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February 28, 2024

**VIA ELECTRONIC FILING**

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
400 North Street
Harrisburg, PA 17120

**RE: Revised Biennial Inspection, Maintenance, Repair and Replacement Plan for FirstEnergy Pennsylvania Electric Company for the period of January 1, 2025 – December 31, 2026; Docket No.: M-2009-2094773**

Dear Secretary Chiavetta:

Pursuant to Secretarial Letters dated December 28, 2023 in the above-referenced proceeding, Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company (referred to herein collectively as "FE PA" or the "Company")[1] were directed to file revised Biennial Inspection, Maintenance, Repair and Replacement Plans ("I&M Plan(s)") within 30 days[2] which reflect adjusted Distribution Overhead Line Inspections Intervals and Distribution Overhead Transformer Inspections Intervals consistent with 52 Pa. Code § 57.198(n)(4) and (6). Additionally, Pennsylvania Public Utility Commission ("Commission") Staff, directed the predecessor companies to consider re-evaluating and reviewing the effectiveness of the Vegetation Management portion of their I&M Plans.

Accordingly, this revised I&M Plan reflects the interval inspection changes directed by the Commission, incorporates changes in the Vegetation Management plan section including a 4- or 5-year inspection and treatment cycle, and reflects the recent unification of the four predecessor companies into one company, FE PA. Specifically, the individual plans from each predecessor company have been consolidated into one I&M Plan for FE PA. To aid in the review of these revisions, FE PA has included a redline version of the 2023-2024 I&M Plan as compared to this revised Plan and a clean version of the Company's 2025-2026 I&M Plan.

[1] By Order entered on December 7, 2023, the Pennsylvania Public Utility Commission (the "Commission") granted certain approvals and certificates of public convenience for the unification of the four Companies into one company, FirstEnergy Pennsylvania Electric Company, or "FE PA". *Joint Application of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, West Penn Power Company, Keystone Appalachian Transmission Company, Mid-Atlantic Interstate Transmission, LLC, and FirstEnergy Pennsylvania Electric Company*, Docket Nos. A-2023-3038771, et al. (Order entered December 7, 2023).

[2] FE PA's subsequent request seeking a 30-day extension to Plan was granted in this docket on January 11, 2024

FE PA respectfully requests that the Commission accept its revised Biennial Inspection, Maintenance, Repair and Replacement Plan. If you have any questions, please contact me or Crystal Kenmuir at 330-690-2354.

Very truly yours,

Darsh Singh

DS/dml

Enclosures

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# Biennial Inspection, Maintenance, Repair and Replacement Plan for FirstEnergy Pennsylvania Electric Company[1]

## For the period of January 1, 2025 – December 31, 2026

**Submitted by:**
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[1] By Order entered on December 7, 2023, the Pennsylvania Public Utility Commission granted certain approvals and certificates of public convenience for the unification of the four Companies into one company, FirstEnergy Pennsylvania Electric Company, or "FE PA". *Joint Application of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, West Penn Power Company, Keystone Appalachian Transmission Company, Mid-Atlantic Interstate Transmission, LLC, and FirstEnergy Pennsylvania Electric Company*, Docket Nos. A-2023-3038771, et al. (Order entered December 7, 2023). As such, the individual Biennial Inspection, Maintenance, Repair and Replacement Plans for Metropolitan Edison Company, Pennsylvania Electric Company, West Penn Power Company, and Pennsylvania Power Company have been consolidated into one FE PA Plan.

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## Introduction

Pursuant to 52 Pa. Code § 57.198(a), every two years an electric distribution company shall file with the Pennsylvania Public Utility Commission ("Commission") a biennial plan for the periodic inspection, maintenance, repair and replacement of its facilities. FirstEnergy Pennsylvania Electric Company ( "FE PA," or "Company") hereby submits its Biennial Inspection, Maintenance, Repair and Replacement Plan ("I&M Plan") for the period January 1, 2025, through December 31, 2026, in accordance with the relevant parts of 52 Pa. Code § 57.198.

## System Assessment

The Company serves nearly 2.1 million Pennsylvania customers and the service territory covers more than 32,000 square miles. From the physical field employees up to and including top management, the Company is committed to providing customers with safe and reliable electric service. Methods to improve the efficiency, adequacy, and reliability of the distribution system are a continual focus and every employee has an investment in each of the Company's respective reliability metrics. In addition to the I&M Plan, the Company utilizes core programs to support cost-effective and reliable service. These programs include, but are not limited to:

- Vegetation Management
  - In response to damage caused by the Emerald Ash Borer, a program to proactively remove ash trees off rights-of-way is underway in the Met-Ed and West Penn Rate Districts; the program was completed in 2018 in the Penn Power Rate District and 2019 in the Penelec Rate District.
  - Post-storm vegetation circuit patrols target the areas with high tree-related outages. These patrols identify trees damaged in a storm that may eventually lead to a future outage. Once identified, the tree is removed. In addition, damaged equipment identified as a part of the patrol is repaired or replaced.
- Customers Experiencing Multiple Interruptions ("CEMI")
  - The purpose of the CEMI program is to reduce frequent or repeated outages for affected clusters of customers or frequently operated devices.
- Load Forecasting and Distribution Planning
  - The load forecasting application is used to estimate future substation and circuit loading based upon historical load data, and the planning criteria guidelines are then used to provide a consistent approach for planning the safe, reliable, orderly, and economic expansion of the distribution system.
- Circuit Protection

- The circuit protection practice is intended to provide a safe, secure distribution system, maximize distribution system reliability performance, protect equipment and facilities from overcurrent risks that may result in damage, and establish a consistent process and application standard for distribution system protection.

- Long-Term Infrastructure Improvement Plans ("LTIIP")
  - The Company first began to execute its LTIIP programs in 2016. These plans include expenditures and programs designed to adequately maintain and improve the efficiency, safety, adequacy, and reliability of the distribution system. In 2019, the Company's four predecessor companies filed their second LTIIP, covering the period 2020 through 2024.

## Plan Revisions

The Company's four predecessor companies submitted their I&M Plans for the period January 1, 2023, through December 31, 2024, on October 1, 2021. The Commission concluded that those plans generally complied with the requirements in 52 Pa. Code § 57.198 and therefore approved them on December 21, 2021. On April 28, 2023, as part of the Joint 1st Quarter 2023 Reliability Report, the four predecessor companies requested approval to modify their I&M Plans for 2023 and 2024 to add a distribution wood pole treatment program, which were approved on July 17, 2023. In addition, on February 1, 2024, as part of Joint 4th Quarter 2023 Reliability Report, the four predecessor companies requested approval, *nunc pro tunc*, for a modification of their I&M Plans for 2023 and 2024 to pole inspection language. Those revisions were approved via secretarial letter dated February 5, 2024.

On September 29, 2023, the four predecessor companies filed I&M Plans for the period January 1, 2025 through December 31, 2026. TUS Staff issued the predecessor companies information requests regarding its 2025-2026 I&M Plans on November 2, 2023. On December 28, 2023, a secretarial letter was issued finding that the majority of the 2025-2026 I&M Plans generally complied with 52 Pa. Code § 57.198, but directed the predecessor companies to refile their I&M Plans to modify the inspection interval for overhead distribution transformer and overhead distribution line from five years to one to two years. Additionally, TUS Staff directed the predecessor companies to consider re-evaluating and reviewing the effectiveness of the Vegetation Management portion of its I&M Plan.

Accordingly, this I&M Plan reflects the interval inspection changes directed by the Commission, incorporates changes in the Vegetation Management plan section including a 4- or 5-year cycle, and reflects the recent unification of the four predecessor companies

into one company, FE PA. The individual plans from each predecessor company have been consolidated into one I&M Plan for FE PA on behalf of its four Pennsylvania Rate districts: Met-Ed, Penn Power, West Penn and Penelec.

## Plan Consistency

***Section 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.*

The Company's I&M Plan and associated inspection activities are performed in accordance with the Occupational Safety and Health Administration's rules and regulations, National Electrical Safety Code ("NESC"), 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.

## Record Keeping

***Section 57.198(m). Record Keeping.*** *An electric distribution company ("EDC") must maintain records of inspection and maintenance activities sufficient to demonstrate compliance with its distribution facilities inspection, maintenance, repair and replacement programs.*

In order to demonstrate compliance with its distribution facilities inspection, maintenance, repair and replacement programs, the Company will maintain inspection and maintenance records either electronically or in hard copy as required by state law.

## Vegetation Management

***Section 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

The Company performs vegetation management on its distribution circuits in order to promote the continued safe and reliable operation of its distribution system. The vegetation management program specification is designed to support line reliability, maintain access, make repairs, or restore service and to support safe and reliable service. The vegetation management program specification prunes vegetation to achieve required cycle clearance, which includes removing selected incompatible trees within the clearing zone corridor; removing certain defective limbs that are overhanging primary conductors; controlling selected incompatible brush mechanically or using herbicide, or both; relieving limbs causing mechanical strain on secondary/service lines; and removing targeted off-corridor priority trees that are dead, dying, diseased, and leaning or significantly encroaching the corridor.

The Company continues to investigate emerging technologies that could lead to distribution system reliability enhancements or improving the customer experience. The Company is also exploring emerging technologies that may suggest effective vegetation management strategies for circuit and cycle work models through remote sensing and analytics. This could allow for future adjustments to the vegetation management plan by utilizing reliability metrics and circuit system condition to determine appropriate clearance cycle length. The Company's inspection and treatment cycle for vegetation management may vary but will remain in compliance with Section 57.198(n)(1) and will generally continue on the established four- or five-year cycle length for distribution facilities depending on each Rate District's needs.

Portions of a circuit that experience high customer interruption minutes due to vegetation-caused outages may be targeted to include the removal of certain healthy limbs which overhang primary conductors based on tree species and condition.

For portions of a circuit that have not experienced significant reliability issues due to vegetation-caused outages, a proactive inspection process will target selective vegetation removal for continued reliable system operation. This may include the extension of a cycle not to exceed a total of eight years. This process involves inspection of the vegetation to evaluate the extent of potential for vegetation to interfere with energized conductors. Factors to consider in the evaluation are the voltage and height of the conductor, the type

of tree, its growth rate and branching habit. Trees that will impact safety or reliability will be maintained pursuant to the vegetation management program specification.

Methods used to manage and control vegetation include manual control methods using hand-operated tools and mechanical control using equipment-mounted saws, mowers, or other devices. Removing incompatible vegetation may also include various herbicide application techniques such as high-volume foliage application, low-volume foliage application, basal-herbicide applications, stump applications, frill application, aerial application, bare-soil treatment application, and cut-stubble applications. All herbicides shall be applied in accordance with all state, local, and federal laws governing the use of herbicides.

Further detailed information regarding the Company's vegetation management program may be found in the Vegetation Management Distribution Specifications.

***Section 57.198(c). Time frames.*** *The plan must comply with the inspection and maintenance standards in subsection (n). A justification for the inspection and maintenance time frames selected shall be provided, even if the time frame falls within the intervals prescribed in subsection (n). However, an EDC may propose a plan that, for a given standard, uses intervals outside the Commission standard, provided that the deviation can be justified by the EDC's unique circumstances or a cost/benefit analysis to support an alternative approach that will support the level of reliability required by law.*

Program Justification

In addition to complying with the provisions in Section 57.198(b), distribution vegetation management activities are performed in accordance with the Pennsylvania Pesticide Control Act, the Pennsylvania Administrative Code, and the Utility Arborist Association's Field Guide to Closed Chain of Custody for Herbicides in the Utility Vegetation Management Industry. All vegetation management activities are designed to achieve cycle-length clearances, regardless of method employed. The vegetation management program specification seeks to maintain and control all vegetation in the space defined as the distribution clearing zone. The distribution clearing zone is the right-of-way corridor measured at a horizontal distance of fifteen feet on either side of the pole line or the established large tree edge. The corridor is measured vertically to fifteen feet above the highest conductor attached to the pole or structure. The Company has also applied a specific vegetation management approach to select line sections. This practice involves the removal of overhanging limbs outside the right-of-way as well as aggressive mitigation of hazardous trees, with the intent of improving tree-related reliability on the selected line sections.

The Company's professional vegetation management staff performs inspections and approves all work conducted by vegetation management contractors. The Forestry

personnel maintain an understanding of current and emerging techniques by attending industry trade conferences and maintaining memberships in industry trade organizations, such as Utility Arborist Association and the International Society of Arboriculture. The goal of the Vegetation Management department is to manage distribution corridors in a way that provides safe and reliable electricity while simultaneously working to make a sustainable habitat system on the Company's rights-of-ways.

As part of the Company's approach to improving tree-related reliability, the Company continues to analyze circuit electrical protection schemes and gives added attention to select line sections, such as those that serve high numbers of customers. Three distinct line sections have been identified and defined under existing protection schemes, as shown in the table below.

| Zone 1 | Zone 2 | Zone 3 |
|---|---|---|
| Three-phase circuitry from the circuit breaker to the first protective device | Three-phase circuitry beyond the first protective device | Single-phase and two-phase circuitry |
| Serves entire customer load | Serves a large percentage of customer load | Serves smallest percentage of customer load |

In addition to the Company's Distribution Vegetation Management Program, there are other distribution equipment inspection programs (*e.g.*, Distribution Pole Inspections, Distribution Overhead Line Inspections, Distribution Transformer Inspections, and Recloser Inspections) that allow trained utility personnel multiple opportunities to observe conditions on the distribution system. These conditions may include vegetation management situations that warrant further investigation.

Inspection Plan

The total number of circuit miles to be trimmed in 2025 and 2026 is based on the current system configuration (as of 2023) and previous cycle length and thus is subject to change by the time the 2025 and 2026 plans commence.

| **Inspections and Treatments Planned**<br>**Total Circuit Miles** | | |
|---|---|---|
| **FE PA** | **2025** | **2026** |
| 57,172 | 12,271 | 12,581 |

## Distribution Pole Inspections

***Section 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

The Company shall visually inspect distribution wood poles on a twelve-year cycle. The purpose for inspecting distribution wood poles is to identify and repair unsafe conditions or conditions that may adversely affect service reliability or system performance, and to comply with the state regulatory agencies and the NESC.

This preventative maintenance inspection for wood poles will include a visual inspection as well as hammer-sounding as needed. The inspection consists of the recording of abnormal conditions from the groundline to the top of the pole including but not limited to the following:

- Damage – broken or leaning
- Equipment – crossarms, insulators, conductors, oil leaking
- Testing for decayed internal wood

In addition to the visual inspection, poles showing incipient decay or poles that are thirty-five years old or older will be manually bored or inspected by the use of a Resistograph. The Resistograph is a sophisticated electronically controlled drill that provides increased accuracy, when compared to manual drilling, in measuring the relative density of wood in timber structures. Driven by a drill motor, a long, thin needle is inserted into the wood pole in order to assess its density, structural integrity, and shell thickness.

Serviceable poles that pass the visual, sound, and bore testing may be treated for life extension. Serviceable and reinforced poles shall also be treated. Three different types of treatments may get used depending on the need determined during inspection. External treatments are applied as a preservative paste, after decay is scraped off. Internal preventative treatments are for protection against fungal decay and insects and to interrupt

degradation. Internal void treatments are used where decay pockets exist. The selected treatment method will be based on the best available information at the time.

Further detailed information regarding the Company's inspection of wood poles may be found in the Distribution Inspection & Maintenance Practice – Wood Pole Groundline.

***Section 57.198(n)(3). 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, then the pole shall be replaced within 30 days of the date of inspection.*

Corrective Maintenance

Wood poles and supporting structures with recorded defects that the Company could expect to create an immediate risk to public or employee safety or affect the integrity of the circuit shall be repaired or replaced within thirty days. All remaining deficiencies will be evaluated and prioritized on a case-by-case basis.

In addition, pursuant to the Pennsylvania Public Utility Commission's Opinion and Order entered on January 16, 2020,[2] Company's predecessor companies submitted Distribution Pole Corrective Action Plans ("Pole CAP") on March 16, 2020, which were approved by the Commission on May 21, 2020. The Pole CAP is designed to bring the Company's respective distribution pole replacement and reinforcement backlogs to no more than two years and is set forth in two parts. First, the Pole CAP outlines how the pole replacement/reinforcement backlog will be reduced over the period of 2020-2024 to achieve a steady state of no greater than a two-year backlog. Second, the Pole CAP outlines the quality management controls the Company will employ to ensure the Pole CAP is completed as designed and distribution poles are maintained at a no more than two-year backlog or better beginning on January 1, 2025.

***Section 57.198(c). Time frames.*** *The plan must comply with the inspection and maintenance standards set forth in subsection (n). A justification for the inspection and maintenance time frames selected shall be provided, even if the time frame falls within the intervals prescribed in subsection (n). However, an EDC may propose a plan that, for a given standard, uses intervals outside the Commission standard, provided that the deviation can be justified by the EDC's unique circumstances or a cost/benefit analysis to support an alternative approach that will support the level of reliability required by law.*

[2] Opinion and Order entered January 16, 2020, at Docket Nos. M-2019-3012618, M-2019-3012617, M-2019-3012615 and M-2019-3012614.

Program Justification

The Company's twelve-year inspection cycle for wood poles is based on accepted electric utility practices. The NESC Rule 12.121.A states "*Electric equipment shall be inspected and maintained at such intervals as experience has shown to be necessary*." Twelve years between inspections allows enough time for proper planning and remediation prior to any problems negatively impacting personal safety, equipment integrity or service reliability.

In addition to the Company's Distribution Pole Inspection Program, there are other distribution equipment inspection programs (*e.g.*, Distribution Vegetation Management, Distribution Overhead Line Inspections, Distribution Transformer Inspections, and Recloser Inspections) that allow trained utility personnel multiple opportunities to observe conditions on the distribution system. These conditions may include distribution pole situations that warrant further investigation.

Pole Loading Calculation

As a part of the I&M Plan for the period January 1, 2023, through December 31, 2024, the Commission previously exempted the Company from conducting pole loading calculations as a part of its pole inspections. The Company requests a continuation of the exemption for the currently proposed period.

Rather than conducting load calculations as part of each pole inspection, the Company follows the practice of creating base line designs using FirstEnergy's Distribution Line Construction Standards and Distribution Engineering Practices ("Construction Standards" or "Engineering Practices"). FirstEnergy's Construction Standards are based on NESC Heavy Loading Standards and are updated each time those standards are revised. The majority of the Company's service territory lies within the heavy loading zone. NESC Heavy Loading Standards provide basic guidance for most designs encountered by distribution line design personnel. All new facilities are designed consistent with NESC Heavy Loading Standard NESC C2-2012, Section 250. The Engineering Practices provide detailed guidance for both guying and pole loading, and additional engineering support is available to designers when more complex calculations are needed. Per the NESC, both of these resources include safety factors such that the deterioration of poles in service shall not reduce the strength capability of the pole below the required strength. Further, as the Company receives requests from other entities to attach their facilities to the Company poles, an assessment, ranging from a visual inspection to a full-strength analysis, is performed based on pole-attachment guidelines, experience, and the situation encountered.

Inspection Plan

The total number of poles to be inspected in 2025 and 2026 is based on the current system configuration (as of 2023) and thus is subject to change by the time the 2025 and 2026 plans commence.

| Pole Inspections Planned<br>Number of Poles | | |
|---|---|---|
| **FE PA** | **2025** | **2026** |
| 1,467,472 | 123,707 | 113,851 |

## Distribution Overhead Line Inspections

***Section 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

Beginning in 2025, the Company will transition its distribution overhead lines and equipment inspection cycles from a five-year to a two-year inspection cycle. The purpose for inspecting overhead lines and equipment is to identify and repair unsafe conditions or conditions that may adversely affect service reliability, and to comply with the requirements of state regulatory agencies and the NESC. This program shall be limited to overhead facilities.

Circuits will be inspected on a two-year cycle to comply with the regulation and will consist of a visual inspection and recording of abnormal conditions including but not limited to the following types of overhead circuit equipment:

- Conductors (wire and cable) – excessive slack, condition, damage, clearances
- Supporting structures (wood poles) – deteriorated condition, sustained damage (lightning, vehicle, woodpecker holes)
- Pole hardware (including insulators) – condition, damage
- Guying – condition, damage
- Pole-mounted distribution equipment (including overhead transformers) – condition, damage
- Switches
- Sectionalizers

Further detailed information regarding the Company's inspection of Distribution Overhead Lines may be found in the Distribution Inspection & Maintenance Practice – Overhead Circuits and Equipment.

***Section 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

Supporting structures with recorded defects that the Company could reasonably expect to affect the integrity of the circuit shall be repaired or replaced within thirty days. All remaining deficiencies will be evaluated and prioritized on a case-by-case basis.

***Section 57.198(c). Time frames.*** *The plan must comply with the inspection and maintenance standards in subsection (n). A justification for the inspection and maintenance time frames selected shall be provided, even if the time frame falls within the intervals prescribed in subsection (n). However, an EDC may propose a plan that, for a given standard, uses intervals outside the Commission standard, provided that the deviation can be justified by the EDC's unique circumstances or a cost/benefit analysis to support an alternative approach that will support the level of reliability required by law.*

Program Justification

In addition to the Company's Distribution Overhead Line Inspection Program, there are other distribution equipment inspection programs (*e.g.*, Distribution Vegetation Management, Distribution Pole Inspections, Distribution Transformer Inspections, and Recloser Inspections) that allow trained utility personnel multiple opportunities to observe conditions on the distribution system. Further, field personnel perform circuit assessments to address specific reliability concerns and to assess worst-performing circuit performance. Lastly, the Company may use infrared thermography on an as-needed basis on certain worst performing circuits or while performing circuit rehabilitation.

Inspection Plan

The total number of circuits to be inspected in 2025 and 2026 is based on the current system configuration (as of 2023) and thus is subject to change by the time the 2025 and 2026 plans commence.

| **Overhead Line Inspections Planned**<br>**Number of Circuits** | | |
|---|---|---|
| **FE PA** | **2025** | **2026** |
| 3,091 | 1,560 | 1,541 |

## Distribution Transformer Inspections

***Section 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

Beginning in 2025, the Company will transition its overhead distribution transformer inspection cycles from a five-year to a two-year inspection cycle to comply with the regulation. The Company inspects overhead distribution transformers as part of the overhead line inspection. Below-ground and pad-mount transformers are inspected on a five-year cycle. The purpose for inspecting distribution transformers is to identify and repair unsafe conditions or conditions that may adversely affect service reliability, and to comply with the requirements of state regulatory agencies and the NESC.

Overhead distribution transformers – visual inspection and recording of abnormal conditions including but not limited to the following:

- Equipment condition – oil leakage, arresters, rust, dents or evidence of contact

Above-ground pad-mounted equipment (transformers and switchgear) – inspection and recording of abnormal conditions including but not limited to the following:

- Equipment condition – oil leakage, cabinet damage, holes, washout
- Security – locking mechanisms
- Accessibility – as required for operation and maintenance purposes, including the installation of fences or shrubbery that could adversely affect access to and operation of the transformer and unauthorized excavation or changes in grade near the transformer
- Warning labels – electrical hazard warning label and landscaping instructions notice

Below-ground transformers – visual inspection and recording of abnormal conditions including but not limited to the following:

- Accessibility – verify cover is secured
- Equipment condition – visually inspect baffle

Further detailed information regarding the Company's inspection of distribution transformers may be found in the Distribution Inspection & Maintenance Practice – Underground Equipment.

***Section 57.198(c). Time frames.*** *The plan must comply with the inspection and maintenance standards in subsection (n). A justification for the inspection and maintenance time frames selected shall be provided, even if the time frame falls within the intervals prescribed in subsection (n). However, an EDC may propose a plan that, for a given standard, uses intervals outside the Commission standard, provided that the deviation can be justified by the EDC's unique circumstances or a cost/benefit analysis to support an alternative approach that will support the level of reliability required by law.*

Program Justification

In addition to the Company's Distribution Transformer Inspections Program, there are other distribution equipment inspection programs (*e.g.*, Distribution Vegetation Management, Distribution Pole Inspections, and Recloser Inspections) that allow trained utility personnel multiple opportunities to observe conditions on the distribution system. These conditions may include distribution transformer situations that warrant further investigation.

Inspection Plan

The total number of distribution transformers to be inspected in 2025 and 2026 is based on the current system configuration (as of 2023) and thus is subject to change by the time the 2025 and 2026 plans commence.

| | **Transformer Inspections Planned Number of Transformers** | | |
|---|---|---|---|
| **FE PA** | **Transformer Type** | **2025** | **2026** |
| 724,565 | Overhead | 319,287 | 309,800 |
| | Above-Ground Pad-Mounted | 28,728 | 27,134 |
| | Below-Ground | 493 | 551 |

## Recloser Inspections

***Section 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

The Company visually inspects distribution line reclosers annually. The purpose for inspecting distribution line reclosers is to identify and repair unsafe conditions or conditions that may adversely affect service reliability or system performance, and to comply with the requirements of state regulatory agencies and the NESC.

The annual preventative maintenance consists of counter readings and field inspection. The counter readings are obtained to assess system performance based on the number of operations. The field inspection includes but is not limited to the following:

- Type of recloser and current rating
- Counter reading
- Condition – rust, dents, physical damage, leaks, lightning damage
- Equipment – surge arresters, tank-ground connections, by-pass switches, control battery, pole
- Grounds – damage, condition

Further detailed information regarding the Company's inspection of reclosers may be found in the Distribution Inspection & Maintenance Practice – Line Reclosers.

***Section 57.198(c). Time frames.*** *The plan must comply with the inspection and maintenance standards in subsection (n). A justification for the inspection and maintenance time frames selected shall be provided, even if the time frame falls within the intervals prescribed in subsection (n). However, an EDC may propose a plan that, for a given standard, uses intervals outside the Commission standard, provided that the deviation can be justified by the EDC's unique circumstances or a cost/benefit analysis to support an alternative approach that will support the level of reliability required by law.*

Program Justification

The Company's annual inspection cycle for reclosers is based on accepted electric utility practices and the experience of the Company. The NESC Rule 12.121.A states *"Electric equipment shall be inspected and maintained at such intervals as experience has shown to be necessary."* One year between inspection cycles has proven to be successful in addressing problems in a timely manner, allowing for proper planning and remediation

prior to the problem negatively impacting personal safety, equipment integrity, or service reliability.

In addition to the Company's Recloser Inspections Program, there are other distribution equipment inspection programs (e.g., Distribution Vegetation Management, Distribution Pole Inspections, Distribution Overhead Line Inspections, and Distribution Transformer Inspections) that allow trained utility personnel multiple opportunities to observe conditions on the distribution system. These conditions may include recloser equipment situations that warrant further investigation.

Inspection Plan

The total number of recloser units to be inspected in 2025 and 2026 is based on the current system configuration (as of 2023) and thus is subject to change by the time the 2025 and 2026 plans commence.

| | **Recloser Inspections Planned**<br>**Number of Reclosers** | | |
|---|---|---|---|
| **FE PA** | **Recloser Type** | **2025** | **2026** |
| 9,012 | Single Phase | 6,876 | 6,876 |
| | Three Phase | 2,076 | 2,076 |

## Substation Inspections

***Section 57.198(n)(8). Substation inspections.*** *Substation equipment, structures and hardware shall be inspected on a cycle of 5 weeks or less.*

Program Description

The Company inspects its distribution substations twelve times annually. The purpose of these monthly inspections of the distribution substations is to ensure that any developing substation problems are identified and addressed in a timely manner in support of system reliability and electrical safety.

There are three types of preventative maintenance inspections that are performed at Company substations during a twelve-month period. The chart below illustrates the type of inspection performed each month[3]:

| Inspection Type | Month | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Safety and Security of Facilities/Visual Equipment Inspection/Reporting and Recording of Deficiencies and Relay Operations (Class C) | X | X | X | X | X | X | X | X | X | X | X | X |
| Safety/Security, Visual Equipment Inspection and Record Readings (Class B) | | | X | | | X | | | X | | | X |
| Seasonal Maintenance (Class A) | | | X | | | | | | X | | | |

The following is a summary of each type of inspection that is conducted at the Company substations:

1. *Safety and Security of Facilities and Visual Equipment Inspection of Electrical Equipment and Reporting/Recording Identified Deficiencies and Relay Operations (Class C).* Monthly visual inspection of substation equipment, structures and hardware that also includes the recording of abnormal conditions or deficiencies. This inspection may include, but is not limited to, the following:
    - General condition – read and record ambient temperature
    - Perimeter fence inspection (gate locks, fence and gate grounds, warning signs

[3] For illustrative purposes only.

- Yard and facility inspection (equipment grounds, vegetation condition, general yard condition, equipment condition, oil levels and leaks, structure/hardware condition, hotspots, conductors/switches/connections)
- Building inspection (security, integrity, indication lights)
- Visual inspection of major equipment (power transformers, circuit breakers, instrument transformers, etc.)
- Relays, electronic controls, and panel meters for alarms and targets
- Batteries and chargers

2. *Safety and Security, Visual Equipment Inspection and Record Readings (Class B)*. In addition to the safety and security and visual equipment inspection that is performed monthly, every three months an additional visual inspection that includes the recording of readings is performed. This inspection may include, but is not limited to, all items listed under the Class C inspection as well as the following types of substation equipment:
   - Recording of amps and load readings
   - Recording of counter and gauge readings
   - Inspection/test of carrier communication equipment
   - Inspection of microwave/radio sites and engine generators – generator alarms and battery

3. *Seasonal Maintenance - Summer and Winter Readiness (Class A)*. In addition to the monthly and three-month inspections, every six months a more comprehensive inspection of the substation and substation equipment is performed. This inspection may include, but is not limited to, all items listed under the Class C and B inspections as well as the following types of substation equipment:
   - Servicing fire protection equipment
   - Servicing eye wash stations
   - Yard lighting
   - Servicing filters and HVAC systems
   - Servicing of equipment cabinet heaters
   - Servicing engine generators

Further detailed information regarding the Company's inspection of substations may be found in Section 20P – Substation Patrol Inspection of the Substation Maintenance Practice and Methods.

***Section 57.198(c). Time frames.*** *The plan must comply with the inspection and maintenance standards in subsection (n). A justification for the inspection and maintenance time frames selected shall be provided, even if the time frame falls within the intervals prescribed in subsection (n). However, an EDC may propose a plan that, for a given standard, uses intervals outside the Commission standard, provided that the*

*deviation can be justified by the EDC's unique circumstances or a cost/benefit analysis to support an alternative approach that will support the level of reliability required by law.*

Program Justification

Patrol inspections of distribution substations are performed on a monthly, quarterly, and semi-annual basis, with a tiered approach to preventative maintenance. This tiered approach has proven effective in addressing emerging problems and allows for proper planning and remediation prior to the problem negatively impacting personal safety, equipment integrity or service reliability.

Monthly inspections ensure a trained, physical presence within the substation. Frequent, in-person inspections have been effective in detecting the degradation of facilities not always captured by existing local and remote surveillance and monitoring tools. In addition to visual inspections, load and counter readings are recorded every three months to allow local engineering to conduct planning and load studies. Finally, an intensive inspection is conducted two times a year, in spring and fall.

Advancements in technology have refined how substation equipment inspections are performed, and those advancements have been leveraged to ensure the highest levels of safety and reliability of the substation and substation equipment. For example, results from equipment and patrol inspections are captured by field personnel on site and entered directly into the maintenance database where they can be tracked. Through the use of historical inspection data and enhanced software, the Company is able to target specific equipment and trigger maintenance based on equipment condition. For example, counter readings that are obtained during the three-month inspection cycle are used to trigger condition-based maintenance. Both predictive and condition-based programs extend the operating life of the equipment. They also optimize the necessary maintenance interval, improve service reliability, and reduce downtime that is typically experienced when equipment is taken offline which reduces exposure of the grid, all with consistency and efficiency.

Inspection Plan

The total number of substations to be inspected in 2025 and 2026 is based on the current system configuration (as of 2023) and thus is subject to change by the time the 2025 and 2026 plans commence.

| **Substation Inspections Planned<br>Number of Circuits** | | |
|---|---|---|
| **FE PA** | **2025** | **2026** |
| 1,140 | 13,680 | 13,680 |

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# Biennial Inspection, Maintenance, Repair and Replacement Plan for ~~Metropolitan Edison~~FirstEnergy Pennsylvania Electric Company[1]

## For the period of January 1, 2025 – December 31, 2026

[1] ~~The Biennial Inspection, Maintenance, Repair and Replacement Plan for~~ By Order entered on December 7, 2023, the Pennsylvania ~~Electric Company will be updated and refiled following the approval~~Public Utility Commission granted certain approvals and certificates of public convenience for the ~~Pennsylvania Consolidation. At that time, all~~unification of the four ~~plans will be combined~~Companies into one ~~plan for~~company, FirstEnergy Pennsylvania Electric Company~~. See.~~, or "FE PA". *Joint Application of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, West Penn Power Company, Keystone Appalachian Transmission Company, Mid-Atlantic Interstate Transmission, LLC, and ~~First Energy~~FirstEnergy Pennsylvania Electric Company*, Docket Nos. A-2023-3038771, et al. ~~filed on March~~(Order entered December 7, 2023~~.~~). As such, the individual Biennial Inspection, Maintenance, Repair and Replacement Plans for Metropolitan Edison Company, Pennsylvania Electric Company, West Penn Power Company, and Pennsylvania Power Company have been consolidated into one FE PA Plan.



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## Introduction

Pursuant to 52 Pa. Code § 57.198(a), every two years an electric distribution company shall file with the Pennsylvania Public Utility Commission ("Commission") a biennial plan for the periodic inspection, maintenance, repair and replacement of its facilities. ~~Metropolitan Edison~~FirstEnergy Pennsylvania Electric Company ~~("Met-Ed"~~( "FE PA," or "Company") hereby submits its Biennial Inspection, Maintenance, Repair and Replacement Plan ("I&M Plan") for the period January 1, 2025, through December 31, 2026, in accordance with the relevant parts of 52 Pa. Code § 57.198.

## System Assessment

~~Met-Ed~~The Company serves ~~more than 579,000~~nearly 2.1 million Pennsylvania customers and the service territory covers more than ~~3~~32,000 square miles. From the physical field employees up to and including top management, ~~Met-Ed~~the Company is committed to providing customers with safe and reliable electric service. Methods to improve the efficiency, adequacy, and reliability of the distribution system are a continual focus and every employee has an investment in each of the Company's respective reliability metrics. In addition to the I&M Plan, ~~Met-Ed~~the Company utilizes core programs to support cost-effective and reliable service. These programs include, but are not limited to:

- Vegetation Management
  - In response to damage caused by the Emerald Ash Borer, a program to proactively remove ash trees off rights-of-way is underway in the Met-Ed and West Penn Rate Districts; the program was completed in 2018 in the Penn Power Rate District and 2019 in the Penelec Rate District.
  - Post-storm vegetation circuit patrols target the areas with high tree-related outages. These patrols identify trees damaged in a storm that may eventually lead to a future outage. Once identified, the tree is removed. In addition, damaged equipment identified as a part of the patrol is repaired or replaced.
- Customers Experiencing Multiple Interruptions ("CEMI")
  - The purpose of the CEMI program is ~~aimed~~ to reduce frequent or repeated outages for affected clusters of customers or frequently operated devices.
- Load Forecasting and Distribution Planning
  - The load forecasting application is used to estimate future substation and circuit loading based upon historical load data, and the planning

criteria guidelines are then used to provide a consistent approach for planning the safe, reliable, orderly, and economic expansion of the distribution system.

- Circuit Protection
  - The circuit protection practice is intended to provide a safe, secure distribution system~~;~~, maximize distribution system reliability performance~~;~~, protect equipment and facilities from overcurrent risks that may result in damage~~;~~, and establish a consistent process and application standard for distribution system protection.

- Long-Term Infrastructure Improvement Plans ("LTIIP")
  - ~~Met-Ed~~The Company first began to execute its LTIIP programs in 2016. These plans include expenditures and programs designed to adequately maintain and improve the efficiency, safety, adequacy, and reliability of the distribution system. ~~Most recently~~In 2019, the ~~Company~~Company's four predecessor companies filed ~~its~~their second LTIIP, covering the period 2020 through 2024.

## Plan Revisions

~~Met-Ed~~The Company's four predecessor companies submitted ~~its original~~their I&M ~~Plan~~Plans for the period January 1, 2023, through December 31, 2024, on October 1, 2021. The Commission concluded that ~~Met-Ed's plan~~those plans generally complied with the requirements in 52 Pa. Code § 57.198 and therefore approved ~~it~~them on December 21, 2021. On April 28, 2023, ~~Met-Ed submitted a revised plan, which proposed the addition~~as part of ~~a distribution pole treatment program but was otherwise consistent with its previously approved plan~~the Joint 1st Quarter 2023 Reliability Report, the four predecessor companies requested approval to modify their I&M Plans for 2023 and 2024 ~~and proposed no substantive changes to its~~ to add a distribution wood pole treatment program, which were approved on July 17, 2023. In addition, on February 1, 2024, as part of Joint 4th Quarter 2023 Reliability Report, the four predecessor companies requested approval, *nunc pro tunc*, for a modification of their I&M Plans for 2023 and 2024 to pole inspection ~~cycles. The Commission concluded that Met-Ed's plan~~language. Those revisions were approved via secretarial letter dated February 5, 2024.

On September 29, 2023, the four predecessor companies filed I&M Plans for the period January 1, 2025 through December 31, 2026. TUS Staff issued the predecessor companies

information requests regarding its 2025-2026 I&M Plans on November 2, 2023. On December 28, 2023, a secretarial letter was issued finding that the majority of the 2025-2026 I&M Plans generally complied with ~~the requirements in~~ 52 Pa. Code § 57.198, but directed the predecessor companies to refile their I&M Plans to modify the inspection interval for overhead distribution transformer and ~~therefore approved it on July 17, 2023~~overhead distribution line from five years to one to two years. Additionally, TUS Staff directed the predecessor companies to consider re-evaluating and reviewing the effectiveness of the Vegetation Management portion of its I&M Plan.

~~Met-Ed's revised I&M Plan for 2025 and 2026 proposes the addition of a distribution wood pole treatment program but is otherwise consistent with its previously approved plan for 2023 and 2024 and proposes no substantive changes to its inspection cycles.~~
Accordingly, this I&M Plan reflects the interval inspection changes directed by the Commission, incorporates changes in the Vegetation Management plan section including a 4- or 5-year cycle, and reflects the recent unification of the four predecessor companies into one company, FE PA. The individual plans from each predecessor company have been consolidated into one I&M Plan for FE PA on behalf of its four Pennsylvania Rate districts: Met-Ed, Penn Power, West Penn and Penelec.

## Plan Consistency

***Section 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.*

~~Met-Ed's~~The Company's I&M Plan and associated inspection activities are performed in accordance with the Occupational Safety and Health Administration's rules and regulations, National Electrical Safety Code ("NESC"), 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.

## Record Keeping

***Section 57.198(m). Record Keeping.*** *An electric distribution company ("EDC") must maintain records of inspection and maintenance activities sufficient to demonstrate*

*compliance with its distribution facilities inspection, maintenance, repair and replacement programs.*

In order to demonstrate compliance with its distribution facilities inspection, maintenance, repair and replacement programs, ~~Met-Ed~~the Company will maintain inspection and maintenance records either electronically or in hard copy as required by state law.

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## Vegetation Management

***Section 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

The Company performs vegetation management on its distribution circuits in order to promote the continued safe and reliable operation of its distribution system. The vegetation management program specification is designed to support line reliability, maintain access, make repairs, or restore service and to support safe and reliable service. The vegetation management program specification prunes vegetation to achieve required cycle clearance, ~~with all circuits on four to eight years of cycle clearance,~~ which includes removing selected incompatible trees within the clearing zone corridor; removing certain defective limbs that are overhanging primary conductors; controlling selected incompatible brush mechanically or using herbicide, or both; relieving limbs causing mechanical strain on secondary/service lines; and removing targeted off-corridor priority trees that are dead, dying, diseased, and leaning or significantly encroaching the corridor.

The Company continues to investigate emerging technologies that could lead to distribution system reliability enhancements or improving the customer experience. The Company is also exploring emerging technologies that may suggest effective vegetation management strategies for circuit and cycle work models through remote sensing and analytics. This could allow for future adjustments to the vegetation management plan by utilizing reliability metrics and circuit system condition to determine appropriate clearance cycle length. The Company's inspection and treatment cycle for vegetation management may vary but will remain in compliance with Section 57.198(n)(1) and will generally continue on the established four- or five-year cycle length for distribution facilities depending on each Rate District's needs.

Portions of a circuit that experience high customer interruption minutes due to vegetation-caused outages may be targeted to include the removal of certain healthy limbs which overhang primary conductors based on tree species and condition.

For portions of a circuit that have not experienced significant reliability issues due to vegetation-caused outages, a proactive inspection process will target selective vegetation removal for continued reliable system operation. This may include the extension of a cycle not to exceed a total of eight years. This process involves inspection of the vegetation to evaluate the extent of potential for vegetation to interfere with energized conductors. Factors to consider in the evaluation are the voltage and height of the conductor, the type of tree, its growth rate and branching habit. Trees that will impact safety or reliability will be maintained pursuant to the vegetation management program specification.

Methods used to manage and control vegetation include manual control methods using hand-operated tools and mechanical control using equipment-mounted saws, mowers, or other devices. Removing incompatible vegetation may also include various herbicide application techniques— such as, high-volume foliage application;, low-volume foliage application;, basal-herbicide applications;, stump applications;, frill application;, aerial application;, bare-soil treatment application;, and cut-stubble applications. All herbicides shall be applied in accordance with all state, local, and federal laws governing the use of herbicides.

Further detailed information regarding ~~Met-Ed's~~the Company's vegetation management program may be found in the Vegetation Management Distribution Specifications.

***Section 57.198(c). Time frames.*** *The plan must comply with the inspection and maintenance standards in subsection (n). A justification for the inspection and maintenance time frames selected shall be provided, even if the time frame falls within the intervals prescribed in subsection (n). However, an EDC may propose a plan that, for a given standard, uses intervals outside the Commission standard, provided that the deviation can be justified by the EDC's unique circumstances or a cost/benefit analysis to support an alternative approach that will support the level of reliability required by law.*

Program Justification

In addition to complying with the provisions in Section 57.198(b), distribution vegetation management activities are performed in accordance with the Pennsylvania Pesticide Control Act, the Pennsylvania Administrative Code, and the Utility Arborist Association's Field Guide to Closed Chain of Custody for Herbicides in the Utility Vegetation Management Industry. All vegetation management activities are designed to achieve cycle-length clearances, regardless of method employed. The vegetation management program specification seeks to maintain and control all vegetation in the space defined as

the distribution clearing zone. The distribution clearing zone is the right-of-way corridor measured at a horizontal distance of fifteen feet on either side of the pole line or the established large tree edge. The corridor is measured vertically to fifteen feet above the highest conductor attached to the pole or structure. ~~Met-Ed~~The Company has also applied a specific vegetation management approach to select line sections. This practice involves the removal of overhanging limbs outside the right-of-way as well as aggressive mitigation of hazardous trees, with the intent of improving tree-related reliability on the selected line sections.

~~Met-Ed's~~The Company's professional vegetation management staff performs inspections and approves all work conducted by vegetation management contractors. The Forestry personnel maintain an understanding of current and emerging techniques by attending industry trade conferences and maintaining memberships in industry trade organizations, such as Utility Arborist Association and the International Society of Arboriculture. The goal of the Vegetation Management department is to manage distribution corridors in a way that provides safe and reliable electricity while simultaneously working to make a sustainable habitat system on ~~Met-Ed's~~the Company's rights-of-~~way~~ways.

As part of ~~Met-Ed's~~the Company's approach to improving tree-related reliability, the Company continues to analyze circuit electrical protection schemes and gives added attention to select line sections, such as those that serve high numbers of customers. Three distinct line sections have been identified and defined under existing protection schemes, as shown in the table below.

| Zone 1 | Zone 2 | Zone 3 |
|---|---|---|
| Three-phase circuitry from the circuit breaker to the first protective device | Three-phase circuitry beyond the first protective device | Single-phase and two-phase circuitry |
| Serves entire customer load | Serves a large percentage of customer load | Serves smallest percentage of customer load |

In addition to ~~Met-Ed's~~the Company's Distribution Vegetation Management Program, there are other distribution equipment inspection programs (*e.g.*, Distribution Pole Inspections, Distribution Overhead Line Inspections, Distribution Transformer Inspections, and Recloser Inspections) that allow trained utility personnel multiple opportunities to observe conditions on the distribution system. These conditions may include vegetation management situations that warrant further investigation.

~~The Company continues to explore emerging technologies to enhance distribution system reliability and enhanced customer service. Emerging technologies may help to refine vegetation management strategies for circuit and cycle work models through remote sensing and analytics, which may lead to future adjustments to the vegetation management plan.~~

Inspection Plan

The total number of circuit miles to be trimmed in 2025 and 2026 is based on the current system configuration (as of 2023) and previous cycle length and thus is subject to change by the time the 2025 and 2026 plans commence.

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| ~~—~~ | ~~Area~~ | Inspections and Treatments Planned<br>Total Circuit Miles | | |
|---|---|---|---|---|
| FE PA | | 2025 | | 2026 |
| ~~**Met-Ed**~~<br>~~*11,510 total circuit miles*~~57,172 | | ~~Boyertown~~<br>~~*768 total circuit miles*~~12,271 | ~~226~~ | 12,581 |
| | ~~Easton~~<br>~~*1,441 total circuit miles*~~ | ~~416~~ | | ~~419~~ |
| | ~~Hanover~~<br>~~*1,963 total circuit miles*~~ | ~~482~~ | | ~~548~~ |
| | ~~Lebanon~~<br>~~*1,494 total circuit miles*~~ | ~~389~~ | | ~~395~~ |
| | ~~Reading~~<br>~~*2,385 total circuit miles*~~ | ~~579~~ | | ~~819~~ |
| | ~~Stroudsburg~~<br>~~*1,107 total circuit miles*~~ | ~~233~~ | | ~~281~~ |
| | ~~York~~<br>~~*2,352 total circuit miles*~~ | ~~590~~ | | ~~560~~ |

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## Distribution Pole Inspections

***Section 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

~~Met-Ed~~The Company shall visually inspect distribution wood poles on a twelve-year cycle. The purpose for inspecting distribution wood poles is to identify and repair unsafe conditions or conditions that may adversely affect service reliability or system performance, and to comply with the state regulatory agencies and the NESC.

This preventative maintenance inspection for wood poles will include a visual inspection as well as hammer-sounding as needed. The inspection consists of the recording of abnormal conditions from the groundline to the top of the pole including but not limited to the following:

- Damage – broken or leaning
- Equipment – crossarms, insulators, conductors, oil leaking
- Testing for decayed internal wood

In addition to the visual inspection, poles showing incipient decay or poles that are thirty-five years old or older will be manually bored or inspected by the use of a Resistograph. The Resistograph is a sophisticated electronically controlled drill that provides increased accuracy, when compared to manual drilling, in measuring the relative density of wood in timber structures. Driven by a drill motor, a long, thin needle is inserted into the wood pole in order to assess its density, structural integrity, and shell thickness. ~~In 2023, West Penn will continue with the use of the Resistograph. In 2024 and beyond, either manual boring or the Resistograph will be used at Met-Ed's discretion.~~

Serviceable poles that pass the visual, sound, and bore testing may be treated for life extension. Serviceable and reinforced poles ~~may~~shall also be treated.~~-~~ Three different types of treatments may get used depending on the need determined during inspection. External treatments are applied as a preservative paste, after decay is scraped off. Internal preventative treatments are for protection against fungal decay and insects and to interrupt degradation. Internal void treatments are used where decay pockets exist. The selected treatment method will be based on the best available information at the time.

Further detailed information regarding ~~Met-Ed's~~the Company's inspection of wood poles may be found in the Distribution Inspection & Maintenance Practice – Wood Pole Groundline.

***Section 57.198(n)(3). 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, then the pole shall be replaced within 30 days of the date of inspection.*

Corrective Maintenance

Wood poles and supporting structures with recorded defects that ~~Met-Ed~~the Company could expect to create an immediate risk to public or employee safety or affect the integrity of the circuit shall be repaired or replaced within thirty days. All remaining deficiencies will be evaluated and prioritized on a case-by-case basis.

In addition, pursuant to the Pennsylvania Public Utility Commission's Opinion and Order entered on January 16, 2020,[2] ~~Met-Ed~~Company's predecessor companies submitted ~~a~~ Distribution Pole Corrective Action ~~Plan~~Plans ("Pole CAP") on March 16, 2020, which ~~was~~were approved by the Commission on May 21, 2020. The Pole CAP is designed to bring ~~Met-Ed's~~the Company's respective distribution pole replacement and reinforcement backlogs to no more than two years and is set forth in two parts. First, the Pole CAP outlines how the pole replacement/reinforcement backlog will be reduced over the period of 2020-2024 to achieve a steady state of no greater than a two-year backlog. Second, the Pole CAP outlines the quality management controls the Company will employ to ensure

[2] Opinion and Order entered January 16, 2020, at Docket Nos. M-2019-3012618, M-2019-3012617, M-2019-3012615 and M-2019-3012614.

the Pole CAP is completed as designed and distribution poles are maintained at a no more than two-year backlog or better beginning on January 1, 2025.

***Section 57.198(c). Time frames.*** *The plan must comply with the inspection and maintenance standards set forth in subsection (n). A justification for the inspection and maintenance time frames selected shall be provided, even if the time frame falls within the intervals prescribed in subsection (n). However, an EDC may propose a plan that, for a given standard, uses intervals outside the Commission standard, provided that the deviation can be justified by the EDC's unique circumstances or a cost/benefit analysis to support an alternative approach that will support the level of reliability required by law.*

Program Justification

~~Met-Ed's~~The Company's twelve-year inspection cycle for wood poles is based on accepted electric utility practices. The NESC Rule 12.121.A states "*Electric equipment shall be inspected and maintained at such intervals as experience has shown to be necessary*." Twelve years between inspections allows enough time for proper planning and remediation prior to any problems negatively impacting personal safety, equipment integrity or service reliability.

In addition to ~~Met-Ed's~~the Company's Distribution Pole Inspection Program, there are other distribution equipment inspection programs (*e.g.,* Distribution Vegetation Management, Distribution Overhead Line Inspections, Distribution Transformer Inspections, and Recloser Inspections) that allow trained utility personnel multiple opportunities to observe conditions on the distribution system. These conditions may include distribution pole situations that warrant further investigation.

Pole Loading Calculation

As a part of the I&M Plan for the period January 1, 2023, through December 31, 2024, the Commission previously exempted ~~Met-Ed~~the Company from conducting pole loading calculations as a part of its pole inspections. ~~Met-Ed~~The Company requests a continuation of the exemption for the currently proposed period.

Rather than conducting load calculations as part of each pole inspection, ~~Met-Ed~~the Company follows the practice of creating base line designs using FirstEnergy's Distribution Line Construction Standards and Distribution Engineering Practices ("Construction Standards" or "Engineering Practices"). FirstEnergy's Construction Standards are based on NESC Heavy Loading Standards and are updated each time those standards are revised. The majority of the Company's service territory lies within the heavy loading zone. ~~The~~ NESC Heavy Loading Standards provide basic guidance for most designs encountered by distribution line design personnel. All new facilities are designed consistent with NESC Heavy Loading Standard NESC C2-2012, Section 250. The Engineering Practices provide detailed guidance for both guying and pole loading, and additional engineering support is available to designers when more complex calculations are needed. Per the NESC, both of these resources include safety factors such that the deterioration of poles in service shall not reduce the strength capability of the pole below the required strength. Further, as the Company receives requests from other entities to attach their facilities to ~~Met-Ed~~the Company poles, an assessment, ranging from a visual inspection to a full-strength analysis,

is performed based on pole-attachment guidelines, experience, and the situation encountered.

Inspection Plan

The total number of poles to be inspected in 2025 and 2026 is based on the current system configuration (as of 2023) and thus is subject to change by the time the 2025 and 2026 plans commence.

| ~~Area~~ | | Pole Inspections Planned<br>Number of Poles | |
|---|---|---|---|
| FE PA | | 2025 | 2026 |
| ~~Met-Ed~~ *~~34,1176 total poles~~* | ~~Boyertown~~ *~~22,182 total poles~~* | ~~4,861~~ | ~~1,157~~ |
| | ~~Dillsburg~~ *~~19,910 total poles~~* | ~~3,873~~ | ~~2,559~~ |
| | ~~Easton~~ *~~41,712 total poles~~* | ~~2,354~~ | ~~0~~ |
| | ~~Gettysburg~~ *~~14,403 total poles~~* | ~~3,604~~ | ~~0~~ |
| | ~~Hamburg~~ *~~21,976 total poles~~* | ~~4,240~~ | ~~1,439~~ |
| | ~~Hanover~~ *~~25,872 total poles~~* | ~~488~~ | ~~783~~ |
| | ~~Lebanon~~ *~~44,910 total poles~~* | ~~5,288~~ | ~~6,586~~ |
| | ~~Reading~~ *~~41,215 total poles~~* | ~~4,015~~ | 1,467,472 |
| | ~~Stroudsburg~~ *~~38,167 total poles~~* | ~~1,066~~ | ~~0~~ |

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|---|---|---|---|
| | ~~York~~<br>~~*70,829 total poles*~~ | ~~7,488~~ | ~~2,842~~ |

## Distribution Overhead Line Inspections

***Section 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

~~Met-Ed shall visually inspect~~Beginning in 2025, the Company will transition its distribution overhead lines and equipment ~~on~~inspection cycles from a five-year to a two-year inspection cycle. The purpose for inspecting overhead lines and equipment is to identify and repair unsafe conditions or conditions that may adversely affect service reliability, and to comply with the requirements of state regulatory agencies and the NESC. This program shall be limited to overhead facilities.

Circuits will be inspected on a ~~five~~two-year cycle to ~~levelize labor commitments~~comply with the regulation and ~~expenses. This preventative maintenance~~ will consist of a visual inspection and recording of abnormal conditions including but not limited to the following types of overhead circuit equipment:

- Conductors (wire and cable) – excessive slack, condition, damage, clearances
- Supporting structures (wood poles) – deteriorated condition, sustained damage (lightning, vehicle, woodpecker holes)
- Pole hardware (including insulators) – condition, damage
- Guying – condition, damage
- Pole-mounted distribution equipment (including overhead transformers) – condition, damage
- Switches
- Sectionalizers

Further detailed information regarding ~~Met-Ed's~~the Company's inspection of Distribution Overhead Lines may be found in the Distribution Inspection & Maintenance Practice – Overhead Circuits and Equipment.

***Section 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

Supporting structures with recorded defects that ~~Met Ed~~the Company could reasonably expect to affect the integrity of the circuit shall be repaired or replaced within thirty days. All remaining deficiencies will be evaluated and prioritized on a case-by-case basis.

***Section 57.198(c). Time frames.*** *The plan must comply with the inspection and maintenance standards in subsection (n). A justification for the inspection and maintenance time frames selected shall be provided, even if the time frame falls within the intervals prescribed in subsection (n). However, an EDC may propose a plan that, for a given standard, uses intervals outside the Commission standard, provided that the deviation can be justified by the EDC's unique circumstances or a cost/benefit analysis to support an alternative approach that will support the level of reliability required by law.*

Program Justification

~~As a part of the I&M Plan for the period January 1, 2023, through December 31, 2024, the Commission previously granted a waiver for overhead circuit inspection periodicity. Met-Ed requests a continuation of the waiver for the currently proposed period.~~

~~Met-Ed's five-year inspection cycle for overhead lines is based on accepted electric utility practices. The NESC Rule 12.121.A states "*Electric equipment shall be inspected and maintained at such intervals as experience has shown to be necessary.*" Met-Ed's experience has shown the five-year inspection cycle to be successful in addressing problems in a timely manner, allowing for proper planning and remediation prior to the problem negatively impacting personal safety, equipment integrity or service reliability.~~

In addition to ~~Met-Ed's~~the Company's Distribution Overhead Line Inspection Program, there are other distribution equipment inspection programs (*e.g.*, Distribution Vegetation Management, Distribution Pole Inspections, Distribution Transformer Inspections, and Recloser Inspections) that allow trained utility personnel multiple opportunities to observe conditions on the distribution system. Further, field personnel perform circuit assessments to address specific reliability concerns and to assess worst-performing circuit performance.

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Lastly, ~~Met-Ed~~the Company may use infrared thermography on an as-needed basis on certain worst performing circuits or while performing circuit rehabilitation.

Inspection Plan

The total number of circuits to be inspected in 2025 and 2026 is based on the current system configuration (as of 2023) and thus is subject to change by the time the 2025 and 2026 plans commence.

| ~~-~~ | ~~Area~~ | Overhead Line Inspections Planned<br>Number of Circuits | |
|---|---|---|---|
| FE PA | | 2025 | 2026 |
| ~~**Met-Ed** 789 *Total Circuits*~~3,091 | | ~~Boyertown *30 total circuits*~~ 1,560 | ~~5~~1,541 ~~9~~ |
| | ~~Dillsburg *19 total circuits*~~ | ~~2~~ | ~~4~~ |
| | ~~Easton *112 total circuits*~~ | ~~23~~ | ~~17~~ |
| | ~~Gettysburg *30 total circuits*~~ | ~~7~~ | ~~7~~ |
| | ~~Hamburg *23 total circuits*~~ | ~~4~~ | ~~5~~ |
| | ~~Hanover *60 total circuits*~~ | ~~7~~ | ~~7~~ |
| | ~~Lebanon *103 total circuits*~~ | ~~25~~ | ~~19~~ |
| | ~~Reading *168 total circuits*~~ | ~~34~~ | ~~39~~ |
| | ~~Stroudsburg *34 total circuits*~~ | ~~9~~ | ~~7~~ |

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| | ~~York~~<br>~~210 *total circuits*~~ | ~~31~~ | ~~53~~ |

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## Distribution Transformer Inspections

***Section 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

~~Met Ed~~Beginning in 2025, the Company will transition its overhead distribution transformer inspection cycles from a five-year to a two-year inspection cycle to comply with the regulation. The Company inspects overhead distribution transformers as part of the overhead line inspection. ~~Above~~Below-ground and pad-~~mounted~~mount transformers are inspected on a five-year cycle~~ and below-ground transformers are inspected on an eight-year cycle~~. The purpose for inspecting distribution transformers is to identify and repair unsafe conditions or conditions that may adversely affect service reliability, and to comply with the requirements of state regulatory agencies and the NESC.

Overhead distribution transformers – visual inspection and recording of abnormal conditions including but not limited to the following:

- Equipment condition – oil leakage, arresters, rust, dents or evidence of contact

Above-ground pad-mounted equipment (transformers and switchgear) – inspection and recording of abnormal conditions including but not limited to the following:

- Equipment condition – oil leakage, cabinet damage, holes, washout
- Security – locking mechanisms
- Accessibility – as required for operation and maintenance purposes, including the installation of fences or shrubbery that could adversely affect access to and operation of the transformer and unauthorized excavation or changes in grade near the transformer

- Warning labels – electrical hazard warning label and landscaping instructions notice

Below-ground transformers – visual inspection and recording of abnormal conditions including but not limited to the following:

- Accessibility – verify cover is secured
- Equipment condition – visually inspect baffle

Further detailed information regarding ~~Met-Ed's~~the Company's inspection of distribution transformers may be found in the Distribution Inspection & Maintenance Practice – Underground Equipment.

***Section 57.198(c). Time frames.*** *The plan must comply with the inspection and maintenance standards in subsection (n). A justification for the inspection and maintenance time frames selected shall be provided, even if the time frame falls within the intervals prescribed in subsection (n). However, an EDC may propose a plan that, for a given standard, uses intervals outside the Commission standard, provided that the deviation can be justified by the EDC's unique circumstances or a cost/benefit analysis to support an alternative approach that will support the level of reliability required by law.*

Program Justification

~~As a part of the I&M Plan for the period January 1, 2023, through December 31, 2024, the Commission previously granted a waiver for distribution transformer inspection periodicity. Met-Ed requests a continuation of the waiver for the currently proposed period.~~

~~Met-Ed's five- and eight-year inspection cycles for distribution transformers are based on accepted electric utility practices and the experience of Met-Ed. The NESC Rule 12.121.A states *"Electric equipment shall be inspected and maintained at such intervals as experience has shown to be necessary."*~~

~~Met-Ed's experience has proven the inspection cycles above to be successful in addressing problems in a timely manner, allowing for proper planning and remediation prior to the problem negatively impacting personal safety, equipment integrity, or service reliability.~~

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In addition to ~~Met-Ed's~~the Company's Distribution Transformer Inspections Program, there are other distribution equipment inspection programs (*e.g.*, Distribution Vegetation Management, Distribution Pole Inspections, and Recloser Inspections) that allow trained utility personnel multiple opportunities to observe conditions on the distribution system. These conditions may include distribution transformer situations that warrant further investigation.

Inspection Plan

The total number of distribution transformers to be inspected in 2025 and 2026 is based on the current system configuration (as of 2023) and thus is subject to change by the time the 2025 and 2026 plans commence.

| - | ~~Area~~ | ~~Type~~ | **Transformer Inspections Planned** ~~*Total*~~ **Number of Transformers** | | |
|---|---|---|---|---|---|
| **FE PA** | | | **Transformer Type** | **2025** | **2026** |
| ~~**Met-Ed** *171,757 total transformers*~~724,565 | ~~Boyertown *14,900 total transformers*~~ | | Overhead ~~Transformers *10,379 total transformers*~~ | ~~3,197~~319,287 | ~~2,638~~309,800 |
| | | | Above-Ground Pad-~~mounted *4,440 total transformers*~~Mounted | ~~814~~28,728 | ~~884~~27,134 |
| | | | Below-Ground ~~Transformers 81 *total transformers*~~ | ~~13~~493 | ~~14~~551 |

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|---|---|---|---|---|
| | ~~Dillsburg 11,472 *total transformers*~~ | ~~Overhead Transformers *8,423 total transformers*~~ | ~~255~~ | ~~2,156~~ |
| | | ~~Above-Ground Pad-mounted *3,021 total transformers*~~ | ~~15~~ | ~~783~~ |
| | | ~~Below-Ground Transformers 28 *total transformers*~~ | ~~0~~ | ~~5~~ |
| | ~~Easton 16,560 *total transformers*~~ | ~~Overhead Transformers *12,080 total transformers*~~ | ~~2,162~~ | ~~3,185~~ |
| | | ~~Above-Ground Pad-mounted *4,292 total transformers*~~ | ~~1,391~~ | ~~521~~ |
| | | ~~Below-Ground Transformers 188 *total transformers*~~ | ~~61~~ | ~~12~~ |
| | ~~Gettysburg 7,046 *total transformers*~~ | ~~Overhead Transformers *5,585 total transformers*~~ | ~~992~~ | ~~1,473~~ |
| | | ~~Above-Ground Pad-mounted *1,434 total transformers*~~ | ~~278~~ | ~~585~~ |

| | | | | |
|---|---|---|---|---|
| | | ~~Below-Ground Transformers 27 *total transformers*~~ | ~~3~~ | ~~16~~ |
| | ~~Hamburg 10,635 *total transformers*~~ | ~~Overhead Transformers 8,107 *total transformers*~~ | ~~1,887~~ | ~~765~~ |
| | | ~~Above-Ground Pad-mounted 2,461 *total transformers*~~ | ~~642~~ | ~~145~~ |
| | | ~~Below-Ground Transformers 67 *total transformers*~~ | ~~6~~ | ~~12~~ |
| | ~~Hanover 14,842 *total transformers*~~ | ~~Overhead Transformers 9,927 *total transformers*~~ | ~~1,776~~ | ~~897~~ |
| | | ~~Above-Ground Pad-mounted 4,855 *total transformers*~~ | ~~1,370~~ | ~~393~~ |
| | | ~~Below-Ground Transformers 60 *total transformers*~~ | ~~12~~ | ~~1~~ |
| | ~~Lebanon 21,207 *total transformers*~~ | ~~Overhead Transformers 14,776 *total transformers*~~ | ~~2,823~~ | ~~1,972~~ |

| | | | | |
|---|---|---|---|---|
| | | ~~Above-Ground Pad-mounted 6,100 *total transformers*~~ | ~~661~~ | ~~1,145~~ |
| | | ~~Below-Ground Transformers 331 *total transformers*~~ | ~~51~~ | ~~64~~ |
| | ~~Reading 21,152 *total transformers*~~ | ~~Overhead Transformers 14,867 *total transformers*~~ | ~~3,916~~ | ~~3,726~~ |
| | | ~~Above-Ground Pad-mounted 6,013 *total transformers*~~ | ~~1,811~~ | ~~1,273~~ |
| | | ~~Below-Ground Transformers 272 *total transformers*~~ | ~~39~~ | ~~65~~ |
| | ~~Stroudsburg 13,546 *total transformers*~~ | ~~Overhead Transformers 11,396 *total transformers*~~ | ~~908~~ | ~~2,050~~ |
| | | ~~Above-Ground Pad-mounted 2,090 *total transformers*~~ | ~~152~~ | ~~629~~ |
| | | ~~Below-Ground Transformers 60 *total transformers*~~ | ~~8~~ | ~~46~~ |

| | | | | |
|---|---|---|---|---|
| | ~~York 40,397 *total transformers*~~ | ~~Overhead Transformers 26,673 *total transformers*~~ | ~~3,926~~ | ~~5,551~~ |
| | | ~~Above-Ground Pad-mounted 13,461 *total transformers*~~ | ~~2,995~~ | ~~1,881~~ |
| | | ~~Below-Ground Transformers 263 *total transformers*~~ | ~~33~~ | ~~7~~ |

## Recloser Inspections

***Section 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

~~Met-Ed~~The Company visually inspects distribution line reclosers annually. The purpose for inspecting distribution line reclosers is to identify and repair unsafe conditions or conditions that may adversely affect service reliability or system performance, and to comply with the requirements of state regulatory agencies and the NESC.

The annual preventative maintenance consists of counter readings and field inspection. The counter readings are obtained to assess system performance based on the number of operations. The field inspection includes but is not limited to the following:

- Type of recloser and current rating
- Counter reading
- Condition – rust, dents, physical damage, leaks, lightning damage
- Equipment – surge arresters, tank-ground connections, by-pass switches, control battery, pole
- Grounds – damage, condition

Further detailed information regarding ~~Met-Ed's~~the Company's inspection of reclosers may be found in the Distribution Inspection & Maintenance Practice – Line Reclosers.

***Section 57.198(c). Time frames.*** *The plan must comply with the inspection and maintenance standards in subsection (n). A justification for the inspection and maintenance time frames selected shall be provided, even if the time frame falls within the intervals prescribed in subsection (n). However, an EDC may propose a plan that, for a given standard, uses intervals outside the Commission standard, provided that the deviation can be justified by the EDC's unique circumstances or a cost/benefit analysis to support an alternative approach that will support the level of reliability required by law.*

Program Justification

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~~Met-Ed's~~The Company's annual inspection cycle for reclosers is based on accepted electric utility practices and the experience of ~~Met-Ed~~the Company. The NESC Rule 12.121.A states *"Electric equipment shall be inspected and maintained at such intervals as experience has shown to be necessary."* One year between inspection cycles has proven to be successful in addressing problems in a timely manner, allowing for proper planning and remediation prior to the problem negatively impacting personal safety, equipment integrity, or service reliability.

In addition to ~~Met-Ed's~~the Company's Recloser Inspections Program, there are other distribution equipment inspection programs (e.g., Distribution Vegetation Management, Distribution Pole Inspections, Distribution Overhead Line Inspections, and Distribution Transformer Inspections) that allow trained utility personnel multiple opportunities to observe conditions on the distribution system. These conditions may include recloser equipment situations that warrant further investigation.

Inspection Plan

The total number of recloser units to be inspected in 2025 and 2026 is based on the current system configuration (as of 2023) and thus is subject to change by the time the 2025 and 2026 plans commence.

| - | ~~Area~~ | ~~Type~~ | **Recloser Inspections Planned** ~~*Total*~~ **Number of Reclosers** | | |
|---|---|---|---|---|---|
| **FE PA** | | | **Recloser Type** | **2025** | **2026** |
| ~~**Met-Ed**~~ ~~*1,414 total reclosers*~~9,012 | ~~Boyertown~~ ~~84 *total reclosers*~~ | | Single Phase ~~*20 total reclosers*~~ | ~~20~~6,876 | ~~20~~6,876 |
| | | | Three Phase ~~64 *total reclosers*~~ | ~~64~~2,076 | ~~64~~2,076 |
| | ~~Dillsburg~~ ~~88 *total reclosers*~~ | | ~~Single Phase 28 *total reclosers*~~ | ~~28~~ | ~~28~~ |

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|---|---|---|---|---|
| | | ~~Three Phase 60 total reclosers~~ | ~~60~~ | ~~60~~ |
| | ~~Easton 135 total reclosers~~ | ~~Single Phase 19 total reclosers~~ | ~~19~~ | ~~19~~ |
| | | ~~Three Phase 116 total reclosers~~ | ~~116~~ | ~~116~~ |
| | ~~Gettysburg 64 total reclosers~~ | ~~Single Phase 12 total reclosers~~ | ~~12~~ | ~~12~~ |
| | | ~~Three Phase 52 total reclosers~~ | ~~52~~ | ~~52~~ |
| | ~~Hamburg 92 total reclosers~~ | ~~Single Phase 31 total reclosers~~ | ~~31~~ | ~~31~~ |
| | | ~~Three Phase 61 total reclosers~~ | ~~61~~ | ~~61~~ |
| | ~~Hanover 95 total reclosers~~ | ~~Single Phase 30 total reclosers~~ | ~~30~~ | ~~30~~ |
| | | ~~Three Phase 65 total reclosers~~ | ~~65~~ | ~~65~~ |
| | ~~Lebanon 237 total reclosers~~ | ~~Single Phase 78 total reclosers~~ | ~~78~~ | ~~78~~ |
| | | ~~Three Phase 159 total reclosers~~ | ~~159~~ | ~~159~~ |
| | ~~Reading 188 total reclosers~~ | ~~Single Phase 60 total reclosers~~ | ~~60~~ | ~~60~~ |

| | | | | |
|---|---|---|---|---|
| | | ~~Three Phase 128 *total reclosers*~~ | ~~128~~ | ~~128~~ |
| | ~~Stroudsburg 101 *total reclosers*~~ | ~~Single Phase 8 *total reclosers*~~ | ~~8~~ | ~~8~~ |
| | | ~~Three Phase 93 *total reclosers*~~ | ~~93~~ | ~~93~~ |
| | ~~York 330 *total reclosers*~~ | ~~Single Phase 59 *total reclosers*~~ | ~~59~~ | ~~59~~ |
| | | ~~Three Phase 271 *total reclosers*~~ | ~~271~~ | ~~271~~ |

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## Substation Inspections

***Section 57.198(n)(8). Substation inspections.*** *Substation equipment, structures and hardware shall be inspected on a cycle of 5 weeks or less.*

Program Description

~~Met-Ed~~The Company inspects its distribution substations twelve times annually. The purpose of these monthly inspections of the distribution substations is to ensure that any developing substation problems are identified and addressed in a timely manner in support of system reliability and electrical safety.

There are three types of preventative maintenance inspections that are performed at ~~Met-Ed~~Company substations during a twelve-month period. The chart below illustrates the type of inspection performed each month[3]:

| Inspection Type | Month | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Safety and Security of Facilities/Visual Equipment Inspection/Reporting and Recording of Deficiencies and Relay Operations (Class C) | X | X | X | X | X | X | X | X | X | X | X | X |
| Safety/Security, Visual Equipment Inspection and Record Readings (Class B) | | | X | | | X | | | X | | | X |
| Seasonal Maintenance (Class A) | | | X | | | | | | X | | | |

The following is a summary of each type of inspection that is conducted at ~~Met-Ed~~the Company substations:

1. *Safety and Security of Facilities and Visual Equipment Inspection of Electrical Equipment and Reporting/Recording Identified Deficiencies and Relay Operations (Class C).* Monthly visual inspection of substation equipment, structures and

[3] For illustrative purposes only.

hardware that also includes the recording of abnormal conditions or deficiencies. This inspection may include, but is not limited to, the following:

- General condition – read and record ambient temperature
- Perimeter fence inspection (gate locks, fence and gate grounds, warning signs
- Yard and facility inspection (equipment grounds, vegetation condition, general yard condition, equipment condition, oil levels and leaks, structure/hardware condition, hotspots, conductors/switches/connections)
- Building inspection (security, integrity, indication lights)
- Visual inspection of major equipment (power transformers, circuit breakers, instrument transformers, etc.)
- Relays, electronic controls, and panel meters for alarms and targets
- Batteries and chargers

2. *Safety and Security, Visual Equipment Inspection and Record Readings (Class B).* In addition to the safety and security and visual equipment inspection that is performed monthly, every three months an additional visual inspection that includes the recording of readings is performed. This inspection may include, but is not limited to, all items listed under the Class C inspection as well as the following types of substation equipment:
   - Recording of amps and load readings
   - Recording of counter and gauge readings
   - Inspection/test of carrier communication equipment
   - Inspection of microwave/radio sites and engine generators – generator alarms and battery

3. *Seasonal Maintenance - Summer and Winter Readiness (Class A).* In addition to the monthly and three-month inspections, every six months a more comprehensive inspection of the substation and substation equipment is performed. This inspection may include, but is not limited to, all items listed under the Class C and B inspections as well as the following types of substation equipment:
   - Servicing fire protection equipment
   - Servicing eye wash stations
   - Yard lighting
   - Servicing filters and HVAC systems
   - Servicing of equipment cabinet heaters
   - Servicing engine generators

Further detailed information regarding ~~Met-Ed's~~the Company's inspection of substations may be found in Section 20P – Substation Patrol Inspection of the Substation Maintenance Practice and Methods.

***Section 57.198(c). Time frames.*** *The plan must comply with the inspection and maintenance standards in subsection (n). A justification for the inspection and maintenance time frames selected shall be provided, even if the time frame falls within the intervals prescribed in subsection (n). However, an EDC may propose a plan that, for a given standard, uses intervals outside the Commission standard, provided that the deviation can be justified by the EDC's unique circumstances or a cost/benefit analysis to support an alternative approach that will support the level of reliability required by law.*

Program Justification

Patrol inspections of distribution substations are performed on a monthly, quarterly, and semi-annual basis, with a tiered approach to preventative maintenance. This tiered approach has proven effective in addressing emerging problems and allows for proper planning and remediation prior to the problem negatively impacting personal safety, equipment integrity or service reliability.

Monthly inspections ensure a trained, physical presence within the substation. Frequent, in-person inspections have been effective in detecting the degradation of facilities not always captured by existing local and remote surveillance and monitoring tools. In addition to visual inspections, load and counter readings are recorded every three months to allow local engineering to conduct planning and load studies. Finally, an intensive inspection is conducted two times a year, in spring and fall.

Advancements in technology have refined how substation equipment inspections are performed, and those advancements have been leveraged to ensure the highest levels of safety and reliability of the substation and substation equipment. For example, results from equipment and patrol inspections are captured by field personnel on site and entered directly into the maintenance database where they can be tracked. Through the use of historical inspection data and enhanced software, ~~Met-Ed~~the Company is able to target specific equipment and trigger maintenance based on equipment condition. For example, counter readings that are obtained during the three-month inspection cycle are used to trigger condition-based maintenance. Both predictive and condition-based programs extend the operating life of the equipment. They also optimize the necessary maintenance interval, improve service reliability, and reduce downtime that is typically experienced

when equipment is taken offline which reduces exposure of the grid, all with consistency and efficiency.

Inspection Plan

The total number of substations to be inspected in 2025 and 2026 is based on the current system configuration (as of 2023) and thus is subject to change by the time the 2025 and 2026 plans commence.

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| ~~Area~~ | | Substation Inspections Planned<br>Number of ~~*Substations*~~Circuits | | |
|---|---|---|---|---|
| FE PA | | 2025 | 2026 | |
| ~~Met-Ed~~<br>~~*209 total substations*~~<br>1,140 | | ~~Easton~~<br>~~*43 substations*~~13,680 | ~~516~~13,680 | ~~516~~ |
| | ~~Lebanon~~<br>~~*31 substations*~~ | ~~372~~ | ~~372~~ | |
| | ~~Reading~~<br>~~59 *substations*~~ | ~~708~~ | ~~708~~ | |
| | ~~York~~<br>~~*76 substations*~~ | ~~912~~ | ~~912~~ | |

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