

## CITIZENS' ELECTRIC COMPANY

1775 INDUSTRIAL BLVD • P.O. BOX 551 • LEWISBURG, PA 17837-0551 • (570) 524-2231 • FAX: (570) 524-5887

September 9, 2016

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

Dear 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, 2018 – December 21, 2019.

Please contact me at 570-522-6143 or [kelchnerj@citizenselectric.com](mailto:kelchnerj@citizenselectric.com) if I can answer any questions.

Sincerely,

A handwritten signature in black ink that reads "John A. Kelchner". The signature is fluid and cursive.

John A. Kelchner, PE  
Vice President, Engineering & Operations

cc: David Washko (via email)

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2016 SEP 15 AM 10:38  
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SECRETARY'S BUREAU

M-2009-2094773

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

**For the period of January 1, 2018 – December 31, 2019**

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SECRETARY'S BUREAU

Submitted by:  
John A. Kelchner  
Vice President, Engineering & Operations  
1775 Industrial Blvd.  
Lewisburg, PA 17837  
(570) 524-2231  
[kelchnerj@citizenselectric.com](mailto:kelchnerj@citizenselectric.com)

September 8, 2016

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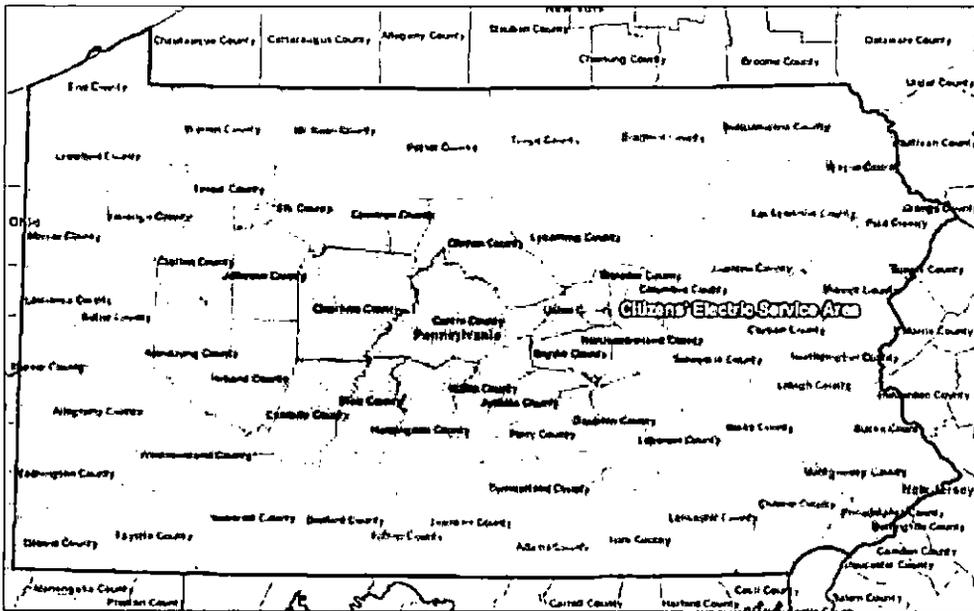
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Introduction

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, 2018.

Citizens' Electric Company serves approximately 6,900 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 161 miles of overhead primary lines, 53 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.

The Company concluded 2015 in full compliance with all reliability standards and benchmarks. To maintain its longstanding levels of high reliability, the Company employs a concept of continuous improvement to address any emerging trends. For example, focused efforts to negotiate removal of off right-of-way hazard trees are continuing, and yielding success. This has become a significant task in light of the damage caused throughout the service territory by the Emerald Ash Borer. 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. The Company has identified a significant number of Ash trees affected by the Emerald Ash Borer and is continuing its multi-year plan to address the removal of these trees where they pose a danger to reliability.

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)	
		2018	2019
Bucknell	3.3	3.3	3.3
Linntown	5.5	5.5	5.5
St. Mary St.	5.4	5.4	5.4
Rt. 192	44.1	44.1	44.1
Rt. 45	61.2	61.2	61.2
Rt. 15	20.4	20.4	20.4
Buffalo Road	6.7	6.7	6.7
Moore	8.0	8.0	8.0
Eastern	5.5	5.5	5.5
<b>Total</b>	<b>160.1</b>	<b>160.1</b>	<b>160.1</b>

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 14 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.*"

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 5,837.

Pole Inspection Map Section	Number of Poles to be Inspected	
	2018	2019
22052900	430	
22052800	204	
22152800	21	
21953000		652
21952800		171
<b>Total</b>	<b>655</b>	<b>832</b>

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. 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)	
		2018	2019
Bucknell	3.3	3.3	3.3
Linntown	5.5	5.5	5.5
St. Mary St.	5.4	5.4	5.4
Rt. 192	44.1	44.1	44.1
Rt. 45	61.2	61.2	61.2
Rt. 15	20.4	20.4	20.4
Buffalo Road	6.7	6.7	6.7
Moore	8.0	8.0	8.0
Eastern	5.5	5.5	5.5
<b>Total</b>	<b>160.1</b>	<b>160.1</b>	<b>160.1</b>

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)	
		2018	2019
Bucknell	59	59	59
Linntown	194	194	194
St. Mary St.	114	114	114
Rt. 192	417	417	417
Rt. 45	568	568	568
Rt. 15	243	243	243
Buffalo Road	131	131	131
Moore	156	156	156
Eastern	59	59	59
<b>Total</b>	<b>1941</b>	<b>1941</b>	<b>1941</b>

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	Subdivisions	Inspection Plan (Devices to be Inspected)	
		2018	2019
Inspection Cycle 2		207	
Inspection Cycle 3			185
<b>Total</b>			<b>392</b>

Citizens' Electric Company has a total of 786 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)	
		2018	2019
Bucknell	2	2	2
Lintown	1	1	1
St. Mary St.	2	2	2
Rt. 192	12	12	12
Rt. 45	19	19	19
Rt. 15	11	11	11
Buffalo Road	1	1	1
Moore	5	5	5
Eastern	2	2	2
<b>Total</b>	<b>55</b>	<b>55</b>	<b>55</b>

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

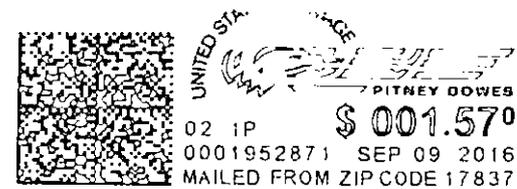
Monthly substation inspections will be completed.

Substation Inspection Substation Name	Inspection Plan (Inspections to be completed)	
	2018	2019
St. Mary St.	12	12
<b>Total</b>	<b>12</b>	<b>12</b>

Justification

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

**CITIZENS' ELECTRIC COMPANY**  
1775 Industrial Boulevard  
P.O. Box 551  
Lewisburg, PA 17837



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