

**PECO Energy Company**

***MANAGEMENT EFFICIENCY INVESTIGATION  
FOLLOW-UP REVIEW OF THE  
2022 MANAGEMENT AND OPERATIONS AUDIT REPORT***

**Pennsylvania Public Utility Commission  
Bureau of Audits  
Issued February 2026**

**Docket No.: D-2025-3053971**

**PECO ENERGY COMPANY  
MANAGEMENT EFFICIENCY INVESTIGATION**

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## I. INTRODUCTION

### A. Background

PECO Energy Company (PECO or Company) is an electric and natural gas utility headquartered in Philadelphia, Pennsylvania. PECO is a subsidiary of Exelon Corporation (Exelon or parent company). In 2022, the Pennsylvania Public Utility Commission's (PUC) Bureau of Audits (Audits) conducted a management and operations audit (2022 Management Audit) of PECO. In July 2022, Audits issued its final report with 22 recommendations for improvement. PECO submitted their August 2022 Implementation Plan indicating that 19 recommendations were accepted, and three recommendations were accepted in part. On August 25, 2022<sup>1</sup>, the PUC released Audits' 2022 Management and Operations Audit Report (2022 Audit Report) and PECO's August 2022 Implementation Plan to the public. The PUC further directed that the Company should proceed with the August 2022 Implementation Plan and submit progress reports on the implementation, by September 1<sup>st</sup> annually, for each of the next three years.

PECO submitted annual implementation progress reports, as requested by the PUC, reporting on the status of implementing the recommendations from the 2022 Audit Report. Based upon the review of these progress reports, Audits' Eastern Region Management Auditors (PUC Auditors or Audit Staff) conducted a management efficiency investigation (MEI), pursuant to 66 Pa. C.S. § 516(b), to verify PECO's progress in implementing the original 22 recommendations.

### B. Objective and Scope

The objective of this MEI was to review and evaluate the effectiveness of PECO's efforts to implement specific recommendations contained within the 2022 Audit Report. The scope of the evaluation is limited to PECO's efforts in implementing the recommendations in the following functional areas:

- Affiliated Interests and Cost Allocations
- Electric Operations
- Gas Operations
- Emergency Preparedness
- Customer Service
- Human Resources

In addition, the PUC Auditors deemed it prudent to review PECO's compliance with the PUC's regulations at 52 Pa. Code § 101 regarding physical security, cybersecurity, emergency response, and business continuity plans.

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<sup>1</sup> D-2021-3023906

### **C. Approach**

The PUC Auditors began fieldwork on May 22, 2025, and concluded on September 22, 2025. The fact gathering process included:

- Interviews with Company personnel
- Analysis of records, documents, and reports of a financial and operational nature primarily focused on the period 2021 – 2024 and the year 2025, as available
- Site inspections of select company facilities and various process observations

This management efficiency investigation was not designed to verify or validate all the information provided by the utility. Some of the data provided by the utility and presented within this report was not comprehensively tested to ensure it is reasonably free from error. During the course of the Audit Staff's work, some data, company systems, processes, etc. were further tested based on auditor judgment. Audit findings and recommendations are based upon data Company management could provide or were using. The conclusions reached within this report aim to fairly present the utility's performance on implementing the recommendations reviewed but no assurance is offered by the Audit Staff or PUC.

## II. SUMMARY OF MANAGEMENT EFFECTIVENESS AND OPERATING EFFICIENCY

The PUC Auditors found that PECO effectively or substantially implemented nine of the selected 19 recommendations of the 2022 Audit Report and has acted on the remaining ten recommendations. Among the more notable improvements are:

- PECO established a surcharge credit to return amounts collected for use of its fiber assets to distribution ratepayers through year end 2025
- PECO's money pool agreement was filed and subsequently approved by the PUC
- PECO's reliability has improved and its SAIDI and CAIDI values are better than the PUC benchmark
- PECO's equipment failure outages have decreased
- PECO implemented several benefits to retain CSRs, which effectively lowered turnover

Although these accomplishments are commendable, the PUC Auditors identified further opportunities for improvement. Specifically, PECO and/or Exelon (PECO's parent company) should:

- Complete distribution of the fiber affiliate revenue surcharge to PECO's ratepayers
- Expand PECO's Cost Allocation Manual (CAM), or develop a corporate-wide CAM, to include all policies and procedures used to ensure consistent application of all cost allocations between PECO and its affiliates
- Review and document PECO's process to track and report changes to cost allocation calculations to ensure verification of the allocation rates applied to regulated entities
- Investigate innovative methods for reducing excessive overtime hours for individual employees such as proposing maximum allowable overtime levels for employees
- Continue improving CEMI and strive for zero customers experiencing ten or more outages
- Strive to reduce outages caused by broken/uprooted vegetation
- Continue efforts to reduce hits on gas infrastructure
- Refine and strengthen PECO's damage prevention plan specific to plastic mains, including prioritizing installation of marker balls or marker pins along any currently unmarked plastic mains
- Continue reducing overtime by evaluating optimal staffing levels, fatigue rates, etc.
- Eliminate known mapping inaccuracies, begin proactively GPS locating existing underground gas infrastructure, and establish goals for these programs
- Update PECO's Safety Rule Book to include a revision history that includes the date it was revised, who made changes, the nature of changes, and who approved them; and add chapter links within the pdf file to improve usability
- Correct minor deficiencies in physical security

- Install physical measures and visual deterrents at appropriate locations to remind employees to maintain the recommended clearances from fences
- Reduce over 90-day account arrearages levels and continue developing innovative methods to expand resources to assist payment troubled customers
- Improve overall customer satisfaction by resolving issues with the CIS
- Remediate technical issues causing errors such as billing issues and downtime of the new CIS
- Continue to improve safety performance
- Continue efforts to reduce the total number of motor vehicle accidents

Exhibit II-1 summarizes the selected 19 prior recommendations reviewed by the PUC Auditors with corresponding conclusions and 15 follow-up recommendations. Furthermore, the PUC Auditors identified an additional three new findings and offered corresponding recommendations for improvement. These 18 recommendations are aimed at further improvement to processes or operations at Exelon and/or PECO.

Where possible, we have quantified the savings associated with Exelon's and/or PECO's implementation of the prior Management Audit recommendations and the potential savings from implementing the new recommendations. For many recommendations, the anticipated benefits are of a qualitative nature and/or there was insufficient data available to quantify the effects. Changes in workflow or implementation of good business practices could result in improved efficiency and effectiveness of a function that cannot be easily quantified.

**PECO Energy Company**  
**Summary of 2022 Management and Operations Audit Recommendations and**  
**Current Findings, Conclusions, and Recommendations**

Prior Management Audit Recommendations	Current Findings and Conclusions	New Recommendations
<b>III. AFFILIATED INTERESTS AND COST ALLOCATIONS</b>		
Submit a detailed proposal to the Commission for the appropriate crediting of ratepayers due to PECO's corrected billings for the use of PECO's fiber network.	Finding III-1 – PECO established a surcharge credit to return amounts collected for use of its fiber assets to distribution ratepayers through year end 2025.	Complete distribution of the fiber affiliate revenue surcharge to PECO's ratepayers.
File PECO's money pool agreement for approval with the PUC.	Finding III-2 – PECO's money pool agreement was filed and subsequently approved by the PUC.	None
Document PECO's annual process and continue to perform detailed reviews of all allocation factors, including utility-owned project allocation rates, to ensure costs are distributed in accordance with approved agreements.	Finding III-3 – The annual processes used to update allocation factors have not been formally documented.	Expand PECO's Cost Allocation Manual (CAM), or develop a corporate-wide CAM, to include all policies and procedures used to ensure consistent application of all cost allocations between PECO and its affiliates.
None	Finding III-4 – Cost allocation rate reporting is manual and not routinely documented outside of the accounting information system for periodic verification.	Review and document PECO's process to track and report changes to cost allocation calculations to ensure verification of the allocation rates applied to regulated entities.
<b>IV. ELECTRIC OPERATIONS</b>		
Reduce Electric Operations staff overtime to 15% overtime hours per normal hours worked or less.	Finding IV-1 – PECO Electric Operations did not materially reduce overtime hours.	Investigate innovative methods for reducing excessive overtime hours for individual employees such as proposing maximum allowable overtime levels for employees.
Improve SAIDI and CAIDI to at or below the PUC Benchmarks.	Finding IV-2 – PECO's reliability has improved and its SAIDI and CAIDI values are better than the PUC benchmark.	None
Reduce the number of customers experiencing multiple interruptions and strive to have zero CEMI 10+.	Finding IV-3 – PECO has reduced the number of customers experiencing multiple interruptions but still has customers experiencing ten or more outages in a year.	Continue improving CEMI and strive for zero customers experiencing ten or more outages.

**PECO Energy Company**  
**Summary of 2022 Management and Operations Audit Recommendations and**  
**Current Findings, Conclusions, and Recommendations**

Prior Management Audit Recommendations	Current Findings and Conclusions	New Recommendations
<b>IV. ELECTRIC OPERATIONS (CONTINUED)</b>		
Reduce outages caused by broken/uprooted vegetation to the 2015-2018 average levels.	Finding IV-4 – PECO’s vegetation outages have continued to increase since 2021.	Strive to reduce outages caused by broken/uprooted vegetation.
Reduce interruptions caused by equipment failures.	Finding IV-5 – PECO’s equipment failure outages have decreased.	None
<b>V. GAS OPERATIONS</b>		
Reduce company-at-fault hits on gas infrastructure.	Finding V-1 – PECO has reduced company-at-fault and third-party-at-fault hits, though the total number of hits to PECO’s distribution system per year is still averaging more than one per day, regardless of fault.	Continue efforts to reduce hits on gas infrastructure.
Study and then identify ways to reduce plastic pipe main and service damages with a focus on line hits.	Finding V-2 – PECO has reduced the overall hits on its mains, but the percentage of plastic main breaks caused by excavation damage has increased from 50.27% in 2021 to 67.69% in 2024.	Refine and strengthen PECO’s damage prevention plan specific to plastic mains, including prioritizing installation of marker balls or marker pins along any currently unmarked plastic mains.
Reduce Gas Operations staff overtime to 15% overtime hours per normal hours worked or less.	Finding V-3 – PECO Gas Operations reduced overtime hours on a per employee basis but overtime hours per normal hours worked is still above 15%.	Continue reducing overtime by evaluating optimal staffing levels, fatigue rates, etc.
Accelerate the rate of GPS location for key gas infrastructure.	Finding V-4 – PECO’s rate of GPS locating its mains has slowed since 2021 and is not working towards a goal for this initiative.	Eliminate known mapping inaccuracies, begin proactively GPS locating existing underground gas infrastructure, and establish goals for these programs.

**PECO Energy Company**  
**Summary of 2022 Management and Operations Audit Recommendations and**  
**Current Findings, Conclusions, and Recommendations**

Prior Management Audit Recommendations	Current Findings and Conclusions	New Recommendations
<b>VI. EMERGENCY PREPAREDNESS</b>		
Add an update and accountability section to the Safety Rulebook, move the table of contents closer to the beginning, and add chapter tabs or margin labels to encourage ease of navigation.	Finding VI-1 – No improvements were made to the functionality of the pdf version of PECO’s Safety Rule Book.	Update PECO’s Safety Rule Book to include a revision history that includes the date it was revised, who made changes, the nature of changes, and who approved them; and add chapter links within the pdf file to improve usability.
None	Finding VI-2 – Minor deficiencies in physical security were noticed during tours of PECO’s facilities.	Correct minor deficiencies in physical security.
None	Finding VI-3 – PECO is subject to Exelon’s Physical Security Protection Standards which recommend 5’ clearances at fence lines at Office & Support Facilities (O&SF) assets and 10’ clearance for fence lines at gas and electric assets, but most stockpiles/storage yards at O&SF assets are not adhering to these recommendations.	Install physical measures and visual deterrents at appropriate locations to remind employees to maintain the recommended clearances from fences.
<b>VII. CUSTOMER SERVICE</b>		
Continue outreach efforts to engage payment troubled customers, leverage pandemic and low-income resources to help reduce the overall level of outstanding customer balances.	Finding VII-1 – PECO’s long term residential accounts receivable balances decreased between 2021-2024; however, in 2025, outstanding customer balances increased significantly.	Reduce over 90-day account arrearages levels and continue developing innovative methods to expand resources to assist payment troubled customers and customers who received delayed bills.
Refocus efforts on customer experiences to drive customer service satisfaction through active listening and first call resolution.	Finding VII-2 – CSRs are more focused on the customer experience but the new CIS is causing a degradation in customer service performance metrics.	Improve overall customer satisfaction by resolving issues with the CIS.
Complete implementation of the replacement CIS.	Finding VII-3 – PECO’s implementation of a new CIS led to challenges in addressing customers’ needs.	Remediate technical issues causing errors such as billing issues and downtime of the new CIS.
Identify and address the root cause of CSR separations.	Finding VII-4 – PECO implemented several benefits to retain CSRs, which effectively lowered turnover.	None

**PECO Energy Company**  
**Summary of 2022 Management and Operations Audit Recommendations and**  
**Current Findings, Conclusions, and Recommendations**

Prior Management Audit Recommendations	Current Findings and Conclusions	New Recommendations
<b>VIII. HUMAN RESOURCES</b>		
Improve Safety Performance	Finding VIII-1 – PECO's safety performance has remained stable; however, PECO continues to fall short of both industry benchmarks and their internal targets.	Continue to improve safety performance.
Reduce the rate of all motor vehicle accidents.	Finding VIII-2 – PECO's responsible vehicle accident rate declined while the total motor vehicle accident rate remained steady.	Continue efforts to reduce the total number of motor vehicle accidents.

### III – AFFILIATED INTERESTS AND COST ALLOCATIONS

For the affiliated interests and cost allocations area, three prior situations and prior recommendations were reviewed, and two follow-up findings and recommendations are presented. In addition, one new finding and recommendation is presented. The first finding relates to the distribution of a credit to ratepayers from unbilled use of PECO's fiber assets. The second finding relates to PECO's money pool agreement. The third finding relates to documentation of the processes used to review and update allocation factors for distributing intercompany costs. The additional finding relates to developing a system to track and report changes to cost allocation calculations.

#### **Finding III– 1**

##### **Prior Situation**

During the 2021 Management and Operations Audit issued in July 2022, PECO self-identified unbilled use of its fiber network assets to two affiliates, namely, Exelon Generation Company LLC (ExGen) and Exelon Business Services Company (Exelon BSC or Service Company). PECO noted that its fiber network was developed and constructed prior to electric generation deregulation and served all assets owned to the Company prior to deregulation. The main purpose of the fiber network and associated assets were to monitor and serve as backbone communication for the various equipment used in electric operations. With deregulation, PECO retained use of the fiber network and appropriately charged ExGen \$2.3 million for maintenance cost of its fiber network but had not charged ExGen and Exelon BSC for the use (e.g., leasing) of its fiber network.

A third-party's analysis identified that PECO had not charged ExGen approximately \$12.1 million (including approximately \$6.1 million of interest) of intercompany revenue for use of the fiber network between 2001-2021 and had not charged Exelon BSC approximately \$1.5 million (including approximately \$0.7 million of interest) for use of fiber network since 2003. ExGen and Exelon BSC settled the unbilled charges<sup>2</sup> with PECO in 2021, however, PECO had not established a mechanism to refund the overcharges to ratepayers for the distribution charges.

**Prior Recommendation** – Submit a detailed proposal to the Commission for the appropriate crediting of ratepayers due to PECO's corrected billings for the use of PECO's fiber network.

**Follow-Up Finding and Conclusion** – PECO established a surcharge credit to return amounts collected for use of its fiber assets to distribution ratepayers through year end 2025.

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<sup>2</sup> PECO's third-party analysis detailed the basis for its assumptions, including interest during the entirety of the period for use of the fiber network.

## **Current Review**

ExGen<sup>3</sup> completed its separation from Exelon in 2022. Prior to the separation, PECO collected money that needed to be returned to transmission and distribution ratepayers for ExGen and Exelon BSC's use of the fiber network. Documentation submitted to the U.S. Federal Energy Regulatory Commission (FERC) detailed the revenue requirement used to ascertain the amount to be refunded to ratepayers. PECO credited transmission overcharges<sup>4</sup> via its FERC Annual Updates. The transmission refund was completed in 2022. However, PECO's distribution credit to its customers remained outstanding at that time.

In March 2024, PECO submitted an electric distribution rate case to the Commission which was subsequently approved by the PUC in December 2024<sup>5</sup>. The rate case included a proposal detailing the process and steps which PECO intended to use in crediting ratepayers for the outstanding distribution refund. The total amount, \$16,080,000<sup>6</sup>, to be refunded was broken down to PECO's customer rate classes via a mechanism titled the Fiber Affiliate Revenue Surcharge (FARS), as follows:

- Residential: \$8,133,065
- Residential Heating: \$2,136,788
- General Services: \$3,195,401
- Primary Distribution: \$ 85,671
- High Tension: \$2,154,031
- Electric Propulsion: \$ 104,740
- Lighting: \$ 270,304

Distribution of these refunds began in January 2025. Tracking of the actual amount paid to each rate class of the FARS credit is periodically evaluated by PECO's Accounting department and the total refund is projected to be distributed to the ratepayers by year end 2025. PECO will file a reconciliation of the FARS credit with the PUC post year-end 2025.

**Follow-Up Recommendation – Complete distribution of the fiber affiliate revenue surcharge to PECO's ratepayers.**

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<sup>3</sup> ExGen, which was Exelon Corporation's former power generation and competitive energy business, is now known as Constellation Energy Corporation.

<sup>4</sup> Transmission overcharges were composed of the \$137,888 plus an additional \$610 adjustment to account for rent true-up.

<sup>5</sup> Docket No. R-2024-3046931 Opinion & Order - Public Meeting held on the 12th of December 2024

<sup>6</sup> Total refund includes interest accrued during the holding period on the funds at 6% APR.

## **Finding III – 2**

### **Prior Situation**

As part of its cash management function, PECO leveraged use of a money pool as one of the Company's primary sources for short-term borrowing, which helped facilitate reduced banking costs and overall need for financing. Audit Staff found proper controls surrounding the money pool like ringfencing measures restricted Exelon's participation as a lender only. Administration of the money pool was provided by Exelon BSC. Other participants in the money pool included: ExGen, Potomac Electric Power Company (Pepco), and Potomac Capital Investment Corp (PCIC).

Exelon BSC's shared cash management services on behalf of PECO were conveyed under PECO's PUC-approved affiliated interest agreement (AIA) at Docket No. G-2010-2211383. However, while PECO already filed and received approval of its money pool agreement with FERC, no similar filings had been received and approved by the PA PUC in accordance with Pa.C.S. § 2102.

**Prior Recommendation** – File PECO's money pool agreement for approval with the PUC.

**Follow-Up Finding and Conclusion** – PECO's money pool agreement was filed and subsequently approved by the PUC.

### **Current Review**

Pursuant to Pa.C.S. §2102, Pennsylvania Public Utilities are required to obtain the Commission's approval for arrangements or contracts with affiliated companies for goods and services, such contracts should accurately identify affiliates. PECO filed its money pool agreement, which was reviewed and subsequently approved by the PUC, under Docket No. G-2022-3036901 on April 24, 2023. The approved money pool agreement identified all current participants which included Exelon (lender only), Exelon BSC (administrator of the money pool), PECO, Pepco, and PCIC as participants in the money pool agreement.

**Follow-Up Recommendation** – None

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## **Finding III – 3**

### **Prior Situation**

Audit Staff discovered certain allocation percentages initially provided by PECO, relating to indirectly distributed charges for intercompany transactions, were inconsistent. Therefore, Audit Staff recommended that PECO review and annually test the allocation methodologies and practices actively in use between PECO and its affiliates. Audit Staff

also advised PECO to establish formal documentation of the annual review and update processes to ensure consistency and adherence to its approved intercompany filings.

**Prior Recommendation** – Document PECO’s annual process and continue to perform detailed reviews of all allocation factors, including utility-owned project allocation rates, to ensure costs are distributed in accordance with approved agreements.

**Follow-Up Finding and Conclusion** – **The annual processes used to update allocation factors have not been formally documented.**

### **Current Review**

The annual processes to update the cost allocation factors affecting PECO are conducted by two different groups. Exelon BSC’s Corporate Accounting department (BSC Corp. Acct.) is responsible for updating allocation rates for enterprise-wide allocation factors. These include corporate costs and shared services in alignment with the approved AIA for its General Service Agreement<sup>7</sup> (GSA) with Exelon BSC and Mutual Services Agreement (MSA) between other related parties (Exelon, ExGen, etc.) and PECO. Whereas PECO’s Accounting department is responsible for updating all allocation rates for PECO-generated shared costs and services under applicable MSA affiliate level arrangements (ALA).

Audit Staff noted that numerous documents supporting active intercompany agreements referenced the Exelon BSC Cost Allocation Manual (CAM) for governance and to serve as a foundation for intercompany transactions. The references indicated that the Exelon BSC CAM had been filed and approved by the PA PUC, however, no copy of the Exelon BSC CAM was included in the approved GSA/MSA (Docket No. G-2010-2211383). Upon request for a copy of any CAMs, Audit Staff were told that Exelon BSC relies on the GSA, MSA and AIAs for its cost allocation processes, which contain descriptions of the services and an overview of the methodology used to distribute shared costs. PECO Accounting provided a PECO CAM dated March 2009. The PECO CAM included a high-level description of the cost allocation process for the application of PECO’s intercompany transactions, however, the document lacked details to support all elements for intercompany charges and key elements as outlined by the National Association of Regulatory Utility Commissioner’s (NARUC) Guidelines for Cost Allocations and Affiliate Transactions (NARUC Guidelines).

At a minimum, all NARUC Guidelines should be followed when implementing and updating a CAM to ensure essential elements are included:

- An organization chart of the holding company, depicting all affiliates, and regulated entities
- A description of all assets, services and products provided to and from the regulated entity and each of its affiliates
- A description of all assets, services and products provided by the regulated entity

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<sup>7</sup> Docket No. G-2010-2211383 approved both the GSA and MSA agreements. PECO files updated Service Level Arrangements (for Exelon BSC shared services) and ALAs for all other related party intercompany transactions.

to non-affiliates

- A description of the cost allocators and methods used by the regulated entity and the cost allocators and methods used by its affiliates related to the regulated services and products provided to the regulated entity

To ensure consistency of the application of allocation factors, the CAM should include the following items in addition to those items listed above:

- Identification of the departments/personnel responsible for collecting supporting data, calculating factors, approving allocation updates, entry of the factors, and when the factors were last updated
- Current regulatory documents such as affiliated interest agreements and codes of conduct
- A description of the process(es) utilized in resolving rounding errors and differences within the allocation calculations

Without a formal centralized document detailing the policies and procedures related to cost allocations between affiliates, future affiliate transactions could be inconsistent or use the wrong allocation methodologies. Therefore, Audit Staff urges PECO to expand its CAM to include all elements of cost allocation processes, including documentation of activities conducted by Exelon BSC. As an alternative, PECO could work with Exelon BSC to establish additional documentation (i.e., a corporate-wide CAM) in support of PECO and all Exelon Corp. subsidiaries in alignment with the NARUC Guidelines. See Finding No. III – 4 for additional information related to BSC’s Corp. Acct. activities.

**Follow-Up Recommendation – Expand PECO’s Cost Allocation Manual (CAM), or develop a corporate-wide CAM, to include all policies and procedures used to ensure consistent application of all cost allocations between PECO and its affiliates.**

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#### **Finding III – 4**

**Additional Finding and Conclusion – Cost allocation rate reporting is manual and not routinely documented outside of the accounting information system for periodic verification.**

#### **Current Review**

As discussed in Finding III-3, PECO’s intercompany transactions process is complex. Processes and management of cost allocation rates for shared costs are twofold: internally, by PECO Accounting, and externally by BSC Corp. Acct. PECO’s outgoing intercompany charges (applied to its subsidiaries) are maintained internally within PECO Accounting; whereas incoming intercompany allocated costs for centralized

services and shared corporate-wide expenses are the responsibility of BSC Corp. Acct. In all cases, allocation rates are updated at least annually.

PECO is a subsidiary of Exelon. Exelon is composed of numerous subsidiaries, including regulated and nonregulated companies. Corporate costs that benefit all Exelon subsidiaries would, by nature of reasonable distribution, affect multiple jurisdictions and regulatory environments. Specifically, Exelon's regulated subsidiaries include: Baltimore Gas and Electric Company (BGE) in MD, Commonwealth Edison Company (ComEd) in IL & IN, PECO in PA, Atlantic City Electric in NJ, Delmarva Power & Light in DE & MD, and Pepco in DC & VA. BSC Corp. Acct. is responsible for the corporate allocation process, which requires the review and update of all factors at least annually for all Exelon entities.

No routine cost allocation rate reporting has been established within PECO Accounting or by BSC Corp. Acct. Both departments rely on the accounting information system to support the process. Testing of the cost allocation rate function must be conducted manually. Due to the significant number of cost allocation rate calculations, frequency of updates, communication between departments (and Exelon subsidiaries), and different regulatory oversight over various activities (e.g., rate cases), the PUC Auditors propose that it would benefit PECO and/or BSC Corp. Acct. to establish a system to track and report on changes to its cost allocation calculations. The reporting would bolster transparency, support regulatory reporting enterprise-wide, and help ensure that the cost allocation process was functioning as intended.

**Recommendation – Review and document PECO's process to track and report changes to cost allocation calculations to ensure verification of allocation rates applied to regulated entities.**

## **IV – ELECTRIC OPERATIONS**

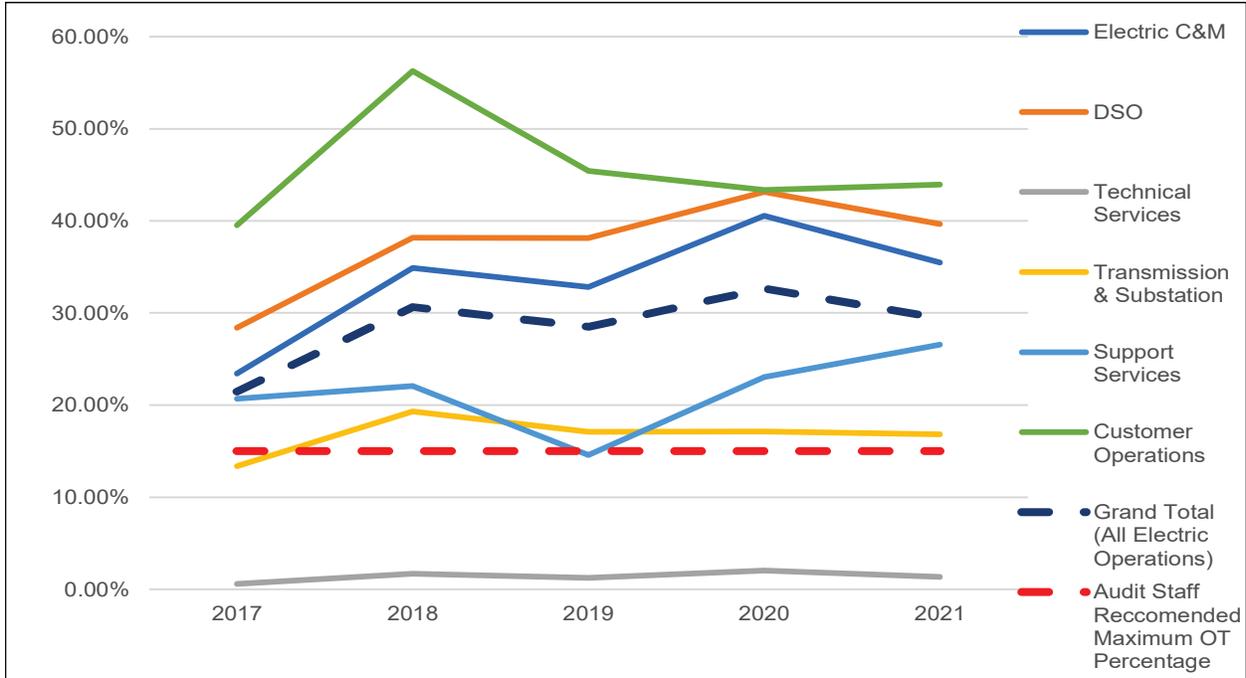
For the electric operations functional area, five prior situations and recommendations were reviewed. Five follow-up findings are presented along with three follow-up recommendations. The first finding relates to electric operations' overtime (OT). The second finding relates to reliability performance. The third finding relates to customers experiencing multiple interruptions. The fourth finding relates to vegetation outages. The fifth finding relates to equipment outages.

### **Finding IV-1**

#### **Prior Situation**

PECO Electric Operations incurred overtime spending that exceeded their overall annual overtime spending budget and their goal to limit spending to 16% of normal labor costs. Using 2021 as a proxy, PECO spent \$86.74 million against a goal of \$50.6 million, which represented approximately 31% of normal labor costs. As indicated in Exhibit IV-1, analysis of overtime data from a non-financial standpoint revealed certain departments incurring overtime hours at rates of 40% and 50% of normal hours. Beginning in 2020, PECO distributed a monthly fatigue report to supervisors, managers and directors to aid in monitoring field employees at risk of fatigue from working long or irregular hours. From 2020 through 2021, data from fatigue reports showed individuals working 20+ days in a row and averaging well over 100 hours per week.

**Exhibit IV-1  
PECO Energy Company  
Electric Operations Total Overtime Hours Worked  
as a Percentage of Normal Hours Worked  
2017 – 2021**



Source: PUC 2022 Management Audit

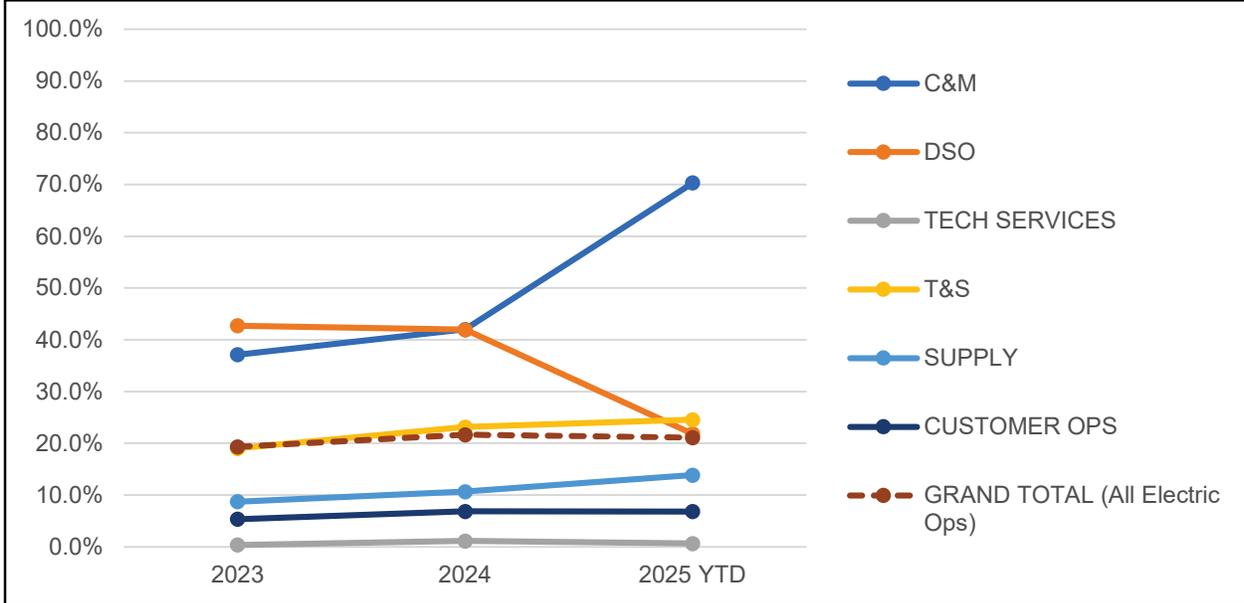
**Prior Recommendation** – Reduce Electric Operations staff overtime 15% overtime hours per normal hours worked or less.

**Follow-Up Finding and Conclusion** – PECO Electric Operations did not materially reduce overtime hours.

**Current Review**

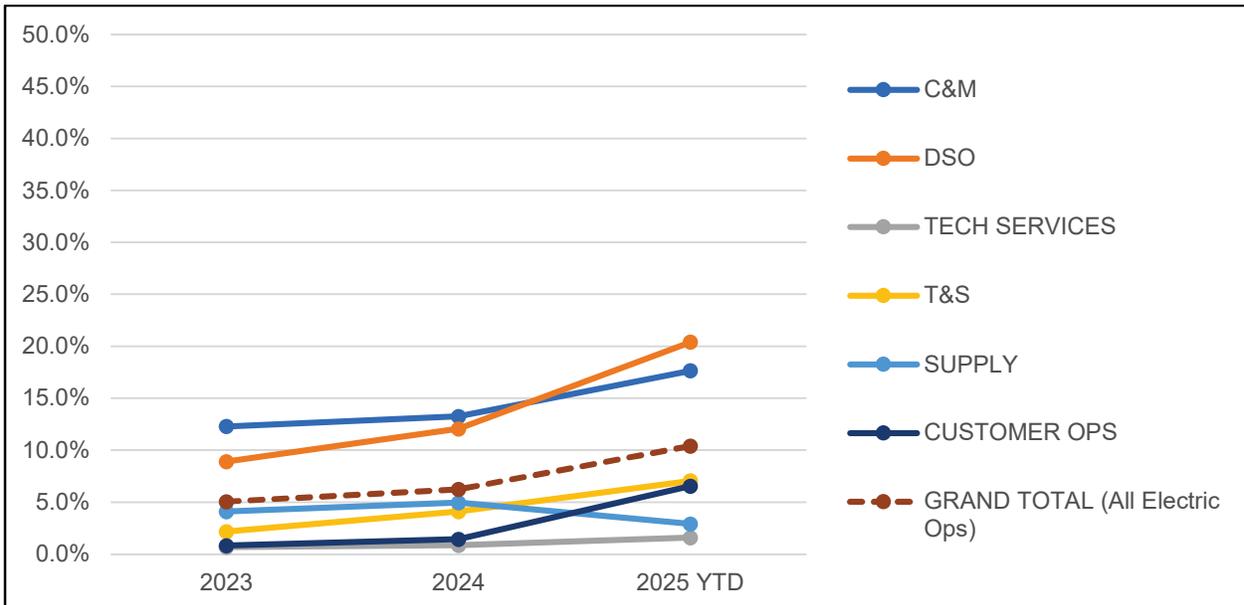
Electric Operations overtime is divided into two main categories: storm and non-storm. Storm overtime is a byproduct of weather events or emergencies outside of the control of the Company. Storm overtime for weather is dependent on the frequency, type, and severity of weather-related events. The Company budgets for storm overtime based upon a five-year average of actual labor time storm costs but recognizes the uncontrollable nature of storm-related damages. Non-storm overtime is, in general, supporting normal business activities. Though it can include discretionary work in support of storm-related activity, non-storm overtime generally can be forecasted and planned. Exhibits IV-2 through IV-4 show the annual non-storm and storm overtime hours by department as a percentage of straight-time hours for 2023, 2024, and 2025 year-to-date through March.

**Exhibit IV-2  
PECO Energy Company  
Electric Operations Departmental Non-Storm  
Overtime Hours to Straight Hours Comparison  
2023 – March 2025 YTD**



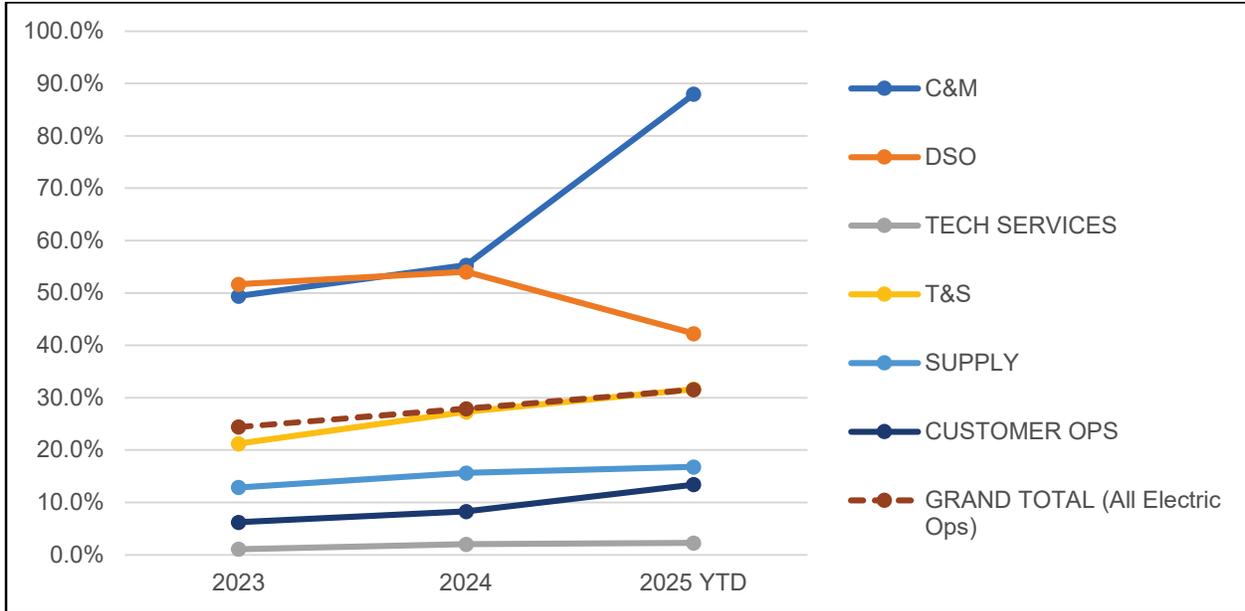
Source: PUC Data Request EO-13

**Exhibit IV-3  
PECO Energy Company  
Electric Operations Departmental Storm  
Overtime Hours to Straight Hours Comparison  
2023 – March 2025 YTD**



Source: PUC Data Request EO-13

**Exhibit IV-4  
PECO Energy Company  
Electric Operations Departmental Non-Storm & Storm  
Overtime Hours to Straight Hours Comparison  
2023 – March 2025 YTD**



Source: PUC Data Request EO-13

Exhibit IV-4 represents combined non-storm and storm overtime hours by department compared to straight-time hours. It highlights the same metric as Exhibit IV-1 found in the prior situation; however, PECO now tracks this information specifically. In 2023, PECO developed an overtime hours Key Performance Indicator (KPI) by department and began including it in their monthly Overtime Cost Management report. This KPI is essentially the same as the annual overtime hours as a percentage of straight-time hours by department that appeared in the Management Audit (see Exhibit IV-1 in the prior situation above). PECO calculates this KPI monthly, aggregates it as a year-to-date figure every month, and finalizes an annual KPI in the December report.

Not all departments at PECO use overtime in the same way. Departments such as Customer Ops and IT, Human Resources, and Finance all log a fraction of the overtime compared to Distribution. Naturally, the nature of the work often dictates the need for overtime. C&M and Distribution combined represent more than 80% of Electric Operations overtime hours against only 40% of straight-time hours. For certain departments such as C&M and Distribution, overtime of 40% non-storm (Exhibit IV-2) and 50% combined non-storm and storm overtime (Exhibit IV-4) are excessive and point to an overreliance on overtime to complete work.

While PECO has not identified any fatigue-related issues among its workforce, a fatigue report was generated periodically to monitor the levels of overtime each employee incurs. Audit Staff's review of the available fatigue reports indicates that certain employees were regularly working in excess 80-90 hours per week on average in a 28-

day period, with some employees logging more than 100 hours per week. The report was set up to flag employees working an excessive number of consecutive days (16 or more) or too many 16-hour days (13 or more) in the short-term, but a review of the data revealed that employees can work on average more than 90 hours per week without hitting either flag during the 28-day period of the report. PECO identified problems with the fatigue reports and stopped producing them in 2025 as it worked to improve that process.

PECO indicated that it follows the union contract to provide labor opportunities equally using the agreed upon callout process and cannot stop employees from taking overtime opportunities. In addition, there is no language to reserve management's right to manage overtime to prevent certain employees from working excessive amounts of overtime.

Although management is unaware of any health or performance issues related to excessive overtime, excessive overtime can still impact its employees. PECO's Safety and Human Performance department is responsible for implementing safety best practices across the organization. Safety best practices can be applied to topics, policies and procedures, issues or concerns, etc. The department engages in a multi-stage process to understand the subject matter, plan and align corrective action, and implement it across the organization. At a minimum, the Safety and Human Performance department should continue to analyze overtime usage and determine optimal levels that balance performance and safety.

Employees working excessive OT can experience both physical and mental fatigue while working on energized wires and equipment creating unsafe conditions for both employees and customers. The Company should improve knowledge and understanding on the impacts of overtime on safety and performance. Union contracts can include provisions to ensure pragmatic distribution of OT or a plan for maximum allowed overtime in a week, day, etc. PECO should explore developing reasonable safeguards for individual employee overtime, call out rates, mandatory rest periods, etc.

PECO also needs to continue investigating ways to reduce non-storm overtime, particularly for departments that depend on overtime to complete work. While overtime is a tool and can be economically beneficial to all involved, it can also contribute to higher costs per unit of work. Audit Staff acknowledge the Company's overall goal is set at 16% overtime. If this goal is applied to the total Electric Operations groups presented in Exhibit IV-2, PECO would need to reduce the use of overtime. Instead of focusing on the Company overall, Audit Staff proposes PECO focus on individual levels of excessive overtime first and then make operational adjustments as needed. In 2024, PECO spent over \$82 million in overtime costs for Electric Operations. Some of that expense includes storm-related activities or efficient use of resources. However, the Company is not meeting its overtime goal or Audit Staff's recommended goal of 15% or lower. Audit Staff acknowledges that initiatives to reduce overtime could have substantial costs such as hiring and training additional employees that might eliminate or reduce savings from a reduction in overtime.

**Follow-Up Recommendation – Investigate innovative methods for reducing excessive overtime hours for individual employees such as proposing maximum allowable overtime levels for employees.**

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**Finding IV-2**

**Prior Situation**

PUC established reliability standards<sup>8</sup> (i.e., minimum required performance) and benchmarks (i.e., ideal operating performance), codified at 52 Pa. Code § 57.192 for each electric distribution company (EDC) operating in Pennsylvania for the following indices:

- System Average Interruption Frequency Index (SAIFI) – Reflects the average number of times a customer experiences an outage during a given time period.
- Customer Average Interruption Duration Index (CAIDI) – Represents the average duration of an outage.
- System Average Interruption Duration Index (SAIDI) – Shows the average duration of sustained customer interruptions per customer occurring during the analysis period (i.e., the average time customers were without power).

Exhibit IV-5 highlights PECO's overall and regional reliability performance during the 2022 Management Audit. Throughout the 2017-2021 audit period, PECO had worsening reliability indices, especially from 2019-2021.

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<sup>8</sup> Current reliability requirements were codified into the PUC's regulations for each EDC operating in Pennsylvania, on May 7, 2004, through the Amended Reliability Benchmarks and Standards for the EDCs at Docket No. M-00991220.

**Exhibit IV-5  
PECO Energy Company  
Electric Operations Reliability Indicators  
2017 – 2021**

Region/Year		2017	2018	2019	2020	2021	Benchmark	12-Month Std.	36-Month Std.
BucksMont	SAIFI	0.89	1.1	1.34	1.06	1.08			
	CAIDI	99	111	263	126	311			
	SAIDI	88	122	353	133	336			
DelChester	SAIFI	1.08	1.27	1.49	1.32	1.15			
	CAIDI	103	129	176	172	114			
	SAIDI	81	119	189	162	94			
Philadelphia	SAIFI	0.55	0.64	0.60	0.49	0.54			
	CAIDI	102	81	89	78	110			
	SAIDI	56	51	53	38	59			
PECO Overall	SAIFI	0.83	0.97	1.08	0.90	0.88	1.23	1.48	1.35
	CAIDI	99	110	189	135	187	112	134	123
	SAIDI	82	106	205	122	164	138	198	167

Note: Green values are at or below the Benchmark, yellow values are at or below the 12-Month Standard but above the Benchmark, and red values are above both the 12-Month Standard and Benchmark.  
Source: PUC 2022 Management Audit Report

Outages from vegetation and equipment failure were the two largest factors that affected PECO’s reliability performance during 2017 – 2021. At the time, PECO had a variety of programs to improve system reliability and resiliency. Some of these included the Company’s vegetation management, its worst performing vegetation sections program, and installing equipment to mitigate outage impact. Through PECO’s Long-Term Infrastructure Improvement Plan<sup>9</sup> (LTIIIP), the Company was identifying and replacing eligible assets, such as upgrading its 2.4 kV and 4 kV systems with 13 kV and 34 kV systems. All these efforts helped enhance PECO’s reliability, but increased storm activity and aging infrastructure overburdened existing programs at PECO and led to SAIDI and CAIDI missing the PUC benchmark.

**Prior Recommendation** – Improve SAIDI and CAIDI to at or below the PUC benchmarks.

**Follow-Up Finding and Conclusion** – PECO’s reliability has improved and its SAIDI and CAIDI values are better than the PUC benchmark.

**Current Review**

Exhibit IV-6 displays PECO’s reliability performance from 2022 – 2024. From an overall and regional standpoint, PECO’s reliability performance was below its benchmark

<sup>9</sup> An LTIIIP is a plan submitted by the utility to be eligible to recover costs from eligible property. PECO’s first submission, LTIIIP I, was filed with the Commission at P-2015-2471423. The Company’s second submission, LTIIIP II, was filed at P-2020-3020974.

and standards, with its worst performance observed in 2023. The Company's SAIFI, CAIDI, and SAIDI values were within<sup>10</sup> PECO's benchmark in 2022 and 2024 but performance worsened in 2023, with the Company's CAIDI value rising for both the DelChester (comprised of Delaware County, Chester County, and a portion of York County) region and PECO overall. PECO indicated reliability performance in 2023 was largely driven by storms in July/August that did not qualify as major events<sup>11</sup>.

**Exhibit IV-6**  
**PECO Energy Company**  
**Electric Operations Reliability Indicators**  
**2022 – 2024**

Region/Year		2022	2023	2024	Benchmark	12-Month Std.	36-Month Std.
BucksMont	SAIFI	0.74	0.72	0.87			
	CAIDI	112	107	102			
	SAIDI	83	77	89			
DelChester	SAIFI	1.06	1.26	1.18			
	CAIDI	104	183	101			
	SAIDI	110	231	119			
Philadelphia	SAIFI	0.44	0.39	0.41			
	CAIDI	75	80	75			
	SAIDI	33	31	31			
PECO Overall*	SAIFI	0.71	0.74	0.78	1.23	1.48	1.35
	CAIDI	99	138	96	112	134	123
	SAIDI	71	103	75	138	198	167

Note: Green values are at or below the Benchmark, yellow values are at or below the 12-Month Standard but above the Benchmark, and red values are above both the 12-Month Standard and Benchmark.

\*: Benchmark and Standards are only applicable to an EDC's overall service territory.

Source: PUC Data Request EO-1

PECO continues to use multiple programs to maintain or improve reliability. The Company's Annual Asset Optimization Plans<sup>12</sup> (AAOPs) and LTIIP II cited programs like substation retirement and associated circuit rebuilds. In addition, work related to customers experiencing multiple interruptions (CEMI, see Finding IV-3) has helped to improve PECO's system resiliency and storm hardening leading to a decrease in affected customers. The Company planned to spend approximately \$575.5 million from 2021 – 2024 on reliability programs to address storm hardening and resilience with actual

<sup>10</sup> Electric Reliability Benchmark and Standards for Pennsylvania EDCs are maximum thresholds (i.e., an EDC should be operating at or below these thresholds).

<sup>11</sup> The 52 Pa. Code § 57.192 states that a major event, in relation to storms, is, "an interruption of electric service resulting from conditions beyond the control of the EDC which affects at least 10% of the customers in the EDC's service territory during the course of the event for a duration of 5 minutes each or greater. Outages stemming from major events are excluded from reliability reporting.

<sup>12</sup> An AAOP is a plan submitted yearly by a utility that details its eligible property repaired, improved, or replaced under its approved LTIIP for the preceding 12-month period and the upcoming 12-month period. Annually on or before March 1, PECO has submitted AAOPs to the Commission, beginning in 2017.

spending between 2021 – 2024 on totaling \$383.1 million. Despite the lower amount expended, PECO believes it was still able to meet its objectives. For example, the Company planned to rebuild 29 – 38 circuits between 2021 – 2024 and completed a rebuild of 38 circuits. Nevertheless, PECO’s consistent and increased spending has improved the Company’s reliability.

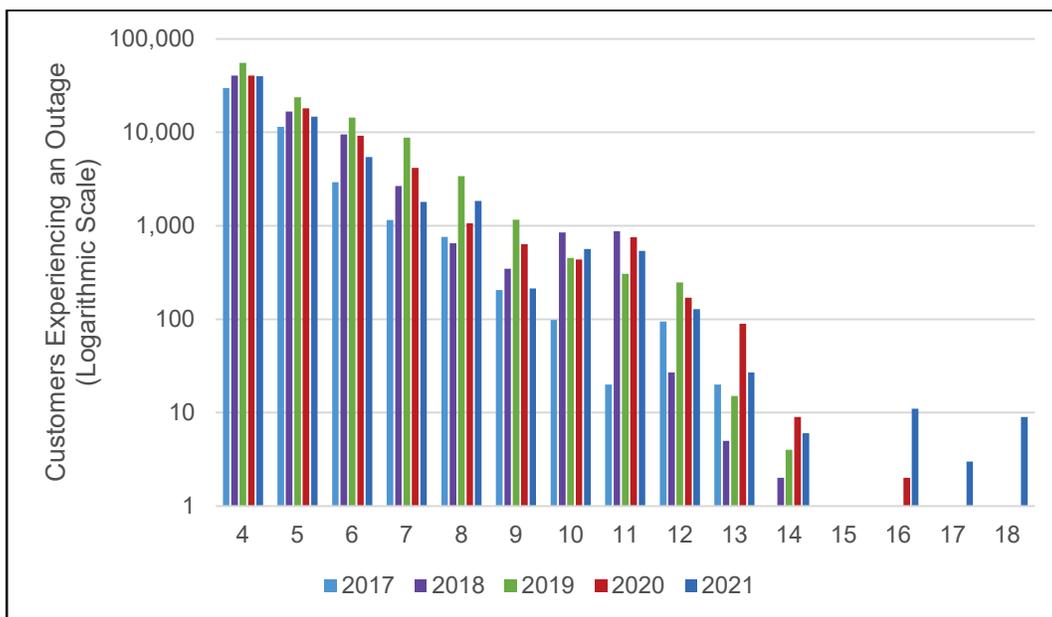
**Follow-Up Recommendation – None**

**Finding IV-3**

**Prior Situation**

To track the number of customers experiencing multiple interruptions in a given period, PECO uses the reliability metric CEMI. The Company’s CEMI metric is comprised of customers who experience four or more interruptions during a certain period, usually one calendar year. Between 2017 – 2021 PECO’s CEMI metric increased, particularly in 2019 as a result of non-excludable storms. The Company’s BucksMont region (comprised of Bucks County and Montgomery County) was PECO’s only region to have customers experience 15 or more outages in 2020 and 2021. PECO’s DelChester region had the most customers experiencing at least four outages in 2021. Exhibit IV-7 displays PECO’s annual CEMI metrics from 2017 – 2021.

**Exhibit IV-7  
PECO Energy Company  
CEMI Outages  
2017 – 2021**



Source: PUC 2022 Management Audit

PECO developed programs that would help minimize customers experiencing multiple interruptions. Some of these programs included replacing failure-prone assets, conducting vegetation management activities, and repairing the worst performing circuits within the Company’s system. While PECO’s reliability showed improvement, the storm activity experienced by the Company and the subsequent vegetation issues hindered further improvement, leading to a number of customers experiencing 10 or more outages (CEMI 10+) in a given year.

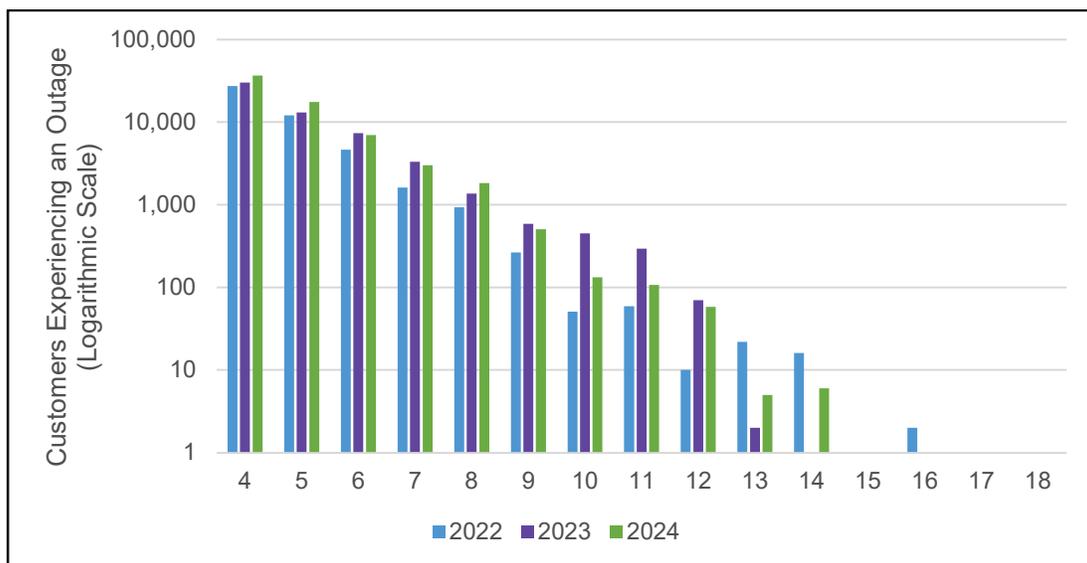
**Prior Recommendation** – Reduce the number of customers experiencing multiple interruptions and strive to have zero CEMI 10+.

**Follow-Up Finding and Conclusion** – PECO has reduced the number of customers experiencing multiple interruptions but still has customers experiencing ten or more outages in a year.

**Current Review**

Exhibit IV-8 shows PECO’s CEMI Outages from 2022 – 2024. Although CEMI outages were greater in 2024 than in 2022 and 2023, the Company’s 2024 CEMI values were less than PECO’s CEMI Outages from 2018 – 2020. Additionally, the average annual customers experiencing multiple interruptions was 75,398 from 2017 – 2020 compared to 58,911 average customers for 2021 – 2024. The number of customers experiencing 10 or more outages decreased by approximately 42%; from 2017 – 2020 there were 4,467 unique customers experiencing CEMI 10+ outages whereas from 2021 – 2024 2,572 unique customers experienced CEMI 10+ outages.

**Exhibit IV-8  
PECO Energy Company  
CEMI Outages  
2022 – 2024**



Source: PUC Data Request EO-2

PECO's LTIIIP II and AAOPs continue to showcase investments in programs and initiatives aimed at improving PECO's reliability by making capital improvements that benefit its customers. Some of the Company's programs that address CEMI include the CEMI areas and CEMI targeted circuits programs. The CEMI areas program focuses on areas served by multiple circuits that have a high interruption history, whereas the CEMI targeted circuits program focuses on areas served by single circuits that have multiple interruptions. The Company's LTIIIP II and AAOPs indicated that PECO met its planned objectives for these programs while also being underbudget.

Additionally, PECO's CEMI tracking tool, initially developed in 2023, utilizes outage, customer, system, and geographic information to assist the Company's engineers with analysis. With this tool, PECO aims to have more effective planning for its reliability projects and initiatives. While the Company has addressed and improved its CEMI metrics, PECO still has customers experiencing 10+ outages in a year. Therefore, Audit Staff contends PECO should continue its efforts to reduce CEMI, particularly focusing on customers experiencing 10 or more outages during a calendar year.

**Follow-Up Recommendation – Continue improving CEMI and strive for zero customers experiencing ten or more outages.**

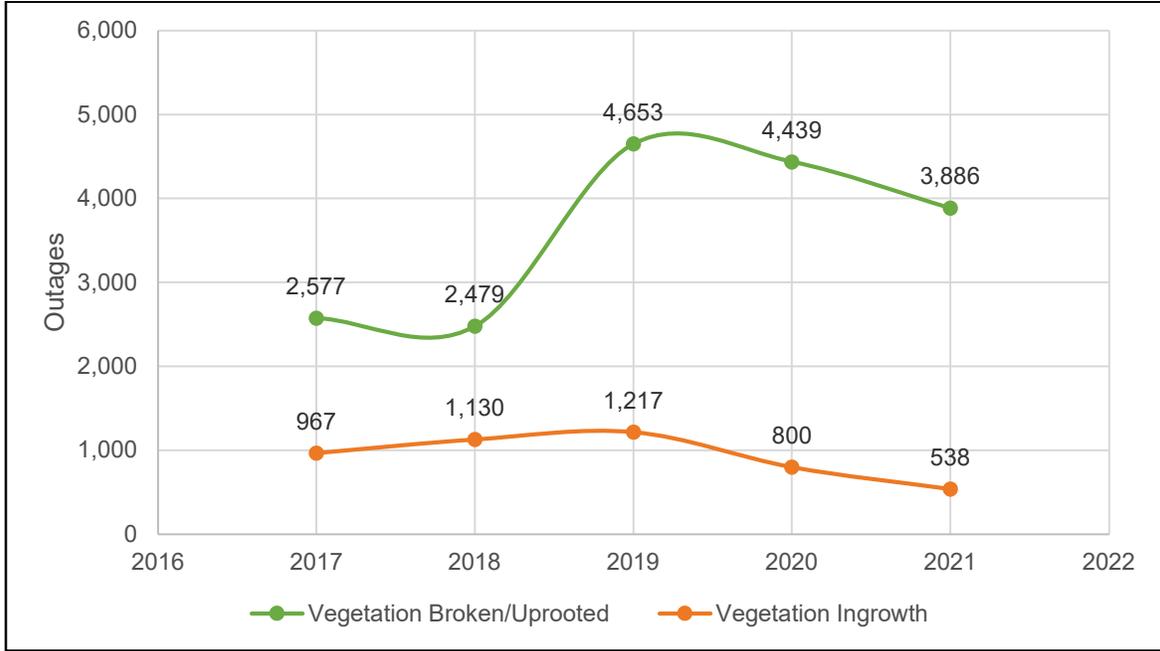
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#### **Finding IV-4**

##### **Prior Situation**

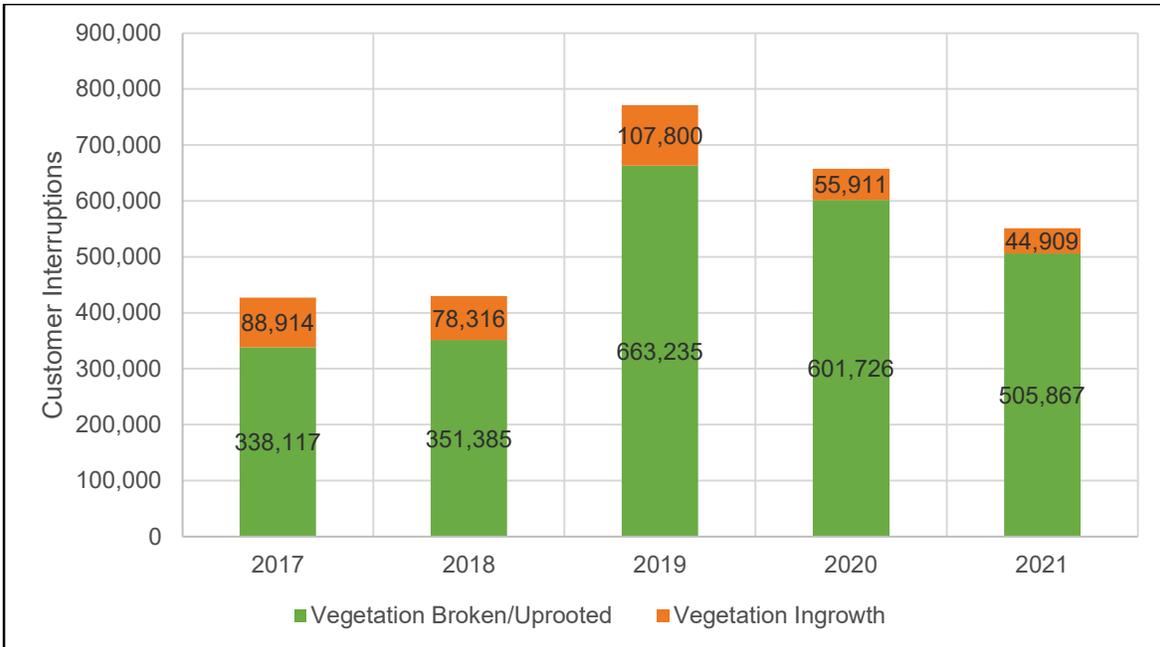
Vegetation outages were one of the leading causes of electrical outages for PECO. From 2017 – 2021, PECO's vegetation outages were primarily from broken/uprooted vegetation damaging Company infrastructure rather than tree growth within electrical lines. Exhibit VII-9 and Exhibit VII-10 show vegetation outage and interruption data.

**Exhibit IV-9  
PECO Energy Company  
Vegetation Outages  
2017 – 2021**



Source: PUC 2022 Management Audit

**Exhibit IV-10  
PECO Energy Company  
Customer Interruptions from Vegetation Outages  
2017 – 2021**



Source: PUC 2022 Management Audit

PECO observed vegetation outages and interruptions at elevated levels between 2019 – 2021, with vegetation outages accounting for approximately 35% of all service outages in 2021. Storm activity and the tree damage from the emerald ash borer<sup>13</sup> were cited as reasons for the Company’s vegetation outages. PECO attempted to mitigate this increase with its distribution priority tree removal program, which removed trees that pose a risk to the system. In addition, PECO relied on its baseline vegetation management cycle, iteratively focusing on problem vegetation throughout the Company’s territory. PECO conducted this baseline program on a five-year cycle but indicated the Company wanted to transition to a four-year cycle in the future. In addition, other reliability programs such as the worst performing vegetation sections program aimed at reducing vegetation related damage. While PECO had a number of programs in place, the Company was still experiencing elevated vegetation related outages.

**Prior Recommendation** – Reduce outages caused by broken/uprooted vegetation to the 2015-2018 average levels.

**Follow-Up Finding and Conclusion** – PECO’s vegetation outages have continued to increase since 2021.

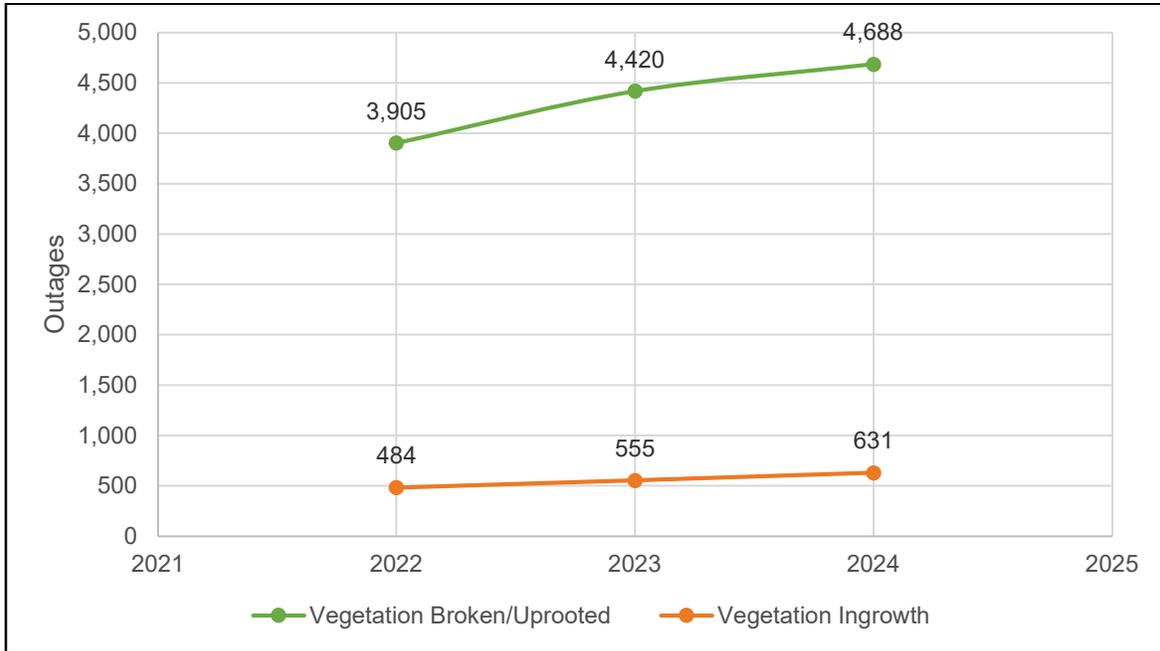
### **Current Review**

Exhibits IV-11 and IV-12 display the outages and interruptions resulting from vegetation between 2022 – 2024. The data in these exhibits shows that PECO’s vegetation outages have increased approximately 20% since 2021. In addition, customer interruptions remained at an elevated level, with approximately a 2% increase in customer interruptions since 2021 due to vegetation related outages. In recent years, the Company has made some improvements of the interruption duration from vegetation outages, decreasing by almost 53% since 2021. However, current levels still remain higher than 2017 levels.

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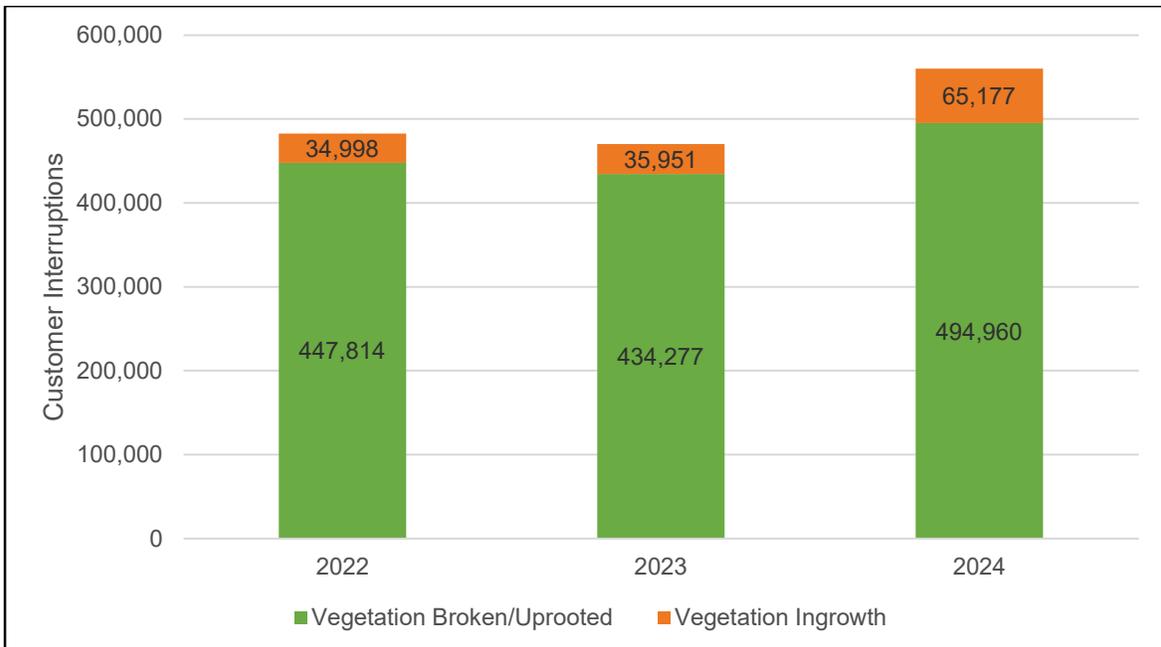
<sup>13</sup> The emerald ash borer is from Asia but is an invasive beetle to North America’s ash trees. Refer to the USDA Animal and Plant Health Inspection Service (<https://www.aphis.usda.gov/plant-pests-diseases/eab>) for more information on the emerald ash borer.

**Exhibit IV-11  
PECO Energy Company  
Vegetation Outages  
2022 – 2024**



Source: PUC Data Request EO-3

**Exhibit IV-12  
PECO Energy Company  
Customer Interruptions from Vegetation Outages by Type  
2022 – 2024**



Source: PUC Data Request EO-3

Since 2018, PECO has more than doubled its spending on vegetation management. The Company has continued its various vegetation management programs such as its baseline trimming program (now on a 4-year cycle) and worst performing vegetation sections program, etc. The Company’s actual spending for vegetation management increased by 121% (a 76% increase when adjusted to 2024 end-of-year Consumer Price Index<sup>14</sup> (CPI)). From 2017 – 2020, 3,070 miles of vegetation was cleared along PECO’s distribution infrastructure; this value was 3,061 miles for 2021 – 2024.

For PECO, its DelChester region presents the biggest hurdle with regards to vegetation. The DelChester region has a larger canopy presence than the Company’s other two regions. Exhibit IV-13 shows the vegetation outages by region between 2022 – 2024. During this time, the DelChester region has experienced the most vegetation outages, almost twice as many occurring within the BucksMont region.

**Exhibit IV-13**  
**PECO Energy Company**  
**Customer Interruptions from Vegetation Outages by Region**  
**2022 – 2024**

<b>Region</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>Total</b>
BucksMont	1,549	1,604	1,763	<b>4,916</b>
DelChester	2,689	3,156	3,311	<b>9,156</b>
Philadelphia	151	215	245	<b>611</b>
<b>Total</b>	<b>4,389</b>	<b>4,975</b>	<b>5,319</b>	<b>14,683</b>

Source: PUC Data Request EO-3

Although PECO has many programs to address vegetation along its assets, the Company’s vegetation outages have continued to increase. Part of these vegetation outages observed by PECO were caused by weather. In fact, the Company reported weather as a large reason why its emergent vegetation program overspent by 289% on average 2022 – 2024. In addition, the Company continues to face increased vegetation failures caused by the emerald ash borer, oak wilt, etc., leading to additional off right-of-way related outages. Therefore, PECO should devote additional resources or take advantage of opportunities to manage vegetation and the associated outages, particularly those from broken/uprooted vegetation.

**Follow-Up Recommendation – Strive to reduce outages caused by broken/uprooted vegetation.**

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<sup>14</sup> Per the United States Bureau of Labor Statistics, the Consumer Price Index is the, “measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services.”.

## Finding IV-5

### Prior Situation

PECO's outages and customer interruptions from equipment failure during the 2022 Management Audit are presented in Exhibit IV-14. Equipment failures accounted for 40% of total interruptions and some outages originating from PECO's transmission and substation assets were caused or accelerated by aging equipment. PECO's LTIIIP I programs targeted assets that had a history of failing, and the Company planned to use its LTIIIP II programs to increase equipment replacement and reliability.

### **Exhibit IV-14 PECO Energy Company Equipment Outages and Interruptions 2017 – 2021**

	2017	2018	2019	2020	2021
Outages	4,419	5,827	6,438	5,297	5,036
Customer Interruptions	487,327	698,997	722,415	523,413	510,164

Source: PUC 2022 Management Audit

**Prior Recommendation** – Reduce interruptions caused by equipment failures.

**Follow-Up Finding and Conclusion** – PECO's equipment failure outages have decreased.

### Current Review

Through the Company's LTIIIP II, PECO developed programs to prevent and mitigate equipment outages. Some of these programs include the Aerial Infrastructure Resiliency ("AIR") areas and AIR targeted assets programs, which focus on the replacement of aerial infrastructure equipment that have a high probability of failure. Other programs include main stem cable replacement and underground residential development (URD) cable replacement, which allow PECO to replace cable that is prone to failure.

These programs outlined in PECO's LTIIIP II had a proposed spending total of \$730.5 million between 2021-2024. Reviewing the Company's AAOPs submitted to the Commission between 2021-2024 revealed PECO's actual spending was \$515.2 million for these programs while meeting or exceeding its goals for three of these four programs. Between 2021 – 2024, PECO addressed 13 AIR areas whereas the goal for the Company was 8-20 areas. The Company replaced 43,873 AIR targeted assets<sup>15</sup> between 2021 – 2024 whereas the goal was 22,200 – 26,200 assets. PECO replaced 565.2 miles of underground cable between 2021 – 2024 whereas the goal was 560-635 miles of cable.

<sup>15</sup> PECO's annual asset ranges that were initially presented in its LTIIIP were based on the number of poles. After replacing aerial infrastructure in 2021, PECO began to qualify this infrastructure as part of its asset count and applied this to its subsequent AAOPs.

The Company did not achieve its main stem cable replacement goal of 142 – 147 miles between 2021 – 2024, which PECO attributed to supply chain delays and scheduling difficulties. The Company did replace 99 miles of main stem cable between 2021 – 2024. Because of PECO’s investment into these in-depth programs, equipment outages and customer interruptions have been reduced and are comparable to 2017 levels. Exhibit IV-15 shows the number of outages and customer interruptions from equipment failure at PECO from 2022 – 2024.

**Exhibit IV-15  
PECO Energy Company  
Equipment Outages and Interruptions  
2022 – 2024**

	<b>2022</b>	<b>2023</b>	<b>2024</b>
Outages	4,861	4,031	4,359
Customer Interruptions	458,246	389,850	479,144

Source: PUC Data Request EO-3

**Follow-Up Recommendation – None**

## V. GAS OPERATIONS

For the gas operations functional area, four prior situations and recommendations were reviewed. Four follow-up findings are presented with four follow-up recommendations. The first finding relates to reduction of gas main hits. The second finding relates to an increase in the percentage of excavation damages to plastic gas mains. The third finding relates to excessive overtime. The fourth finding relates to the rate of locating PECO's mains.

### Finding V-1

#### Prior Situation

Most hits on PECO's gas infrastructure were on unmarked or inaccurately marked mains, which are considered company-at-fault damages. PECO received 550,000 PA-One Call gas locate tickets each year and PECO marked about 200,000 locates per year. Mismarked line hits were happening primarily because of inaccurate records, as well as due to locator errors. On average from 2017 through 2021, 65.7% of all third-party hits on PECO's gas lines were due to unmarked or mismarked lines. The other main cause for company-at-fault damage was due to inaccurate records. In 2012, PECO began expanding its GPS data of gas facilities to include location and depth of buried infrastructure as it replaced or installed new mains, and the GIS (Geographic Information System) records were updated with this new, more accurate GPS location data.

**Prior Recommendation** – Reduce company-at-fault hits on gas infrastructure.

**Follow-Up Finding and Conclusion** – PECO has reduced company-at-fault and third-party-at-fault hits, though the total number of hits to PECO's distribution system per year is still averaging more than one per day, regardless of fault.

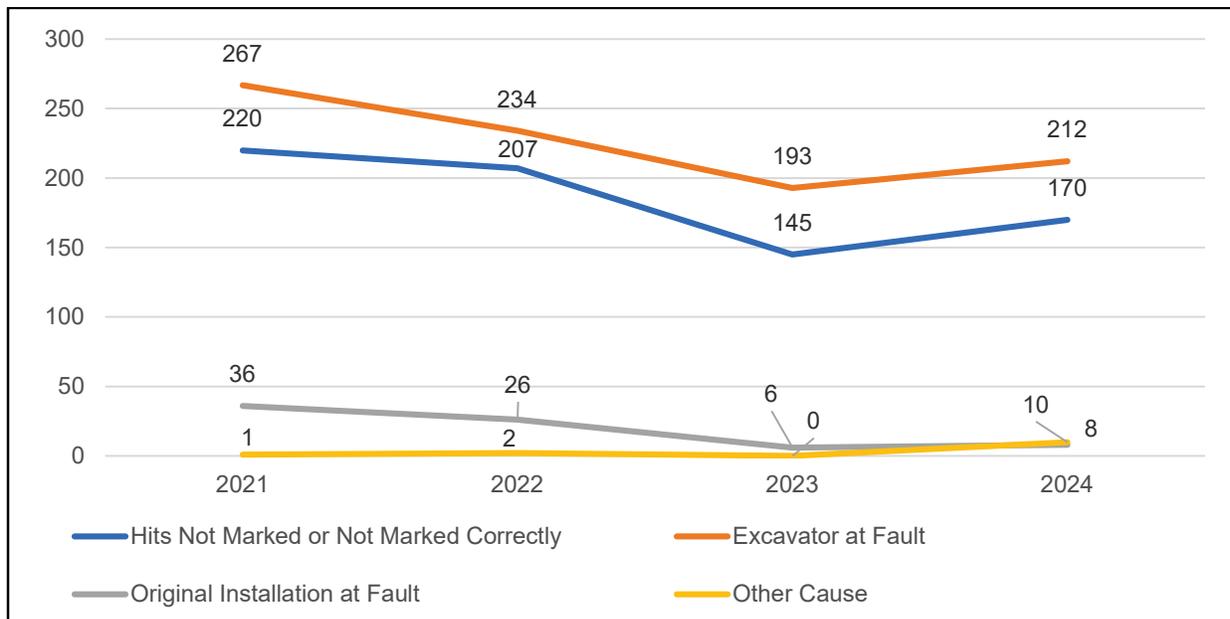
#### Current Review

PECO endeavors to reduce company-at-fault third-party damages on gas infrastructure and continues to use successful initiatives along with implementing new programs to reduce damages. PECO continues to use field audits to ensure the quality of its contractor's locates, ensure new main installation is located correctly, etc. PECO engages in several outreach initiatives including three marketing campaigns for the 2025 Spring dig season. Also in 2025, PECO engaged a public awareness vendor to promote a "smartworkers" website (<https://peco.e-smartworkers.com/>), which contains information on digging safely around gas facilities, as well as videos and case studies emphasizing adherence to PA-One Call. While some of the initiatives implemented by PECO in 2025 are too new to fully assess their benefit, the programs demonstrate PECO's efforts to decrease damages.

Internally, PECO has made investments in new camera technology for surveying gas mains, the use of GIS alerts through its ticket management system<sup>16</sup>, and the use of vacuum excavation trucks during design and construction work. As part of its efforts to reduce company-at-fault damage, PECO added much more restrictive service level agreements to its locator contracts. Starting in 2022 there are financial penalties for monthly locator-at-fault error rates above 0.10% and no payment when a ticket is not marked on time. Other changes include PECO requiring minimum pay levels for locators and increasing the amount of pay per locate. With these changes, the locator contractor increased the number of its locators from 75 locators in 2022 to 97 locators in 2025.

As shown in Exhibit V-1, between 2021 and 2024 Hits Not Marked/Not Marked Correctly and 3rd Party-At-Fault Hits decreased, but the percentage of Hits Not Marked/Not Marked Correctly has increased from 41.98% to 42.50% during the same period as seen in Exhibit V-2. According to the Manager of Damage Prevention, the economic recovery from COVID-19 meant that more excavation work was going on in 2024 than previous years and is believed to be a driving force in the increased line damages.

**Exhibit V-1**  
**PECO Energy Company**  
**Line Hits by Cause**  
**2021 – 2024**

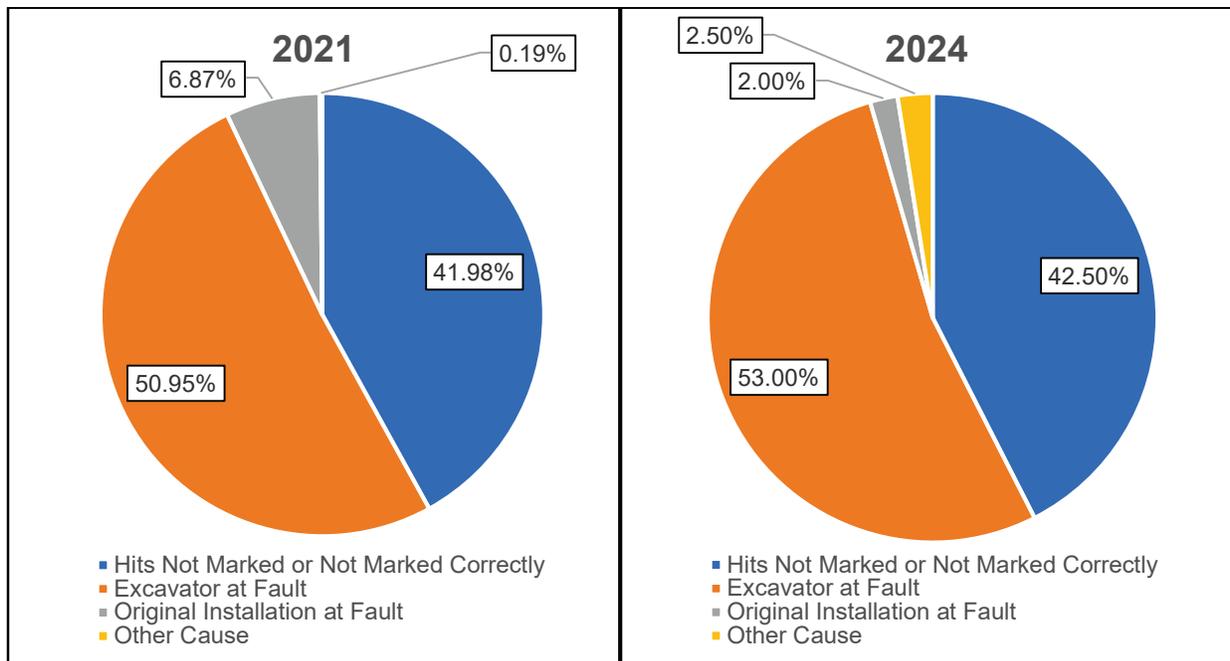


Note: According to PECO's Gas Reliability Program Manager, in 2021 PECO made a change to improve the accuracy and capture of data. Therefore, data presented in 2021 in the 2022 Management Audit is different than presented here. The data presented here is considered more accurate and PECO resubmitted this updated data to U.S. Department of Transportation and PUC.

Source: PUC Data Request GO-1

<sup>16</sup> These GIS alerts are in response to high consequence tickets that are in proximity to transmission lines and regulator stations.

**Exhibit V-2  
PECO Energy Company  
Line Hit Percentages  
2021 and 2024**



Note: Due to rounding, numbers may not add up to 100%.  
Source: PUC Data Request GO-1

According to PECO, variations in installation techniques of different vintage mains affect the frequency of line hits. For example, older materials are shallower than materials installed after the 1970s. PECO is replacing approximately 70 miles per year of the older, shallow facilities, which has helped reduce the number of original-installation-at-fault hits. However, older mains have the least accurate location records and therefore are at a higher risk for excavation-related damages. As PECO replaces these older mains, the location records are being updated, leading to more accurate records.

In accordance with Pennsylvania Act 187 and 49 CFR § 192.614, each natural gas distribution company (NGDC) must maintain a documented damage prevention program. The damage prevention program must satisfy several requirements such as notification to the public in the vicinity of the pipeline where excavation work is scheduled to begin, a means of receiving/recording notification of planned excavation activities, temporary marking of buried pipelines, etc. PECO has been increasing the accuracy of its records, outreaching to third-parties about safe digging practices, and compelling its locator contractor to increase the accuracy of locates. This has resulted in a reduction of gas main hits both for company-at-fault and for third-party-at-fault hits, though the number of hits to PECO’s distribution system per year is still averaging more than one per day. PECO should continue its efforts to lower third-party damages with an emphasis on eliminating company-at-fault damages.

**Follow-Up Recommendation** – Continue efforts to reduce hits on gas infrastructure.

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**Finding V-2**

**Prior Situation**

Annual main breaks at PECO were the highest for cast iron, at an average of 49.5 main breaks per year from 2017 through 2021. Plastic main breaks were the second highest, at an average of 14.4 main breaks per year. Meanwhile, steel was averaging 4.4 main breaks per year. Plastic main was being hit or failing at a rate over three times that of steel despite being approximately half as old.

Excavation damage was overwhelmingly the dominant cause why plastic mains needed to be repaired or replaced, accounting for 87.5% of all plastic main breaks. Excavation damage was also the second most common cause of damage to all mains regardless of material. Based on Auditor analysis, plastic mains and services were being hit at about 9.5 times the rate as steel mains and services. PECO indicated it had difficulty locating some of its older plastic and did not resist damage from excavation as well as other material types. PECO had taken efforts to improve plastic damages by GPS locating plastic main and installing marker balls. In addition, PECO's Asset Team, part of PECO's Damage Prevention Team, were attempting to identify regions with increased excavation damage or where plastic was hard to locate so the Company could take corrective action.

**Prior Recommendation** – Study and then identify ways to reduce plastic pipe main and service damages with a focus on line hits.

**Follow-Up Finding and Conclusion** – PECO has reduced the overall hits on its mains, but the percentage of plastic main breaks caused by excavation damage has increased from 50.27% in 2021 to 67.69% in 2024.

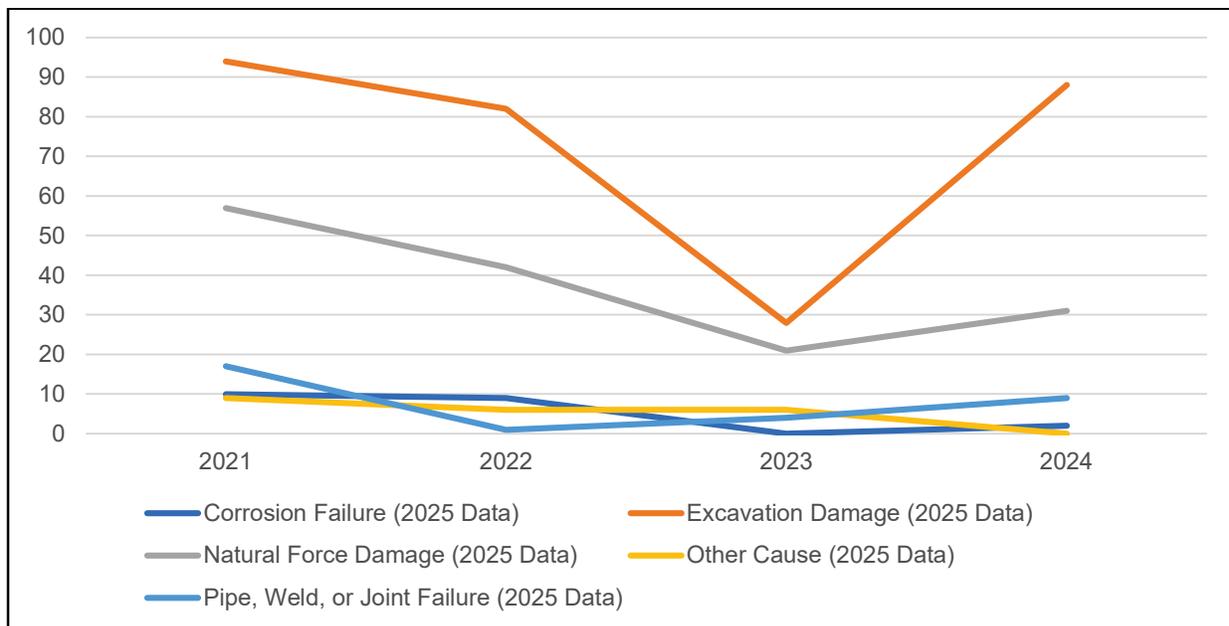
**Current Review**

PECO reviews asset types and failure rates vs. amount of the asset in its distribution system and classifies plastic main as its second highest asset class threat (after cast iron) in its latest DIMP (Distribution Integrity Management Plan). PECO considers plastic damage risk to be lower impact than other types of pipe risks, because plastic failures caused by hits tend to be immediate and noticeable, whereas hits on steel or iron may not cause an immediate leak, but minor damage to them can cause more risky leaks in the future.

As shown in Exhibit V-3, excavation damage continues to make up the most common cause for main breaks at PECO. According to the Gas Reliability Program

Manager and Capacity Planning Manager<sup>17</sup> (GRPM & CPM), the Company has been working on improving the accuracy of its mapping by resolving conflicts in its GIS where there were inaccuracies. The Company is exclusively using vacuum excavators in high-risk areas near transmission lines to minimize damages in high-risk areas. These efforts, along with decreased construction activity, led to a sharp improvement in main breaks caused by excavation in 2023. However, in 2024, PECO experienced a large increase of PA-One Call locate tickets for both water work and fiber installation that translated to increased damages.

**Exhibit V-3  
PECO Energy Company  
Main Breaks by Cause  
2021 – 2024**



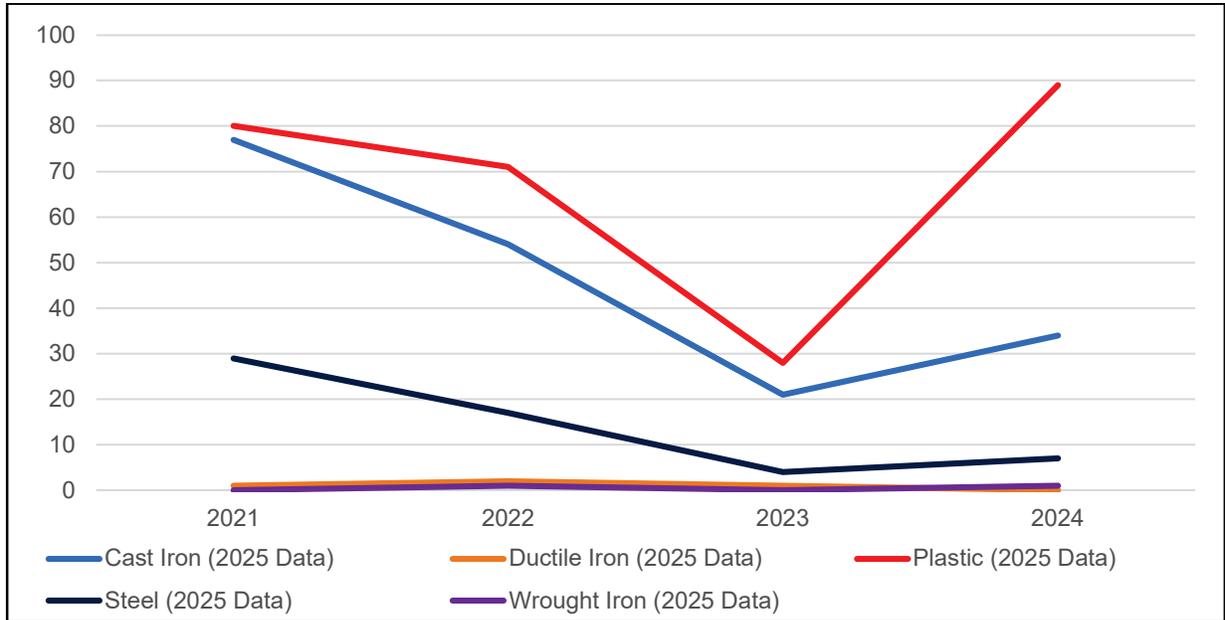
Note: PECO made a change to improve accuracy of its damage records causing a difference in the data presented for 2021 between the information presented here and that presented in the 2022 Management Audit.

Source: PUC Data Requests GO-4 and GO-15

Exhibit V-4 shows all gas main breaks decreased, regardless of material type, from 2021 through 2023, and then wrought iron, cast iron, and plastic gas main breaks all increased in 2024, with plastic seeing the sharpest increase. The increase in plastic gas main breaks in 2024 surpassed all progress from the prior two years, with plastic gas main breaks increasing from 80 in 2021 to 89 in 2024.

<sup>17</sup> This is one person with two titles.

**Exhibit V-4  
PECO Energy Company  
Main Breaks by Material Type  
2021 – 2024**



Note: According to PECO, 2021 data from the 2022 MA does not match 2021 data provided during the MEI because of a change in management and how the data is recorded.  
Source: PUC Data Requests GO-3 and GO-15

As shown in Exhibit V-5, plastic main breaks as a percentage of total main breaks increased from 42.8% in 2021 to 67.9% in 2024.

**Exhibit V-5  
PECO Energy Company  
Percentage of Plastic Main Breaks  
2021 – 2024**

Plastic Main Breaks	2021	2022	2023	2024
Excavation Related Plastic Main Breaks Compared to Total Main Breaks	38.50%	48.28%	46.30%	62.60%
Percentage of Plastic Main Breaks to Total Main Breaks	42.78%	48.97%	51.85%	67.94%

Source: PUC Data Requests GO-3 and GO-15 from the 2025 MEI

On 9/11/2025, the PA PUC issued a Final Order, titled “Replacement of Older Plastic Pipe in Natural Gas Distribution Systems,” requiring natural gas distribution companies (NGDCs) to inventory their older and higher risk plastic main, report these inventories to the PA PUC, and incorporate appropriate mitigation and replacement into their pipeline integrity management plans.

PECO has identified its Adyl-A plastic mains as performing particularly poorly, as they tend to fail through “brittle-like cracking”. However, the Company’s replacement planning rubric does not differentiate between the different types of plastic and instead relies upon the specific historical characteristics of the individual pipe segments (i.e., vintage, number of breaks, etc.). PECO recognizes that its plastic risk is increasing, however the Company does not have a specific plastic main replacement program. Instead, it’s combined with the rest of the Company’s LTIP (Long Term Infrastructure Improvement Plan).

As presented in Exhibits V-4 and V-5, a large portion of plastic main failure is due to excavation damage. PECO indicated it has taken several steps for improvement such as continuing to install marker balls and metallic tape for new main installations and started installing marker pins in early 2025. While marker balls are buried with new infrastructure, marker pins can be installed at the surface level where existing infrastructure has been located with a high degree of accuracy and confidence. All marker balls and pins are GPS located and added to the GIS<sup>18</sup>. None of these programs have specific goals or targets other than installation when feasible. While PECO has lowered its overall main hit rates, excavation damage still makes up a large percentage of all main breaks and pose a significant risk to the Company’s plastic assets. Therefore, more work should be done to safeguard plastic infrastructure such as creating a specific damage prevention plan with programs aimed at reducing hits to plastic pipe.

**Follow-Up Recommendation – Refine and strengthen PECO’s damage prevention plan specific to plastic mains, including prioritizing installation of marker balls or marker pins along any currently unmarked plastic mains.**

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### **Finding V-3**

#### **Prior Situation**

Gas Operations total overtime hours increased from 101,016 hours in 2017 to 144,773 hours in 2021, a 43% increase. The Director of Gas Operations indicated the overtime goal for gas operations was financial based, or to stay below 35% overtime dollars per regular time dollars spent. PECO’s KPI target for all departments’ OT was 16%, which was not met in any year 2017-2021, coming closest at 19% in 2019.

PECO used fatigue reports to track the individual employee work volumes, consecutive days worked, and shifts of 16 or more hours. PECO relied on supervisors to use the information, at their discretion, to help prevent employees from overworking. Nevertheless, numerous examples were discovered of employees working more than 20 days without a day off or working more than 15 double shifts in a month. Gas Operations also experienced an increase in OSHA total recordable (0.56 to 2.57) and DART (0.28 to 2.31) incidence between 2017 to 2021.

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<sup>18</sup> See Finding V-4 for more on PECO’s progress locating its mains.

**Prior Recommendation** – Reduce Gas Operations staff overtime to 15% overtime hours per normal hours worked or less.

**Follow-Up Finding and Conclusion** – PECO Gas Operations reduced overtime hours on a per employee basis but overtime hours per normal hours worked is still above 15%.

**Current Review**

Audit Staff analyzed the staffing, overtime hours, and overtime spending of PECO Gas Operations and related departments to trend overtime usage. Exhibit V-6 below shows overtime spending for PECO Gas Operations from 2021 through 2024.

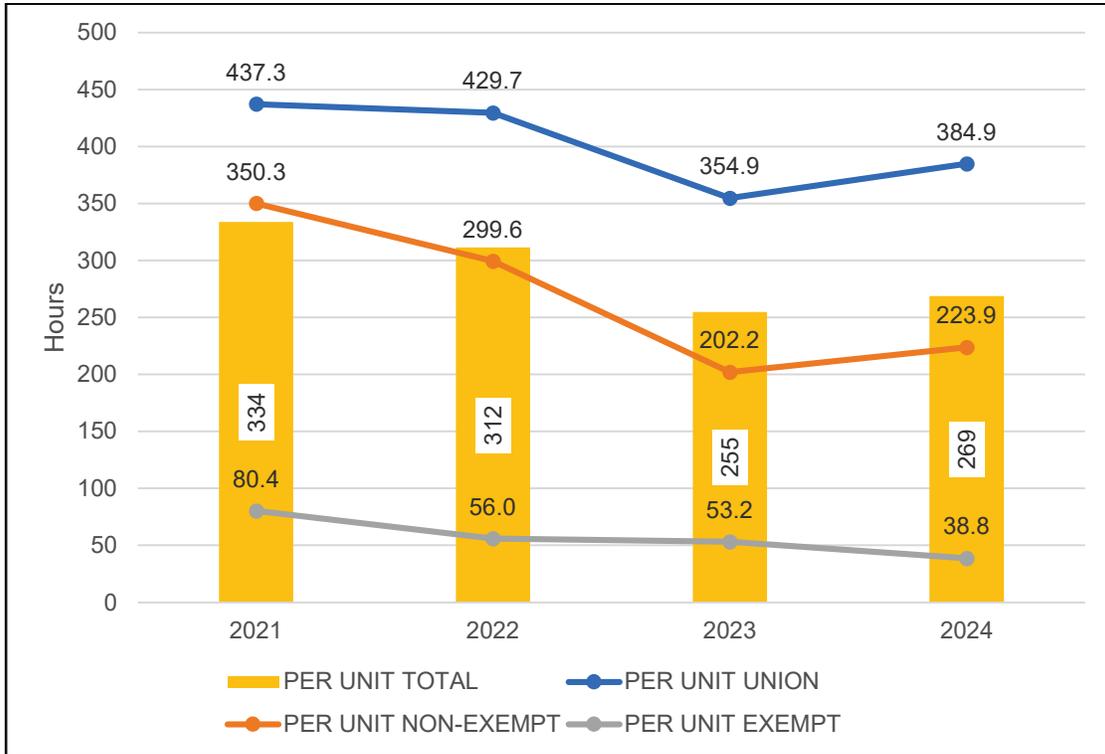
**Exhibit V-6  
PECO Energy Company  
Gas Operations Overtime Spending  
2021 – 2024**

Year	Capital	O&M	Other	Total
2021	\$5,580,156	\$5,338,849	\$4,253	\$10,923,259
2022	\$5,654,264	\$5,742,398	\$879	\$11,397,541
2023	\$5,556,601	\$4,388,789	\$3,903	\$9,949,293
2024	\$7,444,126	\$4,689,580	\$8,293	\$12,141,999

Note: Due to rounding, numbers may not add to the total.  
Source: PUC Data Request GO-11

As shown in the chart above, overtime spending increased approximately 11% from 2021 to 2024. During this same period, PECO increased the number of full-time union employees within Gas Operations from 226 in 2021 to 263 in 2024, an increase of more than 16%. Exhibit V-7 below calculates the number of overtime hours worked per full-time equivalent (FTE) employee within Gas Operations for 2021-2024.

**Exhibit V-7  
PECO Energy Company  
Gas Operations Overtime Hours per FTE  
2021 – 2024**



Source: PUC Data Requests GO-9 and GO-10

As indicated in the graph above, PECO Gas Operations reduced hourly overtime per union employee by approximately 12% from 2021 to 2024. PECO Gas Operations also reduced overtime per employee for non-union management and non-management employees; however, PECO’s union workforce is incurring the majority of overtime, as they account for approximately 88% of overtime in Gas Operations.

Although Gas Operations’ reduction in overtime, shown in Exhibit V-7, is noteworthy, PECO’s reporting shows overtime levels within Gas Operations remain elevated. As initially discussed in Finding and Conclusion IV-1, in 2023 PECO started tracking monthly overtime hours as percentage of straight-time hours by department. This KPI is part of the monthly Overtime Cost Management Report and Exhibit V-8 presents this KPI for PECO Gas.

**Exhibit V-8**  
**PECO Energy Company**  
**PECO Gas Overtime Compared to Straight-Time Hours**  
**2023 – March 2025 YTD**

Category	2023	2024	2025 YTD
Storm Overtime	0.5%	4.3%	0.0%
Non-Storm Overtime	20.8%	24.1%	36.8%
Total Overtime*	21.4%	28.4%	36.8%

Note: PECO Gas was separately reported as individual departments in 2023 and 2024 but combined in 2025. Thus, combined data is presented in this table.

\*: Due to rounding, numbers may not add to the total.

Source: PUC Data Request GO-11

PECO Gas' rate of overtime usage as compared to straight-time reached 21.4% in 2023 and increased to 28.4% in 2024. PECO delineates overtime into storm and non-storm buckets. However, for Gas Operations, storm activities are limited due to buried infrastructure, unlike the many weather events that impact Electric Operations. Non-storm overtime, although not always controllable due to emergencies, can be managed and regulated to some degree by PECO. PECO's current level is higher than its KPI and goals.

Audit Staff contends that excessive overtime can potentially negatively impact health, safety, and effectiveness of PECO's union workforce. As discussed in Finding and Conclusion IV-1, PECO's Safety and Human Performance department should study and analyze excessive overtime's impact on employees and review how PECO's overtime practices converge and diverge from those findings. The Company should explore developing reasonable safeguards for individual employee overtime, call out rates, mandatory rest periods, etc. Audit Staff contends that overtime usage closer to 15% of straight-time hours is a reasonable target and levels above that warrant additional analysis, hiring additional employees, reevaluating work shifts and staffing assignments, etc. By reducing overtime to 15%, the Company could reduce its overtime cost by up to \$6,400,000 per year<sup>19</sup>. However, to reduce overtime, the Company may need to implement a number of changes that could have substantial costs such as hiring and training additional employees that would drastically reduce cost savings from lessening overtime.

**Follow-Up Recommendation – Continue reducing overtime by evaluating optimal staffing levels, fatigue rates, etc.**

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<sup>19</sup> Based upon 2024 numbers of \$12,141,999 in overtime expenses at an overtime rate of 28.4%.

## **Finding V-4**

### **Prior Situation**

PECO had many instances of company-at-fault damage, and cited difficulty locating some of its facilities, particularly older assets. Similarly, PECO's plastic mains were experiencing a disproportionate number of main breaks from excavation damage based upon the amount of plastic in the system. Roughly 10.6% of PECO's plastic main was installed with metallic tape, 30.3% was installed with non-metallic tape, 47.0% was installed with tracer wire only, and about 12.2% of PECO's plastic main has been installed with tracer wire and marker balls. However, PECO reported that much of its tracer wire and metallic tape had disintegrated and cannot be reliably detected.

In addition to using reference points, PECO began GPS locating every asset by location and depth in 2016. PECO's Gas Mapping Team investigated sections of main with questionable locations by physically locating and then capturing GPS coordinates of the assets. In addition, PECO GPS located new mains during installation. At the end of 2021, PECO had about 53.3% of its gas system loaded in its GIS (all mains, minimal services), but only 4.5% of the system had an associated GPS location. On average, PECO was GPS locating about 1.1% of its gas mains per year. This represented about 5% of its targeted, "challenge points," per year, with a goal of GPS locating all challenge points by the year 2037.

**Prior Recommendation** – Accelerate the rate of GPS location for key gas infrastructure.

**Follow-Up Finding and Conclusion** – PECO's rate of GPS locating its mains has slowed since 2021 and PECO is not working towards a goal for this initiative.

### **Current Review**

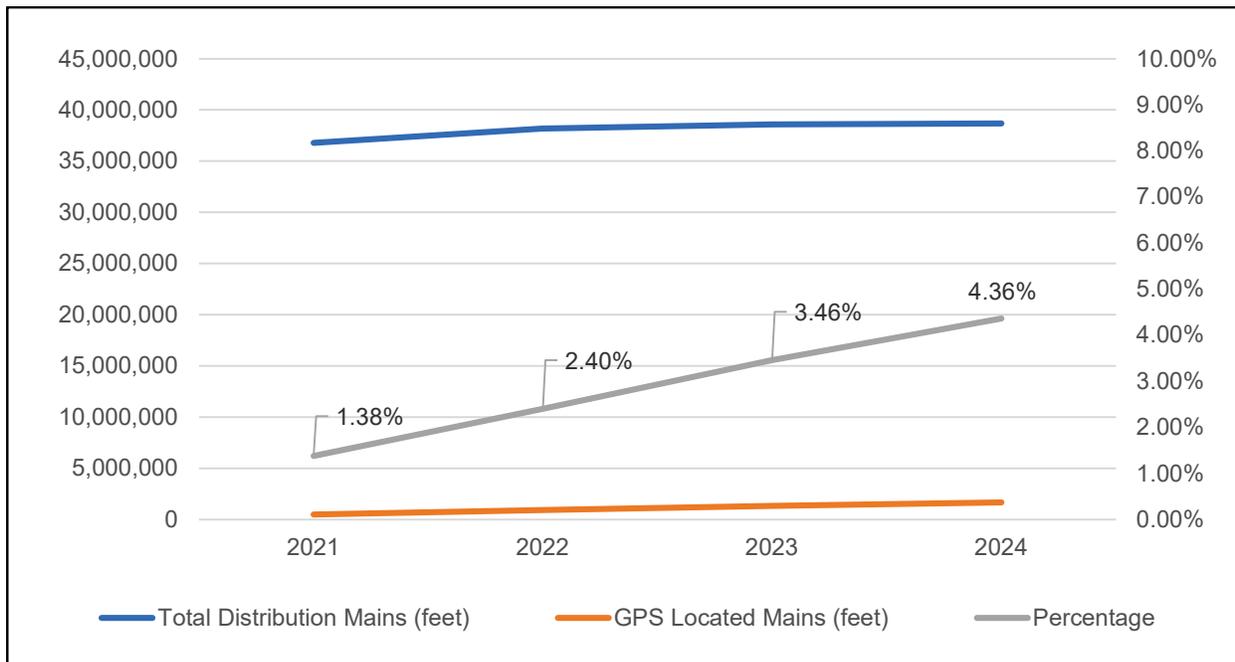
PECO increased the number of targeted GPS main location corrections in 2025 to 1,032 for the year. This goal pertains to the 8,000 "challenge points" that PECO identified as being inaccuracies in its GIS records. PECO anticipates continuing with this annual locating goal until the 8,000 originally identified challenge points have been identified by the end of the program commitment in 2032, five years sooner than reported in the 2022 Management Audit. According to the GRPM & CPM, as of June 2025, PECO is about 37% completed resolving the 8,000 challenge point GIS conflicts and is on pace to meet the challenge point goal.

The Company has a number of programs aimed at improving the accuracy of its mapping system. According to the GRPM & CPM, in early 2025 PECO started using the marker pins where a location difference is noted in the field. PECO has deployed additional GPS locating equipment to all its contractors and added an additional 15 GPS locating units for a total of 165 units. Moving forward, wherever marker balls or pins are installed or a leak repair occurs, GPS location data is captured. PECO is also currently using its regulatory group to GPS locate all distribution system valves, which provides some data on connecting mains.

These efforts are only locating existing assets when PECO locates leaks or installs new mains. PECO is not proactively locating existing assets, except for valves. PECO’s only current goal regarding GPS locating of distribution mains is to locate everything that is excavated. PECO has not set a target date to have accurate GPS location data for all mains in its records.

As shown in Exhibit V-9, PECO is GPS locating an average of 74.43 miles of distribution main per year out of a total 7,335.67 miles of distribution main, or approximately 1.01% per year. At this rate, it will take PECO over 96 years to GPS locate all of its distribution mains which is down slightly from the 2018-2021 levels of 78.25 miles per year, or 1.13% of the total length of main per year. Since this location rate is approximately equal to the life of the assets, PECO’s program focuses on protecting new assets as they replace old ones and effectively does little to protect its existing assets. When PECO GPS locates mains, it generally captures the services attached to the main as well. While there are some slight deviations in PECO’s process for GPS locating services, both services and mains are on similar locating rates.

**Exhibit V-9  
PECO Energy Company  
GPS Located Main Vs. Total Distribution Main  
2021 – 2024**



Source: PUC Data Requests GO-5 and GO-14

PECO indicated that it is converting from a vintage “non-connected” (does not model the flow of gas and flag when assets are not connected in the model) GIS platform to a “connected” model. PECO expects the new model to be able to identify more challenge points or where additional GPS data is needed. However, these efforts would be reactionary and would not address the ongoing problems of inaccurate location

information. As presented in Findings V-1 and V-2, the leading cause of damage to infrastructure is excavation and slightly less than half of all line hits are the Company's fault. Therefore, PECO should expand its efforts to proactively GPS locate all existing mains and should establish a reasonable goal to accomplish the task.

**Follow-Up Recommendation – Eliminate known mapping inaccuracies, begin proactively GPS locating existing underground gas infrastructure, and establish goals for these programs.**

## VI. EMERGENCY PREPAREDNESS

The 2022 PECO Management Audit contained four findings and recommendations within the Emergency Preparedness functional area. In this chapter, PUC Auditors review the prior situations and recommendations and present one follow-up finding and recommendation on improvements to the safety manual. In addition, PUC Auditors deemed it prudent to perform a full review of the companies' compliance with the PUC's regulations at 52 Pa. Code § 101 (Chapter 101) regarding physical security, cybersecurity, emergency response, and business continuity plans because of the criticality of these processes, and there are two new findings and recommendations. The first new finding relates to minor physical security issues. The second new finding relates to clearance areas around fence lines.

Effective June 2005, Chapter 101 requires all jurisdictional utilities to develop and maintain written physical security, cybersecurity, emergency response, and business continuity plans to protect infrastructure within the Commonwealth of Pennsylvania and ensure safe, reliable utility service. Furthermore, pursuant 52 Pa. Code § 101.1, all jurisdictional utilities are required to submit a self-certification form to the PUC, annually, documenting compliance with Chapter 101. This form, available on the PUC's website, includes 13 questions as shown in Exhibit VI-1.

### Exhibit VI-1 Pennsylvania Public Utility Commission Public Utility Security Planning and Readiness Self-Certification Form

Item No.	Classification	Response (Yes–No–N/A)
1	Does your company have a physical security plan?	
2	Has your physical security plan been reviewed in the last year and updated as needed?	
3	Is your physical security plan tested annually?	
4	Does your company have a cybersecurity plan?	
5	Has your cybersecurity plan been reviewed in the last year and updated as needed?	
6	Is your cybersecurity plan tested annually?	
7	Does your company have an emergency response plan?	
8	Has your emergency response plan been reviewed in the last year and updated as needed?	
9	Is your emergency response plan tested annually?	
10	Does your company have a business continuity plan?	
11	Does your business continuity plan have a section or annex addressing pandemics?	
12	Has your business continuity plan been reviewed in the last year and updated as needed?	
13	Is your business continuity plan tested annually?	

Source: Public Utility Security Planning and Readiness Self-Certification Form available on the PUC's website at [http://www.puc.state.pa.us/general/onlineforms/pdf/Physical\\_Cyber\\_Security\\_Form.pdf](http://www.puc.state.pa.us/general/onlineforms/pdf/Physical_Cyber_Security_Form.pdf)

The PUC Auditors use a NIST (National Institute of Standards and Technology) Cybersecurity Framework-based audit plan, modified to address the needs and capabilities of the PUC and Pennsylvania's utility companies. PECO submitted a combined self-certification form for both of its operating divisions in 2024 which were reviewed alongside their physical security plans (PSP), cybersecurity plans (CSP),

emergency response plans (ERP), business continuity plans (BCP), and associated manuals and procedures. A physical inspection was carried out at PECO's headquarters location and various regional facilities. Due to the sensitive nature of the information reviewed, specific details are not disclosed in this report; instead, efficiency and effectiveness are discussed in generalities.

Although many individuals are involved in overall emergency preparedness, key personnel provide oversight of the four main emergency focus areas. PECO and its parent company Exelon Corporation maintain many plans and processes within these four focus areas to follow best practices, guidelines, and formal regulations. The companies test the various PSPs, ERPs, and BCPs at least annually, if not multiple times per year. Cybersecurity measures are growing increasingly crucial and are monitored on a continuous basis. Listed below are responsible positions for and the purpose of the four main emergency focus areas.

- **BCP** (Exelon Corporation: Manager, Business Continuity) – the practices and procedures that focus on the continuation of critical business processes in a timely and effective manner in the event of a disruption.
- **CSP** (Exelon Corporation: Manager, Cyber Security Compliance) – the practices and procedures that detail requirements for the protection of PECO's technology resources.
- **ERP** (PECO: Manager, Emergency Preparedness) – the practices and procedures that provide the framework to emergency preparedness, response, and service restoration.
- **PSP** (PECO: Director, PECO Security) – the practices and procedures that provide security best practices and guidance to implement security measures to protect personnel, company assets, visitors, property, facilities, and equipment.

## **Findings and Conclusions**

Our examination of the emergency preparedness function included a review of the PSPs, CSPs, ERPs, and BCPs as well as vulnerability assessments and associated security measures. Based on our review of the Company's emergency preparedness efforts, PECO should initiate or devote additional effort to improving the efficiency and/or effectiveness of the emergency preparedness function by addressing the following:

### **Finding VI-1**

#### **Prior Situation**

PECO's Gas Safety Rulebook was a comprehensive safety manual, focused on personal safety, task safety, and gas safety, and it included safety procedures, instructions on first aid, and stretching exercises to prevent ergonomic injuries. However, Audit Staff identified opportunities for improvements such as the Safety Rulebook was missing an update and accountability tracking section; the table of contents was located

four pages in, making it less efficient; and adding tabbed chapter markings in the page margins would improve navigability.

**Prior Recommendation** – Add an update and accountability section to the Safety Rulebook, move the table of contents closer to the beginning, and add chapter tabs or margin labels to encourage ease of navigation.

**Follow-Up Finding and Conclusion** – No improvements were made to the functionality of the pdf version of PECO’s Safety Rule Book.

**Current Review**

Any emergency reference materials, including safety manuals, should be easy to navigate and include tracking of all revisions and amendments. PECO’s Safety Rule Book is a 122-page pdf file dated March 2023. However, as noted in Exhibit VI-2, PECO has not implemented any of the recommended changes to the pdf file to improve navigability.

**Exhibit VI-2  
PECO Energy Company  
Status of Changes to PECO’s Safety Rule Book  
2025**

Item No.	Audit Staff’s Recommended Improvements	2025 Review of PECO’s Safety Rule Book PDF
1	The Safety Rule Book is missing an update and accountability tracking section as a record of any changes to the rulebook.	Still missing a section showing the date when changes are made, who made the changes and who approved of the changes.
2	The Table of Contents is located four pages in, which can make it difficult to locate in an emergency.	Table of contents is still on page four.
3	Tabbed chapter markings in the page margins would improve navigability markedly.	Still missing chapter links to quickly find different sections.

Source: Chapter IX, Finding and Recommendation #3 of Management and Operations Audit of PECO Energy Company Issued July 2022 at Docket No. D-2021-3023906 and PUC Data Request EP-15.

While PECO has implemented a downloadable application version of the Safety Rule Book, nothing has been done to show record keeping related edits or to improve the navigability of the pdf version. As a result, the navigability of the Safety Rule Book could be improved.

**Follow-Up Recommendation** – Update PECO’s Safety Rule Book to include a revision history that includes the date it was revised, who made changes, the nature of changes, and who approved them; and add chapter links within the pdf file to improve usability.

## **Finding VI-2**

**Additional Finding and Conclusion – Minor deficiencies in physical security were noticed during tours of PECO’s facilities.**

### **Current Review**

Audit Staff noted various minor physical security deficiencies during inspections of PECO’s facilities. Most of these deficiencies were due to facility age, neglect, weather, and/or general wear and tear. These included concerns such as barbed wire problems, fencing issues, clearance issues, and compromised safety measures.

Physical security should be continuously addressed, and any deficiencies should be remediated in a timely manner. Addressing physical security vulnerabilities reduces the risk of security incidents and protects equipment from damage and outages. Deficiencies in a layer of security can render that layer ineffective. Therefore, any deficiency should be repaired or mitigated in the interest of maintaining multiple, functional layers of security throughout the company’s facilities. Therefore, PECO should repair, remediate, or mitigate the identified deficiencies.

**Follow-Up Recommendation – Correct minor deficiencies in physical security.**

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## **Finding VI-3**

**Additional Finding and Conclusion – PECO is subject to Exelon’s Physical Security Protection Standards which recommend 5’ clearances at fence lines at Office & Support Facilities (O&SF) assets and 10’ clearance for fence lines at gas and electric assets, but most stockpiles/storage yards at O&SF assets are not adhering to these recommendations.**

### **Current Review**

PECO operates under the Exelon Physical Security Protection Standards (Office & Support Facilities), which recommends specific clearances from fence lines, based on the type of asset, when achievable. Several facilities were noted to have fences near physical structures or materials stored near the fence lines, within the clearance areas. The Physical Security Protection Standards recommend specific clearances, and although they are not a requirement, the wording gives the impression that the exceptions are supposed to be for when permanent structures or neighboring facilities not owned by PECO interfere. In addition, from discussions with personnel from PECO security, the point was made that this clearance is not used at smaller storage yards, since they do not have the room to sacrifice the recommended clearance space around the perimeter. However, several of the larger storage facilities also did not follow the clearance recommendation.

PECO has not taken physical measures to remind employees to keep the clearance space clear around fence lines. Without physical measures, such as bollards, concrete parking blocks, barriers, or visual deterrents like painted hatch marks and signage, employees do not adhere to the recommendation for clearance space. The standard was created because encroachment on the fence lines reduces the effective fence height and provides cover for an intruder. In addition, it makes inspection of the fence more challenging or makes breaches more difficult to detect. While Audit Staff recognizes the challenges of limited space at certain facilities, there were other areas where the Exelon Physical Security Protection Standards could and should be followed.

**Follow-Up Recommendation – Install physical measures and visual deterrents at appropriate locations to remind employees to maintain the recommended clearances from fences.**

## VII – CUSTOMER SERVICE

For the customer service functional area, four prior situations and prior recommendations were reviewed. The first finding relates to the degradation of PECO's outstanding customer balances resulting from the COVID-19 pandemic. The second finding relates to realigning the strategy for customer satisfaction through active listening and first call resolution. The third finding relates to completing the replacement of the Customer Information System (CIS). Lastly, the fourth finding relates to determining the reasoning for high turnover of the customer service representatives (CSRs).

### Finding VII-1

#### Prior Situation

COVID-19 brought about challenging economic conditions, which led to the March 13, 2020 Emergency Order that established an extended moratorium for utility disconnects. In response, PECO implemented proactive outreach to its customers such as sending emails and traditional mailers, and providing financial resource information to customers with outstanding balances. Despite its efforts, PECO's long term residential customer accounts receivable balances exponentially increased between 2017-2021. Specifically, PECO's 2021 over 90-day residential accounts receivable balances remained nearly twice as high as pre-pandemic levels. Large overdue balances are typically more difficult to make current and are at an increased risk for non-collection, especially for low-income customers. Therefore, the Company was urged to continue to explore alternatives to lessen the burden on low-income customers while working to reduce long-term arrearages.

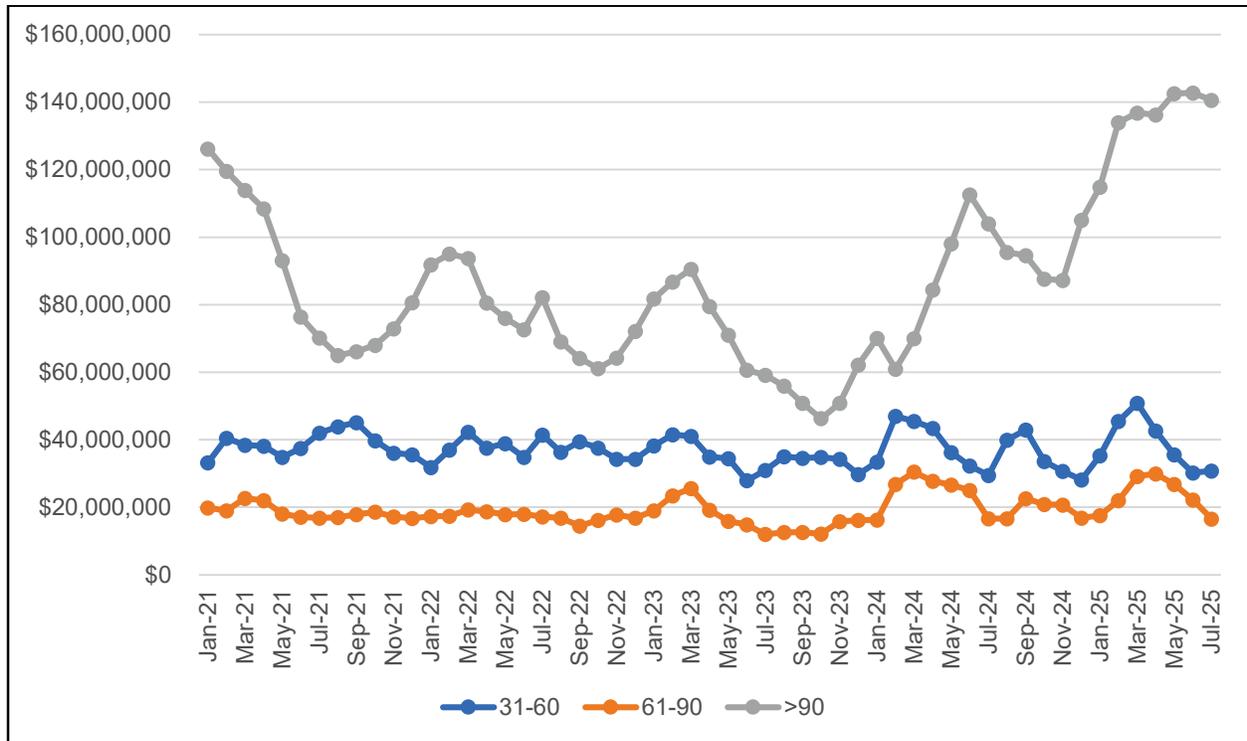
**Prior Recommendation** – Continue outreach efforts to engage payment troubled customers, leverage pandemic and low-income resources to help reduce the overall level of outstanding customer balances.

**Follow-Up Finding and Conclusion** – PECO's long term residential accounts receivable balances decreased between 2021-2024; however, in 2025, outstanding customer balances increased significantly.

#### Current Review

PECO's over 90-day residential accounts receivable (AR) balance levels ultimately returned to pre-pandemic levels during 2023. However, beginning in 2024, PECO's residential accounts receivable balances began to increase exponentially. As shown in Exhibit VII-1, PECO's over 90-days AR balances surpassed the January 2021 high that occurred during the COVID-19 pandemic by over \$16 million.

**Exhibit VII-1  
PECO Energy Company  
Residential Customer Accounts Receivable Balances  
2021 – July 2025**



Source: PUC Data Requests CS-1 and CS-18 and auditor analysis

When queried, PECO indicated the primary drivers which led to further aging of uncollectible AR are as follows:

- Increasing energy prices
- Variances in customer demand
- A delay in collection activities due to the launch of a new Customer Information System (CIS)<sup>20</sup> in February 2024

Generally, older account receivable balances and/or higher account balances are harder to collect and increase the risk of incurring bad debt expense. In addition, higher account balances can impact affordability for low-income customers and increase the risk of an inability to pay. For that reason, more work is necessary to bring low-income customers with large overdue balances current. PECO serves a significant percentage of low-income customers and engages in various outreach events. PECO’s low-income outreach includes virtual sessions, attending church services, and radio station events to connect with customers in need. Referrals from elected officials and partnering with social service agencies have also increased involvement from low-income or vulnerable

<sup>20</sup> Due to the launch of the new CIS, PECO delayed resuming collection activities until August 2025. See Finding VII-3 for more information on PECO’s new CIS.

households by receiving specialized attention or customized payment plans. However, despite these measures, PECO's greater than 90-day residential accounts receivable levels remain higher than those experienced during COVID. As economic challenges continue to persist, additional resources or alternative solutions may need to be implemented to reduce overall long-term residential accounts receivable balances.

**Follow-Up Recommendation – Reduce over 90-day account arrearages levels and continue developing innovative methods to expand resources to assist payment troubled customers and customers who received delayed bills.**

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## **Finding VII-2**

### **Prior Situation**

PECO's customer care call center focused on average handle time performance and extracting critical information from callers. However, Audit Staff observed that by directing calls with such hyperfocus on efficiency, the initial reasoning for the customer's inquiry was not always addressed or reassessed prior to the call ending. The fixation on call handling efficiency created tension between per call efficiency and the ability to resolve the customer's concern in a single call.

**Prior Recommendation** – Refocus efforts on customer experiences to drive customer service satisfaction through active listening and first call resolution.

**Follow-Up Finding and Conclusion – CSRs are more focused on the customer experience but the new CIS is causing a degradation in customer service performance metrics.**

### **Current Review**

During call observations, PECO's CSRs were effective in handling calls, navigating the system and communicating important information given by the customer. CSRs fully addressed each call successfully, whether to address the customers' needs in the first contact or direct them to the next step to address their needs within the appropriate department at PECO. As CSRs addressed customer needs, customers were asked whether their inquiry was resolved to ensure the customers' needs were met on the first call. Nonetheless, some of the calls observed were repeat callers due to not receiving bills for several months since the implementation of the new CIS in February 2024. See Finding and Conclusion VII – 3 for more information about the CIS implementation.

Once PECO completed implementation of the new CIS, CSRs were given time to learn to navigate the system while handling customer inquiries. Since the system transition, CSRs have handled an influx of customer calls, partly due to billing questions from a cold winter, distribution rate increases, and the transition to the new CIS that led to changes in the way customer bills were presented. With all these changes, customer

call times increased and resulted in a decline in several customer service performance metrics.

As shown in Exhibit VII-2, PECO made significant improvements in customer service performance metrics following the 2022 Management Audit; however, performance began to decline in 2024, after the newly implemented CIS went online. Average speed to answer degraded significantly, increasing to an average of 216 seconds (i.e., 3-4 minutes) as of July 2025 compared to a goal of 18 seconds. This wait time likely led to the abandon rate increasing to 11.2%, up from the Company’s goal of 1.6%. While first call resolution, PECO’s tier one metric, showed slight improvement from 2021-2023, it also declined (i.e., 66.21% in 2025 from 71.56% in 2024) after migrating to the new CIS.

**Exhibit VII-2  
PECO Energy Company  
Customer Service Performance Metrics  
2021 – July 2025**

Metric	2021	2022	2023	2024	2025 YTD
All in Service Level - Result	92.50%	86.80%	93.40%	76.40%	69.51%
Goal	90.00%	88.70%	88.70%	88.70%	88.70%
Abandon Rate - Result	1.10%	2.70%	1.70%	6.96%	11.20%
Goal	1.50%	1.40%	1.60%	1.60%	1.60%
Agent Service Level - Result	82.70%	71.30%	85.90%	48.20%	33.11%
Goal	79.00%	76.30%	76.30%	76.30%	76.30%
Average Speed to Answer (ASA) - Result	13.7 Sec	49.7 Sec	13.7 Sec	137.4 Sec	216.6 Sec
Goal	16 Sec	18 Sec	18 Sec	18 Sec	18 Sec
Calls Per Customer - Result	2.1	2.04	1.9	2.98	1.35
Goal	2.58	2.57	NLT	NLT	NLT
Agent Calls Per Customer - Result	0.9	0.9	0.87	0.86	0.52
Goal	1.22	1.21	1.14	1.13	1.08
First Call Resolution (FCR) - Result	73.10%	70.10%	75.50%	71.56%	66.21%
Goal	73.50%	74.00%	74.00%	75.00%	74.00%
Busy Out Rate	0.00069	0.00007	0	0	0
Goal	0.00004	0.00004	0.00004	0.00004	0.00004
Response Time Agreement (Back-Office Correspondence) - Result	93.00%	76.02%	63.90%	49.80%	30.93%
Goal	92.00%	92.40%	92.25%	92.20%	92.20%

NLT – No Longer Tracked

Source: PUC Data Request CS-15 and auditor analysis

Utilities provide a vital service to customers and should aim to meet company goals and customer expectations. However, the newly implemented CIS degraded PECO’s ability to achieve customer service performance goals (see Finding VII-3). While

performance often degrades temporarily with the implementation of a new system, the Company must respond quickly to alleviate prolonged degradation of service. For the moment, the Company's primary focus should be on the customer experience and attempt to correct average speed to answer and call abandon rates first before it can likely improve All in Service Levels or Agent Service Level metrics.

**Follow-Up Recommendation** – Improve overall customer satisfaction by resolving issues with the CIS.

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### **Finding VII-3**

#### **Prior Situation**

PECO's Customer Information System (CIS), although highly customized with alerts built into processes and shortcut icons for quick access to certain functions, was dated. CSRs needed to navigate multiple unintuitive menus and screens to locate certain information, necessitating a high degree of training to understand the nuances of the system.

**Prior Recommendation** – Complete implementation of the replacement CIS.

**Follow-Up Finding and Conclusion** – PECO's implementation of a new CIS led to challenges in addressing customers' needs.

#### **Current Review**

PECO completed implementation of its replacement CIS in February of 2024. As with integration of any new system, it created unanticipated challenges that impacted PECO's use of the new CIS (see Finding VII-2). For instance, during an observation conducted by PUC Auditors there was an occasion where system downtime occurred. CSRs were instructed to stay off the system until it was back online. Although CSRs were able to input information, the connection from one interface to another was delayed, causing a disruption in the CSRs workflow that impacted the customer experience.

Additionally, PUC Auditors observed multiple inquiries where customers did not receive their bills regularly and had significant unpaid balances. Response times for high bill customer complaints rose from 10 days in 2021 to 27 days as of May 2025. In addition, the PUC saw an increase in PECO customers filing informal complaints that PECO could not respond to in a timely manner as set forth by 52 Pa. Code §56.151. To address these issues, PECO indicated its remedial efforts included increasing staffing levels to resolve billing issues and outstanding delayed bills, working to address the causes that triggered delayed bills and identifying solutions, and communicating with impacted customers, by providing billing explanations, extending payment arrangements and waiving late payment fees.

Due to the delayed collections activities mentioned in Finding VII-1, and the errors created by the CIS transition, the uptick in customer calls has been challenging for PECO. CSRs tasked with learning to navigate a new system that is not successively operating can lead to increased difficulty and inefficiency. Therefore, PECO should continue to identify and address any remaining technical issues that resulted from implementation of the new CIS. These technical hurdles must be remediated first to allow CSRs to efficiently serve customers and improve customer service performance.

**Follow-Up Recommendation – Remediate technical issues causing errors such as billing issues and downtime of the new CIS.**

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### **Finding VII-4**

#### **Prior Situation**

In 2020 and 2021, PECO experienced elevated separation levels of its customer service bargaining unit (BU) staff, which is mostly composed of call handling CSRs. While internal transfers and promotions to other Company positions were a cause of some separations, most of PECO's separations were external losses. In March 2020, due to the pandemic, PECO's CS department provided flexibility to its workforce by transitioning its customer care center CSRs to telework status. By 2021, despite the increased flexibility, separations of CSRs remained higher than those experienced before the pandemic. PECO's HR department was unable to identify the root cause of the separations in part due to a lack of feedback provided during exit interviews.

**Prior Recommendation** – Identify and address the root cause of CSR separations.

**Follow-Up Finding and Conclusion** – PECO implemented several benefits to retain CSRs, which effectively lowered turnover.

#### **Current Review**

PECO relies on exit interviews and stay interviews to gain insights on how to improve talent retention. From recent employee surveys, PECO determined key motivators for retention were the ability to work from home and more favorable compensation. In addition, transfers are a contributing factor to increased separations, as many CSRs move to different departments within PECO because of gained experience. Other CSRs move from entry-level positions to becoming coaches for other CSRs. Retirement is another factor in turnover.

PECO's CSRs are covered by a collective bargaining agreement signed in 2021 that continues through 2026. As part of this agreement, salaries for CSRs were increased incrementally with an initial \$3 per hour salary increase, another \$3 increase in 2022, and additional \$1 every year thereafter until 2026, totaling \$10 over the life of the contract. In addition, PECO continues offering remote-work to CSRs. CSRs are required to return to

office for training, during an online outage that is over 15 minutes, as outlined in the BU contract, or if a CSR requires remediation after scoring a C or below on their customer service metric scorecard.

During the audit period, PECO’s efforts to retain CSRs appear effective. Trending PECO employee data shows CSR turnover declined significantly since 2021. Depicted in Exhibit VII-3, the external turnover rate<sup>21</sup> decreased from 17.6% in 2021 to 3.8% in 2025. Declining turnover rates should also help improve performance and reduce onboarding costs. Therefore, PECO should continue to assess practical ways to retain employees.

**Exhibit VII-3  
PECO Energy Company  
Bargaining Unit CSRs External Turnover  
2021 – July 2025 YTD**

	2021	2022	2023	2024	2025 YTD*
Separations	18	14	3	4	0
Termination	10	10	10	3	6
Non-Exempt BU	159	145	185	158	160
External Turnover	17.6 %	16.6 %	7.0 %	4.4 %	3.8 %

\* As of July 31, 2025  
Source: PUC Data Request CS-16 and CS-17 and auditor’s analysis

**Follow-Up Recommendation – None**

<sup>21</sup> The external turnover rate was calculated by taking the year’s total of identified separations and terminations, excluding transfers and retirements, divided by the same year’s non-exempt bargaining unit (BU) employees.

## VIII – HUMAN RESOURCES

For the human resources functional area, two prior situations and recommendations were reviewed. The first finding relates to PECO's annual OSHA total recordable and DART incidence rates being higher than the industry average for firms of comparable size. The second finding relates to a rise in motor vehicle accidents and failing to meet its internal goal for accident frequency.

### Finding VIII-1

#### Prior Situation

Between 2017-2021 PECO did not meet its internal benchmark for TRIR (Total Recordable Incident Rate) and DART (Days Away, Restricted or Transferred). PECO performed below industry rates from 2018-2020 in both categories for firms with more than 1000 employees. PECO cited ergonomic related incidents, the Company's mature safety culture, and setting stretch goals as primary drivers for the high rate of OSHA recordable injuries and missed goals. The Company created a comprehensive safety program but at times were unable to determine the root cause for some injuries. Furthermore, the pandemic had placed operational burdens on PECO, with the need to maintain 24/7 operation despite the changing conditions caused by COVID. This presented new challenges to ergonomics with many employees working from home or doing business differently than in the past.

Prior Recommendation – Improve safety performance.

Follow-Up Finding and Conclusion – PECO's safety performance has remained stable; however, PECO continues to fall short of both industry benchmarks and their internal targets.

#### Current Review

PECO has a mature safety culture that leads it to be seen as a core value with shared responsibility between its employees and management. PECO employees receive regular safety-related training required by their job position. In addition, to improve access to safety documentation, PECO is migrating its hardcopy safety manual to a software application, which will increase ability and functionality.

Exhibit VIII-1 shows PECO's actual and targeted accident statistics for recordable events/number of injuries, lost workdays, and DART (days away from work and/or work restriction events) compared to OSHA rates. PECO's data includes contractor reportable incidents. However, due to timing OSHA's Recordable Injury and DART Rates as reported by the Bureau of Labor Statistics data is only available for 2021-2023 whereas PECO data is presented from 2021-2025. As can be seen below, PECO's Total Recordable Injury and DART Rates exceed the OSHA reportable rate for similar sized

companies (i.e., 1,000+ employees). Furthermore, PECO has not been able to meet its internally set goals for OSHA Recordable Injury Rate or DART Rate.

**Exhibit VIII-1  
PECO Energy Company  
Total Recordable Injury and DART Rate  
2021 – August 2025 YTD**

	2021	2022	2023	2024	2025 YTD*
PECO's OSHA Recordable Injury Rate	1.28	0.93	1.17	1.17	0.98
PECO's Target	0.80	0.80	0.80	0.80	0.80
OSHA's Industry Overall	1.50	1.70	1.70	NA	NA
OSHA's Industry 1,000+ employees	0.80	0.70	0.80	NA	NA
PECO's DART Rate	0.86	0.75	0.93	0.92	0.74
PECO's Target	0.48	0.47	0.46	0.44	0.44
OSHA's Industry Overall	1.00	1.00	1.00	NA	NA
OSHA's Industry 1,000+ employees	0.60	0.50	0.40	NA	NA

\*As of August 31, 2025

NA- Not Applicable

Source: PUC Data Requests HR- 2 and HR-3 and the Bureau of Labor Statistics website

PECO's Safety and Human Performance department is actively working to improve its safety statistics by reviewing trends in injuries and then studying their causes such as ergonomic injuries and vehicle incidents. This information is then used to take corrective action and may lead to dedicated training, safety messages, etc. Audit Staff commends PECO for its overall safety program and setting stretch goals. However, more work is needed to improve safety performance.

**Follow-Up Recommendation – Continue to improve safety performance.**

**Finding VIII-2**

**Prior Situation**

During the 2022 Management Audit, Audit Staff found PECO failed to meet internal benchmarks for all MVAs (motor vehicle accidents) and RVAs (responsible motor vehicle accidents). The Company experienced an increase in the MVA and RVA rates from 2017 to 2021. Although Exelon Utilities and PECO already had teams dedicated to promoting safe driving, safe driving was not a specific focus of the safety best practice program until 2020.

**Prior Recommendation** – Reduce the rate of all motor vehicle accidents.

**Follow-Up Finding and Conclusion** – PECO’s responsible vehicle accident rate declined while the total motor vehicle accident rate remained steady.

**Current Review**

PECO continues to monitor and track MVAs and RVAs involving the Company’s vehicles and personnel. As shown in Exhibit VIII-2, from 2021 through July 2025 PECO’s rate of RVAs has declined slightly while the rate of MVAs has been relatively consistent. However, the Company has been unable to meet its internal benchmarks<sup>22</sup> for either metric.

**Exhibit VIII-2  
PECO Energy Company  
Vehicle Accidents per Million Miles  
2021 – July 2025 YTD**

	2021	2022	2023	2024	2025 YTD*
Annual MVA Rate	11.48	9.47	12.95	10.95	11.60
Target Rate	8.46	8.46	8.33	8.21	8.21
Annual RVA Rate	4.01	3.44	3.58	3.7	2.84
Target Rate	2.60	2.60	2.56	2.44	2.44

\*As of July 31, 2025  
Source: PUC Data Request HR-4

In May 2024, PECO’s Driver Training School opened at the former PECO Oreland Service Building. The driver training school provides ongoing training to employees driving Company CDL and non-CDL vehicles. All employees are expected to complete the program annually. The curriculum includes Smith Driving principles, a slow speed driving maneuvering course and an on-road driving route to utilize the skills learned.

PECO analyzes safety data to identify trends to implement targeted training and communications for employees. For example, PECO implemented a Safe Driving Campaign which occurs in both April and August to help mitigate increased accidents occurring in June and September. Despite these efforts, PECO’s performance is still above its goals for both RVAs and MVAs. The improvement in RVAs, which can be controlled, seems to indicate the Company’s additional focus is making progress. Nonetheless, additional effort is needed to reduce the number of motor vehicle accidents.

**Follow-Up Recommendation** – Continue efforts to reduce the total number of motor vehicle accidents.

<sup>22</sup> To have a consistent definition of responsible vehicle accidents and motor vehicle accidents which would also align and would be implemented by other utilities, Exelon is currently working with Edison Electric Institute to help develop a consistent definition of responsible vehicle accidents to produce better benchmarking in 2026.



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