



September 28, 2020

Ms. Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
PO Box 3265
Harrisburg, PA 17105-3265

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PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

Ms. Chiavetta,

In accordance with Docket No. M-2009-2094773, please find the enclosed Biennial Inspection, Maintenance, Repair and Replacement Plan for Citizens' Electric Company for the period January 1, 2022 – December 31, 2023.

Please contact me at 570-522-6143 or johnsonn@citizenselectric.com if I can answer any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Nathan Johnson", written over a white background.

Nathan Johnson, PE
Vice President of Engineering & Operations

cc: David Washko (via email)

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PA PUBLIC UTILITY COMMISSION
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**Biennial Inspection, Maintenance, Repair and Replacement Plan
of Citizens' Electric Company of Lewisburg, PA**

For the period of January 1, 2022 – December 31, 2023

Submitted by:
Nathan B. Johnson
Vice President of Engineering & Operations
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September 28, 2020

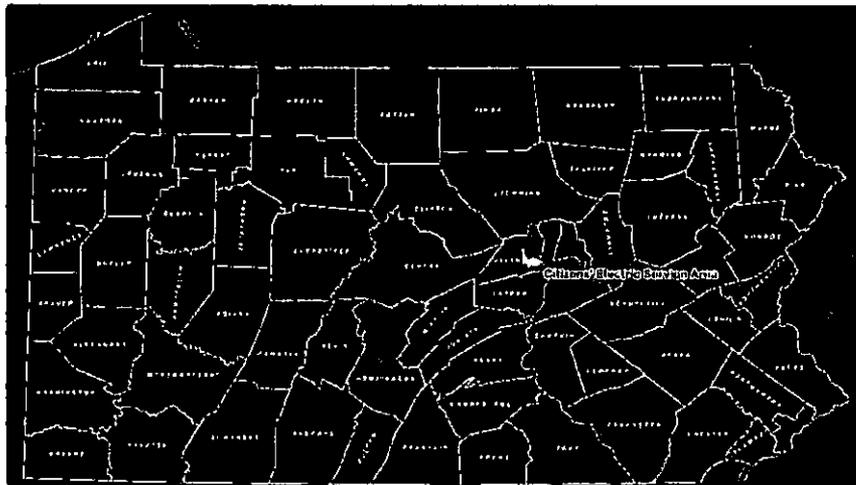
Contents

Introduction	3
§ 57.198 (b). Plan consistency	4
Program Description	4
Justification	4
§ 57.198 (m). Recordkeeping	4
Program Description	4
Justification	4
§ 57.198(n)(1). Vegetation management	5
Program Description	5
Inspection Plan	5
Justification	5
§ 57.198(n)(2). Pole inspections	6
Program Description	6
Inspection Plan	7
Justification	7
§ 57.198(n)(3). Pole inspection failure	8
Corrective Maintenance	8
Justification	8
§ 57.198(n)(4). Distribution overhead line inspections	9
Program Description	9
Inspection Plan	9
Justification	9
§ 57.198(n)(5). Inspection failure	10
Corrective Maintenance	10
Justification	10
§ 57.198(n)(6). Distribution transformer inspections	11
Program Description	11
Inspection Plan	12
Justification	12
§ 57.198(n)(7). Recloser inspections	13
Program Description	13
Inspection Plan	13
Justification	13
§ 57.198(n)(8). Substation inspections	14
Program Description	14
Inspection Plan	14
Justification	14

Introduction

Citizens’ Electric Company of Lewisburg, PA submits its biennial inspection and maintenance plan in accordance with regulations at 52 Pa Code § 57.198 and Docket No. M-2009-2094773. This plan is effective January 1, 2022.

Citizens’ Electric Company serves approximately 7,050 customers in a 55 square mile area as shown on the map below. The service territory encompasses Lewisburg, PA and surrounding municipalities within Union County. The Company’s distribution system includes 160 miles of overhead primary lines, 60 miles of underground primary lines and one distribution substation.



The inspection and maintenance program as described in the following pages has not significantly changed for many years. The Company has found the program to be a reasonable and cost-effective way to identify emerging problems, allowing them to be addressed in a timely manner. Records of all inspection and maintenance activities are maintained at Company Headquarters.

In order to maintain its longstanding levels of high reliability, and build on the past years positive trend, the Company employs a concept of continuous improvement to address any emerging trends. Currently, the Company is evaluating a possible drone inspection plan to augment or replace portions of its typical I&M plan. Drone inspections offer the potential for cost-efficient inspections of overhead facilities, while also offering visibility that would otherwise only be possible by sending line personnel aloft at every pole location. The Company will revise its inspection plan as necessary if such a program is implemented. The Company also has an ongoing commitment to assess all opportunities to harden its distribution system against weather-related outages and participates in relevant industry “best practices” groups.

The Company is seeking one waiver pertaining to § 57.198(n)(2)(vi), loading calculations, due to the exclusive use of class 3 poles, resulting in typical pole strength in excess of NESC requirements. This is discussed further on page six.

§ 57.198 (b). Plan consistency.

The plan must be consistent with the National Electrical Safety Code, Codes and Practices of the Institute of Electrical and Electronic Engineers, Federal Energy Regulatory Commission Regulations and the provisions of the American National Standards Institute, Inc.

Program Description

Citizens' Electric Company's plan shall be consistent with the National Electrical Safety Code, Codes and Practices of the Institute of Electrical and Electronic Engineers, Federal Energy Regulatory Commission Regulations and the provisions of the American National Standards Institute, Inc. as applicable to the work performed.

Justification

This plan complies with the requirements of § 57.198(b). No waiver is being requested.

§ 57.198 (m). Recordkeeping.

An EDC shall maintain records of its inspection and maintenance activities sufficient to demonstrate compliance with its distribution facilities inspection, maintenance, repair, and replacement programs as required by subsection (n). The records shall be made available to the Commission upon request within 30 days. Examples of sufficient records include:

- (1) Date-stamped records signed by EDC staff who performed the tasks related to inspection.*
- (2) Maintenance, repair and replacement receipts from independent contractors showing when and what type of inspection, maintenance, repair or replacement work was done.*

Program Description

Citizens' Electric Company shall maintain records of its inspection and maintenance activities in the form of date stamped paper records signed by Citizens' Electric staff; maintenance, repair, and replacement receipts from independent contractor and/or equivalent computer based records indicating the nature of the work performed.

Justification

This plan complies with the requirements of § 57.198(m). No waiver is being requested.

§ 57.198(n)(1). Vegetation management.

The statewide minimum inspection and treatment cycle for vegetation management is between 4-8 years for distribution facilities. An EDC shall submit a condition-based plan for vegetation management for its distribution system facilities explaining its treatment cycle.

Program Description

Citizens’ Electric Company performs a comprehensive visual inspection of all overhead primary lines on an annual basis. During this inspection, the condition of vegetation is assessed, and treatment needs for the current year are quantified. The inspection also provides an opportunity to identify any off right-of-way “hazard” trees and work with affected property owners to secure removals.

Vegetation maintenance work is specified to achieve a four-year treatment cycle across all parts of the Company’s service territory. However, flexibility is maintained to trim any high-priority “hot spots” identified during the annual inspection. Specific work requirements are identified in Company document “*Distribution Vegetation Management Specification.*” Following tree-related service interruptions, affected areas are assessed to determine whether any out-of-cycle maintenance is required.

Inspection Plan

All primary circuits will be inspected each year.

Vegetation Inspection Distribution Circuit Name	Total Overhead Circuit Miles	Inspection Plan (Miles to be Inspected)	
		2022	2023
Bucknell	3.4	3.4	3.4
Linntown	5.3	5.3	5.3
St. Mary St.	5.3	5.3	5.3
Rt. 192	44.1	44.1	44.1
Rt. 45	61.7	61.4	61.4
Rt. 15	20.2	20.2	20.2
Buffalo Road	6.7	6.7	6.7
Moore	8.5	8.5	8.5
Eastern	5.6	5.6	5.6
Total	160.7	160.7	160.7

Justification

Vegetation management is performed in accordance with ANSI A300 and Z133 standards, utilizing generally accepted industry practices. The National Arbor Day Foundation has recognized Citizens’ Electric as a “Tree Line USA” utility for the past 18 years. This plan complies with § 57.198(n)(1). No waiver is being requested.

§ 57.198(n)(2). Pole inspections.

Distribution poles shall be inspected at least as often as every 10—12 years except for the new southern yellow pine creosoted utility poles which shall be initially inspected within 25 years, then within 12 years annually after the initial inspection. Pole inspections must include:

- (i) Drill tests at and below ground level.*
- (ii) A shell test.*
- (iii) Visual inspection for holes or evidence of insect infestation.*
- (iv) Visual inspection for evidence of unauthorized backfilling or excavation near the pole.*
- (v) Visual inspection for signs of lightning strikes.*
- (vi) A load calculation.*

Program Description

Citizens' Electric Company conducts pole inspections on a ten-year cycle. All poles in the cycle receive a visual inspection to identify conditions of deterioration or potential hazards. Poles are inspected for items including but not limited to:

- evidence of decay
- lightning damage
- insect infestation
- presence of vines or other vegetation
- unauthorized excavation
- missing guy guards
- damaged pole hardware
- broken ground wires

In addition to the visual inspection, all poles receive a sound and bore test to detect internal decay at or near the ground line. For poles older than 10 years, a ground line excavation is conducted to visually inspect the pole's condition just below the ground line. After excavation, an external treatment is applied to protect the pole from future deterioration at the ground line area.

When indicated by the inspection, poles are treated internally with insect and decay inhibitors to help extend remaining life. Based on data obtained during the inspections, remaining pole strength is calculated. Detailed inspection requirements are identified in Company document "*Wood Pole Inspection & Maintenance Program.*"

For non-wood poles, namely fiberglass or metal streetlight poles, a visual inspection is performed. Poles are assessed for damage, as well as rust, UV degradation and other possible causes of failure.

Inspection Plan

To maximize efficiency, pole inspections are scheduled by dividing the service territory into geographic grids. To the extent possible, an effort has been made to equalize the number of poles inspected each year. However, some quantity variation occurs on a year-to-year basis. On a system-wide basis, all poles are inspected every ten years. The total number of distribution poles in Citizens’ Electric’s system is 5,851.

Pole Inspection Map Section	Number of Poles to be Inspected	
	2022	2023
21652800	148	
21652900	205	
21752700	15	
21752800	267	
21752900		432
21653000		223
Total	635	655

Justification

This plan complies with inspection intervals specified in § 57.198(n)(2) and with generally accepted industry practices. However, a waiver is being requested for § 57.198(n)(2)(vi) relating to pole load calculations.

In an effort to reduce inventory costs, Citizens’ Electric Company has standardized on the purchase of class 3 poles for typical primary pole sizes. This results in a decreased number of inventory items, an increase in inventory turnover and a corresponding savings in carrying costs. It also results in poles having strength in excess of the minimum required by the NESC at the time of installation. Remaining strength is calculated as part of the pole inspection process, to ensure the pole is still capable of performing as required.

The Company is not aware of any pole failures on record. Through the comprehensive inspection and maintenance programs in place, deteriorated poles are detected and replaced prior to failure. The inclusion of pole loading calculations when performing pole inspections would result in a significant cost increase, with no corresponding improvement in reliability.

§ 57.198(n)(3). Pole inspection failure.

If a pole fails the groundline inspection and shows dangerous conditions that are an immediate risk to public or employee safety or conditions affecting the integrity of the circuit, the pole shall be replaced within 30 days of the date of inspection.

Corrective Maintenance

Poles which are found to be deficient during the inspection process are categorized as priority, reinforceable and regular reject. Priority poles are those which are identified as posing an imminent risk of failure. Priority poles are reported to the Company immediately when found. These poles are promptly replaced, typically within 7 days, in all cases within 30 days.

Justification

This plan complies with the requirements of § 57.198(n)(3). No waiver is being requested.

§ 57.198(n)(4). Distribution overhead line inspections.

Distribution lines shall be inspected by ground patrol a minimum of once every 1-2 years. A visual inspection must include checking for:

- (i) Broken insulators.*
- (ii) Conditions that may adversely affect operation of the overhead transformer.*
- (iii) Other conditions that may adversely affect operation of the overhead distribution line.*

Program Description

Citizens' Electric Company performs a comprehensive visual inspection of all overhead primary lines on an annual basis. During this inspection, an assessment is made of the overall condition of equipment such as insulators, transformers, crossarms, and pole hardware. The inclusion of infrared inspection has provided an opportunity to identify potential equipment failures before any visual indicators are present. Automatic splices have been specifically targeted with thermography, although none have shown signs of failure to date. This inspection also provides an opportunity to check for other adverse conditions such as excavation near poles, easement encroachments, etc.

Inspection Plan

All primary circuits will be inspected each year.

Overhead Line Inspection Distribution Circuit Name	Total Overhead Circuit Miles	Inspection Plan (Miles to be Inspected)	
		2022	2023
Bucknell	3.4	3.4	3.4
Linntown	5.3	5.3	5.3
St. Mary St.	5.3	5.3	5.3
Rt. 192	44.1	44.1	44.1
Rt. 45	61.7	61.4	61.4
Rt. 15	20.2	20.2	20.2
Buffalo Road	6.7	6.7	6.7
Moore	8.5	8.5	8.5
Eastern	5.6	5.6	5.6
Total	160.7	160.7	160.7

Justification

This plan complies with the requirements of § 57.198(n)(4). No waiver is being requested.

§ 57.198(n)(5). Inspection failure.

If critical maintenance problems are found that affect the integrity of the circuits, they shall be repaired or replaced no later than 30 days from discovery.

Corrective Maintenance

Deficiencies identified during the overhead line inspection are addressed according to their severity. Issues which Citizens' Electric could reasonably expect to affect the reliability of the circuit will be repaired within 30 days.

Justification

This plan complies with the requirements of § 57.198(n)(5). No waiver is being requested.

§ 57.198(n)(6). Distribution transformer inspections.

Overhead distribution transformers shall be visually inspected as part of the distribution line inspection every 1-2 years. Above-ground pad-mounted transformers shall be inspected at least as often as every 5 years and below-ground transformers shall be inspected at least as often as every 8 years. An inspection must include checking for:

- (i) Rust, dents or other evidence of contact.*
- (ii) Leaking oil.*
- (iii) Installation of fences or shrubbery that could adversely affect access to and operation of the transformer.*
- (iv) Unauthorized excavation or changes in grade near the transformer.*

Program Description

Citizens' Electric Company performs a visual inspection of overhead transformers as part of its annual overhead line inspection program. Overhead transformers are evaluated for items including:

- Bushing condition (check for cracks, burns or other signs of problems)
- Tank condition (rust, dents, leaks, etc.)
- Condition of cutouts, arrestors and other associated hardware

Above-ground pad-mounted devices, including transformers and primary cabinets are inspected every four years. Items evaluated include but are not limited to:

- Accessibility (bushes, fences or other obstructions which would limit access)
- Warning labels
- Oil leaks
- Security (operation of 2 locking mechanisms, erosion, animal damage or grade changes which might allow unauthorized access)
- Condition of cable terminations and arrestors
- Overall tank condition

Citizens' Electric Company does not utilize any below-ground transformers.

Inspection Plan

All overhead transformers will be inspected each year as part of the annual overhead line inspection program.

Overhead Transformer Inspection Distribution Circuit Name	Total Overhead Transformers	Inspection Plan (Transformers to be Inspected)	
		2022	2023
Bucknell	57	57	57
Linntown	193	193	193
St. Mary St.	102	102	102
Rt. 192	426	426	426
Rt. 45	581	581	581
Rt. 15	237	237	237
Buffalo Road	129	129	129
Moore	153	153	153
Eastern	64	64	64
Total	1942	1942	1942

Above-grade pad-mounted devices, including transformers and primary cabinets, will be inspected every four years in accordance with the following schedule:

Pad-Mounted Device Inspection Cycle	Inspection Plan (Devices to be Inspected)	
	2022	2023
Inspection Cycle 2	216	
Inspection Cycle 3		182
Total	396	

Citizens' Electric Company has a total of 833 pad-mounted devices in service.

Justification

This plan complies with the requirements of § 57.198(n)(6). No waiver is being requested.

§ 57.198(n)(7). Recloser inspections.

Three-phase reclosers shall be inspected on a cycle of 8 years or less. Single-phase reclosers shall be inspected as part of the EDC’s individual distribution line inspection plan.

Program Description

Citizens’ Electric Company performs a visual inspection of all reclosers as part of its annual overhead line inspection program. In addition, all reclosers are visited at least once a year for a more in-depth inspection to identify any emerging problems and address them before system reliability is affected. The inspection includes but is not limited to the following:

- Condition of bushings, tank, arrestors and associated hardware
- Condition and rating of bypass equipment
- Counter reading

Inspection Plan

All reclosers will be inspected annually in accordance with the following plan.

Recloser Inspection Distribution Circuit Name	Total No. of Reclosers	Inspection Plan (Reclosers to be Inspected)	
		2022	2023
Bucknell	1	1	1
Linntown			
St. Mary St.	1	1	1
Rt. 192	11	11	11
Rt. 45	18	18	18
Rt. 15	10	10	10
Buffalo Road			
Moore	4	4	4
Eastern	1	1	1
Total	46	46	46

Justification

This plan complies with the requirements of § 57.198(n)(7). No waiver is being requested.

§ 57.198(n)(8). Substation inspections.

Substation equipment, structures and hardware shall be inspected on a cycle of 5 weeks or less.

Program Description

Citizens’ Electric Company performs monthly substation inspections. These inspections are intended to detect any emerging problems or trends so they can be resolved before system reliability is impacted. Inspections include but are not limited to:

- Power transformers
- Station reclosers
- Structures and related equipment including bus, arrestors, switches and insulators
- Control equipment
- Battery statuses
- Security and alarm equipment
- Communications equipment
- Control house
- Fence/gates

In addition, comprehensive voltage, current, pressure, oil level and operations counter readings are recorded.

Inspection Plan

Monthly substation inspections will be completed.

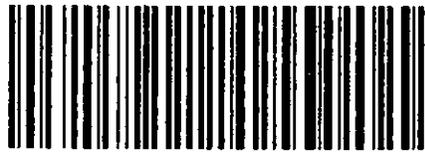
Substation Inspection Substation Name	Inspection Plan (Inspections to be completed)	
	2022	2023
St. Mary St.	12	12
Total	12	12

Justification

This plan complies with the requirements of § 57.198(n)(8). No waiver is being requested.

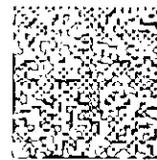
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