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March 26, 2020

***BY ELECTRONIC FILING***

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, Filing Room
Harrisburg, PA 17120

Re: Pike County Light and Power Company; Docket No. M-2016-2522508;
**Annual Electric Reliability Report 2019 System Performance**

Dear Secretary Chiavetta:

Enclosed for filing with the Public Utility Commission is Pike County Light & Power Company's Annual Electric Reliability Report 2019 System Performance. This report is served electronically pursuant to the COVID-19 Suspension Emergency Order dated March 20, 2020 and ratified March 26, 2020.

Should you have any questions or comments, please feel free to contact me directly.

Very truly yours,

*/s/ Whitney E. Snyder*

Thomas J. Sniscak
Whitney E. Snyder

WES/das
Enclosure
cc: David M. Washko (dawashko@pa.gov)
John Van Zant (jvanzant@pa.gov)
Per Certificate of Service

## CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true and correct copy of the foregoing document upon the parties, listed below, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a party) and the Commission's March 26, 2020 COVID-19 Suspension Emergency Order.

## VIA ELECTRONIC MAIL

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*/s/ Whitney E. Snyder*
Whitney E. Snyder

DATED: March 26, 2020

# Pike County Light & Power Company
# Annual Electric Reliability Report
# 2019 System Performance

**April 2020**

**INTRODUCTION**

Pursuant to the requirements of 52 Pa. Code §57.195, Pike County Light & Power Company ("Pike", "PCL&P" or the "Company") submits this Annual Reliability Report ("Report") to the Pennsylvania Public Utility Commission ("PAPUC") for its 2019 system performance. Pike is an electric distribution company ("EDC") which has approximately 4,819 electric distribution customers, thereby making it a "smaller EDC" for purposes of 52 Pa. Code §57.195 (c).

**§57.195. (b)(1)**

An overall assessment of the state of the system reliability in the EDC's service territory including a discussion of the EDC's current programs and procedures for providing reliable electric service.

**Overall Current Assessment**

The PCL&P service territory is primarily fed from two 34.5 kV feeders that originate from Orange and Rockland Utilities. The Borough of Matamoras is served by two 13.2 kV feeders from a Substation with backup tie capability to distribution circuitry from Orange and Rockland Utilities. The substation is normally fed by a 34.5kv circuit feed from a Bank "A", with backup service being provided by a second 34.5kv circuit feed from a Bank "B" through an automatic transfer scheme at the substation. The western portion of the Pike service territory is supplied by a radial feed from the 34.5kv circuit from Bank "B".

In prior years, the Company has been effective in removing danger trees. The Company will remove danger trees within rights-of-way areas when identified. Those danger trees that exist outside of the Company's right-of-way areas can only be removed with customer or municipal authorization. PCL&P works with the County Commissioners' office, the Boroughs of Matamoras and Milford, the Townships of Westfall and Milford, and the Milford Shade Tree Commission to address danger trees that represent a hazard to the Company's electrical system located within and outside of right-of-way areas.

The Company has also focused its reliability efforts toward pole inspections and defective pole replacements. The Company accelerated the pole inspection and the defective pole replacements in 2017 and 2018, resulting in the Company completing the first twelve-year cycle and replacing over one hundred (100) poles and pole top apertures. In 2019, the company inspected over 1,000 poles. In 2020, a return to normal annual frequency of 350 poles will be inspected. The emphasis on replacement of defective poles was to focus on the "main-line" of the two 34.5kv circuits from the Delaware River into Milford Borough and Township and laterals. The second stage of priority is to replace defective poles with equipment installed, such as transformers, regulators and reclosers.

In addition, the overhead system was inspected and photographed with the use of "drone" technology. The focus was on the pole top and aperture condition, and equipment. All of the overhead pole/wire crossings along the Interstate Route 84 corridor were inspected applying the same observations. In the underground, 95% of the pad-mount transformers were inspected. A visual inspection of the interior and exterior of the transformers along with cable end tag verification, open point-map confirmation and condition of the transformer tank, cable accessories and accessibility. The remaining 5% have been completed in 2020.

The PAPUC's service reliability standards for Pike, last revised on August 17, 2006, are as follows:

- 12-Month System Average Interruption Frequency Index ("SAIFI", or "Frequency") of 0.82 interruptions per customer served;

- 12-month Customer Average Interruption Duration Index ("CAIDI" or "Restoration") of 235 minutes of interruption per customer interrupted; and
- 12-month System Average Interruption Duration Index ("SAIDI" or "Duration") of 195 minutes per customer served.

In 2019, the Pike service territory experienced a Frequency of 0.39 interruptions per customer served, a Restoration of 177 minutes, and Duration of 69 customer-minutes of interruption. SAIFI was 36% below the benchmark, CAIDI was 58 minutes below the standard, and SAIDI was 37 minutes below the benchmark. These results are detailed on Page 6 of this Report, along with the most recent three-year history for these indices.

The three-year reliability standards for Pike are as follows:

- Three-year annualized SAIFI of 0.67 interruptions per customer served;
- Three-year annualized CAIDI of 191.4 minutes of interruption per customer interrupted; and
- Three-year annualized SAIDI of 129 minutes per customer served.

For the three-year period ended December 2019, Pike experienced an annualized Frequency of 0.60 interruptions per customer served, a Restoration of 207.8 minutes, and Duration of 123.8 customer minutes of interruption.

There was one major event that affected Pike's service territory during 2019 that was accepted by the PAPUC for exclusion from the reliability statistics. This major event affected 2,434 customers and is detailed in the next section of this Report (starting on Page 5).

The table on Page 7 summarizes, by cause, Pike customer interruptions experienced in 2019, with pre-arranged and major events removed. The leading cause of outages was tree contacts, with 17 interruptions affecting 727 customers for a total of 103,587 customer-minutes.

The service reliability program targeted to manage these outages is the 34.5kv circuit three-year, cycle-based tree clearance program and 13.2kv is on 5-year cycle and the pole inspection and defective pole replacements.

The most recent vegetation 34.5kv cycle was completed in 2018 and is scheduled next for completion in 2021. The most recent 13.2kv circuit cycle was completed in 2017 and is scheduled next for completion in 2022.

The pole inspection program was accelerated to restore and complete the first 12-year cycle. The second cycle will continue with 1,060 poles inspected in 2019 and planned 350 poles in 2020.

These focused efforts, along with the other service reliability programs that the Company implements, as are discussed later in this Report, are designed to target circuit equipment and conditions that will result in performance improvements.

The distribution inspection and maintenance goals/objectives and capital expenses, are listed starting on Page 9 of this Report. Pike has no transmission lines.

**§57.195. (b)(2)**

A description of each major event that occurred during the year being reported on, including the time and duration of the event, the number of customers affected, the cause of the event and any modified procedures adopted to avoid or minimize the impact of similar events in the future.

**Major Events**

| Date | Cause | Time | Duration (hours) | Customers Affected |
|---|---|---|---|---|
| 2/25/19 | Wind Storm | 08:20 AM | 32.2 | 2,434 |
| | | | **TOTALS** | **2,434** |

a. <u>February 25, 2019</u>

Beginning Sunday, February 24, sustained high winds in excess of 32-mph with gusts of 39-mph commenced late in the evening without issue. Monday morning and through-out the day the same wind conditions persisted, resulting in a large tree being uprooted and landing across the 3-phase mainline circuit. The tree took down one section of primary, broke cross arms on two poles and broke a third pole due to shock loading. In addition, there were numerous damage locations requiring assessment and remediation prior to resulting in additional outages.

**§57.195. (b)(3)**

A table showing the actual values of each of the reliability indices (SAIFI, CAIDI, SAIDI, and if available, MAIFI) for the EDC's service territory for each of the preceding 3 calendar years. The report shall include the data used in calculating the indices, namely the average number of customers served, the number of sustained interruptions, the number of customers affected, and the minutes of interruption. If MAIFI values are provided, the number of customer momentary interruptions shall also be reported.

| Year | SAIFI | CAIDI | SAIDI | Average No. of Customers Served | No. of Interruptions | Customers Affected | Customer Minutes of Interruption |
|---|---|---|---|---|---|---|---|
| 2016 | 0.38 | 228 | 86.5 | 4,559 | 51 | 1,735 | 394,826 |
| 2017 | 0.55 | 185 | 102 | 4,648 | 60 | 2,570 | 475,003 |
| 2018 | 0.85 | 236 | 200 | 4,797 | 48 | 4,057 | 959,178 |
| 2019 | 0.39 | 177 | 69 | 4,819 | 42 | 1,870 | 331,355 |

MAIFI data is not currently available.

**§57.195. (b)(4)**

A breakdown and analysis of outage causes during the year being reported on, including the number and percentage of service outages, the number of customers interrupted, and customer interruption minutes categorized by outage cause such as equipment failure, animal contact, tree related, and so forth. Proposed solutions to identify service problems shall be reported.

**Causes of Interruption**

| Cause Description | No. of Inter. | % of Inter. | Customers Affected | Customer Minutes |
|---|---|---|---|---|
| Animal Contact | 6 | 14.29% | 180 | 19,835 |
| Tree Contact | 17 | 40.48% | 727 | 103,587 |
| Overload | 1 | 2.38% | 87 | 23,055 |
| Equip. Failure | 6 | 14.29% | 331 | 66,181 |
| Non-Comp Acc. | 2 | 4.76% | 56 | 16,644 |
| Lightning | 2 | 4.76% | 126 | 12,456 |
| Loss of Feed | 6 | 14.29% | 152 | 71,953 |
| Unknown-Other | 2 | 4.76% | 211 | 17,644 |
| Totals | 42 | | 1,870 | 331,355 |

As noted in the above table, the primary cause of interruptions in 2019 was “Tree Contact”, followed by “Equipment Failure”.

In 2019, the effects of Pike’s reliability programs such as: the combination of the hot spot tree trimming and select hazardous tree removals; the utilization of flying the overhead distribution with a drone; the accelerated pad-mount transformer/underground cable end inspection; and the accelerated pole inspection and replacement programs are beginning to be reflected in the indices associated with reduction in total interruptions, customers affected and customer minutes. The programs will continue with expected positive results.

**§57.195(b)(5)**

A list of the major remedial efforts taken to date and planned for circuits that have been on the worst performing 5% of circuits list for a year or more.

Pursuant to Pike's exemption as set forth in §57.195(c), Pike is not required to address this subsection.

**§57.195. (b)(6)**

A comparison of established transmission and distribution inspection and maintenance goals/objectives versus actual results achieved during the year being reported on. Explanations of any variances shall be included.

**T/D Inspection/Maintenance Goals/Objectives**

**Goals/Objectives vs. Results**

For distribution goals and objectives, the Company focused on completing all scheduled preventive maintenance on its distribution facilities. As set forth below, Pike met these goals. Pike has no transmission facilities.

- Distribution Vegetation Management
  - In 2019, primarily hot spotting of the distribution system was implemented along with some danger trees removals in Matamoras and Milford Boroughs. The cycle-based tree clearance program for the 34.5kV circuits (58.75 miles, three-year cycle) will commence in 2021, and on the 13.2kv circuits (42 miles, five-year cycle) in 2022 per the Company's line clearance specifications. In 2019, the Company also responded to several requests from customers and municipalities for tree trimming and hazard tree removal. In addition, known hot spot areas are scheduled each year to be trimmed.
- Pole Inspection Program
  - Distribution poles are inspected on a twelve-year cycle. PCL&P inspected 1,046 poles in 2019. As a result of the 2018 year's pole inspections, approximately 80 defective poles were replaced.
- Distribution Overhead Line Inspections
  - The 2019 maintenance program included infrared inspection of all three phase circuitry. PCL&P performed the infrared survey as planned.
- Power Quality
  - The 2019 maintenance program required inspection of seven capacitors and five regulators, which PCL&P did not complete as planned. There were no power quality customer complaints in 2019, 2018 or 2017.
- Recloser Program
  - The 2019 maintenance program required visual inspection of all reclosers annually, and a functional test every three years. Pike completed four visual inspections in 2019. Functional and visual testing will be completed in 2020.
- Substation Maintenance and Inspection Program
  - The 2019 maintenance program required completion of all inspection and maintenance requirements as listed in Appendix I for the Matamoras

Substation. The monthly visual inspections were performed, the other inspections were not completed.

- Transformer Inspection Program
  - PCL&P is required to inspect all of its padmount on a five-year cycle. Pike inspected all of its 268 pad-mounted distribution transformers in 2013. The pad-mounted transformer inspection portion of the PA Inspection & Maintenance Plan was 95% completed in 2019 as planned. The five-year cycle was completed in early 2020.
  - PCL&P is required to inspect all of its overhead distribution transformers on a two-year cycle as part of the overhead distribution line inspection program. All overhead distribution transformers were inspected in 2018. The next inspection cycle is due to be completed by the end of 2020.

**§57.195. (b)(7)**

A comparison of budgeted versus actual transmission and distribution operation and maintenance expenses for the year being reported on in total and detailed by the EDC's own functional account code or FERC account code as available. Explanations of any variances 10% or greater shall be included.

**T/D Operation and Maintenance**

| **2019 O&M Expenditures** | **2019 Budget ($,000)** | **2019 Actual ($,000)** |
|---|---|---|
| 5800 OPERATION SUPERVISION AND ENGINEERING | 100 | 410 |
| 5810 LOAD DISPATCHING | 0 | 0 |
| 5820 STATION EXPENSES | 0 | 0 |
| 5830 OVERHEAD LINE EXPENSES | 0 | 0 |
| 5840 UNDERGROUND LINE EXPENSES | 0 | 0 |
| 5860 METER EXPENSES | 0 | 0 |
| 5870 CUSTOMER INSTALLATIONS EXPENSES | 0 | 0 |
| 5880 MISCELLANEOUS DISTRIBUTION EXPENSES | 0 | 0 |
| 5890 RENTS | 0 | 0 |
| 5920 MAINTENANCE OF STATION EQUIPMENT DISTRIBUTION | 225 | 0 |
| 5930 MAINTENANCE OF OVERHEAD LINES DISTRIBUTION | 920 | 649 |
| 5940 MAINTENANCE OF UNDERGROUND LINES DISTRIBUTION | 25 | 37 |
| 5960 MAINTENANCE OF STREET LIGHTING AND SIGNAL SYSTEMS | 5 | 0 |
| 5980 MAINTENANCE OF MISCELLANEOUS DISTRIBUTION PLANT | 0 | 1 |
| **Total Distribution** | 1,275 | 1,097 |

The 2019 Actual Operation and Maintenance Expenses under ran the budgeted amount by $178k (13.9%). The under run was due to a shift in work from maintenance to capital projects. Prime examples are ride widening projects and defective pole replacements.

**§57.195. (b)(8)**

A comparison of budgeted versus actual transmission and distribution capital expenditures for the year being reported on in total and detailed by the EDC's own functional account code or FERC account code as available. Explanations of any variances 10% or greater shall be included.

**T/D Capital Expenditures**

| Account# | Capital Project | 2019 Budget($,000) | 2019 Actual ($,000) |
|---|---|---|---|
| 1070 | NEW INSTALLATIONS | 75 | 132 |
| 1070 | OTHER REPLACEMENT | 100 | 33 |
| 1070 | POLE REPLACEMENT | 130 | 1,225 |
| 1070 | RESIDENTIAL METERS | 10 | 1 |
| 1070 | Non-residential meters | 17 | 0 |
| 1070 | Voltage Regulation | 20 | 0 |
| 1070 | Transformers | 25 | 2 |
| 1070 | Safety Equipment | 15 | 0 |
| 1070 | SYSTEM REINFORCEMENT | 109 | 15 |
| 1070 | COMPUTERS/PRINTERS | 150 | 67 |
| | **Total Capital** | **651** | **1,475** |

The 2019 overall Capital Expenditures were $824k (126.5%) above the budget. The increased spending was due to unanticipated new business work and a focus on defective pole replacements to improve reliability.

**§57.195. (b)(9)**

Quantified transmission and distribution inspection and maintenance goals/objectives for the current calendar year detailed by system area (that is by transmission, substation and distribution.)

**T/D Inspection and Maintenance Goals/Objectives Quantified**

Inspection and maintenance programs, designed with the intention of improving frequency of interruption and minimizing the resultant increases in restoration (as frequency is improved), have been in effect in Pike's service territory for over ten years. In addition, the "Biennial Inspection, Maintenance, Repair and Replacement Plan" became effective on January 1, 2012. This plan along with the associated programs are focused on field facilities and customer satisfaction, and are effective in minimizing the probability of an interruption while limiting the number of customers affected per interruption. The major programs are:

- Distribution Vegetation Management
  The not to exceed five-year cycle trimming and various spot trimming and hazard tree removal are performed as conditions are identified.

- Pole Inspections Planned
  350 Poles are scheduled to be inspected in 2020.

- Power Quality
  The 2020 maintenance program will require inspection of seven capacitors and five regulators.

- Recloser Program
  The 2020 maintenance program will require visual and functional inspection of four reclosers.

- Substation Maintenance and Inspection Program
  The 2020 maintenance program will require the completion of all monthly and annual inspection and maintenance requirements, as listed in Appendix I for the Matamoras Substation.

- Distribution Overhead Line Inspections
  All circuits for Pike are planned to be inspected in the next inspection cycle scheduled for 2020 into 2021.

- Distribution Transformer Inspections
  All overhead transformers were inspected in 2018. The next inspection of overhead transformers is scheduled to be completed in 2020. The pad mounted transformers inspections were 95% completed in 2019 with the remaining 5% were completed in 2020. The inspection of pad mount transformers is completed over a five-year cycle.

**§57.195. (b)(10)**

Budgeted transmission and distribution operation and maintenance expenses for the current year in total and detailed by the EDC's own functional account code or FERC account code as available.

**T/D Operation and Maintenance**

| O&M | Capital Project | 2020 Budget($,000) |
|---|---|---|
| 5800 | OPERATION SUPERVISION AND ENGINEERING | 313 |
| 5820 | STATION EXPENSES | 0 |
| 5830 | OVERHEAD LINE EXPENSES | 0 |
| 5840 | UNDERGROUND LINE EXPENSES | 0 |
| 5860 | Non Specific Project | 0 |
| 5880 | MISCELLANEOUS DISTRIBUTION EXPENSES | 0 |
| 5890 | RENTS | 0 |
| 5920 | MAINTENANCE OF STATION EQUIPMENT DISTRIBUTION | 703 |
| 5930 | MAINTENANCE OF OVERHEAD LINES DISTIBUTION | 2,876 |
| 5940 | MAINTENANCE OF UNDERGROUND LINES DISTIBUTION | 78 |
| 5960 | MAINTENANCE OF STREET LIGHTING AND SIGNAL SYSTEMS | 16 |
| **Total Distribution** | | **3,986** |

**§57.195. (b)(11)**

Budgeted transmission and distribution capital expenditures for the current year in total and detailed by the EDC's own functional account code or FERC account code as available.

**T/D Capital Expenditures**

| Account# | Capital Project | 2020 Budget($,000) |
|---|---|---|
| 330 | Electric Meter Purchases - PA | 48.0 |
| 330 | Pole Inspection Blanket(PARC) | 130.0 |
| 330 | Electric Dist Blanket/ Electric Meter 1st Install Bkt-PA and Transformers | 280.0 |
| | **Total Capital** | **458.0** |

**§57.195. (b)(12)**

Significant changes, if any, to the transmission and distribution inspection and maintenance programs previously submitted to the PAPUC.

**T/D Inspection and Maintenance Programs - Significant Changes**

**Inspection & Maintenance Changes**

There were no significant changes to Pike's Inspection and Maintenance programs in 2019. Inspection programs in 2020 will be performed in accordance with the Company's "Biennial Inspection, Maintenance, Repair and Replacement Plan" filed with the PAPUC.

**Appendix I Substation Maintenance and Inspection Program**

**Item Description:**

Examine individual utility substation maintenance programs to validate proper maintenance procedures and verify that maintenance is being performed. Review recent operating data to verify that no adverse trends exist.

**PCL&P Program:**

The following details the different class inspections and maintenance programs performed by the Substation Operations Department, and their associated time cycles. Intervals vary dependent on equipment type, style and maintenance history.

**CLASS #1 INSPECTION** - Monthly

- Visual inspection of transformers and oil breakers for oil leaks, oil levels, nitrogen pressure, connections, condition of bushings and Oil Circuit Breaker (OCB) operating mechanism.
- Visual inspection of battery banks, chargers, control board indicating lights, control house lights, yard lights.
- Visual inspection of minor equipment including Potential Transformers (PTs), Current Transformers (CTs), Capacitive Coupled Potential Devices (CCPDs), disconnect switches and bus connections.
- Visual inspection of all structures, fences and yard surfaces.
- Counter readings taken of OCBs, reclosers and tap changers.

**STATION BATTERY TESTS** - Annually

- Measure specific gravity and cell voltage. Test battery impedance, clean batteries and check cell levels.

**FANS, PUMPS, HEATERS AND COMPRESSORS** - Annually

- Check for proper operation prior to winter for heaters and compressors and prior to summer for fans and pumps.

**TRANSFORMER GAS-IN-OIL ANALYSIS** – Quarterly/Annually

- Take oil sample from each power transformer compartment and analyze for combustible gas content.

**DOBLE POWER FACTOR TEST** - Every Three - Ten Years

- Use Doble instrument to measure the integrity of the insulating medium of applicable device.

**OCB TIMING** - Every Three - Ten Years

- Check the time it takes for each operation of breakers.

**RELAY MAINTENANCE** - Every four years, electromechanical; six years microprocessor

- Clean, test and calibrate as required all relays involved in protective relay schemes. After testing and calibrating, perform a trip test to assure proper operation.

**CLASS #3 INSPECTION** - Every Three - Ten Years

The Class #3 inspection on transformers is to include, but is not limited to the following items:

- Test oil
- TTR - Test, Megger test;
- Inspect all connectors, bushings;
- Inspect for leaks (oil - nitrogen);
- Check CT connections, alarm systems on banks; and
- Doble Power Factor Test.

<u>Transformers with Load Tap Changers</u>

- Test Oil in LTC cabinet; and
- Test LTC control for proper operation.

The Class #3 inspection on OCB's is to include, but is not limited to the following items:

- Test Oil
- DLRO (Ductor Test) before and after
- Inspect and clean control cabinet;
- Inspect and clean Pneumatic-Hydraulic or spring charged operating system; and
- Operational Test.

The Class #3 inspection on reclosers is to include, but is not limited to the following items:

- Test Oil

- DLRO (Ductor Test) before and after;
- Control cabinet clean, checkout and operational test; and

Reclosers with Vacuum Bottles

- Hi-Pot test.

The Class #3 inspection on ACB's is to include, but is not limited to the following items:

- DLRO (Ductor Test) before and after;
- Inspect all contacts (action to be taken, if needed);
- Inspect and test all Micro and Aux. contacts (close and trip circuit); and
- Operational Testing

**CLASS #4 INSPECTION** - Various intervals (four - twelve years or as necessitated by Class#3 Inspection results) dependent on equipment type, style and maintenance history.

The Class #4 inspection consists of a thorough inspection and testing of the apparatus listed below and includes all inspections included in a Class #3.

Transformers with Load Tap Changer

- Drain oil from LTC cabinet, inspect all contacts;
- Inspect and tighten all connections;
- Clean complete LTC cabinet;
- Filter or replace oil; and
- Test LTC control for proper operation.

The Class #4 inspection on OCB's is to include, but is not limited to the following items:

- DLRO (Ductor test) before and after;
- Drop tanks - inspect and tighten all connections. Clean all parts and tanks;
- Test and filter or replace oil;
- Inspect and clean control cabinet;
- Inspect and clean Pneumatic-Hydraulic or spring charged operating systems; and
- Operational Test.

The Class #4 inspection on reclosers is to include, but is not limited to the following items:

- Drop tank (filter or replace oil);
- Inspect all contacts - repair or replace (depending on the condition);
- Check and tighten all connections;
- Control cabinet, clean and checkout;
- DLRO (Ductor Test) before and after; and

- Operational Test.

Recloser with Vacuum Bottles

- Hi-Pot test.

The Class #4 inspection on ACB's is to include, but is not limited to the following items:

- DLRO (Ductor Test) before and after;
- Inspect all contacts - clean and put protective grease coating on;
- Inspect and clean all ARC chutes;
- Inspect and test all Micro and Aux. contacts (close and trip circuit);
- Check and tighten all connections; and
- Operational Test.