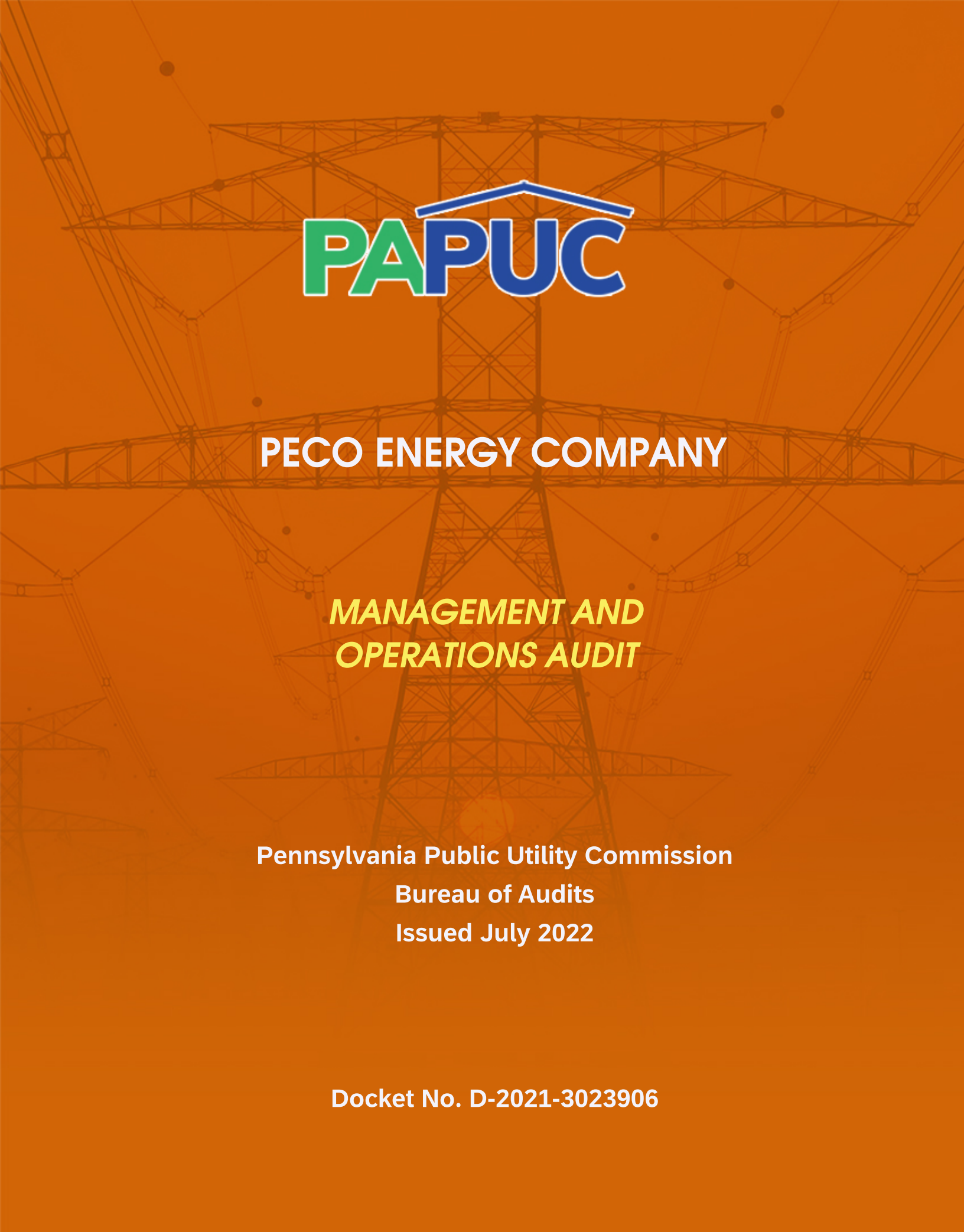

PECO ENERGY COMPANY

MANAGEMENT AND OPERATIONS AUDIT

Pennsylvania Public Utility Commission
Bureau of Audits
Issued July 2022

Docket No. D-2021-3023906

PECO ENERGY COMPANY
MANAGEMENT AND OPERATIONS AUDIT

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I. INTRODUCTION

Pennsylvania law grants the Pennsylvania Public Utility Commission (PUC or Commission) the general administrative power and authority to supervise and regulate public utilities within the Commonwealth of Pennsylvania per 66 Pa. C.S. § 501(b). Management and operational audits are required of certain Pennsylvania-based utility companies pursuant to 66 Pa. C.S. § 516(a). Specifically, the Commission can investigate and examine the condition and management of any public utility, 66 Pa. C.S. § 331(a).

In accordance with the PUC's ongoing program to identify improvements in the management and operations of fixed utilities under its jurisdiction, it was determined that a management and operations audit should be conducted of PECO Energy Company (PECO or company).

This report summarizes the work of the PUC's Management Audit Division and outlines its conclusions. The findings presented in the report identify areas and aspects where weaknesses or deficiencies exist. In all cases, recommendations are offered to improve, correct, or eliminate these conditions. The final, and most important step, in the management audit process is to initiate actions toward implementation of the recommendations.

A. Objectives and Scope

The objectives of this management and operations audit were:

- To provide the Commission, PECO, and the public with an assessment of the efficiency and effectiveness of the company's operations, management methods, organization, practices, and procedures
- To identify opportunities for improvement and develop recommendations to address those opportunities
- To provide an information base for future regulatory and other inquiries into the management and operations of PECO

The scope of this audit was limited to certain areas of the company as explained in Section B, Audit Approach.

B. Audit Approach

The management and operations audit was performed by the Management Audit Division of the PUC's Bureau of Audits (PUC auditors or audit staff). The audit process began with a pre-field work analysis as outlined below:

- A five-year internal trend (2016-2020) and ratio analysis was completed using financial and operational data obtained from the company, Commission, and other available sources.

- Input was solicited from PUC bureaus and offices, external parties, and PECO regarding any concerns or issues they would like addressed during our review.

- Prior management and operations audits, follow-up management efficiency investigations, implementation plans, implementation plan progress reports, other Commission-conducted audits, annual diversity reports, and other available documents were reviewed.

This information was used to focus the PUC auditors' work efforts. Specifically, the listed functional areas were selected for an in-depth analysis and are included in this report:

- Executive Management and Organizational Structure
- Corporate Governance
- Affiliated Interests and Cost Allocations
- Financial Management
- Electric Operations
- Gas Operations
- Emergency Preparedness
- Materials Management
- Customer Service
- Information Technology
- Fleet Management
- Human Resources and Diversity

The pre-field work analysis should not be construed as a comprehensive evaluation of the management or operations in the functional areas not selected for in-depth examination. Had we conducted a thorough review of those areas, weaknesses or deficiencies may have come to our attention that was not identified in the limited pre-field work review.

Fieldwork began on June 23, 2021 and continued intermittently through January 18, 2022. The principal components of the fact gathering process included:

- Interviews with company personnel as well as other Commission Bureaus
- Analysis of records, documents, and reports of a financial and operational nature focused primarily on the period 2017-2021
- Visits to select company facilities and observation of work practices

C. Functional Area Ratings

For the functional areas selected for in-depth examination, the PUC auditors rated the operating or performance level relative to the expected performance level at the time of the audit. This expected performance level is the state at which each functional area should be operating given the company's resources and general operating environment. Expected performance is not a "cutting edge" operating condition; rather, it is management of a functional area such that it produces reasonably expected operating results.

Listed below are the evaluative categories used to rate each functional area's operating or performance level:

- Meets Expected Performance Level
- Minor Improvement Necessary
- Moderate Improvement Necessary
- Significant Improvement Necessary
- Major Improvement Necessary

Our ratings for each reviewed functional area can be found in Exhibit I-1 on the next page.

Exhibit I-1
PECO Energy Company
Management and Operations Audit
Functional Rating Summary

Functional Area	Meets Expected Performance Level	Minor Improvement Necessary	Moderate Improvement Necessary	Significant Improvement Necessary	Major Improvement Necessary
Executive Management and Organizational Structure	X				
Corporate Governance	X				
Affiliated Interests and Cost Allocations			X		
Financial Management	X				
Electric Operations			X		
Gas Operations			X		
Emergency Preparedness		X			
Materials Management	X				
Customer Service		X			
Information Technology	X				
Fleet Management	X				
Human Resources and Diversity		X			

D. Benefits

Where possible, the audit staff attempts to quantify the potential savings that would be expected from effectively implementing the recommendations made in this report. The audit report contains identifiable potential quantifiable cost savings of approximately $15 million in annual savings and $13,581,327 in one-time savings from effective implementation of the recommendations. We try to identify, whenever it is reasonably practical, the potential savings net of the projected costs for implementation. Some of these savings could be considered an actual reduction in costs, avoided costs or increased revenues, whereas others would result from better deployment and/or use of existing resources. These quantifications require some judgment and may require efforts beyond the scope of the audit for further refinement. Therefore, the actual benefits from effective implementation of the recommendations are subject to some degree of uncertainty and could be higher or lower than the amounts estimated by the audit staff. An overall summary of the annual and one-time cost savings quantified in the audit report are shown in Exhibit I-2.

Exhibit I-2
PECO Energy Company
Management and Operations Audit
Quantifiable Savings Summary

Recommendation	Annual Savings	One-Time Savings
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. (V-1)	-	$13,581,327
Reduce Electric operations staff overtime to 15% overtime hours per normal hours worked or less. (VI-1)	Up to $15,000,000	-
Reduce Gas Operations staff overtime to 15% overtime hours per normal hours worked or less. (VII-3)	(a subset of $15,000,000 in VI-1)	-
Totals	$15,000,000	$13,581,327

For most recommendations, it was impractical to estimate quantitative benefits as the benefits are of a qualitative nature, or insufficient data was available to quantify the impact. For example, it is difficult to estimate the actual benefit where new management practices or procedures are recommended where such did not previously exist or were not fully functional. Similarly, changes in workflow or implementation of good business practices could result in improved effectiveness and efficiency of a function but cannot be easily quantified.

The company will have options to implement the recommendations and, as a result, the PUC auditors have not estimated the cost of implementation for recommendations where no savings were quantified. However, it should be noted that the cost of implementing some recommendations could be significant.

E. Current Events

On March 6, 2020, the Governor of Pennsylvania, Tom Wolf, declared a disaster emergency due to the COVID-19 pandemic. This and other state government actions ordered all but essential businesses and their operations closed for the safety of the general public. Although fixed utility operations such as electric distribution and gas distribution were considered essential, most of the back-office functions such as corporate management, accounting and government relations were deemed nonessential. Most Pennsylvania utilities closed their business offices and allowed their employees to work remotely. The Pennsylvania Public Utility Commission also closed the main office and allowed employees, including those of the Audit Bureau, to perform their functions remotely. All nonessential travel and in-person meetings were prohibited.

As such, the COVID-19 crisis affected the approach and timeline of the audit. For example, some interviews and data request responses were delayed or modified. In all cases, the audit staff worked with PECO Energy Company to acquire information needed to issue the findings and recommendations contained within this report. Although some aspects of fieldwork were modified and/or unfeasible, we worked to minimize the impact to the conclusions presented within the report. We believe that our procedures sufficiently mitigate the audit risk associated with altering our standard practices. However, conclusions presented within this report may change if additional information is made available. Furthermore, it is important to note that although COVID-19 affected the companies' operations; this report does not, nor was it intended to evaluate modifications to operations.

F. Recommendation Summary

Chapters III through XV provide findings, conclusions, and recommendations for each function or area reviewed in-depth during this audit. Exhibit I-3 summarizes the recommendations with the following priority assessments for implementation:

- INITIATION TIME FRAME – Estimated time frame on how quickly the company should be able to initiate its implementation efforts given the company's resources and general operating environment. The time necessary to complete implementation is expected to vary depending on the nature of the recommendation and the scope of the efforts necessary and resources available to effectively implement the recommendation.

- BENEFITS – Net quantifiable benefits have been provided where they could be estimated as discussed in Section D - Benefits. Our overall rankings are not solely based on quantifiable dollars but rather our assessment of the potential overall impact of the recommendation on the efficiency and/or effectiveness of the company and/or the services it provides.

    - HIGH BENEFITS – Implementation of the recommendation would result in major service improvements, substantial improvements in management practices and performance, and/or significant cost savings.

    - MEDIUM BENEFITS – Implementation of the recommendation would result in important service improvements, meaningful improvements in management practices and performance, and/or meaningful cost savings.

    - LOW BENEFITS – Implementation of the recommendation is likely to result in service improvements, management practices and performances, and/or enhance cost controls.

PECO Energy Company
Management and Operations Audit
Summary of Recommendations

Rec. No.	Recommendation	Page No.	Initiation Time Frame	Benefits (including $ estimates)
Chapter III – Executive Management and Organizational Structure				
	None			
Chapter IV – Corporate Governance				
	None			
Chapter V – Affiliated Interests and Cost Allocations				
V-1	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.	30	0-12 Months	High $13,581,327 one-time savings
V-2	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.	30	12+ Months	Medium
V-3	File PECO's money pool agreement for approval with the PUC.	30	0-6 Months	Low
Chapter VI – Financial Management				
	None			
Chapter VII – Electric Operations				
VII-1	Reduce Electric Operations staff overtime to 15% overtime hours per normal hours worked or less.	55	0-6 Months	High Up to $15 million annual savings (see VIII-3)
VII-2	Improve SAIDI and CAIDI to at or below the PUC Benchmarks.	55	0-12 Months	High
VII-3	Reduce the number of customers experiencing multiple interruptions and strive to have zero CEMI 10+.	55	12+ Months	High
VII-4	Reduce outages caused by broken/uprooted vegetation to the 2015-2018 average levels	55	0-12 Months	Medium
VII-5	Reduce interruptions caused by equipment failures.	55	0-12 Months	Medium
Chapter VII – Gas Operations				
VIII-1	Reduce company-at-fault hits on gas infrastructure.	73	0-6 Months	High
VIII-2	Study and then identify ways to reduce plastic pipe main and service damages with a focus on line hits.	73	0-6 Months	High

PECO Energy Company
Management and Operations Audit
Summary of Recommendations

Rec. No.	Recommendation	Page No.	Initiation Time Frame	Benefits (including $ estimates)
Chapter VIII – Gas Operations (continued)				
VIII-3	Reduce Gas Operations staff overtime to 15% overtime hours per normal hours worked or less.	73	0-12 Months	High Up to $15 Million annual savings (see VII-1)
VIII-4	Accelerate the rate of GPS location for key gas infrastructure.	73	12+ Months	Medium
Chapter IX –Emergency Preparedness				
IX-1	Correct minor deficiencies in physical security.	78	0-3 Months	High
IX-2	Ensure that all fire extinguishers and first aid kits are being inspected and tagged monthly.	78	0-3 Months	High
IX-3	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.	78	0-6 Months	Low
IX-4	Develop a lifecycle tracking and replacement program for security equipment.	78	0-12 Months	Medium
Chapter X – Materials Management				
	None			
Chapter XI - Customer Service				
XI-1	Continue outreach efforts to engage payment troubled customers, leverage pandemic and low-income resources to help reduce the overall level of outstanding customer balances.	93	0-6 Months	High
XI-2	Refocus efforts on customer experiences to drive customer service satisfaction through active listening and first call resolution.	93	0-12 Months	Medium
XI-3	Complete implementation of the replacement CIS.	93	12+ Months	Medium
XI-4	Identify and address the root cause of CSR separations.	93	0-6 Months	Low
Chapter XII – Information Technology				
	None			
Chapter XIII – Fleet Management				
	None			
Chapter XIV – Human Resources and Diversity				
XIV-1	Improve Safety Performance.	108	0-12 Months	High
XIV-2	Reduce the rate of all motor vehicle accidents.	108	0-12 Months	High

II. BACKGROUND

PECO Energy Company (PECO or company) is a wholly owned subsidiary of Exelon Energy Delivery Company, LLC (EED), a holding company of regulated electric and gas distribution utilities. EED, in turn, is a wholly owned subsidiary of Exelon Corporation (Exelon), a utility services holding company. EED's largest subsidiary, Commonwealth Edison Company (ComEd) has approximately 4.1 million electric customers in the northern region of Illinois, including the city of Chicago. PECO is EED's second largest subsidiary and serves about 1.67 million electric and 537,000 natural gas customers in southeastern Pennsylvania. PECO's service territory covers seven counties as shown in Exhibit II-1.

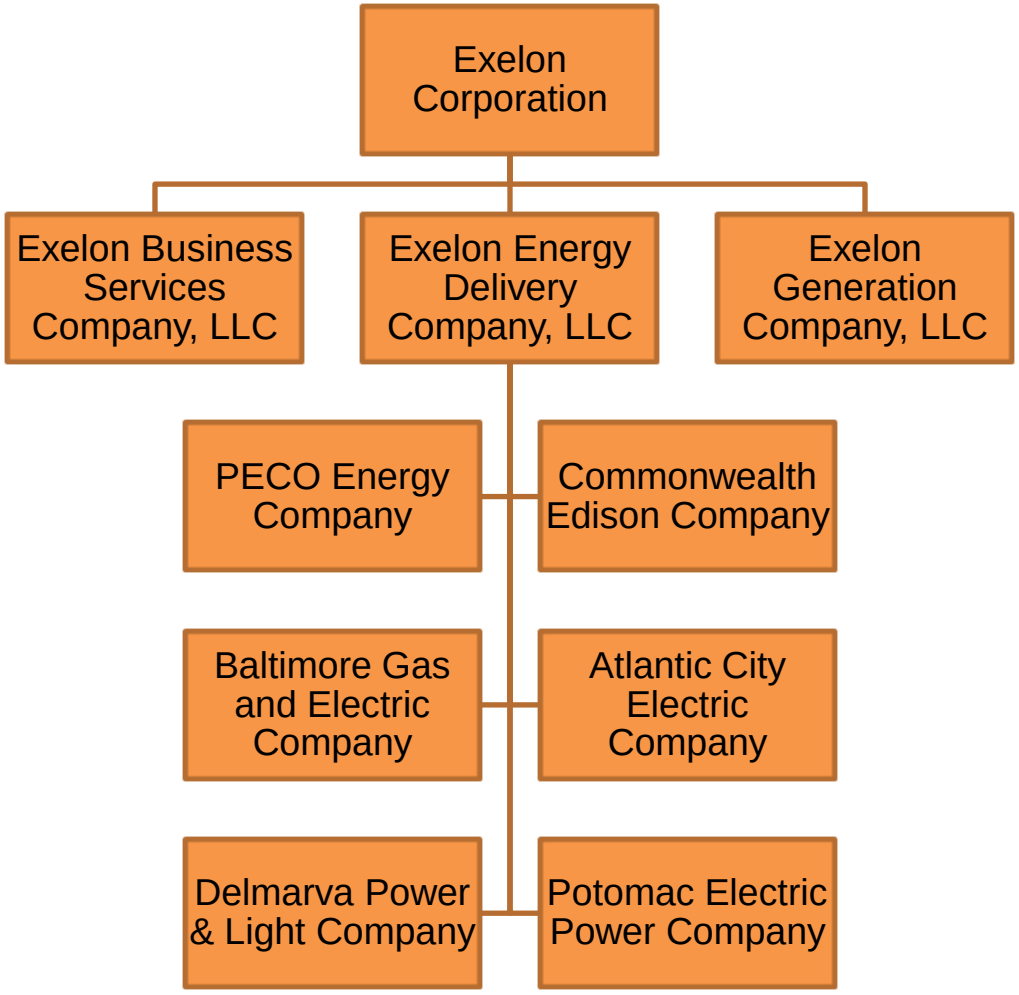
Exhibit II-1
PECO Energy Company
Service Territory
As of January 2022

Source: PECO website at https://www.peco.com/AboutUs/Pages/CompanyInformation.aspx

Over the last 10 years, Exelon has acquired additional gas and electric utilities. In 2012, Exelon completed its merger with Constellation Energy Group, Inc. (Constellation). As part of the deal, Exelon acquired Baltimore Gas and Electric Company (BGE), which serves approximately 1.3 million electric and gas customers in central Maryland including the city of Baltimore, as well as Constellation's generation units and energy products and services companies, which became subsidiaries of Exelon Generation Company, LLC (ExGen). In 2016, Exelon completed its merger with Pepco Holdings Inc. (PHI). As part of the deal, Exelon acquired Atlantic City Electric (ACE), Delmarva Power and Light Company (DPL), and Potomac Electric Power Company (PEPCO).

Exhibit II-2 illustrates the structure of certain Exelon subsidiaries that are discussed throughout this audit report. Exhibit II-3 shows the service territories and customers served for each of Exelon's utilities as of December 31, 2020.

Exhibit II-2
Exelon Corporation
Abbreviated Corporate Entity Chart
As of March 31, 2021



Note: Exelon Corporation has additional subsidiaries, which are not shown on the organizational chart or included within the scope of this audit, including the subsidiaries of Exelon Generation Company.
Source: Data Request CG-1

Exhibit II-3
Exelon Corporation
Utilities' Service Territories and Customers Served
As of December 31, 2021

	ComEd	PECO	BGE	Pepco	DPL	ACE
Service Territories (sq miles)						
Electric	11,450	2,100	2,300	650	5,400	2,750
Gas	N/A	1,960	3,050	N/A	270	N/A
Total	**11,450**	**2,100**	**3,250**	**650**	**5,400**	**2,750**
Service Territory Population (in millions)						
Electric	9.3	4.0	3.0	2.4	1.5	1.2
Gas	N/A	2.5	2.9	N/A	0.6	N/A
Total	**9.3**	**4.0**	**3.1**	**2.4**	**1.5**	**1.2**
Main City	Chicago	Philadelphia	Baltimore	District of Columbia	Wilmington	Atlantic City
Main City Population (in millions)	2.7	1.6	0.6	0.7	0.1	0.1
Number of Customers (in millions)						
Electric	4.1	1.7	1.3	0.9	0.5	0.6
Gas	N/A	0.5	0.7	N/A	0.1	N/A
Total	**4.1**	**1.7**	**1.3**	**0.9**	**0.5**	**0.6**

Source: Exelon's 10-K for the year ending December 31, 2021
https://www.sec.gov/ix?doc=/Archives/edgar/data/78100/000110935722000039/exc-20211231.htm

Employees of Exelon Business Services Company (Exelon BSC or Service Company) provide a variety of support services, including information technology, legal, supply, human resources, finance, real estate, corporate governance, and oversight to Exelon's operating companies. As discussed further in Chapter V – Affiliated Interests and Cost Allocations, PECO receives services from, and provides services to, several of its affiliate companies including Exelon BSC, ExGen[1], BGE and ComEd. See Chapter III – Executive Management and Organizational Structure for more information regarding reporting relationships within PECO and Exelon BSC.

Exhibit II-4 presents a summary of PECO's customers, usage, and revenues by customer class as of December 31, 2020 for electric and gas distribution operations. For electric operations, residential customers were about 90% of the customer base, 40% of the usage, and 65% of revenue. Commercial customers comprised approximately 9% of the customer base, 20% of the usage, and 15% of revenue. Industrial electric customers were less than 1% of the customer base, 40% of the usage, and 8% of PECO's revenue. With respect to gas operations, residential gas customers constituted about 92% of the customer base, 47% of the usage, and 70% of revenues. Commercial customers were approximately 8% of the customer base, 26%

[1] Exelon was preparing to divest from its generation companies in Q1 2022.

of the usage and revenues. Industrial customers comprised less than 1% of PECO's customer base, 27% of the usage, and 3% of total gas revenues.

Exhibit II-4
PECO Energy Company
Customer Statistics
For the Year Ended December 31, 2020

Electric						
Customer Class	**No. of Customers**	**Percentage of Total Customers**	**MWH Sold**	**Percentage of Total Sales**	**Revenues**	**Percentage of Total Revenues**
Residential	1,508,622	89.99%	14,040,747,134	39.54%	$1,655,748,940	65.12%
Commercial	154,421	9.21%	7,210,181,651	20.31%	$385,547,435	15.16%
Industrial	3,101	0.19%	13,668,658,348	38.49%	$227,718,639	8.95%
Other *	10,206	0.61%	589,959,020	1.66%	$273,750,685	10.77%
Totals	**1,676,350**	**100.00%**	**35,509,546,153**	**100.00%**	**$2,542,765,699**	**100.00%**

Gas						
Customer Class	**No. of Customers**	**Percentage of Total Customers**	**MCF Sold**	**Percentage of Total Sales**	**Revenues**	**Percentage of Total Revenues**
Residential	492,298	91.59%	38,271,701	46.56%	$360,780,572	70.03%
Commercial	44,830	8.34%	21,325,152	25.94%	$132,987,594	25.82%
Industrial	355	0.07%	22,584,621	27.48%	$17,353,588	3.37%
Other *	5	0.00%	17,075	0.02%	$4,014,305	0.78%
Totals	**537,488**	**100.00%**	**82,198,549**	**100%**	**$515,136,059**	**100.00%**

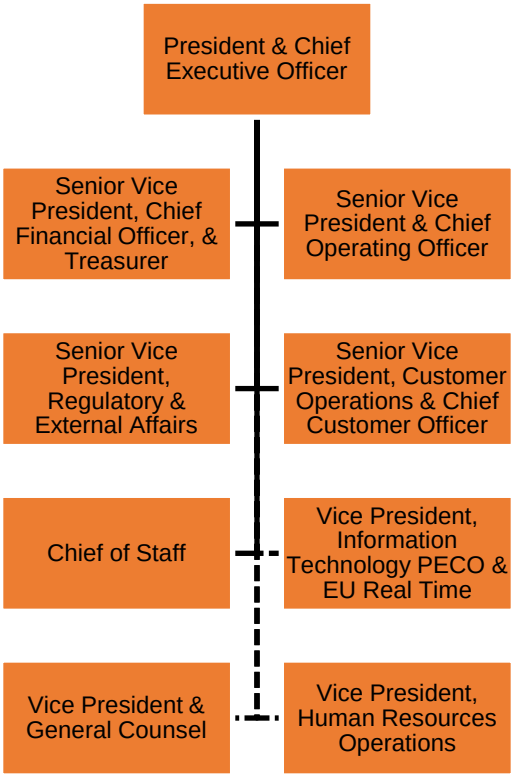
* Includes public and interdepartmental income/sales.
Source: 2020 PECO Energy Company Annual Reports

III. EXECUTIVE MANAGEMENT AND ORGANIZATIONAL STRUCTURE

Background

As discussed in Chapter II – Background, PECO Energy Company (PECO or company) and Exelon Business Services Company (Exelon BSC or Service Company) are subsidiaries of Exelon Corporation (Exelon). Exhibit III-1 shows the direct and indirect reports of PECO's President and CEO. The dotted line reporting relationships within this chart, delineates the indirect or dual reporting[2] responsibilities of individuals within PECO and Exelon BSC. Specifically, the three VPs with a dotted line reporting relationship to PECO's President and CEO are Exelon BSC employees that lead support functions provided from the Service Company to PECO. See Chapter XII – Information Technology and Chapter XVII – Human Resources for more information about these departments and Chapter V – Affiliated Interests and Cost Allocations for additional information regarding shared services.

Exhibit III-1
PECO Energy Company
Executive Leadership Team
As of June 23, 2021

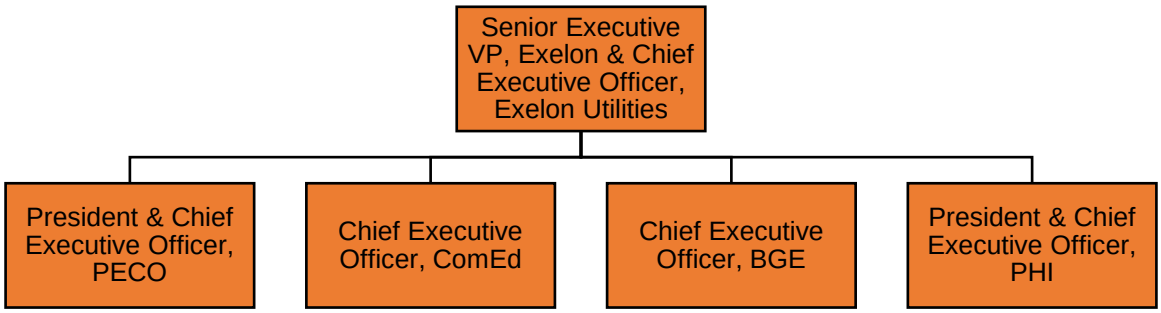


Note: The dotted reporting line represents the dual reporting responsibilities these three VPs have with executives within the Exelon BSC organization.
Source: PECO Supplied Data and auditor analysis

[2] Matrix style structure.

PECO's President and CEO reports to the Senior Executive VP, Exelon & CEO, Exelon Utilities, who also oversees the CEOs of Commonwealth Edison Co (ComEd), Baltimore Gas and Electric Company (BGE), and PHI (a utility services holding company of Atlantic City Electric (ACE), Delmarva Power and Light Company (DPL), and Potomac Electric Power Company (PEPCO)) as shown in Exhibit III-2.

Exhibit III-2
Exelon Corporation
Exelon Utilities Organizational Chart
As of June 2021



Source: Company supplied data

Exelon Utilities provides oversight, fosters collaboration, and drives best practices within Exelon's regulated utilities. One way Exelon Utilities accomplishes these tasks is via established peer groups. Generally, these peer groups are comprised of manager (or higher) level employees for a functional area from each utility. The peer groups try to identify opportunities for the utilities to improve performance and standardize policies, procedures, systems, and best practices.

In addition to specific embedded departments (i.e., Legal, Supply Operations, Human Resources, etc.), there are embedded employees within various departments throughout PECO. The embedded designation is used to classify employees working under the direction of Exelon BSC and providing a shared service, who dedicate 100% of their time on PECO related matters and accordingly charge their time to PECO. The salaries of embedded employees are directly charged to PECO, but these employees perform support functions generally considered as Exelon BSC functions. Embedded employees have dual reporting to both the Exelon BSC organization and PECO's management.

Exhibit III-3 presents PECO's staffing levels from 2017 through 2021; there has been a 5% increase in employees over the five-year period. As of December 31, 2021, there were 143 embedded employees included in this total. Some notable changes during this period include the hiring of employees within PECO Technical Services (~70) and Support Services (~40) to support PECO's LTIIP and infrastructure improvement.

Exhibit III-3
PECO Energy Company
Staffing Levels by Department
2017 – 2021

Department	2017	2018	2019	2020	2021
Communications[+]	6	6	8	9	9
Construction & Maintenance[*]	632	657	665	650	652
Controller[+]	21	20	20	19	16
Customer Operations	485	465	454	454	432
Distribution Operations[*]	311	318	345	361	373
Energy Acquisition	25	27	26	27	28
External Affairs	98	93	90	93	113
Finance	33	34	30	24	29
Human Resources[+]	19	21	16	16	15
Information Technology	28	24	0[^]	0	0
Legal[+]	12	12	11	10	10
PECO Gas	327	347	372	366	361
PECO Technical Services[*]	104	112	132	170	175
PECO Support	30	31	31	31	35
Regulatory Affairs	28	27	26	30	29
Supply[+]	63	66	62	61	61
Support Services	141	160	157	171	187
Transmission & Substations[*]	234	229	237	244	251
Transmission Operations & Planning[*+]	41	42	40	37	3[^]
Total Employees	**2,638**	**2,691**	**2,722**	**2,773**	**2,779**

[*] These five departments support Electric Operations.

[+] As of 2021, these six departments are BSC embedded departments.

[^] At year end, employees who were previously embedded within PECO now report directly to Exelon BSC.
Source: Data Request EM-2, EM-15, and auditor analysis

In addition to staffing levels, the audit staff evaluated PECO's most recent span of control analysis conducted for the management team as shown in Exhibit III-4. Spans of control refer to the number of subordinates a management position directly supervises. In general, for maximum organizational efficiency and effectiveness, a company should have spans of control in the range of 1:4 to 1:9[3]. As of May 2021, only 37% of PECO's reporting relationships fell within the target range of 1:4 to 1:9 with about 20% below 1:4 and 43% above 1:9.

Utility operations can present unique situations where very large or very small spans may be required. For example, PECO noted that for some larger spans, there

[3] Overly narrow spans of control can result in inefficient communications, micro-management, and too many layers of management. Spans of control that are too wide can result in poor performance due to insufficient management oversight and control.

are foremen and master technicians embedded in the headcount who oversee the day-to-day work of other employees (20% of reporting relations have a relationship greater than 1:16) and that some narrow spans are indicative of employees overseeing work performed by contractors or specialized knowledge areas. PECO's HR personnel review spans of control during reorganizations and as part of its workforce planning process that occurs at least every other year.

Exhibit III-4
PECO Energy Company
Spans of Control
As of May 10, 2021

Reporting Ratio	Number of Relationships	Percent of Total Relationships
1:1	9	3%
1:2	24	8%
1:3	26	9%
<1:4 Subtotals	59	20%
1:4	13	4%
1:5	21	7%
1:6	21	7%
1:7	20	7%
1:8	17	6%
1:9	16	5%
1:4-1:9 Subtotals	108	37%
1:10	14	5%
1:11	10	3%
1:12	12	4%
1:13	11	4%
1:14	10	3%
1:15	11	4%
1:16 – 1:19	30	10%
1:20 – 1:29	28	10%
>1:9 Subtotals	126	43%
Total	**293**	**100.00%**

Source: EM-3, auditor analysis

Annually, as part of PECO's succession planning process in conjunction with the Business Talent Review, management uses a 4-Box[4] matrix to identify and assess their direct reports' talent and skill level relative to recent performance and future potential. Discussions are held in the first half of the year between HR personnel and PECO's VPs to discuss the performance and potential of employees within their departments.

[4] A 4-Box is a performance ranking tool utilizing a two column by two row grid. Employees are ranked in ascending order from left to right and bottom to top based on performance and potential (e.g., low performing employees with low potential would reside in the bottom left of the grid, etc.).

Succession plans are developed for all executive and key manager positions to build a healthy leadership pipeline for promotion within the organization. The management succession plan lists potential successors for each management position, which are ranked into one of four categories based on readiness: ready now, ready in 1 to 2 years, ready in 3+ years, or contingency[5]. The plans are then used to target training and opportunities to further develop the capability and readiness of potential successors.

Furthermore, in conjunction with its annual multi-year budgeting process (discussed in greater detail in Chapter IV – Financial Management), PECO develops its annual strategic plan, including a five-year business plan. The strategic planning process at PECO has four parts with some parts aligning across all Exelon Utilities' operating companies:

1. Strategy and policy, focused on:
    - Safely powering reliability and resilience
    - Delivering world class customer experiences
    - Advancing clean and affordable energy choices
    - Supporting communities
    - Driving value for customers and shareholders

2. Goal setting, which is supported by:
    - Assessments of performance at the department level via SWOT analyses[6].
    - External benchmarking against electric and gas industry peers.

3. Strategic plan development, which brings together:
    - Annual budgets
    - Long range plans
    - Operational plans
    - Work, staffing and IT plans
    - Annual incentive plan (AIP)

4. Implementation and monitoring of the strategy plan, which is supported by:
    - PECO's Chief of Staff, whose staff are responsible for overseeing the strategic planning process
    - Monthly management review meetings to discuss the status of the 100+ key performance metrics
    - Quarterly updates about the status of the strategic initiatives

To further define PECO's strategic plan, all performance indicators/metrics roll up and support specific initiatives, which, in turn, align with overall strategies on PECO's strategic plan. Furthermore, funding for the strategic plan is based on PECO's priorities and/or initiatives with the performance metrics providing insight into the company's

[5] Contingency refers to: employees who may have held the position previously, employees who could temporarily serve the function or employees with no previous significant leadership experience, etc.
[6] A SWOT analysis a strategic planning technique used to help an organization identify strengths, weaknesses, opportunities, and threats related internally to the company and externally to their industry.

progress in accomplishing the strategic initiatives. Various initiatives and examples of the strategic direction of PECO can be found throughout this report.

Compensation levels for PECO's executives are annually assessed by the Compensation and Leadership Development Committee of the Exelon Board of Directors with the assistance of compensation consultants and are subject to review by the PECO Board of Directors. The executive compensation program for PECO's executives includes cash compensation via base salary and annual short-term incentives, equity compensation via long-term incentives and other benefits.

Findings and Conclusions

Our examination of Executive Management and Organizational Structure included a review of PECO's organizational structure; staffing levels and spans of control; the roles and responsibilities of executive management; strategic planning, succession planning and executive compensation. Based on our review of PECO's efforts towards this function, no evidence came to our attention that would lead the audit staff to conclude that the areas reviewed were not being addressed adequately.

Recommendation

None

IV. CORPORATE GOVERNANCE

Background

As discussed in Chapter II – Background, PECO Energy Company (PECO or company) is a subsidiary of Exelon Energy Delivery Company, LLC, which is a holding company owned by Exelon Corporation (Exelon). On September 13, 2019, Exelon announced that it would transfer the listing of its shares from the NYSE to The Nasdaq Global Select Market (Nasdaq). Common stock began trading on the Nasdaq under the stock symbol EXC at market open on September 25, 2019. As a result, Exelon is subject to corporate governance requirements contained in both the Sarbanes-Oxley Act of 2002 (SOX) and the corporate governance rules of the Nasdaq, though Exelon continues to meet the corporate governance rules of the NYSE. The Nasdaq[7] and NYSE[8] corporate governance rules are very similar, the NYSE requires some additional or more stricter items like Board Committee charters, public website, etc.

The Exelon Board of Directors (Exelon Board) oversees the management and operations of Exelon and its subsidiaries. The Exelon Board had as many as 14 directors in 2021. However, on January 6, 2022, Exelon announced that four board members would be leaving for the generation company once the spinoff[9] was finalized in the first quarter of 2022.

The Exelon Board has adopted the Exelon Corporate Governance Principles (CG Principles), which provide clarification on Exelon Board structure, independence standards for directors (as defined by Nasdaq), director selection and evaluation, and Exelon Board and committee operations. The Exelon Board as reflected in its 2021 Proxy Statement deemed that all Directors with exception of the Exelon Chief Executive Officer (CEO) were independent. The Exelon Board conducts its specific responsibilities through committees. The Board Chair and CEO typically attend all Committee meetings and all Committees meet regularly in executive session without management present. Business is conducted through the following committees:

- Audit Committee (AC)– assists the Exelon Board with the accounting and financial reporting processes of Exelon including the audits of the financial statements. The AC evaluates the independent auditor's qualifications and independence and oversees the performance of Exelon's internal audit function and the independent auditor. The AC is composed of six independent Directors and met six times during 2020. The members of the Audit Committee qualify as financial experts per SEC rules.

[7] Nasdaq corporate governance rules: https://listingcenter.nasdaq.com/rulebook/nasdaq/rules/nasdaq-5600-series
[8] NYSE corporate governance rules: https://www.nyse.com/publicdocs/nyse/listing/NYSE_Corporate_Governance_Guide.pdf
[9] On February 24, 2021, Exelon Corporation announced the spinoff of ExGen. https://www.exeloncorp.com/newsroom/exelon-to-separate-its-utility-and-competitive-energy-businesses-into-two-industry-leading-companies

- Compensation and Leadership Development Committee – assists the board in establishing CEO performance criteria, evaluation, and compensation; approves the compensation program for all other Executive Officers of Exelon designated by the Exelon Board or the Committee; reviews and discusses with management the Compensation Discussion and Analysis (CD&A) for inclusion in Exelon's annual proxy statement; prepares or causes to be prepared the Compensation Committee Report for inclusion in the annual proxy statement; and develops leadership and succession planning criteria for Exelon. The Compensation Committee is composed of six independent Directors and met four times during 2020.

- Corporate Governance Committee – identifies individuals qualified to become Exelon Board members, recommends Exelon Board approval of director nominees for election at the company's annual meeting of shareholders, develops and recommends a set of governance guidelines applicable to all Exelon Companies, oversees the evaluation process for the Exelon Board, Exelon Board Committees, each director, and management. The Corporate Governance Committee is composed of three independent Directors and met four times during 2020.

- Risk Committee – assists the board and subsidiary boards in their responsibility for management and oversight of matters relating risk and related exposures faced by Exelon (e.g., cyber, technology, environmental, commodity, etc.); oversees company-wide risk management strategies policies, procedures, and mitigation efforts; oversees strategy and performance of risk management policies related to risks associated with marketing and trading of energy and energy-related products; and assists the Audit Committee in review of guidelines and policies to govern the process of risk assessment and risk management. The Risk Committee is composed of the full Exelon Board and met six times during 2020.

- Generation Oversight Committee – advises and assists the Exelon Board in fulfilling responsibilities to oversee the safety and reliability of Exelon's generating facilities with principal focus on nuclear safety; compliance with laws, regulations and standards related to nuclear and non-nuclear generation safety and operations; compliance with environmental and safety laws, regulations and standards applicable to ownership and operation of generating facilities; and overall organizational effectiveness of the generation operations. The Generation Oversight Committee is composed of three independent Directors and met four times during 2020.

The Audit Committee operates pursuant to a written charter consistent with the applicable standards of the Nasdaq and the SEC. The Audit Committee Charter is reviewed annually and updated as needed. As required by the Nasdaq, the Chairman of the Audit Committee is a financial expert, per SEC guidelines. In fact, all members of the Audit Committee are deemed financial experts per the SEC guidelines. The Audit Committee meets at least four times per year and more frequently as needed. Each quarterly meeting is attended by the Chairman of the Board, Chief Executive Officer

(CEO), Exelon Audit Services (i.e., the Internal Auditor), representatives from the company's independent auditor, and other Senior Officers from within Exelon. Separate from full Audit Committee meetings, the Audit Committee routinely meets in executive session without company management or with Exelon Audit Services, representatives of the company's independent auditor, and select Exelon management at the request of the Committee Chair. Through these meetings, the Audit Committee performs certain functions including appointment of and oversight of the work of the independent auditor, approval of the work plan and scope of work for both the independent auditor and Exelon Audit Services, assess adequacy of internal controls over financial reporting, review any emerging accounting standards and issues facing the company, review any findings and recommendations, etc.

Exelon's independent public accounting firm, PricewaterhouseCoopers LLP (PwC), has been engaged since the 2000 calendar year audit. Exelon's Audit Committee annually reviews the independent auditor's performance and fees. The Corporate Controller provides the Audit Committee with a report which benchmarks Exelon's independent audit costs in comparison to those incurred by similar companies in the utility industry and other companies of comparable capitalization. As required by SEC guidelines and Exelon's Audit Committee Charter, Exelon's independent lead engagement partner is rotated at least every five years, occurring most recently in 2020.

Exelon maintains a Code of Business Conduct (Code) which applies to all Exelon directors, officers, and employees; Exelon subsidiaries; and third parties such as consultants, agents, sales representatives, distributors, vendors, suppliers, and independent contractors. The Code sets forth Exelon's core values and behavioral requirements and expectations, with focus on providing the information necessary to recognize and evaluate situations that may raise ethical and/or legal issues. Exelon conducts annual ethics trainings throughout the year with live presentations and interactive scenarios. These trainings are compulsory for all Exelon and PECO directors, officers, and employees.

Corporate governance guidelines and related documents are available for review by shareholders and the general public on Exelon's website. Documents available on the website include, but are not limited to:

- Exelon Corporate Governance Principles
- Exelon Code of Business Conduct
- Bylaws
- Committee Charters for all Exelon Committees

In addition to the Exelon Board, PECO has a Board of Directors (PECO Board) to oversee management and operations. The PECO Board meets quarterly to review the company's financial performance, review and approve PECO's dividend, and is responsible for direct oversight and approval of specific capital projects in accordance with delegation of authority limits. The PECO Board also receives quarterly operations, regulatory and legislative updates. The Exelon Board approves projects that exceed PECO Board delegation of authority limits.

As of June 23, 2021, PECO had eight members on its Board with one Director also serving on the Exelon Board. Five of PECO's Directors are considered independent based on PECO's Corporate Governance Principles. PECO's Directors are recommended by the Exelon Corporate Governance Committee to the full Exelon Board. Individuals are elected to staggered three-year terms with the term of at least one class (typically three directors) expiring annually. Any vacancies on the PECO Board are filled by a majority vote of the remaining PECO Board members to service until the time that the Exelon Board approves that class.

In addition, the PECO Board is assisted by one committee. The PECO Executive Committee provides advice to and assists the PECO Board in reviewing significant financial matters and business opportunities. This Committee is empowered with the full powers of the PECO Board to act on their behalf when not in session, except as limited by the Executive Committee's Charter, Articles of Incorporation, Bylaws, resolution of the Board, statute, or contract.

Findings and Conclusions

Our examination of the Corporate Governance function included a review of Exelon and PECO's Boards of Directors' organization including committee structure and charters; Board fee structure; Director independence; documents related to principles of corporate governance; policies, practices, and procedures related to internal management controls; relationships with the independent audit firm, policies related to rotation of audit firms; internal audit function; business conduct and ethics codes; annual reports to shareholders; etc. Based on our review of PECO's efforts towards this function, no evidence came to our attention that would lead the audit staff to conclude that the areas reviewed were not being addressed adequately.

Recommendation

None

V. AFFILIATED INTEREST AND COST ALLOCATIONS

Background

This chapter presents the results of the audit staff's review of the nature and extent of transactions between PECO Energy Company (PECO or company) and its affiliates. As discussed in Chapter II – Background, and shown in Exhibit II-2, PECO is a wholly-owned subsidiary of Exelon Energy Delivery Company, LLC (EED). EED is a wholly-owned subsidiary of Exelon Corporation (Exelon). In addition to PECO, EED holdings include five additional wholly-owned regulated electric and natural gas distribution utilities: Commonwealth Edison (ComEd), Baltimore Gas and Electric Company (BGE), Potomac Electric Power Company (PEPCO), Delmarva Power & Light Company (DPL), and Atlantic City Electric Company (ACE). In addition to EED and its regulated subsidiaries, Exelon owns several unregulated affiliates which regularly provide and receive services from PECO, including Exelon Business Services Company (Exelon BSC) and Exelon Generation (ExGen)[10].

Intercompany transactions between PECO and its affiliates are governed under two established frameworks, the General Services Agreement (GSA) and Mutual Service Agreement (MSA).[11] The GSA governs the ongoing centralized business services provided by Exelon BSC to Exelon's subsidiaries, including PECO. Similarly, the MSA governs PECO's intercompany transactions occurring with all other Exelon subsidiaries. The GSA is supported by service level agreements (SLAs) which are reviewed and updated annually. The SLAs identify the services anticipated to be provided to PECO during the current year by Exelon BSC.

The MSA is supported by affiliate level agreements (ALAs) which are established for a limited timeframe. ALAs differ from the SLAs and supporting GSA framework of supporting documentation as the ALAs are specific to transactions occurring between PECO and its affiliates. The ALAs specify the cost assignment methodology between affiliates. Nonregulated affiliates are assigned costs from PECO at the higher of fully distributed costs or fair market value. Conversely, PECO is billed the lower of fully distributed costs or fair market value from its nonregulated affiliates. Whereas costs between regulated affiliates, whether received or provided, are charged at fully distributed cost. Annually, PECO submits copies of the active ALAs to the PUC for informational purposes.

Along with the ALAs, PECO submits updated supporting documentation related to the GSA, including updated SLAs, an annual cost assignment methodology summary, and service catalog. The cost assignment summary breaks Exelon BSC services into three groups: core shared services, utility focused services, and corporate governance, detailing the various cost assignments by group. Core shared services are

[10] On February 24, 2021, Exelon Corporation announced the spinoff of ExGen. https://www.exeloncorp.com/newsroom/exelon-to-separate-its-utility-and-competitive-energy-businesses-into-two-industry-leading-companies

[11] On December 19, 2013, the Commission approved Docket No. G-2010-2211383, which includes PECO's approved GSA and MSA.

received by multiple Exelon subsidiaries and may include both regulated and nonregulated affiliates; utility focused services exclusively benefit Exelon's regulated utility subsidiaries; and corporate governance benefiting all subsidiaries. Generally, all shared services are directly charged to the respective client company(ies). However, when direct charge is not feasible, shared costs are allocated using various cost allocation methodologies based upon cost drivers (i.e., IT services are allocated based upon the overall IT service billings ratio) or via the general allocation methodology. The general allocation methodology is used to distribute indirect costs amongst the entities receiving benefit for services and is based upon the Modified Massachusetts Formula (MMF): a ratio of the average between gross revenues, assets, and direct labor. The service catalog details Exelon BSC provided services by identification number, name, description, service owner, FERC account, basis for billing methodology, and identifies any applicable performance metric reporting.

As reflected in Exhibit V-1, most intercompany charges to PECO are attributed to Exelon BSC services provided to PECO. During our review, Exelon BSC provided services such as communications and public affairs, executive services, finance, governmental affairs, human resources, legal, real estate, corporate security services, supply, IT, and other services including those specific to Exelon's utility group. PECO also receives services from its EED affiliated utilities, including BGE, ComEd, PEPCO, and DPL. These services include substation and transmission services, centralized purchasing, and shared projects (such as the customer information system transformation project discussed in more detail within Chapter XI – Customer Service). ExGen provides rental space, laboratory testing, and corrective, predictive, and engineering services. Occasionally, PECO receives services from other affiliates. For example, in 2020, PHI Service Company[12] provided coverage for PECO's transmission and distribution operations. And in 2017, W.A. Chester[13] provided specialized services related to underground transmission and distribution cables for PECO.

PECO also provides intercompany services to its affiliates. Exhibit V-2 summarizes the totals charged by PECO. Services provided from PECO to Exelon BSC include facility leasing, building operation and maintenance, and fleet services. PECO services provided to its utility affiliates, including ACE, BGE, ComEd, DPL, and PEPCO include utility shared projects (e.g., convergence solutions for common processes), call center, distribution, transmission, and substation services, centralized purchasing, etc. PECO provides ExGen with legislative and claims services, facility leasing and maintenance, meter services, and training and fitness for duty services.

[12] PHI Service Company is the service company for Atlantic City Electric, Delmarva Power, and PEPCO and is included within ALAs filed under Docket No. G-2010-2211383.
[13] W.A. Chester became a subsidiary of Exelon under the 2016 PEPCO Holdings Inc. acquisition. However, on March 1, 2018, W.A. Chester was divested from Exelon and acquired by Bernhard Capital Partners Management, LP.

Exhibit V-1
PECO Energy Company
Summary of Charges from Affiliates to PECO
2017 – 2021

Description of Services	2017	2018	2019	2020	2021
Charges from Exelon BSC to PECO:					
Communication & Public Affairs	4,292,944	2,874,168	3,643,536	1,997,393	1,962,099
Executive Services	6,667,524	8,453,829	6,470,058	6,049,977	7,717,070
Exelon Utilities	7,403,997	10,381,124	15,973,254	12,038,089	12,383,379
Finance	16,412,639	17,803,688	16,223,326	15,985,034	15,556,179
Government Affairs	2,684,060	2,434,474	2,012,796	1,810,468	1,823,944
Human Resources	6,489,749	6,816,237	6,503,308	6,995,356	7,218,914
Legal	7,595,214	7,640,996	7,844,838	7,682,800	8,875,874
Real Estate	1,160	179,351	577,316	1,118,085	758,433
Security	8,070,053	7,934,270	7,662,211	7,684,966	9,107,084
Supply	3,398,669	3,700,433	3,623,622	4,095,981	5,474,961
IT	141,756,888	135,695,250	167,696,597	157,873,524	172,850,499
Other Services (Allocated Benefits)	730,792	5,751,874	(1,399,743)	4,272,782	5,061,743
Total charges from Exelon BSC	**$205,503,689**	**$209,665,693**	**$236,831,119**	**$227,604,454**	**$248,790,178**
Charges from ACE to PECO:					
Transmission Services	-	-	-	-	371,242
Total charges from ACE	**-**	**-**	**-**	**-**	**$371,242**
Charges from BGE to PECO:					
Common Projects	640,325	648,191	692,202	582,459	606,467
Transmission Services	-	-	-	-	778,905
Total charges from BGE	**$640,325**	**$648,191**	**$692,202**	**$582,459**	**$1,385,372**
Charges from ComEd to PECO:					
Common Projects	137,644	502,662	423,454	457,074	426,556
Transmission Services	-	-	-	-	418,182
Total charges from ComEd	**$137,644**	**$502,662**	**$423,454**	**$457,074**	**$844,738**
Charges from DPL to PECO:					
Substation Services	886,790	-	-	-	-
Transmission Services	-	-	-	-	170,954
Total charges from DPL	**$886,790**	**-**	**-**	**-**	**$170,954**
Charges from ExGen to PECO:					
Rent	143,074	141,293	138,630	141,037	132,080
Inspection Services	-	-	239	97,935	538,670
Transmission/Substation Services	-	-	33,591	17,407	-
Power Lab	740,219	691,634	759,660	751,276	913,027
Total Charges from ExGen	**$883,292**	**$832,927**	**$932,120**	**$1,007,656**	**$1,583,778**
Charges from PHI Serv. Co. to PECO:					
Common Projects	-	-	-	31,765	-
Total charges from PHI Serv. Co.	**-**	**-**	**-**	**$31,765**	**-**
Charges from W.A. Chester to PECO:					
Underground Transmission Services	4,632,218	-	-	-	-
Total charges from W.A. Chester	**$4,632,218**	**-**	**-**	**-**	**-**
Total Charges from Affiliates	**$212,683,958**	**$211,649,473**	**$238,878,895**	**$229,683,408**	**$253,146,261**

Source: Data Requests CA-4, CA-11, CA-28, and Auditor Analysis

Exhibit V-2
PECO Energy Company
Summary of Charges from PECO to Affiliates
2017 – 2021

Description of Services	2017	2018	2019	2020	2021
PECO charges to Exelon BSC:					
Real Estate & Facilities	3,132,436	3,125,525	3,007,762	4,174,496	3,731,874
Fleet Services	10,803	7,067	-	-	-
Use of PECO Fiber Assets*	-	-	-	-	1,521,437
Total PECO charges to Exelon BSC	**$3,143,239**	**$3,132,592**	**$3,007,762**	**$4,174,496**	**$5,253,311**
PECO charges to ACE:					
Common Projects	-	40,379	24,838	24,003	30,069
Transmission Services	-	-	-	-	166,659
Total PECO charges to ACE	**-**	**$40,379**	**$24,838**	**$24,003**	**$196,728**
PECO charges to BGE:					
Common Projects	669,632	868,003	669,565	301,559	263,239
Transmission Services	-	-	-	-	173,566
Total PECO charges to BGE	**$669,632**	**$868,003**	**$669,565**	**$301,559**	**$436,805**
PECO charges to ComEd:					
Call Center	-	-	-	23,487	-
Common Projects	266,271	474,956	311,581	343,076	340,544
Transmission Services	-	-	-	-	293,399
Total PECO charges to ComEd	**$266,271**	**$474,956**	**$311,581**	**$366,563**	**$633,943**
PECO charges to DPL:					
Common Projects	-	61,031	53,838	122,912	30,759
Transmission Services	-	-	-	-	266,415
Total PECO charges to DPL	**-**	**$61,031**	**$53,838**	**$122,912**	**$297,173**
PECO charges to ExGen:					
Transmission/Substation Services	233,358	401,759	19,772	19,916	185,455
Claims	2,687,129	680,274	1,009,111	934,500	2,133,145
Fire Academy Training Services	98,237	111,167	73,793	8,630	-
Fitness for Duty Services	57,257	58,930	78,740	58,702	58,263
Meter Services	34,561	37,139	62,046	18,602	35,932
Real Estate Services	33,452	20,990	-	-	-
Legislative Services	56,322	53,041	145,040	121,080	47,805
Real Estate & Facilities	-	-	21,993	681,795	89
Use of PECO Fiber Assets*	-	-	-	-	12,014,797
Total PECO charges to ExGen	**$3,200,315**	**$1,363,301**	**$1,410,494**	**$1,843,224**	**$14,475,485**
PECO charges to PEPCO:					
Common Projects	-	62,977	45,938	43,308	48,498
Transmission Services	-	-	-	-	141,779
Total PECO charges to PEPCO	**-**	**$62,977**	**$45,938**	**$43,308**	**$190,276**
PECO charges to Exelon:					
Climate Change Investment Initiative	-	-	-	364	5,925
Internal Separation Costs	-	-	-	-	58,426
Total PECO charges to Exelon	**-**	**-**	**-**	**$364**	**$64,351**
Total Charges from Affiliates	**$7,279,457**	**$6,003,239**	**$5,524,015**	**$6,876,430**	**$21,548,073**

* See Finding and Conclusion No. 1 for additional information related to the charges for use of PECO's fiber assets
Source: Data Requests CA-4, CA-11, CA-28, and Auditor Analysis

Ringfencing is a term used to describe actions taken to financially protect a regulated utility from the potentially risker activities of its unregulated affiliates.

Ringfencing actions include legal, structural, and behavioral provisions to ensure the financial stability and reliability of a regulated utility to ensure it is not adversely affected by the actions or conditions of any affiliate. PECO and Exelon have implemented many protections, including:

- Separate Boards of Directors
- Separate debt issuances
- Separate credit ratings
- Separate books and records
- PUC notification of PECO dividends paid to Exelon
- No guarantees on affiliate debt
- Accounting controls for affiliate transactions

Exelon's Code of Business Conduct (Code) applies to all PECO employees. The code includes Exelon's mission, vision, and values and outlines the standards of conduct for employees to adhere to ethical, safe, healthy, inclusive, and diverse workplace. The code also serves as Exelon's foundation for the provision of competitive safeguards outlining the provision of fair and consistent terms to all parties, including affiliates and third parties. Annually, Exelon employees, including PECO employees, are required to complete standards of conduct training on the Code.

Findings and Conclusions

Our examination of the Affiliated Interest and Cost Allocations function included a review of contracts and agreements governing transactions among affiliates, cost allocation methodologies, compliance with existing allocation policies and practices, ring fencing efforts, competitive safeguards, etc. Based on our review, PECO should improve the effectiveness and efficiency of its cost allocations by addressing the following:

1. PECO identified unbilled use of its fiber network assets to two affiliates, ExGen and Exelon BSC.

In November 2021, PECO self-identified that the company had unbilled intercompany charges for leasing a portion of its fiber network to its affiliates, ExGen and Exelon BSC. PECO's fiber network was developed and constructed prior to deregulation[14] and served all assets owned by the company prior to deregulation. The fiber network and associated assets were originally implemented for monitoring and serving as a communication backbone for various equipment used in electric operations. Exelon's 2021 due diligence review of intercompany transactions led to identification of unbilled charges regarding the use of this fiber network. After deregulation, PECO retained the fiber network because it was the largest user. Ultimately, PECO confirmed that it had appropriately charged ExGen approximately

[14] Pennsylvania's Electric Choice and Competition Act was passed in 1997, however, the electric restructuring plan reached full saturation for Pennsylvania's electric customers as of January 2001.

$2.3 million for maintenance costs of its fiber network since deregulation, but had not charged ExGen and Exelon BSC for use (e.g., leasing) while Exelon BCS also had unsettled maintenance cost obligations.

In PECO's analysis, the company determined that ExGen was not charged approximately $12.1 million (including approximately $6.1 million of interest) of intercompany revenue for use of this fiber network since the PECO and ExGen deregulation split (see Exhibit V-2 for PECO's charges to cover unbilled charges for 2001-2021 for use of PECO's fiber assets[15]) and Exelon BSC was not charged approximately $1.5 million (including approximately $0.7 million of interest) for use of this fiber network since 2003. The analysis established value for fiber lease costs based upon 2021 market rates (determined by a third party) and discounted over the period per annual historical inflation rates. The analysis included application of interest rates by applicable regulatory oversight entities (i.e., FERC and PA PUC) over the period. The audit staff notes that we recalculated figures and totals for accuracy; however, no verification testing or tracing of the underlying source data[16] for the market analysis was completed by the audit staff.

Under Title 66 § 2102(b) it is the duty of the public utility to file with the Commission any contract for the provision of services including any arrangement for the purchase, sale, lease, or exchange of property. Therefore, Pennsylvania regulated utilities are obligated to ensure ratepayers are compensated for the use of all ratepayer supported assets, including use of PECO's fiber network. Over the 21-year period, the unbilled costs ultimately resulted in overcharging to Pennsylvania ratepayers and created cross-subsidization for costs more appropriately assigned to a nonregulated affiliate. Due to this being an emerging issue, PECO had not fully formulated the method these funds would be returned to ratepayers by the end of fieldwork. Purportedly, the company collected $12,014,797 from ExGen and $1,521,437 from Exelon BSC in 2021 to settle this issue. Thus, PECO should develop and seek approval from the PA PUC its plan for crediting PA ratepayers for this billing correction.

2. Testing revealed that a certain allocation rate was not properly updated since 2018.

During fieldwork, audit staff selected[17] intercompany transactions that contained a mix of direct and indirectly applied costs between PECO and its affiliates for testing and tracing to source documentation. Among the indirectly distributed charges, the audit staff found that the percentages initially provided were inconsistent with the requested timeframe. However, after identifying the issue, the company revised its response consistent with company documentation. In responding to the audit staff's inquires, PECO was able to provide clarification but confirmed one instance where an

[15] Maintenance costs related to the use of PECO's fiber network were attributed to Exelon BSC on behalf of PECO with totals noted in Exhibit V-2 as PECO's charges to its affiliates, Exelon BSC and ExGen, to settle unbilled charges from 2001-2021 for use of PECO's fiber assets.
[16] Source data includes all documentation for external factors and rates, internal company records and transactions, affiliate invoicing, etc.
[17] Intercompany transactions were sampled using a combination of judgmental selection (to increase odds of obtaining indirect intercompany charges) and random number generated selection.

allocation rate for shared costs was incorrect (i.e., an outdated percentage factor was used) in accordance with its existing ALA resulted in an error of $6. While this error is small and immaterial, it is important to highlight that unintended errors can occur.

Due to the proliferation of allocation methodologies and practices actively in use between PECO and its affiliates, all allocations, including project level allocation rates (as in the single case noted above) should continue to be reviewed annually and tested periodically to ensure practices adhere to prescribed policies and approved agreements. Despite a reasonable review process, errors can occur like the one noted above that supports a continuous evaluations and adaptive approach to cost allocation reviews. Furthermore, in line with best practices, PECO should establish formal documentation of its processes to ensure consistency and adherence to its approved AIAs.

3. PECO's money pool agreement has not been filed for approval with the PA PUC.

Money pools allow pooling parties to share internal resources, reducing banking costs and the overall need for financing. Due to these reduced costs, Exelon's utility money pool serves as one of PECO's primary sources for short term borrowings. In the case of Exelon's utility money pool, participants make direct loans or make direct borrowings between participating affiliates. Ringfencing measures restrict Exelon's participation as a lender only.

Exelon BSC acts as the administrator of the utility money pool. Thus, relevant cash management services are covered under the approved GSA, as discussed in this chapter's Background. Such cash management services include liquidity and credit support, payment execution, banking relationships, informational reporting, and cash forecasting, tracking, and reporting. PECO is provided with daily, weekly, and monthly reporting. Balances are managed with a high level of oversight with interest rates tied to market and based upon the federal funds rate.

On April 4, 2016, PECO filed an amended money pool agreement including participation with Exelon, Exelon BSC, PECO, ExGen, PEPCO, and Potomac Capital Investment with the U.S. Federal Energy Regulatory Commission (FERC).[18] Thus, PECO complied with FERC's required regulations by obtained approval from FERC for its money pool agreement. However, Pa. C.S. § 2102 requires Pennsylvania public utilities to obtain Commission approval for arrangements or contracts with affiliated companies for goods and services, such contracts should accurately identify affiliates. However, no record of any similar filings with the PA PUC could be located. Filings should be submitted to the PUC's Secretary's Bureau for approval and review by the Commission. Failure to file affiliated interest agreements that accurately identifies

[18] On February 11, 2022, PECO provided the audit staff with a newly amended and restated money pool agreement, dated January 24, 2022. The document was updated to include only Exelon, Exelon BSC, PECO, PEPCO, and Potomac Capital as participants, reflective of Exelon's impending divesture of ExGen. Although occurring after the close of audit fieldwork, ExGen completed separation in February 2022.

affiliates circumvents the Commission's authority to pre-approve intercompany transactions prior their execution.

Recommendations

1. **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.**

2. **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.**

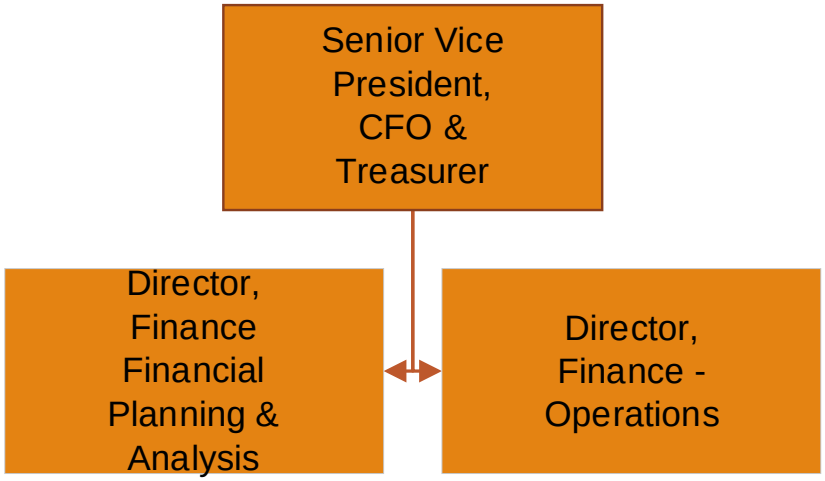
3. **File PECO's money pool agreement for approval with the PUC.**

VI. FINANCIAL MANAGEMENT

Background

PECO Energy Company's (PECO or company) financial management function is shared between PECO's Finance Department and Exelon BSC's Finance organization. PECO's Senior Vice President, Chief Financial Officer, and Treasurer (CFO) oversees PECO's financial management function, which is responsible for financial planning, strategic modeling, operations support, variance analysis, and benchmarking. Whereas Exelon BSC's Finance organization reports indirectly to PECO's CFO on various centralized services. These financial services center around shared services between multiple affiliates, including management of policies and procedures, load forecasting, internal audit, tax, SOX compliance, external audit services, investor relations, and common accounting services (cash management, treasury, and insurance) and is further discussed in Chapter V – Affiliated Interest and Cost Allocations. Exhibit VI-1 illustrates the direct reporting structure for PECO's CFO.

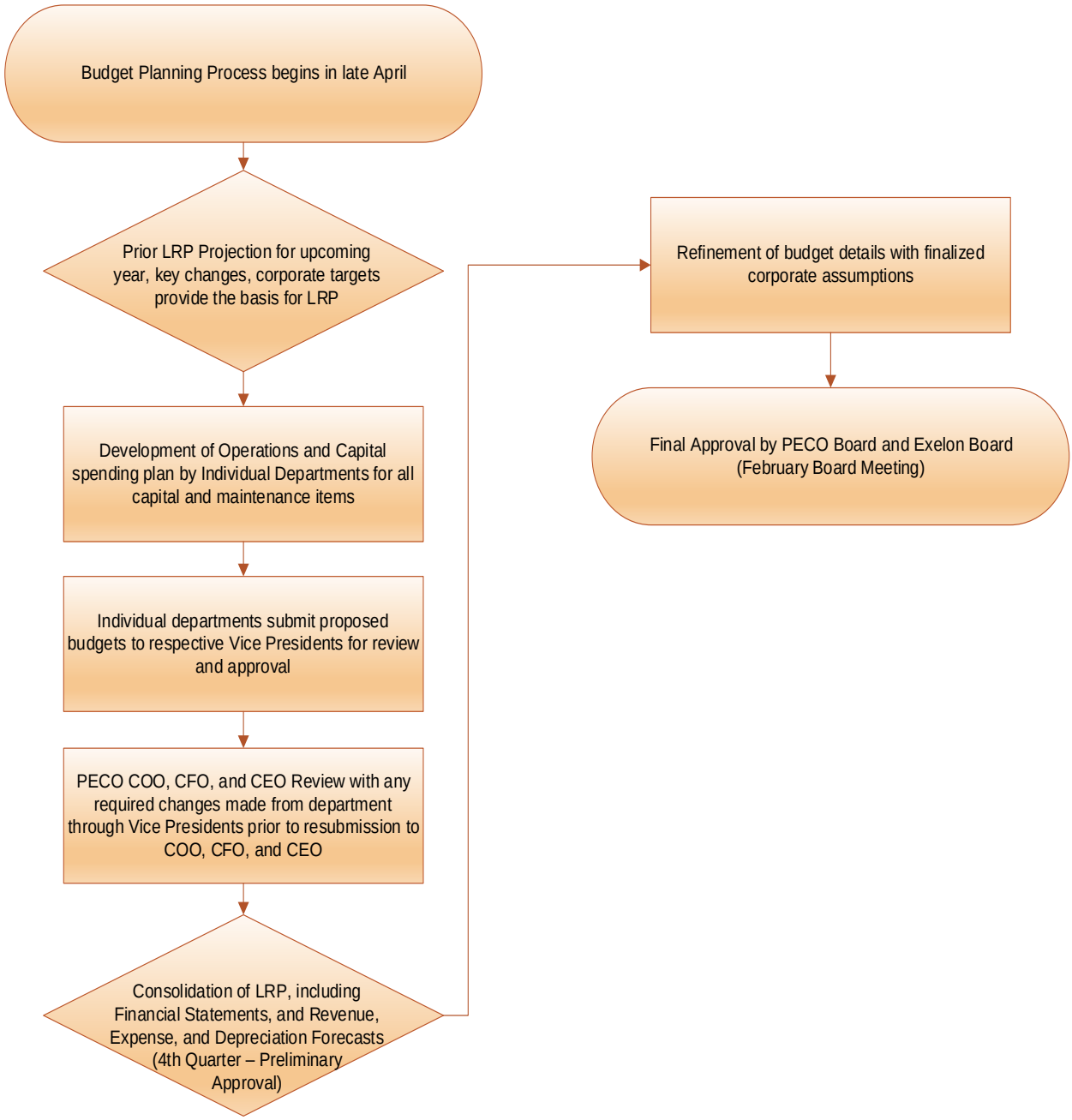
Exhibit VI-1
PECO Energy Company
Financial Management Organization Chart
As of January 2022



Source: Data Request EM-15

PECO's Director of Finance – Financial Planning and Analysis (FPA) is responsible for oversight and planning for PECO's long-range plan (LRP), which is composed of a detailed annual budget for the upcoming year and includes a five-year financial forecast. The FPA group is also responsible for PECO's financial reporting to Exelon Corporation and conducts monthly and quarterly analyses, including current year actual and year to date totals on PECO's key financial metrics. The company's budgeting process is described in Exhibit VI-2.

Exhibit VI-2
PECO Energy Company
Budget Planning Process Flowchart

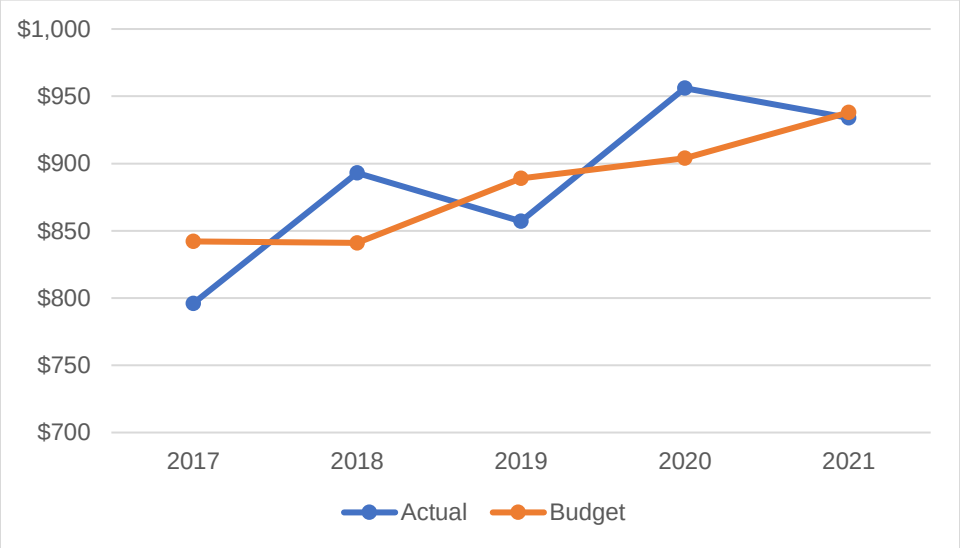


Source: Data Request FM-2, Interview Requests FM-1, FM-2, FM-3

PECO's Director of Finance – Operations is responsible for assisting with development of budgets, completing PECO's monthly close process, and supporting PECO's various operations departments. The Operations group works with PECO's individual departments to develop the detailed budget for the upcoming year. PECO's departmental budgets include both operating and capital expenditures attributed to each department. For example, the proportion of labor costs attributed to maintenance

projects would be included as operating expenses, whereas the labor hours dedicated to a capital project[19] would be included within PECO's capital budget. The Operations group also manages the various PECO operations departments' financial performance by monitoring their budgets, making necessary interdepartmental adjustments, and documenting variance explanations. Exhibits VI-3 and VI-4 illustrates PECO's Operating and Maintenance and Capital Expenditures actual to budget performance between 2017 and 2021. As reflected in the exhibits, PECO's actual performance aligns closely with its projected annual budgets.

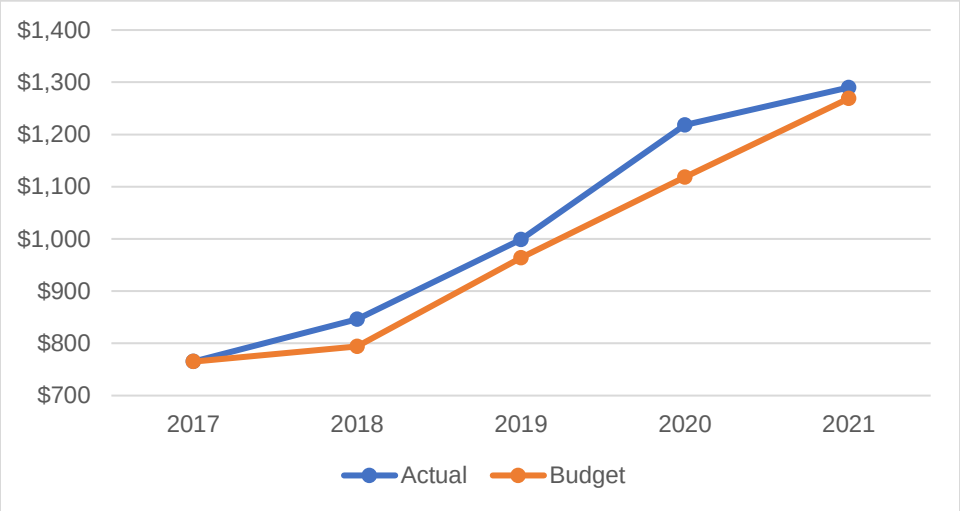
Exhibit VI-3
PECO Energy Company
Operating and Maintenance Actual to Budget (in Millions)
2017 – 2021



Source: Data Requests FM-3 and FM-30

[19] Capital projects are depreciated over the useful life of that asset, whereas maintenance project costs are expensed as incurred.

Exhibit VI-4
PECO Energy Company
Capital Expenditures Actual to Budget (in Millions)
2017 – 2021



Source: Data Requests FM-3 and FM-30

As reflected in Exhibit VI-4, PECO has significantly increased its capital expenditures between 2017 and 2021. The 50% increase was attributed to capital improvement projects for electric distribution and transmission, as well as natural gas distribution projects. The electric distribution projects focused primarily on improving reliability consistent with PECO's Long Term Infrastructure Improvement Plan (LTIIP). The increase in electric transmission capital expenses were mostly attributed to transmission line and substation projects. Similarly, increases in natural gas capital projects were due to reliability efforts, including gas main installation, upgrading the liquified natural gas plant and construction on a new gate station.

PECO maintains A, Aa3, and A+ credit ratings from S&P, Moody's, and Fitch, respectively. In addition, PECO's parent company also maintains quality investment grades of BBB or higher. PECO's short-term borrowing includes participation in Exelon's utility money pool[20], commercial paper, and a revolving credit facility. PECO's long-term borrowing includes first and refunding mortgage bonds (94.6% of PECO's total long-term debt), a PIDC Loan[21] (1.1% of PECO's total long-term debt), and loans from two PECO subsidiaries, PECO Energy Capital Trust III and PECO Energy Capital Trust IV (1.9% and 2.4% respectively, of PECO's total long-term debt). Both PECO Energy Capital Trust III and IV were exclusively created to issue and sell preferred and common securities, acquiring subordinate debentures from PECO with the proceeds. PECO's capital structure is summarized in Exhibit VI-5.

[20] Exelon's intercompany money pool provides PECO with a short-term borrowing option that is more favorable to participants than external borrowing. The money pool is managed by Exelon BSC where participants make direct loans and borrowings on a daily basis. For additional information related to Exelon's money pool see Chapter V – Affiliated Interest and Cost Allocations, Finding and Conclusion No. 3.
[21] PIDC is Philadelphia's public-private economic development corporation that is a non-profit entity founded by both the City of Philadelphia and the Greater Philadelphia Chamber of Commerce.

Exhibit VI-5
PECO Energy Company
Summary of Capital Structure
2016 – 2021

	2016	2017	2018	2019	2020	2021
Debt	44.73%	46.32%	46.11%	46.21%	46.48%	46.44%
Equity	55.27%	53.68%	53.89%	53.79%	53.52%	53.56%

Source: Data Requests FM-13 and FM-33

As a wholly owned subsidiary of Exelon, PECO pays dividends quarterly. Exhibit VI-6 summarizes PECO's dividends to Exelon as a percentage of net income. Generally, it is reasonable for utilities to maintain dividend payout ratios no greater than 85% of net income. As reflected in Exhibit VI-6, all dividends issued between 2017 and 2021 fall within reasonable levels.

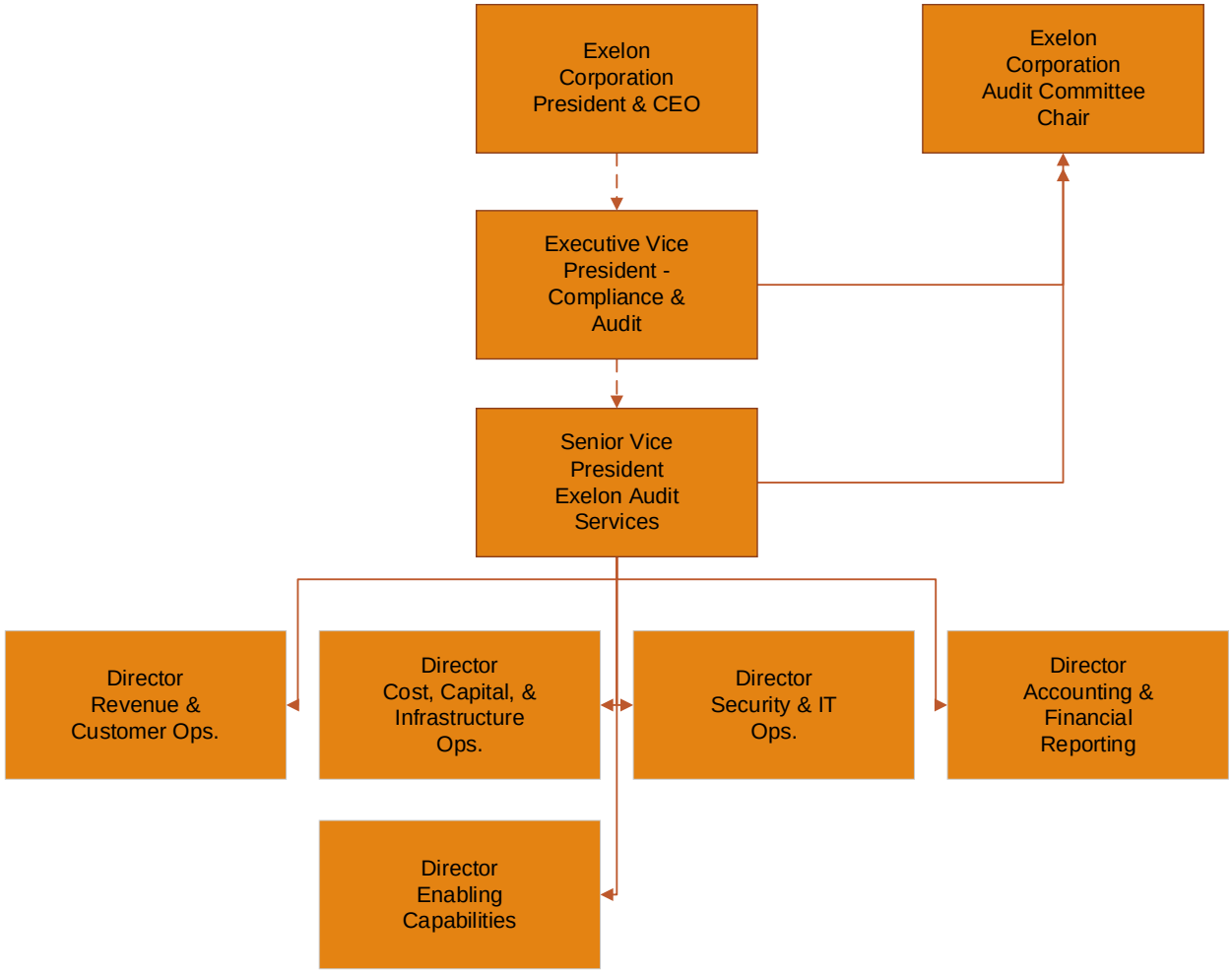
Exhibit VI-6
PECO Energy Company
Summary of Dividend Levels (in Millions)
2017 – 2021

	2017	**2018**	**2019**	**2020**	**2021**
Dividends Issued	$288	$306	$359	$340	$340
Net Income	$434	$460	$528	$447	$504
Dividends as Percentage of Net Income	66%	67%	68%	76%	67%

Source: Data Requests FM-8 and FM-32 and PUC Annual Reports and 2021 Exelon 10-K

Exelon BSC provides PECO's internal audit function as a centralized service within the Exelon Audit Services function led by Exelon BSC's Senior Vice President – Exelon Audit Services (SVP-Audit Services) as illustrated in Exhibit VI-7. The SVP-Audit reports administratively to Exelon BSC's Executive Vice President – Compliance and Audit (EVP-Compliance/Audit), who reports administratively to Exelon's President and CEO. Both the SVP-Audit Services and EVP- Compliance/Audit report functionally to Exelon's Audit Committee Chair.

Exhibit VI-7
Exelon Business Services Company
Exelon Audit Services Department Organization
As of July 2021



Note: Dotted lines represent administrative reporting relationships
Source: Data Request FM-22

Exelon BSC's SVP-Audit is responsible for five audit service departments. Each department is responsible for the internal audit of some enterprise-wide functions including:

- Revenue and Customer Operations – all internal audits of customer service-related processes, includes revenue, collections, etc.

- Cost, Capital, and Infrastructure Operations – all internal audits of utility capital costs, including supply processes

- Security and IT Operations – provide data analytics to all IA departments and is responsible for internal audits of all forms of security and business continuity planning related processes, including physical and cyber

- Accounting and Financial Reporting – enterprise-wide SOX program and internal audits of centralized Exelon BSC processes

- Enabling Capabilities – internal audits of new and emerging projects that support the enterprise (can be enterprise-wide or entity-specific), and identification of opportunities to eliminate or reduce gaps in controls, through coordination with the other four IA departments

Mid-year, the audit services department begins development of the annual audit plan. This process utilizes an internal risk register to prioritize high risk, high probability projects. Input in the planning process is received from Exelon's Audit Committee, Board of Directors, and Executive Leadership Team. Additionally, the SVP-Audit Services meets with CEOs and COOs of each Exelon subsidiary, including PECO, at a minimum of once every six months. Exelon's Audit Committee provides the final approval of the annual plan at year end for the upcoming year.

Findings and Conclusions

Our examination of the Financial Management function included a review of financial management policies and procedures, capital and operating budget processes, budget variance reporting, financing activities, cash management, dividend policies, and the internal audit process. Based upon our review, it appears that proper controls are in place and that the Financial Management function is being performed in a satisfactory manner.

Recommendation

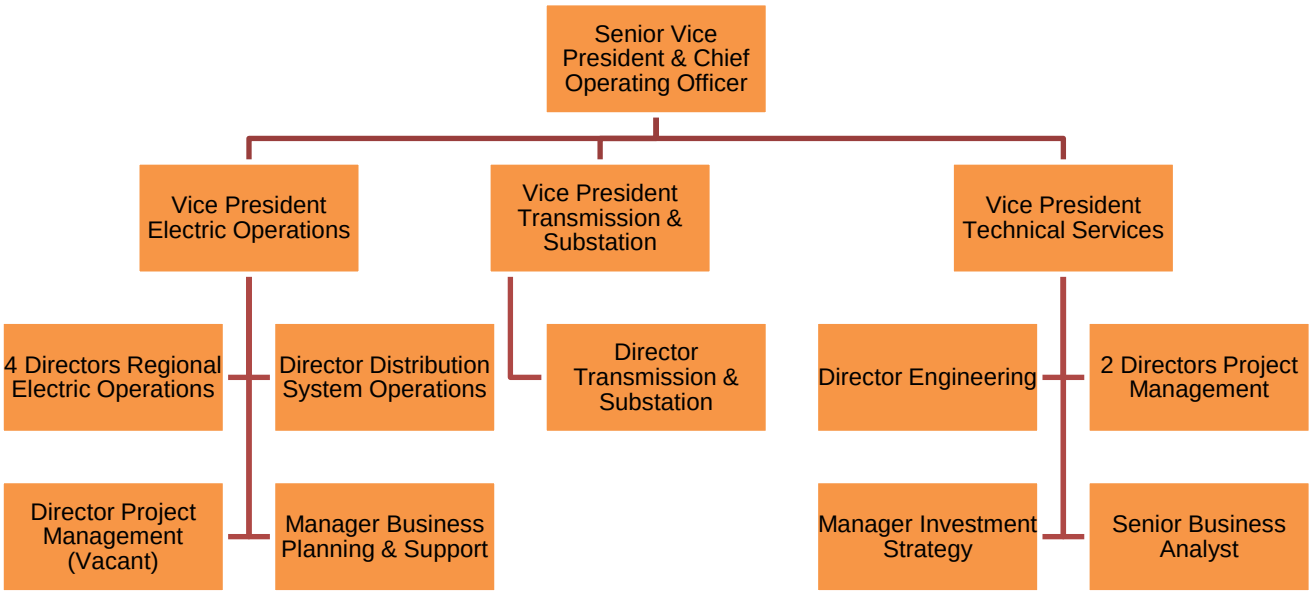
None

VII. ELECTRIC OPERATIONS

Background

In 2021, PECO Energy Company (PECO or company) provided electric distribution service to approximately 1.7 million customers across Philadelphia, Bucks, Montgomery, Delaware, Chester, and York counties. The company operates approximately 22,000 miles of aerial and underground distribution lines and 1,000 miles of transmission lines. PECO's transmission system is part of the PJM interconnection, a Regional Transmission Organization. Electric Operations are overseen by PECO's Senior VP and Chief Operating Officer (COO) and further divided into three key reporting areas managed by the Vice President (VP) Electric Operations, VP Transmission and Substations, and the VP Technical Services as shown in Exhibit VII-1.

Exhibit VII–1
PECO Energy Company
Electric Operations Organization Chart
As of January 3, 2022



Note: The SVP and COO has other direct reports discussed throughout this report.
Source: Data Request EM-15

In general, the Electric Operations Department handles construction, maintenance, and operation of electric distribution facilities. PECO further divides this department into three regional areas (Philadelphia, BucksMont, and DelChester), each managed by a Director of Regional Electric Operations reporting directly to the VP Electric Operations. The regions are broken down based upon the counties served,

with the Philadelphia region handling Philadelphia County, BucksMont encompassing Bucks and Montgomery Counties, and DelChester including Delaware, Chester, and York Counties. Each region is responsible for planning, scheduling, and conducting all emergent and planned work in the distribution system. Each region also has an engineering support staff, which is primarily customer-facing, to aid customers experiencing power issues, analyze local reliability problems, aid in construction and maintenance activities, etc.

Meanwhile, a fourth Director oversees projects that affect multiple regions and represents PECO's interests in projects affecting multiple Exelon subsidiaries, such as the ADMS (Advanced Distribution Management System). ADMS is an advanced outage management system that will unify the distribution and outage management functions across all Exelon utilities. This common platform will enable the companies to send crews to specific trouble tickets in other Exelon utilities during storm restoration efforts (mutual assistance). The ADMS will also integrate the DMS and the GIS systems, allowing the ADMS to perform some fault locating, reduce switching errors, etc. This project is expected to be completed by 2024.

The duties at each region are similar across all three regions with two exceptions. The Philadelphia region handles all underground construction and maintenance for all three regions. Underground electrical work requires a unique skill set so it is more efficient to maintain a dedicated underground team than to try to maintain separate teams in each region. Additionally, the New Residential Construction Group (NRCG) handles large scale new residential customer projects (developers connecting multiple homes to the distribution system in one project) for all regions but is part of the BucksMont region. Similar to the consolidation of underground construction to the Philadelphia region, the NRCG allows one experienced team to deal with new residential construction projects.

The Director of Distribution System Operations (DSO) is responsible for the operation of and dispatch duties within the electric distribution system. In addition, the DSO is responsible for the dispatch of PECO crews to gas emergencies and odor calls (see Chapter VIII – Gas Operations). The DSO also has three classes of field employee: Energy Technicians (ET), Substation Operators, and Aerial Line Mechanics (ALM). Energy Technicians are dual trained to handle electric secondary outage restoration and gas emergency calls. Therefore, ETs are primarily dispatched to respond to single customer outages and gas emergency problems on the distribution system. Substation Operators provide emergency response and switching services to PECO electrical substations. Meanwhile, ALMs respond to primary outages and provide the primary response to storm outages. In addition, PECO is currently working on a GIS (Geographic Information System) upgrade that will enable the company to integrate more detailed asset information into the ArcGIS platform. This upgrade also features the ability for field personnel to input information directly into the GIS from the field, as opposed to sending it to the office to be input.

The Director of Transmission and Substation (T&S) handles the construction and maintenance (C&M) activities of PECO's T&S assets. The company classifies all lines of 69 kV and above as transmission and the responsibility of the T&S groups, whereas

any line facility below 69 kV is the responsibility of the Director of Regional Electric Operations. Moreover, T&S is responsible for the operation and maintenance of all substations. Therefore, T&S has groups dedicated to engineering, transmission/ substation maintenance, work management, and regulatory compliance further specialized in transmission or substation assets. T&S is currently in the middle of a program to retire its 4kV systems and replace these assets with 13kV systems. This upgrade is ongoing and will provide improved capacity and reliability to customers.

The Vice President of Technical Services has four direct reports: Director of Engineering, two Directors of Project Management, and the Manager of Investment Strategy. The Director of Engineering is responsible for centralized engineering services such as setting inspection and maintenance standards, capacity planning, preventative maintenance programs, vegetation management specifications, and system wide electric reliability programs. The Directors of Project Management manage projects for the Technical Services Division. One initiative pursued by the Technical Services Division is to install an increased number of reclosers to further segment the distribution system, ensuring that any outage affects fewer people. The Manager of Investment Strategy is responsible for the entire budget for PECO's electric division as well as the company's research and development, innovation, and investment strategy groups. As new technologies emerge, these groups explore applicability to PECO's electric grid, create pilots, and compose business cases for deployment.

Findings and Conclusions

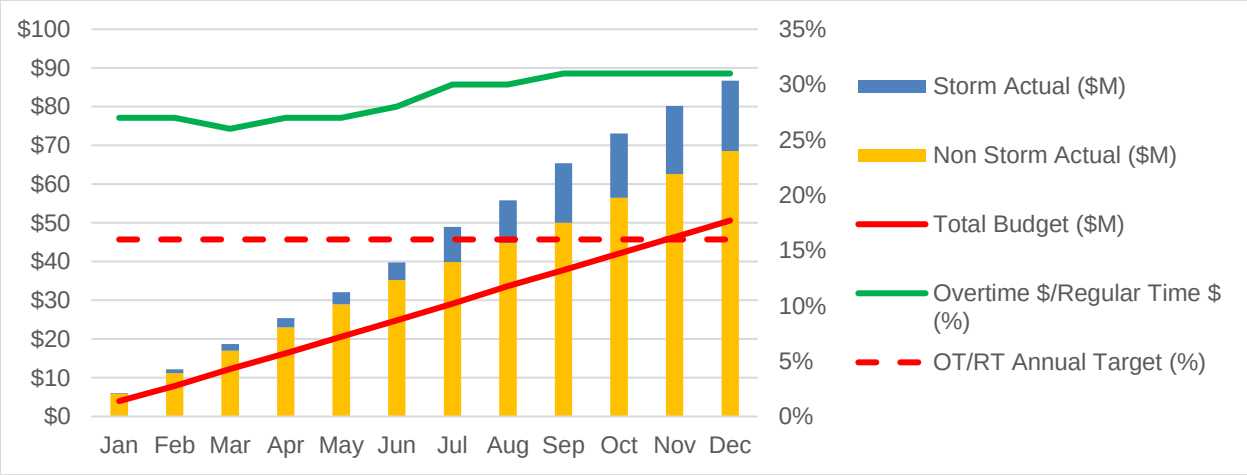
Our examination of PECO's electric operations included a review of vegetation management, electric reliability, maintenance policies and procedures, staffing levels, etc. Based on our review, PECO should devote additional efforts to improving the effectiveness of its electric transmission and distribution operations by addressing the following five findings and recommendations:

1. Electric Operations overtime consistently exceeds 15% of normal working hours.

Operating an electric distribution company is a full-time operation requiring 24/7 staffing. Uncontrollable conditions like storms, call outs, customer requests, priority work and emergency situations can require additional resources to address emerging situations affecting the electric system. Therefore, many companies use overtime as part of their strategy to meet dynamic staffing needs. At PECO, overtime (OT) in Electric Operations is scheduled after a worker's daily shift, typically adding 4 to 6 additional hours. The company monitors overtime and maintains a key performance indicator (KPI) that tracks dollars budgeted for OT compared to actual storm and non-storm OT. Additionally, PECO tracks overtime labor costs as a percentage of regular labor time costs. PECO budgets non-storm OT as 22.5% of regular labor time costs whereas storm overtime is budgeted based upon a 5-year average of actual labor time storm costs. Overall, PECO's goal for overtime is to spend equal to or less than 16%

on overtime labor costs compared to regular labor time costs. PECO's overtime performance based upon these financial metrics for 2021 can be found in Exhibit VII-2.

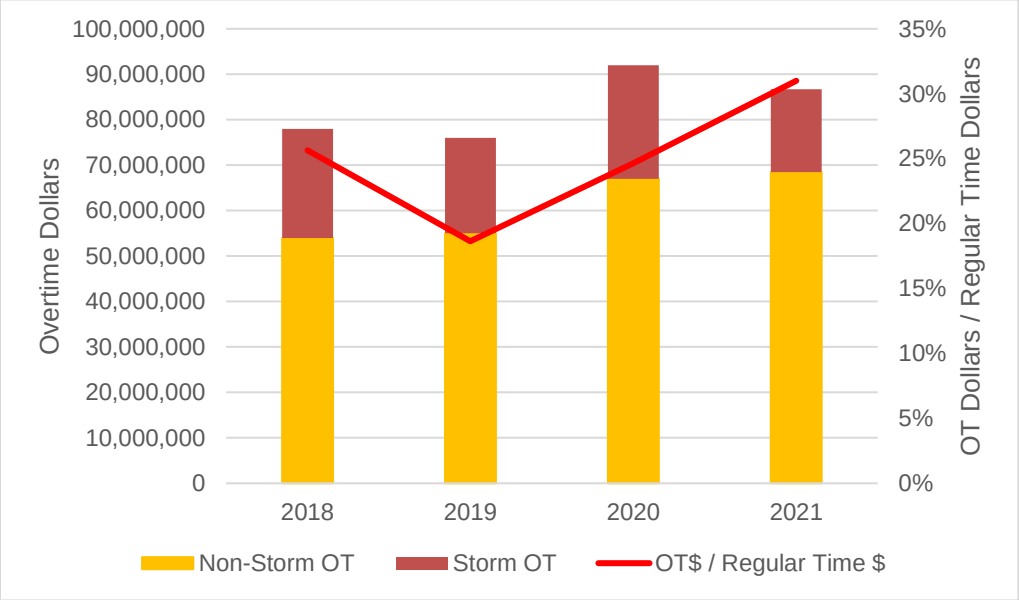
Exhibit VII–2
PECO Energy Company
Overtime Performance Metrics (Presented in Year-to-Date format)
2021



Source: Data Request EM-16

PECO measures its overtime usage in millions of dollars spent. As shown in Exhibit VII-2, PECO's goal for overtime spending in 2021 was $50.6 million. PECO was overbudget each month of 2021, ending with a total actual spend of $86.74 million. PECO also monitors overtime labor costs as a percentage of normal labor time costs, with a goal of limiting this ratio to 16%. PECO used roughly double its 16% goal by the end of the year, with a final ratio of 31% in 2021. Exhibit VII-3 shows the breakdown between the ratio of storm and non-storm labor overtime costs incurred at PECO.

Exhibit VII–3
PECO Energy Company
Total Company Overtime
Storm and Non-Storm Labor Costs
2018 – 2021

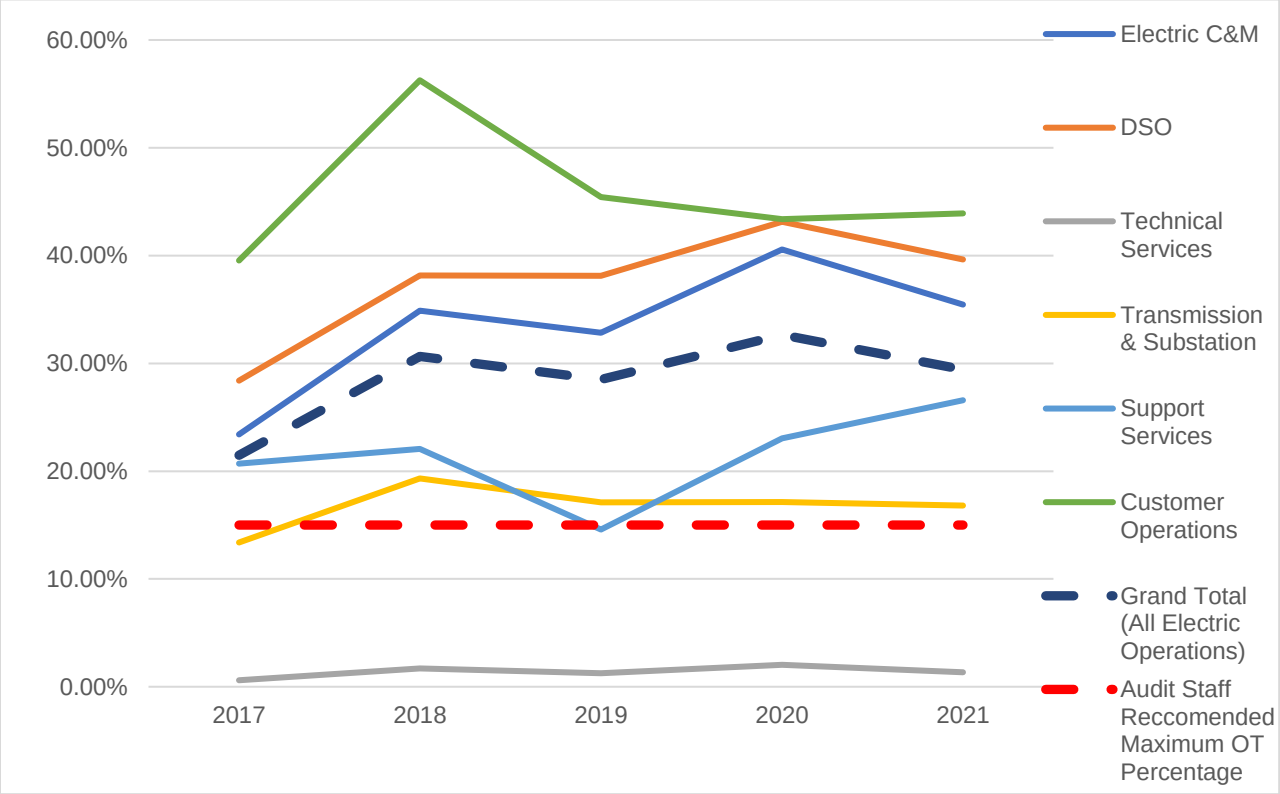


Note: Data is for all of PECO and not just Electric Operations.
Source: Data Request EM-16

Classifying overtime into storm and non-storm data provides a more thorough insight into what is driving overtime. Storm overtime is largely a byproduct of weather events or emergencies outside the control of the company. In addition, the Company participates in mutual assistance that impacts its storm overtime hours. Meanwhile, non-storm overtime can still be driven by storm activity when a temporary storm repair is permanently addressed, or for emergent event callouts. However, there is usually more discretion as to when the work is done. As Exhibit VII-3 highlights, even excluding PECO's storm overtime, the non-storm overtime would still cause PECO to miss its 16% goal in 2018-2021.

Based on PECO's KPI's, the company is not meeting its overtime goals for overtime spend or for the ratio of overtime spend to regular time spend. However, the audit staff argues that calculating overtime as a percent of dollars can be misleading due to various reasons (i.e., wage disparity, some employees being except from overtime pay, overtime pay rate changes, etc.). The financial impact of overtime is important but does not capture the staffing or operational impact of overtime. Therefore, the audit staff contends that overtime should also be analyzed based upon hours as shown in Exhibit VII-4.

Exhibit VII–4
PECO Energy Company
Electric Operations Total Overtime Hours Worked
as a Percentage of Normal Hours Worked
2017 – 2021



Source: Data Requests EO-10, EO-13, and EO-46

Exhibit VII-4 includes both storm and non-storm overtime but also provides a snapshot into how many hours of overtime are being used relative to base load staffing hours for each department. The audit staff's experience would recommend 15% overtime as a reasonable target for electric distribution utilities, with higher numbers justified only during extreme storm years, such as those affected by one in 1,000-year events[22]. For reference, based on data from the US Bureau of Labor Statistics, the average electric power transmission and distribution employee works approximately 2.5 hours of overtime per week, which is about 6.25% overtime per regular hours worked.[23] Only PECO Technical Services' overtime rate is below the audit staff's 15% maximum recommended overtime hours per normal hours worked. In fact, Customer Operations[24], Support Services, DSO, Electric C&M, and Electric Operations overall are

[22] Note that with increased extreme weather events due to climate change, what used to be considered one in 1,000-year events are now far more frequent, happening several times per decade. These formerly one in 1,000 year events must be planned for as part of the normal course of business and should no longer be considered an acceptable reason to exceed the 15% overtime target.
[23] https://www.bls.gov/web/empsit/ceseeb2b.htm
[24] Customer Operations employees have shared responsibilities between Electric Operations and Gas Operations. The audit staff's data does not distinguish between electric and gas overtime, so it is difficult to determine the cause for this department's overtime. (See Finding 2 in Chapter VIII – Gas Operations).

all operating over 20%. Several studies have shown that excessive overtime leads to increased health problems, increased safety risks, decreased productivity, increased absenteeism, and increased turnover rates.[25]

Beginning in 2020, PECO started distributing a monthly report to supervisors, managers, and directors to aid in monitoring field employees at risk of fatigue from working long or irregular hours. This report uses a rolling 28-day time period to highlight the potential cumulative effects of fatigue in the workforce, but it is not available in real time. The fatigue report captures the number of times someone works multiple 16-hour shifts in one month (13 or more shifts are flagged) and the number of consecutive workdays without time off (16 or more days are flagged). Workers typically are not allowed to work more than 16 hours in one shift with an onus on management to take corrective action. Based upon these fatigue reports, the audit staff was able to create Exhibit VII-5 highlighting the number of double shifts, consecutive workdays, etc. of employees by department.

Exhibit VII–5
PECO Energy Company
PECO's Fatigue Reports Monthly Averages
December 2019 - November 2021

	Double Shifts Worked (16+ hours)	Double Shifts Worked per Employee	Employees Working 12+ Doubles	Employees Working 15+ Doubles	Employees Working 15+ Days Without a Day Off	Employees Working 20+ Days Without a Day Off	Employees Without a Single Day Off
DSO	1641	4.65	38	24	28	12	2
T&S	115	0.50	1	0	3	2	0
Philadelphia	560	2.35	4	1	10	4	1
DelChester	568	2.75	4	2	6	3	0
BucksMont	425	2.14	1	0	5	2	0
Customer Operations	19	0.27	0	0	0	0	0

Source: Data Request EO-32

[25] Sources:

- Daltroy LH et al. A case-control study of risk factors for industrial low back injury: implications for primary and secondary prevention programs. Am Journal of Industrial Medicine 1991;20.
- Hayashi T et al. Effect of overtime work on 24-hour ambulatory blood pressure. Journal of Occupational and Environmental Medicine 1996;38.
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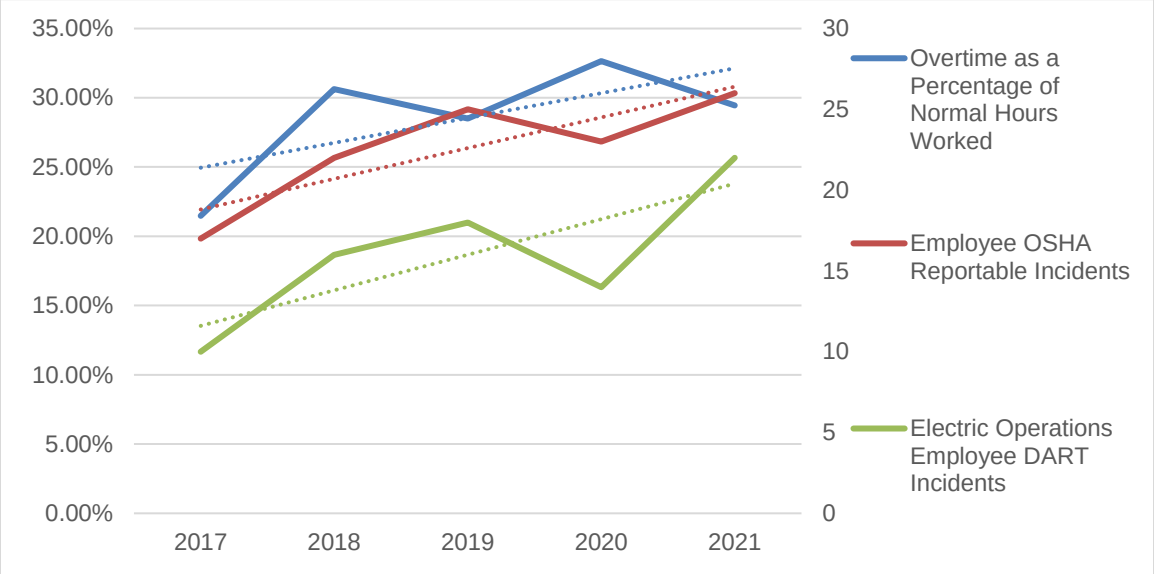
To the best of the audit staff's knowledge, excessive OT is not defined by the company and there is no process that automatically stops an employee from being scheduled for excessive OT, except employees are not usually allowed to work more than 16 hours in a day. However, based upon the data in Exhibit VII-5, there are employees working every day of the month, consecutive double shifts, etc. Although the COVID-19 pandemic has caused additional staffing challenges, as the studies referenced above indicate, excessive overtime still leads to increased injury rates regardless of the cause for the overtime. Electric Operations employee OSHA rates have increased from 17 to 26 per year from 2017 through 2021, and the rate per 100 employees increased from 1.61 to 2.16. Electric Operations DART (Days Away, Restricted, or Transferred) incidents increased from 10 in 2017 to 22 in 2021, whereas the DART rate per 100 employees increased from 0.95 in 2017 to 1.83 in 2021. Electric Operations employee responsible vehicle accidents increased from 22 in 2017 to 34 in 2021. The responsible accident rate per million miles for Electric Operations employees increased from 3.49 in 2017 to 13.52 in 2021. Employee responsible accidents as a percentage of total vehicle accidents also increased during this period, from 27% to 37%. (See Chapter XIV– Human Resources and Diversity, Finding and Conclusion Nos. 1 and 2 for more information regarding employee safety.)

As highlighted in Chapter XIV – Human Resources and Diversity, the Manager of Safety and Human Performance is leading a team across all Exelon utilities to study this problem. The company contends that many of these injuries are ergonomic in nature and is starting ergonomics training in Q1 2022. In addition, the company is continuing or adding numerous other trainings to target specific causes of injuries, like a vehicle driving course, etc. Although these training and safety efforts are commendable, the increased injury rate appears to correspond with increased overtime, as shown in Exhibit VII-6. Therefore, the company should also consider how fatigue or excessive overtime factors into these injuries. If fatigue and excessive overtime is causing some of these injuries, additional safety training is unlikely to fully resolve the increase in injuries. Instead, due to the high human risk, any fatigue and/or burnout issues must be addressed directly.

Exhibit VII–6
PECO Energy Company
Electric Operations Overtime Vs. Employee Injury and DART Rates
2017 - 2021



Source: Data Requests EO-46 and GO-44

The audit staff recognizes the pandemic has necessitated an extraordinary challenge for staffing for 24/7 operations and that the company must continue to operate despite the operating conditions, however, the company cannot remain in an emergency posture long-term. In addition to the unique dynamics of keeping workers safe, PECO must still staff to respond to emergencies, respond to adverse weather, and handle the human component of the pandemic meaning that it is likely none of this work leading to overtime could be avoided. However, that does not mean the overtime could not be mitigated through other methods like increased staffing, greater efficiencies, etc. The audit staff contends that 15% of regular hours worked is a reasonable target, but recognizes that each company or department may have a different optimal level.

More specifically, PECO should review injuries based upon fatigue and burnout, perform more sophisticated, root cause analyses, define excessive overtime, ensure employees are not working excessive overtime, and reduce overall overtime levels. In addition, PECO should add or expand the KPI tracking overtime to increase visibility into the operational and staffing effects of overtime and create specific goals for each department based upon their unique requirements, like the audit staff's recommended long term goal of 15% of regular hours worked. These efforts should also help the company to improve its safety statistics. Audit staff recognizes that minimizing overtime and optimizing staffing levels can be challenging due to constantly changing conditions. Some remedies to improving overtime may take time to implement or lead to increased short term costs, like increasing staff or temporarily augmenting with contractors. . While it may take time, resources, or additional costs to reduce overtime, audit staff

estimates that PECO may eventually save up to $15 million per year for all groups using overtime as presented in Exhibit VII-3.[26]

2. PECO's electric reliability indicators have worsened and in some cases are over the PUC Benchmark.

PECO uses the industry standard CAIDI, SAIFI, and SAIDI indicators to track its reliability. CAIDI is the Customer Average Interruption Duration Index and represents the average duration of an outage. SAIDI is the System Average Interruption Duration Index and is the sum of all customer interruption durations. SAIFI is the System Average Interruption Frequency Index and is the total number of customer interruptions per year. Exhibit VII-7 compares the targets PECO established for 2021 to the benchmarks and standards used by the PUC for monitoring PECO's reliability performance.

Exhibit VII–7
PECO Energy Company
Electric Operations Reliability Indicators
2017 – 2021

Region		2017	2018	2019	2020	2021	PECO 2021 Target*	Benchmark	12-Month Standard
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	0.6	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	0.9	0.88	0.95	1.23	1.48
	CAIDI	99	110	189	135	187	106	112	134
	SAIDI	82	106	205	122	164	101.5	138	198

Note: Green values are below PECO's internal target, yellow values are over PECO's internal target, orange values are over the PECO target and the Benchmark, and red values are over the PECO Target, the Benchmark, and the 12-Month Standard.
Source: Data Request EO-44

[26] The audit staff calculated the $15 million based on reducing PECO's 2021 OT from 31% to 15% (or $86.7 million to $42 million based on an average overtime cost of $65/hr.) and subtracting a corresponding increase in staffing base wages (assuming more staff was added to reduce overtime at an average rate of $43/hr.). While this calculation does not account for fully loaded costs and training of new employees, it also does not quantify the benefits of reducing overtime such as improved safety or moral, reduced burnout, loss of productivity from excessive overtime, etc.

As shown in Exhibit VII-7, PECO's electric reliability indicators have trended worse, peaking in 2019. Since 2019, the company has improved its reliability performance but in many cases is still worse than 2017 performance and its internal target, benchmark, and/or standard. Although PECO's internal target, benchmark and standard do not apply to the Regions, making this comparison helps to illustrate what region is driving the performance in a specific index. For instance, a large driver for missing the SAIDI and CAIDI benchmark and standard in 2021 was due to the BucksMont Region. Meanwhile, the Philadelphia Region's performance, with its high population density and underground infrastructure tends to help maintain a base reliability performance level.

The two largest drivers for reliability performance are vegetation (Broken limbs and tree trunks) (See Finding and Conclusion No. 4) and equipment failure (See Finding and Conclusion No. 5). However, other factors also drive reliability performance. For instance, in 2021, the BucksMont region had seven outages due to transmission and substation related events caused by a combination of flooding, equipment failures, and vegetation. These T&S outages accounted for 12.8% of customer minutes interrupted in 2021 and were a contributing factor why the SAIDI benchmark and CAIDI standard were missed in that year. The audit staff recognizes there are many drivers affecting reliability performance and some will be discussed later within this report. However, indices above the benchmark and/or standard must be improved.

PECO has a number of reliability improvement project initiatives. For instance, the company has a vegetation management program aimed at reducing outages caused by trees, programs improving reliability for worst performing circuits and troubled areas, equipment replacement initiatives, etc. The company is also adding reclosers to segment and automate the distribution network, limiting the potential impact of any specific outage. In addition, the company is targeting specific assets for replacement that are prone to failure in multiple programs, and as part of its LTIIP (Long Term Infrastructure Improvement Plan) to mitigate future outages. For instance, the T&S program to retire and replace the 2.4 kV and 4kV with 13kV and 34 kV systems is largely believed to be a major reliability upgrade to improve reliability and resiliency for customers. This replaces some of the company's oldest electric infrastructure with newer, more reliable equipment. PECO program addressing worst performing circuits tracks those circuits with the most outages, the longest duration outages, and the number of customers experiencing multiple interruptions (CEMI). These factors are used to select circuits for analysis to develop projects designed to improve those circuits' reliability. However, increased storm activity, aging infrastructure, changing customer demands, etc. all place a burden on the electric system. In fact, PECO has experienced six of the top10 most damaging storms in its history within the last 10 years, two of which affected PECO's service territory in 2020. Based on these recent experiences, it appears that increased storm activity is now the new norm. Therefore, additional efforts and resources will be needed to harden infrastructure to improve reliability.

3. The number and severity of customers experiencing multiple interruptions has increased, with some customers experiencing eighteen outages in 2021.

PECO uses the reliability metric CEMI, or Customers Experiencing Multiple Interruptions, to track the number of customers experiencing four or more interruptions in a given year. PECO's CEMI data excludes major storms affecting more than 10% of PECO customers per the PUC exclusion definition. As shown in Exhibit VII-8, the total customer interruptions for CEMI customers increased from 2017 through 2021.

Exhibit VII–8
PECO Energy Company
Total Customer Interruptions
2017 – 2021

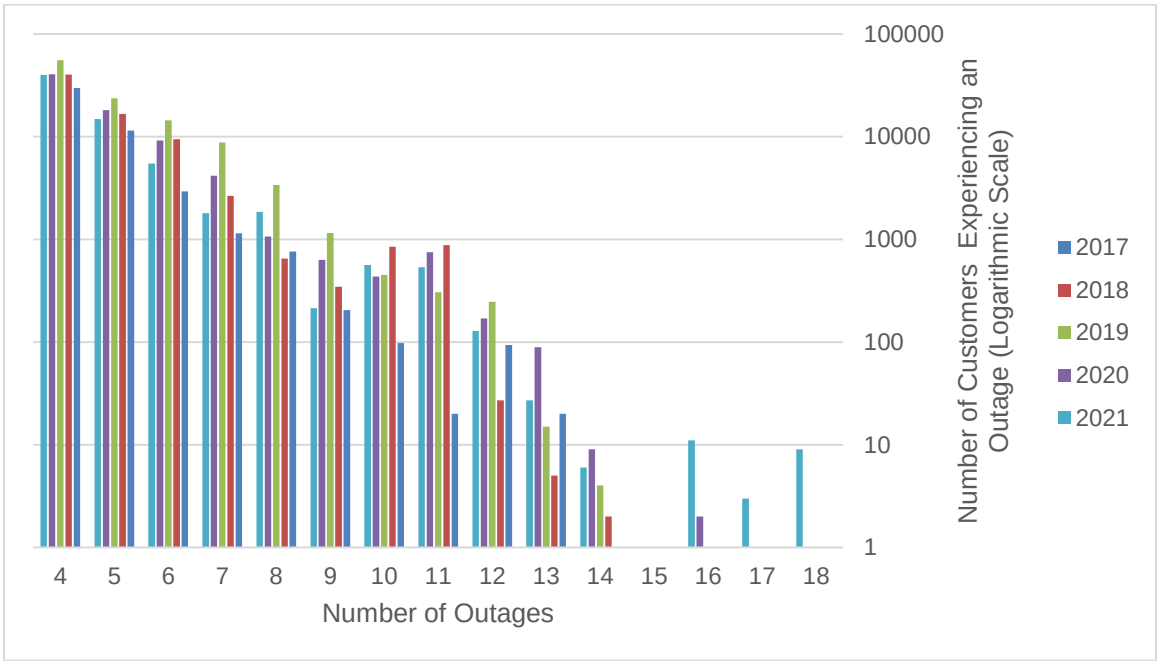
	2017	2018	2019	2020	2021
Total Customer Interruptions from CEMI	212,512	347,292	537,624	366,806	310,376
Percentage of Total Customer Interruptions	16.1%	21.8%	29.8%	24.3%	21.0%

Source: Data Requests EO-15 and EO-44.

As reported in the 2017 Management and Efficiency Investigation,[27] PECO made some progress in improving CEMI but still needed to reduce the number of customers experiencing 10 or more outages. However, 2019 was a poor performing year, largely attributed to storm activity but CEMI numbers remain elevated. Another way to review CEMI data is by breaking down how many outages each customer experiences as shown in Exhibit VII-9.

[27] See Docket Number D-2016-2562303 released at the Commission's October 5, 2017, Public Meeting.

Exhibit VII–9
PECO Energy Company
CEMI Outages
2017 – 2021



Source: Data Request EO-44

All customers experiencing 15 or more outages in 2020 and 2021 were in the BucksMont region (24 customers experienced more than 15 outages in BucksMont in 2021). However, the DelChester Region had more customers experiencing at least 4 outages in 2021 (32,635 customers experiencing at least 4 outages). Meanwhile, the Philadelphia region had the lowest CEMI numbers, with 7,423 customers experiencing at least 4 outages and no customer experiencing more than 11 outages in 2021

As mentioned above, PECO continues to use a number of programs and initiatives to improve its reliability. PECO's programs, including those that are part of its LTIIP 1 and 2 programs, are targeting the replacement of specific assets that have a history of failing; installing reclosers to segment and automate the network to reduce the impact when an outage occurs; retiring 4 kV substations and replacing them with 13 kV and 34 kV systems; and targeting older URD (Underground Residential Distribution) cable, main stem cable, and aerial equipment prone to failure for replacement. Replacement programs take time to implement, and PECO expects major reliability improvements to materialize as LTIIP 2 activities conclude in 2025. (See Finding and Conclusion No. 5 for more information.)

As previously mentioned, broken tree limbs and trunks are large vegetation drivers for PECO outages (see Finding and Conclusion No. 4). In response, PECO is moving from a 5-year vegetation management cycle to a 4-year cycle, starting in 2024. In addition, PECO has a Worst Performing Vegetation Sections Program, which is used

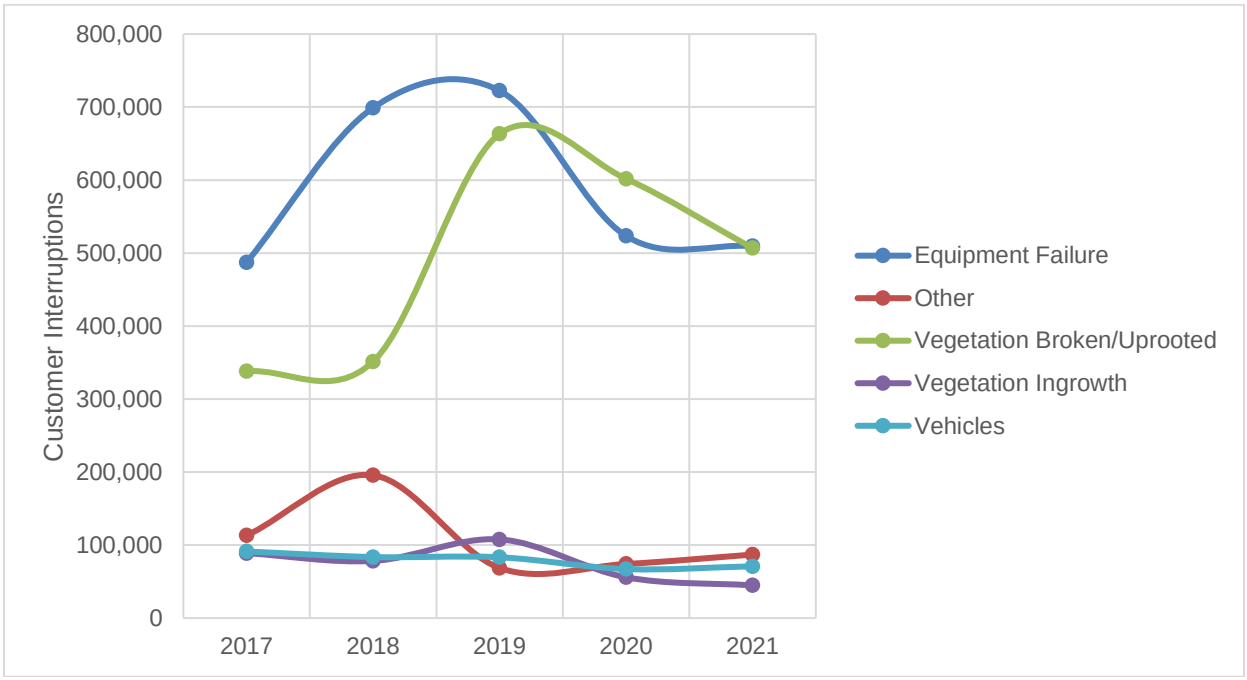
to focus on the canopy management in worst-performing areas. PECO expects these programs to yield significant improvement in reliability within the next 10 years.

PECO monitors CEMI regularly and has programs dedicated to address areas that experience multiple interruptions repeatedly and/or extremely. More specifically, PECO routinely creates a list of priority CEMI circuits as part of its program to study and remediate the worst performing circuits, factoring CEMI into its prioritization. Although PECO's goals include preventing instances of reoccurring CEMI and circuits repeating on the worst performing circuit list, the company is also more broadly working to ensure no customers are CEMI 10+, have a CEMI 7+ repeat (experience seven or more outages two years in a row) or CEMI 4+ threepeat (experience four or more outages three years in a row). This program, along with other programs will help to improve reliability and CEMI performance. However, although PECO has made improvements since 2019, the increased storm activity and resulting vegetation issues have slowed CEMI improvements. Therefore, PECO should continue to implement new and targeted initiatives to improve reliability. More specifically, the company should strive to have no CEMI10+ outages and reduce the number of customers experiencing four or more outages.

4. Outages caused by off right-of-way vegetation have increased.

As mentioned earlier, vegetation caused outages are usually one of the leading causes of electrical outages in Pennsylvania. Vegetation outages are usually grouped into two separate categories, trees or branches falling onto lines, and ingrowth where vegetation grows into or too close to the electric lines. At PECO, most vegetation outages are caused by broken or uprooted trees. Although vegetation outages have been on a downward trend for the last two years at PECO, they are still much higher than 2017 and 2018 levels. In 2021, total vegetation outages were the cause of 35% of all service interruptions (30.6% broken/uprooted and 4.2% ingrowth), a 5% increase over the rate in 2017. Exhibit VII-10 shows the most frequently occurring causes of customer interruptions from 2017 through 2021, clearly demonstrating that broken/uprooted vegetation outages are a leading cause.

Exhibit VII–10
PECO Energy Company
Customer Interruptions by Cause
2017 – 2021



Note: This chart presents the top causes of customer interruptions. Additional causes that PECO tracks include animal, lightning, unknown, contact/dig-in, and T&S.
Source: Data Request EO-44

As mentioned in Finding VII-2, six of the top ten damaging storms for PECO have occurred in the last 10 years, with two occurring in 2020. Increased storm activity dramatically affects broken/uprooted vegetation issues. In addition, Ash Borer Beetles[28] are causing many ash trees in Pennsylvania to die and then fall. Because there is a delay from the onset of infection to the tree falling, the full impact of the Ash Borer Beetle has not yet occurred. The ash tree failure rate is defined as the ratio of how many confirmed ash trees have caused outages relative to all species of trees causing outages. PECO's ash tree failure rate was estimated around 11% at the time of field work. PECO's forestry experts expect the ash trees to have a high mortality rate in the coming years due to existing infections. This could continue to drive an elevated vegetation outage rate.

To address these vegetation challenges, the company has continued its Distribution Priority Tree Removal Program to address hazard trees. This program focuses on removing trees that are a threat of falling into the lines. In addition, PECO is moving from a five year vegetation management cycle to a nominally four year cycle, effective January 1, 2024. There will be exceptions as the timing of some Distribution

[28] The Ash Borer Beetle is an invasive highly destructive insect per Penn State University. Additional information can be found at: https://extension.psu.edu/emerald-ash-borer-frequently-asked-questions.

Preventive Maintenance (DPM) work will be optimized to coordinate with planned capital construction work resulting in increased cost effectiveness.

Along with this cycle change, PECO has begun to coordinate capital work and DPM work allowing for more aggressive management of the canopy per new construction standards. The current vegetation management program focuses on ingrowth, which causes relatively few outages compared to fallen or damaged trees. This shift in focus should help reduce outages from broken limbs and trunks. In addition, PECO's Worst Performing Vegetation Sections Program will continue to focus on the canopy in worst-performing areas. PECO expects the cumulation of these efforts to yield significant improvement in the next 10 years and aid in combatting problems caused by the Ash Borer.

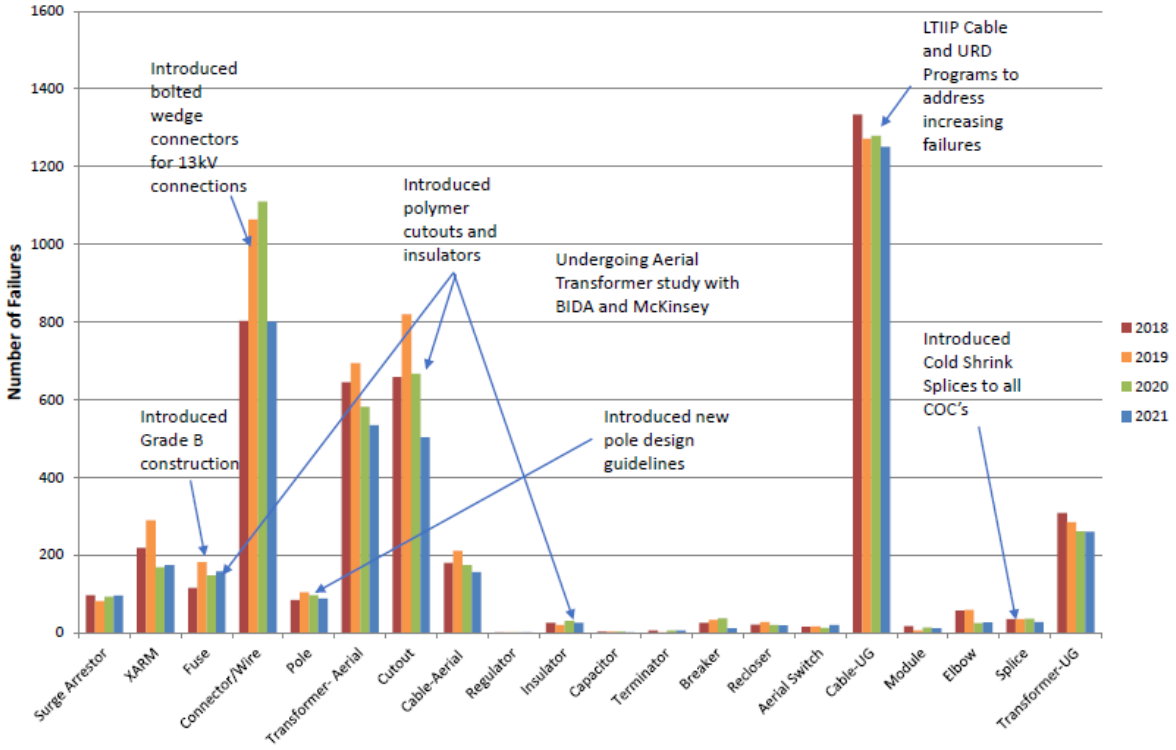
To improve reliability, PECO needs to reduce the number of outages caused by vegetation. With most of the causes of vegetation outages occurring off right-of-way, the traditional ingrowth vegetation program is inadequate without accompanying programs focused on broken limbs and trunks. Many of the programs the company announced will help to improve reliability performance in the coming years. Initiatives like reducing the trimming cycle and focusing more on canopy maintenance will give the company an expanded ability to address the challenges of the Ash Borer and broken limbs and tree trunks. Nonetheless, the company should continue to evaluate new or expanded efforts to reduce vegetation driven outages.

5. Customer interruption time due to equipment failure has been increasing.

As seen in Exhibit VII-10, equipment failure is the other major causal factor for electric service interruptions at PECO. Although interruptions from equipment failure have returned from their high in 2019 to 2017 levels, this causal category still accounts for 40% of the total electric outages at PECO. An additional subset of outages is tracked as transmission and substation outages when they occur on T&S infrastructure. Both 2020 and 2021 had an increasing trend for T&S outages with 21 outages reported for both years. Although there were various factors leading to these outages including human error, a significant number were caused or exacerbated by equipment failure.

The yearly equipment failures chart in Exhibit VII-11 shows the reduction in equipment failures since 2019, and some of the measures taken to address the equipment failures. These include introducing bolted wedge connectors for 13 kV connections; introducing polymer cutouts and insulators; introducing new pole design guidelines; programs targeting replacement of specific vintages of URD cables and main stem cables; and introducing cold shrink splices.

Exhibit VII–11
PECO Energy Company
Number of Equipment Failures by Type
2018 – November 2021



Source: Data Request MM-21

As part of its LTIIP 1 program, PECO targeted for replacement specific assets that have a history of failing, to reduce the number of outage events. PECO is also limiting the impact of outages by installing reclosers to segment and automate the network. PECO is working to reduce the number of customers directly fed by individual circuit sections below 750. This effort is limited by currently available underground equipment (i.e., it is prohibitively expensive to add on equipment to underground equipment) as well as by practical limitations associated with future planned conversion project coordination. PECO is also retiring its 2.4 and 4 kV substations and replacing them with 13 kV and 34 kV systems, which will improve overall distribution system performance, particularly substation reliability.

The LTIIP 2 program is currently targeting specific types of failing URD cable, main stem cable, and aerial connector equipment prone to failure for replacement. Specific types of these cables have been failing. Some of these programs are highlighted in Exhibit VII-11. PECO expects major reliability improvements by the time LTIIP 2 concludes in 2025.

In addition, although the number of outages on the T&S systems are small, some outages can have an outsized affect due to the number of downstream impacted systems. Therefore, T&S conducts investigations on the cause and any related factors for all T&S outages on major equipment. The company then takes corrective actions

and follows up with equipment replacements and upgrades, engineering changes, etc. to prevent similar outages in the future. This is part of PECO's Apparent Cause Evaluation (ACE) process. In addition, PECO has several programs to upgrade T&S facilities to improve reliability. These programs include transmission and distribution circuit breaker and relay replacements; accelerate switchgear replacements; a unit substation retirement program performed in conjunction with an ongoing program to upgrade many 4kV systems to 13 kV or 34 kV; and proactive transformer replacement projects. These improvements are expected to improve reliability in future years.

With the sheer number of components within the electric system, some equipment failure is unavoidable. However, specific components are reaching the end of their service life and need to be replaced. PECO has begun targeting these components as part of its replacement and upgrade programs, but more progress is needed. Malfunctioning and failing equipment has been either a primary cause or a contributing factor for a significant number of electric service interruptions at PECO. Therefore, the company must reduce equipment failure to improve overall reliability by implementing additional efforts and targeted programs.

Recommendations

1. **Reduce Electric Operations staff overtime to 15% overtime hours per normal hours worked or less.**

2. **Improve SAIDI and CAIDI to at or below the PUC Benchmarks.**

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

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

5. **Reduce interruptions caused by equipment failures.**

VIII. GAS OPERATIONS

Background

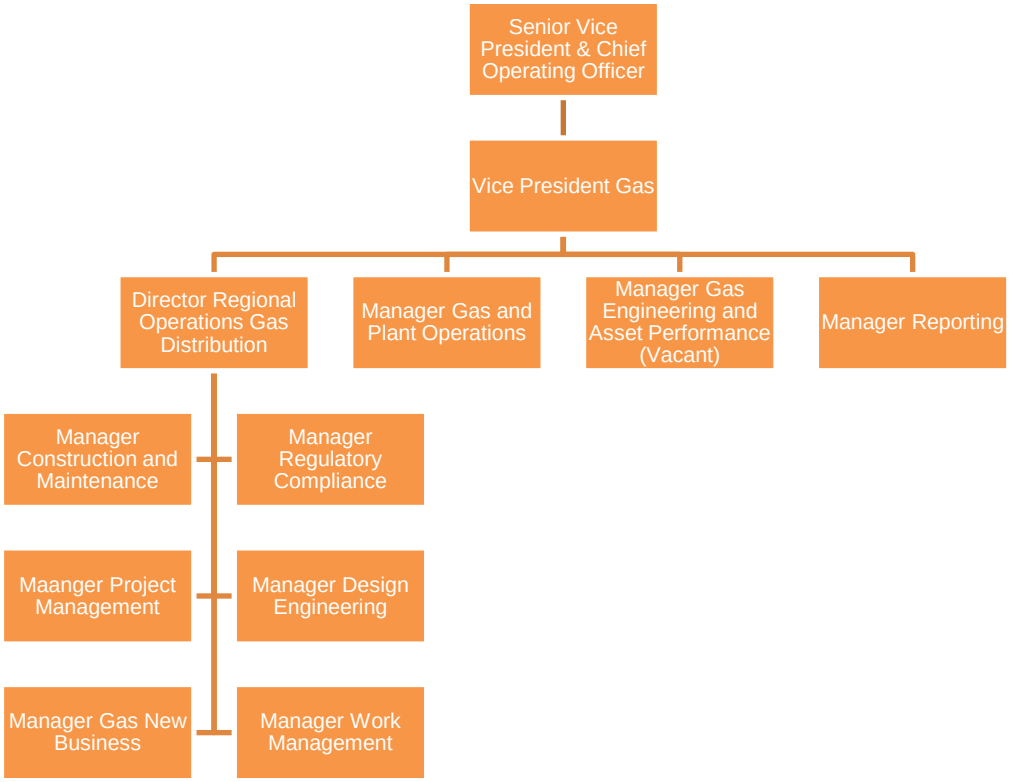
PECO Energy Company (PECO or company) provides gas service to customers in the southeast region of Pennsylvania, specifically the four counties surrounding the city of Philadelphia which includes Bucks, Chester, Delaware, and Montgomery counties, as well as a small portion of Lancaster County. As of December 31, 2020, PECO provided gas service to approximately 492,000 residential customers, 44,800 commercial customers, and 350 industrial customers. Natural gas is delivered to PECO via three major interstate pipelines: Transcontinental Gas Pipeline Corporation (Transco), Eastern Shore Natural Gas Company (Eastern Shore), and Texas Eastern Transmission, which feed PECO's distribution system through 29 gate stations.

PECO also owns two peak-shaving facilities, which are typically used during the winter months to meet high peak demand. One of these facilities is a Liquefied Natural Gas (LNG) plant with storage capacity of 1.2 billion cubic feet (bcf) that can deliver approximately 160,000 mcf per day to PECO's city gates. The other peak shaving facility is a propane facility, which can provide about 25,000 mcf per day.

In addition to these peak shaving facilities, several gas transmission companies provide natural gas storage services, which are used by PECO to meet daily and peaking requirements during the winter months. All gas transportation duties, including the management of storage facilities, fall under the Manager of Gas and Plant Operations. These employees, including gas systems controllers and gas plant operations managers and specialists, are responsible for gas purchasing, gas balancing, and load control to ensure the amount of gas flowing into the distribution system is sufficient to meet customer demand.

The Vice President (VP), Gas Operations, who reports to the Senior Vice President and Chief Operating Officer, oversees all gas operation and maintenance activities. As illustrated in the organization chart shown as Exhibit VIII-1, the Director of Regional Operations Gas Distribution, the Manager of Gas and Plant Operations, the Manager of Gas Engineering and Asset Performance, and the Manager of Reporting report to the Vice President of Gas Operations. As of December 2021, the Gas Operations Department was comprised of a total of 361 employees.

Exhibit VIII–1
PECO Energy Company
Gas Operations Organization Chart
As of January 3, 2022



Note: The SVP and COO has other direct reports discussed throughout this report.
Source: Data Request EM-15

The Director of Gas Operations is responsible for work management, new business, regulatory compliance, gas construction and maintenance, and project management. The Director of Gas Operations ensures the completion of any work identified by the Engineering and Asset Performance teams and any work needed for the LNG plant. As can be seen in Exhibit VIII-1, the Director of Gas Operations has six direct reports, each focusing on a specific area within gas operations.

The Senior Manager of Construction and Maintenance (C&M) is responsible for construction and maintenance performed by PECO gas employees such as leak repair, installation and modification of facilities, etc. There is even a Tie-In team whose main job is to tie new mains into the system. This is a specialized task requiring extra safety precautions, so PECO has decided to dedicate a team to this task. The Manager of C&M is also responsible for various gas safety tasks such as onboarding and annual training. For PECO Gas Mechanics, there is a four-year apprenticeship program beginning with classroom training, and continuing with a mix of on-the-job training, formal classroom training, and testing. Following this process, annual operator qualification training is required annually. There is also an overall safety program for all PECO Gas C&M employees, which is administered daily by the supervisors, to ensure

PPE (Personal Protective Equipment) and flaggers are used, administer daily safety briefings, etc.

The Manager of Regulatory Compliance is responsible for regulatory compliance, including leak surveys, cathodic protection requirements (as well as installation and testing of cathodic protection), bridge inspections, valve inspections, etc. Bare steel mains and plastic mains in business districts are surveyed annually, whereas all other plastic mains are surveyed every five years. This Manager also has two teams that work on distribution regulator inspections, repairs, and modifications.

The Senior Manager of Project Management is responsible for contractor management and damage prevention. There are around eight contractors used to install new infrastructure. The Project Management group has inspectors monitoring the contractors' work, validating infrastructure installations, and reviewing invoices for accuracy. Since 2017, PECO crews have used vacuum excavation to randomly spot check recent installations and to verify specification compliance. They also leak survey newly pressurized main.

The Manager of Design Engineering is responsible for teams of engineers and designers who issue work orders from plans developed from Engineering and Asset Performance. Meanwhile, the Manager of Gas New Business is responsible for coordinating all aspects (i.e., planning and construction) for new customers connecting to the gas distribution system. This team handles marketing and outreach as well as guides new customers through the various technical checks to ensure the system can support the additional load. Once these hurdles are cleared, Gas New Business will coordinate the physical connection of the new customer.

All work in the gas distribution system is the responsibility of the Manager of Work Management. This team uses a work management system called *Asset Suite* to prioritize and schedule all work orders based on priority. They use a set of standards that aid in assigning priority as detailed in their DIMP. The Work Management team also assigns a tracking code to the work order, which allows the project to be tracked from a budgeting perspective. From there, the Manager of Reporting is responsible for preparing and submitting financial and other regulatory reports to various Federal and State regulatory agencies.

The Senior Manager of Engineering and Asset Performance and three managers are responsible for engineering and technical aspects of maintaining the gas infrastructure, including main replacement, system standards, procedures, integrity management, system modelling, capacity planning, and improvements. The Senior Manager of Engineering and Asset Performance also supports the gas mapping plan, data analytics, and IT systems used by the Gas Operations Division. This department also initiates the project management process for outsourced work and provides engineering and technical support to the Gas Systems Control and Plant Operations group.

PECO has an accelerated main replacement program that targets cast iron, bare steel, wrought iron, and ductile iron mains. These types of main have been previously

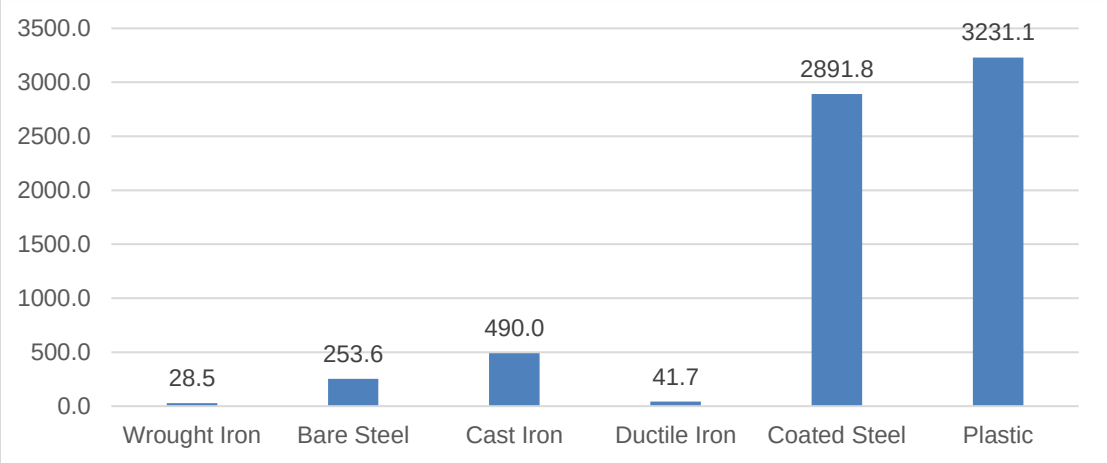
identified by the industry and Commission as problematic, primarily due to age, as these materials were mostly installed prior to 1970, and are susceptible to corrosion and damage from natural forces. PECO plans to target replacement of the bare steel mains, 8" in diameter or smaller, by 2030 and all remaining bare steel, cast, wrought, and ductile iron mains by 2035. As of year-end 2020, only 11.7% of PECO's mains fall in this category. This program is part of PECO's Infrastructure Replacement Program as discussed in the background section. PECO's collective goal is to replace these aging pipe materials (i.e., cast iron, wrought iron, ductile iron, and bare steel) by 2035 and to have small diameter bare steel (8" and below) replaced by 2030 and bare steel services replaced by 2022. Exhibit VIII-2 shows the amounts of main, services, critical valves, and meters replaced, and Exhibit VIII-3 shows the total miles of main by material type in the distribution system.

Exhibit VIII–2
PECO Energy Company
Gas Infrastructure Replacement Activity
2017 – 2020

	2017	2018	2019	2020
Miles of Outmoded Main Replaced	49.7	55.5	57.6	40.8
Services Replaced	4,673	5,067	4,516	2,185
Critical Valves Replaced	83	40	31	38
Meters Replaced	6,779	5,463	2,886	2,041

Note: Outmoded main replaced is primarily cast iron, with small amounts of wrought iron and ductile iron.
Source: Data Request GO-10

Exhibit VIII–3
PECO Energy Company
Miles of Main by Type
2020



Source: Data Request GO-2

PECO is targeting wrought iron, cast iron, and ductile iron for replacement by 2035 and bare steel mains by 2030. There is a total of 560.2 miles of wrought iron, cast iron, and ductile iron main in PECO's distribution system, and PECO is currently replacing an average of 50.9 miles per year. PECO indicated it is on track to replace Steel main 8" in diameter by 2030, with all remaining bare steel on track for replacement by 2035. However, audit staff notes that at some point, PECO will need to accelerate main replacement activity higher than its average replacement rate to meet this goal.

Findings and Conclusions

Our examination of PECO's gas operations included a review of operation and maintenance policies and procedures, main replacement program, leak surveys, leak repair backlogs, damage prevention program, unaccounted for gas levels, capital expenditure trends, staffing levels, contractor utilization, etc. Based on our review, PECO should devote additional efforts to improve the effectiveness of its gas operations by addressing the following:

1. Company-at-fault hits are rising and account for most line hits on its gas infrastructure.

In accordance with Pennsylvania Act 187 and 49 CFR § 192.614, each natural gas distribution company (NGDC) must maintain a documented damage prevention program. Moreover, 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 participates in the Pennsylvania One-Call System (POCS) as a member utility which facilitates communication between designers, contractors, excavators, and other member utilities about planned excavation work in an area.

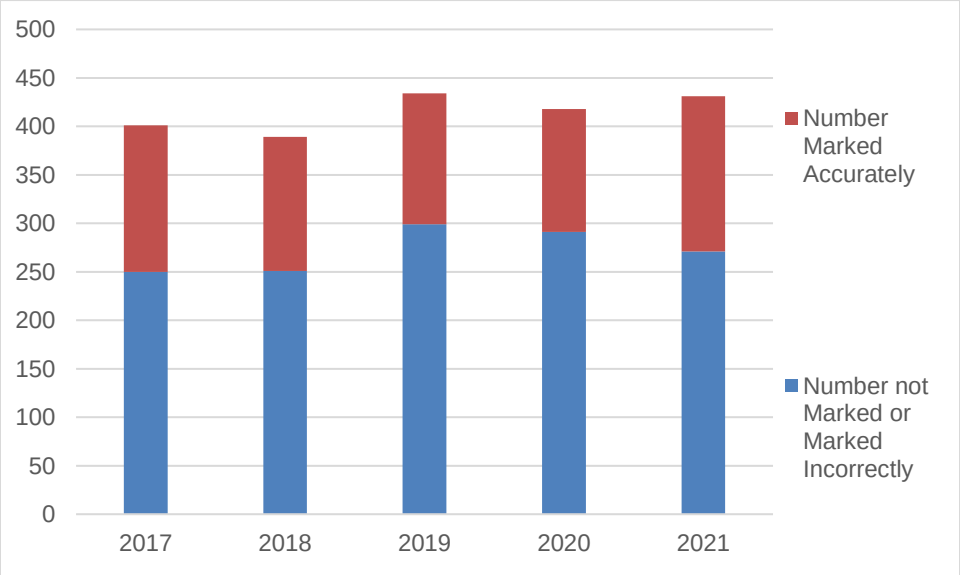
PECO uses its communications, social media, and marketing groups to increase PA One-Call awareness through mailings, advertisements, etc. PECO also works with PA One Call to sponsor a Safety Day in southeastern Pennsylvania. Every time a contractor hits a facility, the contractor receives a package from PECO reminding them how to avoid hitting PECO's infrastructure in the future, with contact information for PECO and 811. A second hit within 12 months results in a more direct warning. PECO remedial action also may include charging for damages or refusing to use repeat offenders. Third parties are also subject to fines issued by the PA PUC Damage Prevention Committee.

PECO uses locating contractors to respond to PA One-Calls and locate PECO's infrastructure prior to a dig. When a PA One-Call is placed in the PECO service territory, its routed to PECO's locating vendor. The vendor dispatches the ticket to a locator who services the ticket and marks the location of any PECO utilities at the dig site. PECO has four vacuum excavation crews that work in tandem with these contracted locators and PECO's damage prevention inspectors. If the contractor

determines that the locate meets any of the “High Profile” criteria, the ticket is escalated though the “High Profile” ticket escalation process to PECO, who has six inspectors who review and determine if additional action is required.

Despite efforts by the Commonwealth of Pennsylvania, PECO, trade organizations, and many safe excavators, damages to underground facilities occur. PECO keeps track of these damages and further categorizes them by the causes. On one hand, there are damages that are the fault of third-parties (i.e., excavators, contractors not working for the company, homeowners, etc.). However, there are also damages caused by internal problems at PECO. Exhibit VIII-4 shows the hits marked accurately vs. those where the hit had not been marked or had been incorrectly marked.

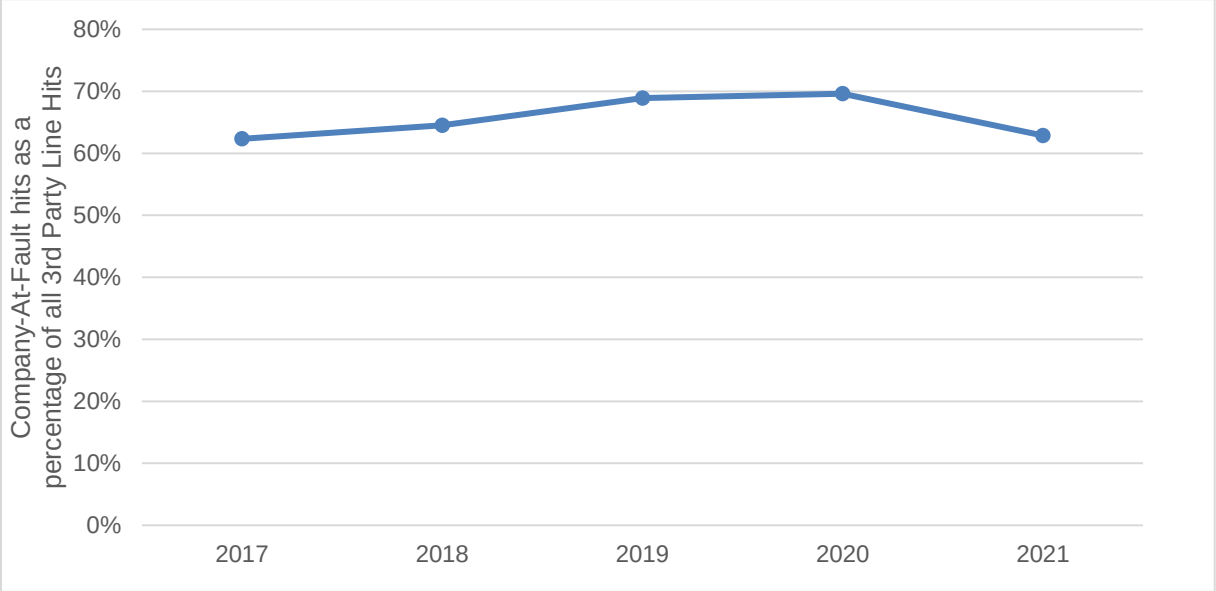
Exhibit VIII-4
PECO Energy Company
Hits Marked Accurately Vs. Hits Not Marked or Marked Incorrectly
2017 – 2021



Source: Data Requests GO-14, GO-43, and GO-47

As Exhibit VIII-4 shows, most hits on PECO’s gas infrastructure are on unmarked or inaccurately marked mains. Not marking a valid locate request or incorrectly marking the location are considered company-at-fault damages. On average, 65.7% of all third-party hits on PECO’s gas lines were due to unmarked or mismarked lines from 2017 through 2021, as shown in Exhibit VIII-5. PECO was responsible for roughly two thirds of these third-party hits, while third-party contractors were responsible for the other third due to not placing PA One Calls, working outside the scope of the ticket, and digging before the legal due date. At PECO, unmarked line hits occur because of the overwhelming amount of locates (PECO performs over 200,000 gas locates per year). Meanwhile, mismarked line hits are primarily the result of inaccurate records but can also occur due to locator and contractor error.

Exhibit VIII–5
PECO Energy Company
Company-At-Fault Gas Line Hits as a Percentage of Third-Party Line Hits
2017 – 2021



Source: Data Request GO-14 and GO-47

PECO has implemented several initiatives to mitigate company-at-fault line hits. For instance, if PECO's resource (i.e., contractor and inspector) cannot locate the facility, PECO will dispatch one of its five hydro excavation trucks to safely locate the asset. In 2020, for instance, PECO's hydro excavation trucks excavated over 1,100 sites, locating 14,000 feet of main and 47,000 feet of services. There are four hydro excavation trucks in the Damage Prevention department, and one assigned to PECO's mapping program.

Similarly, PECO performs monthly quality field audits on its locators to ensure PECO standards are met. In addition, PECO began a program in 2020 to perform additional audits and reviews of construction activity. These efforts are aimed at ensuring construction records are complete and accurate. Furthermore, in 2021, PECO purchased an in-pipe camera to verify all contact points to the main such as services and tie-in points.

Although PECO has a comprehensive program to reduce line hits from third parties, the primary causes of damages at PECO are inaccurate records and unmarked locate requests. PECO, like many older gas distribution systems, has traditionally struggled accurate asset records. In many cases, piping was placed in service before the use of GPS coordinates in natural gas distribution systems. With pilot work beginning in 2012, PECO has expanded its GPS data of gas facilities to include the location and depth of their buried infrastructure as they replace or install new mains. The records in the GIS system are being updated with this new, much more accurate location data. (See Finding and Conclusion No. VIII-4 later in this chapter.)

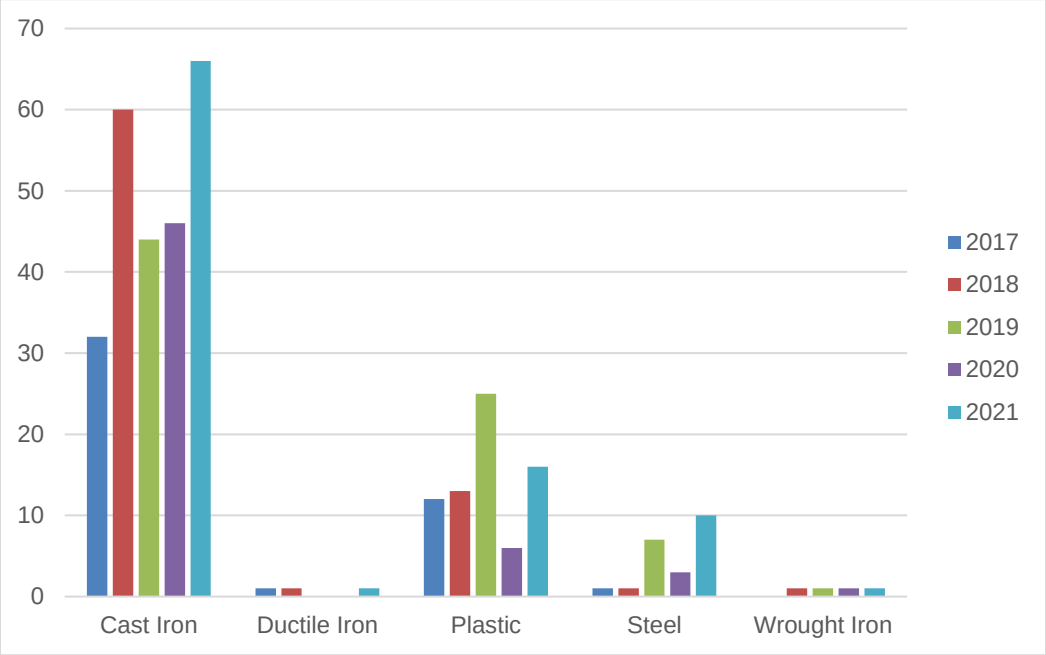
The challenges of updating the maps also affects the company's efforts to decrease unmarked facilities. PECO receives upwards of 550,000 locate requests per year from PA One-Call. As mentioned previously, PECO outsources routine requests (i.e., those requests where PECO is confident in the accuracy of its records) to its contractor. However, difficult or complex locates are handled by PECO's six inspectors. These six internal inspectors are forced to split their time and prioritize their efforts between positively locating facilities and providing contractor quality assurance oversight.

It is a best practice to minimize line hits, with company-at-fault line hits directly influenced by PECO. Although the company is using several methods to reduce company-at-fault line hits, poorly mapped legacy infrastructure is hindering the company's ability to quickly correct these conditions. More specifically, PECO is at fault for 45-50% of all third-party line hits. Therefore, PECO should continue upgrading its mapping program (see Finding and Conclusion No. VIII-4), explore additional avenues to reduce line damages, consider additional resources to help locate, mark, or more accurately map its facilities, etc.

2. Excavation damage is the cause of 88% of all breaks on plastic main.

As previously mentioned, PECO has an accelerated main replacement program aimed at replacing its most risky pipe. One factor that influences the decision to replace mains is the number of main breaks a segment or material type experiences. The conventional thought dictates that the more failures a material experiences, the greater likelihood that material will fail in the future. As shown in Exhibit VIII-6, 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 (referred to hereafter as the audit period). Surprisingly, plastic main breaks were second highest, at an average of 14.4 main breaks per year. Meanwhile, steel main breaks averaged 4.4 breaks per year.

Exhibit VIII–6
PECO Energy Company
Gas Main Breaks by Material
2017 – 2021



Source: Data Request GO-45

Historically, main breaks tend to occur on older infrastructure because age, soil chemistry, natural forces, etc. collectively weaken the material. However, plastic is considered a newer material and therefore, it might be thought less likely to experience breaks. In fact, PECO's distribution system has almost equal amounts of plastic (47%) and steel (45%) with an average age of 24 years versus 42 years, respectively. This means that plastic main is being hit or failing at a rate over three times that of steel despite being approximately half as old. In addition, when combining service breaks with main breaks, plastic breaks almost 10 times as often as steel. As shown in Exhibit VIII-7, plastic main and service breaks accounted for 61.2% of all main and service breaks from 2017 through 2020.

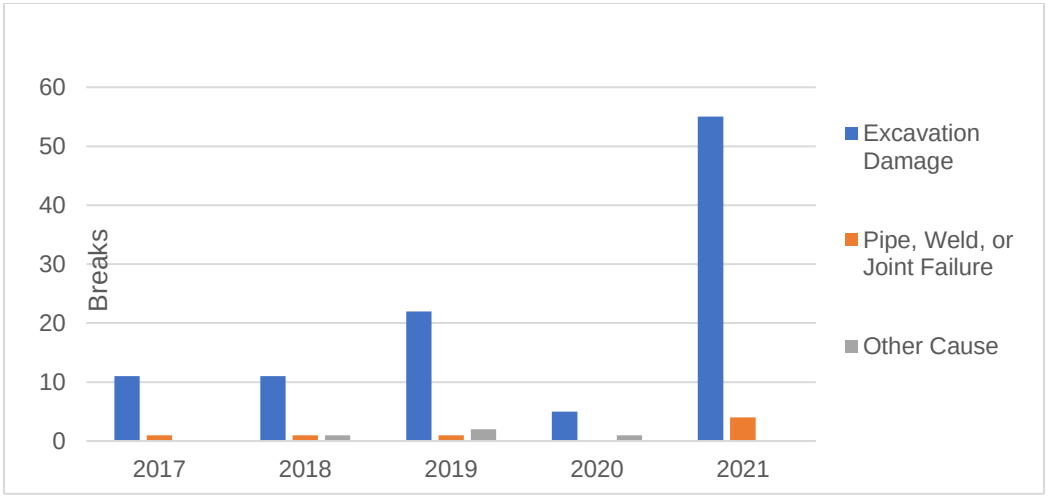
Exhibit VIII–7
PECO Energy Company
Main and Service Breaks as a Percentage of Total Breaks by Material Type
2017 - 2020

	Mains Only	Mains and Services
Plastic	17%	61.2%
Steel	6.7%	6.15%
All Others	76.3%	32.65%

Note: Data on combined service and main breaks was not provided for 2021
Source: Data Requests GO-5 and GO-45

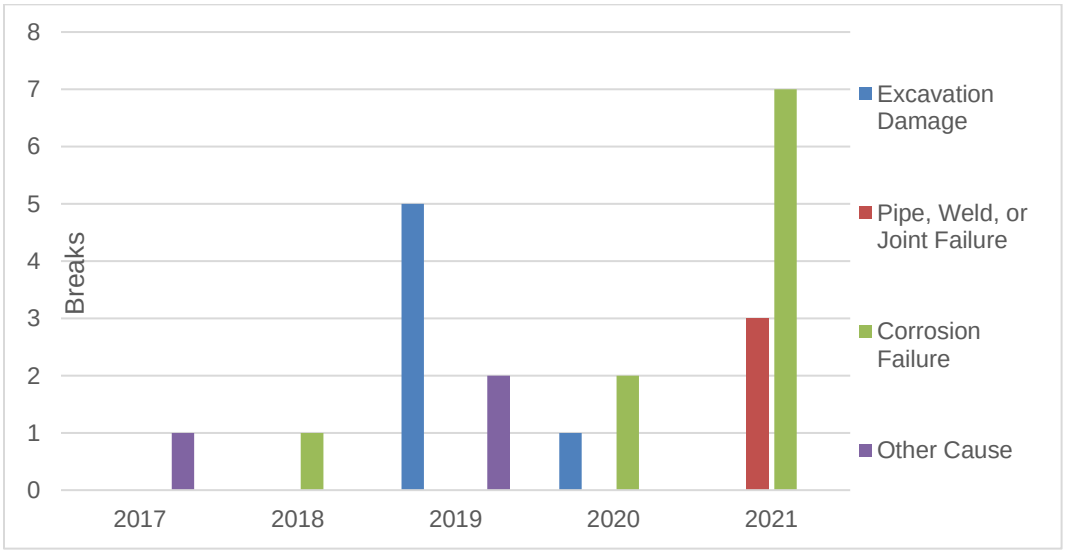
Excavation damages are largely viewed as independent of material type. In this case, however, the damages resulting from excavation appear to be highly dependent on material type. Therefore, a more granular look at each material type and the cause for breaks can be found in Exhibits VIII-8 and VIII-9.

Exhibit VIII 8
PECO Energy Company
Plastic Main Breaks by Cause
2017 - 2021



Source: Data Request GO-5 and GO-45

Exhibit VIII–9
PECO Energy Company
Steel Main Breaks by Cause
2017 - 2021



Source: Data Request GO-45

Although natural force damages on cast iron is alarming, PECO has a replacement program specifically targeting this causal factor. Plastic pipe is not part of the main replacement program because excavation damages are largely considered an external force and not a material problem. However, with steel and plastic making up roughly the same amount of the system, it can be deduced that PECO's plastic is far more susceptible to excavation damage than steel. Excavation is overwhelmingly the dominant cause why plastic main needs to be repaired or replaced currently, accounting for 87.5% of all plastic main breaks.

There are other causes of plastic failure with certain vintages of plastic being targeted for replacement. These causes make up a small percentage of failures at PECO but are still being studied and/or replaced. Reportedly, PECO is considering an accelerated replacement program for a specific type and vintage of plastic. The company is also a participant in an industry group referred to as the Plastic Pipes Data Committee (PPDC), which is studying this issue. Nonetheless, the fact that excavation damage is the second leading reason why gas unexpectedly escapes from mains with a large majority of excavation damages on plastic, warrants additional review or mitigating steps.

As discussed in Finding and Conclusion No. VIII-1, PECO has a large percentage of company-at-fault line hits due to historical challenges. Plastic, being a newer material should benefit from more accurate records than other material types. However, this data does not support that correlation with plastic mains and services being hit at about 9.5 times the rate as steel mains and services. Instead, PECO still has difficulty locating some of its older plastic and based upon the data, plastic does not resist damage from excavation machinery as well as other material types. Regardless of the cause, excavation breaks to plastic are a concern at PECO as demonstrated by Exhibit VIII-8.

As mentioned in Finding and Conclusion VIII-1, PECO has taken numerous steps to reduce line hits to all facilities. For instance, PECO is GPS locating its plastic main and installing marker balls (see Finding and Conclusion No. VII-4). In addition, PECO's Asset Team, part of PECO's Damage Prevention Team, has been performing some analytics to identify regions where there are increased excavation damages and where plastic main is more difficult to locate.

It is a best practice to reduce the number of main breaks by identifying pipe materials and vintages that are prone to failure. PECO has begun to identify vintages of plastic main that are prone to degradation and longitudinal failure, but has not fully addressed plastic main's unique proclivity to be damaged by excavation, whether due to the difficulty in locating it when digging, or due to the material's comparative lack of impact damage resistance when compared to steel. Although a failure caused by a line hit does not indicate the pipe material has expended its useful life, the sheer volume of plastic pipe being hit requires further study and mitigation. Certainly, PECO's efforts on updating its mapping system (see Finding and Conclusion No. VIII-4) and reducing company at-fault hits (see Finding and Conclusion No. VIII-1) will help in significantly reducing plastic excavation damages. However, PECO should expand its efforts to protects its plastic infrastructure.

3. Gas Operations tracks overtime in dollars but overtime as a percentage of hours worked is high.

As discussed in Chapter VII – Electric Operations Finding and Conclusion No. 1, PECO uses fatigue reports to track the individual overtime shifts worked, and number of days worked without a non-work day. PECO relies on supervisors to use this information to curb employees' tendencies to overwork. However, PECO's supervisors use their discretion for how to address the issue. Nonetheless, there are numerous examples of employees working more than 20 days without a day off, or working more than 15 double shifts in a month (refer to Chapter VII – Electric Operations Exhibit VII-5). More specifically, as shown in Exhibit VIII-10 total overtime (OT) within the Gas Operations department has increased from 101,016 hours in 2017 to 144,773 hours in 2021, a 43% increase.

Exhibit VIII–10
PECO Energy Company
Gas Operations Estimated Overtime Hours
2017 – 2021

	2017	2018	2019	2020	2021
Emergency	71,743	106,950	78,455	105,528	107,983
Maintenance	29,273	33,910	30,881	32,891	36,790
Total	**101,016**	**140,860**	**109,336**	**138,418**	**144,773**

Note: PECO estimated overtime hours based on total overtime spend divided by its average overtime rate.
Source: Data Requests GO-46

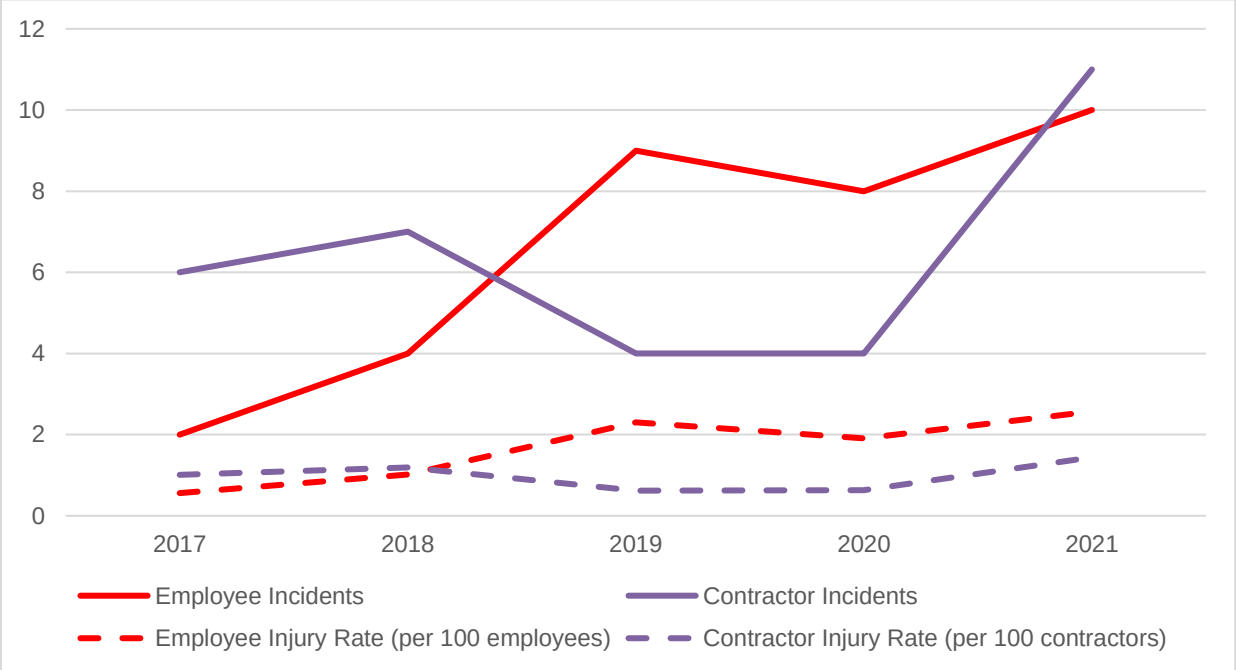
Total emergency and maintenance OT hours per non-exempt employee varies between 387 and 544 hours per year, or 7 and 10 hours per week. This converts to 18.6% to 26.2% OT hours per normal hours worked. In comparison, the Director of Gas Operations indicated the OT goal was to stay below 35% overtime with respect to payroll dollars. Similar to Chapter VII – Electric Operations Finding and Conclusion No. VII-1, PECO tracks and sets its OT goal based upon dollars. See Exhibit VII-3 in Chapter VII for PECO's overall OT usage from 2017 through 2021, and the OT dollars as a percentage of regular time dollars spent.

Although the Director of Gas Operations indicated that the goal for gas operations is to stay below 35% OT dollars spent per regular time dollars spent, PECO's KPI target for overall OT dollars is 16% per regular time dollars spent. The closest PECO came to that goal was 19% in 2019. PECO management indicated that the Gas Operations Department must maintain 24/7 operations and has seen a fair number of retirements. These conditions have increased the overtime per person.

Similar to Chapter VII – Electric Operations Finding and Conclusion No. VII-1 and Chapter XIV Finding and Conclusions No. XIV-1 and 2, PECO's gas department has seen a rise in safety related incidents. More particularly, Gas Operation's OSHA injuries have increased from two to ten per year from 2017 through 2021, and the rate

per 100 employees has increased from 0.56 to 2.57. In addition, Gas Operation's DART[29] incidents increased from one in 2017 to nine in 2021, whereas the DART rate per 100 employees increased from 0.28 in 2017 to 2.31 in 2021. OSHA injury rates are illustrated in Exhibit VIII-11 while the DART rate is shown in Exhibit VIII-12.

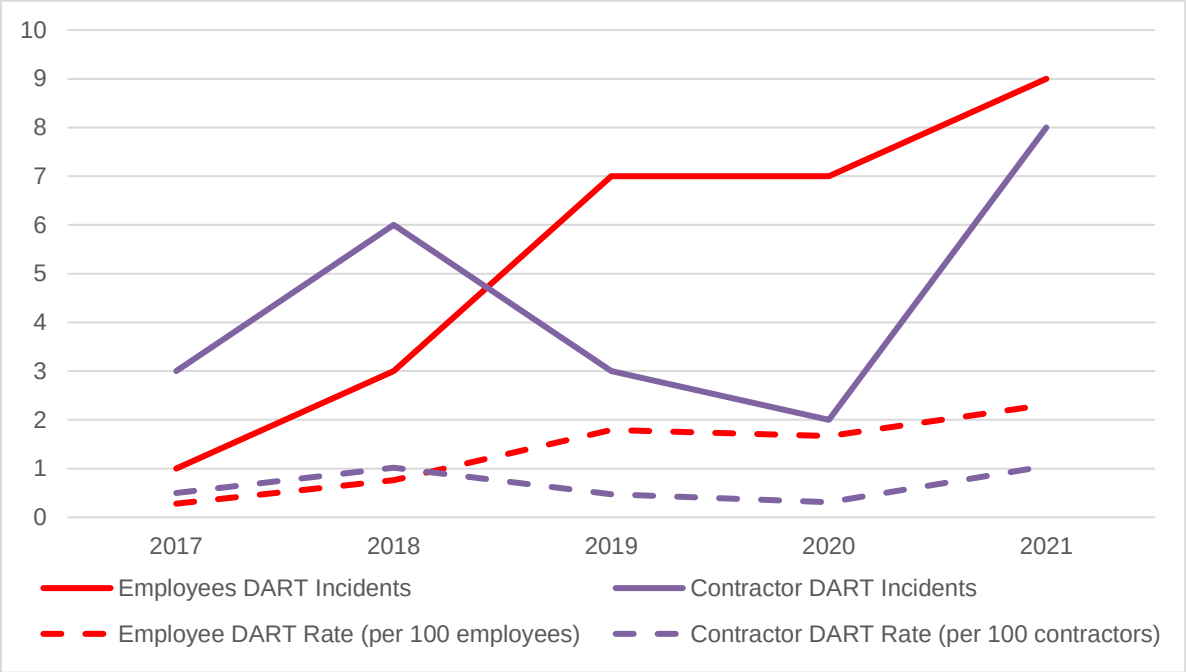
Exhibit VIII–11
PECO Energy Company
OSHA Incidents and Injury Rates for Gas Operations Employees and Contractors
2017 – 2021



Source: Data Request GO-44

[29] OSHA uses DART (Days Away, Restricted, or Transferred) as a measure of more severe injuries, those that cause lost time.

Exhibit VIII–12
PECO Energy Company
OSHA DART Incidents and Rates for Gas Operations Employees and Contractors
2017 – 2021



Source: Data Request GO-44

The fact that injury rates per 100 employees increased by 359% from 2017 to 2021, but the DART rate per 100 employees increased by 825% means that the average DART incident is causing twice as much lost time in 2021 as in 2017. While averages do not tell the whole picture, these numbers indicate that injuries and the time to recover from at least some of those injuries has increased over this time period. This was confirmed by PECO's Manager of Gas Construction and Maintenance, who indicated that PECO is experiencing more restrictive cases (meaning DART incidents) than it has experienced on a historical basis. In addition, PECO Gas Operations total motor vehicle accidents almost doubled from 18 to 34 from 2017 through 2021, and the accident rate (per million miles) increased from 7.78 to 13.34 from 2017 through 2021. Gas Ops employee-responsible (at-fault) motor vehicle accidents more than quadrupled from 3 in 2017 to 13 in 2021, while the employee-responsible vehicle accident rate (per million miles) increased from 1.3 in 2017 to 5.1 in 2021

According to PECO's Manager of Safety and Human Performance, ergonomic related incidents are the largest category of OSHA injuries. During 2021, PECO's Manager of Safety and Human Performance led a team across all Exelon utilities to study this issue. As a result, starting in the second quarter of 2022, PECO intends to update its ergonomics training based on the types of injuries experienced. The Manager of Safety and Human Performance indicated that PECO's mature safety program has led to more knowledgeable employees that know when to report an

incident and seek the proper medical attention to mitigate long term effects from an injury.

Nonetheless, the increased overtime levels seem to correlate with the rising safety issues. However, the audit staff acknowledges that other factors are likely influencing these numbers. In particular, retirements can lead to a less experienced workforce more prone to make mistakes. As of 2021, PECO had more than 50 employees in progression that were not full senior gas mechanics and PECO planned to hire more employees in 2022. In addition, the pandemic has led to unique challenges to 24/7 operations that must respond to emergencies despite challenging conditions brought on by the pandemic (i.e., staffing shortages, call offs, additional safety protocols, etc.). There is no doubt that this work must be done to maintain operations, however, audit staff believes there are ways to accomplish this work without incurring as much overtime.

Furthermore, PECO has established a safety culture and demonstrated its commitment to safety (see Chapters VII – Electric Operations and XIV – Human Resources). Many programs are aimed at improving overall safety, addressing ergonomic challenges, curbing vehicle accidents, etc. In addition, Gas Operations has a weekly call every Monday morning focused on safety. Nonetheless, the audit staff contends that overtime is at least a contributing factor to safety. The levels presented above for the gas operations department are higher than the company's goal and more than the audit staff's recommended 15% metric. PECO management acknowledged that distraction, lack of focus, and/or overwork contributed to at least some of these accidents. Additional publications also indicate that too much overtime can have adverse effects on employees.[30]

Therefore, the audit staff contends that a reduction in overtime usage may reduce injury and accident rates at PECO. The audit staff contends that overtime of 15% of regular hours worked is a reasonable target, but recognizing that each company or department may have a different optimal level. More specifically, PECO should review injuries based upon fatigue and burnout, define excessive overtime, ensure employees are not working excessive overtime, and reduce overall overtime levels. In addition, PECO should add or expand the KPI tracking overtime to increase visibility into the operational and staffing effects of overtime, and create specific goals for each

[30] Sources:

- Daltroy LH et al. A case-control study of risk factors for industrial low back injury: implications for primary and secondary prevention programs. Am Journal of Industrial Medicine 1991;20.
- Hayashi T et al. Effect of overtime work on 24-hour ambulatory blood pressure. Journal of Occupational and Environmental Medicine 1996;38.
- Ettner SL, Grzywacz JG. Workers' perceptions of how jobs affect health: a social ecological perspective. Journal of Occupational Health Psychology 2001;6.
- Lowery JT et al. Risk factors for injury among construction workers at Denver International Airport. American Journal of Industrial Medicine 1998 Aug;34.
- Rosa RR. Extended work shifts and excessive fatigue. Journal of Sleep Research 1995;4.
- Cornell University. Industrial and Labor Relations, Institute for Workplace Studies. Overtime and the American Worker.1999
- Shields M. Long Working Hours and Health. Health Reports, Autumn 1999; 11.
- Kirkaldy B et al. Working Hours, Job Stress, Work Satisfaction, and Accident Rates Among Medical Practitioners and Allied Personnel. International Journal of Stress Management 1997;4.
- Nevison J, Overtime Hours: The Rule of Fifty.
- Shepard E, Clifton T. Are Long Hours Reducing Productivity in Manufacturing. International Journal of Manpower 2000;7.

department based upon their unique requirements. These efforts should also aid the company in improving its safety statistics audit staff recognizes that minimizing overtime and optimizing staffing levels can be challenging due to constantly changing conditions. Some remedies to improving overtime may take time to implement or lead to increased short term costs, like increasing staff or temporarily augmenting with contractors. While it may take time, resources, or additional costs to reduce overtime, audit staff estimates that PECO may eventually save up to $15 million per year for all groups using overtime as presented in Exhibit VII-3.[31]

4. The rate of GPS locating the gas infrastructure is too slow.

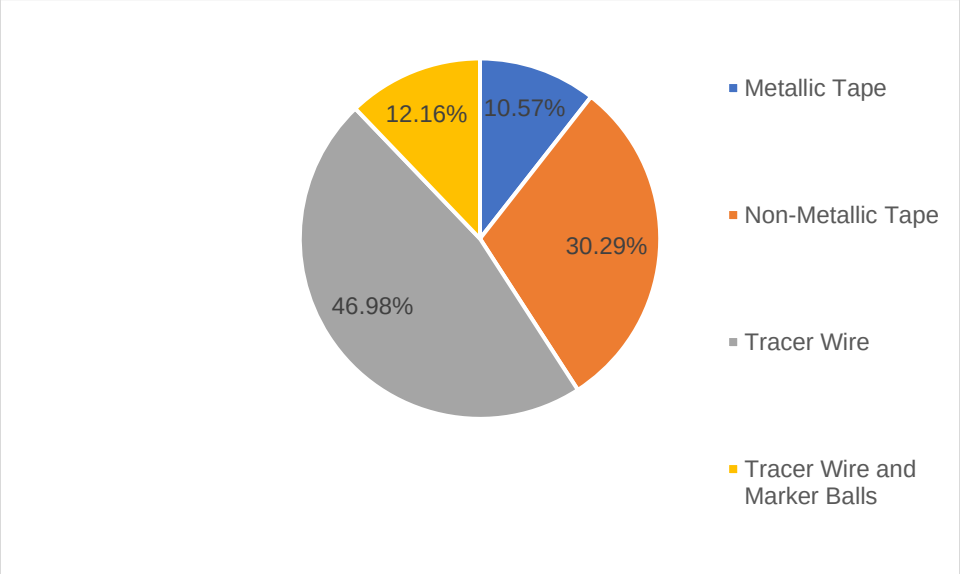
As presented in Finding and Conclusion VIII-1, PECO has many instances of company-at fault damages. The company has cited the difficulty locating some of its facilities, particularly older assets, as a major contributor to this problem. Similarly, as presented in Finding and Conclusion VIII-2, the company's plastic mains are experiencing a disproportionate number of main breaks from excavation damages based upon the amount of plastic in the system.

Plastic pipe is more challenging than metallic pipe as it cannot be detected with a metal detector. Historically, plastic pipe was installed without tracer wire, or with incorrectly installed tracer wire. In many cases, the entire industry, including PECO, is reporting that the tracer wires have disintegrated. To combat this challenge, PECO has used metallic tape, tracer wire, and marker balls to aid in locating its plastic main. Metallic tape is a metal tape that is buried above a plastic main and can be detected by a metal detector. Unfortunately, much of PECO's metallic tape has deteriorated and cannot be reliably detected. Tracer wire is wire buried with plastic main and a transmitter can be connected to it to transmit a detectable signal from along the wire. This wire is coated and more resistant to corrosion, though any break in the wire or short will stop it from broadcasting its signal past the break. Marker balls are highly durable beacons buried along an underground utility that can be detected by a transmitter. PECO began installing metallic tape with its plastic mains in approximately 1970, switched to non-metallic[32] tape in 1981, and began installing tracer wire in 1996. PECO began using marker balls in addition to the tracer wire in 2015. This means that about 10.6% of PECO's plastic main was installed with metallic tape, 30.3% of PECO's plastic main was installed with non-metallic tape, 47.0% of PECO's plastic was installed with tracer wire only, and about 12.2% of PECO's plastic main has been installed with tracer wire and marker balls. This is illustrated in Exhibit VIII-13.

[31] The audit staff calculated the $15 million based on reducing PECO's 2021 OT from 31% to 15% (or $86.7 million to $42 million based on an average overtime cost of $65/hr.) and subtracting a corresponding increase in staffing base wages (assuming more staff was added to reduce overtime at an average rate of $43/hr.). While this calculation does not account for fully loaded costs and training of new employees, it also does not quantify the benefits of reducing overtime such as improved safety or moral, reduced burnout, loss of productivity from excessive overtime, etc.

[32] Nonmetallic tape is not detectable without digging. It is used to warn a digger that they are about to hit the pipe, not help find the pipe before excavation starts.

Exhibit VIII–13
PECO Energy Company
Plastic Main Detectability Aids in Service
As of December 2021



Source: Data Request GO-2 and GO-40

At this point, PECO reports that much of the metallic tape and some of the older tracer wire is undetectable. Consequently, it is likely a large portion of the plastic mains are not detectable without excavation or accurate maps. Mapping is the responsibility of PECO's Assets and Engineering department. The Asset Management group is attempting to verify the accuracy of the data in PECO's GIS system. In addition to using reference points (corner of street, corner of building, etc.), PECO also started GPS locating every asset by location and depth in 2016. To accomplish this task, PECO has armed its field forces with tablets and instruments so they can GPS mark each piece of infrastructure. The company objective is to ensure accuracy within seven inches.

In addition, PECO's Gas Mapping Program team has been investigating sections of main with questionable location and physically locating and then capturing high accuracy GPS points of the assets. According to the VP Gas, PECO is also GPS-locating the new mains during installation. PECO has located approximately 313 miles of the total 6,937 miles of main in the system, which equates to 4.5% of gas mains, with GPS points over the last four years. The company is also leveraging its hydro excavation trucks and cameras, and is increasing the marker balls installed to aid in more accurate mapping.

As of the end of 2021, PECO had about 53.3% of its gas system loaded in its GIS[33] (all mains, minimal services), but only 4.5% of the system has an associated GPS-location. Asset location information is either updated in the GIS or added to the

[33] Assets without GPS location data can still be input into GIS systems with less-accurate location data, like distance from a corner or street edge, or off set measurements from a monument or building. GIS records also often include information about the asset, like pipe or fitting size, type, age, and material.

GIS as assets are GPS located. On average, PECO is locating about 1.1% of its gas mains per year. This represents 5% of its targeted "challenge points"[34] per year. PECO is 5 years into a 20-year program to address all challenge points. At this rate, PECO will have all the challenge points GPS located by the year 2037. Nonetheless, the audit staff believes that all infrastructure will need to be GPS located sometime in the future.

Unfortunately, at this time, PECO does not have enough assets GPS located to significantly improve the amount of company at-fault hits or excavation damages. At the current rate, it will take PECO 15 years to finish GPS locating its "challenge points." Given the rate of excavation damage to plastic mains, every step taken to improve location records could prevent multiple excavation damage-caused main and service breaks over the next 15 years. Therefore, PECO should devote additional resources to accelerating its GPS locating efforts and evaluate if additional "challenge" points need to be added based upon excavation damages to its plastic infrastructure.

Recommendations

1. **Reduce company-at-fault hits on gas infrastructure.**

2. **Study and identify ways to reduce plastic pipe main and service damages with a focus on line hits.**

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

4. **Accelerate the rate of GPS location for key gas infrastructure.**

[34] PECO defines challenge points as important pieces of infrastructure or places where a pipe changes direction.

IX. EMERGENCY PREPAREDNESS

Background

On June 11, 2005, Regulations at 52 Pa. Code § 101 (Chapter 101) went into effect that require jurisdictional utilities to develop and maintain written physical security, cyber security, emergency response, and business continuity plans to protect infrastructure within the Commonwealth of Pennsylvania and to ensure safe, continuous, and reliable utility service. A jurisdictional utility is required to maintain these "emergency preparedness" plans and annually file a Self-Certification Form to the Pennsylvania Public Utility Commission (PUC or Commission) documenting compliance with Chapter 101. This form, available on the PUC website, is comprised of 13 questions as shown in Exhibit IX-1.

Exhibit IX–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 cyber security plan?	
5	Has your cyber security plan been reviewed in the last year and updated as needed?	
6	Is your cyber security 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, as available on the PUC website at https://www.puc.pa.gov/documents/utility-files/279/Security_Planning_Self-Cert_Checklist2021-F.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 the Pennsylvania utility companies. Ultimately, due to the sensitive nature of the information reviewed, specific information is not revealed in the audit report; instead, the generalities of the information reviewed are discussed.

The auditors reviewed the most recent (i.e., 2020) Self Certification Forms submitted by PECO, to determine the status of their responses. Our examination of PECO's emergency preparedness included a review of the Physical Security Plan (PSP), Cyber Security Plan (CSP), Emergency Response Plan (ERP), Business

Continuity Plan (BCP), and associated security measures. Due to COVID-19, most work was conducted via videoconferencing with company personnel. However, the PUC auditors performed select in-person reviews and facility inspections

PECO, as part of the much larger Exelon Corporation (Exelon), uses a matrix approach to security. For some aspects of security, PECO handles its own security, following certain guidance set by Exelon BSC (Exelon Business Services Corporation), regulatory requirements, etc. Meanwhile, other aspects, like cybersecurity are primarily handled at the Exelon BSC level. The following positions are primarily responsible for the four emergency plans:

- Physical Security: Sr. Manager of Corporate Security (PECO)
- Cybersecurity: Vice President Cybersecurity (Exelon)
- Emergency Response: Manager of Emergency Preparedness (PECO)
- Business Continuity: Vice Presidents of various departments (PECO)

PECO and Exelon share responsibilities for security. Exelon's Corporate IT department has responsibility for enterprise-wide IT systems such as those used by PECO for human payroll, human resources, communications, etc. Exelon BSC's cybersecurity group CISS (Corporate Infrastructure Security Systems) has responsibility for utility-specific IT and OT[35] resources and works with PECO's physical security team, but CISS also has its own physical security component. CISS handles the governance and oversight of cybersecurity for Exelon Utilities. Exelon BSC's OT group works with CISS constantly to ensure coordination across all Exelon organizations.

Exelon BSC's OT group, also known as the IT Real Time group, oversees the Real Time (OT) network for all Exelon Utilities operations centers, including its SCADA systems. This team works closely with the PECO CEO, though it does not directly report to PECO. The IT Real Time group also handles patching the security systems. Whereas Exelon BSC's IT Real Time group provides the primary support for SCADA systems at Exelon Utilities, PECO handles the operations side of SCADA.

In addition, PECO's physical security team handles the bulk of the physical security at PECO; however, Exelon BSC has a physical security team that supports all Exelon Utilities that focuses on the physical security of cyber components. Although much of physical security is focused on traditional security measures (i.e., fencing, cameras, lighting, etc.), PECO also employs some innovative security practices. For instance, PECO has a threat mapping system, which is a threat tracking GIS program that allows PECO to identify the riskiest areas of its territory and corresponding specific threats. This is combined with a program where PECO has off-duty police officers available to escort personnel to worksites. These two programs contribute greatly to worker safety and improve the security posture of PECO.

The maintenance of the four emergency plans includes annual reviews and testing often more than once per year. Testing often includes federal, state, and local

[35] Operational Technology, or OT is technology used directly in operations, such as SCADA (Supervisory Control and Data Acquisition) systems, and the secure networks dedicated to these systems.

agencies and authorities in addition to company personnel and is performed via tabletop exercises, simulations, and/or real-life events. Drills and exercises relating to business continuity, for example, are the responsibility of the VPs in charge of each department, whereas various IT groups handle IT business continuity like data backups, etc. In addition, physical and cyber vulnerability tests are routinely conducted to discover potential deficiencies. Opportunities for improvement identified from the testing or reviews are evaluated for implementation and the manuals are updated as needed to reflect new procedures or practices resulting from these findings.

Findings and Conclusions

Our examination of the emergency preparedness at PECO included a review of the PSP, CSP, ERP, BCP, vulnerability assessments, and all associated security measures. Based on our review of the company's emergency preparedness efforts, PECO should devote additional efforts to improving its security planning and preparedness procedures by addressing the following four findings and recommendations:

1. There are minor issues with physical security, mostly related to wear and tear at lower security tier facilities.

Minor physical security deficiencies were noted during inspection of PECO's facilities. Most of these deficiencies were due to facility age, oversight, weather, or general wear and tear. Issues included concerns such as barbed wire problems, gaps and washouts beneath fences, rusted fences, foliage issues, and unlocked or unsecured cabinets and doors. Some of these items were immediately corrected by PECO. Others were already identified as part of a project to improve facility physical security.

Physical security should be continuously addressed, and any deficiencies should be remediated in a timely manner. Due to minor deficiencies in physical security at some of PECO's lower security tier facilities, conditions could allow for points of entry through individual layers of security at some facilities. Holes in a layer of security can render that layer ineffective, so these issues should be repaired or mitigated in the interest of maintaining multiple, functional layers of security.

2. First aid kits and fire extinguishers at multiple facilities were missing inspection tags.

At several PECO facilities, although they were well-stocked, first aid kits were missing inspection tags, and fire extinguishers either lacked inspection tags or had not been marked as inspected for the preceding eight months. NFPA (National Fire Protection Association) 10 requires that fire extinguishers be inspected when placed into service and at least monthly after that. Meanwhile, OSHA 29 CFR §§ 1910.269(b)(3) requires that first aid kits be inspected at least annually. Although the

first aid standards do not require documentation of inspection results, without documentation, there is no way to prove compliance. Because first aid kits' supplies often get used throughout the year for minor injuries, The audit staff recommends monthly inspection of both first aid kits and fire extinguishers with use of inspection tags to verify.

PECO has allowed inspections, or documentation thereof, to lapse. Without regular, documented inspections of first aid supplies and fire extinguishers, missing supplies or faulty equipment could impede efforts to respond in an emergency.

3. The Safety Rulebook is comprehensive but could benefit from administrative improvements.

PECO's Gas Safety Rulebook assigns responsibility to management to implement the safety and health programs and to appropriately train and equip the employees. It defines occupational safety and health performance as an integral part of the business. In addition, there is a written safety and health program, including hazard assessment, hazard correction and control, safety and health training of employees, employee/union involvement, formal safety and health program evaluation, and a formal, consistent safety organization. Systemic investigation of accidents and incidents with the potential for injury or illness is required. Training of line management on safety management techniques is also required. The program focuses on personal safety, task safety, chemical and fire safety, vehicle safety, tools and equipment, electrical safety, and gas safety. There are safety procedures, instructions on first aid, and stretching exercises to prevent ergonomic injuries. The content of the safety manual is commendable, but there are opportunities to improve it.

One opportunity that the audit staff identified is that the Safety Rulebook is missing an update and accountability tracking section. Another opportunity for improvement is that the table of contents is located 4 pages in, which can make it easy to miss in an emergency. In fact, tabbed chapter markings in the page margins would improve navigability markedly.

Any emergency reference materials, including safety manuals, should be easy to navigate and should include change tracking. PECO's gas operations safety manual has not been treated like its other emergency reference materials. It lacks change tracking and elements promoting easy navigability. Because of this, the administrative aspects of the gas operations safety manual may contribute to delays in finding critical information when used as an emergency resource.

4. Security equipment is currently replaced in an ad-hoc fashion.

PECO identified its critical plant, equipment, and facilities and began ranking all assets by criticality in 2017. Assets are then placed in tiers based upon this criticality. There are defined security requirements for facilities of each tier of criticality.

Vulnerability assessments and criticality tiering are reviewed and re-tiered every 36 months.

These efforts are handled by PECO's physical security team and supported by a CISS liaison. Together this group recommends, commissions, and tests security equipment before it is turned over to the ESOC (Exelon Security Operations Center). Transmission and Substations, Real Estate Management, and Gas Operations each have separate contracts for maintenance of security equipment. PECO uses three tiers of priority for repair orders:

- Emergency: 2-6 hrs.
- Urgent: 24 hrs.
- Urgent: 5 days.

In 2014, PECO began a Facilities Enhancement Project (FEP). This project is aimed at upgrading security of operations at PECO's facilities and has already completed upgrades at several facilities. The gas and electric FEP has completed all Tier 1 (most critical) facility upgrades. They are now working on Tiers 2 and 3, which are scheduled to be completed in 2024. There is a similar project for office buildings, called the Office and Support Facilities (O&SF) Project. Each group of assets has a set of upgraded security standards, one for gas and electric and another for O&SF.

Although PECO has invested substantially in the security of its system, the company does not have a lifecycle management program to monitor security equipment lifespans and predict and track replacement needs. It is a best practice to use a robust lifecycle management process to track security equipment patching, maintenance, and replacement needs. Rather than use a lifecycle management process to track security equipment patching, maintenance, and replacement needs, PECO has replaced equipment on an as needed basis. Where problems with security equipment at lower tier facilities have gone unnoticed, security equipment has gone without patching, upgrade, or replacement. Continuing to use security equipment past its effective lifespan, and without a lifecycle management process, increases the potential for these issues to materialize at higher tier sites. Therefore, PECO should develop a program aimed at ensuring all security components are managed throughout their lifecycles.

Recommendations

1. **Correct minor deficiencies in physical security.**

2. **Ensure that all fire extinguishers and first aid kits are being inspected and tagged monthly.**

3. **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.**

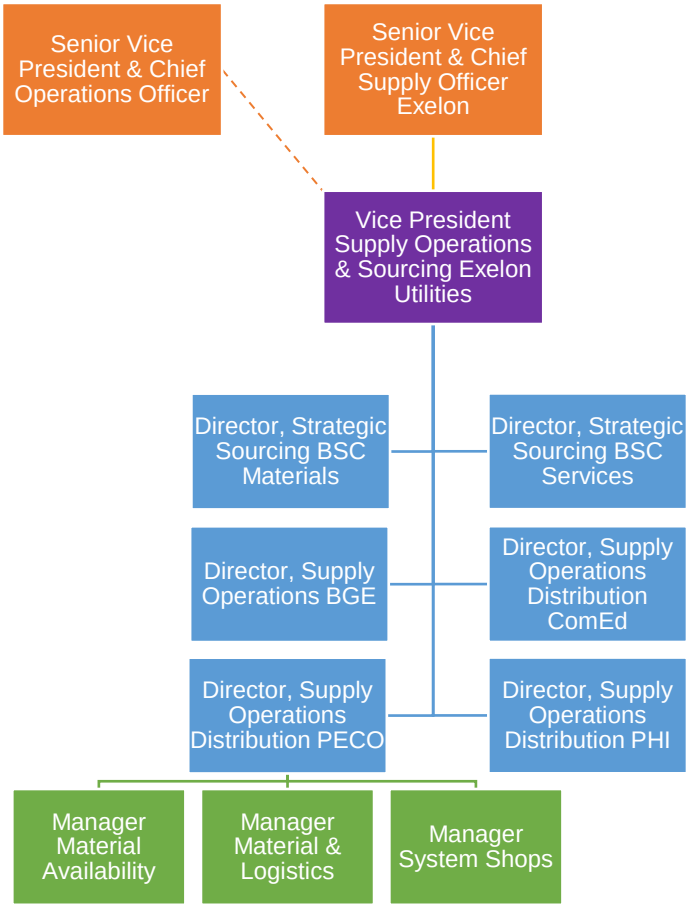
4. **Develop a lifecycle tracking and replacement program for security equipment.**

X. MATERIALS MANAGEMENT

Background

The personnel responsible for procuring and managing materials at PECO Energy Company (PECO or company) are overseen by PECO's Director, Supply Operations Distribution, as shown in Exhibit X-1, who reports to Exelon Utilities' Vice President, Supply Operations & Sourcing. As shown in the exhibit, there are similar positions for other Exelon subsidiaries such as Baltimore Gas and Electric, Commonwealth Edison Company, etc. (see Chapter II – Background for more information about PECO's affiliates).

Exhibit X-1
Exelon Business Services Company
Supply Operations Organization Chart
As of June 2021



Note: The dotted line represents an indirect reporting relationship.
Source: Data Request EM-15, company supplied data

As of January 3, 2022, PECO's Supply Operations department[36] was comprised of 61 employees divided between three functions overseen by the Manager of Material Availability, the Manager of Material and Logistics, and the Manager of System Shops. The Material Availability group is responsible for ensuring that materials are available for their customers[37] at all times by maintaining appropriate inventory levels and procuring materials, as necessary. As of January 3, 2022, the Material Availability function consisted of two procurement specialists and three work management material analysts[38]. The procurement specialists are tactical buyers responsible for addressing emergent procurement needs. Meanwhile, the work management material analysts act as liaisons between Supply Operations and their customers by monitoring work order need dates, material allocations and material lead times, and ensuring materials will arrive where and when needed.

Another function within PECO's Supply Operations is Materials and Logistics. This group is responsible for maintaining and distributing inventory throughout PECO's service territory (i.e., storerooms, warehouses, and job sites). As of January 3, 2022, there were 37 employees[39] (3 supervisors, 20 material coordinators, 1 materials process clerk, 9 equipment operators, 3 truck drivers, and 1 supply scheduler) under the Manager of Materials and Logistics. Material coordinators are responsible for staging inventory for transportation to smaller storerooms or for direct delivery to job sites and managing inventory by picking, receiving and cycle counting.

The third function within PECO's Supply Operations is System Shops. As of January 3, 2022, this group consisted of 15 employees (6 electrical technicians, 4 tool mechanics, 1 support service planner/scheduler, 3 T&S parts specialists and 1 work management analyst). Together they are responsible for refurbishing and repairing equipment (e.g., unit substations, distribution transformers, etc.), power and hand tools, and testing rubber insulating goods (e.g., gloves, mats, etc.). This group would also research new or replacement equipment for the Transmission & Substation (T&S) group and work with Engineering and Procurement to assist in claiming warranties for equipment removed from service.

In addition to these groups, PECO uses a hybrid inventory management approach for procurement. PECO has three integrated suppliers, who specialize in electric distribution equipment (EDE), tools, and personal protective equipment (PPE); gas distribution equipment (GDE); and poles. These vendors maintain, manage, and supply their materials to PECO on demand at specific PECO storerooms and warehouses based on contracted provisions. One of the benefits of vendor integration is that requests for vendor managed inventory use the same automated materials request process as PECO owned inventory. Depending on the materials requested, PECO's inventory management software, *Asset Suite*, routes the purchase order (PO) release and material request (MR) externally to the integrated supplier or internally to

[36] PECO's Supply function is an Exelon BSC embedded department as described in Chapter II – Executive Management.
[37] These customers include job owners such as designers, consultants, foremen, engineers, project management, etc.
[38] There were also two open positions.
[39] This total does not include six open positions.

PECO. PECO managed material is scheduled for picking based on material allocations and need date. PO releases and MRs sent to the integrated supplier are fulfilled either by the supplier packaging and shipping orders directly to job sites or staging the material at PECO's main warehouse with PECO's Materials and Logistics group sorting and transporting materials where needed. Therefore, the vendor managed inventory is typically fast-moving items whereas PECO's warehouses store slower moving or longer lead time items. Exhibit X-2 compares the total dollar amount of materials issued from PECO's stock to the materials issued by PECO's integrated suppliers from 2017 through 2021.

Exhibit X-2
PECO Energy Company
Comparison of PECO Issues from Stock and
Materials Issued by Integrated Suppliers
2017 – 2021

	PECO	EDE, PPE, & Tools	GDE	Poles
2017	$ 57,834,594	$ 27,351,923	$ 14,350,030	$ 3,356,323
2018	$ 73,034,837	$ 33,992,676	$ 15,314,484	$ 4,938,388
2019	$ 77,912,864	$ 39,188,870	$ 17,394,696	$ 5,462,214
2020	$ 87,048,260	$ 48,054,906	$ 18,035,318	$ 8,408,956
2021	$ 63,188,268	$ 47,540,972	$ 21,018,502	$ 9,270,774
Percent change	9%	74%	46%	176%

Source: Data requests MM-3, MM-24, and MM-25

PECO uses *Asset Suite* to manage all phases of inventory control, warehousing, and materials replenishment. As such, any materials maintained by PECO are tracked in *Asset Suite* and have established minimums and maximums (the reordering point and target maximum respectively). Problems with materials PECO receives, such as parts quality issues, are tracked via condition reports in *Asset Suite* by procurement specialists and are followed-up on by managers within Supply Operations, Strategic Sourcing and Engineering.

Asset Suite is also used to track emergency stock materials. As with regular inventory, PECO categorizes its emergency stock as capital or O&M (operation and maintenance). In accordance with the CFR, PECO classifies meters and transformers as plant in-service upon purchase. Quarterly, managers within PECO's Engineering departments are tasked with reviewing a report of inventory (regular and emergency stock) that has not been used in the past five years to determine whether those items are still required on the system or should be sent to investment recovery. Engineering personnel's determination to keep or discard the material is then noted in *Asset Suite*.

Exhibit X-3 compares PECO's average O&M and capital inventory balances to PECO's O&M and capital emergency stock. Sixteen of PECO's 22 warehouses store some O&M emergency stock, but 83% of PECO's O&M emergency stock is stored at

two locations. As previously discussed, PECO's inventory is primarily slow moving, long lead time materials that are not handled by its integrated suppliers. As a result, emergency stock is 58% of PECO's overall inventory.

Exhibit X-3
PECO Energy Company
Comparison of PECO Average Inventory Balances to Emergency Stock
2017 – 2021

	O&M Emergency Stock	Capital Emergency Stock	PECO Average O&M Inventory Balances	PECO Average Capital Inventory Balances	Emergency Stock as % of Average O&M Inventory	Emergency Stock as % of Average Capital Inventory
2017	$ 15,737,581	$ 31,068,503	$ 30,029,808	$ 49,710,080	52%	62%
2018	$ 15,441,337	$ 46,418,570	$ 34,556,613	$ 62,107,681	45%	75%
2019	$ 16,405,207	$ 48,273,399	$ 36,735,793	$ 65,066,913	45%	74%
2020	$ 16,876,905	$ 49,942,926	$ 34,699,724	$ 68,180,087	49%	73%
2021	$ 16,345,559	$ 47,165,336	$ 39,924,607	$ 68,819,140	41%	69%
% Change	4%	52%	33%	38%	-11%	7%

Note: Only year-end data was provided for 2017. The 2018 average inventory balances were based on 8 months.
Source: Data requests MM-3, MM-24, and MM-25

Personnel within BSC's Strategic Sourcing function are responsible for establishing contracts, putting proposals out to bid, overseeing supplier performance, etc. Category managers within Strategic Sourcing oversee the sourcing of a specific type of materials (e.g., tools, electric distribution, gas distribution, etc.) or services (e.g., flagging, vegetation management, engineering, etc.). The category managers interface with suppliers and Supply Operations personnel within Exelon's utilities to coordinate sourcing activities at the optimal cost, quality, and performance. Additionally, BSC's Strategic Sourcing function is responsible for putting suppliers on a watch list or supplier performance improvement plan, when necessary due to repeated poor performance.

Findings and Conclusions

Our examination of the Materials Management function included a review of assigned responsibilities, policies and procedures, inventory control, inventory warehouse locations and emergency stock. Based on our review, no specific evidence came to our attention that led the audit staff to conclude that this function was not being adequately addressed.

Recommendation

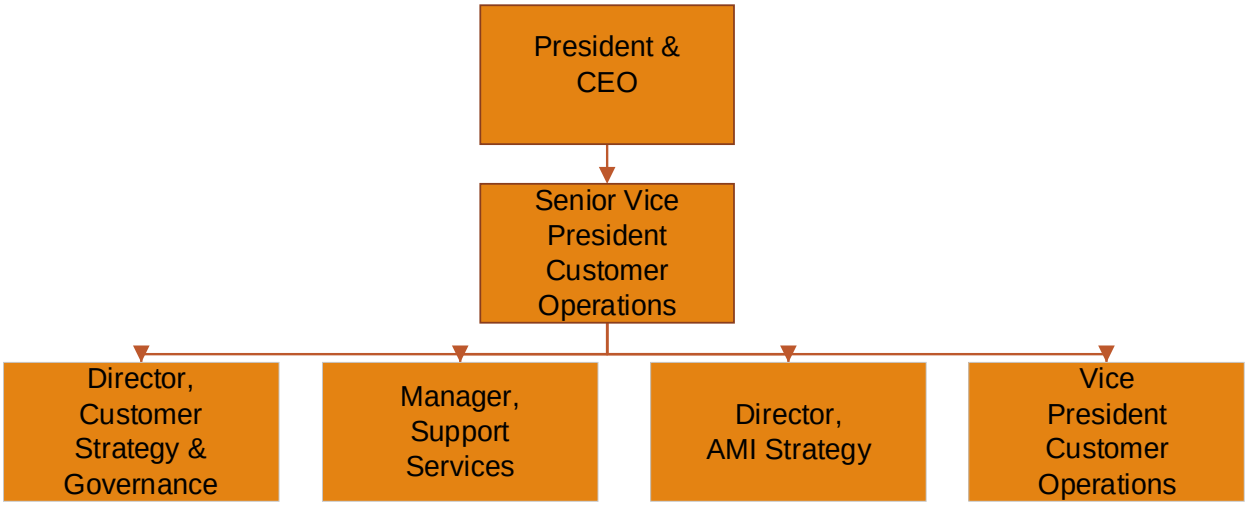
None

XI. CUSTOMER SERVICE

Background

PECO Energy Company (PECO or company) provides electric and natural gas distribution services to approximately 1.6 million electric and 532,000 natural gas customers. PECO's service territory is primarily located in the southeast region of Pennsylvania, spanning about 2,100 square miles. As discussed in Chapter II – Background, PECO is a subsidiary of Exelon Corporation (Exelon). In 2020, Exelon realigned its customer operations throughout Exelon Utilities (including PECO) to shift to a new customer strategy. Exelon's strategy focuses on the customer experience and provides company leadership with direct visibility into delivery of customer services. Thus, January 2020, PECO's customer service leadership was reorganized to report directly to PECO's President & CEO. Therefore, PECO's Senior Vice President Customer Operations (SVP-Customer Ops) now reports directly to PECO's President and CEO. The reporting structure for the SVP - Customer Ops is summarized in Exhibit XI-1.

Exhibit XI-1
PECO Energy Company
Customer Service Organization Chart
As of January 3, 2022



Source: Data Request EM-15

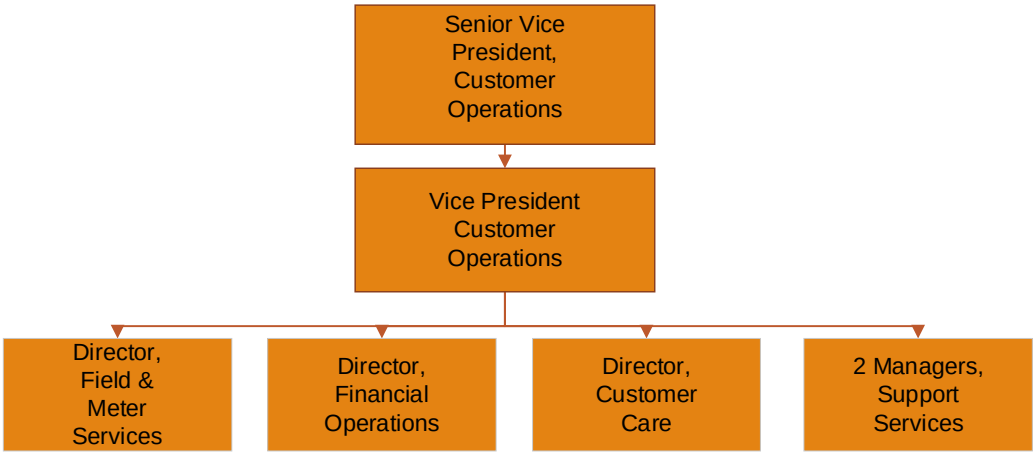
PECO's Director of Customer Strategy and Governance reports directly to the SVP-Customer Ops. The Customer Strategy and Governance group is responsible for handling customer complaints and overseeing customer experience and insights. The group also oversees customer satisfaction surveys and e-channels. PECO's e-channels are web-based services that provide online accessibility for customers to manage their accounts, make payments, request service appointments, obtain energy

usage information, report outages, and establish preferences for receipt of reports and alerts.

Also reporting directly to the SVP-Customer Ops is PECO's Manager, Support Services, who oversees the department's financial planning. These duties range from the staffing and budgeting of the Customer Operations department to, benchmarking and metrics reporting of its performance. Meanwhile, PECO's Director of Automated Meter Infrastructure (AMI) Strategy oversees the AMI Strategy group responsible for leveraging PECO's smart grid technology to provide services and increase customer service performance. PECO's smart grid is composed of AMI controlled smart meters that are used for meter reading, automated service connects and disconnects, and outage management. PECO's AMI Strategy group is responsible for monitoring the AMI alarms and notifications, using the AMI network for additional automated devices (i.e., modules, sensors) to detect faults, or rerouting power to minimize service disruptions.

The PECO's VP Customer Operations (VP-Customer Ops) has oversight of the department's direct operations groups, including, Field & Meter Services, Customer Financial Operations, Customer Care, and operations-supporting projects. Exhibit XII-2 illustrates the reporting structure for PECO's Customer Operations.

Exhibit XI-2
PECO Energy Company
Customer Operations Organization Chart
As of January 3, 2022



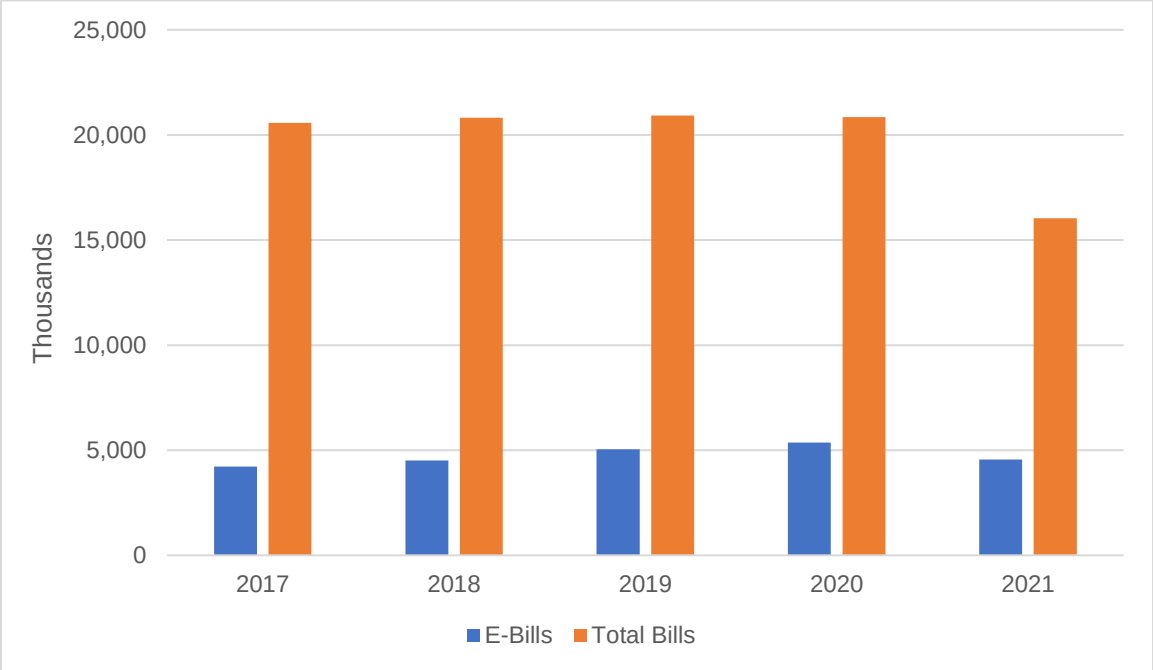
Source: Data Request EM-15

Field & Meter Services includes oversight of meter maintenance operations, revenue protection, and the meter shop. The meter maintenance group handles meter installations, meter changes, meter maintenance, and facilitates remote terminations for both electric and gas meters. The revenue protection group is responsible for theft investigations and for reviewing analytics to identify possible issues with meters (high

bill, use on unregistered accounts, etc.). The meter shop is responsible for coordinating the testing of new and used meters for accuracy.

Customer Financial Operations oversees billing, customer payment operations, revenue management (credit and collections), support for the customer information system (CIS) financial controls and enhancements, and the day-to-day administrative aspects of PECO's universal service programs (USPs). PECO offers billing and payment collection options to its customers, including electronic methods. As shown in Exhibit XI-3, customer e-bill totals have increased between 2017 and 2021.

Exhibit XI-3
PECO Energy Company
Customer E-Bills to Total Bills (in thousands)
2017 – April 2021



Source: Data Request CS-31

The Customer Financial Operations group also has oversight of both revenue management and its USP which establishes processes to coordinate financial assistance with payment troubled customers. PECO maintains a multifaceted USP which includes:

- Customer Assistance Program (CAP) – ongoing needs-based, fixed credits[40] on electric and/or natural gas service for residential low-income customers (income levels at or below 150% of the Federal Poverty Level), where outstanding pre-program balances are forgiven incrementally as payments are collected

[40] PECO proposed a percentage of income-based CAP per updated PUC guidance; however, as of January 2022, PECO's plan had not been approved by the PUC. Both CAP plans result in reduced bills for program participants.

- Low Income Usage Reduction Program (LIURP) – weatherization improvements and energy conservation assistance for low-income residential customers to reduce energy bills

- Matching Energy Assistance Fund (MEAF) – Company matches funds contributed by customers to provide low-income/financial hardship customers with financial support to bring outstanding account balances current

- Customer Assistance and Referral Evaluation Services Program (CARES) – referral services that provide information and assistance for special needs and low-income customers who are experiencing financial difficulties

- Low Income Home Energy Assistance Program (LIHEAP) Outreach – company-provided assistance to customers applying for the Federally funded LIHEAP grants

As discussed in greater detail in Finding and Conclusion No. 1 later in this chapter, the economic hardships brought about by COVID-19 have significantly degraded PECO's long term outstanding accounts receivable balances. In response, PECO has leveraged its USP, other external resources, and implemented additional internal measures to aid affected customers.

PECO's Customer Care group is responsible for multiple call centers (internal and external), customer service representative (CSR) training, and quality assurance. Historically, PECO's internal call center primarily handles billing, emergency, transfer, and service calls whereas PECO's external call centers handle credit and low-income assistance calls. However, in October 2021, PECO introduced universal call training to all CSRs[41] to increase customer satisfaction by reducing the need to transfer callers to another agent. PECO's call centers handle all customer calls on weekdays from 7 am until 7 pm, with 24/7 support for all emergency calls.

Customer Operations' Manager of Support Services reports directly to the VP-Customer Ops and oversees the Project and Change Management staff. The Project and Change Management group is responsible for managing customer care project work for the CIS and oversees the testing of system changes, including oversight of third-party resources. Additionally, the group manages a planned outage notification project and an automated scheduling project to align CSR schedules for team meetings, trainings, etc.

Similarly, a second Manager of Support Services also reports directly to the VP-Customer Ops and has direct oversight of the new CIS conversion project. Thus, the Manager of Support Services serves as project lead for PECO's transition to the new CIS system. The CIS conversion is a multi-year project which will transition PECO from a legacy system which has reached end of life. It is also noteworthy to mention that PECO's CIS transformation is only one part of a multi-affiliate project which benefited multiple Exelon utilities, leveraging economies of scale and centralization of services for

[41] Emergency calls are handled exclusively by PECO's internal staff.

system support and development. For additional information regarding PECO's legacy CIS see this chapter's Finding and Conclusion No. 3. The new CIS will support billing efficiencies for complex accounts, net metering, etc. and will increase tracking and reporting capabilities by expanding historical information. Further, the new CIS will provide PECO with near-instantaneous updates on customer interactions.

Findings and Conclusions

Our examination of the Customer Service function included a review of policies and procedures, staffing, customer satisfaction surveys and performance metrics, budget billing, credit and collections, and bad debt levels. Based on our review, PECO should improve the effectiveness and efficiency of its customer service function by addressing the following:

1. Due to the widespread economic effects of the COVID-19 pandemic, PECO's collections have degraded.

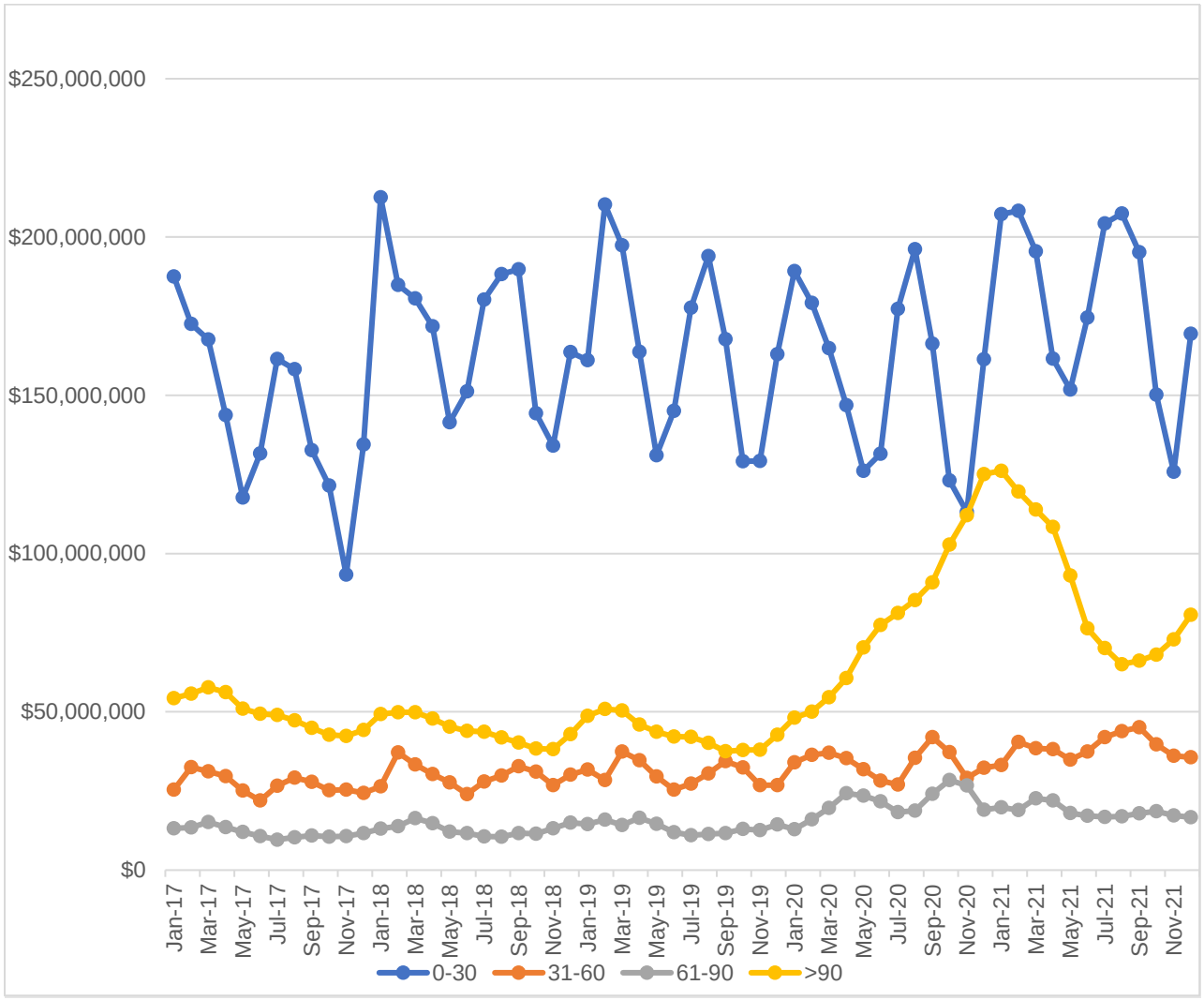
As a result of the COVID-19 pandemic, many people and businesses have faced challenging economic conditions. The March 13, 2020 Emergency Order[42] established a moratorium for utility disconnects during the pendency of the Proclamation of Disaster Emergency by Governor Tom Wolf. In response, PECO implemented proactive outreach to its customers, initiating both emails and traditional mailers during the moratorium, providing financial resource information for customers with outstanding balances. PECO also established a web-based portal for self-service payment arrangements, providing up to 12-month repayment terms to applicants.

After the emergency moratorium was modified, PECO slowly reestablished its termination process, continuing proactive outreach via calls and emails before sending 10-day and 72-hour termination notices. In addition to internal assistance, PECO's outreach provided information for US Department of Treasury's Emergency Rental Assistance Program and LIHEAP's Recovery Crisis Program to direct payment troubled customers to additional financial resources. Additionally on June 26, 2020, PECO filed a petition with the PUC for expedited approval of temporary assistance measures for at-risk customers, however that petition was rendered moot by the Commission due to timing[43].

Despite its proactive, inclusive approach, PECO's customer accounts receivable balances have significantly degraded. As shown in Exhibit XI-4, PECO's long term residential customer accounts receivable balances exponentially increased during the COVID-19 pandemic. Although PECO's comprehensive outreach has been commendable, its Over 90-day residential balances continue to reflect persistently high balances. As illustrated in Exhibit XI-4, PECO's Over 90-day arrearages remain nearly two times higher than pre-pandemic levels.

[42] Docket No. M-2020-3019244
[43] Docket Nos. P-2020-3020555, M-2015-2507139, and M-2018-3005795

Exhibit XI-4
PECO Energy Company
Residential Customer Accounts Receivable Balances
2017 – 2021



Source: Data Requests CS-19 and CS-41

Older accounts receivable balances are at an increased risk for non-collection. In addition, larger overdue balances typically are more difficult to make current, especially for low-income customers. PECO serves a significant percentage of low-income customers, many of whom participate in the CAP program and have been disproportionately affected by the difficulties of the pandemic. In the past, PECO has utilized special initiatives to address its low-income customer needs. For example, in 2011 PECO created a one-time, special forgiveness program for its CAP customers, reducing long-term arrearages for those at highest risk. Due to the unprecedented hardships resulting from the COVID-19 pandemic, PECO might consider relief measures similar to what was done in 2011.

If PECO chose to pursue this option, a solution will likely require the input of many interested parties. PECO should ensure it actively participates and drives for an equitable solution to this complex problem. Regardless of its approach, the company should continue to explore alternatives to lessen the burden on low-income customers, its impact on rate base, and all affected parties. A few items for consideration could be expanding its corporate matching initiative[44], a temporary delay or suspension of a portion of PECO dividend payments to its parent company, or earmarking a part of performance bonus compensation, to assist troubled customers, etc. Such measures could mitigate PECO's overall future financial risk while providing relief. For example, Exhibit XI-5 depicts a way for PECO's dividend to Exelon to be reduced by 2.2% in order to provide approximately $10 million in special relief to customers hit hardest by COVID.

Exhibit XI-5
PECO Energy Company
Actual Dividend Levels vs. Proposed Modification for Special Relief
2017 – 2021

	2017	2018	2019	2020	2021
Dividends Issued	$288	$306	$359	$340	$340
Net Income	$434	$460	$528	$447	$504
Dividends as Percentage of Net Income	66%	67%	68%	76%	67%
Proposed Modification					
Temporarily Reduced Dividend	$288	$306	$347	$330	$329
Dividend to Parent % of Net Income	66%	67%	65.7%	73.8%	65.2%
Reallocation of 2.2% of Net Income for Special Relief	-	-	$12	$10	$11
Relief to Customers % of Net Income	0%	0%	2.2%	2.2%	2.2%

Note: All dollars are in millions.
Sources: PUC Annual Reports, Exelon's 2021 10-K, and Data Requests FM-8, & FM-32

Although the relief measures in Exhibit XI-5 will not solve the full burden COVID-19 imparted on PECO customers, it can help and lessen the impact this pandemic has had on society. However, the company cannot do this alone and will require a more permanent solution for all utilities within Pennsylvania.

[44] PECO has a corporate matching fund in which the company contributes $250,000 annual to its Matching Energy Assistance Fund.

2. PECO's customer care call center focus on average handle time performance overshadows call handling performance, at times yielding below expected results.

PECO's CSRs generally meet or exceed expectations. Even when goals are unmet, CSR performance levels continue to reflect higher than average performance results. PECO strives to provide superior customer service and expanded its goals to include first call resolution (FCR). FCR[45] measures CSR effectiveness by eliminating the need for customers to make repeated calls to resolve questions. However, call handling expediency may degrade customer satisfaction and increase customer call backs.

As observed by the audit staff, PECO's CSRs were extremely efficient at extracting critical information from callers and showcased their competency during field work. More specifically, PECO's CSRs fully addressed emergencies and potential emergencies, identified accurate billing details, and relayed outstanding financial obligations to customers. However, by directing customer caller focus, the audit staff observed that the initial reason for the call was not always addressed or reassessed with the customer prior to the close of the call. This can create a tension between call performance and the ability to resolve the customer concern in one call. PECO sets aggressive goals for its customer service performance metrics that can be found, along with actual performance as shown in Exhibit XI-6.

[45] PECO's FCR rate is determined by a 72-hour window for the percentage of unique phone numbers that called and were transferred from the IVR (Interactive Voice Response) queue to a CSR.

Exhibit XI-6
PECO Energy Company
Customer Service Performance Metrics
2017 – 2021

Metric	2017	2018	2019	2020	2021
All-in Service Level Result	90.2%	88.0%	91.7%	94.4%	92.5%
All-in Service Level Goal	89.2%	89.4%	91%	90%	90%
Calls answered within 30 seconds divided by the total number of calls offered					
Abandon Rate Result	1.2%	2.2%	1%	1.2%	1.1%
Abandon Rate Goal	1.5%	1.2%	1.2%	1.4%	1.5%
Calls abandoned while in queue to be answered by CSR divided by total calls					
Agent Service Level Result	80.4%	71.7%	80.9%	83.3%	82.7%
Agent Service Level Goal	81%	80.6%	81.5%	76.3%	78.9%
Calls answered within 30 seconds per agent divided by calls offered to CSRs					
ASA (speed to answer) Result	16 sec	27 sec	14 sec	12 sec	14 sec
ASA (speed to answer) Goal	16 sec	16 sec	14 sec	18 sec	16 sec
Average time to accept calls across all methods					
Calls Per Customer Result	2.47	3.1	2.74	2.23	2.1
Calls Per Customer Goal	2.54	2.54	2.48	2.58	2.58
Total calls handled (CSR, IVR, and outsourced) divided by customer count					
Agent Calls per Customer Result	1.23	1.27	1.18	.73	.9
Agent Calls per Customer Goal	1.35	1.26	1.26	1.22	1.22
CSR-handled calls divided by total customer count					
FCR Result	78.6%	77.1%	72.8%	79.2%	73.1%
FCR Goal	None	78.5%	72.5%	73.5%	73.5%
Percentage of unique phone numbers received in a 3-day window					
Busy Out Rate Result	.0001	.00008	.00016	.00002	.00069
Busy Out Rate Goal	.00004	.00004	.00004	.00004	.00004
Number of calls receiving a busy signal divided by total calls					
Response Time Agreement Result	93.6%	92.6%	87.7%	94.7%	93.00%
Response Time Agreement Goal	92%	92.2%	92.2%	92.2%	92.2%
Percentage of back-office work completed within agreed response time					

Source: Data Requests CS-6, CS-36, and EM-16

Best in class customer service performance requires a balancing of all aspects of call handling from handling time to first call resolution. However, the primary focus of

the call center should be on service quality and the customer experience over call quantity/speed to answer. PECO has established a call efficiency task force to evaluate longer and shorter than average calls to identify ways to streamline calls or improve performance. However, PECO's focus on average handle time may cause customer concerns to go unresolved, questions to be unanswered, etc. Therefore, PECO should continue to shift focus to First Call Resolution and service quality while balancing the business needs of call handling time, etc.

3. PECO's customer information system is outdated and is not optimal in some situations.

During auditory observation of PECO's customer service calls, the audit staff noted marked delays as CSRs addressed and sometimes deferred responses to customer's direct questions. Instead, CSR emphasis was collection of key information (i.e., proper billing and premise verification), rather than active listening. As a result, the audit staff requested a demonstration of PECO's CIS.

As observed by the audit staff, PECO's legacy CIS is dated and requires navigation of multiple menus and screens to locate certain information. Although highly customized with alerts built into processes (e.g., automated flags for missed fields, reminders for obtaining specific information points, etc.) and shortcut icons (developed for commonplace requests/commands), the legacy CIS is complex. As a result, it is not an intuitive workflow for CSRs and requires a high degree of training to extract information for the myriad of nuances affecting PECO's vast customer base.

Intuitive software improves efficiency of operations, supports adherence to procedures, and reduces errors. Furthermore, in the audit staff's opinion, a significant challenge to improving FCR is that CSRs are required to navigate a complex and antiquated CIS. As such, the audit staff concludes that replacement of the CIS would also result in improved customer service satisfaction. As discussed in this chapter's background, PECO is in the process of replacing its legacy CIS and is projecting implementation of the new system in the third quarter of 2023. As part of this implementation, PECO should look to customize this new CIS to drive FCR and enable CSRs to efficiently navigate customer inquiries.

4. PECO is experiencing elevated separation levels of its customer service bargaining unit staff.

PECO's customer service bargaining unit staff is mainly composed of its internal call handling CSRs. In 2020 and 2021, PECO experienced a significantly increased level of separations for its bargaining unit customer service employees. As shown in Exhibit XI-7, the separation rate for PECO's customer service bargaining unit staff increased by 78% between 2019 and 2020. While some of the separations are due to internal transfers and promotions to other company-positions, most separations are external losses of PECO staff. Although internal separation of its customer service bargaining unit staff is more beneficial to PECO overall through its ability to retain talent,

it also creates challenges for delivery of customer service. Loss of front-line staff results in decreases in efficiency, increases to hiring and training costs, and can contribute to degradation of overall customer service performance.

Exhibit XI-7
PECO Energy Company
Customer Service Bargaining Unit Separations
2017 – 2021

	2017	2018	2019	2020	2021
Transfers	7	4	2	8	13
Separations	15	11	16	26	22
Terminations	13	18	10	16	10
Total Separations	35	33	28	50	45

Source: Data Requests CS-24 and CS-39

In March 2020, PECO successfully transitioned its customer care center CSRs to telework status enabling CSRs to work from home. The company leveraged technology to maintain communication and services for effective call center operations. Once feasible, PECO's CSRs were able to return to work on-site in 2021, providing additional flexibility to its workforce. However, despite the increased flexibility for CSRs, PECO's separations remained higher than those experienced pre-pandemic 2017-2019. Departing employees are offered exit interviews which provide some insight into the causes for separations. Unfortunately, less than half[46] of the voluntarily separating staff provided feedback to PECO. Further, according to management, PECO's more recent hiring classes have not been as successful at identifying and retaining new CSRs. Retention of talent drives performance thus PECO should conduct a root cause analysis, leveraging this information to identify primary causes for separations and methods to remedy them. Although retention in call centers is historically challenging and COVID-19 has presented unique challenges, there may be additional strategies to aid in CSR retention.

Recommendations

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

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

3. **Complete implementation of the replacement CIS.**

4. **Identify and address the root cause of CSR separations.**

[46] In 2020, only 12 of the 26 employees who voluntarily separated participated in an exit interview.

XII. INFORMATION TECHNOLOGY

Background

PECO's information technology function is provided by Exelon BSC through its Corporate IT department and its Exelon Utilities (EU) IT department.[47] Exelon's IT departments served a critical role in equipping PECO with resources that allowed some employees to transition into remote work settings and ensure business continuity throughout the pandemic. The Corporate IT department has responsibility for enterprise-wide IT resources, including systems used by PECO (i.e., human resources, payroll, communications, etc.). Conversely, the EU IT department has oversight of utility-specific IT resources, including PECO's real time environment. The real time environment includes computer systems and applications that are used in the control, maintenance, and monitoring of electric transmission, and electric and gas distribution operations (i.e., Supervisory Control and Data Acquisition (SCADA), Advanced Distribution Management System (ADMS), etc.).

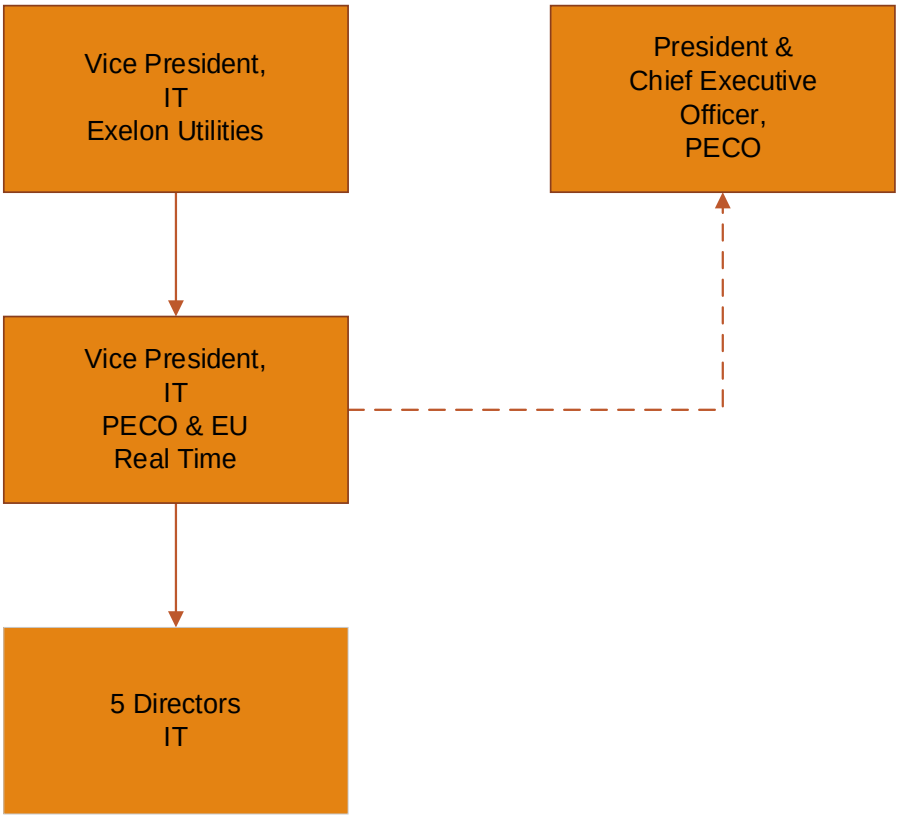
Beginning with the Constellation Energy merger in 2012, Exelon's North Star Initiative was implemented to identify opportunities to align and consolidate resources between Exelon's utility group. The North Star Initiative (NSI) identifies multi-operating company projects such as the CIS (customer information system) transformation project discussed in greater detail in Chapter XI – Customer Service. NSI contributed to Exelon's overall strategy to achieve efficiencies in the delivery of services across all EU's footprint. Thus, in 2019, the EU IT Real Time group began transitioning from an embedded PECO department to Exelon BSC's EU IT Department. Embedded departments are composed of Exelon BSC employees who primarily support an operating company. The centralization of the Real Time group was initiated to streamline the organization and capture economies of scale through aligning common applications and functions for Exelon's expanded utility subsidiary group[48].

The EU IT Real Time group is led by the Vice President, IT PECO and EU Real Time (VP-Real Time) who reports directly to the Vice President EU IT and indirectly to PECO's CEO. The VP-Real Time's indirect reporting consists of the group's PECO related responsibilities, including key deliverables and fiduciary reporting for PECO. The VP-Real Time's indirect reporting relationship is indicated by the dotted line shown in Exhibit XII-1.

[47] Exelon BSC's Corporate & Information Security Systems (CISS) department has oversight of all cyber security related functions for Exelon and its affiliates, including PECO. See Chapter IX – Emergency Preparedness for additional information related to CISS-provided functions.

[48] Exelon Corporation (Exelon) acquired BGE in 2012 and PEPCO Holdings Inc. in 2016, see Chapter II – Background for additional information related to Exelon's subsidiaries.

Exhibit XII-1
Exelon Business Services Company
Exelon Utilities IT Department – Real Time Environment Organization
As of June 23, 2021



Source: Company supplied data

The VP-Real Time oversees five Director-IT staff members who are responsible for infrastructure hardware and firmware; ADMS; outage management system (OMS); multi-operating company projects; and support, patching, and disaster recovery drills for EU IT, including PECO. Infrastructure hardware and firmware includes both the transmission and distribution electric SCADA for PECO, as well as PECO's natural gas distribution SCADA. Maintenance support, upgrades, troubleshooting, patching, and disaster recovery drills are performed through the Real-Time group for PECO's SCADA systems. In addition, regression testing is performed before implementing changes to the systems and verification testing is performed on patching to ensure real time operating systems remain seamless.

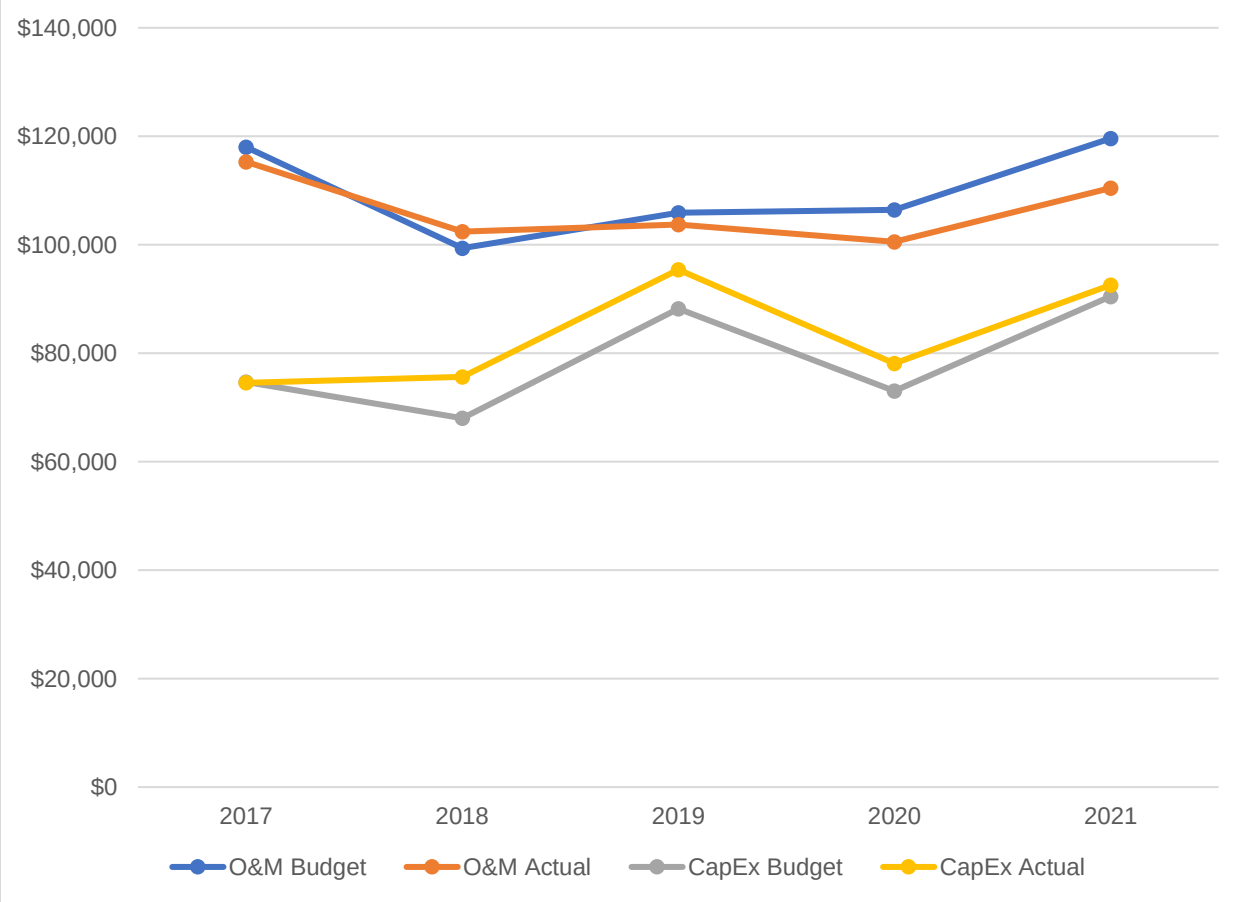
The Real-Time group also provides support for the oversight and maintenance of PECO's OMS. The OMS correlates outage data to automatically identify the cause of an electrical outage. This allows PECO to establish rules and hierarchy[49] for the automated dispatch of repairs, streamlining storm restoration. The Real-Time group

[49] PECO's Operations Department has oversight of the dispatch parameters (prioritization for critical customers such as hospitals, nursing homes, etc.) for optimal operations management.

also provides seasonal readiness load testing, regular maintenance, and security patching for the OMS.

Additionally, the Real-Time group oversees EU's ADMS project. The ADMS is an EU-wide strategic project that will provide all Exelon utilities with improvements to their existing OMS. This initiative will provide additional capabilities to identify fault locations and optimize performance of SCADA systems throughout EU. In addition, these upgrades will further enhance voltage control, ultimately supporting emerging concepts like microgrids, electric vehicles, distributed generation, etc. The Real-Time group also supports other multi-operating company projects. To accomplish all this work, Real-Time principal project managers are assigned to each operating company. Real-Time principal project managers coordinate projects based upon each operating company's needs and approved long range plan. As shown in Exhibit XII-2, PECO's IT budget aligns closely with its actual expenditures.

Exhibit XII-2
PECO Energy Company
IT Operating and Capital Budget and Actual Expenses (in thousands)
2017 – 2021



Source: Data Request IT-9 & IT-23

Findings and Conclusions

Our examination of the IT function included a review of the IT policies and procedures, performance measurements, IT resources (i.e., staffing, hardware, software), IT controls, etc. Based on our review, it appears that the proper controls are in place and that the IT function is being performed in a satisfactory manner.

Recommendation

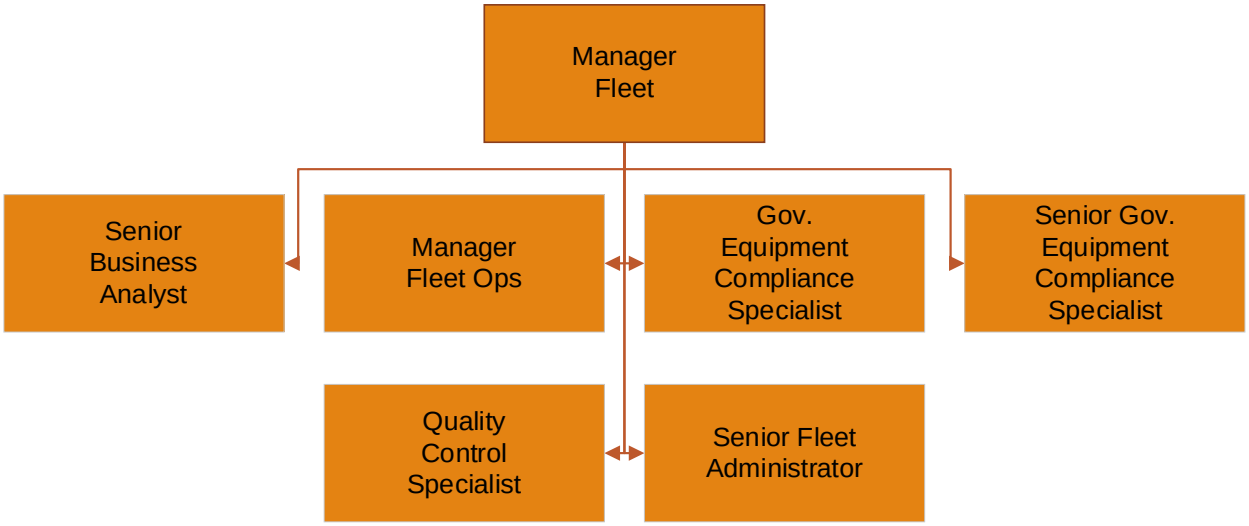
None

XIII. FLEET MANAGEMENT

Background

PECO Energy Company's (PECO or company) Fleet Operations Department is comprised of10 full-time employees (see Exhibit XIII-1) including the Fleet Manager. The Fleet Manager oversees the company's vehicle procurement and disposal, as well as the fleet vehicle maintenance contract with their third-party fleet contractor. The Fleet Manager reports to the Vice President of Support Services, who in turn reports to the Senior Vice President and Chief Operating Officer. In addition, Exelon Business Service Company (Exelon BSC) provides support to Fleet Operations in contract negotiations and vehicle procurement.

Exhibit XIII-1
PECO Energy Company
Fleet Operations Organization Chart
As of January 3, 2022



Source: Data Request EM-15

The Senior Fleet Administrator handles oversight of vehicles, drivers, fuel management, and specialized licenses (e.g., Haz-Mat). There are three Senior Fleet Administrators embedded in the three regions where Fleet facilities are located. The Senior Fleet Administrators monitor the contractor work performed on PECO's fleet by ensuring drivers' tickets were submitted properly, the work was documented properly, and the fleet contractor handled the work correctly. The Equipment Compliance Specialists monitor underground fuel storage facilities and ensure that vehicles meet PECO specifications. The Senior Business Analyst develops short and long-term business planning for all fleet operations. Meanwhile, the Quality Control Specialist schedules and conducts quality assurance audits and inspections of vehicle maintenance, garages, and safety.

Management uses a Fleet Maintenance Management System (FMMS) to monitor vehicle performance and maintenance costs. The FMMS tracks factors such as maintenance costs, down-time, vehicle age, etc. These metrics help the company in vehicle retention and disposal decisions and will notify PECO when routine maintenance procedures are needed. When vehicles are flagged for any of these factors, the managers inspect the vehicle to determine if the vehicle should be disposed. Currently, PECO is maintaining approximately 30 vehicles that would usually be considered for disposal due to the increased costs of purchasing vehicles attributed to the inflationary pressures of the COVID-19 pandemic. These additional vehicles have also aided in COVID protocols by not having to share vehicles as a safety precaution. Exhibit XIII-2 displays the number of vehicles by equipment class as of January 25, 2022.

Exhibit XIII-2
PECO Energy Company
Number of Vehicles by Equipment Class
As of January 25, 2022

Equipment Class	Number of Vehicles
Passenger Cars & SUVs	364
Vans, Light & Heavy Trucks	879
Equipment & Trailers	308
Total Fleet	**1,551**

Source: Data Request FT-12

PECO outsources its fleet maintenance to a third-party contractor who handles all routine and preventative maintenance. The contractor staffs PECO's repair facilities with around 46 technicians. The contractor is required to perform all duties related to maintaining the company's fleet, including responding to service calls, towing vehicles, performing routine/preventive and non-routine maintenance, and managing PECO owned refueling stations. There are 24 company-owned refueling stations deployed throughout PECO's service territory. Fuel pumps require vehicle and employee identification and mileage data to operate, and all fuel costs are automatically entered into the FMMS. PECO uses fuel cards to allow drivers to refuel at participating commercial refueling stations.

Repairs or maintenance needs that are identified by PECO drivers (i.e., body work, broken lights) must submit a work order to correct the problem. The work order is categorized by priority and handled accordingly. Performance of the contractor is monitored by daily status reports that detail the number of out-of-service vehicles, estimated return-to-service date, description of repair, and the current step in the repair workflow. Management also receives a monthly report that shows weekly and monthly averages to monitor performance on a larger scale. The company meets weekly with the contractor to discuss overall fleet performance and address areas of concern. PECO compares its own fleet operation performance metrics with other electric utilities. Because PECO outsources its Fleet maintenance, their metrics primarily monitor the

performance of their contractor. These metrics monitor items such as the time a vehicle is out-of-service, the contractor's DART injury rates, as well as expense tracking.

Findings and Conclusions

Our examination of the Fleet Management function included a review of fleet related policies and procedures; staffing; acquisition and disposal practices, vehicle maintenance, and benchmarking. Based upon our review, it appears that proper controls are in place and that the Fleet Management function is being performed in a satisfactory manner.

Recommendation

None

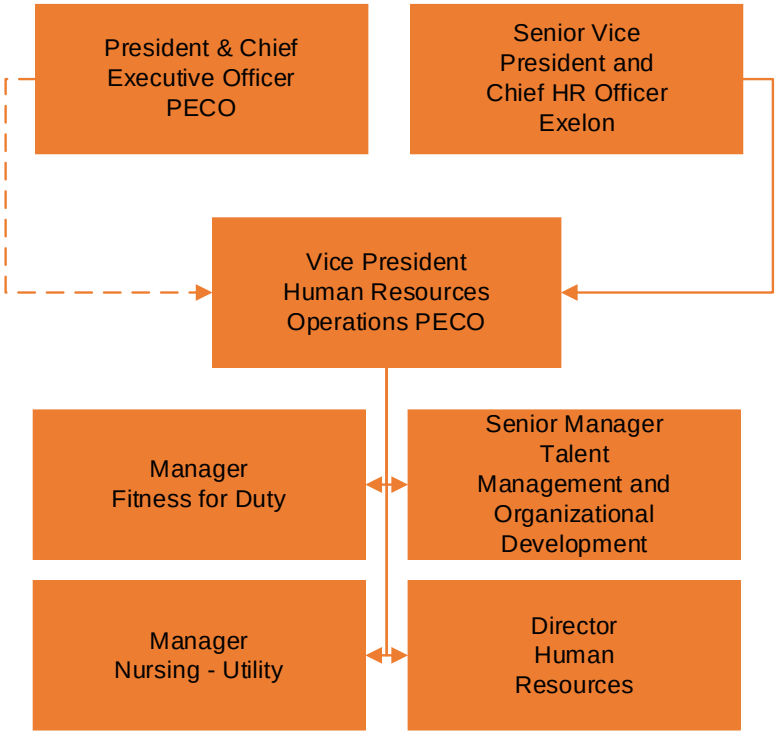
XIV. HUMAN RESOURCES AND DIVERSITY

Background

Human Resources

As discussed in Chapter II – Background, PECO Energy Company (PECO or company) is a subsidiary of Exelon Corporation (Exelon). Exelon's service organization subsidiary, Exelon Business Services Company (Exelon BSC), performs human resources (HR) functions for PECO including direct functional support through an embedded Human Resources Department (PECO HR). As discussed previously in Chapter III – Executive Management and Organizational Structure, there are 143 embedded employees (including 15 HR staff) in PECO's nearly 2,800 workforce total. Due to this structure, embedded employees have reporting responsibilities to both PECO and Exelon BSC. For example, PECO's Vice President of HR Operations, as illustrated below in Exhibit XIV-1, reports directly to the Exelon Chief HR Officer and indirectly to PECO's President and Chief Executive Officer. The Vice President of HR Operations is supported by the HR Director, Senior Manager of Talent Management and Organizational Development (OD), Manager of Nursing - Utility, and Fitness for Duty Manager as presented in Exhibit XIV-1.

Exhibit XIV-1
PECO Energy Company
Human Resources (BSC Embedded Department) Organization Chart
As of January 3, 2022



Source: Data Request EM-15

PECO's Vice President of HR Operations maintains high-level oversight of HR functions, including operational support, employee and labor relations, fitness for duty, and occupational health. The Senior Manager of Talent Management and OD is responsible for business talent reviews, succession planning and professional development (see Chapter II – Executive Management for more information about these functions). The HR Operations Director oversees the HR Business Partners, who perform the traditional HR role of working with departments throughout PECO to understand their needs and assist with recruiting and onboarding. The Manager of Fitness for Duty oversees drug and alcohol testing, including regulated randomized testing, manager referral, and post-accident testing. Pre-hire drug and alcohol testing is handled through Exelon BSC's HR Department, whereas PECO's HR Manager of Fitness for Duty performs follow-up on testing results. The Occupational Health Manager serves as the case manager for short-term disability and non-work-related injuries, oversees the Family Medical Leave Act (FMLA) programs and works with PECO's Support Services Department.

PECO's human resources function is primarily supported by its HRIS, which provides access to core HR, compensation, payroll statements (via third party), benefits (administered by third party), and time tracking modules. In November 2020, Exelon completed full implementation of the ServiceNow software platform for use by PECO employees. ServiceNow acts as an employee facing engagement layer and offers a consumer-grade experience for most employee-human resource interactions. Employees can search for and access policy and procedure documents, submit timesheets, access benefits information, request pension estimates, etc. ServiceNow interfaces with the HRIS, payroll, learning management platform and is leveraged for various onboarding tasks, portals to access employee benefits and training programs, and management of contractors. Due to the COVID19 pandemic, PECO transitioned to onboarding all new hires virtually.

Exelon BSC's HR Department is responsible for centralized payroll and benefit administration as well as support on various other centralized functions. Internal assessments are performed annually on all job classifications corporate-wide to determine any adjustments to pay ranges for all non-executive employees within Exelon, PECO included. Exelon participates in a variety of third-party compensation and benefit surveys and uses compensation software tools to benchmark positions, perform equity analysis to identify positions with pay gaps, and build job offers. Annual adjustments are merit based with union employees receiving cost of living increases based upon negotiated contracts. Meanwhile, compensation for executive level positions is assessed on an ongoing basis to remain competitive with the market.

PECO employees receive healthcare benefits through the Exelon Corporation Health Care Program which includes medical, prescription drug, dental, vision, hearing, and wellness programs. The retirement benefits available to employees are dependent on date of hire. Employees hired on or after January 1, 2001, are eligible for the Exelon Corporation Cash Balance Pension Plan (ECCBP) and employees hired prior to January 1, 2001, who did not elect to transfer their benefit to the ECCBP during pension choice are eligible for the Exelon Corporation Retirement Program. Exelon offers additional benefits in the form of an optional 401(k) employee savings plan, life

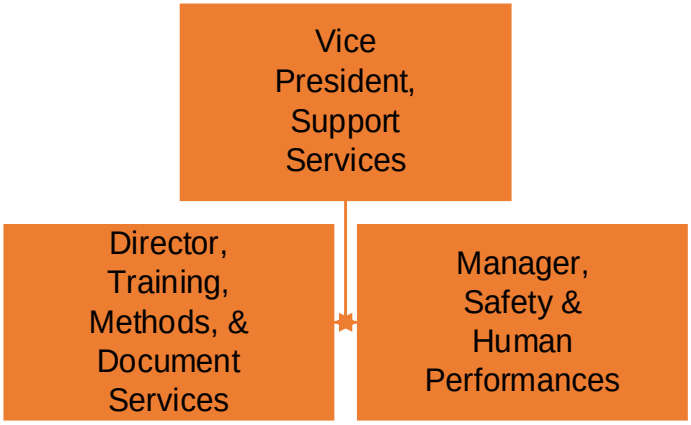
insurance, long-term disability, dependent care, commuter spending accounts, employee assistance program, legal services, child and eldercare services, adoption assistance, and tuition reimbursement. PECO's retiree medical plan includes medical, dental, prescription drugs, life insurance, and a Retiree Medical Savings Account (RMSA) for those hired on or after January 1, 2004, through December 31, 2017.

PECO's safety and employee training functions are administered within the Support Services Department[50] presented in Exhibit XIV-2. The Manager of Safety & Human Performance is responsible for safety best practices, injury reporting and analytics, and accident investigation and corrective actions. Safety is considered a core value at PECO with numerous programs and initiatives aimed at ensuring a safe workplace. For instance, PECO has multiple tiers of Safety Committees. At the top, the Executive Safety Steering Committee is composed of PECO's executives, the union President and VP, along with the union's head of safety and members of PECO management. Meanwhile, for the union level employees, the 614 safety council is composed of equal membership from PECO management and union members. These safety committees meet regularly to review accidents, injuries, near misses, and other concerns raised by employees. In addition, monthly team and regional team safety meetings occur across PECO to discuss various topics (i.e., new safety initiatives, recaps from safety committee meetings, trainings, etc.) and are attended by the safety professionals under the Manager of Field Safety Services.

The Manager of Field Safety Services reports to the Manager of Safety & Human Performance. Both safety managers meet weekly with PECO's safety professionals to identify safety concerns to be forwarded to the safety committees and to review feedback on past incidents from the safety committee. They are ultimately responsible for ensuring initiatives or best practices identified by the safety committees are implemented. Since 2015, PECO has been part of a safety best practice program across all Exelon-owned utilities. Peer groups within this program identify high-risk tasks, develop standardized best practices, and benchmark externally to ensure safety best practices and initiatives are on track.

[50] The VP of Support Services oversees additional employees, such as PECO's Fleet Manager, who are discussed in other chapters of this report.

Exhibit XIV-2
PECO Energy Company
Support Services Department – Training & Safety Sections
As of January 3, 2022



Source: Data Request EM-15

The Director of Training, Methods & Document Services is responsible for the mapping and documentation functions along with PECO's training programs. The training function contains a group focused on employee training and another handling methods-based training. The group handling employee training conducts operational and safety-based trainings through training schools, compliance and qualifications training, refresher courses, etc. The methods group tests new tools and products and develops procedures and best practices to ensure safety and proper use. Meanwhile, the Manager of Safety & Human Performance is responsible for safety best practices, injury reporting and analytics, and accident investigation and corrective actions. Additional information related to PECO's safety metrics and motor vehicle accidents are discussed in the Findings and Conclusions section of this chapter and within Findings in Chapters VII – Electric Operations and VIII – Gas Operations.

Diversity

The Pennsylvania Public Utility Commission (PUC or Commission) has encouraged utilities to proactively improve diversity in their workforce and purchasing efforts for more than two decades. In March of 1992, the Commission issued a Secretarial letter directing all jurisdictional utilities affected by Section 516 of the Public Utility Code (i.e., utilities whose plant-in-service exceeds $10 million) to file quarterly diversity status reports with the Commission. In May of 1994, the Commission issued an Order directing Section 516 utilities to file diversity status reports semi-annually rather than quarterly, to submit EEO plans annually, and to file certain diversity procurement data. In February 1995, the Commission adopted Chapter 69 regulations which encouraged utilities to include diversity efforts as a component of their business strategy. Later, in March of 1997, the Commission's diversity filing requirements changed from semi-annual to annual. The Commission is currently reviewing its

diversity requirements and issued its final rulemaking order at Docket L-2020-3017284 at its April 14, 2022 Public Meeting.

PECO complies with 52 Pa. Code § 69.809 by filing annual reports on diversity with the PUC. In addition, PECO recognizes diversity, equity, and inclusion are a strategic business imperative and key part or their values and culture. Exelon's Employee Resource Groups (ERGs) represent various diverse communities and raise diversity awareness, strengthen camaraderie, promote personal growth, and serve as a forum for education, communication, and professional development. These groups also work externally to strengthen corporate citizenship, alert the company of new market opportunities, and build ties to communities in which PECO operates. PECO participates in Exelon's Diverse Business Empowerment Process (DBEP), an enhancement of traditional supplier programs focused on increasing spend with diversity-certified business and increasing business opportunities for minority professional in majority-owned firms.

Findings and Conclusions

Our examination of the Human Resource and Diversity functions included a review of the company's HRIS, compensation, safety programs, PUC diversity filings, hiring and recruiting, and employee training. Based on our review, PECO should initiative or devote additional effort and/or resources to improving the effectiveness of the HR functional area by addressing the following:

1. PECO's OSHA total recordable and DART incidence rates are higher than the industry average for firms of comparable size.

As discussed in the background section of this chapter, PECO has a comprehensive safety program overseen by the Manager of Safety & Human Performance. A Senior Business Analyst reports to the Manager of Safety & Human Performance and is responsible for maintaining the OSHA (Occupational Health and Health Administration) 300 log containing all OSHA recordable injury or illness[51] events and monthly safety reporting. Standardized safety metrics are generated using this data, along with target goals and benchmarks. Monthly reports are generated containing year-to-date safety metric performance, target goals and benchmarks, variance analysis of data, and details on corrective actions or initiatives recently taken.

PECO also maintains a full corrective action program to investigate accidents, injuries, and other high-risk potential activities with a focus on recommending correction actions. These investigations fall into two categories: root cause investigation (RCI) and apparent cause evaluation (ACE). An RCI is initiated for large or serious incidents, with or without injury, where an immediately cause could not be identified. RCIs tend to be

[51] OSHA defines a recordable injury or illness as any work-related injury or illness requiring medical treatment beyond first aid; any work-related injury or illness that results in loss of consciousness, days away from work, restricted work, or transfer to another job; any work-related diagnosed case of cancer, chronic irreversible diseases, fracture or cracked bones or teeth, or punctured eardrums; any work-related fatality.

more time and resource intensive and can take 30-45 days to complete. An ACE is a much smaller and shorter investigation where the cause is generally known.

PECO generates statistics and develops goals and benchmarks for the following OSHA safety metrics:

- employee total recordable incident rate (TRIR),
- contractor TRIR, employee days away restriction transfer (DART) rate,
- injury severity rate, motor vehicle accident rate (MVA),
- responsible vehicle accident rate (RVA), and
- combined TRIR of employees and contractors.

The Bureau of Labor Statistics, a unit of the United States Department of Labor, is the government agency responsible using recordable injury and illness event data and publishing OSHA safety metrics. Of the safety metrics tracked by PECO, BLS only publishes incidence rates by industry for the TRIR and DART rate. PECO's performance in TRIR and DART rate, internal benchmarks, overall industry[52] performance, and industry performance of firms with more than 1,000 employees for 2017 through 2021 can be found in Exhibit XIV-3.

Exhibit XIV-3
PECO Energy Company
Total Recordable Injury and DART Rate
2017 – 2021

	2017	2018	2019	2020	2021
PECO's OSHA Recordable Rate	0.81	1.03	1.40	1.20	1.21
PECO's Target	0.63	0.61	0.80	0.80	0.80
Industry Overall	2.20	2.10	2.30	1.70	NA
Industry 1,000+ employees	1.00	0.90	0.60	0.80	NA
PECO's DART Rate	0.42	0.71	0.97	0.86	0.99
PECO's Target	0.36	0.35	0.42	0.39	0.48
Industry Overall	1.20	1.20	1.10	1.10	NA
Industry 1,000+ employees	0.70	0.60	0.30	0.50	NA

NA = Not available
Source: Data Request HR-14, HR-15, & HR-21

As seen in Exhibit XIV-3, PECO struggles to meet its internal benchmarks, but consistently exceeds the performance of the overall industry. In fact, PECO both failed to meet its internal TRIR and DART benchmarks every year from 2017 through 2021 while exceeding total industry performance for all years BLS has published data (i.e.,

[52] BLS classifies industries using the North American Industry Classification System (NAICS). NAICS #221120 – Electric Power Transmission, Distribution and Control, a sub-category of NAICS #221000 – Utilities, closely matches PECO's industry.

2017 – 2020). This may initially suggest PECO's internal benchmarks are overly aggressive; however, TRIR and DART rate industry performance for firms with more than 1,000 employees are more consistent with PECO's targets. In 2019, for example, industry performance of firms with more than 1,000 employees outperformed PECO's internal benchmarks and performance. More specifically, PECO outperformed firms with more than 1,000 employees in 2017, performed slightly below those firms in 2018, then significantly below (i.e., at least 33% reduction in incidence rate) those firms in 2019 and 2020. Considering PECO employs more than 2,400 individuals, it is appropriate to compare them to similar firms of the same size.

PECO cites ergonomic related incidents and the company's mature safety culture (i.e., employees know to report safety incidents and regularly do) as primary drivers for the high rate of OSHA recordables. In addition, PECO consistently sets stretch goals for itself thus striving to improve beyond levels it consistently reaches. Although the company has created a comprehensive safety program, the programs are never complete. Despite all its work, PECO has been unable to establish or identify a specific root cause for all injuries, making it difficult to develop a program to address the problem. Still, PECO is actively working to improve its safety statistics by studying causes of ergonomic injuries and other accidents. The pandemic has presented new challenges to ergonomics with many employees working from home or doing business differently than in the past. Therefore, additional analysis and training may need to shift its focus to the new normal working conditions to improve employee safety.

In addition, the pandemic placed operational burdens on PECO, who needed to maintain 24/7 operation despite changing conditions caused by COVID-19. As presented in Findings and Conclusions No. VII-1 (Chapter VII – Electric Operations) and VIII-3 (Chapter VIII – Gas Operations), PECO's field forces have missed overtime targets. Although overtime was not positively mentioned as a leading cause for injuries, employee morale, fatigue, etc. will always play a part in injury rates. Despite best efforts, accidents and injuries will happen. Nonetheless, effective and on target safety programs should result in the reduction of the number and severity of accidents to rates at or below industry averages. Safety should be a shared responsibility between its employees and management, and PECO practices this principle, particularly with its Safety Committees. However, work is still needed to meet the company's safety goals and 1,000+ industry rates. PECO should continue exploring the causes of injuries, adjust as needed, and develop additional targeted programs to improve safety. In addition, the company should explore the effect employee morale and overtime levels have contributed to injuries, accidents, and ergonomic challenges.

2. PECO has experienced a rise in motor vehicle accidents and has consistently failed to meet its internal goal for accident frequency.

As discussed in Finding and Conclusion No. 1 of this chapter, PECO generates safety metrics and develops internal benchmarks. In addition, the company monitors and tracks motor vehicle accidents involving PECO vehicles and personnel. As the names imply, MVA is for all motor vehicle accidents and RVA is for at fault motor

vehicle accidents. PECO's performance from 2017 through 2021 can be found in Exhibit XIV-4 below, which shows the rate of MVAs and RVAs per million miles driven:

Exhibit XIV-4
PECO Energy Company
Vehicle Accidents per Million Miles
2017 – 2021

	2017	2018	2019	2020	2021
Actual MVA Rate	10.61	11.96	11.27	9.33	11.48
Target Rate	7.28	5.99	7.88	7.88	8.46
Actual RVA Rate	2.74	3.80	3.33	2.48	4.01
Target Rate	1.94	1.82	2.14	2.14	2.60

Source: Data Request HR-14, HR-15, & HR-21

As can be seen in the safety metrics above, PECO's rate of MVAs and RVAs has increased to a 5-year high in 2021. PECO has indicated that RVAs are rarely serious and often involve low speed impacts. Meanwhile, MVAs often involve higher speeds and may have injuries and vehicle damage. Despite increasing its target for MVAs and RVAs in 2019, the company was still unable to meet internal benchmarks. Although Exelon Utilities and PECO already had teams focused on promoting safe driving, safe driving was not a specific focus of the safety best practice program until 2020. In addition, after being stalled due the COVID-19 pandemic, the PECO-led team has only begun to refocus on vehicle safety near the end of 2021. This group is currently working on enhanced driver training for 2022. In addition, the company plans to bring back PECO's temporary low speed obstacle course and is proposing to build a permanent low speed driving course intended to mimic real-world obstacles. These efforts should help to improve vehicle safety; however, much work is needed to meet company targets for both RVA and MVA. Therefore, PECO should continue its efforts and deploy additional training as necessary to reduce the amount of vehicle accidents.

Recommendations

1. **Improve safety performance.**

2. **Reduce the rate of all motor vehicle accidents.**

XVIII. ACKNOWLEDGEMENTS

We wish to express our appreciation for the cooperation and assistance given to us during the course of this Management and Operations Audit by the officers and staff of PECO Energy Company.

This audit was conducted by Krystle Daugherty, Jennie Banzhof, Barry Keener, Michael Flynn, and Michael Savage of the Management Audit Staff of the Bureau of Audits.

XIX. APPENDICES

Appendix A	PECO Energy Company (Electric Service Division) Operating Revenues and Expenses
Appendix B	PECO Energy Company (Electric Service Division) Balance Sheet
Appendix C	PECO Energy Company (Natural Gas Service Division) Financial and Operating Data and Statistics

	2016	2017	2018	2019	2020	Compound Growth
Plant In Service						
Land and Land Rights	$ 59,874,449	$ 59,802,368	$ 62,726,276	$ 64,487,996	$ 64,411,847	1.8%
Structures and Improvements	$ 65,017,252	$ 72,934,896	$ 75,390,206	$ 84,648,187	$ 86,575,570	7.4%
Station Equipment	$ 751,370,253	$ 816,231,943	$ 854,998,094	$ 916,183,089	$ 930,674,778	5.5%
Towers and Fixtures	$ 265,613,315	$ 266,736,648	$ 286,188,012	$ 289,020,870	$ 289,112,769	2.1%
Poles and Fixtures	$ 16,617,282	$ 16,532,820	$ 17,313,544	$ 17,404,687	$ 22,958,500	8.4%
Overhead Conductors and Devices	$ 183,650,336	$ 193,124,986	$ 195,917,893	$ 200,291,092	$ 200,804,906	2.3%
Underground Conduit	$ 14,742,962	$ 14,955,807	$ 15,245,948	$ 16,205,140	$ 15,920,550	1.9%
Underground Conductors and Devices	$ 95,788,410	$ 104,555,952	$ 101,104,523	$ 103,883,450	$ 104,078,519	2.1%
Roads and Trails	$ 2,136,664	$ 2,136,664	$ 2,491,293	$ 2,545,719	$ 2,545,719	4.5%
Asset Retirement Costs for Transsmission plant	$ 236,997	$ 1,778	$ 1,728	$ 3,929	$ 781,616	34.8%
Total Transmission Plant	**$ 1,455,047,920**	**$ 1,547,013,862**	**$ 1,611,377,517**	**$ 1,694,674,159**	**$ 1,717,864,774**	**4.2%**
Land and Land Rights	$ 42,591,180	$ 42,883,588	$ 43,514,313	$ 44,670,748	$ 45,126,035	1.5%
Structures and Improvements	$ 102,548,514	$ 113,662,305	$ 131,923,250	$ 152,651,009	$ 167,040,038	13.0%
Station Equipment	$ 991,407,664	$ 1,033,989,100	$ 1,063,088,348	$ 1,106,099,345	$ 1,106,597,425	2.8%
Storage Battery Equipment						0.0%
Poles, Towers, and Fixtures	$ 657,504,935	$ 685,536,322	$ 734,955,658	$ 785,343,891	$ 889,083,564	7.8%
Overhead Conductors and Devices	$ 1,127,364,300	$ 1,177,016,237	$ 1,266,604,582	$ 1,441,814,383	$ 1,581,691,309	8.8%
Underground Conduit	$ 389,538,709	$ 407,267,888	$ 431,326,278	$ 479,404,131	$ 527,046,333	7.9%
Underground Conductors and Devices	$ 1,121,829,042	$ 1,187,119,385	$ 1,243,010,861	$ 1,335,685,765	$ 1,394,360,314	5.6%
Line Transformers	$ 565,956,924	$ 578,337,607	$ 602,928,338	$ 623,793,933	$ 667,074,660	4.2%
Services	$ 402,270,971	$ 410,589,531	$ 418,990,839	$ 428,411,613	$ 436,897,254	2.1%
Meters	$ 297,110,100	$ 304,938,954	$ 308,064,927	$ 319,728,402	$ 328,604,010	2.6%
Installations on Customer Premises	$ 13,772,346	$ 13,772,346	$ 13,772,383	$ 13,772,383	$ 13,772,383	0.0%
Leased Property on Customer Premises						0.0%
Street Lighting and Signal Systems	$ 56,031,442	$ 62,823,959	$ 59,869,600	$ 61,021,136	$ 62,152,325	2.6%
Asset Retirement Costs for Distribution Plant	$ 3,157,032	$ 1,938,911	$ 2,021,740	$ 2,160,040	$ 3,540,995	2.9%
Total Distribution Plant	**$ 5,771,083,159**	**$ 6,019,876,133**	**$ 6,320,071,117**	**$ 6,794,556,779**	**$ 7,222,986,645**	**5.8%**
Land and Land Rights	$ 1,063,459	$ 1,063,459	$ 1,063,459	$ 1,063,459	$ 1,063,459	0.0%
Structures and Improvements	$ 48,551,640	$ 49,660,750	$ 49,393,586	$ 49,534,156	$ 50,717,034	1.1%
Office Furniture & Equipment	$ 11,197,246	$ 15,879,377	$ 26,488,426	$ 29,865,649	$ 38,642,951	36.3%
Transportation Equipment	$ -	$ -	$ -	$ -	$ -	0.0%
Stores Equipment	$ 46,470	$ 46,470	$ 46,470	$ 46,470	$ 46,470	0.0%
Tools, Shop & Garage Equipment	$ 29,181,433	$ 32,073,779	$ 34,588,353	$ 37,811,861	$ 42,354,024	9.8%
Laboratory Equipment	$ 419,715	$ 419,715	$ 412,407	$ 412,407	$ 412,407	-0.4%
Power Operated Equipment	$ -	$ -	$ -	$ -	$ -	0.0%
Communication Equipment	$ 144,056,045	$ 154,699,047	$ 161,119,922	$ 165,084,230	$ 169,936,390	4.2%
Miscellaneous Equipment	$ 1,248,205	$ 865,598	$ 652,694	$ 25,818	$ 153,725	-40.8%
Other Tangible Property	$ -	$ -	$ -	$ -	$ -	0.0%
Asset Retirement Costs for General Plant	$ 502,720	$ 1,688,730	$ 1,656,098	$ 1,852,822	$ 1,816,222	37.9%
Total General Plant	**$ 236,266,933**	**$ 256,396,925**	**$ 275,421,415**	**$ 285,696,872**	**$ 305,142,682**	**6.6%**
Franchise & Consents	$ 162,934	$ 162,934	$ 162,934	$ 162,934	$ 162,934	0.0%
Miscellaneous Intangible Plant	$ 128,214,346	$ 151,584,420	$ 162,783,557	$ 182,361,285	$ 217,333,662	14.1%
Total Inangible Plant	**$128,377,280**	**$151,747,354**	**$162,946,491**	**$182,524,219**	**$217,496,596**	**14.1%**
Total Plant In Service	**$7,590,775,292**	**$7,975,034,274**	**$8,369,816,540**	**$8,957,452,029**	**$9,463,490,697**	**5.7%**

NM - Not Meaningful

Source: Pa PUC Annual Reports

	2016	2017	2018	2019	2020	Compound Growth
Operating Revenues						
Sales of Electricity						
Residential Sales	$ 1,632,879,004	$ 1,506,939,024	$ 1,565,511,634	$ 1,596,147,754	$ 1,655,748,940	0.3%
Commercial Sales	$ 429,088,655	$ 400,795,857	$ 404,020,080	$ 404,239,398	$ 385,547,435	-2.6%
Industrial Sales	$ 233,721,504	$ 222,236,003	$ 223,215,284	$ 218,929,790	$ 227,718,639	-0.6%
Public Street and Highway Lighting Sales	$ 21,603,052	$ 20,086,353	$ 19,468,947	$ 21,211,492	$ 21,231,697	-0.4%
Sales to Railroads and Railways	$ 10,310,936	$ 9,579,470	$ 8,775,398	$ 7,945,705	$ 8,025,712	-6.1%
Total Sales to Ultimate Customers	**$2,327,603,151**	**$2,159,636,707**	**$2,220,991,343**	**$2,248,474,139**	**$2,298,272,423**	**-0.3%**
Interdepartmental Sales	$ 359,963	$ 265,599	$ 85,710	$ 94,715	$ 83,688	-30.6%
Sales for Resale	$ 494,159	$ 134,972	$ 114,350	$ 87,295	$ 95,787	-33.6%
Total Sales of Electricity	**$2,328,457,273**	**$2,160,037,278**	**$2,221,191,403**	**$2,248,656,149**	**$2,298,451,898**	**-0.3%**
Provision for Rate Refunds	$0	$0	$0	$0	$0	0.0%
Total Revenues Net Provisions	**$2,328,457,273**	**$2,160,037,278**	**$2,221,191,403**	**$2,248,656,149**	**$2,298,451,898**	**-0.3%**
Forfeited Discounts	$ 11,991,591	$ 11,698,752	$ 12,137,706	$ 12,737,275	$ 3,064,054	-28.9%
Miscellaneous Service Revenues	$ 4,824,201	$ 5,040,073	$ 5,331,701	$ 5,429,999	$ 2,662,594	-13.8%
Sales of Water and Water Power	$ -	$ -	$ -	$ -	$ -	0.0%
Rent from Electric Property	$ 26,724,608	$ 25,586,905	$ 26,610,774	$ 28,169,786	$ 28,038,930	1.2%
Interdepartmental Rents	$ -	$ -	$ -	$ -	$ -	0.0%
Other Electric Revenues	$ (16,431,292)	$ (11,377,709)	$ 12,952,397	$ 8,635,964	$ 14,747,882	NM
Revenues from Transmission of Electricity of Oth	$ 175,895,682	$ 183,177,041	$ 190,932,980	$ 184,450,830	$ 195,800,341	2.7%
TOTAL OTHER OPERATING REVENUES	**$ 203,004,790**	**$ 214,125,062**	**$ 247,965,558**	**$ 239,423,854**	**$ 244,313,801**	**4.7%**
TOTAL OPERATING REVENUES	**$ 2,531,462,063**	**$ 2,374,162,340**	**$ 2,469,156,961**	**$ 2,488,080,003**	**$ 2,542,765,699**	**0.1%**
Kilowatt Hours Sold						
Sales of Electricity						
Residential Sales	13,664,168,020	13,023,608,415	14,004,677,128	13,649,535,056	14,040,747,134	0.7%
Commercial Sales	8,098,558,280	7,968,327,896	8,176,581,648	7,982,780,219	7,210,181,651	-2.9%
Industrial Sales	15,262,974,339	15,424,995,720	15,516,391,303	14,957,590,300	13,668,658,348	-2.7%
Public Street and Highway Lighting Sales	194,722,224	189,563,303	177,505,636	175,003,622	173,088,056	-2.9%
Total Sales to Ultimate Customers	**37,220,422,863**	**36,606,495,334**	**37,875,155,715**	**36,764,909,197**	**35,092,675,189**	**-1.5%**
Other Sales to Public Authorities	-	-	-	-	-	0.0%
Sales for Resale	695,634,756	619,156,996	583,507,778	550,405,274	402,060,249	0.0%
Indepartmental Sales	2,142,951	3,087,852	6,325,269	8,841,315	7,494,559	
Total Sales of Electricity	**37,918,200,570**	**37,228,740,182**	**38,464,988,762**	**37,324,155,786**	**35,502,229,997**	**-1.6%**
Average Number of Customers Per Month						
Sales of Electricity						
Residential Sales	1,450,462	1,463,251	1,475,421	1,487,694	1,501,542	0.9%
Commercial Sales	149,671	150,847	152,175	153,399	154,211	0.7%
Industrial Sales	3,094	3,104	3,115	3,111	3,103	0.1%
Public Street and Highway Lighting Sales	9,809	9,691	9,562	9,797	10,118	0.8%
Total Sales to Ultimate Customers	**1,613,036**	**1,626,893**	**1,640,273**	**1,654,001**	**1,668,974**	**0.9%**
Other Sales to Public Authorities	-	-	-	-	-	0.0%
Sales for Resale	-	-	-	-	-	
Sales to Railroads and Railways	5	5	5	5	55	0.0%
Total Sales of Electricity	**1,613,041**	**1,626,898**	**1,640,278**	**1,654,006**	**1,669,029**	**0.9%**
Operation and Maintenance Expenses						
Transmission						
Operation Supervision and Engineering	$ 5,356,971	$ 5,822,907	$ 6,640,109	$ 7,263,668	$ 6,958,364	6.8%
Scheduling, System Control and Dispatch Servic	$ 75,333,852	$ 63,314,820	$ 55,283,016	$ (7,162,666)	$ 74,678,780	-0.2%
Transmission Service Studies	$ 39,489	$ -	$ -	$ -	$ -	-100.0%
Reliability, Planning and Standards Developmen	$ 70,268,305	$ 72,966,217	$ 81,351,111	$ 72,367,621	$ 78,386,917	2.8%
Station Expenses	$ 1,191,376	$ 399,702	$ 437,422	$ 411,044	$ 192,766	-36.6%
Overhead Line Expenses	$ 465,143	$ 360,892	$ 412,602	$ 365,104	$ 371,091	-5.5%
Miscellaneous Transmission Expenses	$ 11,815,505	$ 11,680,412	$ 11,664,574	$ 10,863,927	$ 12,292,850	1.0%
Rents	$ 9,198,304	$ 7,550,789	$ 11,725,448	$ 11,678,585	$ 11,836,639	6.5%
Total Transmission Operation Expenses	**$ 173,668,945**	**$ 162,095,739**	**$ 167,514,282**	**$ 95,787,283**	**$ 184,717,407**	**1.6%**
Operation Supervision and Engineering	$ -	$ -	$ 115,186	$ -	$ -	NM
Maintenance of Structures	$ 979	$ 95,496	$ 108,332	$ 150,747	$ 737,268	423.9%
Maintenance of Computer Hardware	$ 159,949	$ 103,439	$ 128,235	$ 111,800	$ 90,663	-13.2%
Maintenance of Computer Software	$ 344,872	$ 292,342	$ 156,570	$ 151,788	$ 120,485	-23.1%
Maintenance of Communication Equipment	$ 196,230	$ 181,945	$ 134,055	$ 115,374	$ 90,728	-17.5%
Maintenance of Station Equipment	$ 8,254,663	$ 9,640,652	$ 8,243,625	$ 6,458,413	$ 6,975,448	-4.1%
Maintenance of Overhead Lines	$ 7,213,710	$ 6,755,365	$ 6,650,074	$ 8,240,984	$ 8,015,892	2.7%
Maintenance of Underground Line	$ 376,190	$ 720,031	$ 1,053,251	$ 1,050,955	$ 603,170	12.5%
Maintenance of Miscellaneous Transmission Pla	$ 5,346,815	$ 5,044,321	$ 4,479,851	$ 4,013,511	$ 4,853,540	0.0%
Maintenance of Transmission Plant	$ -	$ -	$ -	$ -	$ -	0.0%
Total Maintenance	**$ 21,893,408**	**$ 22,833,591**	**$ 21,069,179**	**$ 20,293,572**	**$ 21,487,194**	**-0.5%**
Total Transmission O&M Expenses	**$ 195,562,353**	**$ 184,929,330**	**$ 188,583,461**	**$ 116,080,855**	**$ 206,204,601**	**1.3%**

NM - Not Meaningful

Source: Pa PUC Annual Reports

	2016	2017	2018	2019	2020	Compound Growth
Distribution						
Operation Supervision and Engineering	$ -	$ 388,817	$ 704,333	$ 930,839	$ 1,051,791	NM
Load Dispatching	$ 33,128	$ 20,626	$ -	$ -	$ -	-100.0%
Station Expenses	$ 1,527,371	$ 2,160,619	$ 2,499,803	$ 2,374,535	$ 654,321	-19.1%
Overhead Line Expenses	$ 7,043,154	$ 5,749,507	$ 12,196,743	$ 11,379,025	$ 19,176,342	28.5%
Underground Line Expenses	$ 7,272,481	$ 7,419,781	$ 10,050,387	$ 7,686,670	$ 12,293,566	14.0%
Street Lighting and Signal System Expenses	$ -	$ -	$ -	$ -	$ -	0.0%
Meter Expenses	$ 20,901,277	$ 10,548,499	$ 9,015,490	$ 6,818,141	$ 5,286,818	-29.1%
Customer Installation Expenses	$ 8,525,923	$ 8,323,565	$ 9,352,608	$ 10,351,873	$ 10,216,241	4.6%
Miscellaneous Distribution Expenses	$ 38,737,658	$ 50,355,315	$ 51,435,969	$ 62,880,009	$ 72,274,496	16.9%
Rents	$ 2,119,642	$ 1,210,763	$ 3,246,501	$ 3,275,435	$ 3,338,530	12.0%
Total Operation	**$ 86,160,634**	**$86,177,492**	**$98,501,834**	**$105,696,527**	**$124,292,105**	**9.6%**
Maintenance						
Maintenance Supervision and Engineering	$ -	$ -	$ -	$ -	$ -	0.0%
Maintenance of Structures	$ 4,353,123	$ 4,076,904	$ 3,702,047	$ 3,627,224	$ 1,853,620	-19.2%
Maintenance of Station Equipment	$ 15,037,594	$ 16,408,347	$ 17,114,619	$ 15,868,361	$ 18,371,937	5.1%
Maintenance of Overhead Lines	$ 107,176,641	$ 104,174,583	$ 164,635,837	$ 137,248,603	$ 214,269,349	18.9%
Maintenance of Underground Lines	$ 31,138,225	$ 33,354,141	$ 32,756,886	$ 35,157,371	$ 34,062,548	2.3%
Maintenance of Line Transformers	$ 1,471,715	$ 1,270,982	$ 1,657,728	$ 1,436,382	$ 1,648,284	2.9%
Maintenance of Street Lighting and Signal Syste	$ 1,065,396	$ 1,095,858	$ 1,160,389	$ 1,146,803	$ 1,182,491	2.6%
Maintenance of Miscellaneous Distribution Plant	$ 15,327,688	$ 15,776,521	$ 14,932,558	$ 15,560,661	$ 15,936,607	1.0%
Total Maintenance	**$ 175,570,382**	**$176,157,336**	**$235,960,064**	**$210,045,405**	**$287,324,836**	**13.1%**
Total Distribution O&M Expenses	**$ 261,731,016**	**$262,334,828**	**$334,461,898**	**$315,741,932**	**$411,616,941**	**12.0%**
Total Transmission and Distribution Expenses	**$ 457,293,369**	**$447,264,158**	**$523,045,359**	**$431,822,787**	**$617,821,542**	**7.8%**
Customer Service and Info. Expenses						
Meter Reading Expenses	$ 636,788	$ 543,640	$ 546,662	$ 1,657,571	$ 263,363	-19.8%
Customer Records and Collection Expenses	$ 64,621,541	$ 68,456,430	$ 66,504,711	$ 68,132,297	$ 67,243,387	1.0%
Uncollectible Accounts	$ 30,393,123	$ 25,317,499	$ 31,419,052	$ 29,471,809	$ 36,489,494	4.7%
Maintenance of Miscellaneous Distribution Plant	$ 6,428,476	$ 3,891,819	$ 4,302,020	$ 4,504,738	$ 3,639,745	-13.3%
Customer Assistance Expenses	$ 77,267,182	$ 66,550,872	$ 76,895,140	$ 83,954,476	$ 73,918,518	-1.1%
Informational and Instructional Advertising Expe	$ 1,895,647	$ 1,226,083	$ 360,261	$ 1,107,987	$ 1,043,935	-13.9%
Miscellaneous Customer Service and Informatio	$ 237,502	$ 330,578		$ 262,500	$ 181,358	-6.5%
Total Customer Service and Info. Expenses	**$181,480,259**	**$166,316,921**	**$180,027,846**	**$189,091,378**	**$182,779,800**	**0.2%**
UTILITY OPERATING INCOME						
OPERATING REVENUES	**$ 2,531,462,063**	**$ 2,374,162,340**	**$ 2,469,156,961**	**$ 2,488,080,003**	**$ 2,542,765,699**	**0.1%**
OPERATING EXPENSES						
Operation Expenses**	$ 1,366,250,699	$ 1,251,503,303	$ 1,354,105,959	$ 1,257,250,415	$ 1,352,718,640	-0.2%
Maintenance Expenses***	$ 202,669,279	$ 204,210,312	$ 262,770,544	$ 236,299,558	$ 316,053,651	11.7%
Depreciation Expenses	$ 167,977,206	$ 176,903,185	$ 187,352,302	$ 202,496,904	$ 211,592,930	5.9%
Depreciation Expense for Asset Retirement Cos	$ -	$ -	$ -	$ -	$ 5,444	NM
Amort. Of Limited-Term Electric Plant	$ 29,595,937	$ 32,808,053	$ 32,641,048	$ 39,718,144	$ 43,192,130	9.9%
Regulatory Debits	$ 12,323,172	$ 12,323,172	$ 13,675,679	$ 17,747,985	$ 15,970,172	0.0%
Regulatory Credits						0.0%
Taxes Other Than Income Taxes, Utility Opr. Inc	$ 157,978,068	$ 148,068,026	$ 156,232,911	$ 158,179,708	$ 164,002,048	0.9%
Income Taxes, Utility Operating Income	$ 108,586,412	$ 104,360,045	$ 20,220,550	$ 51,718,264	$ 4,317,563	NM
Provision for Deferred Income Taxes, Ut. Opr. In	$ 123,103,451	$ 116,117,875	$ 70,347,116	$ 70,481,995	$ 73,133,650	NM
Prov. For Def. Income Taxes-Credit, Ut. Opr. Inc	$ (62,850,126)	$ (93,600,991)	$ (52,405,281)	$ (33,661,637)	$ (68,087,269)	NM
Investment Tax Credit Adjustments, Ut. Operatic	$ (45,163)	$ (44,167)	$ (40,218)	$ (31,505)	$ (25,644)	-13.2%
Gains from Disposition of Utility Plant	$ -	$ (664,745)	$ -	$ -	$ -	0.0%
Losses from Disp. of Utility Plant	$ 709	$ 265,475	$ -	$ -	$ -	0.0%
Accretion Expense	$ 9,744	$ 9,192	$ 4,224	$ 4,133	$ 3,674	0.0%
TOTAL UTILITY OPERATING EXPENSES	**$2,105,599,388**	**$1,952,258,735**	**$2,044,904,834**	**$2,000,203,964**	**$2,112,876,989**	**0.1%**
NET UTILITY OPERATING INCOME	**$425,862,675**	**$421,903,605**	**$424,252,127**	**$487,876,039**	**$429,888,710**	**4.6%**

NM - Not Meaningful

Source: Pa PUC Annual Reports

	2016	2017	2018	2019	2020	Compound Growth
OTHER INCOME AND DEDUCTIONS						
Other Utility Operating Income	**$ 123,244,239**	**$ 127,554,245**	**$ 147,995,683**	**$ 153,707,731**	**$ 136,152,660**	2.5%
Rev. from Merchandising, Jobbing and Contract	$ -	$ -	$ -	$ -	$ -	0.0%
Costs and Exp. of Merchandising Jobbing & Cor	$ -	$ -	$ -	$ -	$ -	0.0%
Revenue from Non-Utility Operations	$ 284,419	$ 448,602	$ 334,766	$ 280,306	$ 205,800	-7.8%
Expenses of Non-Utility Operations	$ (1,811,921)	$ (2,295,111)	$ (1,422,974)	$ (1,314,773)	$ (1,088,676)	-12.0%
Non Operating Rental Income	$ 12,295	$ 12,295	$ -	$ -	$ -	-100.0%
Equity in Earnings of Subsidiary Companies	$ (77,856,592)	$ (77,604,695)	$ (46,466,471)	$ (46,523,152)	$ (46,560,928)	-12.1%
Interest & Dividend Income	$ (701,154)	$ 369,806	$ 893,757	$ 2,320,607	$ (12,002)	-63.8%
Allowance for Other Funds Used During Constru	$ 8,031,753	$ 9,352,057	$ 6,613,518	$ 12,835,310	$ 17,296,493	21.1%
Miscellaneous Non Operating Income	$ (590,107)	$ (1,186,369)	$ 235,632	$ (958,423)	$ (629,704)	1.6%
Gain on Disposition of Property	$ 129,156		$ 931,082	$ 559,001	$ 436,196	35.6%
TOTAL OTHER INCOME	**$ (72,502,151)**	**$ (70,903,415)**	**$ (38,880,690)**	**$ (32,801,124)**	**$ (30,352,821)**	**-19.6%**
Loss on Disposition of Property	$ 4,647	-	$ 1,586	$ 32	$ 70,834	97.6%
Miscellaneous Amortization	$ -	$ -	$ -	$ -	$ -	0.0%
Donations	$ 7,217,797	$ 8,623,819	$ 7,671,574	$ 7,843,450	$ 7,541,737	1.1%
Life Insurance	$ (432,065)	$ (1,469,173)	$ (310,712)	$ (1,077,481)	$ (1,587,323)	38.4%
Penalties	$ 20,751	$ 63,366	$ (140,284)	$ 689,326	$ (515,744)	NM
Exp. for Certain Civic, Political & Related Activiti	$ 1,850,131	$ 1,211,393	$ 862,912	$ 902,180	$ 871,498	-17.2%
Other Deductions	$ 643,023	$ 400,801	$ 1,635,469	$ 464,928	$ 1,723,609	28.0%
TOTAL OTHER INCOME DEDUCTIONS	**$ 9,304,284**	**$ 8,830,206**	**$ 9,720,545**	**$ 8,822,435**	**8,104,611**	**-3.4%**
Taxes Other Than Income Taxes, Otr. Income &	$ 42,567	$ 97,432	$ 17,063	$ 23,073	$ 11,707	-27.6%
Income Taxes, Other Income & Deductions	$ (96,565,713)	$ (83,530,938)	$ (48,562,287)	$ (45,763,689)	$ (48,165,860)	-16.0%
Income Taxes, Extraordinary Items	$ -	$ -	$ -	$ -	$ -	0.0%
Prov. for Def. Income Taxes, Otr Income & Ded	$ 2,613,970	$ 2,362,403	$ 6,474,443	$ 5,089,584	$ 4,798,858	16.4%
Prov. for Def. Income Taxes, Credit, Otr Income	$ (203,151)	$ (10,259,691)	$ (23,019,104)	$ (23,026,292)	$ (23,322,752)	227.3%
Investment Tax Cr. Adjustments, Nonutility Oper	$ -	$ -	$ -	$ -	$ -	0.0%
Investment Tax Credits	$ -	$ -	$ -	$ -	$ -	0.0%
TOT. TAXES ON OTHER INC. AND DED.	**$ (94,112,327)**	**($91,330,794)**	**($65,089,885)**	**($63,677,324)**	**($66,678,047)**	**-8.3%**
NET OTHER INCOME AND DEDUCTIONS	**$ 12,305,892**	**$ 11,597,173**	**$ 16,488,650**	**$ 22,053,765**	**28,220,615**	**23.1%**
INTEREST CHARGES						
Interest on Long-Term Debt	$ 106,864,477	$ 111,297,602	$ 112,709,164	$ 122,359,442	$ 134,629,303	5.9%
Amortization of Debt Discount and Expense	$ 2,283,987	$ 2,177,370	$ 2,054,564	$ 2,310,300	$ 2,506,452	2.4%
Amortization of Loss on Reacquired Debt	$ 1,412,720	$ 819,633	$ 650,246	$ 455,601	$ 208,682	-38.0%
Interest on Debt to Associated Companies	$ 11,915,083	$ 11,942,535	$ 13,848,752	$ 12,149,229	$ 11,916,544	0.0%
Other Interest Expense	$ 4,020,667	$ 4,354,740	$ 4,605,149	$ 3,218,413	$ 4,100,114	0.5%
Allowance for Borrowed Funds Used During Cor	$ (2,988,794)	$ (3,421,064)	$ (4,997,616)	$ (4,685,426)	$ (5,871,266)	18.4%
NET INTEREST CHARGES	**$123,508,140**	**$127,170,816**	**$128,870,259**	**$135,807,559**	**$147,489,829**	**4.5%**
INCOME BEFORE EXTRAORDINARY ITEMS	**$314,660,427**	**$306,329,962**	**$311,870,518**	**$374,122,245**	**$310,619,496**	**-0.3%**
EXTRAORDINARY ITEMS						
Extraordinary Income	$0	$0	$0	$0	$13	0.0%
Extraordinary Deductions	$0	$0	$0	$0	$0	0.0%
Income Taxes - Extraordinary Items	$0	$0	$0	$0	$0	0.0%
TOTAL EXTRAORDINARY ITEMS	**$0**	**$0**	**$0**	**$0**	**$13**	**0.0%**
NET INCOME	**$437,904,666**	**$433,884,207**	**$459,866,201**	**$527,829,976**	**$446,772,169**	**0.5%**

NM - Not Meaningful

Source: Pa PUC Annual Reports

PECO ENERGY COMPANY
Balance Sheet

BALANCE SHEET	2016	2017	2018	2019	2020	Compound Growth
UTILITY PLANT						
Utility Plant	$ 6,261,208,368	$ 6,621,603,893	$ 6,883,540,369	$ 7,203,458,231	$ 7,662,948,984	5.2%
Electric Plant Held for Future Use	$ 6,950,728	$ 6,964,857	$ 7,420,349	$ 16,454,743	$ 22,255,711	33.8%
Construction Work in Progress	$ 446,828,001	$ 453,530,449	$ 582,063,261	$ 710,726,844	$ 870,649,992	18.1%
TOTAL UTILITY PLANT	**$ 6,714,987,097**	**$ 7,082,099,199**	**$ 7,473,023,979**	**$ 7,930,639,818**	**$ 8,555,854,687**	**6.2%**
Accum. Depreciation and Amortization	$ 838,124,027	$ 959,133,503	$ 1,127,055,842	$ 1,356,537,239	$ 1,625,189,375	18.0%
NET UTILITY PLANT	**$7,553,111,124**	**$8,041,232,702**	**$8,600,079,821**	**$9,287,177,057**	**$10,181,044,062**	**7.7%**
OTHER PROPERTY AND INVESTMENTS						
Nonutility Property	$ 13,902,811	$ 13,902,822	$ 11,871,167	$ 10,976,395	$ 10,479,506	-6.8%
Accum. Depreciation and Amortization	$ (1,694,654)	$ (1,748,073)	$ (1,800,839)	$ (1,852,928)	$ (1,266,403)	-7.0%
Investments in Associated Companies	$ -	$ -	$ -	$ -	$ -	0.0%
Investment in Subsidiary Companies	$ 6,086,759	$ 5,798,895	$ 7,631,638	$ 7,906,944	$ 15,255,070	25.8%
Noncurrent Portion of Allowances	$ 17,267,589	$ 16,814,013	$ 17,329,528	$ 19,339,455	$ 22,010,980	6.3%
Other Investments	$ -	$ -	$ -	$ -	$ -	0.0%
Special Funds	$ -	$ -	$ -	$ -	$ -	0.0%
TOTALS	**$ 35,562,505**	**$34,767,657**	**$35,031,494**	**$36,369,866**	**$46,479,153**	**6.9%**
CURRENT AND ACCRUED ASSETS						
Cash	$ 19,102,548	$ 44,406,663	$ 19,641,715	$ 6,857,555	$ 11,717,518	-11.5%
Special Deposits	$ 3,587,616	$ 4,436,243	$ 5,256,513	$ 6,485,435	$ 7,327,803	19.5%
Working Fund	$ 408,946	$ -	$ -	$ -	$ -	-100.0%
Temporary Cash Investments	$ 40,644,479	$ 223,725,741	$ 104,697,662	$ 8,176,213	$ 248,768	-72.0%
Notes Receivable	$ -	$ -	$ -	$ -	$ -	0.0%
Customer Accounts Receivable	$ 217,747,469	$ 213,588,226	$ 260,639,569	$ 265,263,547	$ 365,530,635	13.8%
Other Accounts Receivable	$ 137,071,741	$ 112,496,620	$ 158,125,336	$ 142,827,398	$ 129,881,382	-1.3%
Accum. for Uncollectible Accounts	$ (60,526,605)	$ (55,580,528)	$ (60,844,294)	$ (61,191,967)	$ (124,619,328)	19.8%
Notes Receivable from Assoc. Companies	$ 131,000,000			$ 67,600,100		-100.0%
Accts Receivable from Assoc. Companies	$ 11,785,786	$ 7,681,371	$ 7,866,030	$ 8,675,737	$ 234,273	-62.5%
Fuel Stock	$ -	$ -	$ -	$ -	$ -	0.0%
Fuel Stock Expenses Undistributed	$ -	$ -	$ -	$ -	$ -	0.0%
Residuals and Extracted Products	$ -	$ -	$ -	$ -	$ -	0.0%
Plant Materials and Operating Supplies	$ 26,138,932	$ 29,874,983	$ 36,531,328	$ 34,411,101	$ 36,823,066	8.9%
Merchandise	$ -	$ -	$ -	$ -	$ -	0.0%
Other Materials and Supplies	$ -	$ -	$ -	$ -	$ -	0.0%
Nuclear Materials Held for Sales	$ -	$ -	$ -	$ -	$ -	0.0%
Allowances	$ -	$ -	$ -	$ -	$ -	0.0%
Noncurrent Portion of Allowances	$ -	$ -	$ -	$ -	$ -	0.0%
Liquefied Gas Stored and Held for Proc.	$ -	$ -	$ -	$ -	$ -	0.0%
Prepayments	$ 19,235,663	$ 17,381,802	$ 10,635,574	$ 9,400,693	$ 9,472,014	-16.2%
Interest and Dividends Receivable		$ 3,904	$ 5,628	$ 848,026	$ 1,687	NM
Rents Receivable	$ -	$ -	$ -	$ -	$ -	0.0%
Accrued Utility Revenues	$ 102,911,567	$ 112,215,534	$ 66,316,564	$ 102,270,539	$ 104,124,504	0.3%
Miscellaneous Current and Accrued Assets	$ 80,885,929	$ 89,508,421	$ 94,447,175	$ 90,769,787	$ 85,046,505	1.3%
TOTALS	**$729,994,071**	**$799,738,980**	**$703,318,800**	**$682,394,164**	**$625,788,827**	**-3.8%**
DEFERRED DEBITS						
Unamortized Debt Expenses	$ 15,394,714	$ 17,006,924	$ 22,709,343	$ 24,489,070	$ 26,249,559	14.3%
Extraordinary Property Losses	$ -	$ -	$ -	$ -	$ -	0.0%
Unrecovered Plant and Regulatory Study	$ -	$ -	$ -	$ -	$ -	0.0%
Other Regulatory Assets	$ 1,709,473,233	$ 409,225,079	$ 540,492,214	$ 593,777,784	$ 800,911,956	-17.3%
Prelim. Survey and Investigation Charges	$ -	$ -	$ -	$ -	$ -	0.0%
Clearing Accounts	$ -	$ -	$ -	$ -	$ -	0.0%
Temporary Facilities	$ -	$ -	$ -	$ -	$ -	0.0%
Misc. Deferred Debits	$ 803,419,811	$ 887,185,743	$ 765,151,630	$ 868,595,885	$ 874,373,385	2.1%
Def. Losses from Disposition of Plant	$ -	$ -	$ -	$ -	$ -	0.0%
Research, Devel. and Demonstration	$ -	$ -	$ -	$ -	$ -	0.0%
Unamortized Loss on Reacquired Debt	$ 454,543	$ 490,939	$ 296,293	$ 49,367	$ -	-100.0%
Accum. Deferred Income Taxes	$ 142,031,156	$ 190,046,049	$ 185,636,601	$ 192,424,887	$ 242,073,353	14.3%
TOTALS	**$2,670,773,457**	**$1,503,954,734**	**$1,514,286,081**	**$1,679,336,993**	**$1,943,608,253**	**-7.6%**
TOTAL ASSETS AND OTHER DEBITS	**$10,989,441,157**	**$10,379,694,073**	**$10,852,716,196**	**$11,685,278,080**	**$12,796,920,295**	**2.1%**

NM - Not Meaningful

Source: Pa PUC Annual Reports

PECO ENERGY COMPANY
Balance Sheet

BALANCE SHEET	2016	2017	2018	2019	2020	Compound Growth
PROPRIETARY CAPITAL						
Common Stock Issued	$ 1,423,004,251	$ 1,423,004,251	$ 1,423,004,251	$ 1,423,004,251	$ 1,423,004,251	0.0%
Preferred Stock Issued	$ -	$ -	$ -	$ -	$ -	0.0%
Capital Stock Subscribed	$ -	$ -	$ -	$ -	$ -	0.0%
Stock Liability for Conversion	$ -	$ -	$ -	$ -	$ -	0.0%
Premium on Capital Stock	$ -	$ -	$ -	$ -	$ -	0.0%
Misc. Paid-in Capital	$ 1,050,204,730	$ 1,066,200,303	$ 1,155,155,244	$ 1,343,450,423	$ 1,591,124,952	10.9%
Installments Received on Capital Stock	$ -	$ -	$ -	$ -	$ -	0.0%
Discount on Capital Stock	$ -	$ -	$ -	$ -	$ -	0.0%
Capital Stock Expense	$ (86,742)	$ (86,742)	$ (86,742)	$ (86,742)	$ (86,742)	0.0%
Unappropriated Retained Earnings	$ 4,004,108,859	$ 4,227,597,761	$ 4,427,912,415	$ 4,643,271,373	$ 4,796,604,470	4.6%
Unappropriated Undistributed Subsidiary Earning	$ (3,063,330,881)	$ (3,140,935,576)	$ (3,187,402,048)	$ (3,233,925,199)	$ (3,280,486,127)	1.7%
Reacquired Capital Stock	$ -	$ -	$ -	$ -	$ -	0.0%
Other	$ 1,100,867	$ 1,630,458	$ 1,674,806	$ 2,298,082	$ 2,938,935	27.8%
TOTALS	**$3,415,001,084**	**$3,577,410,455**	**$3,820,257,926**	**$4,178,012,188**	**$4,533,099,739**	**7.3%**
LONG-TERM DEBT						
Bonds	$ 2,600,000,000	$ 2,925,000,000	$ 3,125,000,000	$ 3,450,000,000	$ 3,800,000,000	10.0%
Reacquired Bonds	$ -	$ -	$ -	$ -	$ -	0.0%
Advances from Associated Companies	$ 184,418,609	$ 184,418,609	$ 184,418,609	$ 184,418,609	$ 184,418,609	0.0%
Other Long-Term Debt	$ -	$ -	$ -	$ -	$ -	0.0%
Unamortized Premium on Long-Term Debt	$ -	$ -	$ -	$ -	$ -	0.0%
Unamortized Discount on Long-Term Debt	$ (4,672,237)	$ (5,485,909)	$ (18,512,768)	$ (20,583,695)	$ (20,274,750)	44.3%
TOTALS	**$2,779,746,372**	**$3,103,932,700**	**$3,290,905,841**	**$3,613,834,914**	**$3,964,143,859**	**9.1%**
OTHER NONCURRENT LIABILITIES						
Obligations Under Capital Leases-Noncurrent	$ -	$ -	$ -	$ -	$ -	0.0%
Accum. Provision for Property Insurance	$ -	$ -	$ -	$ -	$ -	0.0%
Accum. Provision for Injuries and Damages	$ 40,399,489	$ 43,592,914	$ 38,846,723	$ 32,786,397	$ 40,154,233	-0.2%
Accum. Provision for Pensions and Benefits	$ 305,358,997	$ 304,118,293	$ 302,594,025	$ 303,540,825	$ 301,345,413	-0.3%
Accum. Misc. Operating Provisions	$ 27,329,994	$ 23,582,482	$ 20,738,418	$ 17,163,174	$ 21,249,009	-6.1%
Accum. Provision for Rate Refunds	$ -	$ -	$ -	$ -	$ -	0.0%
Asset Retirement Obligation	$ 28,219,683	$ 27,222,600	$ 27,059,530	$ 27,849,791	$ 28,807,953	0.5%
TOTALS	**$401,308,163**	**$398,516,289**	**$389,238,696**	**$381,340,187**	**$391,556,608**	**-0.6%**
CURRENT AND ACCRUED LIABILITIES						
Notes Payable	$ -	$ -	$ -	$ -	$ -	0.0%
Accounts Payable	$ 341,576,743	$ 370,531,868	$ 370,238,650	$ 386,875,296	$ 480,674,653	8.9%
Notes Payable to Associated Companies					$ 40,000,000	0.0%
Account Payable to Associated Companies	$ 64,529,679	$ 54,458,798	$ 60,257,733	$ 56,858,404	$ 49,137,486	-6.6%
Customer Deposits	$ 61,058,482	$ 65,713,503	$ 67,603,924	$ 69,237,399	$ 59,159,226	-0.8%
Taxes Accrued	$ 3,914,750	$ 17,265,070	$ 29,210,850	$ 3,315,867	$ 17,976,386	46.4%
Interest Accrued on Long Term Debts	$ 29,551,067	$ 33,008,481	$ 33,178,992	$ 36,537,547	$ 36,623,971	5.5%
Dividends Declared	$ -	$ -	$ -	$ -	$ -	0.0%
Matured Long-Term Debt	$ -	$ -	$ -	$ -	$ -	0.0%
Matured Interests	$ -	$ -	$ -	$ -	$ -	0.0%
Tax Collections Payable	$ 48,355	$ 43,176	$ 55,119	$ -	$ -	-100.0%
Misc. Current and Accrued Liabilities	$ 98,279,124	$ 87,069,617	$ 73,870,277	$ 77,544,556	$ 101,359,797	0.8%
Obligations Under Capital Leases-Current	$0	$0	$0	$0	$0	0.0%
TOTALS	**$598,958,200**	**$628,090,513**	**$634,415,545**	**$630,369,069**	**$784,931,519**	**7.0%**
DEFERRED CREDITS						
Customer Advances for Construction	$ 1,053,077	$ 706,841	$ 1,491,699	$ 3,420,478	$ 3,842,458	38.2%
Other Deferred Credits	$ 1,090,208	$ 1,429,417	$ 1,550,791	$ 3,655,068	$ 8,216,594	65.7%
Other Regulatory Liabilities	$ 644,184,788	$ 689,414,803	$ 594,950,181	$ 599,740,702	$ 623,674,271	-0.8%
Accum. Deferred Investments Tax Credits	$ 1,379,686	$ 1,025,513	$ 781,017	$ 634,493	$ 527,207	-21.4%
Unamortized Gain on Reacquired Debt		$ 696,719	$ 993,012	$ 1,042,379	$ 1,042,387	NM
Accum. Deferred Income Taxes - Other Property	$ 3,096,015,208	$ 1,836,503,619	$ 1,969,416,673	$ 2,128,560,450	$ 2,127,184,234	-9.0%
Accum. Deferred Income Taxes - Other	$ 50,704,371	$ 141,967,204	$ 148,714,815	$ 144,668,152	$ 358,701,419	63.1%
TOTALS	**$3,794,427,338**	**$2,671,744,116**	**$2,717,898,188**	**$2,881,721,722**	**$3,123,188,570**	**-4.8%**
TOTAL LIABILITIES AND OTHER CREDITS	**$10,989,441,157**	**$10,379,694,073**	**$10,852,716,196**	**$11,685,278,080**	**$12,796,920,295**	**3.9%**

NM - Not Meaningful

Source: Pa PUC Annual Reports

PECO ENERGY COMPANY
Financial and Operating Data Statistics

DATA AND STATISTICS	2016	2017	2018	2019	2020	Compound Growth
OPERATING REVENUE ($)						
Residential	$ 309,349,762	$ 331,184,875	$ 395,390,554	$ 409,463,358	$ 360,780,572	3.1%
Commercial	127,857,489	137,998,979	149,311,553	176,137,727	132,987,594	0.8%
Industrial	17,233,868	16,678,009	18,436,379	19,706,954	17,353,588	0.1%
Other	6,156,701	6,649,214	3,118,453	2,793,017	1,778,246	-22.0%
Total Operating Revenue	**$ 460,597,820**	**$ 492,511,077**	**$ 566,256,939**	**$ 608,101,056**	**$ 512,900,000**	2.2%
OPERATION & MAINTENANCE (O&M) EXPENSES ($)						
Production Maps and Records	-	-	-	-	-	0.0%
Gas Well Expenses	-	-	-	-	-	0.0%
Field Line Expenses	-	-	-	-	-	0.0%
Field Compressor Station Expenses	-	-	-	-	-	0.0%
Field Compressor Fuel and Power	-	-	-	-	-	0.0%
Field Measuring and Regulating Station Expenses	-	-	-	-	-	0.0%
Other Expenses	-	-	-	-	-	0.0%
Rents	-	-	-	-	-	0.0%
Maintenance of Structures and Improvements	-	-	-	-	-	0.0%
Maintenance of Producing Gas Wells	-	-	-	-	-	0.0%
Maintenance of Field Lines	-	-	-	-	-	0.0%
Maintenance of Field Compressor Station Equip.	-	-	-	-	-	0.0%
Maintenance of Field Measuring and Reg. Equip	-	-	-	-	-	0.0%
Maintenance of Other	-	-	-	-	-	0.0%
Total Gas Production Operation Expenses	**$ -**	**$ -**	**$ -**	**$ -**		0.0%
Total Manufactured Gas Production Expenses	$ 284,602	$ 482,030	$ (321,251)	$ 336,383	$ 311,773	1.8%
Natural Gas Well Head Purch., Segment - Interco.	-	-	-	-	-	0.0%
Natural Gas Transmission Line Purchases	-	-	-	-	-	0.0%
Natural Gas City Gate Purchases	174,114,070	190,875,566	297,135,865	209,627,299	163,256,129	-1.3%
Other Gas Purchases	401	672	3,320	-	-	-100.0%
Purchases Gas Cost Adjustments	(19,185,671)	(10,484,946)	(54,656,904)	47,622,061	18,213,406	-199.0%
Purchased Gas Expenses	2,668,269	2,298,027	1,129,375	1,067,639	903,771	-19.5%
Gas Withdrawn from Storage - Debit	38,289,309	38,307,523	33,858,637	34,290,852	27,161,541	-6.6%
Gas Delivered to Storage - Credit	(30,910,759)	(33,981,501)	(40,740,029)	(28,339,820)	(23,071,899)	-5.7%
Other Gas Supply Expenses	(1,322,929)	(190,582)	2,157,954	(1,274,493)	(1,042,543)	-4.7%
Total Gas Supply Operation Expenses	**$ 163,937,292**	**$ 187,306,789**	**$ 238,566,967**	**$ 263,329,921**	**$ 185,732,178**	2.5%
Wells Expense	$ -	$ -	$ -	$ -	$ -	0.0%
Lines Expense	-	-	-	-	-	0.0%
Compressor Station Expense	-	-	-	-	-	0.0%
Compressor Station Fuel and Power	-	-	-	-	-	0.0%
Measuring and Regulating Station Expenses	-	-	-	-	-	0.0%
Gas Losses	-	-	-	-	-	0.0%
Storage Well Royalties	-	-	-	-	-	0.0%
Other Expenses	38,394	8,053	-	-	-	-100.0%
Maintenance of Structures and Improvements	-	-	-	-	-	0.0%
Maintenance of Reservoirs and Wells	-	-	-	-	-	0.0%
Maintenance of Lines	-	-	-	-	-	0.0%
Maintenance of Compressor Station Equipment	-	-	-	-	-	0.0%
Maintenance of Other	-	-	-	-	-	0.0%
Operating Supervision and Engineering	256,256	271,568	241,998	263,528	213,393	-3.6%
Compressor Station Labor and Expenses	723,251	817,690	775,330	843,607	644,489	-2.3%
Mains Expenses	-	-	-	-	-	0.0%
Measuring and Regulating Station Expenses	-	-	-	-	-	0.0%
Transmission and Compression of gas by Others	-	-	-	-	-	0.0%
Other Expenses	-	-	-	-	-	0.0%
Rents						0.0%
Maintenance Supervision and Engineering	904,373	932,939	1,003,139	1,092,103	812,245	-2.1%
Maintenance of Structures and Improvements	2,437,223	2,578,229	2,487,214	2,563,806	2,059,104	-3.3%
Maintenance of Compressor Station Equipment	-	-	-	-	-	0.0%
Maintenance of Measuring and Reg Station Equip.	-	-	-	-	-	0.0%
Maintenance of Communication Equipment	-	-	-	-	-	0.0%
Maintenance of Other Equipment	-	-	-	-	-	0.0%
Total Gas Storage, Terminating & Processing Exp.	**$ 4,359,497**	**$ 4,608,479**	**$ 4,507,681**	**$ 4,763,044**	**$ 3,729,231**	-3.1%

NM = Not Meaningful
Source: PUC Annual Reports

DATA AND STATISTICS	2016	2017	2018	2019	2020	Compound Growth
Operation Supervision and Engineering	$ 146,445	$ 407,307	$ 636,190	$ 454,255	$ 235,379	10.0%
Distribution Load Dispatching	-	-	-	-	21,758	NM
Mains and Services Expenses	11,896,123	13,008,792	17,440,037	16,079,735	15,877,086	5.9%
Measuring and Reg. Station Expenses - General	1,290,682	1,314,485	1,045,276	1,214,002	1,286,993	-0.1%
Measuring and Regulating Station Expenses - Industrial	614	356	867	101	288	-14.1%
Measuring and Regulating Station Expenses - City Gate	5,310,019	4,978,499	4,854,053	5,090,833	5,755,701	1.6%
Customer Installation Expenses	4,870,532	5,042,926	5,416,241	5,499,453	5,851,594	3.7%
Other Expenses	11,923,266	12,301,418	12,311,627	12,311,967	12,365,446	0.7%
Rents	107,758	(57,095)	201,462	201,214	196,630	12.8%
Maintenance of Structures and Improvements	-	-	-	-	-	0.0%
Maintenance of Mains	20,113,296	21,225,214	20,556,716	20,522,095	24,792,631	4.3%
Maintenance of Compressor Station Equip.	-	-	-	254,602	-	NM
Maint. of Measuring & Reg. Station Equip. - Gen.	1,454,407	1,486,169	991,308	1,163,433	879,915	-9.6%
Maint. of Measuring & Reg. Station Equip. - Ind.	-	-	-	-	-	0.0%
Maintenance of Services	1,747,607	1,319,903	1,489,831	1,837,138	2,211,111	4.8%
Maintenance of Meters & House Regulators	444,415	385,112	441,670	478,409	824,930	13.2%
Maintenance of Other Equipment	1,442,201	1,009,518	832,295	1,220,563	654,316	-14.6%
Total Distribution O&M Expenses	**$ 60,747,365**	**$ 62,422,604**	**$ 66,217,573**	**$ 66,327,800**	**$ 70,953,778**	3.2%
Supervision	$ -	$ -	$ -	$ -	$ -	0.0%
Meter Reading Expenses	113,210	128,585	117,851	109,552	79,958	-6.7%
Customer Records & Collection Expenses	12,527,356	13,200,551	11,853,950	11,908,059	11,898,917	-1.0%
Uncollectable Accounts	1,620,349	1,188,217	1,561,186	1,393,612	5,235,366	26.4%
Miscellaneous Customer Accounts Expenses	1,266,606	1,007,218	1,086,077	1,008,322	943,325	-5.7%
Total Customer Account Operations Expenses	**$ 15,527,521**	**$ 15,524,571**	**$ 14,619,064**	**$ 14,419,545**	**$ 18,157,566**	3.2%
Supervision	$ -	$ -	$ -	$ -	$ 3,534,745	NM
Customer Assistance Expenses	3,920,415	4,764,503	5,042,699	4,946,699	330,568	-39.0%
Inform. & Instructional Advertising Expenses	391,518	388,246	113,272	350,850	-	-100.0%
Misc. Customer Service & Inform. Expenses	66,941	(61)	-	-	-	0.0%
Total Cust. Ser. & Inform. Operations Exp	**$ 4,378,874**	**$ 5,152,688**	**$ 5,155,971**	**$ 5,297,549**	**$ 3,865,313**	-2.5%
Demonstrating and Selling Expenses	$ 2,214,031	$ 1,915,147	$ 1,465,666	$ 1,184,838	$ 1,019,242	-14.4%
Advertising Expenses	-	-	-	-		0.0%
Total Operation Sales Expenses	**$ 2,214,031**	**$ 1,915,147**	**$ 1,465,666**	**$ 1,184,838**	**$ 1,019,242**	-14.4%
Adminstrative and General Salaries	$ 2,920,305	$ 3,284,670	$ 5,511,495	$ 5,155,475	$ 5,864,251	15.0%
Office Supplies and Expenses	2,177,084	2,052,708	1,796,110	1,679,132	2,006,454	-1.6%
Administrative Expenses Transferred Credit	-	-	-	-	-	0.0%
Outside Servie Employed	13,008,356	14,882,122	15,467,925	13,725,707	13,287,155	0.4%
Property Insurance	25,900	44,201	75,741	29,305	96,679	30.1%
Injuries and Damages	207,598	588,571	311,804	209,840	189,282	-1.8%
Employee Pensions and Benefits	10,030,643	9,270,121	7,328,077	7,118,525	6,672,338	-7.8%
Franchise Requirements	-	-	-	-	-	0.0%
Regulatory Commission Expenses	2,351,806	2,005,174	1,922,206	1,841,455	1,878,423	-4.4%
Duplicative Charges - Credit	(54,427)	(52,970)	(69,599)	(72,333)	(61,881)	2.6%
General Advertising Expenses	56,289	194,886	433,890	496,257	217,065	31.0%
Miscellaneous General Expenses	579,345	963,469	977,978	882,098	1,004,868	11.6%
Rents	-	-	-	-	-	0.0%
Total Admin. and General O&M Expenses	**$ 31,302,899**	**$ 33,232,952**	**$ 33,755,627**	**$ 31,065,461**	**$ 31,154,634**	-0.1%
Maintenance of General Plant	775,074	739,983	756,928	920,269	1,113,652	7.5%
Total Gas O&M Expenses	**$ 283,242,553**	**$ 310,903,213**	**$ 365,045,477**	**$ 387,308,427**	**$ 315,725,594**	2.2%

NM = Not Meaningful
Source: PUC Annual Reports

PECO ENERGY COMPANY
Financial and Operating Data Statistics

DATA AND STATISTICS	2016	2017	2018	2019	2020	Compound Growth
RECEIPTS BY VOLUME (MCF)						
Purchased Gas	43,845,030	43,478,536	48,552,828	46,315,722	39,752,550	-1.9%
Gas of Others Received for Transportation	42,803,416	42,535,207	44,943,023	45,472,910	44,139,827	0.6%
Exchange Gas Received	-	-	-	-	-	0.0%
Gas from Storage	-	-	-	-	-	0.0%
Other Receipts	-	-	-	-	-	0.0%
Total Receipts	**86,648,446**	**86,013,743**	**93,495,851**	**91,788,632**	**83,892,377**	-0.6%
DELIVERIES BY VOLUME (MCF)						
Residential	36,872,067	37,918,661	43,450,073	40,195,730	38,271,701	2.2%
Commercial	21,926,329	20,502,273	24,508,784	26,156,433	21,325,152	4.5%
Industrial	25,277,449	24,134,142	24,147,713	23,543,952	22,584,621	-1.8%
Other	18,398	18,639	21,351	18,897	17,075	0.7%
Total Sales	**84,094,243**	**82,573,715**	**92,127,921**	**89,915,012**	**82,198,549**	**1.7%**
Injected into Storage	-	-	-	-	-	0.0%
Exchange Gas	-	-	-	-	-	0.0%
Other Deliveries	-	-	-	-	-	0.0%
Gas Used by Company	-	-	-	-	-	0.0%
Other Deliveries	**-**	**-**	**-**	**-**	**-**	0.0%
Total Deliveries (Sales & Other Deliveries)	**84,094,243**	**82,573,715**	**92,127,921**	**89,915,012**	**82,198,549**	1.7%
UNACCOUNTED FOR GAS (MCF)						
Total Receipts	86,648,446	86,013,743	93,495,851	91,788,632	83,892,377	1.5%
Less: Total Deliveries	84,094,243	82,573,715	92,127,921	89,915,012	82,198,549	1.7%
Unaccounted For Gas	2,554,203	3,440,028	1,367,930	1,873,620	1,693,828	-7.5%
UFG AS A % OF TOTAL RECEIPTS						
Unaccounted For Gas	2,554,203	3,440,028	462,806	1,873,620		-7.5%
Total Receipts	86,648,446	86,013,743	93,495,851	91,788,632		1.5%
% Unaccounted For Gas	2.9%	4.0%	0.5%	2.0%		-8.8%
AVERAGE CUSTOMERS						
Residential	473,606	472,606	482,255	487,337		0.7%
Commercial	44,048	44,048	44,549	44,741		0.4%
Industrial	369	396	366	360		-0.6%
Other	14	14	10	5		-22.7%
Totals	**518,037**	**517,064**	**527,180**	**532,443**		0.7%
AVERAGE EMPLOYEES*						
Totals	**441**	**439**	**482**	**485**		2.4%
GAS LINES						
Lines/Mains (M. Ft.)	36,184	36,300	36,482	36,581		0.3%
Lines/Mains (Miles)	6,853	6,875	6,909	6,928		0.3%
Services	450,937	454,251	457,401	460,656		0.5%

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