

# -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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MAR 1 3 2020

PUBLIC SERVICE COMMISSION

March 11, 2020

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

Dear Sir:

Enclosed you will find Licking Valley Electric Cooperative Corporation's Electric Distribution Utility Annual Reliability and Accountability Report for the year ending 2019.

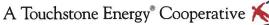
If additional information is needed, please let us know.

Sincerely,

Chab Muphy

Chris Murphy Superintendent of Operations

CM:oh





Report prepared for:

# LICKING VALLEY RURAL ELECTRIC COOPERATIVE CORPORATION

Prepared by:

Oneida Haney ohaney@lvrecc.com 606-743-7500

# 2019 Annual Reliability Report

Major Event Days

SAIDI Value 89.4754

First Date Used to Determine T'Med------ February 07, 2019

Last Date Used to Determine T'Med------ August 20, 2019

Number of MED in Report Year----28

# System Reliability Information and Results

System-Wide Information

Total consumers 17,188

Total Circuits 36

System-Wide Results

Excluding MED

| Reporting Year |          | 5 Year Average |
|----------------|----------|----------------|
| SAIDI          | 199.2011 | 166.0869       |
| SAIFI          | 1.3666   | 1.3621         |

Including MED

| Reporting Year |          | 5 Year Average |
|----------------|----------|----------------|
| SAIDI          | 288.6765 | 383.0357       |
| SAIFI          | 1.8651   | 2.0233         |

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

| Substation | Circuit      | SAIFI Value | Major Cause          |
|------------|--------------|-------------|----------------------|
| Sublett    | Carver       | 3.3363      | Pre-Arranged         |
| Campton    | Vortex       | 2.9414      | Equipment Failure    |
| Sublett    | Gunlock      | 2.9177      | Right-of-Way Outside |
| Maggard    | Flat Fork    | 2.2500      | Pre-Arranged         |
| Sublett    | Gun Creek    | 2.0000      | Pre-Arranged         |
| Index      | Liberty Road | 1.9100      | Pre-Arranged         |
| Maggard    | Lick Creek   | 1.9020      | Right-of-Way Outside |
| Helechawa  | Vancleve     | 1.8284      | Pre-Arranged         |
| Maggard    | Rockhouse    | 1.7800      | Pre-Arranged         |
| Index      | Mize         | 1.7000      | Right-of-Way Inside  |

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

| Substation | Circuit    | SAIDI Value | Major Cause          |
|------------|------------|-------------|----------------------|
|            |            |             |                      |
| Sublett    | Carver     | 1287.4192   | Pre-Arranged         |
| Maggard    | Lick Creek | 417.8670    | Right-of-Way Outside |
| Sublett    | Gun Lock   | 372.2949    | Right-of-Way Outside |
| Sublett    | Lakeville  | 357.5572    | Right-of-Way Outside |
| Oakdale    | Highland   | 346.7570    | Unknown              |
| Oakdale    | Elkatawa   | 287.0601    | Equipment Failure    |
| Campton    | Vortex     | 280.1667    | Equipment Failure    |
| Maggard    | Flat Fork  | 259.2112    | Pre-Arranged         |
| Oakdale    | War Creek  | 208.2741    | Right-of-Way Outside |
| Sublett    | Gun Creek  | 204.4740    | Pre-Arranged         |

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

| Substation | Circuit    | CAIDI Value | Major Cause       |
|------------|------------|-------------|-------------------|
| Sublett    | Carver     | 385.8823    | Pre-Arranged      |
| Sublett    | Lakeville  | 231.0697    | Right-of-Way Out  |
| Oakdale    | Highland   | 221.1742    | Unknown           |
| Maggard    | Lick Creek | 219.6987    | Equipment Failure |
| Campton    | Stillwater | 183.5202    | Unknown           |
| Oakdale    | Elkatawa   | 181.5802    | Right-of-Way Out  |
| Zachariah  | Leeco      | 167.5383    | Right-of-Way Out  |
| Oakdale    | War Creek  | 145.5546    | Line Down         |
| Sublett    | Gunlock    | 127.5988    | Consumer Caused   |
| Maytown    | Ezel       | 123.4955    | Animals           |

|       | 2015     | 2016     | 2017     | 2018     | 2019     |
|-------|----------|----------|----------|----------|----------|
| SAIFI | 2.2879   | 1.6367   | 2.4136   | 1.9134   | 1.8651   |
| SAIDI | 434.8157 | 207.9844 | 344.1047 | 639.5972 | 288.6765 |
| CAIDI | 190.05   | 127.07   | 142.57   | 334.27   | 154.78   |

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

|       | 2015     | 2016     | 2017     | 2018     | 2019     |
|-------|----------|----------|----------|----------|----------|
| SAIFI | 1.6890   | 1.1743   | 1.3105   | 1.2702   | 1.3666   |
| SAIDI | 203.4541 | 129.5736 | 137.2827 | 160.9228 | 199.2011 |
| CAIDI | 120.46   | 110.34   | 104.76   | 126.69   | 145.76   |

|                      | SAIF    | I Values for every | circuitexcludin | g MED's |        |                |
|----------------------|---------|--------------------|-----------------|---------|--------|----------------|
|                      |         |                    |                 |         |        |                |
|                      |         |                    |                 |         |        |                |
|                      | 2015    | 2016               | 2017            | 2018    | 2019   | 5 Year Average |
| Zachariah Substation |         |                    |                 |         |        |                |
| Leeco Circuit        | 1.2010  | 1.4888             | 0.2611          | 0.3501  | 0.5092 | 0.762          |
| Pine Ridge Circuit   | 0.5303  | 0.7266             | 2.4993          | 1.3175  | 0.5434 | 1.123          |
| Oakdale Substation   |         |                    |                 |         |        |                |
| Athol Circuit        | 4.3652  | 1.2222             | 0.4068          | 2.9459  | 0.4444 | 1.876          |
| Highland Circuit     | 12.6854 | 1.4552             | 10.7568         | 2.6707  | 1.5678 | 5.827          |
| Elkatawa Circuit     | 1.3736  | 1.5467             | 1.3612          | 3.3194  | 1.5809 | 1.8364         |
| War Creek Circuit    | 0.9173  | 0.9779             | 0.5867          | 5.2537  | 1.4309 | 1.833          |
| Helechawa Substation |         |                    |                 |         |        |                |
| Hazel Green Circuit  | 0.7192  | 0.5908             | 1.4920          | 1.9453  | 0.4243 | 1.034          |
| Cannel City Circuit  | 1.2483  | 0.5183             | 1.7853          | 1.7799  | 1.0218 | 1.270          |
| Vancleve Circuit     |         | 4.0664             | 1.2929          | 0.4336  | 1.8284 |                |
| Belknap Circuit      |         | 1.2206             | 0.7396          | 1.3609  | 0.7515 |                |
| Hot Mix Substation   |         |                    |                 |         |        |                |
| Elkfork Circuit      | 3.6804  | 1.1761             | 0.8000          | 2.5055  | 0.4372 | 1.7198         |
| Liberty Road Circuit | 0.9178  | 0.0563             | 0.6250          | 0.6032  | 1.9100 | 0.822          |
| 519 Circuit          | 1.1219  | 1.3728             | 0.5472          | 0.5887  | 1.5832 | 1.042          |
| Wrigley Circuit      | 1.1617  | 0.3063             | 2.3975          | 0.4231  | 1.2819 | 1.1143         |
| Maggard Substation   |         |                    |                 |         |        |                |
| Rockhouse Circuit    | 0.6735  | 0.5629             | 0.5248          | 0.7949  | 1.9780 | 0.9068         |
| Flat Fork Circuit    | 0.4614  | 0.7076             | 0.3314          | 1.5774  | 2.2500 | 1.0656         |
| Lick Creek Circuit   | 0.9790  | 0.3612             | 0.5812          | 0.5544  | 1.9020 | 0.8756         |
| Sublett Substation   |         |                    |                 | 1       |        |                |
| Carver Circuit       | 0.8995  | 0.2604             | 1.3418          | 1.1130  | 3.3363 | 1.3902         |
| Lakeville Circuit    | 1.3910  | 1.9942             | 2.0751          | 0.9908  | 1.5474 | 1.599          |
| Gunlock Circuit      | 3.6553  | 1.4918             | 2.3189          | 0.5558  | 2.8331 | 2.1710         |
| Gun Creek Circuit    | 4.8953  | 0.5595             | 4.2683          | 0.7791  | 2.0000 | 2.5004         |
|                      |         |                    |                 |         |        |                |
|                      |         |                    |                 |         |        |                |
|                      |         |                    |                 |         |        |                |

|             |                       |          | SAIFI Values for every | circuitexcludin | g MED's |        |                |
|-------------|-----------------------|----------|------------------------|-----------------|---------|--------|----------------|
|             |                       | 2015     | 2016                   | 2017            | 2018    | 2019   | 5 Year Average |
| Campto      | n Substation          |          |                        |                 |         |        |                |
| 10000 S.CO. | Pine Ridge Circuit    | 1.0703   | 0.9086                 | 0.3879          | 0.2123  | 1.6990 | 0.8556         |
|             | Stillwater Circuit    | 1.8557   | 0.5273                 | 1.2634          | 0.5061  | 0.5015 | 0.9308         |
|             | Vortex Circuit        | 1.5258   | 3.9019                 | 1.0873          | 2.5260  | 2.9414 | 2.3965         |
|             | Elkins Road Circuit   | 0.4539   | 3.1760                 | 0.8887          | 0.2582  | 1.2886 | 1.2131         |
| ndex Si     | ubstation             |          |                        |                 |         |        |                |
|             | Caney Circuit         | 0.8947   | 0.7251                 | 0.9260          | 0.2871  | 0.7388 | 0.7143         |
|             | Index Circuit         | 0.2229   | 0.8492                 | 1.3290          | 0.3914  | 0.7563 | 0.7098         |
|             | Mize Circuit          | 3.7369   | 2.7332                 | 0.4073          | 1.4606  | 1.7000 | 0.2008         |
|             | Prison Circuit        |          | 0.5000                 | 0.2500          | 0.2500  | 0.2500 |                |
|             | School Circuit        | 0.1666   |                        |                 | 2.2500  |        | 0.4833         |
| Aaytow      | vn Substation         |          |                        |                 |         |        |                |
|             | Ezel Circuit          | 1.3606   | 0.5829                 | 0.2437          | 0.5912  | 0.7644 | 0.7086         |
|             | Hazel Green Circuit   | 0.5722   | 0.5727                 | 0.4821          | 1.0955  | 0.4268 | 0.6299         |
|             | Pomeroyton Circuit    | 0.7363   | 1.1783                 | 0.3437          | 0.7174  | 0.3842 | 0.6720         |
| Crocket     | t Substation          |          |                        |                 |         |        |                |
|             | Lenox Circuit         | 1.5215   | 0.4784                 | 0.3038          | 1.1250  | 0.5200 | 0.7897         |
|             | Williams Creek Circui | t 1.1608 | 0.4027                 | 1.6181          | 2.0132  | 1.2519 | 1.2893         |
|             | Crockett Circuit      | 2.1979   | 1.0000                 | 1.8828          | 1.1099  | 0.5974 | 1.3576         |
|             |                       |          |                        |                 |         |        |                |
|             |                       |          |                        |                 |         |        |                |
|             |                       |          |                        |                 |         |        |                |
|             |                       |          |                        |                 |         |        |                |
|             |                       |          |                        |                 |         |        |                |
|             |                       |          |                        |                 |         |        |                |
|             |                       |          |                        |                 |         |        |                |
|             |                       |          |                        |                 |         |        |                |
|             |                       |          |                        |                 |         |        |                |
|             |                       |          |                        |                 |         |        |                |
|             |                       |          |                        |                 |         |        |                |

|                           |            | SA        | DI Values for ever | y circuitexclud | ing MED's |           |                |
|---------------------------|------------|-----------|--------------------|-----------------|-----------|-----------|----------------|
|                           |            | 2015      | 2016               | 2017            | 2018      | 2019      | 5 Year Average |
| Zachariah Substation      | n –        |           |                    |                 |           |           |                |
| Leeco Circ                |            | 172.1195  | 192.5083           | 36.0694         | 43.9629   | 85.3105   | 105.994        |
| Pine Ridg                 | e Circuit  | 52.2862   | 76.9220            | 133.4572        | 84.3900   | 47.1292   | 78.836         |
| Oakdale Substation        |            |           |                    |                 |           |           |                |
| Athol Circ                | uit        | 696.5217  | 276.7094           | 18.9322         | 613.8018  | 45.6464   | 330.322        |
| Highland                  | Circuit    | 2135.8053 | 161.4179           | 1384.1699       | 468.9761  | 346.7570  | 899.425        |
| Elkatawa                  |            | 136.7890  | 128.9409           | 141.6928        | 119.3921  | 287.0601  | 162.775        |
| War Cree                  | k          | 74.5614   | 77.6871            | 74.3765         | 1100.6547 | 208.2741  | 307.110        |
| Helechawa Substatio       | on l       |           |                    |                 |           |           |                |
| Hazel Gre                 | en Circuit | 64.6960   | 60.6123            | 105.7902        | 160.5718  | 36.1004   | 85.554         |
| Cannel Cit                | ty Circuit | 154.0432  | 54.2373            | 176.4362        | 227.7424  | 125.8715  | 147.666        |
| Vancleve                  | Circuit    |           | 451.8839           | 129.6004        | 55.4974   | 140.2859  |                |
| Belknap C                 | ircuit     |           | 129.5499           | 92.9732         | 162.1656  | 64.9142   |                |
| Hot Mix Substation        |            |           |                    |                 |           |           |                |
| Elkfork Ci                | rcuit      | 193.2707  | 120.6654           | 46.5714         | 201.3891  | 29.4883   | 118.277        |
| Liberty Ro                | ad Circuit | 48.3698   | 3.3803             | 56.0157         | 35.9048   | 101.6900  | 49.072         |
| 519 Circui                | it         | 102.9759  | 136.3018           | 89.0025         | 83.7567   | 108.8872  | 104.184        |
| Wrigley C                 | ircuit     | 108.7656  | 27.5443            | 337.9366        | 34.7898   | 134.4418  | 128.695        |
| <b>Maggard Substation</b> |            |           |                    |                 |           |           |                |
| Rockhous                  | e Circuit  | 71.1169   | 68.2167            | 58.8829         | 313.0755  | 127.0147  | 127.661        |
| Flat Fork (               | Circuit    | 42.4448   | 66.1081            | 37.6443         | 267.9869  | 259.2112  | 134.679        |
| Lick Creek                | Circuit    | 104.1343  | 29.7822            | 66.9253         | 110.0528  | 417.8670  | 145.752        |
| Sublett Substation        |            |           |                    |                 |           |           |                |
| Carver Cir                | cuit       | 107.0751  | 18.5645            | 184.3841        | 98.9872   | 1287.4192 | 339.286        |
| Lakeville                 | Circuit    | 132.8783  | 351.2470           | 228.7862        | 106.3564  | 357.5572  | 235.365        |
| Gunlock C                 | Circuit    | 652.1632  | 333.3587           | 254.8228        | 65.3942   | 372.2949  | 335.606        |
| Gun Cree                  | k Circuit  | 866.0755  | 67.6786            | 370.7622        | 66.4233   | 204.4740  | 315.082        |
|                           |            |           |                    |                 |           |           |                |
|                           |            |           |                    |                 |           |           |                |

|                        |          | SAIDI Values for ever | y circuitexcludir | ng MED's |          |                |
|------------------------|----------|-----------------------|-------------------|----------|----------|----------------|
|                        | 2015     | 2016                  | 2017              | 2018     | 2019     | 5 Year Average |
| Campton Substation     |          |                       |                   |          |          |                |
| Pine Ridge Circuit     | 56.8558  | 101.1563              | 41.7274           | 33.5112  | 111.4313 | 68.9364        |
| Stillwater Circuit     | 208.8360 | 44.5341               | 96.1985           | 52.5457  | 92.0354  | 98.829         |
| Vortex Circuit         | 293.2477 | 557.3380              | 90.2226           | 252.4380 | 280.1667 | 294.6826       |
| Elkins Road Circuit    | 51.7021  | 220.0352              | 120.7291          | 21.1634  | 101.6542 | 103.0568       |
| Index Substation       |          |                       |                   |          |          |                |
| Caney Circuit          | 70.4868  | 72.6010               | 66.3265           | 38.4080  | 86.6418  | 66.8928        |
| Index Circuit          | 11.7956  | 68.9507               | 75.5798           | 44.1217  | 52.6201  | 50.6136        |
| Mize Circuit           | 352.2212 | 159.5184              | 29.8132           | 338.1005 | 97.9194  | 195.514        |
| Prison Circuit         |          |                       |                   | 188.0000 | 27.7500  |                |
| School Circuit         | 30.0000  |                       |                   | 2.2500   |          | 6.4500         |
| Maytown Substation     |          | 1.                    |                   |          |          |                |
| Ezel Circuit           | 117.097  | 54.1790               | 17.6252           | 100.6312 | 94.4000  | 55.7090        |
| Hazel Green Circuit    | 76.3127  | 35.371                | 79.6557           | 144.5493 | 43.0548  | 69.4219        |
| Pomeroyton Circuit     | 53.5035  | 58.8554               | 20.0938           | 93.3734  | 35.6158  | 52.2884        |
| Crockett Substation    |          |                       |                   |          |          |                |
| Lenox Circuit          | 94.0735  | 40.7669               | 45.9177           | 167.8000 | 49.8800  | 79.6876        |
| Williams Creek Circuit | 52.6992  | 42.6087               | 178.2226          | 249.0188 | 146.0522 | 133.7203       |
| Crockett Circuit       | 99.1437  | 47.5911               | 276.2323          | 160.9704 | 61.9824  | 129.1840       |

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 # 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 766 consumers.

This circuit was cut out in 2016.

Causes and percentages for this circuit:

| Cause                    | %SAIFI | %SAIDI |
|--------------------------|--------|--------|
| Equipment Failure        | 65%    | 83%    |
| Pre-Arranged Maintenance | 12%    | 5%     |
| Consumer Caused          | 10%    | 4%     |
| Unknown                  | 5%     | 3%     |
| Right-of-Way Inside      | 5%     | 3%     |
| Animals                  | 2%     | 1%     |
| Right-of-Way Outside     | 1%     | 1%     |
| Line Down                | >1%    | >1%    |

| Circuit 5 Year Average SAIFI1.8364   | Reporting Year 2019 SAIFI—1.5809   |
|--------------------------------------|------------------------------------|
| Circuit 5 Year Average SAIDI162.7750 | Reporting Year 2019 SAIDI-287.0601 |

Equipment failure is something that is beyond our control.

Substation # 4; Hot Mix Substation, located on Sugar Camp Road in Morgan County. Circuit # 2, Liberty Road Circuit; this circuit serves areas of Rt 7 and Liberty Road. This circuit has approximately 14 miles and serves approximately 100 consumers.

This circuit was cut out in 2019.

Causes and percentages for this circuit:

| Cause                    | %SAIFI | %SAIDI |
|--------------------------|--------|--------|
| Pre-Arranged Maintenance | 71%    | 53%    |
| Animals                  | 23%    | 16%    |
| Right-of-Way Outside     | 5%     | 29%    |
| Unknown                  | 1%     | 2%     |

| Circuit 5 | Year Averag | e SAIFI8225 |
|-----------|-------------|-------------|
|-----------|-------------|-------------|

Reporting Year, 2019 SAIFI-1.9100

Circuit 5 Year Average SAIDi—49.0721

Reporting Year, 2019 SAIDI—101.6900

In order to complete necessary repairs safely, serviceman had to turn power off until repairs were completed.

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

Circuit # 4, 519 Circuit; this circuit serves areas of Hwy 519, Yocum, Blaze, Zag and Dehart.

This Circuit has approximately 99 miles of line and serves approximately 800 consumers.

This circuit was cut out in 2019.

Causes and percentages for this circuit:

| Cause                    | %SAIFI | %SAIDI |
|--------------------------|--------|--------|
| Pre-Arranged Maintenance | 35%    | 36%    |
| Right-of-Way Crew        | 20%    | 23%    |
| Unknown                  | 19%    | 12%    |
| Equipment Failure        | 16%    | 19%    |
| Consumer Caused          | 5%     | 1%     |
| Animals                  | 2%     | 3%     |
| Right-of-Way Outside     | 2%     | 4%     |
| Right-of-Way Inside      | 1%     | 2%     |
| Line Down                | >1%    | >1%    |

| Circuit 5 Year Average SAIFI—1.0428   | Reporting Year, 2019 SAIFI—1.5832   |  |
|---------------------------------------|-------------------------------------|--|
| Circuit 5 Year Average SAIDI—104.1848 | Reporting Year, 2019 SAIDI—108.8872 |  |

In order for needed repairs to be completed safely, serviceman had to turn power off until repairs were completed.

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

Circuit # 5, Wrigley Circuit; this circuit serves areas of Wrigley, Redwine and Blairs Mill.

This Circuit has approximately 57 miles of line and serves approximately 369 consumers.

This circuit was cut out in 2019.

Causes and percentages for this circuit:

| Cause                    | %SAIFI | %SAIDI |
|--------------------------|--------|--------|
| Pre-Arranged Maintenance | 48%    | 27%    |
| Right-of-Way Crew        | 40%    | 13%    |
| Consumer Caused          | 4%     | 52%    |
| Animals                  | 4%     | 3%     |
| Equipment Failure        | 3%     | 3%     |
| Right-of-Way Outside     | 1%     | 2%     |

| Circuit 5 Year Average SAIFI—1.1141   | Reporting Year, 2019 SAIFI—1.2819   |
|---------------------------------------|-------------------------------------|
| Circuit 5 Year Average SAIDI—128.6956 | Reporting Year, 2019 SAIDI-134.4418 |

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

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 274 consumers.

This circuit was cut out in 2013.

Causes and percentages for this circuit:

| Cause                    | %SAIFI | %SAIDI |
|--------------------------|--------|--------|
| Pre-Arranged Maintenance | 87%    | 84%    |
| Right-of-Way Outside     | 9%     | 10%    |
| Equipment Failure        | 2%     | 2%     |
| Unknown                  | 1%     | 2%     |
| Right-of-Way Inside      | 1%     | 2%     |
| Animals                  | >1%    | >1%    |

| Circuit 5 Year Average SAIFI9068      | Reporting Year 2019 SAIFI-1.9780   |
|---------------------------------------|------------------------------------|
| Circuit 5 Year Average SAIDI—127.6613 | Reporting Year 2019 SAIDI-127.0147 |

In order for needed repairs to completed safely, serviceman had to turn power off until repairs were completed.

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 516 consumers.

This circuit was cut out in 2013.

Causes and percentages for this circuit:

...

| Cause                    | %SAIFI | %SAIDI |
|--------------------------|--------|--------|
| Pre-Arranged Maintenance | 77%    | 53%    |
| Unknown                  | 14%    | 26%    |
| Line Down                | 4%     | 11%    |
| Right-of-Way Outside     | 2%     | 3%     |
| Animals                  | 2%     | 2%     |
| Equipment Failure        | 1%     | 3%     |
| Consumer Caused          | >1%    | 2%     |

| Circuit 5 Year Average SAIFI—1.0656   | Reporting Year 2019 SAIFI-2.2500   |
|---------------------------------------|------------------------------------|
| Circuit 5 Year Average SAIDI—134.6791 | Reporting Year 2019 SAIDI—259.2112 |

In order for needed repairs to completed safely, serviceman had to turn power off until repairs were completed.

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 601 consumers.

This circuit was cut out in 2013.

Causes and percentages for this circuit:

| Cause                    | %SAIFI | %SAIDI |
|--------------------------|--------|--------|
| Right-of-Way Outside     | 55%    | 54%    |
| Pre-Arranged Maintenance | 34%    | 36%    |
| Unknown                  | 5%     | 3%     |
| Equipment Failure        | 3%     | 6%     |
| Animals                  | 1%     | 1%     |
| Line Down                | 1%     | >1%    |
| Right-of-Way Crew        | 1%     | >1%    |
| Right-of-Way Inside      | >1%    | >1%    |
| Consumer Caused          | >1%    | >1%    |

| Circuit 5 Year Average SAIFI8756      | Reporting Year 2019 SAIFI-1.9020   |
|---------------------------------------|------------------------------------|
| Circuit 5 Year Average SAIDI—145.7523 | Reporting Year 2019 SAIDI-417.8670 |

We have no control over right-of-way outside of our cutting area, however, any danger trees that we see outside of our right-of-way we will cut.

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 675 consumers.

This circuit was cut out in 2012.

Causes and percentages for this circuit:

| Cause                    | %SAIFI | %SAIDI |
|--------------------------|--------|--------|
| Pre-Arranged Maintenance | 72%    | 90%    |
| Right-of-Way Outside     | 7%     | 2%     |
| Line Down                | 6%     | 2%     |
| Right-of-Way Inside      | 5%     | 2%     |
| Unknown                  | 4%     | 2%     |
| Consumer Caused          | 3%     | 2%     |
| Right-of-Way Crew        | 2%     | >1%    |
| Equipment Fail           | 1%     | >1%    |
| Animals                  | >1%    | >1%    |
| Fire                     | >1%    | >1%    |

| Circuit 5 Year Average SAIFI1.3902    | Reporting Year 2019 SAIFI—3.3363    |
|---------------------------------------|-------------------------------------|
| Circuit 5 Year Average SAIDI—339.2860 | Reporting Year 2019 SAIDI—1287.4192 |

In order to do necessary repairs safely, serviceman had to turn power off until repairs were completed.

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

Circuit # 2, Lakeville Circuit,; this circuit serves areas of Lakeville, Mason Creek, Salyer Branch, Middle Fork, Fritz and Seitz.

This circuit has approximately 54-1 miles of line and serves approximately 621 consumers.

This circuit was cut out in 2012.

Causes and percentages for this circuit:

| Cause                    | %SAIFI | %SAIDI |
|--------------------------|--------|--------|
| Right-of-Way Outside     | 42%    | 64%    |
| Right-of-Way Inside      | 42%    | 31%    |
| Pre-Arranged Maintenance | 9%     | 2%     |
| Animals                  | 4%     | 2%     |
| Unknown                  | 3%     | 1%     |
| Equipment Failure        | >1%    | >1%    |
| Consumer Caused          | >1%    | >1%    |

| Circuit 5 Year Average SAIFI—1.5997   | Reporting Year 2019, SAIFI—1.5474   |
|---------------------------------------|-------------------------------------|
| Circuit 5 Year Average SAIDI—235.3650 | Reporting Year 2019, SAIDI—357.5572 |

We have no control over right-of-way outside of our cutting area, however, any danger trees that we see outside of our right-of-way we will cut.

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

Circuit # 3, Gunlock Circuit; this circuit serves areas of Swampton, Puncheon, Big Half Mountain, Trace Fork, Salt Lick, Long Branch and Gyspy.

This circuit has approximately 101.8 miles of line and serves approximately 875 consumers.

This circuit was cut out in 2012.

Causes and percentages for this circuit:

| Cause                    | %SAIFI | %SAIDI |
|--------------------------|--------|--------|
| Right-of-Way Outside     | 59%    | 48%    |
| Pre-Arranged Maintenance | 28%    | 37%    |
| Animals                  | 5%     | 5%     |
| Right-of-Way Inside      | 3%     | 3%     |
| Unknown                  | 2%     | 3%     |
| Consumer Caused          | 2%     | 3%     |
| Right-of-Way Crew        | 1%     | 1%     |
| Line Down                | >1%    | >1%    |
| Equipment Failure        | >1%    | >1%    |

| Circuit 5 Year Average SAIFI—2.1710  | Reporting Year, 2019 SAIFI-2.8331   |
|--------------------------------------|-------------------------------------|
| Circuit 5 Year Average SAIDI335.6068 | Reporting Year, 2019 SAIDI—372.2949 |

We have no control over right-of-way outside of our cutting area, however, any danger trees that we see outside of our right-of-way we will cut.

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

Circuit # 1; Pine Ridge Circuit; this circuit serves areas of Campton, Old Rt 15, Pine Ridge, and part of Quillen Chapel.

This circuit has approximately 29.9 miles of line and serves approximately 691 consumers.

This circuit was cut out in 2015.

Causes and percentages for this circuit:

| Cause                    | %SAIFI | %SAIDI |
|--------------------------|--------|--------|
| Right-of-Way Crew        | 61%    | 25%    |
| Right-of-Way Outside     | 17%    | 54%    |
| Animals                  | 7%     | 8%     |
| Pre-Arranged Maintenance | 7%     | 3%     |
| Equipment Failure        | 6%     | 8%     |
| Unknown                  | 1%     | 1%     |
| Consumer Caused          | 1%     | 1%     |
| Right-of-Way Inside      | >1%    | >1%    |

| Circuit 5 Year Average SAIFI8556     | Reporting Year 2019, SAIFI-1.6990   |
|--------------------------------------|-------------------------------------|
| Circuit 5 Year Average SAIDI—68.9364 | Reporting Year 2019, SAIDI—111.4313 |

Sometimes Right-of-Way Crews have a hard time with the direction a tree will fall, may be due to weather conditions or the condition of the tree. Will stress to them about being more cautious when cutting trees near the lines.

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 546 consumers.

This circuit was cut out in 2015.

Causes and percentages for this circuit:

| Cause                    | %SAIFI | %SAIDI |
|--------------------------|--------|--------|
| Equipment Failure        | 37%    | 22%    |
| Pre-Arranged Maintenance | 32%    | 27%    |
| Line Down                | 21%    | 36%    |
| Right-of-Way Outside     | 8%     | 12%    |
| Animals                  | 1%     | 2%     |
| Right-of-Way Inside      | 1%     | 1%     |
| Unknown                  | >1%    | >1%    |
| Consumer Caused          | >1%    | >1%    |

| Circuit 5 Year Average SAIFI—2.3965   | Reporting Year 2019, SAIFI-2.9414   |
|---------------------------------------|-------------------------------------|
| Circuit 5 Year Average SAIDI—294.6826 | Reporting Year 2019, SAIDI-280.1667 |

We have no control over Equipment failing.

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

Circuit # 4, Elkins Road; this circuit serves areas of Sandy Ridge, Mullins Point, Elkins Road and Bear Pen.

This circuit has approximately 34.6 miles of line and serves approximately 298 consumers.

This circuit was cut out in 2015.

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Causes and percentages for this circuit:

| Cause                    | %SAIFI | %SAIDI |
|--------------------------|--------|--------|
| Right-of-Way Outside     | 78%    | 76%    |
| Right-of-Way Inside      | 7%     | 6%     |
| Animals                  | 6%     | 9%     |
| Unknown                  | 4%     | 5%     |
| Pre-Arranged Maintenance | 3%     | 2%     |
| Equipment Failure        | 1%     | 1%     |
| Consumer Caused          | 1%     | 1%     |

| Circuit 5 Year Average SAIFI—1.2131   | Reporting Year 2019, SAIFI—1.2886   |
|---------------------------------------|-------------------------------------|
| Circuit 5 Year Average SAIDI—103.0568 | Reporting Year 2019, SAIDI-101.6542 |

We have no control over right-of-way outside of our cutting area, however, any danger trees that we see outside of our right-of-way we will cut.

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

Circuit # 1, Caney Circuit; this circuit serves areas of Malone, Caney, Stacy Fork, and Vance Fork.

This circuit has approximately 36.5 miles of line and serves approximately 402 consumers.

This circuit was last trimmed in 2011.

Causes and percentages for this circuit:

| Cause                    | %SAIFI | %SAIDI |
|--------------------------|--------|--------|
| Pre-Arranged Maintenance | 61%    | 69%    |
| Right-of-Way Outside     | 18%    | 18%    |
| Equipment Failure        | 9%     | 7%     |
| Animals                  | 7%     | 4%     |
| Consumer Caused          | 3%     | 1%     |
| Right-of-Way Inside      | 2%     | 1%     |
| Unknown                  | >1%    | >1%    |

| Circuit 5 Year Average SAIFI7143     | Reporting Year 2019, SAIFI7388     |
|--------------------------------------|------------------------------------|
| Circuit 5 Year Average SAIDI—66.8928 | Reporting Year 2019, SAIDI-86.6418 |

In order for necessary repairs to be made safely, the power had to be turned off until all repairs were completed.

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

Circuit # 2, Index Circuit; this circuit serves areas of Index and Liberty Road.

This circuit has approximately 22.6 miles of line and serves approximately 279 consumers.

Last time circuit was trimmed was in 2011.

Causes and percentages for this circuit:

| Cause                    | %SAIFI | %SAIDI |
|--------------------------|--------|--------|
| Consumer Caused          | 40%    | 24%    |
| Pre-Arranged Maintenance | 35%    | 48%    |
| Right-of-Way Inside      | 10%    | 9%     |
| Animals                  | 9%     | 10%    |
| Right-of-Way Crew        | 4%     | 3%     |
| Equipment Failure        | 2%     | 6%     |

| Circuit 5 Year Average SAIFI7098    | Reporting Year 2019, SAIFI7563     |
|-------------------------------------|------------------------------------|
| Circuit 5 Year Average SAIDI50.6136 | Reporting Year 2019, SAIDI-52.6201 |

We have articles in Magazines and Newspapers and Radio to educate our consumers about watching for power lines when they are working outside. We also do Safety Demonstrations at the Annual Meeting and during Community Days in each County.

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

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

This circuit has approximately 98.2 miles of line and serves approximately 730 consumers.

This circuit was cut out in 2015.

Causes and percentages for this circuit:

| Cause                    | %SAIFI | %SAIDI |
|--------------------------|--------|--------|
| Pre-Arranged Maintenance | 55%    | 63%    |
| Consumer Caused          | 12%    | 6%     |
| Equipment Failure        | 10%    | 11%    |
| Unknown                  | 9%     | 8%     |
| Right-of-Way Inside      | 7%     | 4%     |
| Right-of-Way Outside     | 4%     | 4%     |
| Animals                  | 3%     | 4%     |

| Circuit 5 Year Average SAIFI7086     | Reporting Year 2019, SAIFI7644     |
|--------------------------------------|------------------------------------|
| Circuit 5 Year Average SAIDI-55.7090 | Reporting Year 2019, SAIDI—94.4000 |

In order for necessary repairs to be made safely the power had to be turned off until all repairs were completed.

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 516 consumers.

Last trim on this circuit was in 2010, but Right-of-Way crew is cutting this circuit out in 2020.

Causes and percentages for this circuit:

| Cause                    | %SAIFI | %SAIDI |
|--------------------------|--------|--------|
| Right-of-Way Outside     | 38%    | 39%    |
| Right-of-Way Inside      | 25%    | 25%    |
| Pre-Arranged Maintenance | 20%    | 9%     |
| Equipment Failure        | 12%    | 20%    |
| Unknown                  | 4%     | 6%     |
| Animals                  | 1%     | 1%     |

| Circuit 5 Year Average SAIFI-1.2893   | Reporting Year 2019, SAIFI—1.2519   |
|---------------------------------------|-------------------------------------|
| Circuit 5 Year Average SAIDI—133.7203 | Reporting Year 2019, SAIDI—146.0522 |

We have no control over right-of-way outside of our cutting area, however, any danger trees that we see outside of our right-of-way we will cut.

#### **Vegetation Management Plan**

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 like 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. B M C Contracting has a bid crew that is cutting each Substation by Circuit. They also have an hourly crew that cuts hot spots and consumer requests. 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 Contracting primarily does our Herbicide Treatment, mostly in the months of May through September. As time allows the cooperative does some Herbicide Treatment.