

RECEIVED

APR 22 2020

PUBLIC SERVICE
COMMISSION



April 9, 2020

Ms. Talina Mathews
Commissioner
Kentucky Public Service Commission
P.O. Box 615
Frankfort, Kentucky 40602-0615

RE: Administrative Case No. 2011-00450

Dear Ms. Mathews,

Enclosed are the original and one (1) electronic copy of the 2019 Distribution Reliability Report, for Owen Electric Cooperative, as requested in the revisions to the aforementioned order.

Should you have any questions or need further information, please contact our office at 1-800-372-7612.

Sincerely,

A handwritten signature in blue ink, appearing to read "Andrew Long", is positioned below the word "Sincerely,".

Andrew Long
System Engineer

Enclosures

KENTUCKY PUBLIC SERVICE COMMISSION

Electric Distribution Utility Annual Reliability Report

SECTION 1: CONTACT INFORMATION

UTILITY NAME	Owen Electric Cooperative
REPORT PREPARED BY	Drew Long
E-MAIL ADDRESS OF PREPARER	along@owenelectric.com
PHONE NUMBER OF PREPARER	(502) 563-3522

SECTION 2: REPORT YEAR

CALENDAR YEAR OF REPORT	2019
-------------------------	------

SECTION 3: MAJOR EVENT DAYS

T_{MED}	6.856
FIRST DATE USED TO DETERMINE T_{MED}	1-Jan-2014
LAST DATE USED TO DETERMINE T_{MED}	31-Dec-2018
NUMBER OF MED IN REPORT YEAR	5

NOTE: Per IEEE 1366 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.

SECTION 4: SYSTEM RELIABILITY INFORMATION AND RESULTS

System-wide Information	
TOTAL CUSTOMERS	<u>62,277</u>
TOTAL CIRCUITS	<u>129</u>
Excluding MED	
5 YEAR AVERAGE	REPORTING YEAR
SAIDI <u>104.09</u>	SAIDI <u>94.96</u>
SAIFI <u>1.20</u>	SAIFI <u>1.14</u>
Including MED	
5 YEAR AVERAGE	REPORTING YEAR
SAIDI <u>214.96</u>	SAIDI <u>135.64</u>
SAIFI <u>1.46</u>	SAIFI <u>1.64</u>

Notes:

- 1) All duration indices (SAIDI) are to be reported in units of minutes.
- 2) Reports are due on the first business day of May of each year
- 3) Reports cover the calendar year ending in the December before the reports are due.
- 4) IEEE 1366 (latest version) is used to define SAIDI, SAIFI, and T_{MED}

Electric Distribution Utility Annual Reliability Report

Circuit # 1

5.1.1	SUBSTATION NAME AND NUMBER	DURO II(54)
5.1.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Kenton
5.1.3	CIRCUIT NAME AND NUMBER	DURO II(54), Circuit 2, 5402
5.1.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.1.5	TOTAL CIRCUIT LENGTH (MILES)	12.5
5.1.6	CUSTOMER COUNT FOR THIS CIRCUIT	615
5.1.7	DATE OF LAST CIRCUIT TRIM (VM)	2017

5.1.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	9.84%	6.43%
Equipment/Installation	69.41%	65.63%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.00%	0.00%
Unknown	0.00%	0.00%
Weather	15.96%	23.93%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	4.79%	4.01%

5.1.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.251
5.1.10	REPORTING YEAR (SAIDI)	0.496
5.1.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.004
5.1.12	REPORTING YEAR (SAIFI)	0.006

5.1.13 CORRECTIVE ACTION PLAN:

There were 3 outages for this circuit for 2019., with one large outage affecting 258 people, while the remaining were 20 or less, which overall shows the sectionalizing plan is functioning well. This circuit is relatively short with a significant portion of underground. The majority of the SAIFI and SAIDI occurred due to an underground outage on a fuse, which took some time to find the cause.

Action Plan

None at this time. One outage caused most of the SAIDI and SAIFI, which was corrected with proper fuse size. All other outages were small, contained and mitigated to an appropriate degree.

Circuit # 2

5.2.1	SUBSTATION NAME AND NUMBER	SMITH II(52)
5.2.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Boone
5.2.3	CIRCUIT NAME AND NUMBER	SMITH II(52), Circuit 2, 5202
5.2.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.2.5	TOTAL CIRCUIT LENGTH (MILES)	4.1
5.2.6	CUSTOMER COUNT FOR THIS CIRCUIT	245
5.2.7	DATE OF LAST CIRCUIT TRIM (VM)	2015

5.2.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	0.00%	0.00%
Equipment/Installation	0.00%	0.00%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.00%	0.00%
Unknown	0.00%	0.00%
Weather	100.00%	100.00%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	0.00%	0.00%

5.2.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.159
5.2.10	REPORTING YEAR (SAIDI)	0.202
5.2.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.002
5.2.12	REPORTING YEAR (SAIFI)	0.004

5.2.13 CORRECTIVE ACTION PLAN:

There was one outage on this feeder for the time frame that opened at the feeder breaker, high wind caused a downline fault which opened the feeder breaker.

Action Plan

None at this time.

Circuit # 3

5.3.1	SUBSTATION NAME AND NUMBER	SMITH II(52)
5.3.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Boone
5.3.3	CIRCUIT NAME AND NUMBER	SMITH II(52), Circuit 1, 5201
5.3.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.3.5	TOTAL CIRCUIT LENGTH (MILES)	3.7
5.3.6	CUSTOMER COUNT FOR THIS CIRCUIT	68
5.3.7	DATE OF LAST CIRCUIT TRIM (VM)	2015

5.3.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	0.00%	0.00%
Equipment/Installation	0.00%	0.00%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.00%	0.00%
Unknown	0.00%	0.00%
Weather	100.00%	100.00%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	0.00%	0.00%

5.3.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.085
5.3.10	REPORTING YEAR (SAIDI)	0.090
5.3.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.001
5.3.12	REPORTING YEAR (SAIFI)	0.001

5.3.13 CORRECTIVE ACTION PLAN:

This traditionally is a reliable circuit and has a significant portion of underground. One outage occurred during this period, causing 68 members to be out for an hour and a half. High wind in the area caused a recloser to open.

Action Plan:
None at this time.

Circuit # 4

5.4.1	SUBSTATION NAME AND NUMBER	LONG LICK(29)
5.4.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Scott
5.4.3	CIRCUIT NAME AND NUMBER	LONG LICK(29), Circuit 3, 2903
5.4.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.4.5	TOTAL CIRCUIT LENGTH (MILES)	74.4
5.4.6	CUSTOMER COUNT FOR THIS CIRCUIT	632
5.4.7	DATE OF LAST CIRCUIT TRIM (VM)	2015

5.4.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	4.55%	3.82%
Equipment/Installation	45.93%	32.99%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	7.18%	5.72%
Scheduled	14.11%	3.09%
Unknown	1.44%	1.21%
Weather	21.05%	48.45%
Age/Deterioration	5.74%	4.71%
R.O.W. Preventable	0.00%	0.00%

5.4.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.298
5.4.10	REPORTING YEAR (SAIDI)	0.766
5.4.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.003
5.4.12	REPORTING YEAR (SAIFI)	0.007

5.4.13 CORRECTIVE ACTION PLAN:

Overall 29 outages occurred on this circuit. This is a newer substation, that is 14.4kv and has significant miles of line. There were no feeder level outages and the largest outage member wise was 130 members out at a single time, due to a jumper failure. The same outage was also the largest contributor to SAIFI. Sectionalizing appears appropriate as most outages were less than 30 members at a time.

Action Plan

Continue to implement wildlife guards on all new construction and continue with 2 year inspection to ideally catch any soon to be faulty equipment from visual inspection.

Circuit # 5

5.5.1	SUBSTATION NAME AND NUMBER	BELLEVIEW(27)
5.5.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Boone
5.5.3	CIRCUIT NAME AND NUMBER	BELLEVIEW(27), Circuit 4, 2704
5.5.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.5.5	TOTAL CIRCUIT LENGTH (MILES)	17.3
5.5.6	CUSTOMER COUNT FOR THIS CIRCUIT	166
5.5.7	DATE OF LAST CIRCUIT TRIM (VM)	2019

5.5.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	8.23%	1.24%
Equipment/Installation	0.00%	0.00%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	30.30%	7.05%
Scheduled	0.18%	0.08%
Unknown	1.93%	0.74%
Weather	1.75%	68.03%
Age/Deterioration	28.55%	14.58%
R.O.W. Preventable	29.07%	8.27%

5.5.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.311
5.5.10	REPORTING YEAR (SAIDI)	2.191
5.5.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.003
5.5.12	REPORTING YEAR (SAIFI)	0.009

5.5.13 CORRECTIVE ACTION PLAN:

This feeder does have a good portion of cross country right of way. There were three outages that caused the feeder to lockout, with an additional 13 outages for a total of 16 for the year. The SAIDI is so high due to flooding that took several meters out of service for a total combined SAIDI contributing hours of 1,539 hours, more than half of the rest of the outages combined. These meters were non-permanent residents during the flood duration.

Action Plan:

Right of way was cut in 2019, which should help reduce right of way outages going forward.

Circuit # 6

5.6.1	SUBSTATION NAME AND NUMBER	BELLEVIEW(27)
5.6.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Boone
5.6.3	CIRCUIT NAME AND NUMBER	BELLEVIEW(27), Circuit 3, 2703
5.6.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.6.5	TOTAL CIRCUIT LENGTH (MILES)	18.4
5.6.6	CUSTOMER COUNT FOR THIS CIRCUIT	162
5.6.7	DATE OF LAST CIRCUIT TRIM (VM)	2019

5.6.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	1.69%	1.02%
Equipment/Installation	0.00%	0.00%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.00%	0.00%
Unknown	0.00%	0.00%
Weather	82.42%	81.85%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	15.89%	17.14%

5.6.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.499
5.6.10	REPORTING YEAR (SAIDI)	0.960
5.6.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.004
5.6.12	REPORTING YEAR (SAIFI)	0.008

5.6.13 CORRECTIVE ACTION PLAN:

Eight outages and nearly all are right of way caused. This circuit was trimmed in the 2019 cycle. It is expected the right of way outages will be reduced in the near future due to this.

Action Plan:

None at this time, Circuit was recently trimmed.

Circuit # 7

5.7.1	SUBSTATION NAME AND NUMBER	RICHWOOD(26)
5.7.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Boone
5.7.3	CIRCUIT NAME AND NUMBER	RICHWOOD(26), Circuit 5, 2605
5.7.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.7.5	TOTAL CIRCUIT LENGTH (MILES)	11.0
5.7.6	CUSTOMER COUNT FOR THIS CIRCUIT	588
5.7.7	DATE OF LAST CIRCUIT TRIM (VM)	2015

5.7.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	30.77%	14.78%
Equipment/Installation	0.00%	0.00%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.00%	0.00%
Unknown	0.00%	0.00%
Weather	0.00%	0.00%
Age/Deterioration	69.23%	85.22%
R.O.W. Preventable	0.00%	0.00%

5.7.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.271
5.7.10	REPORTING YEAR (SAIDI)	0.438
5.7.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.002
5.7.12	REPORTING YEAR (SAIFI)	0.003

5.7.13 CORRECTIVE ACTION PLAN:

Traditionally a very reliable circuit in Boone County with a fairly dense membership, that mostly consists on one large underground subdivision. For this period there were four outages, three that occurred on the same day, due to an equipment failure. An upline device had to be opened causing 116 members to be out for a total customer hours out of 380 hours, while the problem was fixed. This single day was the main contributor to the SAIFI and SAIDI.

Action Plan

Continue the 2 year line inspection to try to minimize equipment failures. Circuit to be reviewed by Right of Way manager to determine circuit trimming necessity.

Circuit # 8

5.8.1	SUBSTATION NAME AND NUMBER	RICHWOOD(26)
5.8.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Boone
5.8.3	CIRCUIT NAME AND NUMBER	RICHWOOD(26), Circuit 4, 2604
5.8.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.8.5	TOTAL CIRCUIT LENGTH (MILES)	15.9
5.8.6	CUSTOMER COUNT FOR THIS CIRCUIT	457
5.8.7	DATE OF LAST CIRCUIT TRIM (VM)	2015

5.8.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	20.32%	14.91%
Equipment/Installation	0.00%	0.00%
Member/Public	26.20%	17.46%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.00%	0.00%
Unknown	29.95%	15.70%
Weather	9.63%	32.08%
Age/Deterioration	8.56%	13.09%
R.O.W. Preventable	0.00%	0.00%

5.8.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.145
5.8.10	REPORTING YEAR (SAIDI)	0.317
5.8.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.003
5.8.12	REPORTING YEAR (SAIFI)	0.003

5.8.13 CORRECTIVE ACTION PLAN:

Eleven outages occurred on this feeder for 2019. Birds and Animals seemed to be a significant cause of outages for this period, in addition to some weather related outages. The public also had an adverse affect on this cycles SAIDI and SAIFI. All of the outages had less than 40 members included in an outage, with most less than 20, indicating a robust sectionalizing plan.

Action Plan:

Ensure Wildlife protectors are added on new construction.

Circuit # 9

5.9.1	SUBSTATION NAME AND NUMBER	RICHWOOD(26)
5.9.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Boone
5.9.3	CIRCUIT NAME AND NUMBER	RICHWOOD(26), Circuit 1, 2601
5.9.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.9.5	TOTAL CIRCUIT LENGTH (MILES)	14.5
5.9.6	CUSTOMER COUNT FOR THIS CIRCUIT	747
5.9.7	DATE OF LAST CIRCUIT TRIM (VM)	2015

5.9.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	1.69%	1.78%
Equipment/Installation	0.00%	0.00%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.00%	0.00%
Unknown	0.00%	0.00%
Weather	98.31%	98.22%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	0.00%	0.00%

5.9.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.009
5.9.10	REPORTING YEAR (SAIDI)	0.262
5.9.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.002
5.9.12	REPORTING YEAR (SAIFI)	0.002

5.9.13 CORRECTIVE ACTION PLAN:

This feeder is traditionally reliable, and in this case, only four outages occurred, with three being on the same day, which appears to be load driven due to extreme cold with transformers becoming overloaded. The main SAIDI contributor was a piece of equipment that melted out causing 100 members to be without power which added 248 customer hours.

Action Plan:

Continue with normal workplans and subdivision development plans to try to ensure all future load growth is accounted for in sectionalizing equipment.

Circuit # 10

5.10.1	SUBSTATION NAME AND NUMBER	STERLING(25)
5.10.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Gallatin
5.10.3	CIRCUIT NAME AND NUMBER	STERLING(25), Circuit 3, 2503
5.10.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.10.5	TOTAL CIRCUIT LENGTH (MILES)	31.2
5.10.6	CUSTOMER COUNT FOR THIS CIRCUIT	316
5.10.7	DATE OF LAST CIRCUIT TRIM (VM)	2018

5.10.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	9.85%	3.87%
Equipment/Installation	0.21%	0.08%
Member/Public	0.21%	0.06%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	13.21%	26.68%
Unknown	14.68%	7.20%
Weather	37.11%	17.49%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	23.69%	44.10%

5.10.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.837
5.10.10	REPORTING YEAR (SAIDI)	1.162
5.10.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.008
5.10.12	REPORTING YEAR (SAIFI)	0.008

5.10.13 CORRECTIVE ACTION PLAN:

Twenty one outages occurred during this recording period. One outage was the main contributor to the SAIDI however. One outage caused 478 customer hours by itself. This was due to a preventable right of way outage. This feeder was recently trimmed, but in 2019, a spray cycle was also completed to help further reduce right of way outages.

Action Plan:

Spray cycle just completed, nothing further at this time.

Circuit # 11

5.11.1	SUBSTATION NAME AND NUMBER	STERLING(25)
5.11.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Gallatin
5.11.3	CIRCUIT NAME AND NUMBER	STERLING(25), Circuit 1, 2501
5.11.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.11.5	TOTAL CIRCUIT LENGTH (MILES)	44.6
5.11.6	CUSTOMER COUNT FOR THIS CIRCUIT	540
5.11.7	DATE OF LAST CIRCUIT TRIM (VM)	2018

5.11.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	0.01%	0.43%
Equipment/Installation	0.00%	0.00%
Member/Public	0.02%	1.74%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.01%	0.71%
Unknown	0.00%	0.17%
Weather	0.26%	40.21%
Age/Deterioration	0.13%	37.26%
R.O.W. Preventable	0.03%	4.11%

5.11.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	3.044
5.11.10	REPORTING YEAR (SAIDI)	4.406
5.11.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.021
5.11.12	REPORTING YEAR (SAIFI)	0.030

5.11.13 CORRECTIVE ACTION PLAN:

This feeder had numerous outages. Several of these removed large numbers of members from service during the outage for extended periods of time. In early November 2019, a new sectionalizing study was put in place. The plan should reduce the size, frequency, and duration of outages going forward

Action Plan:

None at this time. Sectionalizing implmented in late 2019.

Circuit # 12

5.12.1	SUBSTATION NAME AND NUMBER	BURLINGTON(24)
5.12.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Boone
5.12.3	CIRCUIT NAME AND NUMBER	BURLINGTON(24), Circuit 3, 2403
5.12.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.12.5	TOTAL CIRCUIT LENGTH (MILES)	13.5
5.12.6	CUSTOMER COUNT FOR THIS CIRCUIT	489
5.12.7	DATE OF LAST CIRCUIT TRIM (VM)	2018

5.12.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	43.50%	12.24%
Equipment/Installation	0.56%	0.07%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	14.69%	8.00%
Unknown	1.13%	0.48%
Weather	39.55%	78.59%
Age/Deterioration	0.56%	0.62%
R.O.W. Preventable	0.00%	0.00%

5.12.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.447
5.12.10	REPORTING YEAR (SAIDI)	0.642
5.12.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.006
5.12.12	REPORTING YEAR (SAIFI)	0.003

5.12.13 CORRECTIVE ACTION PLAN:

Seventeen outages occurred during this period, with various factors forcing outages resulting in several cause codes. The two most being animals and the weather. While the SAIFI for the year was less than the 5 year average, the SAIDI was larger. The main cause for this was several outages occurred around the same time due to high wind taking out several fuses, one of which was a walnut tree which fell and took two spans of wire down. The circuit was recently trimmed and a spray was followed in 2019.

Action Plan:

Spraying of the circuit occurred in 2019 to help reduce growth of potential problem vegetation, continue the current right of way plan.

Circuit # 13

5.13.1	SUBSTATION NAME AND NUMBER	BAVARIAN(23)
5.13.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Boone
5.13.3	CIRCUIT NAME AND NUMBER	BAVARIAN(23), Circuit 1, 2301
5.13.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.13.5	TOTAL CIRCUIT LENGTH (MILES)	25.7
5.13.6	CUSTOMER COUNT FOR THIS CIRCUIT	446
5.13.7	DATE OF LAST CIRCUIT TRIM (VM)	2018

5.13.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	11.17%	8.10%
Equipment/Installation	6.26%	1.20%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.08%	0.04%
Scheduled	0.00%	0.00%
Unknown	38.03%	46.40%
Weather	6.97%	15.03%
Age/Deterioration	36.21%	24.95%
R.O.W. Preventable	1.27%	4.26%

5.13.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.878
5.13.10	REPORTING YEAR (SAIDI)	1.166
5.13.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.009
5.13.12	REPORTING YEAR (SAIFI)	0.020

5.13.13 CORRECTIVE ACTION PLAN:

This feeder had an uncharacteristic 29 outages in 2019, two of which were large and took out the whole feeder. This feeder also had several types of outage causes, though equipment and age were two main causes.

Action Plan:

Continue the current line inspection program to be proactive in catching failing equipment and continue to use wildlife guards on transformers.

Circuit # 14

5.14.1	SUBSTATION NAME AND NUMBER	NOEL(21)
5.14.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Grant
5.14.3	CIRCUIT NAME AND NUMBER	NOEL(21), Circuit 3, 2103
5.14.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.14.5	TOTAL CIRCUIT LENGTH (MILES)	59.7
5.14.6	CUSTOMER COUNT FOR THIS CIRCUIT	1139
5.14.7	DATE OF LAST CIRCUIT TRIM (VM)	2019

5.14.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	7.39%	5.18%
Equipment/Installation	0.47%	0.71%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.05%	0.02%
Unknown	53.88%	39.88%
Weather	18.96%	20.01%
Age/Deterioration	0.14%	0.08%
R.O.W. Preventable	17.69%	29.37%

5.14.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.404
5.14.10	REPORTING YEAR (SAIDI)	2.968
5.14.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.005
5.14.12	REPORTING YEAR (SAIFI)	0.034

5.14.13 CORRECTIVE ACTION PLAN:

This feeder had more than the typical number of outages, the largest SAIDI and SAIFI contributors came from Ash Trees. One of those outages caused 928 customer hours by itself, which greatly increased the SAIDI overall. A separate outage opened the feeder breaker, adding another 1140 hours to the SAIDI. With these two outages removed, the SAIDI and SAIFI fall back into a more normal range. A circuit trim was just completed in 2019 which will likely reduce these sorts of outages going forward for the near term.

Action Plan:

Circuit Trim completed in 2019, nothing further at this time.

Circuit # 15

5.15.1	SUBSTATION NAME AND NUMBER	NOEL(21)
5.15.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Grant
5.15.3	CIRCUIT NAME AND NUMBER	NOEL(21), Circuit 2, 2102
5.15.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.15.5	TOTAL CIRCUIT LENGTH (MILES)	82.9
5.15.6	CUSTOMER COUNT FOR THIS CIRCUIT	776
5.15.7	DATE OF LAST CIRCUIT TRIM (VM)	2015

5.15.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	35.38%	26.52%
Equipment/Installation	5.21%	1.90%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	1.99%	2.07%
Scheduled	0.00%	0.00%
Unknown	8.27%	4.79%
Weather	41.35%	47.69%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	7.81%	17.03%

5.15.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	1.352
5.15.10	REPORTING YEAR (SAIDI)	1.036
5.15.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.010
5.15.12	REPORTING YEAR (SAIFI)	0.010

5.15.13 CORRECTIVE ACTION PLAN:

This feeder was just above the 5 year SAIFI and below the 5 year SAIDI. This is a typical outage profile for this feeder based on the five year average. There were many smaller outages, on the scale of 1-4 members that were mostly caused by transformer fuses blowing due to wild life.

Action Plan:

Continue using wildlife guards and insulated jumpers where appropriate.

Circuit # 16

5.16.1	SUBSTATION NAME AND NUMBER	RICHARDSON(19)
5.16.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Kenton
5.16.3	CIRCUIT NAME AND NUMBER	RICHARDSON(19), Circuit 3, 1903
5.16.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.16.5	TOTAL CIRCUIT LENGTH (MILES)	18.7
5.16.6	CUSTOMER COUNT FOR THIS CIRCUIT	957
5.16.7	DATE OF LAST CIRCUIT TRIM (VM)	2017

5.16.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	1.32%	4.07%
Equipment/Installation	0.00%	0.00%
Member/Public	0.28%	0.96%
R.O.W. Unpreventable	0.09%	0.48%
Scheduled	3.30%	16.68%
Unknown	0.09%	0.75%
Weather	90.11%	25.99%
Age/Deterioration	0.38%	9.22%
R.O.W. Preventable	4.14%	40.53%

5.16.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.840
5.16.10	REPORTING YEAR (SAIDI)	0.181
5.16.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.012
5.16.12	REPORTING YEAR (SAIFI)	0.017

5.16.13 CORRECTIVE ACTION PLAN:

Fifteen outages occurred over this period. The SAIDI was better than the rolling five year average, but the SAIFI was just above the average. A substation operation, that was quickly restored, removed 956 members from service temporarily. This was the only large outage, with the rest being 30 members or less, though several were single or two member outages caused by weather or birds at the transformer level. The one large outage was a tree that fell due to a storm taking out the three phase.

Action Plan:

There are no additional plans in addition to maintaining Right of Way Trim Schedule and line inspection schedule.

Circuit # 17

5.17.1	SUBSTATION NAME AND NUMBER	DURO(17)
5.17.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Kenton
5.17.3	CIRCUIT NAME AND NUMBER	DURO(17), Circuit 6, 1706
5.17.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.17.5	TOTAL CIRCUIT LENGTH (MILES)	11.7
5.17.6	CUSTOMER COUNT FOR THIS CIRCUIT	422
5.17.7	DATE OF LAST CIRCUIT TRIM (VM)	2017

5.17.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	5.74%	5.11%
Equipment/Installation	0.00%	0.00%
Member/Public	93.16%	87.50%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.00%	0.00%
Unknown	0.00%	0.00%
Weather	1.10%	7.39%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	0.00%	0.00%

5.17.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.190
5.17.10	REPORTING YEAR (SAIDI)	0.418
5.17.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.002
5.17.12	REPORTING YEAR (SAIFI)	0.007

5.17.13 CORRECTIVE ACTION PLAN:

Traditionally this is a very reliable circuit, with portions of underground. In this case, the main cause of both SAIDI and SAIFI was a member incident. A car hit a pole and caused the substation to open, removing 422 members from service for a total customer hours of 379 minutes. The other three outages affected minimal members and added less than an hour of total customer hours combined.

Action Plan:

None at this time.

Circuit # 18

5.18.1	SUBSTATION NAME AND NUMBER	SMOOT(16)
5.18.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Boone
5.18.3	CIRCUIT NAME AND NUMBER	SMOOT(16), Circuit 3, 1603
5.18.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.18.5	TOTAL CIRCUIT LENGTH (MILES)	5.0
5.18.6	CUSTOMER COUNT FOR THIS CIRCUIT	305
5.18.7	DATE OF LAST CIRCUIT TRIM (VM)	2017

5.18.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	69.59%	12.49%
Birds/Animals	3.36%	2.85%
Equipment/Installation	2.99%	6.15%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	24.07%	78.51%
Unknown	0.00%	0.00%
Weather	0.00%	0.00%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	0.00%	0.00%

5.18.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.133
5.18.10	REPORTING YEAR (SAIDI)	0.334
5.18.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.003
5.18.12	REPORTING YEAR (SAIFI)	0.009

5.18.13 CORRECTIVE ACTION PLAN:

Overall, this feeder tends to be reliable, due to location and amount of underground. In this case, there were six total outages. The power supplier had faulty equipment that cause the feeder to open, which was the main contributor to the SAIDI and SAIFI. In addition the circuit switcher was planned to be repaired, which took another scheduled outage. They two outages were nearly all the members out and the total customer hours contributed to SAIDI and SAIFI.

Action Plan:

Continue necessary discussions with power supplier to ensure best possible service.

Circuit # 19

5.28.5	SUBSTATION NAME AND NUMBER	SMOOT(16)
5.19.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Boone
5.19.3	CIRCUIT NAME AND NUMBER	SMOOT(16), Circuit 2, 1602
5.19.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.19.5	TOTAL CIRCUIT LENGTH (MILES)	19.8
5.19.6	CUSTOMER COUNT FOR THIS CIRCUIT	1477
5.19.7	DATE OF LAST CIRCUIT TRIM (VM)	2017

5.19.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	31.55%	6.57%
Birds/Animals	35.29%	63.00%
Equipment/Installation	31.02%	12.92%
Member/Public	0.06%	0.17%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	1.27%	6.21%
Unknown	0.00%	0.00%
Weather	0.23%	0.53%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	0.57%	10.59%

5.19.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.702
5.19.10	REPORTING YEAR (SAIDI)	1.453
5.19.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.009
5.19.12	REPORTING YEAR (SAIFI)	0.076

5.19.13 CORRECTIVE ACTION PLAN:

This feeder has a high population density with several underground subdivisions, but also has a high proportion of overhead. This circuit was also affected by the same power supplier issues as stated for 1603. This however had several additional outages affecting transformers or small taps

Action Plan:
Review wildlife protection at both the sub and the line.

Circuit # 20

5.20.1	SUBSTATION NAME AND NUMBER	SMOOT(16)
5.20.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Boone
5.20.3	CIRCUIT NAME AND NUMBER	SMOOT(16), Circuit 1, 1601
5.20.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.20.5	TOTAL CIRCUIT LENGTH (MILES)	8.4
5.20.6	CUSTOMER COUNT FOR THIS CIRCUIT	574
5.20.7	DATE OF LAST CIRCUIT TRIM (VM)	2017

5.20.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	50.13%	7.08%
Birds/Animals	0.00%	0.00%
Equipment/Installation	0.00%	0.00%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.00%	0.00%
Unknown	0.00%	0.00%
Weather	0.00%	0.00%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	49.87%	92.92%

5.20.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.049
5.20.10	REPORTING YEAR (SAIDI)	0.652
5.20.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.001
5.20.12	REPORTING YEAR (SAIFI)	0.018

5.20.13 CORRECTIVE ACTION PLAN:

This is a reliable circuit that had two outages for 2019, however, they were both the entire feeder. One was caused by the power supplier, the other a tree fell on the three phase taking the feeder out. Overall Right of Way is not a large issue due to layout and subdivisions.

Action Plan:

Continue necessary discussions with power supplier to ensure best possible service.

Circuit # 21

5.21.1	SUBSTATION NAME AND NUMBER	BRISTOW(14)
5.21.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Kenton
5.21.3	CIRCUIT NAME AND NUMBER	BRISTOW(14), Circuit 4, 1404
5.21.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.21.5	TOTAL CIRCUIT LENGTH (MILES)	23.2
5.21.6	CUSTOMER COUNT FOR THIS CIRCUIT	1446
5.21.7	DATE OF LAST CIRCUIT TRIM (VM)	2016

5.21.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	1.06%	0.51%
Equipment/Installation	0.00%	0.00%
Member/Public	2.77%	4.09%
R.O.W. Unpreventable	23.20%	26.16%
Scheduled	1.15%	0.31%
Unknown	0.10%	0.13%
Weather	61.18%	56.57%
Age/Deterioration	0.02%	0.05%
R.O.W. Preventable	0.83%	0.60%

5.21.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	6.107
5.21.10	REPORTING YEAR (SAIDI)	4.534
5.21.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.063
5.21.12	REPORTING YEAR (SAIFI)	0.070

5.21.13 CORRECTIVE ACTION PLAN:

Sixteen outages occurred on this circuit for 2019, and the SAIDI and SAIFI contributions are significantly higher than the rolling five year average. This is largely due to three feeder outages, removing the whole circuit from service, which is over 1,000 members. Trees, including one that fell during high winds, were what drove the SAIDI and SAIFI to be so high.

Action Plan:

Have Right of Way manager analyze circuit for potential circuit or spot trim to remove problem trees.

Circuit # 22

5.22.1	SUBSTATION NAME AND NUMBER	BRISTOW(14)
5.22.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Kenton
5.22.3	CIRCUIT NAME AND NUMBER	BRISTOW(14), Circuit 2, 1402
5.22.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.22.5	TOTAL CIRCUIT LENGTH (MILES)	6.6
5.22.6	CUSTOMER COUNT FOR THIS CIRCUIT	360
5.22.7	DATE OF LAST CIRCUIT TRIM (VM)	2016

5.22.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	0.00%	0.00%
Equipment/Installation	0.00%	0.00%
Member/Public	41.32%	67.40%
R.O.W. Unpreventable	41.32%	28.78%
Scheduled	0.00%	0.00%
Unknown	0.00%	0.00%
Weather	17.36%	3.82%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	0.00%	0.00%

5.22.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.191
5.22.10	REPORTING YEAR (SAIDI)	0.212
5.22.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.002
5.22.12	REPORTING YEAR (SAIFI)	0.004

5.22.13 CORRECTIVE ACTION PLAN:

Overall, typically outages are not common on this feeder. For this 2019 cycle, 3 outages occurred. Nearly 40% of the SAIFI and 70% of the SAIDI was caused by a member striking the pole in an accident. This removed 100 members from service and contributed 148 customer hours.

Action Plan:

None at this time.

Circuit # 23

5.23.1	SUBSTATION NAME AND NUMBER	KEITH(13)
5.23.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Owen
5.23.3	CIRCUIT NAME AND NUMBER	KEITH(13), Circuit 4, 1304
5.23.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.23.5	TOTAL CIRCUIT LENGTH (MILES)	54.6
5.23.6	CUSTOMER COUNT FOR THIS CIRCUIT	606
5.23.7	DATE OF LAST CIRCUIT TRIM (VM)	2019

5.23.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	25.17%	12.92%
Equipment/Installation	0.44%	0.21%
Member/Public	0.22%	0.36%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.00%	0.00%
Unknown	1.99%	0.85%
Weather	60.93%	68.92%
Age/Deterioration	7.95%	13.21%
R.O.W. Preventable	1.99%	2.21%

5.23.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.510
5.23.10	REPORTING YEAR (SAIDI)	0.826
5.23.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.007
5.23.12	REPORTING YEAR (SAIFI)	0.007

5.23.13 CORRECTIVE ACTION PLAN:

This feeder had a plethora of outages, but most were contained to 5 or less members, usually being a transformer outage due to an animal blowing the fuse. There were additionally some weather based outages that took out a larger number of members and ultimately took longer to restore.

Action Plan:

Hydraulics were just converted to electronic as well as circuit trim completed.

Circuit # 24

5.24.1	SUBSTATION NAME AND NUMBER	KEITH(13)
5.24.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Owen
5.24.3	CIRCUIT NAME AND NUMBER	KEITH(13), Circuit 2, 1302
5.24.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.24.5	TOTAL CIRCUIT LENGTH (MILES)	46.9
5.24.6	CUSTOMER COUNT FOR THIS CIRCUIT	383
5.24.7	DATE OF LAST CIRCUIT TRIM (VM)	2016

5.24.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	2.26%	1.04%
Equipment/Installation	0.19%	0.26%
Member/Public	4.53%	3.68%
R.O.W. Unpreventable	3.21%	5.07%
Scheduled	1.13%	1.10%
Unknown	0.00%	0.00%
Weather	76.42%	74.52%
Age/Deterioration	0.38%	0.48%
R.O.W. Preventable	0.19%	0.32%

5.24.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.513
5.24.10	REPORTING YEAR (SAIDI)	0.661
5.24.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.007
5.24.12	REPORTING YEAR (SAIFI)	0.008

5.24.13 CORRECTIVE ACTION PLAN:

Twenty three outages occurred on this feeder in 2019. The majority of these outages were due to weather, but a significant number were also small outages effect a few members at a time. Lightning seems to be the biggest cause during the weather outages.

Action Plan:

Review Lightning protection.

Circuit # 25

5.25.1	SUBSTATION NAME AND NUMBER	BIG BONE(12)
5.25.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Boone
5.25.3	CIRCUIT NAME AND NUMBER	BIG BONE(12), Circuit 1, 1201
5.25.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.25.5	TOTAL CIRCUIT LENGTH (MILES)	49.2
5.25.6	CUSTOMER COUNT FOR THIS CIRCUIT	586
5.25.7	DATE OF LAST CIRCUIT TRIM (VM)	2015

5.25.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	10.84%	4.25%
Equipment/Installation	0.00%	0.00%
Member/Public	0.37%	0.37%
R.O.W. Unpreventable	27.82%	33.89%
Scheduled	3.31%	7.49%
Unknown	0.55%	0.17%
Weather	28.10%	28.98%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	28.47%	24.61%

5.25.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	4.545
5.25.10	REPORTING YEAR (SAIDI)	2.725
5.25.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.012
5.25.12	REPORTING YEAR (SAIFI)	0.017

5.25.13 CORRECTIVE ACTION PLAN:

This feeder had a number of outages that are the result of several outage types. Right of way, both preventable and unpreventable are the biggest cause. There were also numerous smaller outages affecting a few members at a time.

Action Plan:

Need Right of Way to Trim.

Circuit # 26

5.26.1	SUBSTATION NAME AND NUMBER	CARSON(11)
5.26.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Gallatin
5.26.3	CIRCUIT NAME AND NUMBER	CARSON(11), Circuit 2, 1102
5.26.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.26.5	TOTAL CIRCUIT LENGTH (MILES)	57.6
5.26.6	CUSTOMER COUNT FOR THIS CIRCUIT	578
5.26.7	DATE OF LAST CIRCUIT TRIM (VM)	2019

5.26.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	11.37%	2.98%
Equipment/Installation	0.54%	0.19%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.58%	0.18%
Scheduled	2.73%	0.11%
Unknown	29.65%	17.42%
Weather	7.87%	31.96%
Age/Deterioration	0.81%	1.09%
R.O.W. Preventable	35.75%	18.94%

5.26.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	3.701
5.26.10	REPORTING YEAR (SAIDI)	6.162
5.26.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.021
5.26.12	REPORTING YEAR (SAIFI)	0.037

5.26.13 CORRECTIVE ACTION PLAN:

This circuit is fairly long, with over 55 miles of line, the majority of which is overhead. There were several smaller outages on this circuit, but the biggest contributor to the SAIFI and SAIDI were the outages that took out the substation OCR, which occurred four times. These mostly occurred due to right of way, however, the right of way was then trimmed in 2019, which will hopefully reduce some of these occurrences

Action Plan:

None at this time, right of way was cut in 2019.

Circuit # 27

5.27.1	SUBSTATION NAME AND NUMBER	CARSON(11)
5.27.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Gallatin
5.27.3	CIRCUIT NAME AND NUMBER	CARSON(11), Circuit 1, 1101
5.27.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.27.5	TOTAL CIRCUIT LENGTH (MILES)	32.8
5.27.6	CUSTOMER COUNT FOR THIS CIRCUIT	266
5.27.7	DATE OF LAST CIRCUIT TRIM (VM)	2019

5.27.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	5.36%	2.94%
Equipment/Installation	0.00%	0.00%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	20.00%	15.48%
Unknown	0.00%	0.00%
Weather	45.89%	52.15%
Age/Deterioration	0.36%	0.49%
R.O.W. Preventable	25.71%	24.37%

5.27.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.711
5.27.10	REPORTING YEAR (SAIDI)	0.688
5.27.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.008
5.27.12	REPORTING YEAR (SAIFI)	0.009

5.27.13 CORRECTIVE ACTION PLAN:

The outage profile has been similar to the five year rolling average for this feeder. The SAIFI is slightly above the rolling five year for this period, while the SAIDI is lower. Most of these outages were from weather and trees falling into the lines. However, right of way was trimmed in 2019, which should reduce these occurrences.

Action Plan:

None at this time. Right of way trimmed in 2019

Circuit # 28

5.28.1	SUBSTATION NAME AND NUMBER	TURKEYFOOT(10)
5.28.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Kenton
5.28.3	CIRCUIT NAME AND NUMBER	TURKEYFOOT(10), Circuit 4, 1004
5.28.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.28.5	TOTAL CIRCUIT LENGTH (MILES)	10.6
5.28.6	CUSTOMER COUNT FOR THIS CIRCUIT	968
5.28.7	DATE OF LAST CIRCUIT TRIM (VM)	2016

5.28.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	1.39%	1.43%
Equipment/Installation	0.00%	0.00%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.00%	0.00%
Unknown	91.00%	32.82%
Weather	1.02%	0.65%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	6.59%	65.10%

5.28.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.450
5.28.10	REPORTING YEAR (SAIDI)	1.017
5.28.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.006
5.28.12	REPORTING YEAR (SAIFI)	0.017

5.28.13 CORRECTIVE ACTION PLAN:

Thirteen outages occurred during this period, the main SAIFI contributor was of unknown cause, but opened the substation OCR during a time when it was in HotLine Tag. Since this was not out a significant amount of time, another outage was the main SAIDI contributor, a tree which broke a 40ft pole and caused an extended outage to repair.

Action Plan:

Review Right of Way Trimming for this feeder

Circuit # 29

5.29.1	SUBSTATION NAME AND NUMBER	TURKEYFOOT(10)
5.29.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Kenton
5.29.3	CIRCUIT NAME AND NUMBER	TURKEYFOOT(10), Circuit 1, 1001
5.29.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.29.5	TOTAL CIRCUIT LENGTH (MILES)	4.1
5.29.6	CUSTOMER COUNT FOR THIS CIRCUIT	282
5.29.7	DATE OF LAST CIRCUIT TRIM (VM)	2016

5.29.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	0.37%	0.40%
Equipment/Installation	0.00%	0.00%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.00%	0.00%
Unknown	99.63%	99.60%
Weather	0.00%	0.00%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	0.00%	0.00%

5.29.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.008
5.29.10	REPORTING YEAR (SAIDI)	0.069
5.29.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.000
5.29.12	REPORTING YEAR (SAIFI)	0.004

5.29.13 CORRECTIVE ACTION PLAN:

This feeder rarely has outages of any significant duration. This cycle saw two outages. One was a single member on a transformer due to a bird, the second was an opening of the substation OCR, removing all members on that circuit from service. This outage was of unknown origin, but was during hotline work on the line of which the circuit was placed in Hot Line Tag, which makes any fault instantaneously open.

Action Plan:

None at this time.

Circuit # 30

5.30.1	SUBSTATION NAME AND NUMBER	GRIFFIN(9)
5.30.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Pendelton
5.30.3	CIRCUIT NAME AND NUMBER	GRIFFIN(9), Circuit 3, 0903
5.30.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.30.5	TOTAL CIRCUIT LENGTH (MILES)	22.4
5.30.6	CUSTOMER COUNT FOR THIS CIRCUIT	214
5.30.7	DATE OF LAST CIRCUIT TRIM (VM)	2015

5.30.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	2.64%	1.06%
Equipment/Installation	61.89%	61.80%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.00%	0.00%
Unknown	0.00%	0.00%
Weather	35.47%	37.14%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	0.00%	0.00%

5.30.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.487
5.30.10	REPORTING YEAR (SAIDI)	0.657
5.30.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.004
5.30.12	REPORTING YEAR (SAIFI)	0.004

5.30.13 CORRECTIVE ACTION PLAN:

The reporting year SAIFI is similar to the average five year, but the SAIDI is higher. There were seven outages on this feeder, with an OCR that was struck by lightning causing the majority of both the SAIDI and SAIFI.

Action Plan:

Changing circuit to use all electronic versa techs, which do not have the same lightning exposure as oil filled OCR's as they are at line potential.

Circuit # 31

5.31.1	SUBSTATION NAME AND NUMBER	GRIFFIN(9)
5.31.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Pendelton
5.31.3	CIRCUIT NAME AND NUMBER	GRIFFIN(9), Circuit 1, 0901
5.31.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.31.5	TOTAL CIRCUIT LENGTH (MILES)	68.8
5.31.6	CUSTOMER COUNT FOR THIS CIRCUIT	776
5.31.7	DATE OF LAST CIRCUIT TRIM (VM)	2015

5.31.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	43.11%	27.44%
Equipment/Installation	3.78%	4.20%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	43.21%	37.68%
Scheduled	2.34%	5.09%
Unknown	1.22%	1.88%
Weather	5.96%	22.02%
Age/Deterioration	0.16%	0.19%
R.O.W. Preventable	0.00%	0.00%

5.31.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	1.389
5.31.10	REPORTING YEAR (SAIDI)	1.230
5.31.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.013
5.31.12	REPORTING YEAR (SAIFI)	0.030

5.31.13 CORRECTIVE ACTION PLAN:

The reporting year SAIDI was slightly better than the 5 year average, the SAIFI however, was higher. This was mostly due to two feeder level events which caused an outage for 776 members during each event. One of these events was a tree on the distribution three phase, while the other was an animal caused event at the substation. The substations themselves are owned by EKPC.

Action Plan:

Continue right of way program and create work orders as necessary to spot cut problem trees.

Circuit # 32

5.32.1	SUBSTATION NAME AND NUMBER	BULLITTSVILLE(8)
5.32.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Boone
5.32.3	CIRCUIT NAME AND NUMBER	BULLITTSVILLE(8), Circuit 3, 0803
5.32.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.32.5	TOTAL CIRCUIT LENGTH (MILES)	5.5
5.32.6	CUSTOMER COUNT FOR THIS CIRCUIT	46
5.32.7	DATE OF LAST CIRCUIT TRIM (VM)	2015

5.32.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	0.00%	0.00%
Equipment/Installation	0.00%	0.00%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.00%	0.00%
Unknown	0.00%	0.00%
Weather	100.00%	100.00%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	0.00%	0.00%

5.32.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.085
5.32.10	REPORTING YEAR (SAIDI)	0.046
5.32.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.000
5.32.12	REPORTING YEAR (SAIFI)	0.001

5.32.13 CORRECTIVE ACTION PLAN:

Overall this tends to be a very reliable circuit as it is short, industrial, and has a large portion underground. This outage cycle only had one outage during a high wind event that opened the substation, which took about an hour to resolve.

Action Plan:

None at this time.

Circuit # 33

5.33.1	SUBSTATION NAME AND NUMBER	PENN(7)
5.33.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Scott
5.33.3	CIRCUIT NAME AND NUMBER	PENN(7), Circuit 3, 0703
5.33.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.33.5	TOTAL CIRCUIT LENGTH (MILES)	54.9
5.33.6	CUSTOMER COUNT FOR THIS CIRCUIT	496
5.33.7	DATE OF LAST CIRCUIT TRIM (VM)	2016

5.33.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	7.11%	2.72%
Equipment/Installation	0.00%	0.00%
Member/Public	0.30%	0.18%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.00%	0.00%
Unknown	0.30%	0.27%
Weather	91.98%	96.70%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	0.00%	0.00%

5.33.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.984
5.33.10	REPORTING YEAR (SAIDI)	1.398
5.33.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.011
5.33.12	REPORTING YEAR (SAIFI)	0.011

5.33.13 CORRECTIVE ACTION PLAN:

Twenty outages occurred on this circuit that is fairly long in terms of mileage. Nineteen of the outages were less than 30 members at a time, while a majority were less than a couple of members. The largest contributor was a feeder outage that removed all 496 members from service for a total customer hours of 1054. This occurred during a high wind event, causing a tree to fall into the lines, which took some time to cut and restore.

Action Plan:

Need to review the Right of Way schedule on this feeder.

Circuit # 34

5.34.1	SUBSTATION NAME AND NUMBER	PENN(7)
5.34.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Scott
5.34.3	CIRCUIT NAME AND NUMBER	PENN(7), Circuit 2, 0702
5.34.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.34.5	TOTAL CIRCUIT LENGTH (MILES)	110.2
5.34.6	CUSTOMER COUNT FOR THIS CIRCUIT	745
5.34.7	DATE OF LAST CIRCUIT TRIM (VM)	2015

5.34.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	6.31%	3.33%
Equipment/Installation	54.24%	42.36%
Member/Public	4.68%	1.52%
R.O.W. Unpreventable	2.72%	1.23%
Scheduled	0.33%	0.11%
Unknown	8.05%	10.69%
Weather	21.87%	37.53%
Age/Deterioration	0.05%	0.09%
R.O.W. Preventable	0.00%	0.00%

5.34.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	1.184
5.34.10	REPORTING YEAR (SAIDI)	3.503
5.34.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.011
5.34.12	REPORTING YEAR (SAIFI)	0.029

5.34.13 CORRECTIVE ACTION PLAN:

Several outages occurred throughout the year which affected the overall SAIDI and SAIFI. Most of these outages were contained to a relatively small number of customers, especially for a circuit as long and with as many members, which shows the sectionalizing has been working. Weather and equipment were the two main causes.

Action Plan:

Continue two year line inspection to potentially remove failing equipment.

Circuit # 35

5.35.1	SUBSTATION NAME AND NUMBER	BROMLEY(6)
5.35.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Owen
5.35.3	CIRCUIT NAME AND NUMBER	BROMLEY(6), Circuit 3, 0603
5.35.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.35.5	TOTAL CIRCUIT LENGTH (MILES)	116.1
5.35.6	CUSTOMER COUNT FOR THIS CIRCUIT	603
5.35.7	DATE OF LAST CIRCUIT TRIM (VM)	2015

5.35.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	3.90%	1.75%
Equipment/Installation	1.80%	0.72%
Member/Public	29.57%	40.57%
R.O.W. Unpreventable	0.19%	0.19%
Scheduled	0.97%	0.70%
Unknown	29.42%	12.54%
Weather	21.48%	27.95%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	12.27%	14.11%

5.35.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.801
5.35.10	REPORTING YEAR (SAIDI)	4.038
5.35.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.007
5.35.12	REPORTING YEAR (SAIFI)	0.033

5.35.13 CORRECTIVE ACTION PLAN:

Bromley sits in a rural area, with significant cross country right of way. This also has a significant amount of miles. Overall, this circuit is reliable, especially for the amount of exposure on the circuit. For this outage, there was one main contributor, with the rest of the outages being single or a few member outages. The one main outage caused an outage for 600+ members, and adding a total of 1725 customer hours. This was due to a pole breaking caused by a member.

Action Plan:

Review Right of Way for this circuit.

Circuit # 36

5.36.1	SUBSTATION NAME AND NUMBER	BROMLEY(6)
5.36.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Owen
5.36.3	CIRCUIT NAME AND NUMBER	BROMLEY(6), Circuit 1, 0601
5.36.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.36.5	TOTAL CIRCUIT LENGTH (MILES)	96.6
5.36.6	CUSTOMER COUNT FOR THIS CIRCUIT	898
5.36.7	DATE OF LAST CIRCUIT TRIM (VM)	2015

5.36.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	1.90%	2.59%
Equipment/Installation	71.59%	45.89%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.16%	0.12%
Unknown	1.90%	3.88%
Weather	22.70%	42.62%
Age/Deterioration	0.32%	0.45%
R.O.W. Preventable	1.43%	4.46%

5.36.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	1.563
5.36.10	REPORTING YEAR (SAIDI)	0.920
5.36.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.018
5.36.12	REPORTING YEAR (SAIFI)	0.020

5.36.13 CORRECTIVE ACTION PLAN:

This feeder is also rural. It had many small outages, but only one large outage due to a phase coming untied opening up to OCR circuit breaker. That outage added 432 Customer hours, while the majority of the other outages were less than 10 customer hours.

Action Plan:

Continue with 2 year inspections cycle to potentially catch potential equipment failures.

Circuit # 37

5.37.1	SUBSTATION NAME AND NUMBER	WILLIAMSTOWN(5)
5.37.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Grant
5.37.3	CIRCUIT NAME AND NUMBER	WILLIAMSTOWN(5), Circuit 7, 0507
5.37.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.37.5	TOTAL CIRCUIT LENGTH (MILES)	57.2
5.37.6	CUSTOMER COUNT FOR THIS CIRCUIT	970
5.37.7	DATE OF LAST CIRCUIT TRIM (VM)	2017

5.37.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	33.10%	19.03%
Equipment/Installation	1.38%	0.25%
Member/Public	27.59%	33.89%
R.O.W. Unpreventable	10.00%	7.39%
Scheduled	4.14%	3.75%
Unknown	3.10%	1.45%
Weather	20.69%	34.22%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	0.00%	0.00%

5.37.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.445
5.37.10	REPORTING YEAR (SAIDI)	0.454
5.37.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.009
5.37.12	REPORTING YEAR (SAIFI)	0.005

5.37.13 CORRECTIVE ACTION PLAN:

Twenty outages occurred on this feeder for 2019. The cause codes were various and none of the outages had more than 65 members affected at one time, showing the benefits of the sectionalizing on this feeder. The largest individual cause was a member accident where a member hit a pole. Overall, this outage profile is very similar to those of the average 5 year rolling average.

Action Plan:

None at this time.

Circuit # 38

5.38.1	SUBSTATION NAME AND NUMBER	WILLIAMSTOWN(5)
5.38.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Grant
5.38.3	CIRCUIT NAME AND NUMBER	WILLIAMSTOWN(5), Circuit 4, 0504
5.38.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.38.5	TOTAL CIRCUIT LENGTH (MILES)	35.0
5.38.6	CUSTOMER COUNT FOR THIS CIRCUIT	302
5.38.7	DATE OF LAST CIRCUIT TRIM (VM)	2018

5.38.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	13.57%	3.93%
Equipment/Installation	0.00%	0.00%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	1.81%	1.83%
Unknown	0.00%	0.00%
Weather	84.62%	94.24%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	0.00%	0.00%

5.38.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.130
5.38.10	REPORTING YEAR (SAIDI)	0.656
5.38.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.002
5.38.12	REPORTING YEAR (SAIFI)	0.004

5.38.13 CORRECTIVE ACTION PLAN:

Eleven outages occurred on this feeder for 2019, but one was the main cause. A suspected lightning event caused a recloser to open causing 184 members an outage. This resulted in 633 customer hours out. The remaining outages almost all were only individual outages due to transformer outages.

Action Plan:

Spraying occurred in 2019, which should minimize growth of problem trees. Continue with circuit trim schedules and continue implementing wildlife guards and insulated jumpers where appropriate.

Circuit # 39

5.39.1 SUBSTATION NAME AND NUMBER	MUNK(4)
5.39.2 SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Gallatin
5.39.3 CIRCUIT NAME AND NUMBER	MUNK(4), Circuit 7, 0407
5.39.4 CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.39.5 TOTAL CIRCUIT LENGTH (MILES)	36.3
5.39.6 CUSTOMER COUNT FOR THIS CIRCUIT	775
5.39.7 DATE OF LAST CIRCUIT TRIM (VM)	2017

5.39.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	4.24%	2.99%
Equipment/Installation	3.77%	2.82%
Member/Public	0.52%	0.58%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.00%	0.00%
Unknown	0.00%	0.00%
Weather	84.76%	83.06%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	6.30%	8.26%

5.39.9 CIRCUIT 5 YEAR AVERAGE (SAIDI)	1.641
5.39.10 REPORTING YEAR (SAIDI)	2.454
5.39.11 CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.015
5.39.12 REPORTING YEAR (SAIFI)	0.031

5.39.13 CORRECTIVE ACTION PLAN:

Twenty Four Outages occurred in 2019 on this feeder. The vast majority of the SAIDI and SAIFI occurred due to weather. The main cause though, was an extreme cold event that opened the substation OCR for a total Customer Hours of 1691.

Action Plan:

Review settings at Substation to make sure still appropriately sized for load.

Circuit # 40

5.40.1	SUBSTATION NAME AND NUMBER	MUNK(4)
5.40.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Gallatin
5.40.3	CIRCUIT NAME AND NUMBER	MUNK(4), Circuit 5, 0405
5.40.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.40.5	TOTAL CIRCUIT LENGTH (MILES)	1.8
5.40.6	CUSTOMER COUNT FOR THIS CIRCUIT	17
5.40.7	DATE OF LAST CIRCUIT TRIM (VM)	2015

5.40.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	0.00%	0.00%
Equipment/Installation	0.00%	0.00%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.00%	0.00%
Unknown	12.50%	9.52%
Weather	87.50%	90.48%
Age/Deterioration	0.00%	0.00%
R.O.W. Preventable	0.00%	0.00%

5.40.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.010
5.40.10	REPORTING YEAR (SAIDI)	0.014
5.40.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.000
5.40.12	REPORTING YEAR (SAIFI)	0.000

5.40.13 CORRECTIVE ACTION PLAN:

This feeder is very short with few members, which is why traditionally there are no outages. For this period there were two outages, but both were small. One affected 7 members for 2 hours each, while the other was 1 member for one hour.

Action Plan:

None at this time.

Circuit # 41

5.41.1	SUBSTATION NAME AND NUMBER	MUNK(4)
5.41.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Gallatin
5.41.3	CIRCUIT NAME AND NUMBER	MUNK(4), Circuit 4, 0404
5.41.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.41.5	TOTAL CIRCUIT LENGTH (MILES)	39.3
5.41.6	CUSTOMER COUNT FOR THIS CIRCUIT	431
5.41.7	DATE OF LAST CIRCUIT TRIM (VM)	2018

5.41.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	9.85%	4.40%
Equipment/Installation	18.92%	16.40%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	17.28%	13.64%
Scheduled	14.67%	10.65%
Unknown	0.00%	0.00%
Weather	26.25%	40.35%
Age/Deterioration	0.77%	0.35%
R.O.W. Preventable	12.26%	14.21%

5.41.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	1.303
5.41.10	REPORTING YEAR (SAIDI)	2.426
5.41.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.010
5.41.12	REPORTING YEAR (SAIFI)	0.017

5.41.13 CORRECTIVE ACTION PLAN:

This feeder had a number of outages throughout the year. The vast majority affected a minimal number of members, with the largest outage affecting 86 members. A variety of causes were the reasons for the outages, but ROW and weather which resulted in right of way outages were the two biggest contributors, which adversely affected the SAIDI and SAIFI.

Action Plan:

Spraying Occurred on the circuit in 2019. Continue with Right of Way plans and installing wildlife protectors where necessary.

Circuit # 42

5.42.1	SUBSTATION NAME AND NUMBER	MUNK(4)
5.42.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Gallatin
5.42.3	CIRCUIT NAME AND NUMBER	MUNK(4), Circuit 3, 0403
5.42.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.42.5	TOTAL CIRCUIT LENGTH (MILES)	51.8
5.42.6	CUSTOMER COUNT FOR THIS CIRCUIT	688
5.42.7	DATE OF LAST CIRCUIT TRIM (VM)	2018

5.42.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	8.55%	6.97%
Equipment/Installation	0.00%	0.00%
Member/Public	52.62%	34.71%
R.O.W. Unpreventable	0.10%	0.10%
Scheduled	0.15%	0.17%
Unknown	1.21%	1.28%
Weather	22.94%	41.20%
Age/Deterioration	12.37%	14.17%
R.O.W. Preventable	2.06%	1.41%

5.42.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	3.002
5.42.10	REPORTING YEAR (SAIDI)	2.758
5.42.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.026
5.42.12	REPORTING YEAR (SAIFI)	0.032

5.42.13 CORRECTIVE ACTION PLAN:

Twenty six outages occurred for this circuit in 2019. The main SAIFI contributor were multiple member accidents in different locations. One of those member caused outages created a feeder wide outage. High Wind also caused many problems throughout the year and created various outages of differing size.

Action Plan:

Review two member outages to ensure the pole location is appropriate.

Circuit # 43

5.43.1	SUBSTATION NAME AND NUMBER	BANKLICK(2)
5.43.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Kenton
5.43.3	CIRCUIT NAME AND NUMBER	BANKLICK(2), Circuit 3, 0203
5.43.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.43.5	TOTAL CIRCUIT LENGTH (MILES)	38.1
5.43.6	CUSTOMER COUNT FOR THIS CIRCUIT	414
5.43.7	DATE OF LAST CIRCUIT TRIM (VM)	2018

5.43.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	0.09%	0.05%
Equipment/Installation	0.00%	0.00%
Member/Public	0.00%	0.00%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	0.26%	0.81%
Unknown	4.46%	6.50%
Weather	51.33%	55.08%
Age/Deterioration	0.26%	0.26%
R.O.W. Preventable	42.67%	34.48%

5.43.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	1.425
5.43.10	REPORTING YEAR (SAIDI)	1.232
5.43.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.013
5.43.12	REPORTING YEAR (SAIFI)	0.019

5.43.13 CORRECTIVE ACTION PLAN:

This feeder had numerous outages. One large outage was due to an ash tree opening the feeder breaker. The vast majority of the other outages were smaller outages, indicating the sectionalizing plan is working, though trees and weather continue to cause the majority of outages, even though the right of way was just cleared in 2018.

Action Plan:

None at this time.

Circuit # 44

5.44.1	SUBSTATION NAME AND NUMBER	BANKLICK(2)
5.44.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Kenton
5.44.3	CIRCUIT NAME AND NUMBER	BANKLICK(2), Circuit 1, 0201
5.44.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.44.5	TOTAL CIRCUIT LENGTH (MILES)	18.5
5.44.6	CUSTOMER COUNT FOR THIS CIRCUIT	948
5.44.7	DATE OF LAST CIRCUIT TRIM (VM)	2018

5.44.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	7.40%	10.05%
Equipment/Installation	0.00%	0.00%
Member/Public	0.18%	0.11%
R.O.W. Unpreventable	0.00%	0.00%
Scheduled	3.36%	2.58%
Unknown	0.27%	0.17%
Weather	86.36%	86.08%
Age/Deterioration	2.33%	0.78%
R.O.W. Preventable	0.00%	0.00%

5.44.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.710
5.44.10	REPORTING YEAR (SAIDI)	3.363
5.44.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.007
5.44.12	REPORTING YEAR (SAIFI)	0.053

5.44.13 CORRECTIVE ACTION PLAN:

Twenty Two outages occurred on this feeder in 2019. The weather was the largest contributor to SAIFI and SAIDI, with the high winds causing tree outages. There were several outages that occurred at the feeder level.

Action plan:

Spraying of the circuit occurred in 2019, continue Right of Way plans to minimize tree outages.

Circuit # 45

5.45.1	SUBSTATION NAME AND NUMBER	BOONE(1)
5.45.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Boone
5.45.3	CIRCUIT NAME AND NUMBER	BOONE(1), Circuit 3, 0103
5.45.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.45.5	TOTAL CIRCUIT LENGTH (MILES)	16.7
5.45.6	CUSTOMER COUNT FOR THIS CIRCUIT	831
5.45.7	DATE OF LAST CIRCUIT TRIM (VM)	2017

5.45.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	1.14%	1.18%
Equipment/Installation	0.23%	0.50%
Member/Public	1.72%	3.34%
R.O.W. Unpreventable	94.62%	91.96%
Scheduled	0.00%	0.00%
Unknown	0.57%	0.25%
Weather	1.37%	2.02%
Age/Deterioration	0.23%	0.58%
R.O.W. Preventable	0.11%	0.17%

5.45.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.179
5.45.10	REPORTING YEAR (SAIDI)	0.924
5.45.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.003
5.45.12	REPORTING YEAR (SAIFI)	0.014

5.45.13 CORRECTIVE ACTION PLAN:

Fourteen outages occurred for this cycle. One main outage, which opened the feeder breaker and caused 881 customer hours, was caused by a tree falling into the line and was the main contributor to both the SAIDI and SAIFI.

Action Plan:

None at this time.

Circuit # 46

5.46.1	SUBSTATION NAME AND NUMBER	BOONE(1)
5.46.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Boone
5.46.3	CIRCUIT NAME AND NUMBER	BOONE(1), Circuit 2, 0102
5.46.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.46.5	TOTAL CIRCUIT LENGTH (MILES)	61.4
5.46.6	CUSTOMER COUNT FOR THIS CIRCUIT	760
5.46.7	DATE OF LAST CIRCUIT TRIM (VM)	2017

5.46.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	27.28%	11.22%
Equipment/Installation	0.11%	0.12%
Member/Public	0.03%	0.02%
R.O.W. Unpreventable	0.42%	0.45%
Scheduled	1.05%	0.58%
Unknown	0.88%	0.53%
Weather	46.80%	69.90%
Age/Deterioration	21.56%	15.10%
R.O.W. Preventable	0.00%	0.00%

5.46.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	1.962
5.46.10	REPORTING YEAR (SAIDI)	6.170
5.46.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.016
5.46.12	REPORTING YEAR (SAIFI)	0.056

5.46.13 CORRECTIVE ACTION PLAN:

This feeder has some rural portions that travel through some robust cross country. This circuit had numerous outages for 2019. One large outage was the main contributor to the high SAIDI number however, a tree outage that caused 1791 customer hours.

Action Plan:

Right of Way manager to analyze circuit trim going forward to minimize ROW outages.

Circuit # 47

5.47.1	SUBSTATION NAME AND NUMBER	BOONE(1)
5.47.2	SUBSTATION LOCATION (COUNTY-ROAD-TOWN)	Boone
5.47.3	CIRCUIT NAME AND NUMBER	BOONE(1), Circuit 1, 0101
5.47.4	CIRCUIT LOCATION (TOWN-ROAD-GENERAL AREA)	See Coop.
5.47.5	TOTAL CIRCUIT LENGTH (MILES)	31.1
5.47.6	CUSTOMER COUNT FOR THIS CIRCUIT	349
5.47.7	DATE OF LAST CIRCUIT TRIM (VM)	2017

5.47.23 LIST OF OUTAGE CAUSES FOR CIRCUIT ALONG WITH PERCENTAGE OF TOTAL OUTAGE NUMBERS REPRESENTED BY EACH CAUSE

Outage Cause	SAIFI Contribution	SAIDI Contribution
Power Supplier	0.00%	0.00%
Birds/Animals	11.42%	8.37%
Equipment/Installation	0.16%	0.43%
Member/Public	54.62%	21.64%
R.O.W. Unpreventable	2.97%	1.37%
Scheduled	8.92%	12.48%
Unknown	2.50%	3.63%
Weather	12.99%	34.27%
Age/Deterioration	2.97%	4.12%
R.O.W. Preventable	3.44%	13.68%

5.47.9	CIRCUIT 5 YEAR AVERAGE (SAIDI)	0.751
5.47.10	REPORTING YEAR (SAIDI)	0.647
5.47.11	CIRCUIT 5 YEAR AVERAGE (SAIFI)	0.007
5.47.12	REPORTING YEAR (SAIFI)	0.010

5.47.13 CORRECTIVE ACTION PLAN:

There were numerous small outages on this feeder, but one member caused outage caused the SAIFI to be higher than the rolling 5 year average due to taking the entire feeder offline for the duration of the repair.

Action Plan:
None at this time

KENTUCKY PUBLIC SERVICE COMMISSION

Electric Distribution Utility Annual Reliability Report

Additional pages may be attached as necessary

SECTION 6: VEGETATION MANAGEMENT PLAN REVIEW

INCLUDE CURRENT VEGETATION MANAGEMENT PLAN

Additional pages may be attached as necessary

OEC's vegetation management program is both a proactive and reactive 6 year cycle. At its core is a 6 year trim cycle that involves the scheduled feeders being trimmed from start to finish. 2 years following the trimming a low volume herbicide treatment of the entire feeder is completed. 3 years following the trimming a "hotspot" crew will go over the feeder to trim any "cycle buster" trees.

The reactive portion of our program revolves around the ability of lineman to report trouble areas and then scheduling our tree trimming contractors address those areas. Additionally the 6 year cycle can be adjusted to accommodate feeders that may require trimming more regularly or have a particularly high number of outages. Outage reports by feeder are reviewed annually and the trim schedule can be adjusted accordingly to address problem feeders.

KENTUCKY PUBLIC SERVICE COMMISSION

SECTION 7: UTILITY COMMENTS

During the course of 2019 OEC continued to support several initiatives designed to minimize the extent of outages and speed in the restoration of outages caused by weather. Owen Electric's Feeder Hardening program is in its ninth year. OEC has also implemented an ongoing over-current protection review of each feeder prioritized by operational feedback and length of feeder. These programs will continue into the 2020-2021 Construction Work Plan.

We continue to operate two self healing sites to provide backup power to critical Sanitation District plants.

OEC continues working on future plans to address other feeders with plans for a new substation that will shorten the feeder lengths and provide improvements in reliability. Until these substations can be implemented, initiatives such as feeder hardening, focused ROW clearing, and increased sectionalizing will continue to be considered.

A program to remove hydraulic reclosers and replace with electronic reclosers as well as increasing the number of new sectionalizing studies has also been implemented and will continue.