Crockett Substation, located on Hwy 172 in Morgan County.

Circuit # 1; Lenox Circuit; this circuit serves areas of Lenox, Straight Creek, and Conley Branch.

This circuit has approximately 20.9 miles of line and serves approximately 160 consumers.

Last hot spot trim was in 2010.

Causes and percentages for this circuit:

| Causes | % SAIFI | % SAIDI |
|--------------------------|---------|---------|
| Equipment Failure | 63% | 72% |
| Right of Way Outside | 32% | 27% |
| Animals | 3% | 1% |
| Pre-Arranged Maintenance | 2% | <1% |

Circuit 5 Year Average SAIFI---.7646

Reporting Year 2018, SAIFI---1.1250

Circuit 5 Year Average SAIDI---76.1630

Reporting Year 2018, SAIDI---167.8000

Equipment Failure we have no control over.

Substation # 10, Crockett Substation, located on Hwy 172 in Morgan County.

Circuit # 2; Williams Creek Circuit; this circuit serves areas of Williams Creek, Coffee Creek, Upper Sandlick, and Lick Branch.

This circuit has approximately 69.4 miles of line and serves approximately 532 consumers.

Last hot spot trim was in 2010.

Causes and percentages for this circuit:

| Cause | % SAIFI | % SAIDI |
|--------------------------|---------|---------|
| Right of Way Inside | 52% | 66% |
| Pre-Arranged Maintenance | 31% | 16% |
| Right of Way Outside | 10% | 9% |
| Animals | 4% | 4% |
| Unknown | 2% | 4% |
| Consumer Caused | 1% | 1% |
| Equipment Failure | <1% | <1% |
| Right of Way Crew | <1% | <1% |

Circuit 5 Year Average SAIFI---1.3203

Reporting Year 2018, SAIFI---2.0132

Circuit 5 Year Average SAIDI---121.7508

Reporting Year 2018, SAIDI—249.0188

We are currently trimming hot spots now, so the outage time for right of way inside next year should be a lot less.

Substation # 10, Crockett Substation, located on Hwy 172 in Morgan County.

Circuit # 3; Crockett Circuit; this circuit serves areas of Elkfork, Moon and Middle Fork.

This circuit has approximately 54.4 miles of line and serves approximately 473 consumers.

Last hot spot trim was 2010.

Causes and percentages for this circuit:

| Cause | % SAIFI | % SAIDI |
|--------------------------|---------|---------|
| Right of Way Outside | 61% | 70% |
| Pre-Arranged Maintenance | 22% | 6% |
| Consumer Caused | 10% | 14% |
| Animals | 2% | 4% |
| Equipment Failure | 2% | 2% |
| Right of Way Inside | 2% | 2% |
| Unknown | 1% | 2% |

Circuit 5 Year Average SAIFi---1.4568

Reporting Year 2018, SAIFI---1.1099

Circuit 5 Year Average SAIDI---144.0777

Reporting Year 2018, SAIDI---160.9704

We have no control over Right of Way Outside our cutting area.

| Vegetation Management Plan Review |
|---|
| Licking Valley Rural Electric Cooperative Corporation has an aggressive vegetation program and has contracted B M C Contracting to address our cooperatives right-of-way requirements. Our cooperative likes to maintain a sixty foot ground to sky right-of-way clearance on new and existing accounts; however some variety in right-of-way clearance is based on geography/terrain, easement widths, line voltages and property owner issues. |
| LVRECC is currently working on an eight (8) year rotation cycle. One (1) crew has a bucket truck and chipper and their main concern are consumer requests and hot spots. In addition to B M C; the cooperative has a bush hog that is used for right-of-way clearing when time allows. The cooperative has a right-of-way foreman that oversees B M C Contracting crews. B M C also does our Herbicide Treatment, primarily in the months of May through September. |
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