

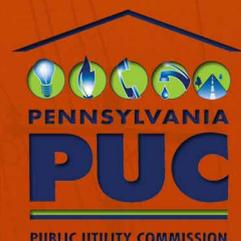
PPL ELECTRIC UTILITIES CORPORATION

MANAGEMENT EFFICIENCY INVESTIGATION

Evaluating the Implementation of Selected Recommendations from the 2016 Focused Management and Operations Audit Report

**Prepared By The
Pennsylvania Public Utility Commission
Bureau of Audits
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Docket No. D-2019-3007812



MANAGEMENT EFFICIENCY INVESTIGATION

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I. INTRODUCTION

A. Background

In 2015, the Pennsylvania Public Utility Commission (PUC or Commission) accepted Vondle and Associates, Inc.'s (Vondle or consultant) proposal to perform a Stratified Management and Operations Audit (management audit) of PPL Electric Utilities Corporation (PPL EU or company). In October 2016, Vondle issued a final report containing 118 recommendations for improvement. PPL EU submitted its implementation plan on November 9, 2016, indicating that 72 were accepted, 40 were partially accepted, and 6 recommendations were rejected. On December 8, 2016 at D-2016-2576052, the Commission made the management audit report and Implementation Plan public and directed the company to:

- Proceed with its November 2016 Implementation Plan; and,
- Submit progress reports on the implementation annually, by December 1, for each of the next three years.

Since December 2016, PPL EU has submitted two implementation plan updates as requested by the Commission to ascertain PPL EU's progress in implementing the recommendations from the audit report. Based on a review of these updates, the Management Audit staff of the Commission's Bureau of Audits (audit staff or auditors) conducted a Management Efficiency Investigation (MEI) of PPL EU's progress in implementing the 43 original recommendations that were deemed the most significant. Specific items of management effectiveness and operational efficiency may be investigated pursuant to Title 66 Pa. C.S. § 516(b).

B. Objective and Scope

The objective of this MEI was to review and evaluate the effectiveness of PPL EU's efforts to implement the recommendations contained within the audit report released in December 2016. The scope of this evaluation was limited to PPL EU's efforts in implementing 43 prior Management Audit Report recommendations in the functional areas of:

- Executive Management
- Cost Allocations
- Electric Operations
- Emergency Preparedness
- Materials Management
- Customer Service
- Human Resources
- Merger Synergy Opportunities

Additionally, the PUC's auditors deemed it prudent to review PPL EU's compliance with PUC regulations at 52 Pa. Code Chapter 101 regarding physical security, cybersecurity, emergency response, and business continuity plans.

C. Approach

The PUC's auditors began fieldwork on April 23, 2019 and continued through September 24, 2019. The fact gathering process included:

- Analysis of selected PPL EU records, documents, reports, and other information focused on the period 2016 through September 2019.
- Interviews with PPL EU and affiliated companies' personnel; and,
- Visits to selected company facilities.

II. SUMMARY OF MANAGEMENT EFFECTIVENESS AND OPERATING EFFICIENCY

The PUC auditors found that PPL EU effectively or substantially implemented 17 of the 43 prior management audit recommendations reviewed and has taken some action on 26 recommendations. Among the more notable improvements are:

- PPL EU improved workplace safety performance.
- The company has identified the root causes for each DART incident and taken actions to correct the underlying problems.
- PPL EU updated its Cost Allocation Manual.
- The company tracks and documents all intercompany charges to and from its affiliates.
- PPL has conducted benchmarking studies for certain affiliate transactions at least once every 5 years.
- The company participates in periodic Supply Chain benchmarking studies.

Although these accomplishments are commendable, the PUC auditors have identified further opportunities for improvement. Specifically, PPL EU should:

- Continue the Occupational Athletic (OA) and Bargaining Unit Safety Advocate (BUSA) programs, modify as needed, and improve safety performance.
- Reduce justified complaints and meet company goals.
- Reduce net write-offs.
- Correct minor deficiencies in physical security and safety and deploy additional resources to conduct more frequent inspections.
- Include major event storm data in CEMI, meet CEMI goals, and implement additional reliability programs as needed.
- Implement the stand-alone affiliate relationships training, and draft and execute SLAs where appropriate.
- Capture and consolidate ongoing synergies between PPL EU and the KY utility, and regularly evaluate key and/or strategic processes.
- Implement additional controls through testing, sampling, reconciliation, or positive employee time reporting for affiliate transaction related cost accounting.
- Explore condition-based ring-fencing provisions such as limiting capital infusion from PPL EU to affiliates beyond yearly dividend payments and/or requiring more ring-fencing if PPL EU's credit rating drops below PPL Corp.'s.

Exhibit II-1 summarizes the 43 most significant prior recommendations and the PUC auditors' follow-up findings, conclusions, and recommendations. Exhibit II-1 also includes five additional findings, conclusions, and recommendations that were identified by the PUC auditors during fieldwork.

**PPL ELECTRIC UTILITIES CORPORATION
MANAGEMENT EFFICIENCY INVESTIGATION
SUMMARY OF DECEMBER 2016 MANAGEMENT AUDIT RECOMMENDATIONS
AND FOLLOW-UP FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS**

Prior MA Recommendations	MEI Follow-up Findings and Conclusions	MEI Follow-up Recommendations
III. EXECUTIVE MANAGEMENT (PAGE 14)		
Enhance the PPL EU safety program to achieve greater work-place safety and employee safety awareness and involvement.	III-1 – PPL EU has achieved greater workplace safety performance since the management audit.	Continue and enhance the OA and BUSA programs and improve safety performance by focusing on minimizing incidents.
IV. COST ALLOCATIONS (PAGE 19)		
PPL Corporation should consider further reducing PPL EU’s exposure to affiliate relationships and streamline the corporate organization structure.	IV-1 – PPL Corp. has taken steps to reduce PPL EU’s exposure to affiliate relationships by streamlining the organization structure; however, not all elements from the management audit have been implemented.	Regularly assess opportunities to further streamline PPL Corp.’s structure.
Assign responsibility to the appropriate unit within the PPL EUS Financial and Regulatory group to ensure correct affiliate relationships and transactions, follow regulatory compliance, and adhere to good management practices.	IV-2 – PPL Corp. took some steps to ensure affiliate interest transactions are correct, but additional work is necessary.	Implement the stand-alone affiliate relationships training, and draft and execute SLAs as appropriate.
Implement controls to increase the amount of PPL SC direct charges and decrease the amount of indirect charges to PPL EU.	IV-3 – The amount of indirect charges from SC to PPL EU has decreased; although, the percentage of indirect versus direct charges has increased.	Continue reducing the amount and percentage of indirect charges.
Revise the PPL Corporation Cost Allocation Manual to correct its deficiencies and have it cover LKE as well.	IV-4 – PPL Corp. updated its CAM.	None

**PPL ELECTRIC UTILITIES CORPORATION
MANAGEMENT EFFICIENCY INVESTIGATION
SUMMARY OF DECEMBER 2016 MANAGEMENT AUDIT RECOMMENDATIONS
AND FOLLOW-UP FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS**

Prior MA Recommendations	MEI Follow-up Findings and Conclusions	MEI Follow-up Recommendations
IV. COST ALLOCATIONS (continued)		
Have only one PPL Corporation Cost Allocation Manual and follow it for all transactions priced at fully allocated cost, including PPL EU and its affiliates.	IV-5 – PPL Corp maintains accessible but separate CAMs for PPL and LKE due to jurisdictional regulatory requirements.	None
Require positive employee time reporting for all affiliate transaction related cost accounting.	IV-6 – PPL Corp continues to use fixed time allocations with exception reporting rather than positive time reporting.	Implement additional controls through testing, sampling, reconciliation, or positive employee time reporting for affiliate transaction related cost accounting.
Track and document all PPL EU affiliate transactions.	IV-7 – PPL EU tracks and documents charges to and from affiliates.	None
Analyze the 2015 increase in PPL EU payment amounts to the service companies and reduce the amounts paid going forward.	IV-8 – PPL EU made changes to its service companies to improve their structure and costs.	Optimize service companies' structures and cost.
Apply asymmetric pricing of affiliate transactions allowing for market pricing of affiliate transactions when it benefits PPL EU.	IV-9 – Not all of PPL EU's charges to and from affiliates are following the asymmetric pricing principles, and it does not charge non-affiliates at the higher of cost or market.	Implement the asymmetric pricing principle as recommended by the NARUC Guidelines for Cost Allocations and Affiliate Transactions, and test periodically.

**PPL ELECTRIC UTILITIES CORPORATION
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SUMMARY OF DECEMBER 2016 MANAGEMENT AUDIT RECOMMENDATIONS
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Prior MA Recommendations	MEI Follow-up Findings and Conclusions	MEI Follow-up Recommendations
IV. COST ALLOCATIONS (continued)		
Analyze the 2015 negative budget variances for charges from PPL EUS to PPL EU and implement measures to prevent recurrence.	IV-10 – Large budget variances (in amount and percentage) for charges from EUS to PPL EU are still occurring.	Create a formal variance policy to document explanations for significant variances based on dollar thresholds and percentages (+/- 10% and or \$100,000 monthly).
Maintain records for regulatory review of the justification and rejustification for all market-based prices.	IV-11 – PPL maintains records according to regulatory and legal requirements when studies are conducted.	Justify and retain documentation for the incurrence of affiliated costs at the lower of cost or market.
Participate in benchmarking studies for each cost-based affiliate service at least once every three years.	IV-12 – PPL has conducted benchmarking studies for certain affiliate transactions at least once every 5 years.	None
Conduct regular internal audits of affiliate relationships and transactions.	IV-13 – An internal audit of PPL EU's affiliated transactions was completed.	Conduct regular internal audits of affiliate transactions.
Reevaluate prior ringfencing measures and consider enhancing PPL EU ringfencing.	IV-14 – PPL EU has not adopted any new ringfencing measures to protect PPL EU from its affiliates.	Explore condition-based ringfencing provisions such as limiting capital infusion from PPL EU to affiliates beyond yearly dividend payments and/or requiring more ringfencing if PPL EU's credit rating drops below PPL Corp.'s.

**PPL ELECTRIC UTILITIES CORPORATION
MANAGEMENT EFFICIENCY INVESTIGATION
SUMMARY OF DECEMBER 2016 MANAGEMENT AUDIT RECOMMENDATIONS
AND FOLLOW-UP FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS**

Prior MA Recommendations	MEI Follow-up Findings and Conclusions	MEI Follow-up Recommendations
IV. COST ALLOCATIONS (continued)		
Consider establishing a conventional corporate money pool and cease the CEP Commerce and CEP Lending relationships.	IV-15 – A formal assessment to establish a corporate money pool was not conducted.	Submit for review and approval to the PUC’s Bureau of Technical Utility Services, an affiliated interest agreement(s) to document PPL EU’s money pool relationships with CEP Commerce, CEP Lending, CEP Reserves, and PPL Energy Funding Corporation.
V. ELECTRIC OPERATIONS (PAGE 59)		
Include a representative from the IT Department in TEAM and TAM meetings as needed.	V-1 – The IT Department was added to the TAM and TEAM meetings and is part of the new Leadership Review Committee process.	None
Adopt the reduction in the CEMI-10 goal to CEMI-9.	V-2 – The company has reverted to a CEMI10+ goal of zero customers while excluding major storm data.	Include major event storm data in CEMI, meet CEMI goals, and implement additional reliability programs as needed.
Complete the addition of distribution asset condition to the asset management system.	V-3 – The company completed the addition of a distribution asset condition to the asset management system but has not yet availed itself of the collected data.	Leverage the collected maintenance data to optimize maintenance activities.
Analyze the causes of all motor vehicle accidents and develop or modify the defensive driving program to focus on avoidance of all types of vehicle accidents.	V-4 – The company analyzed the causes of motor vehicle accidents and developed several defensive driving programs to focus on avoidance of all types of vehicle accidents.	Reduce vehicle accident rates with a particular focus in the Transmission and Substation organization.

**PPL ELECTRIC UTILITIES CORPORATION
MANAGEMENT EFFICIENCY INVESTIGATION
SUMMARY OF DECEMBER 2016 MANAGEMENT AUDIT RECOMMENDATIONS
AND FOLLOW-UP FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS**

Prior MA Recommendations	MEI Follow-up Findings and Conclusions	MEI Follow-up Recommendations
VI. EMERGENCY PREPAREDNESS (PAGE 67)		
	VI-1 – Minor security, safety, and other areas for improvement were discovered during facility inspections.	Correct minor deficiencies in physical security and safety and deploy additional resources to conduct more frequent inspections.
	VI-2 – PPL EU relies solely on electronic Safety Data Sheet (SDS) information.	Ensure full access to SDS sheets at all relevant locations by establishing dual-contingency access.
	VI-3 – Minor cybersecurity policy and plan deficiencies were noted.	Address minor issues with the Cyber Security Incident Response Team Handbook, the Mobile Computing Device Policy, and the Mobile Computing Device Security Standard.
	VI-4 – Network access controls are not optimal.	Address areas for improvement in network access controls.
	VI-5 – Additional features for administrator accounts could increase security.	Improve administrator account security through periodic review/audit.
VII. MATERIALS MANAGEMENT (PAGE 74)		
Participate in a Supply Chain benchmarking study at least every other year.	VII-1 – PPL has participated in benchmarking studies in 2016 and 2019.	None
Conduct a comprehensive review of emergency stock and spares at least every two years.	VII-2 – PPL EU conducted a review of its emergency stock resulting in a reduction in the total value of emergency stock.	None
Decrease the threshold for review of zero use items from three years to no more than two years.	VII-3 – PPL EU implemented process changes but did not reduce the inventory zero usage review threshold levels.	Review materials with two years of inactivity or more.

**PPL ELECTRIC UTILITIES CORPORATION
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SUMMARY OF DECEMBER 2016 MANAGEMENT AUDIT RECOMMENDATIONS
AND FOLLOW-UP FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS**

Prior MA Recommendations	MEI Follow-up Findings and Conclusions	MEI Follow-up Recommendations
VIII. CUSTOMER SERVICE (PAGE 80)		
Incorporate unit costs and service quality metrics into the Customer Services Monthly Performance Indicators Report to improve performance management.	VIII-1 – PPL EU incorporated unit costs and service quality metrics into the Customer Services Monthly Performance Indicators Report.	None
Create targets for the First Call Resolution and the Alert Message metrics.	VIII-2 – PPL EU established goals for performance-based metrics.	None
Modify billing metrics to focus attention on error rates instead of billing achievement rates.	VIII-3 – PPL EU added the “Error Rates” metrics to their WFM (work-flow management) reports.	None
Analyze the bill printing practices for opportunities to improve efficiencies and reduce costs.	VIII-4 – The company did not make changes to its bill printing practices, instead focusing on electronic billing options.	Regularly evaluate the cost/benefit of printing services while continuing efforts to expand electronic billing options.
Revise the Justified Complaints Rate target of “no more than 5%” to 0% and allocate additional resources to analyze and resolve internal controllable errors.	VIII-5 – PPL EU has revised its goal for justified complaints rate, but the company’s performance has not met its goal since 2014.	Reduce justified complaints and meet company goals.
Take actions to reduce the growth in net write-offs.	VIII-6 – Although PPL EU has diminished the net write-off growth rate, a negative long-term trend still persists.	Reduce net write-offs.

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SUMMARY OF DECEMBER 2016 MANAGEMENT AUDIT RECOMMENDATIONS
AND FOLLOW-UP FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS**

Prior MA Recommendations	MEI Follow-up Findings and Conclusions	MEI Follow-up Recommendations
VIII. CUSTOMER SERVICE (continued)		
Merge the Metering Operations and Revenue Protection functions to improve performance and reduce O&M costs.	VIII-7 – The company merged the Metering Operations, Large Power, and Revenue Protection functions to improve performance and reduce O&M costs, but the company is not using key performance indicators to measure the performance of the Revenue Protection function.	Create key performance indicators to track the performance of the Revenue Protection function.
Accelerate the evaluation of the system changes and other implementation requirements that are needed to have phone agents enroll customers in OnTrack.	VIII-8 – PPL EU implemented a new online platform that streamlined the OnTrack application and account management processes and provided additional enrollment methods for low-income customers.	None
Continue to explore methods to streamline and reduce fraud risk from the OnTrack household income validation process and then expedite implementation of the improvements.	VIII-9 – PPL EU’s online platform streamlined and standardized the process for the OnTrack program.	None
Re-evaluate the staff resources that are dedicated to and support the OnTrack program.	VIII-10 – PPL EU still uses the same resources to oversee the OnTrack agencies but has expanded its use of technology to enroll customers as well as monitoring OnTrack agencies.	Regularly re-evaluate resources dedicated to monitoring OnTrack Agencies to ensure appropriate oversight and support.

**PPL ELECTRIC UTILITIES CORPORATION
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SUMMARY OF DECEMBER 2016 MANAGEMENT AUDIT RECOMMENDATIONS
AND FOLLOW-UP FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS**

Prior MA Recommendations	MEI Follow-up Findings and Conclusions	MEI Follow-up Recommendations
VIII. CUSTOMER SERVICE (continued)		
Set OnTrack enrollment targets for the agencies that are based on a more rigorous and analytical estimation process of the universe of eligible customers.	VIII-11 – PPL EU still uses enrollment quotas, but now focuses more on processing timeframe goals.	None
Reduce the number of existing OnTrack agencies to improve cost effectiveness and performance management of the enrollment and recertification process.	VIII-12 – PPL EU has reduced the number of OnTrack Agencies from ten to eight and updated its contracts with CBOs.	None
Perform standardized monthly auditing by Regulatory Programs of the OnTrack agencies' monthly reports.	VIII-13 – PPL EU's Customer Service Regulatory Programs Group (CSRPG) conducted an audit of the OnTrack program in 2017.	None
Develop new performance indicators and other metrics that will improve month-to-month management of the OnTrack program and identify changes to the design and eligibility requirements that will improve PPL EU's ability to meet OnTrack objectives.	VIII-14 – PPL has developed a series of monthly reports to monitor the performance of the OnTrack program.	None

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Prior MA Recommendations	MEI Follow-up Findings and Conclusions	MEI Follow-up Recommendations
IX. HUMAN RESOURCES (PAGE 102)		
Develop resource forecasting models for each Customer Services group with significant employee and contractor resources.	IX-1 – PPL EU should integrate workforce planning efforts throughout the organization by leveraging existing resources to improve planning efforts.	Improve lines of communication and utilize existing information residing in different departments to integrate staffing studies and improve workforce planning.
Implement a PPL Corporation level workforce planning process to precede the budgeting process for PPL EU, PPL SC, and PPL EUS.	IX-2 – The PPL Corp workforce planning process was not been updated.	Perform and centralize more extensive and detailed workforce planning as necessary to ensuring the organization possesses the resources and appropriate workforce infrastructure to meet its business goals.
Conduct a staffing study or participate in a benchmarking study that evaluates staffing levels or labor cost at least every three years.	IX-3 – PPL EU benchmarks at the company level but lacks more specific departmental level benchmarking.	Perform or seek benchmarking of core department-level groups to evaluate staffing and workforce performance.
Reevaluate the employee and contractor mix in each function on a directly comparable basis during each annual workforce planning process.	IX-4 – The process to evaluate the employee/contractor mix for the annual workforce planning process has not changed.	Evaluate the employee and contractor mix ensuring the business case is fully developed and adequately document justifications on a regular basis.
Identify Root Causes for each DART incident and act to correct the underlying problems.	IX-5 – The company has identified the root causes for each DART incident and acted to correct the underlying problems.	None

**PPL ELECTRIC UTILITIES CORPORATION
MANAGEMENT EFFICIENCY INVESTIGATION
SUMMARY OF DECEMBER 2016 MANAGEMENT AUDIT RECOMMENDATIONS
AND FOLLOW-UP FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS**

Prior MA Recommendations	MEI Follow-up Findings and Conclusions	MEI Follow-up Recommendations
X. MERGER SYNERGY OPPORTUNITIES (PAGE 110)		
Charter a robust merger synergy initiative as constrained by the regulatory merger conditions and follow a well-established process to achieve merger synergies.	X-1 – The company did not charter a merger synergy initiative, nor did it follow an established process to achieve merger synergies. However, the company realized the benefits of some synergies organically.	Explore, capture and consolidate ongoing synergies between PPL EU and the KY utility, and regularly evaluate key and/or strategic processes.

III. EXECUTIVE MANAGEMENT

Background – PPL Electric Utilities (PPL EU or company) is a wholly-owned subsidiary of PPL Corporation (PPL Corp.) and is a Pennsylvania regulated electric transmission and distribution business. The company provides electric service to approximately 1.4 million customers in 29 counties across a 10,000 square mile service territory. The company is led by the President of PPL EU, who has 12¹ direct reports which include:

- Vice President – Distribution Operations
- Vice President – Transmission and Substations
- Vice President – Customer Services
- Vice President – Finance, Regulatory Affairs, and Controller
- Vice President and Chief Information Officer
- Vice President – Human Resources
- Director – Technical Development and Improvement
- Director – EU Communications
- Manager - Material Logistics and Operations Warehouse
- Manager – Materials Supply
- Manager – Operations Services – Supply
- Manager – Supply Chain Diversity Programs

The Stratified Management and Operations Audit of PPL Electric Utilities Corporation (PPL EU) conducted by Vondle & Associates, Inc. (consultants) released on December 8, 2016 at D-2016-2576052, contained three recommendations within the Executive Management chapter. The consultants rated this functional area as needing minor improvement. In this chapter, one prior recommendation and prior situation are reviewed and one follow-up finding, and recommendation are presented concerning safety.

Finding No. III-1

Prior Situation – Exhibit III-1, below, showed the past five years of PPL EU Occupational Safety and Health Administration (OSHA) related accident trend data with Edison Electric Institute (EEI) quartile rankings (e.g., “Q3” for third quartile) in each category for each year shown in parentheses.

¹ PPL EU’s organizational structure was taken from data request GD-1 at the start of field work. After field work closed, changes were made to the materials management structure and are not reflected here.

**Exhibit III-1
PPL Electric Utilities
OSHA Related Accident Trends
For the Years 2011 - 2015**

OSHA Category Per 200,000 Work Hours	2011	2012	2013	2014	2015
Occupational injuries and illnesses incidence rates	2.5 (Q3)*	2.0 (Q2)*	2.5 (Q3)*	2.0 (Q3)*	1.7 (Q3)*
Days away, restricted, and transfer (DART) incidence rates	1.5 (Q3)*	1.0 (Q2)*	1.4 (Q3)*	1.1 (Q3)*	1.2 (Q3)*
Lost workday case rates	0.4 (Q2)*	0.5 (Q2)*	0.9 (Q4)*	0.3 (Q4)*	0.5 (Q3)*
Severity rates (Days)	45 (Q4)*	56 (Q4)*	58 (Q4)*	6.2 (Q1)*	21.8 (Q3)*

* - Quartile performance against EEI shown in parentheses
Source: Exhibit II-14 from the Management Audit

Considerable management and organizational attention had been directed to employee safety. Safety performance through 2014 showed comparable performance or modest improvement over the previous three years in each of the OSHA categories tracked. However, 2015 performance fell short of 2014's performance, declining in three of the four OSHA categories being tracked. PPL EU reported that, although the number of accidents is higher than average, the severity of the resulting injuries was not. Many of these accidents were slips and falls or ergonomic injuries where the weight lifted involved less than 10 pounds.

PPL EU was performing in the third quartile of 2015 when measured against EEI transmission and distribution company peers (with more than 1,000 employees) in the United States. Although the number of accidents exceeded targets, the accident severity rate had improved. Furthermore, PPL EU established specific incident rate targets for several accident categories for 2015 and 2016 as shown in Exhibit III-2.

**Exhibit III-2
PPL Electric Utilities
Days Away, Restricted or Transferred (DART) Safety Targets
and Performance for the Years 2015 and 2016**

Year	Body Mechanics	Contact or Flash	Line of Fire	Nature	Slip, Trip, Fall	Unsafe simple act	Total	Estimated Work Hours	DART Rate
2015 Target	10	0	1	0	3	2	16	5,183,900	0.62
2015 Actual	13	0	2	1	8	3	27	4,597,792	1.17
2016 Target	7	0	0	0	3	1	11	5,183,900	0.44
2016 YTD	5	0	3	3	0	0	11	1,908,528	1.15

Source: Exhibit II-15 of the Management Audit

In 2015, seven of the eight safety targets were not met, several by large margins. PPL EU had stated that it intended to achieve first quartile safety performance as measured by Days Away, Restricted or Transferred (DART) rate. Management was focusing on DART performance rather than incidence rate because DART injuries are generally more serious. PPL EU was also actively addressing DART injuries through PPL EU safety committee involvement. However, despite the high level of emphasis by management on employee safety, inconsistent improvement had been recorded in PPL EU safety performance during the 2011 to 2015 timeframe.

Prior Recommendation – Enhance the PPL EU safety program to achieve greater work-place safety and employee safety awareness and involvement.

Follow-up Finding and Conclusion – PPL EU achieved greater workplace safety performance since the management audit.

Current Review – PPL EU maintains that it has changed its safety philosophy leading to improvements in safety and health performance. The company now emphasizes a bottom up, rather than top down approach where management and the union work together with safety and compliance personnel in the field. Along with a continued focus on safety, PPL EU has implemented two programs for safety and health improvements within its workforce. The two programs are described below:

1. The Bargaining Unit Safety Advocate (BUSA) Program

The BUSA program is a negotiated Memorandum of Agreement between PPL EU and IBEW Local 1600. This agreement allows for a pool of bargaining unit volunteers to work with PPL EU Technical Development & Improvement and Safety Operations departments. These volunteers perform a six-month task conducting peer to peer observations and coaching of other PPL EU employees. Although the observations and coaching are the focus of the program, these volunteers also assist

with safety event analysis, data collection and attend regional safety meetings. To prepare the volunteers, Safety Operations provides two weeks of training that includes:

- Review of PPL EU safety policies, procedures and rules
- Safety observation and documentation training
- Peer to peer coaching training
- Review of behavioral-based safety processes

2. The Occupational Athletic (OA) Program²

PPL EU also introduced the OA Program to its workforce as a component of its safety, health, and wellness program. Introduced to employees in 2015, this program includes access to certified athletic trainers and various OA resources related to exercise, fitness, nutrition, stress management and other safety, health and injury-related topics. All union and management employees have access to one of four on-site OA trainers.

OA sends out regular email communications to employees that include the latest health and fitness news, and other important trend information to help spark interest in the program. PPL EU also has been featuring twice-per-month stories on its website about workers who have benefitted from Occupational Athletics. Additionally, individual groups and departments have taken on various initiatives to promote healthy living.

PPL EU believes that both programs allow the company to stress the bottom-up approach which has yielded benefits. For example, PPL EU asserts that the BUSA program provides real-time safety feedback to the company and its employees per the Memorandum of Agreements between IBEW Local 1600 & PPL EU. Furthermore, the OA program has provided a safe and convenient way for employees to focus on their health. The company reports that since implementation of this program, employees are more active, more willing to stretch each day, and have become more comfortable going to an OA trainer to discuss various topics, including their stress levels, exercise regimen, and their eating habits.

As a result of these programs, full-year performance has improved since the management audit as shown in Exhibit III-3. In addition, Exhibit III-4 shows actual incident rates by category, estimated work hours, and the DART rate and goal. PPL EU did not establish incident rate goals by category, only for the DART rate. The company contends that its primary goal is to reduce the severity of accidents (or DART) rather than overall incident rates.

² OA is a Harrisburg-based group that offers various injury and illness prevention programs.

**Exhibit III-3
PPL Electric Utilities Corporation
OSHA Related Accident Trends
For the Years 2016 - March 2019**

OSHA Category Per 200,000 Work Hours	2016	2017	2018	2019 YTD
Occupational injuries and illnesses incidence rates	2.10 (Q3)*	1.71 (Q2)*	1.28	0.87
Days away, restricted, and transfer (DART) incidence rates	1.25 (Q3)*	0.64 (Q2)*	0.44	0.81
Lost work-day case rates	1.04 (Q3)*	0.37 (Q2)*	0.25	0.61
Severity rates (Days)	29.8 (Q3)*	17.8 (Q4)*	13.7	17.3

* - Quartile performance against EEI shown in parentheses
Source: Data Request EM-1

**Exhibit III-4
PPL Electric Utilities Corporation
DART Safety Targets and Performance
For the Years 2016 - March 2019**

Year	Body Mechanics	Contact or Flash	Line of Fire	Nature	Slip, Trip, Fall	Unsafe simple act	Total	Estimated Work Hours	DART Rate	DART Rate Goal
2016	62	0	29	24	34	0	149	4,030,753	1.25	0.80
2017	55	1	18	44	23	0	141	3,733,778	0.69	0.85
2018	56	0	19	38	21	0	134	4,045,695	0.44	0.55
2019 YTD	13	0	6	0	8	0	27	981,649	0.92	0.44

Source: Data Requests EM-2 and EM-7

Both Exhibits III-3 and III-4 highlight safety improvements at PPL EU and indicates that the company's focus on safety is yielding beneficial results. However, both exhibits also illustrate that there is additional room to improve. In addition, safety requires constant focus, vigilance, and effort. The OA and BUSA programs may help meet this goal but will take time to mature and may not be enough on their own. As PPL EU moves forward, it should consider additional safety programs or modifications to existing safety programs to further drive improvement.

Follow-up Recommendation – Continue and enhance the OA and BUSA programs and improve safety performance by focusing on minimizing incidents.

IV. COST ALLOCATIONS

Background – PPL Electric Utilities Corporation (PPL EU or company) is a wholly-owned subsidiary of PPL Corporation (PPL Corp.) and is a regulated electric transmission and distribution business. The company provides electric service to approximately 1.4 million customers in 29 counties through 50,000 miles of power lines. The company has many affiliates, but primarily conducts business with PPL Services Corporation (SC), PPL EU Services Corporation (EUS), CEP Commerce, LLC (Commerce), CEP Lending, Inc. (Lending), and PPL Energy Funding Corporation (EFC).

The prior Stratified Management and Operations Audit of PPL EU, conducted by Vondle & Associates, Inc. (consultants) and released on December 8, 2016 at D-2016-2576052, contained 22 recommendations within the Affiliate Relationships chapter. The consultants rated this functional area as needing significant improvement. In this chapter, nine prior recommendations and prior situations are reviewed, and nine follow-up findings and eight recommendations are presented.

Finding No. IV-1

Prior Situation – Actions undertaken by PPL Corp. greatly reduced PPL EU's exposure to affiliate relationships. These included:

- Spinning off the generation and energy supply affiliates in the formation of Talen. PPL EU no longer had affiliate relationships with competitive energy suppliers.
- The merger of PPL Receivables. This eliminated an affiliate relationship with a nonregulated company.
- A reduced role for PPL Power Insurance, Ltd. (PI) as it was no longer supplying PPL EU with liability insurance coverage. Although the affiliate relationship for workers compensation continued, the relationship for property or general liability insurance was no longer active.
- The transfer of the miscellaneous billing system support and EDI out of PPL Solutions (Solutions) eliminated two parts of its relationship with a nonregulated affiliate.

Many of the remaining PPL EU affiliate relationships did not appear to add value to PPL Corp. and unnecessarily complicated its corporate entity structure.

The consultant recommended additional actions to further reduce PPL EU's exposure to affiliate relationships which included:

- Sale of PPL Solutions to an unaffiliated party (which was under consideration as of December 31, 2015 and subsequently sold on July 1, 2016)
- Closure of PPL Infrastructure Services, LLC (Infrastructure) and the transfer of its functions into PPL EU Transmission and Substations if tax and cost ramifications were not prohibitive

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- Transfer of the workers compensation administration into SC Risk Management and closure of PI
- Consolidation of EUS into SC if tax and cost ramifications were not prohibitive
- Replace the Commerce and Lending relationships with a conventional corporate money pool administered by SC Cash Management

The consultant stated that although PPL Corp. would potentially lose financial contributions from these entities, it would have benefitted from a simplified structure and reduced affiliate relationship regulatory compliance requirements.

Prior Recommendation – PPL Corp. should consider further reducing PPL EU’s exposure to affiliate relationships and streamline the corporate organization structure.

Follow-up Finding and Conclusion – PPL Corp. has taken steps to reduce PPL EU’s exposure to affiliate relationships by streamlining the organization structure; however, not all elements from the management audit have been implemented.

Current Review – PPL Corp. has streamlined the corporate organization structure by selling Solutions as well as merging or dissolving several affiliates.

PPL EU accepted the recommendation in part, noting that they would regularly review affiliate relationships as part of normal management, and will monitor these relationships and adjust them as management deems necessary. PPL EU implemented corporate center evaluation changes, which they believe completed this recommendation. PPL EU also stated that streamlining the organization structure could be detrimental and may result in cost or tax implications for both PPL EU and its customers; however, no analysis was provided. As a result, PPL EU rejected the consultant’s recommendation regarding the consolidation of EUS into SC. The reasons PPL Corp. gave for not implementing the rest of the elements of the consultant’s recommendation are as follows:

- Workers compensation administration continues to be the responsibility of SC’s Risk Management Department. PPL Corp. has not closed PI because of perceived benefits to PPL EU customers by offering lower rates than otherwise available in the insurance market. More stable pricing compared to market fluctuations and less overhead costs than commercial insurance carriers have enabled PI to maintain lower rates. The company argues that if PPL Corp. were to close PI and later decide to use a captive insurance carrier again, there is a lengthy regulatory approval process and high administrative and start-up costs to create a new business.
- PPL Corp. rejected the recommendation to consolidate EUS into SC and PPL EU and recast SC as the PPL Corp. leadership function. The EUS groups are focused on providing support to PPL EU, which is distinct and different than SC’s role, which provides corporate level support. PPL Corp. believes that the creation of EUS has generally enhanced cost

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reporting and transparency for regulatory filings with a minimal increase in costs.

Not all of the elements of the consultant's recommendation have been implemented to streamline PPL Corp.'s corporate structure. Through our analysis, the auditors believe PI or EUS/SC are not currently causing harm to PPL EU customers. Nonetheless, there are benefits to streamlining an organization and more complex structures can lead to inefficiencies and additional risks to regulated entities. Therefore, the auditors commend PPL Corp. for the steps it has already taken but encourages the company to continue streamlining its structure where feasible.

Follow-up Recommendation – Regularly assess opportunities to further streamline PPL Corp.'s structure.

Finding No. IV-2

Prior Situation – PPL EU had insufficient documentation and oversight of affiliate relationships. PPL EU and its affiliates were consistently unable to document and explain certain affiliate relationships and transactions during the audit fieldwork. Responses to document requests were routinely incomplete and personnel interviewed who should have been knowledgeable about one or more affiliate relationships were not. Because of these conditions, the consultant had difficulty fully assessing which affiliates had material affiliate transactions with PPL EU.

The consultant partially attributed this issue to the recent formation of EUS and the transfer of some, but not all, accounting functions to EUS from SC. Also, the consultant believed due to the size and scale of its affiliate relations that lack of dedicated oversight (e.g., senior accounting manager) within PPL EU contributed as well.

The consultant recommended that oversight and regulatory compliance be assigned to an appropriate leader with subordinates who could provide backup and assistance, as well as help manage the following responsibilities:

- Ensure good affiliate relationship governance practices were followed
- Affiliate transactions were tracked with a high degree of granularity and a summary report of all affiliate transactions was compiled and published
- Individual service level agreements (SLAs) with each affiliate were current and approved
- Affiliate service levels were delivered as specified
- Standards of Integrity included appropriate affiliate relationships language and all personnel with affiliate relationship responsibilities received regular training
- A comprehensive and current PPL Corp. allocation manual was followed
- All affiliate transactions were priced appropriately, and the prices were fully documented
- The value of each affiliate relationship was validated by external evidence, such as periodic benchmarking studies
- Each affiliate relationship had adequate ringfencing
- Affiliate relationship internal audits were conducted on a regular basis

Prior Recommendation – Assign responsibility to the appropriate unit within the EUS Financial and Regulatory group to ensure correct affiliate relationships and transactions, follow regulatory compliance, and adhere to good management practices.

Follow-up Finding and Conclusion – PPL Corp. took some steps to ensure affiliate interest transactions are correct, but additional work is necessary.

Current Review – PPL EU does not have a designated department responsible for maintaining all cost allocations because PPL Corp. does not believe that the additional headcount is justified. SC and EUS allocation teams are currently responsible for maintaining data in accordance with the Cost Allocation Manual (CAM) and ensuring the accuracy of such data. SC and EUS perform an annual review of their affiliate

relationships and transactions during the budget planning process.

The EUS Financial Planning and Analysis Department (FP&A) has responsibility for this process. During this review, EUS's FP&A gathers data from SC and EUS on projected costs and expected support levels from each department to support PPL EU needs. For SC and EUS, allocated cost forecasts are compared to prior projections and adjusted for forward-looking business assumptions. These projections, once approved, form the basis for the official budget and are monitored against actual costs incurred. Upon notification of an addition or dissolution of affiliates, a discussion is held with various personnel to align appropriate affiliate relationships and transactions, confirm regulatory compliance and adhere to good management practices.

Periodically, the service organizations also perform the following activities:

- SC's corporate budget team performs three MicroStrategy (i.e., a business analytics and mobility platform company) queries; one for each FERC account to ensure its support groups are charging to the correct accounts.
- EUS employs a MicroStrategy query to perform a FERC account review (i.e., to show any mismatches between budget items and FERC accounts).
- SC's accounting team reviews and approves any new accounts from a SEC (PPL EU accounting/external reporting), FERC (regulated accounting), and management reporting (internal reporting) perspective.
- EUS allocation decision-making is documented utilizing its monthly allocation templates (i.e., some departments perform different prescribed tasks and functions affecting various beneficiaries which have been incorporated into the allocation templates).

As highlighted in the prior situation, the consultant identified multiple areas for improvement. One example is the responsibility for affiliated transactions. PPL Corp. contends that numerous individuals are and were always responsible for affiliated transactions including the manager – FP&A, SC's VP and Treasurer, SC's CP of Corporate Audit, etc. Nonetheless, PPL EU and its affiliates made several changes that help improve oversight of affiliated transactions. A few are highlighted below:

- The Manager - FP&A has augmented responsibility. FP&A monitors actual vs. budget financial performance of affiliates through a monthly review process. They compile actual allocated costs from each affiliate and compare it to the official board-approved budget. Representatives from each affiliate group provide variance explanations for key items, with a general guideline of reviewing variances at or over \$500,000. These explanations are compiled in a summary report that is distributed and reviewed with executive leadership.
- The Manager of Budget Consolidation & Reporting for EUS continually reviews service group support offerings and determines if individual service level agreements are necessary. They are currently working on creating a Service Level Agreement for Remittance Processing Services with SC's Treasury Department.

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- Currently, SC's VP & Global Chief Compliance Officer is responsible for maintaining the Standards of Integrity (Standards) and training on the Standards. Prior to 2017, the Standards included multiple provisions on affiliate relationships. In 2017, PPL Corp. consolidated all the affiliate relationship provisions into a new section titled "Affiliate Relationships" to highlight and clarify the requirements. The training on the Standards in 2017 included an explicit reference to this new section. PPL Corp. has reviewed and is revising the Standards; expected to be finalized in the fall of 2019.
- EUS' Manager of Regulatory Operations is responsible for the content of the stand-alone affiliate relationships training currently under development for roll-out to employees in 2020. They work with PPL EU's Technical Development & Improvement Department for execution and guidance on audience, timing, and method of delivery and EUS' Compliance & Ethics Department on tracking and reporting completion of training.
- SC's Manager of Corporate Budgeting has responsibility for the Consolidated PPL Corp. Cost Allocation Manual (CAM) created in the 3rd quarter of 2018. This document is maintained by SC's Financial Planning Department and updated annually. In addition, the SC and EUS allocation teams are responsible for maintaining the data in the CAM and ensuring it is an accurate representation of the monthly allocation process.

As the preceding examples note, PPL EU, PPL Electric Utilities Services Corporation (PPL EUS or EUS) and PPL Service Corporation (PPL SC or SC) have improved the affiliated transaction process. However, it's important to note that SC and EUS do not record and allocate their costs in the same manner. EUS allocates its costs primarily by department, responsibility center, customer segment and FERC account basis. In contrast, SC allocates by FERC account and activity or project/sub-project by support group. These fundamental differences affect how each entry transaction is recorded and what level of detail is retained with each journal entry. As follows from the organizational structure, the process for EUS and SC is overseen by different executives with PPL EU's VP of Finance & Regulatory Affairs and Controller responsible for PPL EU and EUS compliance and the SC's VP and Controller is responsible for SC. As such, these differences highlight the need for appropriate training as PPL Corp.'s Standards of Integrity place the responsibility to ensure appropriate affiliated transactions on its employees.

A section within PPL Corp.'s Standards of Integrity describes the requirements related to FERC Standards of Conduct and a brief description of PPL Corp. employees' responsibilities with regard to cost allocations. It states:

PPL Corp. must properly account for and allocate the costs or benefits, or portions thereof, of any services performed among affiliated companies. Employees' time should be allocated to the affiliate or affiliates receiving or providing their services. You are responsible for ensuring that all costs and revenues are charged to the appropriate accounts. Also, you should not engage in any sales

between affiliated companies without first obtaining the necessary regulatory approvals. If you have questions about the correct accounting or regulatory approvals, contact PPL Corp.'s Financial Planning Department or your company's equivalent accounting department, or discuss with your supervisor or a Company attorney.

PPL Corp. recognizes that efficient and cost-effective affiliate transactions rely on the capability, understanding, and knowledge of company employees. Building an effective workforce can take additional time if knowledge is solely gained through experience but can also be accelerated by appropriate training. However, through 2019, PPL EU had not provided specific cost allocation training to PPL Corp. employees, but PPL EU is in the process of developing stand-alone affiliate relationships training to be provided to employees in 2020. This training is a good step to educate employees about affiliated transactions and should occur yearly for employees responsible for any affiliated transaction.

Still, training is simply the first step to ensuring appropriate oversight to ensure cost-effective affiliated transactions. The next step is ensuring the services provided by an affiliate are of equivalent or better quality/cost as would be provided externally. PPL EU recognizes the need for competitively priced services from its affiliates but does not believe that arms-length service level agreements (SLA) that support market pricing for affiliate transactions is the only, or optimal way to ensure the prices charged by its affiliates are reasonable and competitive. PPL Corp. believes its in-house capabilities to be extremely effective because SC and EUS employees are intimately familiar with PPL Corp. businesses and can provide efficient and effective services in both routine and non-routine (emergency) situations. PPL EU contends that competitively bidding for services PPL EU receives from its affiliates would be time and resource intensive, incurring costs beyond expected benefits. However, PPL EU indicated that it would conduct a focused review in late 2018/early 2019 with SC to determine if any services or tasks may benefit from SLAs. They contend that PPL EUS continually reviews service offerings to determine if individual SLAs are necessary. During the audit, the company was working on creating an SLA for remittance processing services with PPL SC's Treasury Department.

The auditors acknowledge that there are alternatives to ensure affiliated interests are at market costs, but any process used should be properly documented and retained for future use. As a best practice, SLAs provide this documentation and clearly explain the services being provided. Therefore, SLAs or similar documentation should be created where appropriate/feasible for affiliated services provided to/from PPL EU.

Follow-up Recommendation – Implement the stand-alone affiliate relationships training, and draft and execute SLAs as appropriate.

Finding No. IV-3

Prior Situation – Indirect charges as a percentage of total charges by SC to PPL EU increased significantly in 2015. Exhibit IV-1 summarized the direct to indirect charge ratio from SC to PPL EU.

**Exhibit IV-1
PPL Electric Utilities Corporation
SC Direct and Indirect Charges to PPL EU
For the Years 2012 - 2015**

Type of Charge	2012	2013	2014	2015
Direct (thousands)	\$94,763	\$87,065	\$89,214	\$55,319
Indirect (thousands)	\$53,896	\$48,665	\$47,300	\$49,004
Total Direct and Indirect (thousands)	\$148,659	\$135,730	\$136,514	\$104,323
Percent Indirect	36.3%	35.9%	34.6%	47.0%

Source: Exhibit IV-13 from the Management Audit

Indirect charges as a percentage of total charges increased from an average of 35% from 2012 to 2014 to approximately 47% in 2015. Facilities Management and Supply Chain were transferred to EUS from SC in 2015. These two departments had predominately direct charges. Additionally, storm insurance, a direct charge, was discontinued. The consultant stated that for affiliate relationships, direct charges were preferred over indirect charges as they provided more transparency of cost causation. The consultant recommended that SC charges to PPL EU should be primarily on direct time charges for services and rates reflecting cost causation for program type services.

Prior Recommendation – Implement controls to increase the amount of PPL SC direct charges and decrease the amount of indirect charges to PPL EU.

Follow-up Finding and Conclusion - The amount of indirect charges from SC to PPL EU has decreased; although, the percentage of indirect versus direct charges has increased.

Current Review – A corporate center evaluation was completed in 2017 by an outside consultant focusing on the service companies, SC and EUS. The recommendations from the consultant were accepted and as a result, work tasks which solely benefit PPL EU were transitioned to EUS. In some instances, work tasks and the employee(s) performing the tasks were moved from SC to EUS whereas in others, only the task was moved. Work task transitions began in the 4th quarter of 2017 and were completed by the end of the 1st quarter of 2018. Meanwhile, employee transfers occurred in January 2018, in which a total of 20 employees were moved from SC to EUS. Below are the 20 roles that were moved:

- Compensation Manager
- Benefits Analyst
- Senior Payroll Professional
- Payroll Professional
- Manager - Employee Benefits
- Senior Compensation & Benefits Analyst
- Director - Compensation & Benefits

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- | | |
|--|---|
| <p>HR&S</p> <ul style="list-style-type: none"> • Payroll/Financial Analyst • Manager - Payroll, Administration, Planning & Control • Manager - HR Operations • Two Lead HR Business & Compliance Analysts • Manager, Corporate Talent Acquisition | <ul style="list-style-type: none"> • Senior Talent Management Consultant • Senior Manager, State Government Relations • Business Systems Analyst - Financial • Two Senior Accountants • Two IT Technical Specialists |
|--|---|

Based upon these work task movements, both SC and EUS updated their respective cost allocation percentages. SC reviewed the remaining post-transition work task activity levels and revised their allocation percentages to the affiliates benefiting from that work. EUS performed the same review and made the necessary allocation updates. These changes and updates were incorporated into the budget beginning in 2018.

PPL EU expected an increase in indirect costs from SC based on the results of the corporate center evaluation. Many direct work tasks performed by SC specifically and solely for the benefit of PPL EU were moved to EUS which reduced the SC direct cost allocations thereby increasing the percentages of indirect costs. As shown in Exhibit IV-2 below, the amount of indirect charges has decreased; although, the percentage of indirect versus direct charges has increased from 2016 through March 2019.

Exhibit IV-2
PPL Electric Utilities Corporation
SC Direct and Indirect Charges to PPL EU
For the Years 2016 - March 2019

Type of Charge	2016	2017	2018	March 2019
Direct (thousands)	\$65,214	\$67,271	\$19,551	\$4,631
Indirect (thousands)	\$67,014	\$83,805	\$37,435	\$11,234
Total Direct and Indirect (thousands)	\$132,228	\$151,076	\$56,986	\$15,865
Percent Indirect	50.7%	55.5%	65.7%	70.8%

Source: Data Request AR-11

Exhibit IV-2 helps to illustrate the scale of changes made to SC. It makes sense that many of the services provided by SC that could be direct charged were moved to EUS, because PPL Corp. has argued EUS supports PPL EU, whereas SC supports all PPL Corp. However, costs should be direct charged whenever practicable. Therefore, PPL SC should investigate and reduce indirect charges where there is a clear direct link to the work and entity. Furthermore, as these conditions are identified and solely benefit PPL EU, those work tasks and/or employees should be transitioned to EUS.

Follow-up Recommendation – Continue reducing the amount and percentage of indirect charges.

Finding No. IV-4

Prior Situation – The PPL Corporation Cost Allocation Manual (CAM) did not follow all the NARUC recommended guidelines. Examples included:

- A lack of description of all assets, services, and products provided to/from the regulated entity and each of its affiliates. The CAM did not have a complete listing of the affiliate relationships.
- NARUC further recommends that the CAM require asymmetric pricing with the higher of cost or market charged to affiliates and the lower of cost or market charged to the regulated entity. The CAM specified that all affiliate transactions be at cost. The only exception was under the FERC transmission/generation Code of Conduct.
- The PPL Corporation CAM had no provision for market rates for affiliate transactions. PPL EU rent charges, PPL Solutions services, and perhaps other affiliate transactions were at prices other than fully allocated cost.
- The CAM allowed substantial amounts of transactions to be allocated by the three-factor general allocator rather than by direct time charges or allocations based on cost drivers, such as square feet, employees, and purchase orders.

Prior Recommendation – Revise the PPL Corporation CAM to correct its deficiencies and have it cover LKE³ as well.

Follow-up Finding and Conclusion – PPL Corp. updated its CAM.

Current Review – In 2016, a Corporate Center Evaluation (CCE) was conducted by a 3rd party contractor that reviewed PPL Corp.'s U.S. operations. In response to the Corporate Center Evaluation results, PPL Corp. implemented changes to its corporate structure, responsibilities/activities performed by PPL SC and PPL EU, and relevant corporate governance issues. These respective changes and the prior recommendation highlighted the need to revise the CAM.

In September 2018, PPL Corp. updated its CAM to include descriptions of all assets, services, and products provided to and from affiliates. A more detailed list of the services provided to and from affiliates is discussed in greater detail in Finding and Conclusion No. IV-7. Nonetheless, the information detailed within the CAM more closely aligns to the services provided rather than a general category yielding more pertinent and accurate information. The company also added explanations on how it applies its asymmetric pricing concept, which is discussed in greater detail in Finding and Conclusion No. IV-9.

These revisions addressed the deficiencies cited by the consultant. As a result, PPL Corp.'s CAM describes all methods used to appropriate charges between affiliates,

³ LG&E and KU Energy LLC

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including identification of exempted or partially exempted subsidiaries, and provides explanation for processes which reduce or eliminate shared costs for certain affiliates. In addition, PPL Corp. includes the description and cost assignment method used to account for the costs of the respective activity. Therefore, the CAM now provides employees, affiliates, and regulatory bodies with clear and consistent information related to affiliated transactions.

Follow-up Recommendation – None

Finding No. IV-5

Prior Situation – In addition to the deficiencies noted in the Prior Situation to Finding No. IV-4, the consultant noted that PPL Corp.'s CAM indicated that it covers all PPL Corp. companies. However, it did not cover LG&E and KU Energy LLC (LKE). The consultant contended it would be better to have a single CAM that covers all subsidiaries.

Prior Recommendation – Have only one PPL Corporation Cost Allocation Manual and follow it for all transactions priced at fully allocated cost, including PPL EU and its affiliates.

Follow-up Finding and Conclusion – **PPL Corp. maintains accessible but separate CAMs for PPL and LKE due to jurisdictional regulatory requirements.**

Current Review – As discussed in Finding IV-4, PPL made several revisions to their CAM following their Corporate Center Evaluation. As part of that process, PPL Corp. decided not to combine the PPL Corp. CAM with LKE's. The company cited regulatory concerns as one driving factor. Specifically, the Kentucky Public Service Commission does not permit PPL Corp. to charge overhead to LG&E or KU unless the costs can be directly tied to the Kentucky operations. This condition limits affiliated transactions between the two entities and necessitates separate procedures.

However, PPL Corp. recognized the need to ensure all subsidiaries are adhering to its policies and procedures. Therefore, the company makes both CAMs available even though they are maintained as separate documents. Although not ideal, the auditors recognize that the regulatory requirements in Kentucky do not lend themselves to a fully integrated CAM at this time. Simply keeping both CAMs together is an appropriate workaround until, or if, additional consolidation occurs.

Follow-up Recommendation – None

Finding No. IV-6

Prior Situation – Fixed time allocations with exception reporting were the norm for PPL SC and PPL EU, with the possible exceptions of IT and Legal. Furthermore, fixed time allocations were based on estimates and there was no true-up with actual time distributions. There was no empirical evidence for the fixed time distribution estimations, such as time study sampling or periods of positive time reporting. Lack of a solid foundation for fixed time allocations called into question the accuracy and fairness of the estimates.

Prior Recommendation – Require positive employee time reporting for all affiliate transaction related cost accounting.

Follow-up Finding and Conclusion – PPL SC and PPL EU continue to use fixed time allocations with exception reporting rather than positive time reporting.

Current Review – Positive employee time reporting is considered a best business practice. It allows for employee's time and expenses to be matched to a specific project thereby creating a verified expense that is charged to the appropriate business line. It also adds transparency for regulators, company management, and business lines on needed resources and eliminates potential cross-subsidization situations.

During discussions with company management, they agree with the value that positive time reporting provides regarding accurate and transparent cost accounting. However, they contend that positive time reporting is resource intensive and likely would not provide any economic benefit. Therefore, the company continues to use their historical allocation factors for most allocations. There are times when an employee is assigned to a project or service solely benefiting one company. In these cases, the estimate and the actual are the same creating positive time reporting.

Nonetheless, the auditors recognize that there are instances where, if done correctly, fixed time allocations are a practical/beneficial method to use. For example, when using estimates, also pairing those estimates with a reconciliation or true-up period, yields the ability to correct for deviations from the estimate. Utilities use this method in their adjustment clause rates enabling timely corrections to projections/estimates. However, PPL SC, nor PPL EU performs a reconciliation of estimated employee time. Instead, employees are responsible for identifying and reporting exceptions to the estimated/allocated times. Relying on employees yields some inconsistent control but is not optimal.

Identifying these deviations require the employees to be intimately aware of the estimate and its impact to the various companies. Furthermore, a change has no net effect for the corporation because the costs would be shifted to a different business line. However, this shift can have an impact in the regulated business lines. Therefore, simply relying on employees to make changes is not the best control in this case. Instead, reconciliations, periodic sampling of common services, positive time report, etc. all offer additional governance measures. Once again, the audit staff recognizes the cost/benefit and/or operational constraints. However, we argue that a periodic

approach using sampling can substantiate allocated time while requiring minimal resources. Therefore, both PPL SC and PPL EU should prioritize allocated employee costs based upon their actual cost and test, sample, reconcile, and/or require positive time reporting of allocated employee costs. These tests and samples can be on a regular basis and should be revisited when major changes occur.

Follow-up Recommendation – Implement additional controls through testing, sampling, reconciliation, or positive employee time reporting for affiliate transaction related cost accounting.

Finding No. IV-7

Prior Situation – PPL EU transactions with the non-service company affiliates were not regularly tracked and documented. PPL EU had great difficulty in identifying payment and receipt trends to and from affiliates other than SC and EUS. The consultant contended that it is a good practice to track and report all affiliate payments by service on an annual basis. In addition, the consultant recommended developing and implementing an annual report summarizing PPL EU payments to and from each affiliate by service, which would provide visibility of PPL EU's affiliate relationship and transactions trends.

Prior Recommendation – Track and document all PPL EU affiliate transactions.

Follow-up Finding and Conclusion – PPL EU tracks and documents charges to and from affiliates.

Current Review – In response to the management audit, a corporate center evaluation was conducted (with refinements in process and practice), assigning responsibility to ensure correct affiliate relationships and transactions to the PPL EU Finance Department. The company also assigned a financial analyst within PPL EU's FP&A to ensure correct affiliate relationships and transactions, confirm regulatory compliance, and adhere to good management practices.

Data requests responses throughout the Management Efficiency Investigation (MEI) provided insight into how affiliate transactions are governed and tracked. These responses showed tracking and analysis of both direct and indirect costs from affiliates. Affiliate transactions are aggregated, with comparisons made between budget and actual dollars, and variance analysis (without explanations for some large percent/amount variances) that was given to the auditors. As a result, PPL EU demonstrated that it had sufficient detail and oversight of transactional data with its affiliates.

Follow-up Recommendation – None

Finding No. IV-8

Prior Situation – PPL EU had substantial payments to affiliated service companies, which increased significantly in 2015. Exhibit IV-3 summarized PPL EU’s payments to affiliated service companies from 2012 through 2015.

**Exhibit IV-3
PPL Electric Utilities Corporation
PPL EU Payments to Affiliate Service Companies
For the Years 2012 - 2015**

Affiliate	2012	2013	2014	2015
SC (thousands)	\$156,034	\$146,108	\$151,068	\$125,032
EUS (thousands)	0	0	0	\$59,936
Totals (thousands)	\$156,034	\$146,108	\$151,068	\$184,968

Source: Exhibit IV-12 of the Management Audit

PPL EU payments to affiliate service companies increased by \$33.9 million, or 22% from 2014 to 2015. 2015 is the year in which EUS began operations and when the Talen spinoff occurred. EUS’ budgeted charges to EU for 2015 was \$44 million; however, actual expenses were closer to \$60 million. The increase was attributed to these factors: the transfer of Regulatory Affairs from PPL EU to EUS; an increase of \$6 million in SC depreciation charges as a result of PPL EU receiving a higher percentage of shared assets from the Talen spinoff; and a \$23 million increase in SC direct and indirect charges due to the Talen spinoff (i.e., with less companies in the PPL Corp. umbrella, PPL EU and all other remaining PPL Corp. subsidiaries received a higher proportion of SC costs).

Prior to the spinoff, PPL Energy Supply, LLC incurred \$75 million of indirect and \$110 million of direct costs per year from SC. As part of the spinoff, Talen would not accept all \$75 million of indirect costs. Given the 22% increase in PPL EU payments to the service companies in 2015, it appeared that not enough overhead cost reductions were achieved. The increase in payment to service companies was troubling because services provided did not change substantially from 2014 to 2015. The Talen spinoff and the creation of EUS in 2015 may have led to the increase in total PPL EU payments to service companies in 2015.

Prior Recommendation – Analyze the 2015 increase in PPL EU payment amounts to the service companies and reduce the amounts paid going forward.

Follow-up Finding and Conclusion – PPL EU made changes to its service companies to improve their structure and costs.

Current Review – Exhibit IV-4 shows that affiliate service company payments from PPL EU increased in 2016 and 2017, and then decreased in 2018.

**Exhibit IV-4
PPL Electric Utilities Corporation
PPL EU Payments to Affiliate Service Companies
For the Years 2016 - March 2019**

Affiliate	2015	2016	2017	2018	March 2019
SC (thousands)	\$158,190	\$159,455	\$181,801	\$58,648	\$16,004
EUS (thousands)	\$61,105	\$71,942	\$64,387	\$148,191	\$37,242
Totals (thousands)	\$219,295	\$231,397	\$246,188	\$206,839	\$53,246

Source: Data Requests AR-14 and AR-75

The data in Exhibit IV-3 did not include the same line items that were provided throughout the MEI, which resulted in a difference in the 2015 amounts in Exhibits IV-3 and 4. During the MEI, PPL Corp. included additional line items, such as stock options & restricted stock compensation, labor, employee expenses, accounts payable, legal accruals, materials and supplies, print services, pension and post retirement expenses, and IT services that account for the difference between 2015 numbers. Furthermore, a large decrease in SC charges and corresponding increase in EUS is depicted in Exhibit IV-4 between 2017 and 2018. This is primarily the result of the movement of the Information Technology (IT) function from SC to EUS in 2018, as well as a decrease of executive compensation and depreciation in 2018.

In addition, a \$12.5 million decrease in SC and EUS charges from 2015 - 2018 resulted from just two drivers: O&M reduction initiatives, and refining allocation basis and rebalancing the three factor allocation percentages. Clearly, as indicated by the consultant, the Talen spinoff and subsequent changes to PPL Corp. and its subsidiaries created a changing structure for the PPL Corp. companies. As this new structure matured, PPL Corp. and its affiliates made numerous moves to more streamline operations, some of which are detailed above and within other findings of this chapter. However, for a regulated entity like PPL EU, payments to service companies should be minimized to goods/services needed at cost and reevaluated whenever significant changes occur.

In theory, both SC and EUS monitor department activities throughout the month with an additional focus during the monthly allocation processing to maintain appropriate allocation factors. In 2017, the corporate center evaluation recommended both work (tasks) and/or people be moved between service groups. Also, some services being offered were determined to be no longer needed. All these activities prompted a review and rebalance of allocations, which PPL Corp. and corresponding subsidiaries did. Nonetheless, with major changes like the Talen spinoff, it can take years for a company to optimize its structure, particularly within a service company. Therefore, PPL EU and all PPL Corp. subsidiaries should create the most efficient use and cost for services for PPL EU.

Follow-up Recommendation – Optimize service companies’ structures and cost.

Finding No. IV-9

Prior Situation – The PPL Corp. and PPL EU Services Agreement did not allow for market priced affiliate transactions, yet some transactions appeared to be market priced.

The pricing of some affiliates sales to PPL EU was not clear. However, it appeared that some of the transactions may have been at market price or at some price other than cost. These included:

- Solutions services to PPL EU,
- Rent charged by PPL EU to affiliates,
- Infrastructure payments to PPL EU for transmission structure attachments,
- PI premiums, and
- Commerce capital contributions.

The consultant stated that asymmetric pricing of affiliate transactions was a good practice, and the PPL Corp. CAM included references to it. In asymmetric affiliate transaction pricing, charges for affiliate services to PPL EU would be at the lower of cost or market and services provided by PPL EU to affiliates would be priced at the higher of cost or market. PPL EU charged a market-based rent to its affiliate tenants, and the consultant contended that this was a good practice. However, it was unclear if the charges from affiliates to PPL EU were at or lower than market prices.

The consultant recommended that with the new SLAs to be negotiated with the PPL EU affiliates, the pricing of each type of transaction should be specified and should employ the asymmetric pricing principle. If a price for a service provided to PPL EU was to be provided at a market price, such as for Solutions and PI, the price should be supported by robust competition for PPL EU's business, including a minimum of two unaffiliated qualified vendors. The selection of an PPL EU affiliate as the lowest total cost option should be clear and the competition for PPL EU's business should be well-documented.

Prior Recommendation – Apply asymmetric pricing of affiliate transactions allowing for market pricing of affiliate transactions when it benefits PPL EU.

Follow-up Finding and Conclusion – **Not all of PPL EU's charges to and from affiliates are following the asymmetric pricing principles, and it does not charge non-affiliates at the higher of cost or market.**

Current Review – PPL EU and SC use a third-party compensation survey as the primary source of market base salary data for non-union and non-executive positions. In addition, survey data from industry leading salary increase surveys are used when setting annual salary increases for those same roles to ensure compensation practices remain competitive and aligned with market. Other surveys are used for reference data on an ad-hoc basis. Base salary is targeted at or near the 50th percentile of market for each position. Health benefits are reviewed annually with stated objectives to maintain benefit levels in line with both the utility and non-utility industry.

Other examples of PPL EU and/or EUS efforts to ensure services are provided at the higher of cost or market include:

- Applying a rent adder (i.e., incremental charge if applicable to the at cost rate based on a semi-annual market study of local building market rent rates) PPL EU charges to non-regulated occupants of its buildings for rent. Intercompany rent charges include the costs to maintain and service the buildings and associated operation costs, such as electricity, water and sewer. These general costs are allocated and billed to the occupants of PPL EU building space based on square footage occupied. Specific tenant services provided are billed to the recipient of the service. EUS also performs a commercial rental survey every two years to obtain building comparisons for use in the rent allocation process.
- PPL EU's Transportation Department charges affiliates for both labor and parts at market (i.e., parts are procured from an unaffiliated third-party and allocated to the appropriate affiliate at cost).
- In addition, PPL Corp. provided the auditors with its Acquisition of Materials and Services policy that directs its procurement of goods and services which a commitment to obtaining quality material and services in the most cost effective and timely manner through competitive bidding.
- Also, PPL EU contends that the supply chain organization conducts benchmarking approximately every two years⁴.

In addition to delivering electric service to customers, PPL EU and SC also provide products and services to some other non-affiliates (individuals, companies, or organizations outside PPL Corp.). A significant portion of these functions and services pertain to repairing pole hits, extending power lines, and relocating customers' services that generally correspond to the regulated business. An example of services provided include interconnection services for independent power producers. These functions and services are billed to non-affiliates at the fully loaded cost, and not at the higher of cost or market. However, it's important to note that certain services (i.e., line extensions and relocating customers' services) are tariffed services and available to any customer or entity within PPL EU's service territory.

PPL Corp.'s CAM, states that:

PPL Corp.'s regulated subsidiaries are now required to comply with FERC's regulations under the Energy Policy Act of 2005. In addition, PPL Corp. must comply with the PUC's 1995 order related to PPL's affiliated interest agreement, which requires that: 1) goods and services provided by a regulated affiliate to a non-regulated affiliate

⁴ The auditors did not review this benchmarking analysis because the document is deemed proprietary to a third-party not under Commission jurisdiction.

be priced at the provider's full costs unless addressed in a Code of Conduct as to be charged at the higher of cost or market; and 2) goods and services provided by a non-regulated affiliate to a regulated affiliate be priced at the provider's full cost unless addressed in a Code of Conduct as to be charged at the lower of cost or market.

However, the language referenced by PPL Corp. in its CAM with respect to the 1995 PUC Order upon review by the auditors does not exist within the 1995 Order.

PPL Corp.'s CAM includes NARUC Guidelines for Cost Allocations and Affiliate Transactions and complies with CFR § 35.44 - Protections against affiliate cross-subsidization. However, no SLAs were provided during fieldwork (see Follow-up Finding and Conclusion IV-2) other than the Amended Service Agreement with PPL Corp. and certain subsidiaries which had vague direction for charging costs for services. As stated in PPL EU's Implementation Plan, they would re-evaluate current affiliate relationships for situations where additional SLAs may be warranted by the size and potential benefits of ensuring arms-length agreements. PPL EU has been discussing an SLA with SC's Treasury Department for remittance processing, but to the auditors' knowledge, no other SLAs exist involving PPL EU.

PPL EU believes all services that are awarded⁵ to a third-party are at market price. Those services may be procured directly by PPL EU, EUS, or SC and, through their cost allocation processes, charged to PPL EU. Additionally, most services between affiliates are labor related which are benchmarked to market annually. Although labor cost studies provide a method to test market rates, the logic behind this as a sole justification is not always valid. There are times when different labor classifications could provide the same or similar services. A flaw results when these different labor classifications also have different market rates. In this case, market labor costs may not equate to the market cost of services. While the company has multiple reasons for conducting labor market surveys and they should continue, it cannot be the sole justification for establishing market rates of affiliated services. Instead, affiliated services to PPL EU should be tested periodically through request-for-quotes, market studies, etc. for services used routinely. In this fashion, the labor market studies can be used as annual adjustments and validation between more robust testing every five to ten years.

Follow-up Recommendation – Implement the asymmetric pricing principle as recommended by the NARUC Guidelines for Cost Allocations and Affiliate Transactions, and test periodically.

⁵ All service requirements in excess of \$50,000 must be sourced through Supply Chain with the exception of legal, financial, and benefit services.

Finding No. IV-10

Prior Situation – EUS actual charges to PPL EU in 2015 were substantially over budget. The 2015 budgeted charges from EUS to PPL EU were \$44 million. The actual charges were \$60 million. All categories of charges were significantly over budget except Finance and Regulatory Affairs, which were under budget. Supply Chain was budgeted under SC but was transferred to EUS in 2015. This reportedly accounted for a large part of the budget to actual variance in this department.

However, the consultant stated that while 2015 was the first year for EUS, the services provided were simply transferred from SC and the budgeting should have been reasonably accurate. The large variances in 2015 were troubling and should have been investigated.

Prior Recommendation – Analyze the 2015 negative budget variances for charges from EUS to PPL EU and implement measures to prevent recurrence.

Follow-up Finding and Conclusion – Large budget variances (in amount and percentage) for charges from EUS to PPL EU are still occurring.

Current Review – As shown in Exhibit IV-5, there are still many support groups within EUS that have high variances (in both amount and percentage) for budgeted charges to PPL EU. “Other” includes business expenses that are not directly attributable to operations, including PPL EU leadership costs, insurance premiums, and pension costs.

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Exhibit IV-5
PPL Electric Utilities Corporation
Budget Variances for Charges from EUS to PPL EU
(all numbers in \$000)
For the Years 2016 - 2018

2016	Actual	Variance Amount	Variance %
<i>Dollars Allocated from EUS:</i>			
PPL EU Communications	2,094	(772)	-36.86%
PPL EU Facilities (incl. rent)	13,143	(1,591)	-12.11%
PPL EU Finance & Regulatory	9,315	479	5.14%
PPL EU Human Resources	2,066	(305)	-14.74%
PPL EU Information Technology	-	-	
PPL EU Technical Development & Improvement	746	(530)	-71.01%
PPL EU Supply Chain	166	(496)	-299.27%
PPL EU Other	10,817	1,705	15.76%
Total EUS	38,347	(1,509)	-3.94%

2017	Actual	Variance Amount	Variance %
<i>Dollars Allocated from EUS:</i>			
PPL EU Communications	1,821	834	45.80%
PPL EU Facilities (incl. rent)	13,799	1,041	7.54%
PPL EU Finance & Regulatory	6,656	2,892	43.45%
PPL EU Human Resources	2,140	150	7.01%
PPL EU Technical Development & Improvement	838	12	1.43%
PPL EU Supply Chain	971	(866)	-89.19%
Corporate Rent & Incentive Cash Awards	10,163	1,428	14.05%
Total EUS	36,388	5,491	15.09%

2018	Actual	Variance Amount	Variance %
<i>Dollars Allocated from EUS:</i>			
PPL EU Communications	1,850	(38)	-2.05%
PPL EU Facilities (incl. rent)	13,998	(684)	-4.89%
PPL EU Finance & Regulatory	7,331	1,837	25.06%
PPL EU Human Resources	4,572	1,146	25.07%
PPL EU Information Technology	44,378	4,369	9.84%
PPL EU Technical Development & Improvement	9,064	448	4.94%
PPL EU Supply Chain	1,056	(722)	-68.37%
PPL EU Other	7,541	(1,361)	-18.05%
Total EUS	89,790	4,995	5.56%

Note: Values may differ slightly from actual due to rounding.
Source: Data Request AR-15

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PPL EU and EUS do not have a formal policy regarding budget variances. Beginning in 2018, EUS' FP&A requests monthly variance explanations of \$500,000 or greater for O&M as compared to the official budget from each business/support area. However, none of the allocated costs to PPL EU distribution and transmission O&M met this threshold. PPL Corp. contends that these variance thresholds provide PPL EU with the appropriate control and insight into key business drivers. This threshold is based on management discretion but will be adjusted on a case by case basis, including if an item is identified as potentially having meaningful financial and/or strategic impact, or PPL EU leadership requests further explanation.

As discussed in Follow-up Finding and Conclusions IV-3, IV-7, and IV-8, PPL Corp. transferred a number of services from SC to EUS, greatly expanding EUS' role with PPL EU. Nonetheless, the budget variance threshold does not capture any charges to PPL EU, despite annual variances exceeding millions of dollars. A more robust budget variance policy that includes explanations would be beneficial for PPL EU until a baseline is established. This information could be used to create more accurate budgets and forecasts in the future. Unneeded funding could also be identified in a timelier manner and reallocated within other cost centers. Unnecessary borrowing or missed investment opportunities could result from allocating funding where it is not needed and represents fiscal inefficiencies.

Establishing a policy for documenting explanations for significant variances (e.g., variances exceeding plus/minus 10% from budget or any variance exceeding a certain dollar amount) will enhance the current process by establishing accountability and creating a historical context to help evaluate performance, as well as preventing items from being overlooked. The current level of \$500,000 monthly is not granular enough for PPL EU's interaction with EUS. The auditors suggest a monthly variance of \$100,000 and/or 10% monthly as a more meaningful threshold for both organizations. In addition, a formal variance policy should be developed and implemented that includes thresholds (percentage and/or dollar amounts) to require budget variance explanations to be documented to have a record of present and past performance.

Follow-up Recommendation – Create a formal variance policy to document explanations for significant variances based on dollar thresholds and percentages (+/- 10% and or \$100,000 monthly).

Finding No. IV-11

Prior Situation – Aside from an outdated 2010 facilities market report, PPL EU was unable to provide documentation verifying affiliated charges were comparable to market rates. For example, Facilities Management was unaware of the basis for rent charges to non-PPL EU tenants in PPL EU owned buildings.

Prior Recommendation – Maintain records for regulatory review of the justification and rejustification for all market-based prices.

Follow-up Finding and Conclusion – PPL EU maintains records according to regulatory and legal requirements when studies are conducted.

Current Review – As previously discussed in Finding and Conclusion IV-9, PPL EU should implement the asymmetric pricing principle as recommended by the NARUC Guidelines for Cost Allocations and Affiliate Transactions. Asymmetric pricing is premised on the ability to compare shared services, such as those provided by a service company, to services provided at market. Although market rates are not always available, there are numerous ways to compare services that are available or are similar to market services. Some examples of this testing include request for proposals/quotes, market studies, benchmarking studies, etc.

As reflected in Finding and Conclusion IV-9, PPL EU has not conducted sufficient benchmarking or other strategies that compare affiliated transactions to market rates. PPL EU contends there are inherent difficulties in capturing all the relevant information when comparing the cost of affiliate services to market rates. Information related to the development and maintenance of in-house competencies can often present challenges. Although there are inherent benefits to maintaining certain services in-house, PPL EU could be missing potential opportunities by not comparing affiliate services to market rates.

Even so, when PPL EU conducts market tests of services, they tend to retain them until the next study. For example, PPL EU retained studies for certain cost-based services, which are further discussed in Finding and Conclusion No. IV-12. Still, as market tests are done, the studies should be retained for as long as that study provides justification for the associated costs. If significant changes occur, whether through market dynamics or by internal changes to the services provided, PPL EU should conduct new studies. Without such tests, PPL EU does not have the necessary information to determine if all affiliated charges are at market rates and comply with the asymmetrical pricing principle.

In response, the company noted that they monitor services provided by affiliates for cost effectiveness. However, management contends cost is not the only consideration when deciding whether to use in-house services. For example, by using affiliate provided services, the company claims they can “*develop and maintain certain in-house competencies*” which is hard to quantify when determining a market value. Although cost is certainly not the only factor when determining the effectiveness of a service, the various factors influencing the decision should be documented within a

business case. Furthermore, auditors recognize that quality or other strategic considerations may be justifying factors but notes that these are not carte blanche validations. The recovery of expenses related to these services are subject to future Commission approval.

Follow-up Recommendation – Justify and retain documentation for the incurrence of affiliated costs at the lower of cost or market.

Finding No. IV-12

Prior Situation – Most PPL EU affiliated provided services had not been validated on a cost basis by periodic benchmarking studies. The few benchmarking studies provided were outdated and limited to three affiliated services. Without periodically benchmarking services provided by affiliates, PPL EU cannot be assured that costs are reasonable and appropriate.

Prior Recommendation – Participate in benchmarking studies for each cost-based affiliate service at least once every three years.

Follow-up Finding and Conclusion – PPL EU has conducted benchmarking studies for certain affiliate transactions at least once every 5 years.

Current Review – In 2018, PPL EU conducted a Corporate Center Evaluation (CCE) with the help of a consultant. Part of that study compared PPL EU's six major service lines (Finance, Legal, Purchasing, Audit, Information Technology, and Human Resources) to ten other large utilities in the Northeast. PPL EU outperformed many of its peers for four of the categories and just below the median for the other two. However, as further discussed in Finding and Conclusion Nos. IV-9 and IV-13, there is concern over the amount of indirect charges and whether services are provided at market rates.

There are certain services that are easier to compare to market because the service is considered a competitive service (i.e., multiple entities offering the same or similar services). These services include rent, facilities management, internal audits, and insurance, which have comparable market proxies. Although PPL EU has acknowledged the value of benchmarking in general, the company seems to differentiate between services that are easily comparable to market and the remaining services. In the case of rent, facilities management, internal audit, and insurance, PPL EU regularly performs benchmarking studies at least once every 5 years or sooner when requested by management. These benchmarking studies are used to further optimize the services and costs for the services benchmarked.

Follow-up Recommendation – None

Finding No. IV-13

Prior Situation – There had been no internal audits of PPL SC cost accounting allocations or any affiliate relationships since 2010. However, there was a scheduled audit of PPL EU’s cost allocation included in the 2016 Internal Audit Plan.

Prior Recommendation – Conduct regular internal audits of affiliate relationships and transactions.

Follow-up Finding and Conclusion – An internal audit of PPL EU’s affiliated transactions was completed.

Current Review – Per the company’s Implementation Plan, PPL EU originally planned to conduct an internal audit of its affiliate transactions in 2016. However, the audit was postponed until the completion of the CCE. As previously discussed, the CCE was a review of the company’s core functions and was completed in 2018. The findings of the CCE were then used to make changes or implement improvements to various business lines throughout PPL EU.

One such finding was that direct expenses charged by PPL SC to PPL EU were decreasing as a percentage of the total costs whereas indirect expenses were increasing (further discussed in Finding and Conclusion Nos. IV-8, 9, and 10). This finding further justified the need for an internal audit of affiliated transactions, which the company initiated in October of 2018 and completed by the end of January 2019. The internal audit included a review of PPL EU’s affiliate relationships and transactions.

PPL Corp.’s internal audit team utilizes an annual audit plan that is validated on a quarterly basis. PPL Corp.’s internal audit team utilizes a risk-based approach to determine which audits to perform with cybersecurity (IT) and procurement typically prioritized. However, PPL Corp. has agreed to conduct an internal audit of affiliate transactions at least every two years. In addition, PPL SC and PPL EUS perform an annual review of their affiliate relationships and transactions during the budget planning process. In addition, the PPL EU Financial Planning and Analysis department performs an annual review of affiliate relationships and transactions during the budget planning process. Although these reviews are not a substitute for regular audits, they do address discrepancies and oversight on a real time basis. Therefore, internal audits should continue to review affiliated transactions for PPL EU periodically.

Follow-up Recommendation – Conduct regular internal audits of affiliate transactions.

Finding No. IV-14

Prior Situation – In 2001, PPL EU announced a strategic initiative designed to substantially reduce its business and financial risk profile by limiting its business activities to the transmission and distribution of electricity and businesses related to or arising out of the electric transmission and distribution businesses. Included below were some of the steps taken under this initiative:

- Adopting amendments to its Articles of Incorporation and Bylaws that contained corporate governance and operating provisions designed to reinforce corporate separateness from affiliated companies by:
 - Requiring separate assets, books, and records of account,
 - Requiring an arm’s-length relationship with its affiliates,
 - Appointing an independent director to its Board of Directors and requiring the unanimous consent of its Board of Directors to amend these corporate governance amendments of the Articles of Incorporation and Bylaws, and
 - Appointing an independent compliance administrator to semi-annually review PPL EU’s compliance with these new corporate governance amendments.
- Using debt securities covenants designed to limit financial risks such as:
 - Restricting the utility’s ability to issue additional debt securities, and
 - Suspending declarations of dividends on common stock if the independent compliance administrator has delivered a notice of noncompliance.

These enhancements to PPL EU’s legal separation from its affiliates were intended to minimize the risk that a court would order its assets and liabilities to be consolidated with those of PPL Corp. or another affiliate in the event that PPL Corp. or another affiliate were to become a debtor in a bankruptcy case.

In 2013, the PPL EU bylaws were amended to remove any ringfencing measures. This substantially weakened PPL EU’s ringfencing as there were no ringfencing measures to protect PPL EU other than what was provided as a separate legal entity.

The 2001 ringfencing was designed to cost-effectively realign PPL EU’s capital structure to reflect its (a) lower risk business profile following divestiture of its generation assets and (b) significantly reduced supply risk associated with its provider of last resort (POLR) obligations, both of which were accomplished as part of a PUC-approved 2000 realignment. The goal of the original ringfencing efforts was to increase lower-cost debt in the capital structure without decreasing ratings.

The consultant recommended that PPL EU should reconsider the 2001 ringfencing measures highlighted above that were eliminated in 2013 and additional measures as well, specifically:

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- Implementation of service level agreements with each affiliate with which it had transactions as recommended.
- Prohibition of PPL EU from making any loans to the parent or any affiliate (except for participation in a short-term corporate money pool with adequate protections for PPL EU).
- Developing and implementing a tightly drafted set of covenants, including dividend tests, negative pledges, non-petition covenants, prohibitions from creating new entities, restrictions on asset transfers and inter-company advances, that preserved the financial well-being and autonomy of the ring-fenced subsidiary.
- Collateral – fully secured PPL EU debt by a pledge of all or substantially all the assets of PPL EU.
- Providing a non-consolidation opinion between PPL Corp. and PPL EU (upon insolvency of the parent, the assets of the subsidiary would not be consolidated with the parent's).
- Securing legal comfort that the ringfencing actions did not contradict any law, regulation, order, or contract.
- Securing other legal comfort that the ringfencing would not invoke any of the re-characterization provisions of the Federal Bankruptcy Code.
- Implementing a “golden share” arrangement in which the independent director for PPL EU had powers to prevent adverse actions against PPL EU.

The consultant advised that based upon the re-evaluation of possible ringfencing measures, the ringfencing protection for PPL EU should be enhanced as appropriate.

Prior Recommendation – Reevaluate prior ringfencing measures and consider enhancing PPL EU ringfencing.

Follow-up Finding and Conclusion – PPL EU has not adopted any new ringfencing measures to protect PPL EU from its affiliates.

Current Review – Some ringfencing remains in place. PPL EU maintains separate assets from its affiliates and requires arm's-length transactions with affiliates (outside of the services covered under their Amended Services Agreement with PPL Corp. and Certain Subsidiaries) and does not make loans to its parent or affiliates (but makes capital contributions to affiliates). In addition, some traditional ringfencing measures are otherwise required to be observed by PPL EU. For example, as a registrant under the Securities Exchange Act of 1934, as amended, PPL EU is required to keep separate books of account and records in accordance with U.S. generally accepted accounting principles. Also, the ability of PPL EU to incur additional debt is subject to its compliance with other debt covenants, including the consolidated debt to consolidated capitalization covenant set forth in PPL EU's \$650 million syndicated credit facility. This is in addition to being subject to the oversight and approval by the PUC, which is required to authorize the incurrence of new debt by PPL EU, through the securities certificate approval process. PPL EU has historically maintained, and continues to have in place, the following ringfencing measures:

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- **Bankruptcy protections** – The legal entity corporate organizational structure of PPL EU and its subsidiaries protects PPL EU from affiliate company bankruptcy proceedings. PPL EU is a wholly-owned subsidiary of PPL Corp., and none of PPL EU’s subsidiaries have any active operations, which reduces the risk of bankruptcy.
- **Credit ratings separations** – PPL EU has stand-alone credit ratings from and is monitored separately by ratings agencies.
- **Capital structure requirements** – Under PPL EU’s \$650 million syndicated credit facility, PPL EU is required to maintain a ratio of consolidated debt to consolidated capitalization of not greater than 70%. This covenant restricts the company’s ability to issue additional debt securities above the 70% threshold. PPL EU is required quarterly to certify its compliance with the debt to capitalization covenant to the administrative agent under the syndicated credit facility. In addition, PPL EU targets a debt to capital structure equity content of 54.5%, thereby limiting PPL EU’s indebtedness to 45.5% of total capitalization.
- **Dividend restrictions** – PPL EU must report dividends paid to its parent that are greater than 75% of its prior quarter earnings in support of securities certificates filed with the PUC when requesting authorization to incur additional indebtedness.
- **Prohibition on utility asset sales** – Under PPL EU’s \$650 million syndicated credit facility, subject to limited exceptions, PPL EU is prevented from selling any assets to the extent that the value of all assets sold during the 12 months preceding the date of determination would exceed 25% of the total assets of PPL EU and its consolidated subsidiaries, determined as of the end of PPL EU’s most recently completed fiscal quarter.
- **Collateralization requirements** – PPL EU issues debt in the capital markets that is secured by a first mortgage lien on substantially all of PPL EU’s electric distribution properties and certain of PPL EU’s transmission properties.
- **Prohibitions on intercompany loans** – PPL EU does not have any intercompany loans and does not utilize intercompany borrowings in the conduct of its business or otherwise (however, they do make capital contributions to affiliates)⁶.
- **Maintenance on stand-alone bonds** – From time to time, PPL EU issues First Mortgage Bonds, with semi-annual interest payments. In addition, PPL EU issues its First Mortgage Bonds pursuant to a shelf registration statement filed with the U.S. Securities and Exchange Commission and as such is subject to the annual, quarterly and periodic reporting requirements under the Securities Exchange Act of 1934, as amended.

⁶ Capital contributions from PPL EU to affiliates occur which in turn provides dividend payments back to PPL EU.

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- **Independence of board members** – PPL EU’s board of directors includes members who are officers of PPL Corp. and PPL EU. It does not include any officers of other affiliates, including Kentucky and the United Kingdom, thereby providing independence from its affiliates.
- **Separate bank accounts** - PPL EU has its own bank accounts with one account used for customer receipts and another for cash disbursements. The cash at PPL EU is not commingled with any of the other PPL Corp. entities’ bank accounts.
- **Independent credit** - PPL EU has its own \$650M syndicated credit facility which is used to backstop its \$650M commercial paper program. These borrowing facilities support all the short-term liquidity needs of PPL EU. Any borrowings under these facilities are used directly by PPL EU and are not loaned to or accessed by other PPL Corp. entities.
- **Separate cash forecasting & management** - PPL EU’s cash is forecasted and managed separately. The forecast is used to manage its short term and long-term borrowing requirements based upon the transmission and distribution operations of PPL EU.

Since PPL EU submitted its November 2018 Implementation Plan, the company has not taken or evaluated any measures where ringfencing may be applied. PPL Corp. states that there have been no significant changes in the business to warrant such analysis. As such, PPL Corp. has not completed any formal assessments since the last management audit. In addition, the company contends that PPL EU is wholly-owned by PPL Corp. and intrinsically has multiple ringfencing equivalent measures already in place. Consequently, it believes any additional measures would impose an unnecessary financial burden on customers to either engage independent directors, have an independent compliance administrator perform semi-annual compliance audits, or to procure legal counsel advisory services to explore applicable laws or hypothetical scenarios involving federal bankruptcy laws. Even though PPL EU did not implement anything to satisfy the consultant’s recommendation, they believe that their re-evaluation of prior ringfencing measures and a willingness to consider enhancements sufficed.

Nonetheless, the auditors contend that PPL EU is still exposed to potential risk from its affiliates, especially the relationships with Commerce, Lending and EFC. Ringfencing measures are intended to insulate a regulated utility from the potentially riskier activities of unregulated affiliates. Insulating the utility is intended to ensure the financial stability of the utility and the reliability of its service. As further discussed in Follow-up Finding and Conclusion No. IV-15, simply documenting PPL EU’s relationship and money pool with Commerce, Lending and EFC to the Commission would aid in ringfencing efforts by ensuring appropriate regulatory oversight and approval. Furthermore, other low-cost steps or protections could include requiring additional ringfencing features if PPL EU’s credit rating drops below PPL Corp. (trigger-based ringfencing) or to limit infusion of capital into affiliates beyond its yearly dividend payment (metric based ringfencing).

Follow-up Recommendation – Explore condition-based ringfencing provisions such as limiting capital infusion from PPL EU to affiliates beyond yearly dividend payments and/or requiring more ringfencing if PPL EU's credit rating drops below PPL Corp.'s.

Finding No. IV-15

Prior Situation – The PPL EU relationships with Commerce, Lending, EFC and CEP Reserves appeared to be a de facto and obscure cash pool. These relationships were not well-understood or documented. However, the arrangement appeared to be pseudo money pool in which PPL EU's excess cash could be loaned to other PPL Corp. entities. The consultant felt that this may have been introducing unnecessary financial risk to PPL EU.

Subsequent to the Talen spinoff, PPL Corp. focused on its regulated entities thereby reducing PPL EU's risk of borrowing and lending cash with other subsidiaries. The consultant felt that establishing a conventional corporate money pool with adequate protections for PPL EU would have not only benefitted PPL EU with lower short-term borrowing costs and higher lending returns but also allowed the elimination of, or transactions with, Commerce, Lending, and the other associated entities.

Furthermore, the consultant stated that a conventional corporate money pool should include the following considerations:

- Negotiation of a thorough money pool agreement, policies, and procedures that protected the PPL EU ratepayers and signed by all participants.
- Limited to short-term borrowing and lending.
- Nonregulated affiliates were only lenders, not borrowers, in the money pool unless they had a documented line of credit to cover all borrowings from the money pool and had an investment grade credit rating.
- Borrowing and lending interest rates to PPL EU were as good or better than could be obtained independently from the corporate money pool.
- Appropriate borrowing limits were set for each participant.
- PPL EU keeping a separate bank account.

Prior Recommendation – Consider establishing a conventional corporate money pool and cease the CEP Commerce and CEP Lending relationships.

Follow-up Finding and Conclusion – A formal assessment to establish a corporate money pool was not conducted.

Current Review – In its Implementation Plan, the company planned to evaluate the current affiliate structure and evaluate the feasibility of a conventional money pool. However, as this money pool is outside the control of PPL EU, it's parent and/or affiliates never performed this evaluation. As a result, the previous affiliate relationships detailed in the prior situation still exists (i.e., PPL EU utilizes Commerce, Lending and EFC to manage intercompany cash flow needs).

From time to time, PPL EU may have excess cash on hand, primarily relating to excess capital contributions from PPL Corp., that arises from the need to balance the PPL EU capitalization ratio. To maximize the return on any residual excess cash, cash contributions are made to Commerce then subsequently to Lending and ultimately loaned to EFC on a short-term basis, whereby the earned return generally exceeds

other short-term market options while adhering to PPL EU's investment policy. Overall, PPL EU utilizes its short-term debt capacity to fund ongoing capital expenditures.

However, the auditors contend that if EFC were to default on its short-term demand loans to Lending, Lending in turn would suffer a loss. This would potentially provide a shortfall in available cash to be redistributed to PPL EU, particularly when PPL EU draws upon this structure for capital expenditures or other operation and maintenance costs. In this hypothetical, PPL Corp. would ultimately bear the loss as an additional capital contribution, as additional cash would be required from the parent for PPL EU to maintain the appropriate capitalization structure. Nonetheless, PPL Corp. indicated it does not believe a formal risk assessment of this default risk is necessary because a default by EFC would not negatively affect PPL EU or its ratepayers because PPL Corp. would correct the deficiency before any harm could befall PPL EU.

In addition, cash flowing from PPL EU to another subsidiary could be considered a loan. According to PPL Corp., a capital contribution is generally an equity injection from the parent company whereas a loan is an arrangement to lend cash and typically includes interest as outlined in a loan agreement between the parties. PPL EU stated they periodically receive capital contributions; however, it does not have any intercompany loans with affiliates and does not loan directly to any affiliate. Therefore, it does not directly earn interest income from affiliate loans. Furthermore, PPL Corp. contends that the interest rate charged on all loans is an arm's length market rate appropriate for the term of the loan. All loans are documented in writing and the terms are benchmarked to PPL Corp.'s credit arrangements with third party lenders with similar terms and conditions. To the extent there would be any benefits from lower than short-term borrowings and/or higher lending returns (even if they were available), PPL Corp. believes they would be treated as "below the line" items and not included as part of the regulatory framework that provides benefit to the PPL EU ratepayer. As a result, PPL Corp. suggests that these relationships fall outside the scope of our audits and should not be incorporated into the regulatory decision-making process.

PPL Corp. also states that the relationships with Commerce and Lending allow PPL EU to invest any excess funds in an intercompany loan that provides a higher return than investing those funds on a stand-alone basis. For example, this strategy allowed PPL EU to earn a return significantly in excess of its approved short-term investment on September 30, 2017. Given that PPL Corp.'s credit arrangements are priced based upon a BBB+ rating at S&P, it is reasonable to assume that the level of investment return to PPL EU should always exceed the rate of return of approved short-term investments found in the market.

Exhibit IV-6 shows the capital contributions from PPL EU to Lending which in turn are capital contributions from Lending to EFC. No capital contributions occurred during 2016, and the first transaction occurred in May 2017.

**Exhibit IV-6
PPL Electric Utilities Corporation
PPL EU Capital Contributions to Affiliates
From May 2017 - January 2019**

Date	Capital Contributions
05/23/2017	(380,000,000)
07/11/2017	(40,000,000)
08/08/2017	(30,000,000)
10/05/2017	(30,000,000)
11/14/2017	(20,000,000)
12/20/2017	(1,500,000)
01/04/2018	(50,000,000)
01/31/2018	(15,000,000)
02/08/2018	(25,000,000)
06/14/2018	(300,000,000)
06/19/2018	(350,000,000)
07/27/2018	(15,000,000)
10/11/2018	(40,000,000)
01/10/2019	(20,000,000)
Total	(1,316,500,000)

Source: Data Request AR-36

As discussed above and highlighted by the ability for PPL EU to participate in this money pool (see Exhibit IV-6), PPL Corp. makes a strong case for its existing money pool. Also, if a conventional money pool would be established, any cash to be included from the Kentucky utilities would likely require approval from the various regulators in the states in which PPL Corp.'s Kentucky affiliates operate. PPL contends that the inclusion of cash from WPD is unlikely to be cost beneficial merely due to cross border tax rules.

Based upon PPL Corp.'s consideration of the economics surrounding their current borrowing and lending relationships, corporate wide regulatory and tax considerations, and the fact that any positive or negative findings would not affect the PPL EU ratepayer, they do not believe there is any further justification to make any changes to the existing structure. Although the auditors agree that PPL Corp.'s existing money pool appears to provide PPL EU with a beneficial structure, we do not believe this structure is clearly defined at the Commission through an appropriate affiliated interest agreement. The company asserts that the PPL Electric Utilities Corporation – Amended Services Agreement with PPL Corp. and Certain Subsidiaries (Agreement) covers the money pool. Section A of the Agreement identifies the potential services provided to and from PPL Corp. and PPL Electric. These services include financial and risk management services as stated in Section A.1 and A.2. These sections of the Agreement shown below were provided with emphasis added by PPL Corp. as justification for the affiliate relationships.

A. Services

1. PPL Corp. agrees to provide, on an as-available basis, such services as may from time to time be requested by PPL EU. These services may include management, supervisory, construction, engineering, accounting, legal, financial or similar services, as necessary and appropriate to the safe; efficient and/or cost-effective operation of PPL EU's business. A non-exclusive list of services that may be provided to PPL EU includes, but is not limited to:

- **Management services**
- **Supervisory services**
 - Construction services
 - Engineering services
 - Restoration of utility services
 - Information Technology services
 - External Affairs services
 - Human Resources services
 - Environmental Management services
- **Financial services**
 - Auditing services
- **Risk Management services**
 - Insurance services
- **Legal services**
 - Call Center services
 - Billing services
 - Purchasing services
 - Supply Chain services
 - Real Estate services
 - Facilities Management services
 - Electronic data interchange ("EDI") services
- **Administrative services**
- **Corporate Secretarial services**
- **Other services that may be necessary for the safe efficient and/or cost effective operation of PPL EU's business**

2. PPL EU agrees to provide, on an as-available basis, such services as may from time to time be requested by PPL Corp. These **services may include management, supervisory, construction, engineering, accounting, legal, financial or similar services, as necessary and appropriate to the safe, efficient and/or cost effective operation of PPL Corp.'s business, including, but not limited to, the non-exclusive list of services set forth in Paragraph A(1) above.**

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Section C.1 of the Agreement describes the entities subject to the agreement as follows (emphasis added):

C. General

1. Subsidiary Participation

"PPL Corp." as used in this Agreement includes all subsidiary and affiliated companies of PPL Corp. other than PPL EU and LG&E and KU Energy, LLC's ("LKE") utility subsidiaries Louisville Gas and Electric Company and Kentucky Utilities Company. A current list of PPL's subsidiaries is provided as Appendix A to this Agreement. PPL EU will file an update of this list annually with the PUC. New PPL Corp. subsidiaries that are added before each annual update will be subject to this Agreement in the meantime.

PPL Corp. believes that the description of services in Section A.1 and A.2 and the Subsidiary Participation described in Section C.1 adequately explains the affiliate relationship between Commerce, Lending, and EFC and the money pool. However, the auditors contend this loose framework covers multiple, if not all, interactions or services between affiliates at PPL Corp. Although there is value in these types of "blanket" agreements to both PPL EU and the Commission, they do not adequately explain complex relationships and money pool activities like those explained above. Furthermore, 66 Pa. C.S. § 2102(b) states that:

(b) Filing and action on contract – It shall be the duty of every public utility to file with the commission a verified copy of any such contract or arrangement, or a verified summary as described in subsection (a) of any such unwritten contract or arrangement...

The Agreement on file with the Commission is still in effect, however, it is insufficient to document the money pool relationship with Commerce, Lending, and EFC. Case in point, peer utilities have money pool and/or affiliated interest agreements in place that were approved by the PUC that describe in detail the borrowing/lending policies/procedures/practices to and from affiliates. Therefore, the company should amend its Agreement or file a separate agreement detailing the terms and conditions of the money pool and the relationship between the affiliates engaged within the money pool subject to review and approval by the Commission.

Follow-up Recommendation – Submit for review and approval to the PUC's Bureau of Technical Utility Services, an affiliated interest agreement(s) to document PPL EU's money pool relationships with CEP Commerce, CEP Lending, CEP Reserves, and PPL Energy Funding Corporation.

V. ELECTRIC OPERATIONS

Background – PPL EU (PPL Electric Utilities Corp.) is a wholly-owned subsidiary of PPL (PPL Corporation) and is a regulated electric transmission and distribution business. The company provides electric service to approximately 1.4 million customers in 29 counties across a 10,000-mile service territory. This service territory is split into three regions: Lehigh/Northeast, Central/Susquehanna, and Harrisburg/Lancaster. Distribution Operations consists of distribution asset management & engineering, respond to customer – operations, vegetation management, project and construction management, distribution operations work management, the three regional operations groups, and a training and development specialist.

In this chapter, four prior recommendations and prior situations are reviewed, and four follow-up findings, and three recommendations are presented. The findings relate to IT representation in transmission meetings, CEMI (Customers Experiencing Multiple Outages), the asset management system, and motor vehicle accident rates.

Finding No. V-1

Prior Situation - The TOM (Transmission Operations Model) review and approval processes were managed by TEAM. The TEAM meetings included representatives from asset management, engineering, and construction management and reviewed each transmission project for any barriers or issues that might affect project cost, schedule, scope, safety, reliability, etc. Meanwhile, TAM (Transmission Asset Meeting) monthly meetings were held to formally approve projects at major milestones (i.e., each of the six phase gates). These “challenge” TAM meetings were held with the project team, project sponsors, and stakeholders to review the project status and approve completion of each phase/gate. The TEAM and TAM meetings provided sufficient oversight and control for transmission and substations projects. Many of the projects reviewed included technology and cybersecurity implications or impacts. However, Vondle & Associates was unable to determine if a representative from IT was included in any of these meetings.

Prior Recommendation – Include a representative from the IT Department in TEAM (Transmission Execution and Accountability Meeting) and TAM (Transmission Asset Meeting) meetings as needed.

Follow-up Finding and Conclusion – The IT Department was added to the TAM and TEAM meetings and is part of the new Leadership Review Committee process.

Current Review – As technology progresses, the interdependency between equipment, back office systems, communication, etc. grows. All these interconnections between equipment, communications and security requires a multi-disciplined team to address the various interests within a project. One of those experts should be from the IT department whenever new equipment communicates, must remain secure, etc.

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Prior to December 2015, the Manager of Reliability Assurance, a member of the PPL EU Transmission department, sponsored IT projects at TAM meetings. Beginning on December 3, 2014, the Manager of IT Performance, from the IT department represented the IT department within TEAM and TAM meetings. The Manager of IT Performance is responsible to inform the TAM committee of working budget changes to IT projects, which are approved at the IT/transmission governance meetings.

PPL EU replaced the TEAM meetings with the LRC (Leadership Review Committee) in 2017. IT does not attend LRC meetings but is required to sign-off on each phase of a project involving IT interfaces. The IT department is also used in a supporting role as needed in transmission projects and will attend/host meetings when needed. Although the new structure does not require the IT department to be at all meetings, it ensures that IT can review any projects touching its network, communication, or managed systems. It also gives ample time for IT issues to be raised/considered for any new project before implementation.

Follow-Up Recommendation – None

Finding No. V-2

Prior Situation - PPL EU had focused its efforts on reducing the numbers of customers experiencing multiple interruptions (CEMI) in a year, by monitoring outage performance, identifying causes, and implementing solutions to improve performance. In 2015, the company established CEMI goals of 45,600 (CEMI4+) and zero (CEMI10+). Actual results attained were a CEMI4+ of 23,916 and a CEMI10+ of 4 both of which were significant improvements over performance from 2010 to 2012. Due to these improvements, the consultant recommended that the company transfer its CEMI10+ goal of zero customers to CEMI9+ of zero customers.

Prior Recommendation – Adopt the reduction in the CEMI-10 goal to CEMI-9.

Follow-up Finding and Conclusion – The company has reverted to a CEMI10+ goal of zero customers while excluding major storm data.

Current Review – PPL EU initially adopted a CEMI9+ goal of zero customers experiencing 9 or more outages per year, but after a year with multiple storms in 2016, the company reverted to a CEMI10+ goal of zero customers for 2017. PPL EU was close to reaching its CEMI9+ goal in 2015, but it has not performed relative to that year in subsequent years. In fact, CEMI9+ has been at least 8 times higher than in 2015 and in the proceeding years. PPL EU’s CEMI performance is presented in Exhibit V-1 below.

**Exhibit V-1
PPL Electric Utilities Corporation
CEMI Statistics
For 2015 - 2019YTD***

	CEMI4+	CEMI5+	CEMI6+	CEMI7+	CEMI8+	CEMI9+	CEMI10+
2015	24,055	8,857	2,226	481	160	45	4
2016	39,632	16,099	6,887	2,518	981	575	308
2017	31,660	14,180	5,719	2,218	940	486	125
2018	53,634	26,155	13,242	6,272	2,563	1,205	621
2019YTD*	22,167	8,914	3,418	1,240	539	367	57

*As of August 13, 2019

Source: Data Request EO-5

As of the first quarter of 2019, the company completed a CEMI Program investigation aimed at program processes, metric performance, and improvement areas. Management indicated the company is developing a remediation and implementation plan to address the decline in performance. The company notes the data analytics and trends closely correlate with weather severity, so the company is looking at how metrics are tracked, and leading indicators identified. These in turn can be used to target poor performing areas.

It is widely known that weather can affect electric reliability. In fact, Commission regulations allow for the exclusion of major events from reliability data that is beyond a

utility's control⁷. This reliability data (i.e., SAIFI, SAIDI, and CAIDI⁸) is reported and monitored by the Commission to ensure utility performance levels do not fall below certain agreed upon levels (benchmarks). However, the Commission does not require any utility to file CEMI data, nor has it created a benchmark for CEMI performance. Nonetheless, the auditors discovered that PPL EU is excluding major storms from its CEMI data presented in Exhibit V-1 above. We do not believe major storm data should be excluded from this metric as the exclusion distorts company performance from a metric designed to reflect customer experience and is fundamentally different from the system average concepts of SAIFI, SAIDI, and CAIDI, where exclusions are allowed. In addition, CEMI data is not required to be reported to the Commission as part of the annual public reliability reports but is predominately used for internal purposes. Therefore, excluding major storm data from CEMI is unproductive and misleading.

As mentioned earlier, the company is evaluating how performance metrics should be tracked. This effort should explore the difference between including and excluding PUC Major Event data from CEMI. Business justification for the exclusion of major events should be documented, otherwise major events should be included within CEMI. Although this change will appear as worsening performance, the metric in reality will reflect actual performance experienced by customers. This new data may also encourage additional focus on CEMI or reliability programs to identify pocket problems. The auditors understand that return on investment of CEMI is not as favorable as worst performing circuit programs, sectionalizing, CAIDI initiatives, etc. However, it matters very much to customers. For customers experiencing more than ten outages, their perception of reliable electric service may be very different than a customer experiencing one outage.

Customer perception and satisfaction are influenced by reliability. Clearly the Overbrook case⁹ indicates this point. However, in an adverse weather environment, it may be more difficult to maintain historical reliability levels. While global warming's effect on electric utilities is still unknown, PPL EU has reported an uptick in storm activity. In response to CEMI data and reliability in general, the company has taken action to address its performance, but additional work may be needed. In particular, the company's performance in Exhibit V-1, indicates that improvement can be made. In particular, the company should explore ways to target these pocket problems with existing or new reliability programs.

Follow-Up Recommendation – Include major event storm data in CEMI, meet CEMI goals, and implement additional reliability programs as needed.

⁷ See the final rulemaking order at Docket No. M-00991220 and corresponding regulations at 52 Pa. Code §§ 57.191-57.197.

⁸ SAIFI is the system average interruption frequency index, SAIDI is the system average interruption duration index, and CAIDI is the customer average interruption duration index.

⁹ In fact, at Docket # C-2019-3008683, the Commission ruled that Overbrook Water Company had failed to provide reasonable and adequate water service during a period when insufficient water pressure was available on 10 different occasions.

Finding No. V-3

Prior Situation - PPL EU was in the process of populating the asset management application with line maintenance history data from field inspections and maintenance activities. The data was expected to be used to support greater use of condition-based maintenance and help maintain asset health. It would also supplement existing pole inspection and line patrol results in the system. In particular, PPL EU was collecting information on circuit breakers, transformers, and underground cable vaults via tablet, with a planned completion date of 2017/2018.

Prior Recommendation – Complete the addition of distribution asset condition to the asset management system.

Follow-up Finding and Conclusion – **The company completed the addition of a distribution asset condition to the asset management system but has not yet availed itself of the collected data.**

Current Review – PPL EU uses three tools for asset management at the distribution level: the mobile application tool, the back office tool, and the Air Brake Switch Inspection Form. The mobile application tool is designed to allow employees to report issues found in the field. It enables employees to report damage to specific field assets by selecting buttons with specific conditions. The back office tool displays the existing reports from the mobile application tool and tracks the status of work orders. The location, device, and problem are listed with corresponding notes on the issue. Clicking on a report opens a more detailed page displaying summaries, accessibility, photos of the issue, and fields to input the OMS order and the work order numbers. Finally, the Air Brake Inspection form was built in PPL EU's Restore App, which integrates seamlessly with the company's crew assignment tool. These projects were completed by late 2017.

These distribution asset management tools provide the company with the data needed to steer the maintenance program. For example, line maintenance history data is being reviewed annually, along with other field data, with the goal of improving the maintenance program and supporting the greater use of condition-based maintenance activity related to asset health. However, this program has just started, and the additional data has not yet identified any devices requiring additional maintenance. As more data is populated and PPL EU continues to use its asset management suite, the company hopes to implement additional condition-based maintenance.

Follow-Up Recommendation – **Leverage the collected maintenance data to optimize maintenance activities.**

Finding No. V-4

Prior Situation - PPL EU historically tracked and reported preventable motor vehicle accidents, which represent a subset of all motor vehicle accidents. PPL EU’s 2014 total motor vehicle accident rate was above the third quartile in both the 2014 PSEG Benchmarking Report and the 2015 Southeast Electric Exchange survey (first quarter).

**Exhibit V-2
PPL Electric Utilities Corporation
Motor Vehicle Accident Rate
For 2011 – 2015**

MVA Rate	2011	2012	2013	2014	2015
PPL EU	7.34	10.42	12.25	13.75	10.42
Distribution Operations	7.75	11.68	13.90	15.62	10.85
Transmission and Substations	1.82	3.50	5.73	11.71	8.21

Source: 2016 Stratified Management and Operations Audit of PPL Electric Utilities Corporation, Exhibit VIII-4

Prior Recommendation – Analyze the causes of all motor vehicle accidents and develop or modify the defensive driving program to focus on avoidance of all types of vehicle accidents.

Follow-up Finding and Conclusion – The company analyzed the causes of motor vehicle accidents and developed several defensive driving programs to focus on avoidance of all types of vehicle accidents.

Current Review – To mitigate the causes of DART incidents, the company initiated several programs. In late 2015, the company created a bargaining unit safety advocacy program. It involves Peer-to-Peer coaching by bargaining unit employee to bargaining unit employee. The employees spend two weeks on the road to coach employees on safety and provide anonymous information to management to make changes based on the feedback. This program is in its eighth rotation in three years. Also, in late 2015, PPL EU started the human performance program, which was adapted from a Navy program. This program is focused on identifying irreversible steps, which are actions that, when taken, may cause irreversible harm to people or to service. This program is designed to put tools in place that protect the decision, such as a peer check before an action is taken. See Follow-up Finding and Conclusion No. III-1.

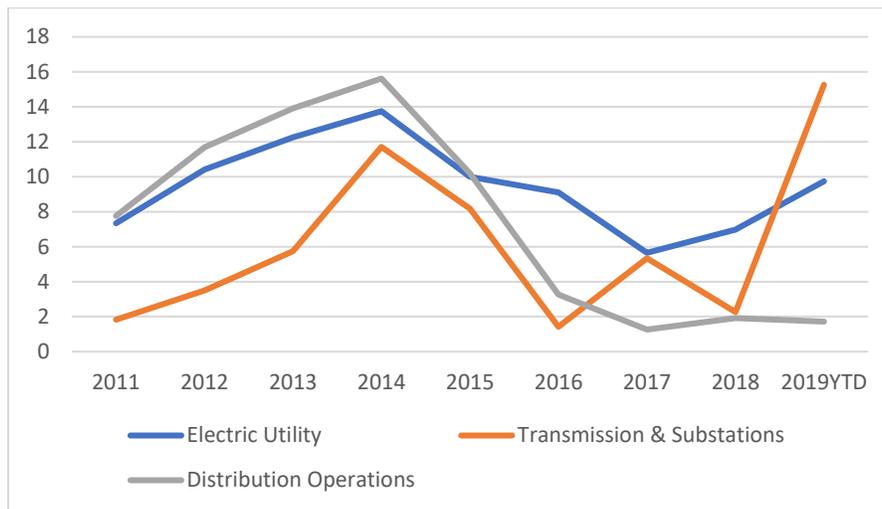
In addition to the overall safety programs mentioned above, the company implemented a number of motor vehicle specific initiatives aimed at improving its motor vehicle accident rate. Specifically, the Smith Driver Training Program, an established driver training program for professional drivers, was started as a pilot in Distribution Operations in late 2016. It teaches driving techniques and uses peer-to-peer ride-alongs, with driver coaching to improve the driving of all employees. The Respond to Customer (RTC) Level 1 Environmental Health and Safety Committee is responsible for scheduling and collection of data for the peer-to-peer ride-along program. This program is administered by the employee union and is aimed at improving safety without

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affecting an employee's performance review. In addition, union safety advocates will perform separate ride-alongs as part of the bargaining unit safety advocate program.

PPL EU also implemented a Driver Skill Enhancement Course in 2016 for the Metering Department. This is an ongoing training, required of all drivers, supervisors, and managers in the Metering Department, once per year. It focuses on backing-up safely and parallel parking and includes both classroom and practical instruction. This program includes a Metering Rodeo, where employees compete against each other in a driving obstacle course. The company's motor vehicle accident rates and its comparison to safety statistics are presented in Exhibits V-3 and V-4, respectively.

Exhibit V-3
PPL Electric Utilities
PPL EU Motor Vehicle Accident Rates
For the Years 2011 - 2019 YTD*

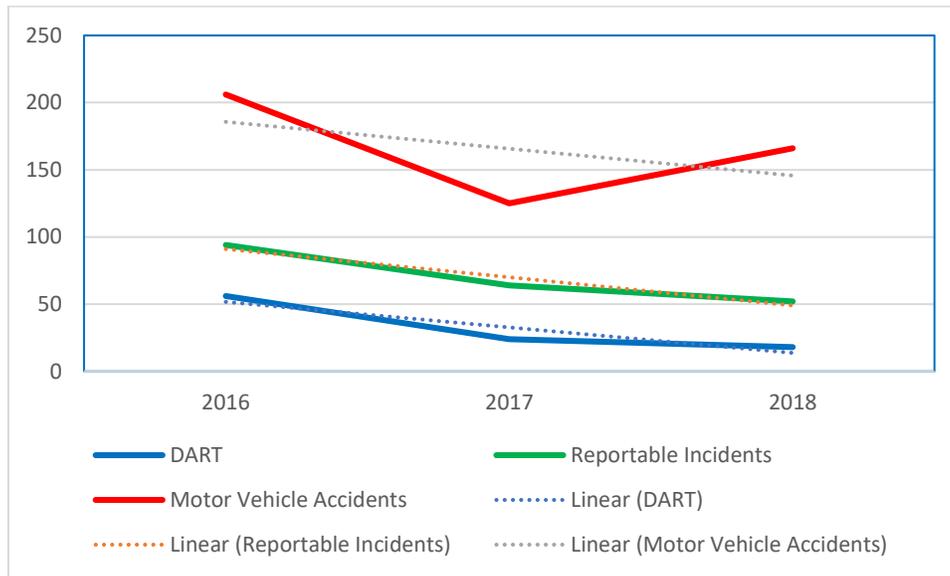


*As of April 23, 2019

Note: Electric Utility represents all departments besides Distribution Operations and Transmission & Substations.

Source: 2016 Stratified Management and Operations Audit of PPL Electric Utilities Corporation, Exhibit VIII-4 and Data Request FT-1

**Exhibit V-4
PPL Electric Utilities
PPL EU, EU Services, & PPL Service Corporation DART, Reportable Incidents,
and Motor Vehicle Accidents Counts
For the Years 2016 - 2018**



Note: DART stands for Days Away, Restricted or Transferred rate.
Source: Data Request FT-4

Management indicated that the improvement in Distribution Operations (DO) and Transmission & Substation’s (T&S) motor vehicle accident rate in 2014 to 2017 was due to its focus on safety and the Smith Driving School program. However, as Exhibits V-3 and 4 indicate, there has been an uptick in motor vehicle accidents in 2018 for the Electric Utility (EU¹⁰) and T&S whereas the rest of the company has improved. Management didn’t provide specific reasons why EU and T&S motor vehicle accidents increased, generally indicating multiple factors for different divisions. For example, Supply Chain and Logistics had numerous changes within management which may have contributed to a lack of focus on safety/accident prevention resulting in an increase in five accidents during this timeframe.

In response to the elevated accident levels in 2018, the company increased the number of site visits and ride-alongs to try to renew focus on accident prevention. Safety and prevention of motor vehicle accidents is a perpetual endeavor requiring refreshers or modifications for new employees, technology, or changes within weather conditions. Furthermore, Exhibits V-3 and V-4 indicate additional work is needed to reduce the company’s motor vehicle accident rates. Therefore, the company should continue to implement its safety programs and review the timing, impact and efficacy of each program. PPL EU should also consider additional focus through its existing programs on departments whose performance worsens.

¹⁰ : Electric Utility represents all departments besides Distribution Operations and Transmission & Substations.

Follow-Up Recommendation – Reduce vehicle accident rates with a particular focus in the Transmission and Substation organization.

VI. EMERGENCY PREPAREDNESS

Background – The 2016 Stratified Management and Operations Audit of PPL Electric Utilities Corporation (PPL EU), conducted by Vondle & Associates, Inc. (consultant) was released on December 8, 2016 at D-2016-2576052, contained 11 recommendations for the Emergency Preparedness functional area (referred to as the “Emergency Response” section within the Management Audit). The consultant rated this area as needing minor improvement. The auditors incorporated the prior recommendations into its review but chose not to report on them due to very minor nature of the deficiencies. Moreover, the audit staff deemed it prudent to perform an updated review of the company’s compliance with PUC regulations at 52 Pa. Code § 101 regarding physical security, cyber security, emergency response and business continuity plans. Therefore, five findings and five recommendations are presented.

To protect infrastructure within the Commonwealth of Pennsylvania and ensure safe, continuous and reliable utility service, effective June 2005, PUC regulations at 52 Pa. Code § 101 (Chapter 101) require all jurisdictional utilities to develop and maintain written physical security, cyber security, emergency response and business continuity plans. Furthermore, in accordance with 52 PA Code § 101.1, all jurisdictional utilities are to annually submit a Self-Certification Form to the Commission documenting compliance with Chapter 101. This form, available on the PUC website, is comprised of 13 questions as shown in Exhibit VI-1.

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

Item No.	Classification	Response (Yes – No – N/A*)
1	Does your company have a physical security plan?	
2	Has your physical security plan been reviewed in the last year and updated as needed?	
3	Is your physical security plan tested annually?	
4	Does your company have a 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?	

* Attach a sheet with a brief explanation if N/A is supplied as a response to a question.
Source: Public Utility Security Planning and Readiness Self-Certification Form, as available on the PUC website at http://www.puc.state.pa.us/general/onlineforms/pdf/Physical_Cyber_Security_Form.pdf

While conducting our Management Efficiency Investigation, the PUC auditors reviewed the most recent Self Certification form submitted by PPL EU to evaluate its responses. Our examination of the company's emergency preparedness included a review of the physical security plan, cyber security plan, emergency response plan, business continuity plan, and associated security measures. In addition, the PUC's audit staff performed inspections at a sampling of PPL EU's facilities. Due to the sensitive nature of the information reviewed, specific information has not been provided as part of the findings and recommendations.

Finding No. VI-1

Additional Finding and Conclusion – Minor security, safety, and other areas for improvement were discovered during facility inspections.

Current Review – Physical security should be continuously reviewed and inspected, and any deficiencies should be addressed as soon as possible. Ideally, risk assessments should identify physical security requirements with critical facilities warranting additional security measures. The auditors randomly inspected several facilities at PPL EU, including office, storage, and operational facilities, while focusing on compliance with PPL EU's Physical Security Plan and PUC regulations.

As inspections were conducted, the auditors noted several minor vulnerabilities or deficiencies in physical security. Most of the deficiencies were due to facility age, oversight, weather, or general wear and tear. In addition, the audit staff contends that a robust program of frequent inspections should have identified these deficiencies. The company performs various inspections, but security inspections are conducted on a multi-year rotation, and thus are not frequent enough to identify these types of minor issues.

To reduce risk, PPL EU should correct the minor physical security deficiencies discovered by the auditors and perform more frequent physical security and safety reviews of all facilities.

Follow-Up Recommendation – Correct minor deficiencies in physical security and safety and deploy additional resources to conduct more frequent inspections.

Finding No. VI-2

Additional Finding and Conclusion – PPL EU relies solely on electronic Safety Data Sheet (SDS) information.

Current Review – During the onsite tours, it was discovered that SDS sheets were unavailable at most locations. Instead, the company relies on a cloud-based approach to update and store the SDS information. Electronically stored SDS are a great solution for accessibility and ensuring the information is up to date but cannot be accessed if the internet is unavailable. For this reason, companies should have a physical paper copy available, either at locations where chemicals are stored or at a location that is staffed 24/7 with backup communications, such as a control center.

Compounding this issue, signs at several facilities inform workers that they are to contact the Distribution Control Center (DCC) for SDS information, but although the DCC has access to the SDS information via the cloud storage solution, hard copies of SDS sheets are not maintained at the DCC. Thus, if there is an internet outage, the DCC will not be able to access SDS information for dissemination upon request. Although the potential for these situations to occur are minimal, required planning for this contingency is relatively minimal. As a result of our review, the company has initiated a full SDS review, and intends to create and maintain printed copies of SDS sheets at its DCCs.

Follow-Up Recommendation – Ensure full access to SDS sheets at all relevant locations by establishing dual-contingency access.

Finding No. VI-3

Additional Finding and Conclusion – Minor cybersecurity policy and plan deficiencies were noted.

Current Review – While reviewing PPL EU’s cybersecurity-related policies and plans, audit staff discovered or suggested opportunities for minor improvements, below:

- The company’s AAR (after action review), has a 90-day completion goal, even though the company routinely completes the process much quicker. Because a delayed AAR tends to be less accurate, it is a best to conduct AARs as soon as possible. Therefore, the company should modify its policy to match its actual performance.
- The Cyber Security Incident Response Team Handbook (PPL’s Cybersecurity Plan, or CSP) does not specifically identify critical components, or how long the company can operate without them. Instead, this information is maintained in another company plan. These documents should be interfaced or added to the Cyber Security Incident Response Team Handbook.
- The Cyber Security Incident Response Handbook does not have direct contact information for external resources like consultants/contractors, law enforcement, national security agencies, etc. Although many groups at the company retain pertinent contact information, it should be included or referenced within the Cybersecurity Incident Response Handbook to facilitate communications in an emergency.
- Although the Mobile Computing Device Policy specifies that company-issued devices must be procured through IT, it has an exception for individuals or departments to procure their own devices with IT’s permission. While no one in the IT department was aware of this permission ever being granted, for security reasons, departments or individuals should never procure their own company-issued devices. Similarly, the Mobile Computing Device Security Standard (distinct from the Policy) allows installation of 3rd party applications on company-owned mobile devices. Whereas applications that violate the standards of integrity are forbidden, this prohibition is not as robust as controls designed to disable installation by non-IT personnel or whitelisting acceptable apps. If these more aggressive measures are used, they should be reflected in the Mobile Computing Device Security Standard.
- The company’s employees are bound by PPL Corporation’s Standards of Integrity. The standards provide a basis for how employees should act dealing with a multitude of different situations, including handling sensitive and/or customer information. However, this could be strengthened for company employees who handle Personally Identifiable Information by also requiring a signed confidentiality agreement.

As cybersecurity is an ever-evolving environment, the company's plans must also take on this dynamic nature. The issues above are minor in nature but offer opportunities to further improve PPL EU's cybersecurity policies and procedures.

Follow-Up Recommendation – Address minor issues with the Cyber Security Incident Response Team Handbook, the Mobile Computing Device Policy, and the Mobile Computing Device Security Standard.

Finding No. VI-4

Additional Finding and Conclusion – Network access controls are not optimal.

Current Review – Utility companies must ensure their networks and computer systems are secure. Part of this process is ensuring sound access security. At some point, a company's policy creates a nexus with its operating environment. Sometimes this policy strengthens the security, improves the operability, or a combination of the two. At other times a certain policy must be paired with active measures to ensure policy compliance or to monitor systems and networks. Lacking these measures can lead to increased risks to some, or all of the company's network, system(s), etc.

Follow-Up Recommendation – Address areas for improvement in network access controls.

Finding No. VI-5

Additional Finding and Conclusion – Additional features for administrator accounts could increase security.

Current Review – PPL EU has not established practices to prevent reusing administrative account passwords between accounts. This increases the possibility that the same passwords are used on different accounts and systems with administrative privileges. Such shared passwords can lead to lateral or additional access to other (or all) systems if a single system was breached. Although neither the audit staff nor PPL EU were aware of any shared passwords, the company's policy and practices may allow it to occur. Therefore, the company should ensure each administrative account has a different password and periodically review for compliance.

Follow-Up Recommendation – Improve administrator account security through periodic review/audit.

VII. MATERIALS MANAGEMENT

Background – Materials management at PPL EU is performed by the Supply Chain organization. Supply Chain is led by a Director and consists of Material Logistics & Operations Warehouse (Logistics Services), Materials Supply (EU Materials Sourcing), Operations Services Supply (EU Sourcing), and Supply Chain Diversity Programs. The Director of Supply Chain reports directly to the PPL EU President. The organization handles sourcing materials and services in support of utility operations, inventory management, supplier performance management, warehousing & logistics, corporate credit card & fuel card administration, and supplier diversity development.

In this chapter, three prior recommendations are reviewed, and three follow-up findings and one recommendation are presented. The findings primarily related to benchmarking, emergency stock, and inactive inventory.

Finding No. VII-1

Prior Situation – PPL EUS Supply Chain had not participated in any recent benchmarking studies to assess and contrast performance with peers. In 2015, the organization established a comprehensive set of performance indicators, covering sourcing and procurement programs, logistics and warehousing, and third-party vendors, but it lacked benchmarking to compliment these metrics.

Prior Recommendation – Participate in a Supply Chain benchmarking study at least every other year.

Follow-up Finding and Conclusion – PPL has participated in benchmarking studies in 2016 and 2019.

Current Review – The Institute for Supply Management[®]'s (ISM[®]) Utility Purchasing Management Group sponsors an annual supply chain benchmarking study. PPL Supply Chain indicated they participated in this study annually from 2016 to 2019. The benchmark study addresses the procurement, materials management, warehousing & logistics and accounts payable supply chain metrics of approximately 30 investor-owned utilities.

External benchmarking provides valuable insight into existing operations and possible deficiencies, or efficiencies, by offering comparative analyses of performance-drivers across similar organizations. Supply Chain indicated that the study spurred an initiative to improve inventory control by developing processes that combat inactive inventory more proactively through inventory forecasting. An inventory forecast operates under the premise that certain inventory items will eventually become obsolete. The forecast estimates the time frame material will remain viable before reaching obsolescence and develops a disposition plan¹¹ that acts before material

¹¹ In inventory terms, the documented control, status and/or usage for a product is planned so inventory can be managed without having materials become obsolete.

becomes obsolete. As a result, the company has leveraged the benchmarking studies to drive improvement and performance within the PPL EUS supply chain.

Follow-up Recommendation – None

Finding No. VII-2

Prior Situation – As of November 2015, emergency stock and spares of \$10,462,126 accounted for approximately 28% of total PPL EU's inventory value. This level is higher than usually seen at electric utilities, which is closer to 20%."

Prior Recommendation – Conduct a comprehensive review of emergency stock and spares at least every two years.

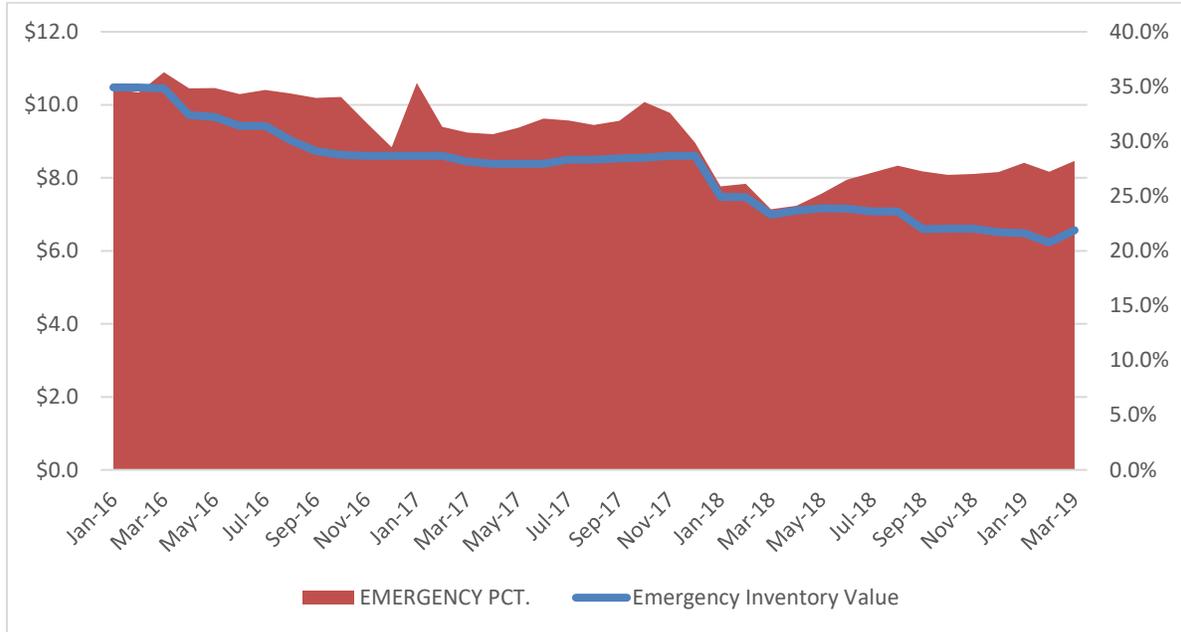
Follow-up Finding and Conclusion – PPL EU conducted a review of its emergency stock resulting in a reduction in the total value of emergency stock.

Current Review – PPL EUS Supply Chain Logistics Services finished a comprehensive review of emergency stock and spares in September 2018. This review included all emergency class distribution and transmission¹² inventory held in PPL EU's Asset Suite inventory management system. Engineers from Transmission Standards and Distribution Standards aided Logistics Services in the review and developed the standards by which parts and equipment are evaluated.

Exhibit VII-1 shows average monthly emergency stock levels and percentage of total inventory for January 2016 through March 2019.

¹² PPL EU maintains two classifications for spare equipment: those stocked as spare parts, and major spare assets. Stocked spare parts are minor units inventoried through the Asset Suite system. Major spare assets are typically larger capital replacement units managed similar to in-service assets and tracked through the CASCADE system.

**Exhibit VII-1
PPL Electric Utilities Corporation
Emergency Stock Levels
For January 2016 - March 2019**



Source: Data Request MM-2

As shown in Exhibit VII-1, PPL EU’s emergency inventory was reduced by approximately \$3.9 million (i.e., from \$10.5 million to \$6.6 million) from January 2016 to March 2019. In this review, the company was not only focused on emergency stock but also reduced non-emergency stock by approximately \$5.7 million over the same time period. This led to no net benefit to emergency reserves (i.e., percentage of inventory classified as emergency stock), which remained high throughout this same period, with values over 28% of total inventory in March 2019. As stated in the prior situation, emergency reserves of approximately 10-20% are typical benchmarks for the electric industry but are influenced by a number of factors.

PPL EU has taken positive steps to improve its inventory levels, even if the effects have not yet materialized in emergency reserve levels. Nonetheless, PPL EU’s efforts have resulted in a reduction in emergency stock of \$3.9 million that represents an annual savings of \$312,000, assuming an 8% carrying cost. PPL EU indicated in its Implementation Plan that it was willing to review inventory every three years, instead of the two highlighted by the consultant.

Follow-up Recommendation – None

Finding No. VII-3

Prior Situation – Although PPL EUS Supply Chain reviewed inventory items with three years of zero usage, the consultant had identified inventory with two years of zero usage to be valued at over \$2 million which represented approximately 7.7% of non-emergency inventory¹³. Consequently, the consultant recommended a two-year threshold of inventory inactivity to garner a review.

Prior Recommendation – Decrease the threshold for review of zero use items from three years to no more than two years.

Follow-up Finding and Conclusion – PPL EU implemented process changes but did not reduce the inventory zero usage review threshold levels.

Current Review – In 2016, PPL EU implemented an updated CID creation process that was expected to improve materials management going forward. The updated process places responsibility and oversight for creating new identification numbers in PPL EU’s inventory system with Supply Chain Category Managers, instead of the individual business lines. This standardized the material identification in the system and streamlined handling processes. However, PPL EU declined to review inventory that was inactive for more than two-years and indicated it would continue reviewing inventory at three-years of inactivity.

Exhibit VII-2 below shows inactive inventory levels at 2, 3, and 4 years as of March 2019. Although PPL EU reduced non-emergency inventory, inventory with no activity for more than two years grew to \$2.4 million and 14.1% of non-emergency inventory’s total book value.

**Exhibit VII-2
PPL Electric Utilities Corporation
Inactive Non-Emergency Inventory Levels
As of March 2019**

MARCH 2019 INVENTORY	> 2 YEARS		> 3 YEARS		> 4 YEARS	
	INACTIVE	% OF TOTAL	INACTIVE	% OF TOTAL	INACTIVE	% OF TOTAL
\$16,700,836	\$2,357,779	14.1%	\$1,599,368	9.6%	\$1,248,479	7.5%

Source: MM-2 and MM-3

Ultimately, the process changes implemented by PPL EU did not reduce inactive inventory in the years since the management audit. As highlighted in Finding and Conclusion VII-2, the company reduced its inventory levels, it just had negligible impact on inactive inventory. The data presented in Exhibit VII-2, suggests there is still

¹³ Per Management Audit Exhibit VIII-6, inactive inventory represented 5.5% of non-emergency and emergency inventory. By eliminating emergency stock, this value is calculated using inactive and non-emergency inventory only.

opportunity to reduce inactive inventory. By the company's definition, it should be reviewing approximately \$1.2 million in inventory. However, expanding this to include inventory over two years inactive would increase the reviewed inventory by approximately \$750,000 (or 4.5% of total non-emergency inventory). Therefore, the company should optimize inventory levels to prevent inactive materials. Additional review of emergency stock can improve efficiency and produces cost savings by minimizing obsolescence, better managing warehouse capacity, and increasing inventory turnover.

Follow-up Recommendation – Review materials with two years of inactivity or more.

VIII. CUSTOMER SERVICE

Background – PPL EU’s Customer Services group consists of six customer-related functions reporting to a Vice President: Customer Service Operations, Customer Experience, Revenue Operations, Regulatory Programs, Business Services, and Advanced Metering. The Vice President Customer Services reports directly to the PPL EU President. The group handles most customer-facing issues including call handling, billing, collections, low income programs, meter reading, complaints, etc.

In this chapter, 14 prior recommendations are reviewed, and 14 follow-up findings and five recommendations are presented. The findings primarily related to performance metrics, bill generation, justified complaints, net write-offs, meter operations, and the On-Track program.

Finding No. VIII-1

Prior Situation – In 2014, PPL EU Customer Services engaged an independent consulting firm to evaluate operations, identify opportunities, and make recommendations. The firm discovered the PPL EU did not compare favorably against certain metrics (i.e., cost per call, cost per customer, and cost per billing FTE hour). Specifically, PPL EU’s per unit costs were significantly higher than the industry average and 1st quartile mean. Although PPL EU Customer Services had explored unit cost metrics, the Customer Services Monthly Performance Indicator Report lacked these metrics and Customer Services had not committed to implementing these metrics as of year-end 2015. As such, PPL EU lacked effective metrics to link service quality performance with the cost to achieve those service levels.

Prior Recommendation – Incorporate unit costs and service quality metrics into the Customer Services Monthly Performance Indicators Report to improve performance management.

Follow-up Finding and Conclusion – PPL EU incorporated unit costs and service quality metrics into the Customer Services Monthly Performance Indicators Report.

Current Review – Customer Services (CS) maintains unit cost performance metrics for the contact center, back office (BO), field operations, and regional metering operations functions. Metrics are organized within the functions by category, unit type, and unit of measurement (e.g., cost per outage-related call in the calls handled category and cost per meter investigation task in the service tech/serviceman category). As of August 2019, CS tracked 40 metrics across the four functions and has captured data since January 2016.

The CS Monthly Key Performance Indicators Report serves as management’s primary data-driven evaluation tool. Previously focused on service quality and budget compliance, CS began including unit cost metrics in the January 2018 report. Unit cost metrics offer an important link between service and cost, portraying the efficiency

between the two. This should allow management to better evaluate the financial implications of performing CS activities based on historical performance.

Follow-up Recommendation – None

Finding No. VIII-2

Prior Situation – PPL EU Customer Services tracked two First Call Resolution (FCR) metrics and the Alert Message Volume and Pricing (Alert Message) metric. These metrics were used to maintain or improve first call resolution and to support customer satisfaction rates during power restoration events, respectively. Although the FCR metrics were included in the Customer Services Monthly Performance Report and used to measure performance, neither the FCR or Alert Message metrics had goals or targets established as of October 2015.

Prior Recommendation – Create targets for the First Call Resolution and the Alert Message metrics.

Follow-up Finding and Conclusion – PPL EU established goals for performance-based metrics.

Current Review – PPL EU established first call resolution (FCR) monthly targets in January 2016 with an initial goal of 80%. CS increased the goal to 84% in January 2017. Overall Associate FCR (i.e., percentage of callers who spoke with a CSR agent and did not call back within 7 calendar days) performance ranged from 87-88% annually since 2016, comparing favorably to 2015 (83%) and 2014 (75%). Meanwhile, no goals or targets were established for the Alert Messaging. Instead the company tracks the level of alerts issued.

Management tracks and monitors FCR performance using the CS KPI Report. From January 2016 – April 2016, the report provided the overall Associate FCR (i.e., percentage of callers who spoke with a CSR agent and did not call back within 7 calendar days); however, as of May 2016, the CS KPI Report has provided the Associate FCR by PPL and vendor-owned call center. In addition, the alert message rate is tracked but not found within the CS KPI Report. Both data points, provide the company with opportunities to create metrics and goals that effectively manage performance.

Follow-up Recommendation – None

Finding No. VIII-3

Prior Situation – The reporting and presentation of billing performance metrics did not adequately focus on errors and instead focused on successful billing. Due to PPL EU’s size, even a small change in the percentage of bills issued accurately could account for a large number of errors that may be overlooked. Nonetheless, PPL EU was successfully meeting their *Bills Issued Timely* (99.9%) and *Bills Issued Accurately* (99.7%) goals as presented in the Exhibits below.

**Exhibit VIII-1
PPL Electric Utilities Corporation
Bills Issued Timely and Accurately
For January 2010 - December 2015**

Metric	2010	2011	2012	2013	2014	2015
Bills Issued Timely (Target 99.9%)	99.94%	99.89%	99.89%	99.90%	99.90%	99.91%
Bills Issued Accurately (Target 99.7%)	NA	NA	NA	99.70%	99.70%	99.70%

Source: Management Audit

**Exhibit VIII-2
PPL Electric Utilities Corporation
Bills Not Issued Timely and Bills Adjusted Performance
For January 2010 - December 2015**

Category	2010	2011	2012	2013	2014	2015
Bills Not Issued Timely	0.06%	0.11%	0.11%	0.10%	0.10%	0.11%
Adjusted Bills Issued	0.35%	0.38%	0.25%	0.20%	0.26%	0.28%

Source: Management Audit

Prior Recommendation – Modify billing metrics to focus attention on error rates instead of billing achievement rates.

Follow-up Finding and Conclusion – PPL EU added the “Error Rates” metrics to their WFM (work-flow management) reports.

Current Review – PPL EU began tracking the number of erroneous bills (inaccurate and no bills issued) in their monthly KPI reports in 2017. Along with this data, PPL EU provides a narrative explaining any known causes and the breakdown of errors between rate classes. Also, in each monthly report, PPL EU explains any actions taken to correct prior or current errors. PPL EU’s error rate and corresponding dollar impact is presented in Exhibit VIII-3.

**Exhibit VIII-3
PPL Electric Utilities Corporation
Bills Not Issued Timely and Bills Adjusted Performance
For January 2017 - December 2019**

Category	2016	2017	2018	2019
% Not Billed - Accounts	0.09%	0.23%	0.14%	0.12%
% Not Billed - Dollars	0.46%	1.01%	1.49%	1.46%

Source: Data Request CS-25 and company provided data

As presented above, the number of billing errors within a month are relatively small compared to PPL EU's 1.4 million customers. However, using metrics that identify error rates helps the company to focus on problems affecting billing. The company has taken the steps to then address these problems and drive improvement.

Follow-up Recommendation – None

Finding No. VIII-4

Prior Situation – Data from meter readings were sent electronically to a bill printing contractor in Connecticut. This contractor printed, and transported customer bills back to Lehigh Valley to a local post office for delivery. However, the consultant contended this process was cumbersome and inefficient. Furthermore, PPL’s contract with the billing vendor had expired in 2013 and wasn’t formally extended providing an opportune time to reevaluate this process.

Prior Recommendation – Analyze the bill printing practices for opportunities to improve efficiencies and reduce costs.

Follow-up Finding and Conclusion – **The company did not make changes to its bill printing practices, instead focusing on electronic billing options.**

Current Review – PPL EU continues to use its Connecticut bill printing contractor for paper customer bills and the process remains unchanged from that described in the prior situation. Moreover, the company extended the contract with the vendor through December 31, 2021. This extension occurred without a request-for-bid or evaluation of the cost effectiveness of the service.

Instead, PPL EU indicated it wants to move customers to paperless billing options and then reevaluate the cost effectiveness of bill printing services. The company has begun to incentivize customers to move to paperless billing, such as offering free LED lightbulbs to those that make the switch. Along with the customer giveaways, PPL EU has been aggressively marketing its paperless billing via the PPL EU website, e-mails, and bill inserts.

Because the paper bill contract costs are based on volume, PPL EU is lowering the cost of the paper bill printing service by moving customers to paperless/electronic billings. However, the company has not evaluated other market offerings for bill printing services for some time¹⁴. It is possible more favorable terms exist that improve reliability, efficiency or cost. Although increasing paperless billing customers is a laudable goal, there may be other platforms that could reduce bill printing costs or could be used in conjunction with traditional paper billing. Therefore, PPL should periodically evaluate the cost effectiveness of all services, like the bill printing service.

Follow-up Recommendation – **Regularly evaluate the cost/benefit of printing services while continuing efforts to expand electronic billing options.**

¹⁴ Audit staff could not identify the last time this service was competitively bid as the original contract was signed on Sept. 17, 2003. While a similar service was added in 2014, it was not clear if this service included a comparison to these billing services.

Finding No. VIII-5

Prior Situation – PPL EU Customer Services tracked metrics for the number and rate of justified informal complaints in its Monthly Performance Indicators Report. The company set a goal to limit the justified informal complaint rate (justified rate) at no more than 5% of PUC informal complaints. The justified rate increased from 4.6% in 2014 to 7.1% in 2015, with nearly half the justified complaints incurred due to dispute process errors.

Prior Recommendation – Revise the Justified Complaints Rate target of “no more than 5%” to 0% and allocate additional resources to analyze and resolve internal controllable errors.

Follow-up Finding and Conclusion – PPL EU has revised its goal for justified complaints rate, but the company’s performance has not met its goal since 2014.

Current Review – An informal complaint is justified when the PUC determines that the utility did not follow Commission procedures, order, or regulations. The data in Exhibit VIII-4 below depicts PPL EU’s annual informal complaint data for 2016 through 2019 YTD.

**Exhibit VIII-4
PPL Electric Utilities Corporation
PUC Informal Complaints
For the Years 2016 - 2019 YTD**

Year	Informal Complaints	Justified Complaints	Percent of Total Justified	Compliance Percentage	PPL Goal
2016	1772	170	9.59%	90.41%	95%
2017	1695	253	14.93%	85.07%	95%
2018	1754	278	15.85%	84.15%	97%
2019*	1134	193	17.02%	82.98%	89%

* data through 8/31/2019
Source: Data Requests CS-6 and 31

The data shows PPL EU’s percentage of justified complaints worsening every year and more than doubling since 2015. Justified complaints fall into one of eight categories: Application for Service, Billing, Collections, Customer Choice, Equipment Issues, Financial Accountability, and Other. Analysis of 2017 and 2018 data revealed that approximately 80% of justified complaints fall into the Billing, Collections, or Customer Choice category. PPL EU attributed the performance degradation beginning in 2017 to CSR departures. On a more positive note, consumers filed far fewer complaints from 2016 - 2018 as compared to the 5,147 in 2014 and 2,209 in 2015.

Justified complaints are the responsibility of various groups within PPL EU. The Customer Services Regulatory Compliance and Business Services (RCBS) organization

is the primary group responsible for answering informal complaints filed by customers with the PUC, working with the PUC's Bureau of Consumer Services (BCS) to address informal complaints, and providing internal compliance-related training and information. RCBS focused on improving education resources, training efforts, and call center software tools to reduce justified complaints. In 2016, RCBS conducted CSR training using new materials, updated its online resource library, and provided updated training videos. An update to the CSR call handling guidance tool was completed in 2018. This Written Utility Report (WUR) Assessment Tool is integrated into the existing CSR software platform and assists in resolving a wide variety of customer issues. The tool is designed to follow regulatory guidelines and provides a documented log of events for each contact/complaint.

However, as Exhibit VIII-4 indicates, justified complaints increased throughout the audit period despite PPL EU's efforts. The auditors acknowledge that new training programs can take time to mature and therefore may undergo natural evolutions that will lead to improved performance. The CSR's experience can affect performance and should improve over time if solely a factor of human error. Nonetheless, human errors and inexperience are preventable causes indicating the training program or additional tools (like the WUR) may need to be improved or tweaked. Therefore, PPL EU should continue to monitor its performance, explore additions/changes to its existing programs/tools, and work to reduce justified complaint rates.

Follow-up Recommendation – Reduce justified complaints and meet company goals.

Finding No. VIII-6

Prior Situation – PPL EU’s net write-offs grew from \$22.93 million in 2007 to \$36.70 million in 2015, a 60% increase over an 8-year period. Despite Customer Services’ use of risk scoring, managed payment plans, live-agent outbound calling, and field productivity improvements (i.e., all actions that should have helped reduce overdue accounts receivable), net write-offs continued to rise.

Prior Recommendation – Take actions to reduce the growth in net write-offs.

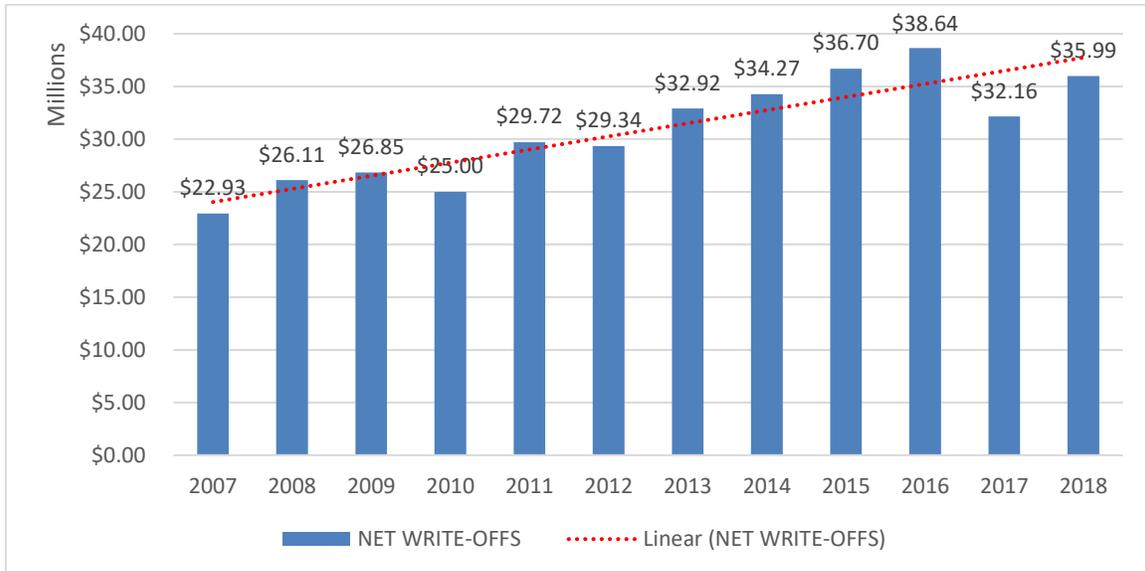
Follow-up Finding and Conclusion – Although PPL EU has diminished the net write-off growth rate, a negative long-term trend still persists.

Current Review – PPL EU took several actions attempting to reduce the long-term growth in net write-offs. Customer Services’ Revenue Operations, which includes the Credit and Collections group, focused on the winter months because of the higher energy bills (i.e., heating costs) and associate impact to customers. The group began performing winter shut offs for the first time in 2015, though only customers more than 250% above the federal poverty guidelines are subject to this process. For low-income customers and others at or below the 250% federal poverty guideline, the group emphasized outreach efforts during the winter moratorium, such as continuing to promote the Low-Income Home Energy Assistance Program into December and January (registration opens in November), and posting 60-day shut-off notices beginning in February (i.e., notifying customer of shut-off once winter moratorium ends).

In addition, the company sought technological upgrades to aid in collection efforts. In 2016, the company contracted third-party software to manage recovery of accounts receivables and distribute uncollectible accounts to collection agencies. Prior to switching software, uncollectible receivables would be sent to collection agencies based on geography. Any collections made on a customer’s account would not be reflected or collection agency performance become available for review until end of the month. By contrast, the new software provides same day notification of customer payments and collection agency performance in real-time. The software also evaluates collection agency performance and adjusts distribution of uncollectible accounts among agencies. In addition to implementation of the new third-party software, PPL contracted with four new collection agencies in 2017.

The data in Exhibit VIII-5 depicts annual calendar year net write-offs for 2007 through 2018.

**Exhibit VIII-5
PPL Electric Utilities Corporation
Annual Net Write-Offs
For the years 2007 - 2018**



Source: Management Audit and Data Request CS-10

Annual net-write off trends since 2016 suggest mixed results in controlling and reducing net write-offs. Net write-offs peaked at \$38.64 million in 2016 before falling to pre-2014 levels in 2017. In 2018, net write-offs increased again and settled at nearly the same level as 2015. This data signals improvement by the company but also highlights the numerous external factors affecting net write-offs (e.g., the polar vortex, changing economic conditions, etc.). Some of these factors are outside the control of PPL EU but nonetheless affect the company's performance. Overall, PPL EU is better positioned to combat net write-offs now than at the end of the prior Management Audit, but they have yet to experience long-term, or even year-over-year, results. The company should continue its expanded outreach and education programs but should consider deploying additional measure where feasible.

Follow-up Recommendation – Reduce net write-offs.

Finding No. VIII-7

Prior Situation - The number of Metering Operations Supervisors had been reduced from six to three, which increased the challenges of managing the field employees. The increased span of control and the transfer of the Work Management Planner/Scheduler had reduced the Supervisor's available time for direct field supervision. To address the increased span of control, the supervisors were directed to focus their oversight on approximately 20 direct reports in the field with less oversight provided to the office support staff.

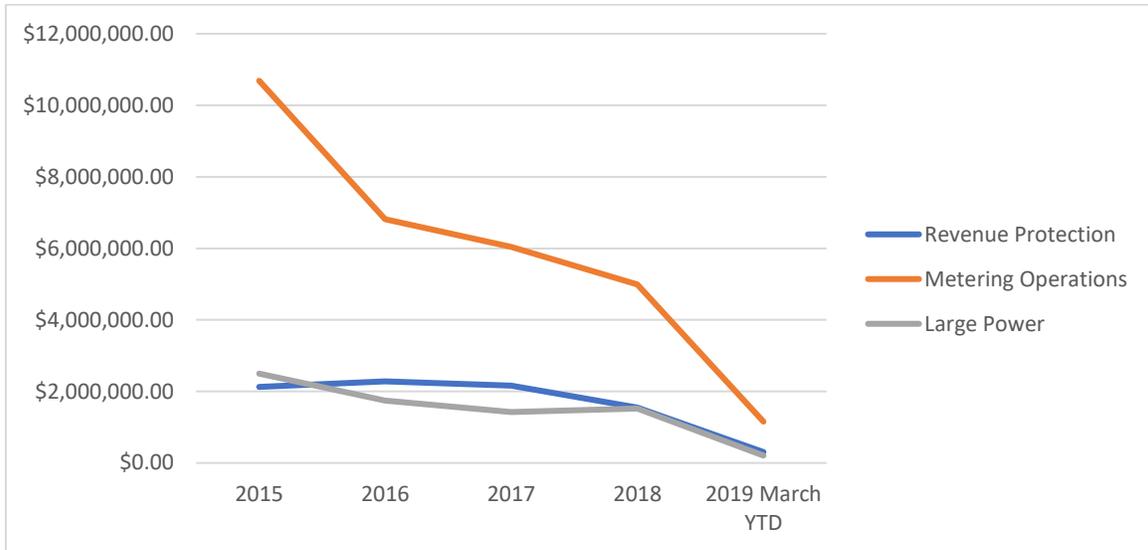
However, because the Metering Operations Field Supervisors were tasked with some of the work management functions, their time spent in the field was reduced. Also, Change Meter Orders (CMOs) were not prioritized efficiently and effectively resulting in an increase in backlogged office work. As a product of these conditions, supervisors were achieving 70% field time (out of office) with a goal of 80%. Therefore, the consultant recommended merging Meter Operations with Revenue Protection.

Prior Recommendation – Merge the Metering Operations and Revenue Protection functions to improve performance and reduce O&M costs.

Follow-up Finding and Conclusion – **The company merged the Metering Operations, Large Power, and Revenue Protection functions to improve performance and reduce O&M costs, but the company is not using key performance indicators to measure the performance of the Revenue Protection function.**

Current Review – Regional Metering, Revenue Protection, and Large Power Functions were merged under one manager in the second quarter of 2017. In addition, the company deployed new advanced meters with rollout starting in 2016 and ending in 2019. These changes led to all three groups experiencing large reductions in O&M spending from 2015 through March of 2019. O&M expenses for this time period related to all three functions are found in Exhibit VIII-6.

**Exhibit VIII-6
PPL Electric Utilities Corporation
PPL EU Revenue Protection, Metering Operations, and Large Power O&M Costs
for the Years 2015 - March 2019**



Source: Data Request CS-15

Overall, the three functions accounted for a reduction of approximately \$7.2 million in O&M expenses from 2015 to 2018. As part of the merger of these functions and improved efficiencies from the new meters, the company used attrition to generate most of the savings. At this time, there are no additional plans to make changes to these functions but as the new meters are leveraged, additional changes/cost reductions will be considered on a case by case basis.

The company uses several metrics or Key Performance indicators (KPIs) to measure the performance of the Metering Operations and Large Power functions. For example, Large Power’s key KPI is 60 Day Past Due and was added in July 2018. This KPI focuses on the Large Power rate class with balances past due for 60 days or more. However, Revenue Protection does not have any metrics or KPIs associated with it.

Moreover, PPL EU also has a Revenue Recovery group that is separate from Revenue Protection. Revenue Recovery focuses on actual recovery of expenses owed by customers from theft, meter inaccuracies, unpaid bills, etc. and has KPIs that include Residential Active 60+ day Overdue, Customer Service Net Write Offs, and Reduce No Bills Outstanding. Meanwhile, Revenue Protection focuses on identification of theft or other meter inaccuracies in the field. They identify the inaccuracy and perform the initial notification to the customer that there is a problem. Revenue Protection does not measure its performance in standard metrics or KPIs. Management indicated Revenue Protection looks at how quickly it is responding to actions but does not formally track this performance.

Although the company has made tremendous progress merging Metering Operations, Large Power, and Revenue Protection functions and saving approximately

\$7.2 million since 2015, the lack of KPIs for the Revenue Protection function leaves the company unable to effectively assess its performance. Instead, metrics or KPIs should be used to monitor operations, improve efficiency, quantify savings, or otherwise measure performance. Therefore, the Revenue Protection group should implement a KPI tracking how fast the unit responds to new work, quantify discovered meter inaccuracies, and/or other metrics showcasing the unit's performance.

Follow-Up Recommendation – Create key performance indicators to track the performance of the Revenue Protection function.

Finding No. VIII-8

Prior Situation – PPL EU’s OnTrack enrollment system lacked the capabilities necessary for customer service representatives (CSRs) to process OnTrack applications by phone. The company expected an initial IT estimate by the third quarter of 2016, which would detail the changes necessary for CSRs to enroll customers in OnTrack. These changes targeted customers that received Low Income Home Energy Assistance Program (LIHEAP) energy assistance. These customers were targeted because both LIHEAP energy assistance and OnTrack target household incomes at or below 150% of the federal poverty level, and customers that received LIHEAP energy assistance already had their income confirmed by the Pennsylvania Department of Human Services.

Prior Recommendation – Accelerate the evaluation of the system changes and other implementation requirements that are needed to have phone agents enroll customers in OnTrack.

Follow-up Finding and Conclusion – PPL EU implemented a new online platform that streamlined the OnTrack application and account management processes and provided additional enrollment methods for low-income customers.

Current Review – PPL EU evaluated an updated enrollment and screening process that could handle both phone and online customer applications. During this evaluation, online options were found to be a priority for customers, resulting in prioritizing development and roll-out of internet-based solutions. The company implemented a new web-based platform in the first quarter of 2017 and began accepting OnTrack applications through the internet in July 2017. This platform replaced the existing system and accommodates multiple ways to submit applications by streamlining the OnTrack application process. In implementing the web-based platform, all applications, regardless of submittal method are processed through the platform’s Remote Entity Portal (REP or online portal).

The new platform is capable of processing OnTrack applications, enrolling and pre-enrolling customers in the OnTrack program, managing enrolled customers, and maintaining customer information. The platform provides various convenience and compliance features, including: passive alert notification banners (e.g., household income over OnTrack threshold, account defaulted within the last 18 months, etc.), account information history, account status (e.g., pending review, pre-enroll, etc.) and age (i.e., days) in status, application tagging, auto-populate certain customer data based on financial statements, and internal controls (i.e., available processing options are limited to customer’s eligibility).

In addition to the online platform, Customer Services completed phone system changes necessary to accommodate phone applications in the third quarter of 2018. As with online and paper-based applications, phone-based applications are processed through the online portal. As described earlier, CBOs would handle phone-based enrollments. The number of online and phone-based OnTrack applications since implementing the new web-based platform are provided below in Exhibit VIII-7.

**Exhibit VIII-7
PPL Electric Utilities Corporation
Online and Phone OnTrack Enrollment
For Years July 2017 - March 2019**

	2017*	2018	2019^
Online/Web	7,136	22,630	5,886
Phone	N/A	4,566	2,739
Total	7,136	27,196	8,625

* July 2017 – December 2017

^ through March 2019

Source: Data Request CS-14

Considering approximately 38,000 OnTrack enrollments were processed in 2018, PPL EU experienced very strong customer reception to both the online and phone enrollment options (i.e., approximately 72%). Customer assistance programs (CAPs) are designed to make utility payments affordable to low-income customers. Utilities should engage customers and, if feasible, implement improvements to better meet the needs of all parties. The OnTrack Program’s web-based platform seeks this balance by increasing accessibility of OnTrack to low-income customers, improving and simplifying account management, and providing additional opportunities for outreach in the future.

Follow-up Recommendation – None

Finding No. VIII-9

Prior Situation – Fraud risk existed in the pre-enrollment, post-enrollment, and recertification process due to manual income verification that relied on customers supplying income evidence that had not been audited and potentially inaccurate and/or difficult to verify. Changes to the household income of enrolled customers, which could change the amount billed to the customer, depended on self-reporting and presented an additional fraud risk.

Prior Recommendation – Continue to explore methods to streamline and reduce fraud risk from the OnTrack household income validation process and then expedite implementation of the improvements.

Follow-up Finding and Conclusion – PPL EU’s online platform streamlined and standardized the process for the OnTrack program.

Current Review – Although the primary purpose of implementing the OnTrack program’s new web-based platform (see Finding VIII-8) is to accommodate online and phone-based enrollment options, it also completely replaced the existing platform, streamlined and standardized the application process across all submission methods, and contained internal controls to help maintain compliance and prevent fraud and errors. One improvement is that income documentation can be attached to the customer’s account electronically. Conditional algorithms are then used to help identify suspicious data. The systems also generate a wide array of alert messages that provide quick notification of relevant application information (e.g., household income over OnTrack threshold, account defaulted within the last 18 months, etc.). Furthermore, the system uses conditional programming where certain functions are only available when certain criteria is met (e.g., enrollment only available when customer is income-eligible). Finally, the platform will automatically perform certain maintenance functions (e.g., cancel agreements, close workflows, and initiate letters when a certain general application status reaches the 18th month bill due date plus five days)

In addition to the internal controls mentioned in the previous paragraph, detailed information of all transactions can be reviewed in the account history tab, including application status changes, work items, manual addition of financial statements, letters sent to the customer, and closed workflows. The result is a platform that attempts to mitigate fraud and improve compliance by streamlining and standardizing enrollments for new and existing OnTrack customers. These capabilities also help to improve the accuracy of applications, catching errors quickly and greatly improve the efficiency of the entire process.

Follow-up Recommendation – None

Finding No. VIII-10

Prior Situation – The Regulatory Programs staff (RPS) oversees the OnTrack agencies for contract performance, auditing the hours that are billed, ensuring enrollment targets are achieved, resolving process problems, assessing the quality of the customer experience, etc. In addition, RPS performs other duties not related to OnTrack. The consultant concluded that the number of full-time employees dedicated to PPL’s OnTrack program is inadequate given the magnitude of the OnTrack program.

Prior Recommendation – Re-evaluate the staff resources that are dedicated to and support the OnTrack program.

Follow-up Finding and Conclusion – PPL EU still uses the same resources to oversee the OnTrack agencies but has expanded its use of technology to enroll customers as well as monitoring OnTrack agencies.

Current Review –To ensure staffing levels were appropriate to meet the needs of the OnTrack program, PPL EU evaluated OnTrack task completion, use of internal resources, contract obligations of CBOs, and reducing the number of CBOs used for the programs. Based upon this 2017 evaluation, the company confirmed that the current pool of resources is sufficient, and no changes were warranted to PPL EU’s resources overseeing the OnTrack program (i.e., 8 supervisors and 43 caseworkers). As discussed in Finding and Conclusion No. VIII-12, the company made changes to the overall program, reducing the number of CBOs.

However, one major focus of the evaluation of the OnTrack program was the use of technology to improve the programs functionality. In particular, the company added the ability to enroll by phone and website. These new offerings are less resource intensive and reportedly have lightened the CBOs’ workload during enrollment. OnTrack serves as a vital component to PPL EU’s low-income programs. Therefore, sufficient resources and offerings are needed to ensure the success of the program. As such, resources, capabilities, and the overall customer interface should be reevaluated periodically to ensure appropriate oversight and support.

Follow-up Recommendation – Regularly re-evaluate resources dedicated to monitoring OnTrack Agencies to ensure appropriate oversight and support.

Finding No. VIII-11

Prior Situation – The number of potentially eligible customers for OnTrack varied significantly depending on the estimation approach. PPL EU estimated the universe of OnTrack customers from household financial information within its customer service system; however, this varied significantly from the confirmed low-income number and estimated low-income customers. The consultant suggested the targets be based on a more analytical understanding of the referral quality, reflecting the probability of receiving an application, probability of meeting eligibility requirements, and the probability for graduation of enrolled customers.

Prior Recommendation – Set OnTrack enrollment targets for the agencies that are based on a more rigorous and analytical estimation process of the universe of eligible customers.

Follow-up Finding and Conclusion – PPL EU still uses enrollment quotas, but now focuses more on processing timeframe goals.

Current Review – When establishing enrollment goals for the agencies, PPL EU considers the following factors:

- Historical numbers of referrals to and enrollment in OnTrack;
- Trend in the number of overdue residential customers;
- Credit and collection objectives; and,
- The capacity of the OnTrack agencies to process timely additional referrals to the program.

Setting enrollment targets can be important for monitoring the performance of OnTrack agencies. However, there are factors outside the control of PPL EU and CBOs that can affect these targets. For example, if an eligible customer fails to send in an application or provide appropriate documentation, the enrollment cannot occur, negatively affecting the enrollment quota. In addition, enrollment quotas can create competing priorities between ensuring accurate information, which may lead to a rejection, and quick turnarounds, which ensures an initial enrollment but may later lead to a rejection.

In response, PPL EU implemented new metrics in 2016 to monitor the performance of the agencies, application turnaround time (TAT) and number of untouched applications. The application TAT expectation is 5 days and measures the time when the agency case worker begins an application to the completion (i.e., enrollment or denied). Meanwhile, the untouched applications are expected to remain at or near zero. If an agency starts to accumulate too many untouched applications, the work will be shifted to another agency.

These new metrics reflect the performance of the CBO more closely, rather than focusing solely on enrollment targets. PPL EU monitors these new metrics in real-time, giving the company the ability to address issues as they arise. As a result, PPL EU is better situated to monitor the performance of CBOs and take appropriate action when

needed.

Follow-up Recommendation – None

Finding No. VIII-12

Prior Situation – PPL EU contracts with ten OnTrack agencies, however, five of those agencies accounted for 79% of enrollments. PPL EU discontinued the contractual relationships with two agencies in late 2015 and early 2016 but the consultant suggested additional reductions could be made with little to no impact to customers.

Prior Recommendation – Reduce the number of existing OnTrack agencies to improve cost effectiveness and performance management of the enrollment and recertification process.

Follow-up Finding and Conclusion – PPL EU reduced the number of OnTrack Agencies from ten to eight and updated its contracts with CBOs.

Current Review – As previously discussed, the CBOs interface with customers interested in the OnTrack program and aid in their enrollment, follow-up, recertification, removal, and graduation from the program. One primary benefit of using CBOs is that they are dispersed throughout PPL EU's service territory and allow local customers to get information and assistance on low-income programs such as OnTrack. As highlighted by the consultant, PPL EU eliminated two prior CBOs and folded their duties into other existing CBOs.

CBOs bill PPL EU hourly for services provided to PPL EU customers. PPL EU is charged regardless of whether the customer is successfully enrolled in OnTrack or not. Based upon PPL EU's review of the OnTrack program discussed in Finding and Conclusion No. VIII-10, the company re-negotiated the contracts with the CBOs in 2018. This update provided more detail on what billable hours are reimbursable and aimed at ensuring higher quality enrollments into the OnTrack program. Both reducing the number of CBOs and the revised contracts directly led to a more efficient and effective OnTrack program.

Follow-up Recommendation – None

Finding No. VIII-13

Prior Situation – Each OnTrack agency submitted a monthly report to their assigned RPS. However, these reports were not consistent with some including corrective actions, detailed data, and summary data while others limited to enrollment data. It was not clear what follow-up, auditing, verification, etc. was conducted or was even possible by the RPS or other PPL EU employees. In addition, the PPL SC internal and external audit function did not audit any aspect of the OnTrack program.

Prior Recommendation – Perform standardized monthly auditing by Regulatory Programs of the OnTrack agencies' monthly reports.

Follow-up Finding and Conclusion – PPL EU's Customer Service Regulatory Programs Group (CSRPG) conducted an audit of the OnTrack program in 2017.

Current Review – The CSRPG conducted an audit in 2017 of the OnTrack program, covering the period of June 2015 through December 2016. Their review discovered a few immaterial anomalies, mostly with the re-enrollment process. In particular, the audit discovered that over 4,600 customers received OnTrack benefits after their 18-month agreement had expired. The discrepancies were mostly due to improper re-enrollment which were largely attributed to the paper-based system.

Instead of spending time to strengthen the paper-based system, PPL EU decided to migrate towards computer-based enrollment. The company created an interface with CBOs to facilitate electronic submission of OnTrack applications. This change also allowed PPL EU to implement controls within the electronic system that prevents erroneous enrollments. For example, an application will be rejected if the applicant isn't a PPL EU customer or if their income exceeds 150% of the poverty level. The system also cross-checks names and addresses to prevent errors and helps to combat fraud by immediately identifying discrepancies.

With these changes, the company indicated that they do not plan to conduct routine audits like the one completed by the CSRPG in the future. Instead, PPL EU contends that the logic built into the system provides added safeguards in the processes. However, the company plans to perform random spot checks and review any unusual conditions as they occur. These controls provide the appropriate oversight needed to manage the enrollment process. However, auditors note that this is a relatively new interface and future conditions may warrant additional safeguards or system logic to further improve the interface.

Follow-up Recommendation – None

Finding No. VIII-14

Prior Situation – The Customer Services Monthly Performance Indicators Report only had three performance indicators related to the OnTrack program (OnTrack Enrollment, Monthly Expenditures and Enrollments, and Year-to-Date Program Costs). These performance indicators did not support PPL EU’s objectives for the OnTrack program with at least one metric, graduation rates, decreasing since 2012. Furthermore, Regulatory Programs was seeking to improve OnTrack agency performance by exploring the use of unit costs and unit performance metrics.

Prior Recommendation – Develop new performance indicators and other metrics that will improve month-to-month management of the OnTrack program and identify changes to the design and eligibility requirements that will improve PPL EU’s ability to meet OnTrack objectives.

Follow-up Finding and Conclusion – PPL EU has developed a series of monthly reports to monitor the performance of the OnTrack program.

Current Review – PPL EU continues to monitor its Target vs. Actual performance indicators for customer referrals, enrollments, and active members. However, as discussed in Finding and Conclusion No. VIII-11, PPL EU has added and focused on timeframe metrics: application turnaround time (TAT) and the number of untouched applications. These new metrics focus on actual performance of the CBOs rather than simple enrollment statistics and provide the company with the proper tools to identify any performance problems. Ultimately, appropriate reinforce common goals, aid in improving efficiency and employee morale, and strengthen an organization’s culture.

Follow-up Recommendation – None

IX. HUMAN RESOURCES

Background – PPL EU human resource services are provided by two separate affiliated service companies. The PPL EUS Human Resources (HR) group is focused directly on PPL EU human resource matters at the employee-level such as performance management, labor and employee relations, compensation administration, and talent acquisition and recruitment, whereas the PPL SC HR group provides strategic and high-level planning for those functions. Both service companies are represented by Vice Presidents (VPs), with the PPL EUS Vice President of HR reporting directly to the PPL EU President despite separate entity status. The PPL EUS HR group is responsible for the findings and recommendations reviewed in this chapter.

In this chapter, four prior recommendations are reviewed, and four follow-up findings and recommendations are presented. The findings primarily related to staffing, staffing planning, and safety.

Finding No. IX-1

Prior Situation – Several PPL EU Customer Service Operations groups (e.g., Regional Metering Operations, Revenue Protection) possess both the functional duties and full-time equivalent (FTEs) staffing levels to justify multi-year employee and contractor staffing forecasts; however, only monthly CSR FTEs at call centers (i.e., two PPL EU call centers, PPL Solutions call center, and non-affiliated contractor call center) are forecasted and only for one-year at a time. However, the forecasts did not consider integrated work-driver and performance-based staffing to identify optimal employee and contractor requirements over a multi-year time horizon.

Prior Recommendation – Develop resource forecasting models for each Customer Services group with significant employee and contractor resources.

Follow-up Finding and Conclusion – **PPL EU should integrate workforce planning efforts throughout the organization by leveraging existing resources to improve planning efforts.**

Current Review – Auditors could not validate the five-year customer service staffing plans completed by PPL EU's Workforce Management Team (WMT) as reflected in the company's implementation plan and progress reports due to the inability to review the plans. Functionally, the company embedded the WMT within the Customer Care Operations and has only minimal ties with Human Resources. Although this structure allows for the WMT to provide tailored and specific services to the Customer Services Organization, it also means that other groups throughout PPL EU are unaware of the services being provided by the WMT. Consequently, best practices may not be employed or shared across the organization.

Although separate from the five-year staff planning process, the Talent Program Manager within PPL EUS Human Resources (HR) produces a strategic workforce plan annually that encompasses all of PPL EU. Prepared mid-year and taking approximately

six weeks from initial data acquisition to published report, the report contains an executive summary, internal employment data, external data (e.g., census, degree information, utility benchmarks, etc.), and analysis. The report is reviewed and approved by the Vice President HR and the intended audience is the PPL EU's leadership team (i.e., the PPL EU President's eight direct reports). Following review by the leadership team, the report is disseminated to the five PPL EU HR Business Partners¹⁵.

Perhaps the most notable aspect regarding the respective Customer Services and Human Resources plans is the lack of any apparent coordination, or even communication, between the two groups. Nor does it appear that producing these studies independently is by design. It is possible that the HR strategic workforce plan provides some support to the five-year staffing plan; however, this wasn't readily apparent. In ideal situations, all staffing or workforce planning efforts should be coordinated or build upon themselves to create a robust and informative process. These studies could then be used to support general operations, planning efforts, help explain deviations in performance, and provide needs-based analysis on potential outsourcing decisions. Failure to coordinate between departments drastically reduces the value of the studies or withholds processes/information that could be beneficial for other parts of the organization.

Follow-up Recommendation – Improve lines of communication and utilize existing information residing in different departments to integrate staffing studies and improve workforce planning.

¹⁵ Business Partners are HR employees embedded within different groups throughout PPL EU that provide direct HR support to those groups.

Finding No. IX-2

Prior Situation - PPL Corporation's employee position and contractor cost budgeting system required five-year forecasted employee and contractor costs for both O&M and capital expenditures by supplying responsibility center (SRC). However, PPL Corp. did not have a companion workforce planning process to develop the future employee position and contractor needs. As a result, the budgeted employee and contractor projections are treated as a financial planning effort and not related to any workforce planning effort typical in most organizations. Instead, the consultant suggested the workforce planning process should anticipate changes in workload, technology, work processes, organization structure, and employee and contractor economics.

Prior Recommendation – Implement a PPL Corporation level workforce planning process to precede the budgeting process for PPL EU, PPL SC, and PPL EUS.

Follow-up Finding and Conclusion – **The PPL Corp. workforce planning process was not been updated.**

Current Review – In addition to the five-year forecast of employee positions and contractor payments by department for both O&M and capital expenditures, PPL EU's budgeting process is supported by a strategic workforce plan that assists management in projecting potential staffing vacancies and providing insight into the candidate talent pool, albeit at a very high-level. It contains basic high-level PPL EU employment data and various breakdowns of the high-level data. An executive summary contains short commentaries on the current workforce, non-retirement turnover, retirement projections, and talent supply. The addendum following the executive summary contains employment data breakdowns by business line, though no commentary or analysis of this data is provided. These pre-budget practices mirror the company's pre-budget practices documented in the management audit. In fact, none of the specific workforce planning efforts discussed by the consultant were incorporated into PPL Corp.'s practices.

To reiterate, PPL EU's use of demographics and composition of existing workforce capital equates to just one component of strategic workforce planning. Appropriate strategic workforce planning should also encompass projected workloads, contractor and consultant utilization, anticipated workforce changes, etc. However, PPL EU's current efforts reflect the organization's current status rather than where they need to be. As PPL EU alluded to in their Implementation Plan, this type of undertaking requires significant resources to complete. The company argued that the consultant did not highlight any specific deficiencies or repercussions from PPL EU's workforce planning.

However, the primary function of strategic workforce planning is to design a process that proactively anticipates current and future workforce needs to ensure the organization possesses the resources and appropriate human capital to meet its business goals. Auditors recognize that this process can be very resource intensive and should be weighted based upon its cost versus benefit by the company. Nonetheless, there are opportunities for PPL EU to incorporate more future looking

components into its staffing plan without performing a detailed strategic workforce plan every year.

For example, a business case for outsourcing a task could be completed one year, determining the optimal resource needs, and then only revisited when major changes occur (see Finding and Conclusion No. IX-4). Alternatively, a reevaluation of a business line could determine the projected resource needs to complete a future initiative (See Finding and Conclusion No. IX-3). In many cases, these small pieces of a strategic workforce plan are already occurring. However, part of the problem, as discussed in Finding and Conclusion No. IX-1, is that these pieces occur at the individual business line or departmental level and are not shared throughout the organization. Instead, these items should be located centrally with the Human Resources Department who can then consolidate, standardize, and capitalize on the information to drive strategic workforce planning.

Follow-up Recommendation – Perform and centralize more extensive and detailed workforce planning as necessary to ensuring the organization possesses the resources and appropriate workforce infrastructure to meet its business goals.

Finding No. IX-3

Prior Situation - When conducted, PPL functional units effectively incorporate staffing and benchmarking studies into workforce planning efforts. For example, staffing plans helped guide distribution operations' long-term workforce planning and IT's management consolidation. Supply chain also identified cost reduction opportunities through informal benchmarking. Unfortunately, staffing and benchmarking studies were not conducted for all functional areas such as Transmission and Substations and the Office of General Counsel.

Prior Recommendation - Conduct a staffing study or participate in a benchmarking study that evaluates staffing levels or labor cost at least every three years.

Follow-up Finding and Conclusion – PPL EU benchmarks at the company level but lacks more specific departmental level benchmarking.

Current Review – PPLEU and EUS' Human Resources leverages external benchmarking metrics from PricewaterhouseCoopers' (PwC) Saratoga Institute and provided summary data for 2015, 2016, and 2017. These high-level metrics evaluate PPL Corp.'s workforce, as a single-unit, compared to companies with 2,001 – 5,000 employees, including other utilities. Unfortunately, Human Resources could not provide staffing studies or employee benchmarking data for individual departments performed on either an internal or external basis.

As presented in Finding and Conclusion Nos. IX-1 and IX-2, PPL EU has taken little action to evolve its staff planning process, including benchmarking. The company contends participation in the existing benchmarks were sufficient to draw comparisons in the absence of identified deficiencies. However, the audit staff asserts that high level data, although useful as a starting point, lacks the granularity needed to drive staffing discussions. Ideally, periodic benchmarking and staffing studies by departments and functional areas in coordination with Human Resources can facilitate the discussion. More granular data should help management evaluate workforce productivity and labor costs, and ensure performance is aligned with the organization's objectives and expectations. Nonetheless, auditors recognize there is limited relevant data (i.e., utility focused) regularly available. Therefore, in select cases, PPL EU should leverage industry partners or trade organizations to generate useful benchmarks.

Follow-up Recommendation – Perform or seek benchmarking of core department-level groups to evaluate staffing and workforce performance.

Finding No. IX-4

Prior Situation – Despite the extensive use of contractors, the company did not evaluate its mix of employees and contractors on a comparable basis as part of its workforce planning process. The absence of a formal evaluation questioned the qualitative and quantitative impact of contractor usage.

Prior Recommendation - Reevaluate the employee and contractor mix in each function on a directly comparable basis during each annual workforce planning process.

Follow-up Finding and Conclusion – **The process to evaluate the employee/contractor mix for the annual workforce planning process has not changed.**

Current Review – PPL EU disagreed with the scope of the original recommendation, arguing annual formal evaluations of all functions would require significant investment and, without evidence that the employee and contractor mix is sub-optimal, unlikely to be cost effective. The company continued to evaluate the employee and contractor mix on a case-by-case basis (e.g., reorganization, new groups within departments, in advance of significant changes, etc.).

The company prefers to reevaluate employee/contractor mixes as deemed appropriate and in smaller ad hoc studies. In support of those efforts, PPL Human Resources (HR) records and maintains the contractor data necessary to evaluate the employee and contractor mix on a case-by-case basis. However, in this workflow HR only acts as a simple repository. Unless HR is the location of the employee/contractor mix being evaluated, any calculations and analysis of the data are the responsibility of the affected department or group.

The audit staff agrees that annual comprehensive formal reevaluations of the employee/contractor mixes may be costly; however, periodic formal reevaluation of all employee/contractor mixes remains a reasonable expectation. A standard requiring reevaluation would be helpful, particularly for major changes, new functions, and/or a specified timeframe such as every five years. This reevaluation would help to ensure relevant and current analysis is used for staffing considerations and support sound business decisions. Furthermore, staggering reevaluation cases across multiple years significantly reduces the resource investment. Auditors recognizes that financial benefit may not be the only influential component for outsourcing decisions. Nonetheless, any justification for outsourcing should be well documented and revisited periodically. Periodically calculating the fully loaded cost of employees and contractors is necessary for precise comparison.

Follow-up Recommendation – **Evaluate the employee and contractor mix ensuring the business case is fully developed and adequately document justifications on a regular basis.**

Finding No. IX-5

Prior Situation – DART is an OSHA safety metric used to measure the number (Count) of injuries and illnesses that resulted in days away, restricted, or transferred from normal duties. The DART Rate is a function of DART and is divided by employee annual hours, relative to the DART benchmark of 200,000 hours per year.

**Exhibit IX-1
PPL Electric Utilities
DART Rate and Count
2011 - 2015**

Factor	2011	2012	2013	2014	2015	2015 Goal
DART Rate	0.47	0.67	0.90	0.47	0.78	0.22
DART Count	2	3	4	2	3	1

Source: 2016 Stratified Management and Operations Audit of PPL Electric Utilities Corporation, Exhibit IX-2

In 2015, the DART Count was three. The DART Count does not reveal any trend, but in every year for the review period the DART Rates were well above the 0.22 target for 2015.

Prior Recommendation – Identify Root Causes for each DART incident and act to correct the underlying problems.

Follow-up Finding and Conclusion – The company has identified the root causes for each DART incident and acted to correct the underlying problems.

Current Review – To mitigate the causes of DART incidents, the company initiated several programs. In late 2015, the company created a bargaining unit safety advocacy program. It involves peer-to-peer coaching by bargaining unit employee to bargaining unit employee. The employees spend two weeks on the road to coach employees on safety and provide anonymous information to management so that management can make changes based on the feedback. This program is in its 8th rotation in its third year.

Also, in late 2015, the company started the human performance program, which was adapted from a U.S. Navy program. This program is focused on identifying irreversible steps, which are actions that, when taken, may cause irreversible harm to people or to service. To identify these steps, a root cause analysis is performed for each DART incident. This program is designed to put tools in place that protect the decision, such as a peer check before an action is taken.

In addition, refresher training on equipment use, based on employee feedback, is now annually required. Prior to 2017, workers were trained on the equipment once, and not retrained unless the equipment changed. The company indicated that the trainings

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described above, plus refresher training initiated in 2017, have led to zero equipment accidents and failures since implementation. Furthermore, as presented in Exhibit IX-2, the company has reduced its DART count, thereby reducing its DART rate by a factor of 3 from 2015 to 2018.

**Exhibit IX-2
PPL Electric Utilities
PPL DART Rate and Count
For the Years 2015 - 2019YTD***

Factor	2015	2016	2017	2018	2019 YTD*
DART Rate	1.17	1.25	0.64	0.44	0.81
DART Count	25	28	12	9	4

Note: These rates are for all of PPL, not just PPL EU as in Exhibit IX-1

*As of 4/12/19

Source: Data Request HR-5

However, during the first quarter of 2019, the DART rate experienced an increase. As a result, the company responded by initiating safety assessments by the safety team at every facility where physical workers are present. These actions, the trainings highlighted above, and the root cause analyses all are key components of a safety program. As a matter of principle, robust safety programs need to be dynamic to address emerging or unusual safety concerns. PPL EU has demonstrated its ability to respond and reduce safety concerns and these efforts are reflected in the reduced DART rate and count.

Follow-Up Recommendation – None

X. MERGER SYNERGY OPPORTUNITIES

Background – In 2010, PPL Corp. purchased the Louisville Gas & Electric company, LLC (LG&E) and Kentucky Utilities (KU) (collectively referred to as LKE). LG&E and KU are integrated electric utilities meaning they provide distribution, transmission, and generation services for their customers. In addition, LG&E also operates a natural gas distribution utility. Furthermore, LKE has a service company, LG&E and KU Services Company (LKE SC), that provides numerous services to LKE such as generation, legal, finance, customer service, supply chain, human resources, etc.¹⁶

In this chapter, one prior recommendation and prior situation is reviewed, and one follow-up finding with one recommendation is presented. The finding relates to potential synergies from the purchase of LKE.

Finding No. X-1

Prior Situation – The PPL Corporation acquisition of E. ON U.S. LLC did not identify any specific merger savings or customer benefits for PPL EU ratepayers, few merger synergies, and any savings to PPL EU from the merger had not been tracked. Much of the merger synergy work through December 2015 was documented in LKE's Best Practice reports to the KPSC. LKE was required by the merger order from the KPSC (Case No. 2010-00204) to file an annual update on the adoption and implementation of best practices at LKE.

From 2011 through 2015, Kentucky and Pennsylvania transmission and distribution operations teams worked together to share practices and processes in the areas of safety, reliability, emergency restoration, construction methods, work management, project management, technology, engineering, and fleet management. The respective organizational structures and businesses were different so most of the sharing was of a general nature. No tangible initiatives, benefits, or cost savings were identified for any of the above interactions. The focus for 2015 and 2016 was on specific issues and use of common systems and applications.

One area PPL Corporation consolidated was the Global Compliance Officer position. In addition, the IT Department had a consolidated leadership team, but it did not have consolidated governance. The CIO reported directly to the LKE SC CFO and indirectly to the PPL EU President. There was no unity in the governance of IT. There was no way to drive action if consensus could not be reached. The consultant argued that regulatory merger conditions can constrain but do not prevent merger synergy initiatives to achieve cost savings or other benefits¹⁷. The consultant further concluded that it was likely significant synergies were still available between the PPL Corporation Pennsylvania and Kentucky operations that could benefit PPL EU.

¹⁶ See the 2016 Stratified Management and Operations Audit of PPL Electric Utilities at Docket No. D-2016-2576052 for more information on the services offered by LKE SC.

¹⁷ See p.617 of the 2016 Stratified Management and Operations Audit of PPL Electric Utilities at Docket No. D-2016-2576052 for more information on the constraints.

Prior Recommendation – Charter a robust merger synergy initiative as constrained by the regulatory merger conditions and follow a well-established process to achieve merger synergies.

Follow-up Finding and Conclusion – The company did not charter a merger synergy initiative, nor did it follow an established process to achieve merger synergies. However, the company realized the benefits of some synergies organically.

Current Review –The LKE Best Practices reports to the Kentucky Public Service Commission identified a few merger benefits, but these were focused on LKE, not PPL Corporation or PPL EU. To be fair, merger benefits were never promised or required as a condition of PA PUC's approval. Therefore, PPL EU never established or chartered a merger synergy initiative to track merger synergies and savings. As conditions warrant, PPL EU and LKE will evaluate and implement best practices. However, the company does not track or identify these best practice initiatives or cost savings as a merger benefit. For this reason, PPL EU was unable to provide a list of cost savings or changes attributed from the merger. PPL EU claimed that any historical synergies would have been captured in the distribution base rate cases of 2010 and 2012. However, neither rate case highlighted any savings to PA customers attributable to the acquisition of the Kentucky Utility.

Nonetheless, PPL EU was able to demonstrate that best practices have been shared informally between PPL EU and LKE, but these are not tracked or qualified as a benefit of the merger. Instead, PPL EU and LKE view these interactions as a normal course of business and are shared directly between individuals at both companies. Some of the best practices that have been shared include the following:

- Transmission Operations for both companies have a monthly call discussing system operator performance evaluations, staffing strategies, supervisor and operator job duties, and lessons learned from events. These discussions have resulted in sharing of metrics for the EMS performance quality, shared peer review/audit lessons learned, customer risk evaluation criteria, and strategies to deal with loss of EMS.
- The NERC compliance groups from the PPL EU and LKE review new or revised NERC Reliability Standards and coordinate ballot comments for PPL EU and Kentucky together on a weekly basis. PPL EU's Manager of Reliability Assurance holds ad-hoc conversations with Kentucky's Manager of CIP Compliance as necessary to discuss questions, approaches, or emerging topics.
- The PPL EU Transmission Asset Strategy team benchmarked with KY from May 2018 through June 2018 to share best practices around PPL EU's Steel Structure Inspection/Repair Program. Feedback on the vendors, successes, challenges, learnings, and accounting practices were shared. In July 2019, PPL EU's Business Strategy and Data Analytics team informally benchmarked data analytics capabilities with KY including a review of KY's organizational structure,

PPL ELECTRIC UTILITIES CORPORATION

how to approach capability startup, and using and implementing data analytics across business operations.

- The HR departments work together quarterly to compare diversity statistics, biannual executive talent succession planning, and employee engagement.
- The IT teams meet quarterly as part of a Cyber Security Council to discuss cyber strategy and best practices. They regularly benchmark against each other in key areas. These teams also meet quarterly as part of a Cyber Best Practices Council to informally discuss major initiatives, projects and/or programs.
- There is a safety information sharing process between PPL EU and LKE. The first meeting implementing this process was held in July 2019 and further meetings were planned.
- PPL EU's Transmission and Substation (T&S) Engineering holds a monthly meeting with Kentucky's T&S Engineering to discuss learnings and best practices on large project engineering. They have covered engineering scope, contract administration, and performance indices.
- There are 17 Compliance and Ethics policies, 5 Financial and Expenses policies, a Social Media policy for Communications, an Enterprise Information Security policy, and an Indemnification for Employees policy for Legal, all of which are shared between PPL EU and the KY utility.
- PPL EU and the KY utility have a quarterly meeting to discuss tooling decisions, project statuses, lessons learned, and program updates. They share lessons learned on larger initiatives, assist each other regarding hiring challenges, share intel on any significant threat affecting utilities, and coordinate security awareness efforts.

When one company acquires another, they can employ a centralized approach where benefits can be realized from identifying and maximizing synergies between the companies. These benefits can often lead to cost savings, improved efficiencies, greater technical competence, etc. Some benefits have been realized at PPL EU from this merger, however, there does not seem to be a drive to identify future merger synergies.

Instead, the companies have relied upon a more decentralized approach. While this decentralized approach likely strengthens groups, teams, and/or individuals engaging in sharing best practices, this approach fails to develop transformational or enterprise wide changes. One way to improve this is to document changes arising from these best practice meetings and sharing them up the management chain. This added highlight can help identify common areas where additional synergies may be possible.

For example, one area highlighted by the consultant as a possible synergy area was the IT departments at PPL EU and LKE. Both groups support their respective utilities and must maintain different software, hardware, networks, etc. However, it may

be possible in the future to integrate or standardize these components by working together and implementing a unified or complimentary system. Clearly, this task is not easy and is dependent upon a number of variables requiring a substantial implementation timeframe. Still, if this type of concept never is discussed or considered, these types of savings will never be realized.

In addition, both PPL EU and LKE have services provided by their respective service companies¹⁸. Similar to the IT constraints, these two organizations operate in different regulatory environments, support different systems, and offer different services. For example, both organizations have separate accounting functions that focus on the unique state needs and are not duplicative. There is no push to explore the integration of these functions and the possibility for consolidation.

PPL EU and LKE are regulated entities in different jurisdictions and must conform to their independent requirements. However, this level of coordination can lead to an improved business model yielding substantial benefits to all parties, including ratepayers. There have been a few examples of these types of synergies. For example, PPL Services provides some accounting and paper remittance processing services to both utilities. Another is that PPL Corporation administers the benefits plan or package for all companies, rather than by individual business. At a minimum, PPL EU should document best practices implemented through discussions with LKE and pass this information up the chain. In addition, the company should consider creating and reevaluating business cases for select strategic synergies for the future as they will take planning, resources, and the right environment to implement effectively.

Follow-Up Recommendation – Explore, capture and consolidate ongoing synergies between PPL EU and the KY utility, and regularly evaluate key and/or strategic processes.

¹⁸ PPL EU receives services from PPL SC and PPL EUS while LKE receives services from LKE SC.

XI. ACKNOWLEDGEMENTS

We wish to express our appreciation to the officers and staff of PPL EU for their cooperation and assistance.

This audit was conducted by Craig Bilecki, Barry Keener, Michael Flynn, and Michael Savage of the Management Audit Division of the PUC Bureau of Audits.

XII. APPENDIX OF VONDLER RECOMMENDATIONS

EXECUTIVE MANAGEMENT

- | | |
|----------------------|--|
| Recommendation II-1 | PPL EU should ensure its non-purchased power operating costs are comparable to its Pennsylvania peers. (Refer to Finding II-3.) |
| Recommendation II-2 | Develop and implement a PPL EU strategic planning process and develop a PPL EU strategic plan. (Refer to Finding II-4.) |
| Recommendation II-3* | Enhance the PPL EU safety program to achieve greater work place safety and employee safety awareness and involvement. (Refer to Finding II-5.) |

AFFILIATE RELATIONSHIPS

- | | |
|-------------------------|--|
| Recommendation IV-1(A)* | Assign responsibility to the appropriate unit within the PPL EUS Financial and Regulatory group to ensure correct affiliate relationships and transactions, follow regulatory compliance, and adhere to good management practices. (Refer to Finding IV-1(A).) |
| Recommendation IV-2(A) | Consolidate PPL EUS into PPL SC and PPL EU and recast PPL SC as the PPL Corporation leadership function. (Refer to Findings IV-2(A) and IV-3(A).) |
| Recommendation IV-3(A)* | Consider establishing a conventional corporate money pool and cease the CEP Commerce and CEP Lending relationships. (Refer to Finding IV-4(A).) |
| Recommendation IV-4(A)* | PPL Corporation should consider further reducing PPL EU's exposure to affiliate relationships and streamline the corporate organization structure. (Refer to Finding IV-5(A).) |
| Recommendation IV-1(B) | Have the TransLink President be a different individual than the PPL Transmission and Substations Vice President and have the TransLink President report to a non-PPL EU executive. (Refer to Finding IV-1(B).) |
| Recommendation IV-1(C)* | Track and document all PPL EU affiliate transactions. (Refer to Finding IV-2(C).) |
| Recommendation IV-2(C)* | Implement controls to increase the amount of PPL SC direct charges and decrease the amount of indirect charges to PPL EU. (Refer to Finding IV-3(C).) |
| Recommendation IV-3(C)* | Analyze the 2015 increase in PPL EU payment amounts to the service companies and reduce the amounts paid going forward. (Refer to Findings IV-1(C) and IV-4(C).) |

* Recommendation selected for follow-up review in the 2020 MEI report, see also Exhibit II-2 for more detail.

APPENDIX OF VONDLER RECOMMENDATIONS (continued)

AFFILIATE RELATIONSHIPS (continued)

- Recommendation IV-4(C)* Analyze the 2015 negative budget variances for charges from PPL EUS to PPL EU and implement measures to prevent recurrence. (Refer to Finding IV-4(C).)

- Recommendation IV-1(D) Negotiate comprehensive, arms-length service level agreements for each affiliate relationship and submit them to the PUC for approval. (Refer to Finding IV-1(D).)

- Recommendation IV-2(D)* Apply asymmetric pricing of affiliate transactions allowing for market pricing of affiliate transactions when it benefits PPL EU. (Refer to Finding IV-2(D).)

- Recommendation IV-3(D) Negotiate a mutual aid agreement with LG&E. (Refer to Finding IV-3(D).)

- Recommendation IV-1(E) Add a specific section on affiliate relationship and transaction policies to the Standards of Integrity and include them in the annual employee training and acknowledgement. (Refer to Finding IV-1(E).)

- Recommendation IV-1(F)* Revise the PPL Corporation Cost Allocation Manual to correct its deficiencies and have it cover LKE as well. (Refer Findings IV-1(F) and IV-2(F).)

- Recommendation IV-2(F)* Have only one PPL Corporation Cost Allocation Manual and follow it for all transactions priced at fully allocated cost, including PPL EU and its affiliates. (Refer to Finding IV-2(F).)

- Recommendation IV-3(F) PPL EU should engage an independent review of the current PPL Corporation tax sharing agreement from the fairness to PPL EU ratepayers perspective, negotiate revisions to the tax sharing agreement as necessary, have arms-length signatures on the revised agreement by PPL SC and PPL EU, and have an independent verification of the taxes charged or credited to PPL EU at least every three years. (Refer to Finding IV-3(F).)

- Recommendation IV-4(F)* Require positive employee time reporting for all affiliate transaction related cost accounting. (Refer to Finding IV-4(F).)

- Recommendation IV-5(F)* Maintain records for regulatory review of the justification and rejustification for all market based prices. (Refer to Finding IV-5(F).)

- Recommendation IV-1(G)* Participate in benchmarking studies for each cost based affiliate service at least once every three years. (Refer to Finding IV-3(G).)

* Recommendation selected for follow-up review in the 2020 MEI report, see also Exhibit II-2 for more detail.

APPENDIX OF VONDLER RECOMMENDATIONS (continued)

AFFILIATE RELATIONSHIPS (continued)

- Recommendation IV-1(H)* Reevalue prior ringfencing measures and consider enhancing PPL EU ringfencing. (Refer to Finding IV-2(H).)
- Recommendation IV-1(I) Voluntarily apply all of the recommended affiliate relationships and transactions good practices in this chapter to the indirect affiliate relationships. (Refer to Finding IV-1(I).)
- Recommendation IV-1(J)* Conduct regular internal audits of affiliate relationships and transactions. (Refer to Finding IV-1(J).)

FINANCE AND ACCOUNTING

- Recommendation V-1 Establish a budget variance threshold policy. (Refer to Finding V-2.)
- Recommendation V-2 Develop a policy and process to review unclassified assets and complete the unitization process to place new assets in proper accounts in a timely manner. (Refer to Finding V-10.)

TRANSMISSION AND DISTRIBUTION

- Recommendation VI-1(A)* Include a representative from the IT Department in TEAM and TAM meetings as needed. (Refer to Finding VI-5(A).)
- Recommendation VI-2(A) Adopt a two or three year review cycle for all Transmission Engineering Instructions and Transmission Construction Standards. (Refer to Finding VI-6(A).)
- Recommendation VI-3(A) Transfer the remaining Transmission Expansion functions to T&S Project Management or T&S Asset Management. (Refer to Finding VI-7(A).)
- Recommendation VI-1(B)* Adopt the reduction in the CEMI-10 goal to CEMI-9. (Refer to Finding VI-4(B).)
- Recommendation VI-2(B)* Complete the addition of distribution asset condition to the asset management system. (Refer to Finding VI-8(B).)
- Recommendation VI-3(B) Complete the planned linkage of substation maintenance cycles in the asset management application. (Refer to Finding VI-14(B).)
- Recommendation VI-4(B) Consider expanding the troubleshooter function to include coverage during the normal work day. (Refer to Finding VI-15(B).)

* Recommendation selected for follow-up review in the 2020 MEI report, see also Exhibit II-2 for more detail.

APPENDIX OF VONDLE RECOMMENDATIONS (continued)

EMERGENCY RESPONSE

- Recommendation VII-1(A) Designate an individual to fulfill the specific role and responsibilities of interfacing with PEMA in a state-wide event. (Refer to Finding VII-3(A).)
- Recommendation VII-2(A) Complete the efforts to coordinate critical system priorities among PPL SC, IT, and PPL EU and integrate the results into the respective emergency response plans. (Refer to Finding VII-4(A).)
- Recommendation VII-1(B) Provide initial training and periodic refresher training on the NIMS structure to the key Emergency Response Plan roles. (Refer to Finding VII-3(B).)
- Recommendation VII-2(B) Modify the number of event levels used in the Emergency Response Plan. (Refer to Finding VII-5(B).)
- Recommendation VII-3(B) Conduct formal after action reviews after all activations of the ECC. (Refer to Finding VII-6(B).)
- Recommendation VII-1(C) Consolidate the business continuity plans for critical applications. (Refer to Finding VII-6(C).)
- Recommendation VII-2(C) Complete the updates to PPL’s cybersecurity documents based upon the lessons learned from the GridEx III exercise. (Refer to Finding VII-6(C).)
- Recommendation VII-3(C) Consider adding a courtesy notification to the PUC in the event of a significant cyber security event to the Corporate Emergency Management Plan. (Refer to Finding VII-6(C).)
- Recommendation VII-1(D) Perform a comprehensive review and update of the PPL EU Emergency Response Plan. (Refer to Finding VII-5(D).)
- Recommendation VII-2(D) Add documentation of plan reviews and revisions to the PPL emergency plans. (Refer to Finding VII-5(D).)
- Recommendation VII-3(D) Develop a summary document defining the action plans and procedures maintained to support compliance with 52 Pa. Code § 101.3 (a). (Refer to Finding VII-5(D).)

SUPPORT SERVICES

- Recommendation VIII-1(A)* Analyze the causes of all motor vehicle accidents and develop or modify the defensive driving program to focus on avoidance of all types of vehicle accidents. (Refer to Finding VIII-5(A).)

* Recommendation selected for follow-up review in the 2020 MEI report, see also Exhibit II-2 for more detail.

APPENDIX OF VONDLER RECOMMENDATIONS (continued)

SUPPORT SERVICES (continued)

- Recommendation VIII-2(A) Convert the Permits spreadsheet to a database. (Refer to Finding VIII-6(A).)
- Recommendation VIII-1(B)* Participate in a Supply Chain benchmarking study at least every other year. (Refer to Finding VIII-1(B).)
- Recommendation VIII-2(B) Improve the consistency in materials controls implementation and tracking of materials activity. (Refer to Finding VIII-5(B).)
- Recommendation VIII-3(B)* Conduct a comprehensive review of emergency stock and spares at least every two years. (Refer to Finding VIII-6(B).)
- Recommendation VIII-4(B)* Decrease the threshold for review of zero use items from three years to no more than two years. (Refer to Finding VIII-7(B).)
- Recommendation VIII-1(C) Monitor the aging of the vehicle fleet and resulting maintenance and availability implications. (Refer to Finding VIII-7(C).)

CUSTOMER SERVICES

- Recommendation IX-1(A)* Incorporate unit costs and service quality metrics into the Customer Services Monthly Performance Indicators Report to improve performance management. (Refer to Findings IX-3(A) and IX-4(A).)
- Recommendation IX-2(A)* Identify root causes for each DART incident and act to correct the underlying problems. (Refer to Finding IX-5(A).)
- Recommendation IX-1(B)* Create targets for the First Call Resolution and the Alert Message metrics. (Refer to Finding IX-1(B).)
- Recommendation IX-2(B) Establish work management and performance metrics and targets for the Major Accounts group. (Refer to Finding IX-4(B).)
- Recommendation IX-3(B) Develop and implement appropriate metrics and targets across all existing and new customer contact channels. (Refer to Finding IX-6(B).)
- Recommendation IX-4(B) Reduce barriers to automated bill payments because of credit card fees. (Refer to Finding IX-7(B).)
- Recommendation IX-5(B) Develop additional metrics and targets for assessing the effectiveness and efficiency, including unit cost performance, of the Energy Efficiency function. (Refer to Finding IX-11(B).)

* Recommendation selected for follow-up review in the 2020 MEI report, see also Exhibit II-2 for more detail.

APPENDIX OF VONDLER RECOMMENDATIONS (continued)

CUSTOMER SERVICES (continued)

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|-------------------------|---|
| Recommendation IX-1(C) | Correct contracting deficiencies and establish a contract management function within Customer Services. (Refer to Findings IX-1(C), IX-2(C), and IX-3(C).) |
| Recommendation IX-1(D) | Develop unit cost metrics that compare dollars spent per job for both Universal Service WRAP and Act 129 WRAP programs. (Refer to Findings IX-1(D) and IX-2(D).) |
| Recommendation IX-2(D) | Develop metrics that track and report comparable KWh saved per administrative dollars spent and per job completed for the Universal Service WRAP and Act 129 WRAP programs. (Refer to Finding IX-3(D).) |
| Recommendation IX-3(D)* | Revise the Justified Complaints Rate target of “no more than 5%” to 0% and allocate additional resources to analyze and resolve internal controllable errors. (Refer to Finding IX-4(D).) |
| Recommendation IX-1(F)* | Merge the Metering Operations and Revenue Protection functions to improve performance and reduce O&M costs. (Refer to Findings IX-1(F), IX-2(F), IX-3(F), and IX-4(F).) |
| Recommendation IX-2(F)* | Modify billing metrics to focus attention on error rates instead of billing achievement rates. (Refer to Finding IX-5(F).) |
| Recommendation IX-3(F)* | Analyze the bill printing practices for opportunities to improve efficiencies and reduce costs. (Refer to Finding IX-6(F).) |
| Recommendation IX-4(F) | Amend, update, or renegotiate the contracts with the two credit contractors to include service level agreements and performance metrics. (Refer to Finding IX-7(F).) |
| Recommendation IX-5(F)* | Take actions to reduce the growth in net write-offs. (Refer to Findings IX-9(F) and IX-10(F).) |

CUSTOMER ASSISTANCE PROGRAMS

- | | |
|------------------------|---|
| Recommendation X-1(B)* | Accelerate the evaluation of the system changes and other implementation requirements that are needed to have phone agents enroll customers in OnTrack. (Refer to Finding X-1(B).) |
| Recommendation X-2(B)* | Continue to explore methods to streamline and reduce fraud risk from the OnTrack household income validation process and then expedite implementation of the improvements. (Refer to Finding X-2(B).) |

* Recommendation selected for follow-up review in the 2020 MEI report, see also Exhibit II-2 for more detail.

APPENDIX OF VONDLE RECOMMENDATIONS (continued)

CUSTOMER ASSISTANCE PROGRAMS (continued)

Recommendation X-3(B)	Implement improvements that will enable PPL EU and its OnTrack agencies to simplify the electricity usage criterion for the eligibility and re-certification processes. (Refer to Finding X-3(B).)
Recommendation X-4(B)	Implement a Low-Income Energy Assistance Programs (LEAP)-type system to streamline the OnTrack referral and enrollment processes. (Refer to Finding X-4(B).)
Recommendation X-1(C)*	Re-evaluate the staff resources that are dedicated to and support the OnTrack program. (Refer to Finding X-1(C).)
Recommendation X-1(D)*	Set OnTrack enrollment targets for the agencies that are based on a more rigorous and analytical estimation process of the universe of eligible customers. (Refer to Findings X-4(D) and X-6(D).)
Recommendation X-2(D)*	Reduce the number of existing OnTrack agencies to improve cost effectiveness and performance management of the enrollment and recertification process. (Refer to Finding X-7(D).)
Recommendation X-3(D)	Establish standard work processes and practices, ensure adequate supervisory performance, and require standardized training standards. (Refer to Finding X-8(D).)
Recommendation X-1(E)	Improve OnTrack outsourcing processes and decisions. (Refer to Findings X-1(E), X-2(E), and X-3(E).)
Recommendation X-2(E)	Develop a more coordinated, structured, and consistent strategy for ongoing and future OnTrack contracting practices and contract and performance management. (Refer to Findings X-1(E) and X-2(E).)
Recommendation X-3(E)*	Perform standardized monthly auditing by Regulatory Programs of the OnTrack agencies' monthly reports. (Refer to Finding X-4(E).)
Recommendation X-1(F)	Establish metrics that will measure the success in meeting the four key and overarching objectives of the OnTrack program. (Refer to Findings X-2(F), X-14(F), and X-15(F).)
Recommendation X-2(F)	Accelerate analysis of actual historical unit costs with the OnTrack agencies and consider changing the contract pricing structure to a unit price per task completed. (Refer to Findings X-4(F) and X-7(F).)

* Recommendation selected for follow-up review in the 2020 MEI report, see also Exhibit II-2 for more detail.

APPENDIX OF VONDLER RECOMMENDATIONS (continued)

CUSTOMER ASSISTANCE PROGRAMS (continued)

- Recommendation X-3(F)* Develop new performance indicators and other metrics that will improve month-to-month management of the OnTrack program and identify changes to the design and eligibility requirements that will improve PPL EU's ability to meet OnTrack objectives. (Refer to Findings X-2(F), X-4(F), X-5(F), X-6(F), X-7(F), X-8(F), X-9(F), X-10(F), X-11(F), X-12(F), X-14(F), and X-15(F).)
- Recommendation X-4(F) Establish periodic operational and compliance audits by the PPL SC internal auditors. (Refer to Finding X-13(F).)

INFORMATION TECHNOLOGY AND SYSTEMS

- Recommendation XI-1 Continue the current IT integrated path of improvement. (Refer to Findings XI-1, XI-2, XI-3, XI-6, XI-7, and XI-8.)
- Recommendation XI-2 Conduct regular ITIL Process Maturity Assessments to identify areas requiring more attention. (Refer to Finding XI-2.)
- Recommendation XI-3 Continue development and implementation of underutilized modules in ServiceNow. (Refer to Findings XI-3 and XI-4.)
- Recommendation XI-4 Evaluate the implications of moving away from ServiceNow. (Refer to Finding XI-4.)
- Recommendation XI-5 Continue building the Service Oriented Architecture platform. (Refer to Finding XI-6.)
- Recommendation XI-6 Evaluate the long-term effectiveness of IT projects, including trending hardware and software write-offs in the financial system. (Refer to Finding XI-8.)
- Recommendation XI-7 Implement five-year period trending in performance metric evaluations. (Refer to Finding XI-15.)
- Recommendation XI-8 Scrutinize the three service company approach for IT. (Refer to Finding XI-16.)

HUMAN RESOURCES

- Recommendation XII-1 Reassign the PPL EUS HR personnel to the appropriate PPL SC HR functional counterpart organization units. (Refer to Finding XII-1.)
- Recommendation XII-2 PPL SC HR should participate in an appropriate HR comprehensive benchmarking study. (Refer to Finding XII-4.)

* Recommendation selected for follow-up review in the 2020 MEI report, see also Exhibit II-2 for more detail.

APPENDIX OF VONDLER RECOMMENDATIONS (continued)

HUMAN RESOURCES (continued)

- Recommendation XII-3 Select and implement HR metrics for each functional area that will measure the effectiveness and efficiency of the function. (Refer to Finding XII-6.)
- Recommendation XII-4 Provide opportunities and encouragement for more employees within PPL SC HR to obtain relevant professional HR certifications. (Refer to Finding XII-9.)
- Recommendation XII-5 Measure all four levels of training effectiveness according to the Kirkpatrick model. (Refer to Finding XII-11.)
- Recommendation XII-6 Update the PPL SC and PPL EU succession plan. (Refer to Finding XII-12.)
- Recommendation XII-7 Improve the HR system self-service portal. (Refer to Finding XII-18.)

EXECUTIVE COMPENSATION

- Recommendation XIII-1 Update the PPL Corporation's Executive Compensation Policy to include accurate definitions of 16 Officers and Tier I and Tier II executives. (Refer to Finding XIII-1.)
- Recommendation XIII-2 The Board of Directors and CGNC should ensure all executives actively participate in the EMPACS process and timely complete the annual EMPACS individual performance review. (Refer to Finding XIII-4.)

DIVERSITY AND EQUAL EMPLOYMENT OPPORTUNITY

- Recommendation XIV-1(A) Identify and correct the cause of inconsistencies and errors in the diversity expenditure report and track Persons with Disability Owned business spend for reporting purposes. (Refer to Finding XIV-2(A).)
- Recommendation XIV-2(A) Analyze the effectiveness of each vendor diversity outreach effort, set appropriate diverse spend goals in each category, and implement initiatives to achieve the goals. (Refer to Findings XIV-3(A), XIV-4(A), and XIV-5(A).)
- Recommendation XIV-1(B) Enhance recruiting efforts to target female applicants. (Refer to Finding XIV-3(B).)
- Recommendation XIV-2(B) Enhance the hiring rates for females and minorities to maintain the parity of PPL EU employees and the labor market. (Refer to Finding XIV-4(B).)

* Recommendation selected for follow-up review in the 2020 MEI report, see also Exhibit II-2 for more detail.

APPENDIX OF VONDLE RECOMMENDATIONS (continued)

DIVERSITY AND EQUAL EMPLOYMENT OPPORTUNITY (continued)

- Recommendation XIV-3(B) Enhance initiatives to improve the female promotion rate. (Refer to Finding XIV-5(B).)
- Recommendation XIV-4(B) Determine the cause of the increase in involuntary and voluntary female terminations and implement initiatives to reduce these termination rates. (Refer to Finding XIV-6(B).)
- Recommendation XIV-1(C) Expand the EEO/AAP tagline on job advertisements to include all requirements. (Refer to Finding XIV-3(C).)
- Recommendation XIV-2(C) Consider identifying mental and physical demands of all jobs and communicating them through inclusion on job descriptions. (Refer to Finding XIV-4(C).)

STAFFING PLANNING PROCESS

- Recommendation XV-1(B) Enhance employee core competencies in transmission project design, contracts and interconnection agreements, protection and control engineering, and field construction. (Refer to Finding XV-1(B).)
- Recommendation XV-2(B) Establish strategic alliances with no more than three engineering services companies for design work. (Refer to Finding XV-1(B).)
- Recommendation XV-1(D) Expand staffing and contractor personnel forecasting models for the call centers from a one-year to a five-year time horizon. (Refer to Finding XV-1(D).)
- Recommendation XV-2(D)* Develop resource forecasting models for each Customer Services group with significant employee and contractor resources. (Refer to Finding XV-2(D).)
- Recommendation XV-3(D) Link and correlate Customer Services' Job Codes and SRC codes to the existing organizational groups to facilitate staffing studies and requirements forecasting. (Refer to Finding XV-3(D).)
- Recommendation XV-1(G)* Implement a PPL Corporation level workforce planning process to precede the budgeting process for PPL EU, PPL SC, and PPL EUS. (Refer to Finding XV-1(G).)
- Recommendation XV-2(G)* Conduct a staffing study or participate in a benchmarking study that evaluates staffing levels or labor cost at least every three years. (Refer to Finding XV-2(G).)

* Recommendation selected for follow-up review in the 2020 MEI report, see also Exhibit II-2 for more detail.

APPENDIX OF VONDLER RECOMMENDATIONS (continued)

STAFFING PLANNING PROCESS (continued)

Recommendation XV-3(G)* Reevaluate the employee and contractor mix in each function on a directly comparable basis during each annual workforce planning process. (Refer to Finding XV-3(G).)

MERGER SYNERGY OPPORTUNITIES

Recommendation XVI-1 Appoint PPL Corporation level executives responsible enterprise-wide for each utility and support service, including transmission, distribution, and customer services. (Refer to Finding XVI-11.)

Recommendation XVI-2* Charter a robust merger synergy initiative as constrained by the regulatory merger conditions and follow a well-established process to achieve merger synergies. (Refer to Findings XVI-1 – XVI-10 and Findings XVI-12 – XVI-14.)

* Recommendation selected for follow-up review in the 2020 MEI report, see also Exhibit II-2 for more detail.

XIII. APPENDIX OF VONDLER FINDINGS

EXECUTIVE MANAGEMENT

- Finding II-1 The PPL EU President and senior management team demonstrate positive leadership of the organization.
- Finding II-2 PPL EU has a well-developed corporate performance management program.
- Finding II-3 PPL EU's operating costs (less purchased power) have escalated over the past five years.
- Finding II-4 Neither PPL Corporation nor PPL EU employ a strategic planning process or develop a strategic plan.
- Finding II-5 Although PPL EU management has taken aggressive measures to improve employee safety performance, 2015 safety performance declined from 2014 results and none of the 2015 PPL EU safety performance targets were met except one.

GOVERNANCE

- Finding III-1 PPL Corporation is well governed.
- Finding III-2 The PPL Corporation Audit Committee is effective.
- Finding III-3 PPL Electric Utilities Corporation (PPL EU) governance policies, practices, and procedures comply with the Sarbanes-Oxley Act of 2002.
- Finding III-4 The PPL EU Board is closely associated with the PPL Corporation Board and other PPL affiliates.
- Finding III-5 PPL Corporation and PPL EU have taken reasonable steps to comply with the PUC's regulations and Code of Conduct at 52 Pa. Code Sections 54.121-123 as to interactions with unregulated affiliates.
- Finding III-6 The PPL EU Board operated for a substantial period of time with fewer Directors than required by the PPL EU Bylaws.
- Finding III-7 Substantial emphasis is placed on ethics and conflict of interest policies and enforcement by the PPL Corporation and PPL EU Boards.
- Finding III-8 PPL Corporation places considerable emphasis on employee safety and has achieved improvement in its safety record.
- Finding III-9 The Company has an effective policy in place for selection and rotation of its external auditor.
- Finding III-10 The Company has an effective policy in place for the control of audit and non-audit services provided by the external audit firm and other audit firms.

APPENDIX OF VONDLE FINDINGS (continued)

GOVERNANCE (continued)

- Finding III-11 The internal audit function effectively supports the Board and management in identifying risks and concerns.
- Finding III-12 Since the Talen spinoff and the accompanying sale of the generation assets and functions, risk to PPL has been diminished greatly.

AFFILIATE RELATIONSHIPS

- Finding IV-1(A) PPL EU has insufficient documentation and oversight of affiliate relationships.
- Finding IV-2(A) There are functional overlaps between PPL SC and PPL EUS that may contribute to redundant work.
- Finding IV-3(A) There is no designated PPL Corporation level authority by function.
- Finding IV-4(A) PPL EU's relationship with CEP Commerce, CEP Lending, PPL Energy Funding, and CEP Reserves appears to be a defacto and obscure cash pool.
- Finding IV-5(A) Although PPL Corporation has greatly reduced PPL EU's exposure to affiliate relationships, it could further reduce PPL EU's exposure to affiliate relationships and streamline its corporate organization structure.
- Finding IV-1(B) The PPL EU Transmission and Substations Vice President also serves as the new TransLink President which creates a conflict of interest or an appearance of a conflict of interest.
- Finding IV-1(C) PPL EU has substantial payments to affiliated service companies and they increased dramatically in 2015.
- Finding IV-2(C) PPL EU transactions with the non-service company affiliates are not regularly tracked and documented.
- Finding IV-3(C) Indirect charges as a percentage of total charges by PPL SC to PPL EU increased significantly in 2015.
- Finding IV-4(C) The PPL EUS actual charges to PPL EU in 2015 were substantially over budget.
- Finding IV-1(D) It is impractical to have one service level agreement cover all of the affiliate relationships.
- Finding IV-2(D) The PPL Corporation and PPL EU Services Agreement does not allow for "market priced" affiliate transactions yet some transactions appear to be market priced.

APPENDIX OF VONDLE FINDINGS (continued)

AFFILIATE RELATIONSHIPS (continued)

- Finding IV-3(D) Although PPL EU has mutual aid transactions with its affiliate LG&E, the only LKE mutual aid agreement is with KU doing business as Old Dominion alone.
- Finding IV-1(E) The PPL Corporation Standards of Integrity relative to affiliate relationships and transactions can be improved.
- Finding IV-1(F) Having a PPL Corporation Cost Allocation and Transfer Pricing Manual is a good practice; however, it should cover all subsidiaries.
- Finding IV-2(F) The PPL Corporation Cost Allocation Manual has several weaknesses.
- Finding IV-3(F) PPL Corporation and some of its subsidiaries have in place a tax sharing agreement/policy; however, PPL EU has not signed the agreement and there is no independent verification of the amount of taxes charged to PPL EU.
- Finding IV-4(F) The extensive use of fixed time allocations and exception time reporting is inappropriate and may result in inaccurate cost accounting.
- Finding IV-5(F) There is no documentation for affiliate transactions at market rates.
- Finding IV-6(F) Affiliate Asset Transfers have been immaterial.
- Finding IV-1(G) Outdated benchmarking studies were provided for two affiliate services.
- Finding IV-2(G) Compensation and benefit benchmarking studies are good practices but do not provide adequate cost benchmarking for service company functions.
- Finding IV-3(G) Most PPL EU affiliates services do not have current benchmarking studies.
- Finding IV-1(H) The Talen spinoff greatly reduced the exposure of PPL EU to affiliate financial and other problems.
- Finding IV-2(H) PPL EU has weakened its ringfencing from affiliate risks.
- Finding IV-1(I) Indirect affiliates present similar risks to PPL EU ratepayers as direct affiliates.
- Finding IV-1(J) There has been no internal audit of PPL SC cost accounting and allocation or any of the affiliate relationships and transactions since 2010.

APPENDIX OF VONDLE FINDINGS (continued)

FINANCE AND ACCOUNTING

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| Finding V-1 | The PPL EU forecasting and budgeting processes are performed efficiently and effectively. |
| Finding V-2 | Budget variance thresholds have not been established. |
| Finding V-3 | Accounting functions and practices are guided and supported by appropriate documentation. |
| Finding V-4 | PPL EU has access to adequate liquidity for its short-term borrowing needs. |
| Finding V-5 | The degree of emphasis on performance management in the Accounting and Finance area is appropriate for an electric utility. |
| Finding V-6 | PPL EU's credit ratings have been upgraded which has resulted in lower borrowing costs. |
| Finding V-7 | PPL EU has been a net recipient of corporate funds over the past five years. |
| Finding V-8 | EU's utilization of a contractor for 10% of its remittance processing helps ensure backup capability. |
| Finding V-9 | Internal Audit's utilization of comprehensive audit material improves its effectiveness and efficiency. |
| Finding V-10 | There have been significant delays in closing construction projects. |
| Finding V-11 | Sufficient controls are in place to ensure the accuracy of changes made to customer rates. |

TRANSMISSION AND DISTRIBUTION

- | | |
|-----------------|--|
| Finding VI-1(A) | The Transmission Operations Model (TOM) establishes a well-defined process for project oversight. |
| Finding VI-2(A) | Standardized construction specifications have been developed for Substation Construction projects. |
| Finding VI-3(A) | The T&S Asset Management group utilizes robust applications and technologies to manage system assets. |
| Finding VI-4(A) | T&S has developed and maintains a strong set of performance indicators. |
| Finding VI-5(A) | The Transmission Execution and Accountability Meeting and Transmission Asset Meeting attendees do not appear to include representation from the IT Department. |

APPENDIX OF VONDLE FINDINGS (continued)

TRANSMISSION AND DISTRIBUTION (continued)

- Finding VI-6(A) A number of the transmission and substation specifications and construction standards appear to be out of date.
- Finding VI-7(A) The Transmission Expansion group has not been completely integrated into other work units.
- Finding VI-1(B) The Distribution Operating Model (DOM) is a good practice for managing programs.
- Finding VI-2(B) Electric Service Reliability has shown improvement over the past five years.
- Finding VI-3(B) Tree-related outages and equipment failure remain as the top two outage causes.
- Finding VI-4(B) The CEMI Program to reduce the number of customers experiencing multiple outages is working.
- Finding VI-5(B) A well-defined program is in place for the analysis of failed distribution equipment.
- Finding VI-6(B) Distribution Standards is completing a comprehensive review and updating of specifications and standards.
- Finding VI-7(B) The deployment of Smart Grid technologies should improve overall distribution system performance.
- Finding VI-8(B) Detailed condition data for lines is being added to the asset management application to drive condition-based maintenance decisions.
- Finding VI-9(B) Distribution Operations has implemented a robust set of performance indicators.
- Finding VI-10(B) The transition from paper records to a database for maintenance of relay settings and testing records is a good practice.
- Finding VI-11(B) The enhanced Vegetation Management program appears to be having a generally positive impact on reducing tree related outages.
- Finding VI-12(B) Implementation of the geospatial application in Vegetation Management will provide more accurate records of transmission corridor vegetation conditions.
- Finding VI-13(B) Implementation of the Universal Outage Alert System is a progressive step to inform affected customers.

APPENDIX OF VONDLE FINDINGS (continued)

TRANSMISSION AND DISTRIBUTION (continued)

- Finding VI-14(B) Work orders for substation equipment are currently generated manually and added into the asset management application.
- Finding VI-15(B) PPL EU has a dedicated troubleshooter organization, however it is only responsible for responding to outages occurring outside of normal work hours.

EMERGENCY RESPONSE

- Finding VII-1(A) The Corporate Business Continuity, Emergency Management, and Corporate Security policies and plans are comprehensive, well structured, and actively maintained.
- Finding VII-2(A) The enterprise-wide plans are regularly exercised and include the involvement of external responders.
- Finding VII-3(A) The Emergency Management Plan does not provide specific guidance for participating in a unified command structure under PEMA in major state-wide emergencies that also impact PPL Corporation facilities.
- Finding VII-4(A) The business and systems recovery priorities established in the Corporate Business Continuity Plan are not coordinated with the IT cyber security recovery priorities and PPL EU emergency response priorities.
- Finding VII-1(B) Emergency response roles are well defined and supported by procedures and checklists.
- Finding VII-2(B) Plans are regularly exercised and a training program is established for storm roles.
- Finding VII-3(B) Initial training on the National Incident Management System (NIMS) structure has been provided to the individuals who perform the Director of System Emergency (DSE) role, and the System Support Director (SSD) role.
- Finding VII-4(B) Three performance scorecards are under development to measure storm response effectiveness.
- Finding VII-5(B) Emergency Response Plan event levels need to be revised.
- Finding VII-6(B) PPL EU currently does not conduct formal after action reviews for Level 1 or 2 events.
- Finding VII-1(C) IT is actively involved with cyber security programs and trends and has implemented a number of good practices to reduce chances of a serious security breach.

APPENDIX OF VONDLE FINDINGS (continued)

EMERGENCY RESPONSE (continued)

- Finding VII-2(C) The IT cyber security program has been evaluated by numerous external security entities.
- Finding VII-3(C) The cyber security prevention and response plans are regularly exercised and a training and awareness program is established for employees.
- Finding VII-4(C) IAG utilizes a good version control and revision history approach for its cyber security documentation with regular reviews and updates.
- Finding VII-5(C) There are a large number of recovery plans and security plans that have been developed as systems and issues evolved.
- Finding VII-6(C) Modifications to PPL's cybersecurity documents are pending based upon lessons learned from the GridEx III exercise.
- Finding VII-1(D) The PPL Corporation Business Continuity Plan, Emergency Management Plan, and Corporate Security Plan content address at a corporate level the 52 Pa. Code § 101.3 plan requirements.
- Finding VII-2(D) The IT cyber security plans meet the requirements of 52 Pa. Code § 101.3.
- Finding VII-3(D) Annual self-certification forms regarding PPL EU compliance are submitted to the Commission pursuant to the § 101.4 reporting requirements.
- Finding VII-4(D) The version control of the PPL Corporation emergency plans and policies did not capture annual reviews in which no changes were made.
- Finding VII-5(D) PPL EU has not reviewed and updated the Emergency Response Plan annually.
- Finding VII-6(D) PPL EU does not maintain a document defining the action plans and procedures used in compliance of subsection (a) of 52 Pa. Code § 101.3.

SUPPORT SERVICES

- Finding VIII-1(A) Co-locating an instructor with the Control Center staffs is a good practice.
- Finding VIII-2(A) Technical Development and Improvement maintains a comprehensive set of performance indicators.
- Finding VIII-3(A) Implementation of the multiple level safety meetings will help improve safety performance.
- Finding VIII-4(A) Overall PPL EU and Contractor safety performance has shown some improvement.

APPENDIX OF VONDLE FINDINGS (continued)

SUPPORT SERVICES (continued)

- Finding VIII-5(A) The PPL EU Motor Vehicle Accident Rate is high.
- Finding VIII-6(A) The Environmental Compliance group is using a spreadsheet to track permits.
- Finding VIII-1(B) Although Supply Chain has established a comprehensive set of Performance Indicators for 2015, it has not participated in any recent benchmarking studies to assess its performance with peers.
- Finding VIII-2(B) Supply Chain has contracted with third party logistics providers for selected products.
- Finding VIII-3(B) PPL inventory turnover was over 3.0 times on an annual basis for 2013 and 2014 and 2.46 in 2015.
- Finding VIII-4(B) The level of inventory returns has improved.
- Finding VIII-5(B) Several materials locations underperformed the 2015 Cycle Count Accuracy target.
- Finding VIII-6(B) Emergency stock and spares are a significant percentage of PPL inventory.
- Finding VIII-7(B) Reviews of inventory items with zero usage are not conducted frequently enough.
- Finding VIII-1(C) Transportation Services has implemented several good initiatives to reduce costs.
- Finding VIII-2(C) Transportation Services maintains a customer focused set of performance measures.
- Finding VIII-3(C) Transportation Services has provided good overall fleet availability.
- Finding VIII-4(C) PPL fleet management is performing well compared to peers.
- Finding VIII-5(C) The development of standardized specifications for vehicle purchase is largely completed.
- Finding VIII-6(C) The fleet management system application version was updated in December 2015.
- Finding VIII-7(C) The PPL fleet age is increasing but the average fleet age generally remains under the replacement consideration trigger.

APPENDIX OF VONDLER FINDINGS (continued)

CUSTOMER SERVICES

- Finding IX-1(A) Customer Services has been undergoing significant changes affecting strategies, organizational design, service quality, and staffing configurations that are likely to improve the customer experience and reduce operating costs.
- Finding IX-2(A) PPL EU has consistently ranked highest among large utilities in the East Region on the J.D. Power's Electric Utility Residential Customer Satisfaction Study.
- Finding IX-3(A) Analyses of unit costs in 2014 showed that certain PPL EU customer services costs were higher than industry averages.
- Finding IX-4(A) The Customer Services Monthly Performance Indicators Report lacks key information to improve performance management.
- Finding IX-5(A) Customer Services is not meeting its Days Away, Restricted and Transferred Safety target.
- Finding IX-1(B) The First Call Resolution and the Alert Message metrics do not yet have targets.
- Finding IX-2(B) Several call center metrics are near their targets.
- Finding IX-3(B) Customer Services implemented an important state-of-the-art tool that should significantly improve the CSRs' ability to serve the customer.
- Finding IX-4(B) Major Accounts does not have work management metrics that track the numbers of work units and costs expended to deliver the services.
- Finding IX-5(B) The newly created Customer Experience (digital strategies) team represents a commendable strategy to consolidate a number of necessary responsibilities and skills that are needed to expand and provide a changing multi-channel experience, improve the customer experience, and reduce costs.
- Finding IX-6(B) Customer Services has not measured the cost impacts associated with increasing customer use of the web and IVR channels.
- Finding IX-7(B) Some customers are reluctant to enroll in automated bill payments with credit cards because of fees.
- Finding IX-8(B) Customer Services' market research program is comprehensive and appropriately focused on process and performance improvement.
- Finding IX-9(B) The EE&C Plan's MWh savings were forecast to exceed the year-end 2015 target while expenditures were at or below budget.

APPENDIX OF VONDLER FINDINGS (continued)

CUSTOMER SERVICES (continued)

- Finding IX-10(B) EE&C Plan Actual MWh saved have exceeded the targets through 2015.
- Finding IX-11(B) Customer Services lacks internal cost performance and other productivity and effectiveness metrics associated with Energy Efficiency and Conservation Plan compliance and performance.
- Finding IX-1(C) The contracting process with PPL Solutions has not been consistently applied nor uniform with regard to contract content.
- Finding IX-2(C) The recently signed contract with PPL Solutions for call center services resolves a number of problems with the previous contracts, but not all.
- Finding IX-3(C) The recently signed contract with an unaffiliated vendor has a number of deficiencies.
- Finding IX-4(C) Customer Services has established disaster recovery services for its call center functions.
- Finding IX-5(C) The 2016 LIHEAP Portal project will yield significant customer benefits and reduced costs.
- Finding IX-1(D) A cost comparison measuring the effectiveness of services offered between the Universal Service WRAP program and the Act 129 WRAP program has not been made.
- Finding IX-2(D) The costs per customer for the Universal Service WRAP have increased significantly in 2014 and 2015.
- Finding IX-3(D) Additional metrics have not been employed to measure or gauge the spending strategies of the PPL EU WRAP programs.
- Finding IX-4(D) Customer Services has been failing to meet its 2015 target of maintaining the Justified Informal Complaint Rate below five percent.
- Finding IX-1(E) The MeterVision 20/20 project has the necessary project management performance measures.
- Finding IX-1(F) The reduction in Metering Operations Supervisors has increased the challenges of managing the field employees.
- Finding IX-2(F) Revenue Protection does not consistently report work management performance metrics, targets, and unit costs.
- Finding IX-3(F) Revenue Protection processing of Large Power metering installations is paper-intensive and has led to billing problems and lost revenues.

APPENDIX OF VONDLE FINDINGS (continued)

CUSTOMER SERVICES (continued)

- Finding IX-4(F) Revenue Protection has neither revenue losses nor revenue recovery performance metrics associated with theft of service and other non-billed losses.
- Finding IX-5(F) The reporting and presentation of billing performance metrics have not improved over the last three years and do not adequately focus on errors.
- Finding IX-6(F) The paper bill delivery and mailing process is cumbersome and not as efficient as it could be.
- Finding IX-7(F) The contracts with two credit vendors do not include performance metrics.
- Finding IX-8(F) C&C manages the performance of its collections agencies using comprehensive and detailed metrics.
- Finding IX-9(F) Over a multi-year period, net write-offs have grown significantly.
- Finding IX-10(F) Credit and Collections-related performance indicators show that actions are being taken to reduce accounts receivable and drive more dollars to be written off, but do not address the mitigation of the significant increases in net write-offs.

CUSTOMER ASSISTANCE PROGRAMS

- Finding X-1(B) PPL EU, unlike some other Pennsylvania utilities with a CAP, does not take OnTrack phone applications.
- Finding X-2(B) The validation of pre-enrollment, post-enrollment, and recertification of income eligibility is labor intensive, often cumbersome, and there is a potential for fraud.
- Finding X-3(B) Changes in post-enrollment energy consumption could affect eligibility but the reasons for the changes are difficult to discover and analyze.
- Finding X-4(B) Regulatory Programs has been examining two OnTrack process improvement options, one “low tech” and the other “high tech.”
- Finding X-1(C) Regulatory Programs does not have sufficient staff resources to effectively and efficiently manage the OnTrack program.
- Finding X-1(D) Payments to OnTrack agencies have increased while the number of caseworkers has decreased, causing a significant rise in cost per caseworker.
- Finding X-2(D) The productivity of OnTrack agency caseworkers has been improving.
- Finding X-3(D) The OnTrack enrollment metrics do not accurately capture related costs or reflect agency performance.

APPENDIX OF VONDLE FINDINGS (continued)

CUSTOMER ASSISTANCE PROGRAMS (continued)

- Finding X-4(D) The number of potentially eligible customers for OnTrack varies significantly depending on the estimation approach.
- Finding X-5(D) Despite decreases in agency staffing levels and increasing enrollment workload, it is not evident that each agency is optimizing staffing levels to meet OnTrack objectives or that PPL EU is receiving cost-effective performance.
- Finding X-6(D) OnTrack enrollments are Customer Services' primary metric for assessing program and agency performance and, by themselves, are inadequate.
- Finding X-7(D) PPL EU relies on too many community-based agencies to administer its OnTrack program.
- Finding X-8(D) PPL EU has given too much discretion and flexibility to the OnTrack agencies in handling the program.
- Finding X-1(E) PPL EU allowed two of its agency contracts to expire without a plan for extension, renegotiation, or initiation of a bidding process.
- Finding X-2(E) PPL EU has not comprehensively reassessed its decision to outsource its OnTrack program to the original community-based agencies.
- Finding X-3(E) A PPL EU consultant previously identified a number of benefits by bringing the OnTrack program administration in house.
- Finding X-4(E) The audits of OnTrack agencies' monthly reports that are conducted by the assigned RPSs are inconsistent and often lack important follow-up actions such as corrective actions or performance improvements.
- Finding X-1(F) The three performance indicators used by Customer Services for the OnTrack program are accompanied by useful and detailed commentary explaining variances and the actions that are underway to improve performance.
- Finding X-2(F) The existing Customer Services OnTrack performance indicators, while useful, do not support PPL EU's objectives for the program.
- Finding X-3(F) The rising OnTrack program costs are impacting customers' bills.
- Finding X-4(F) Regulatory Programs is appropriately exploring the use of unit costs and unit performance metrics with the OnTrack agencies.
- Finding X-5(F) Increased numbers of OnTrack referrals and new enrollments are not translating into a corresponding increase in active members.

APPENDIX OF VONDLE FINDINGS (continued)

CUSTOMER ASSISTANCE PROGRAMS (continued)

- Finding X-6(F) Regulatory Programs is seeking to improve the quality of OnTrack referrals so that a higher percentage of referrals result in successful enrollments and sustained participation.
- Finding X-7(F) Portraying ratios for cost per enrollment is inconclusive and requires further analysis.
- Finding X-8(F) Graduation rates, one measure of program performance, have decreased since 2012.
- Finding X-9(F) OnTrack customer payment behavior is improving.
- Finding X-10(F) Regulatory Programs does not track PUC informal complaints by individual OnTrack agencies.
- Finding X-11(F) PUC informal complaints related to OnTrack have been growing, but at a rate slower than the growth of OnTrack customers.
- Finding X-12(F) Application delays resulting from enrollment backlogs were a major source of customer dissatisfaction and of PUC informal complaints that were related to the OnTrack program.
- Finding X-13(F) Neither the internal audit function nor the external auditor has performed a comprehensive operational or compliance audit of the OnTrack program.
- Finding X-14(F) Customer Services does not explicitly measure the shorter- and longer-term net effects of the OnTrack program on customer payment behaviors and the incremental effects on total accounts receivable, uncollectible expenses, and write-offs.
- Finding X-15(F) The APPRISE Final Evaluation Report of PPL EU’s Universal Service Programs includes the OnTrack program but is an incomplete assessment of OnTrack.

INFORMATION TECHNOLOGY AND SYSTEMS

- Finding XI-1 IT is making a beneficial conversion from a technology and applications focus to a business need and service focus.
- Finding XI-2 IT has adopted the highly regarded ITIL framework and has made progress in developing the related processes, but has room for improvement.
- Finding XI-3 In support of the ITIL initiative, IT has made solid progress implementing the ServiceNow integrated IT toolset; however, ServiceNow has not been fully utilized.
- Finding XI-4 The continued use of ServiceNow is uncertain.

APPENDIX OF VONDLE FINDINGS (continued)

INFORMATION TECHNOLOGY AND SYSTEMS (continued)

- Finding XI-5 Some internally developed applications will remain critically important, and therefore will require on-going investment.
- Finding XI-6 IT has taken some positive steps in using Service Oriented Architecture to become a more responsive IT function, but progress has slowed in recent years.
- Finding XI-7 The IT staff and IT committee structures are organized to appropriately integrate with the user-defined service portfolios, ITIL principles, and software nomenclature.
- Finding XI-8 PPL has a rigorous IT project planning, budgeting, and monitoring process in place but long-term effectiveness is not monitored.
- Finding XI-9 The IT Business Plan is well documented and communicated.
- Finding XI-10 The IT Infrastructure Group has achieved cost savings by taking advantage of server virtualization software.
- Finding XI-11 Convergence of IT and Operations Technology appears to be progressing efficiently.
- Finding XI-12 PPL appears to have a sound cyber security program.
- Finding XI-13 The data center is modern and physically secure.
- Finding XI-14 IT has sound processes for measuring internal customer satisfaction with projects.
- Finding XI-15 IT has a well-developed Service Level Agreement (SLA) and metric tracking program in place for a wide variety of areas, but typically limits reviews to the last year or two. Five-year trending is done on an ad hoc basis at best.
- Finding XI-16 The relationship of IT legal entities is complex and evolving.

HUMAN RESOURCES

- Finding XII-1 There is duplication of services between PPL SC HR and PPL EUS HR.
- Finding XII-2 In some circumstances, PPL EUS HR is driving innovative changes for PPL SC HR.
- Finding XII-3 The process for talent acquisition is streamlined.
- Finding XII-4 HR technical benchmarking is routinely utilized; however, neither PPL SC HR nor PPL EUS HR have recently participated in comprehensive HR function benchmarking studies.

APPENDIX OF VONDLE FINDINGS (continued)

HUMAN RESOURCES (continued)

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| Finding XII-5 | The corporate performance management system demonstrates good alignment with the corporate goal framework. |
| Finding XII-6 | Human resource metrics are utilized by PPL SC HR and PPL EUS HR to manage some human resource activities, but are not sufficient to effectively and efficiently manage the full range of human resource functions. |
| Finding XII-7 | The HR performance management and compensation programs contribute to organizational alignment and support achievement of Corporate Goals. |
| Finding XII-8 | PPL EUS HR measurement of employee engagement on a regular basis is a good practice and the areas revealing opportunities for improvement are being appropriately addressed. |
| Finding XII-9 | Although PPL SC and PPL EUS HR staffs have education and experience appropriate for their positions, few possess professional certifications related to the HR profession. |
| Finding XII-10 | There is broad satisfaction with the PPL Professional and Leadership Development Training Program. |
| Finding XII-11 | Learning index increase and return on investment are not being measured as they relate to the non-technical training programs. |
| Finding XII-12 | The most recent succession plan has several positive features; however, due to the Talen spinoff, there is no current succession plan in place. |
| Finding XII-13 | PPL EU appears to be in compliance with employment laws. |
| Finding XII-14 | Compensation and health and welfare benefits are competitive with the market. |
| Finding XII-15 | PPL EUS HR has implemented several good practices necessary to build strong labor-management relationships and labor negotiations are approached proactively and with a defined strategy. |
| Finding XII-16 | The number of grievances filed by represented employees declined substantially from 2013 to 2014 and appears to be maintaining this improved performance in 2015. |
| Finding XII-17 | Security measures related to employee safety and protection, employee information, and controlled access to technology systems appear to be sound. |
| Finding XII-18 | The HR information system self-service portal is cumbersome and inconvenient. |

APPENDIX OF VONDLE FINDINGS (continued)

EXECUTIVE COMPENSATION

- Finding XIII-1 Tier I and Tier II executives are not identified clearly in PPL Corporation's Executive Compensation Policy.
- Finding XIII-2 The Compensation and Benefits department is conducting cross-training for every role within the department.
- Finding XIII-3 The Compensation, Governance and Nominating Committee strictly adheres to pre-established practices, procedures, and policies to assure regulatory and legal compliance.
- Finding XIII-4 All executive performance reviews are not completed.
- Finding XIII-5 The PPL Corporation compensation and performance management programs are well integrated.
- Finding XIII-6 PPL Corporation Named Executive Officers and PPL EU's top four executives have the majority of compensation "at risk".
- Finding XIII-7 Base salaries for PPL EU's top four executives are market competitive.
- Finding XIII-8 The current pension plan is comparable with similar utilities.

DIVERSITY AND EQUAL EMPLOYMENT OPPORTUNITY

- Finding XIV-1(A) PPL EU's vendor diversity program includes encouraged state and required federal program elements.
- Finding XIV-2(A) The vendor diversity expenditures report contains errors and does not document disability owned business expenditures.
- Finding XIV-3(A) PPL EUS Supply Chain has not established specific spend goals for Minority, Women, and Disadvantaged Business Enterprises including Minority Owned and Persons with Disability Owned businesses and has not met its diversity spend goal for Women Owned businesses from 2012 through 2015.
- Finding XIV-4(A) The number of identified diverse vendors as a percentage of total vendors is low.
- Finding XIV-5(A) The number of contracts awarded to Minority-owned and Women-owned vendors has trended positively since 2010. Overall, the number of total contracts awarded to diverse vendors has declined since 2010.
- Finding XIV-1(B) Employee diversity outreach efforts are numerous with mechanisms in place to create an inclusive environment for employees.

APPENDIX OF VONDLE FINDINGS (continued)

DIVERSITY AND EQUAL EMPLOYMENT OPPORTUNITY (continued)

- Finding XIV-2(B) The mix of PPL EU minority and female employees is comparable to the PPL EU labor market.
- Finding XIV-3(B) PPL EU has improved the application rate for minorities and females in 2015 reversing recent decline.
- Finding XIV-4(B) In 2015, new hire rates for minorities and females have improved, reversing a declining trend since 2012.
- Finding XIV-5(B) Promotion rates for minorities and females have improved in 2015 reversing a declining trend since 2012.
- Finding XIV-6(B) Involuntary and voluntary termination rates for minorities have declined in 2015 while involuntary and voluntary terminations for females have increased in 2015.
- Finding XIV-1(C) PPL EU's affirmative action plan is generally effective.
- Finding XIV-2(C) PPL EU complies with Section 503 of the Rehabilitation Act and VEVRAA.
- Finding XIV-3(C) The EEO/AAP tagline on job advertisements is not sufficient.
- Finding XIV-4(C) Job descriptions do not contain mental and physical demands of the job.
- Finding XIV-5(C) The process for receiving and resolving employee complaints is robust and appears to be effective.

STAFFING PLANNING PROCESS

- Finding XV-1(B) Most T&S functions have developed and maintain core competencies; however, little internal expertise is being maintained in transmission project design, contracts and interconnection agreements, protection and control engineering, and field construction.
- Finding XV-1(C) Distribution Operations recently completed a comprehensive staffing study.
- Finding XV-2(C) Distribution Operations has an effective succession planning process in place.
- Finding XV-3(C) Core competencies are addressed in position budgeting and succession planning.
- Finding XV-4(C) Implementation of new technologies and automation has resulted in staff reductions in several areas.
- Finding XV-5(C) Several non-core competency functions are being outsourced as attrition occurs.

APPENDIX OF VONDLE FINDINGS (continued)

STAFFING PLANNING PROCESS (continued)

- Finding XV-6(C) Distribution Operations is proactive in planning for upcoming needs in skilled craft areas.
- Finding XV-7(C) PPL EU has an active engineering intern program.
- Finding XV-8(C) The Respond to Customer department has added contractors to provide enhanced outage repair and restoration coverage.
- Finding XV-1(D) Customer Services has developed a well-structured and appropriate one-year call center staffing and contractor forecasting model for the CSRs and is planning to extend the model to a multi-year time horizon.
- Finding XV-2(D) Customer Services has not performed formal multi-year staffing studies over the last ten years.
- Finding XV-3(D) The staffing positions associated with the PPL EU Business Plan Job Codes and the SRC codes are not readily correlated with the five Customer Services' organizational groups.
- Finding XV-4(D) The Advanced Metering and Data Operations unit has an appropriate and comprehensive multi-year resource plan for its MeterVision 20/20 project.
- Finding XV-5(D) Selective elimination of employees and increasing use of contractor personnel and services do not seem to be affecting core competencies and institutional knowledge.
- Finding XV-1(E) The increase in staffing and the use of contractors should resolve the unitization delays identified in Asset Management.
- Finding XV-2(E) Potential issues involving retention of core competencies and institutional knowledge were successfully addressed.
- Finding XV-1(F) The support services organizations reviewed in this section have achieved considerable staffing reductions apart from the movement of positions to Talen.
- Finding XV-2(F) Some of the departments reviewed in this section have performed, or are planning to perform, informal benchmarking studies.
- Finding XV-3(F) The CIO is taking appropriate measures to restructure the IT organization to achieve greater efficiency and improved performance in conjunction with the LKE SC and PPL SC synergy initiative.
- Finding XV-4(F) The planned attrition of PPL EUS Facilities Management janitorial and training staffs is appropriate.
- Finding XV-5(F) The use of contractors is focused in non-core areas of specialized expertise and part time needs.

APPENDIX OF VONDLE FINDINGS (continued)

STAFFING PLANNING PROCESS (continued)

- Finding XV-6(F) Facilities Management is developing training to improve skill sets and knowledge transfer among the maintenance staff.
- Finding XV-1(G) PPL Corporation has a good employee position and contractor cost budgeting system but it is not preceded by a consistent workforce planning process.
- Finding XV-2(G) PPL EU, PPL EUS, and PPL SC are inconsistent in the use of staffing, cost, and benchmarking studies for workforce planning.
- Finding XV-3(G) The respective cost of contractors versus in-house staff has not been formally evaluated in most areas.

MERGER SYNERGY OPPORTUNITIES

- Finding XVI-1 Non-fuel O&M cost reductions are often achieved through utility merger synergies.
- Finding XVI-2 Merger synergy non-fuel O&M cost reductions vary by function.
- Finding XVI-3 The typical sources of most merger synergy cost savings are labor, facilities, supply chain, and information technology.
- Finding XVI-4 There is a well-established process for identifying and realizing merger synergies.
- Finding XVI-5 Electricity rates decline an average of 0.5% after mergers.
- Finding XVI-6 Studies of several mergers reveal that guaranteed customer benefits are common in merger regulatory agreements.
- Finding XVI-7 Significant non-fuel merger synergy cost savings are often identified in utility mergers.
- Finding XVI-8 The PPL Corporation acquisition of E.ON U.S. LLC did not identify any specific merger savings or customer benefits for PPL EU ratepayers, few merger synergies have been identified, and any savings to PPL EU from the merger have not been tracked.
- Finding XVI-9 The LKE Best Practices reports to the Kentucky Public Service Commission have identified few tangible merger benefits or cost savings.
- Finding XVI-10 Most synergy work between the Pennsylvania and Kentucky operations has been informal and there have been no tangible merger synergies realized from the PPL EU perspective.

APPENDIX OF VONDLE FINDINGS (continued)

MERGER SYNERGY OPPORTUNITIES (continued)

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| Finding XVI-11 | The current synergy initiative being led by the CIO illustrates the greater potential for achieving synergy savings with consolidated functional leadership. |
| Finding XVI-12 | Not having consolidated functional management impedes the realization of synergies between Pennsylvania and Kentucky utility and shared services functions. |
| Finding XVI-13 | There are likely significant synergies available between the PPL Corporation Pennsylvania and Kentucky operations that could benefit PPL EU. |
| Finding XVI-14 | Regulatory merger conditions constrain but do not prevent merger synergy initiatives to achieve cost savings or other benefits. |

