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October 23, 2017

Ms. Brinda Westbrook-Sedgwick
Commission Secretary
Public Service Commission
of the District of Columbia
1325 G Street, N.W.
Suite 800
Washington, D.C. 20005

Re: Formal Case No. 1119

Dear Ms. Westbrook-Sedgwick:

Pursuant to Order No. 18842, issued July 24, 2017, attached is Potomac Electric Power Company's Supplemental Report on the Root Cause Analysis for DC Customer Satisfaction in the referenced proceeding.

Please contact me if you have any further questions. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "DJP", written over a horizontal line.

Dennis P. Jamouneau

Enclosure

cc: All Parties of Record

Supplemental Report
DC Customer Satisfaction
Root Cause Analysis

October 2017

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Overview

Background Information

As part of the Pepco and Exelon merger commitments, Pepco conducted a root cause analysis to provide insight into customer satisfaction levels in the District of Columbia and support the development of initiatives to improve customer satisfaction.

Originally filed on September 22, 2016, and as discussed at the November 8, 2016 Productivity Improvement Working Group (“PIWG”) meeting, Pepco’s Root Cause Analysis Report (“Report”) explained the factors that are important to residential customers, provided information regarding levels of satisfaction, and detailed Pepco’s plans for improvement. In order to develop the Report, Pepco assembled a multi-disciplinary team of subject matter experts and operational leads. Data and analyses were developed from multiple sources, including primary customer research, external industry experts, operational data sources, and internal planning documents.

On May 10, 2017, the Office of the People’s Counsel (“OPC”) filed comments on the Report. Pepco filed its response to the OPC Comments on May 19, 2017, and committed to addressing several issues raised by OPC in a future PIWG meeting, which was held on July 20, 2017. In Order No. 18842, issued on July 24, 2017, the Commission directed that all concerns with the Report be addressed by Pepco, OPC, and Commission Staff at future PIWG meetings, and stated that Pepco should supplement the Report and file it with the Commission within 90 days from the date of the Order. Specifically, Order No. 18842 directed Pepco, in a Supplemental Report, to address several aspects typical of root cause analyses, “such as a review of people, processes, and systems (hardware & software) and equipment.” Order No. 18842 also found that the Report does not include “sufficient details regarding key performance indicator metrics which would be key to a root cause analysis.”

Pepco scheduled an additional PIWG meeting on September 20, 2017 to collaborate further with Commission Staff and OPC regarding information requested in the Supplemental Report.

Details on Root Cause Identification Process and Initiatives

This Supplemental Report addresses the directives from Order No. 18842, the concerns that OPC and Commission Staff raised in the PIWG meeting and OPC’s written comments. In doing so, the Supplemental Report provides additional insight into the process Pepco used to develop initiatives to improve customer satisfaction, including processes and data used to understand the scope of problems, identify root causes, and approximate timeframes. Moreover, Pepco is committed to providing an annual update to PIWG to discuss progress, performance, and new initiatives related to customer satisfaction.

Ongoing Process for Improving Satisfaction

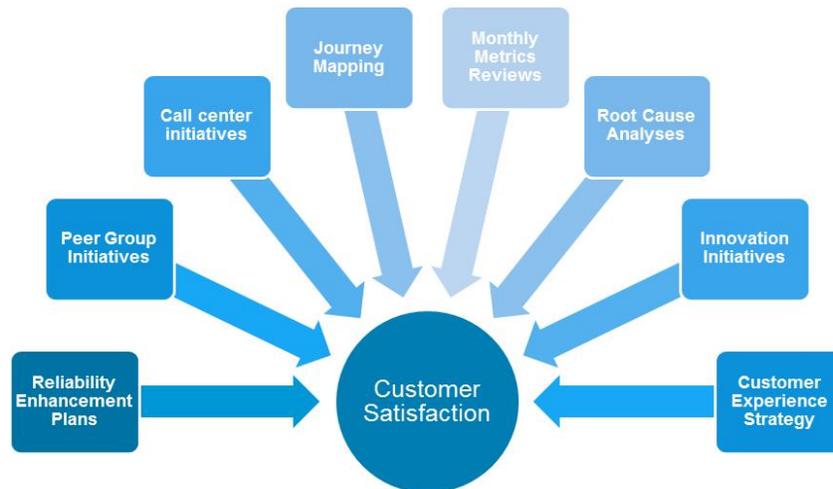
Since the time that the original Report was filed, new initiatives continue to be launched, as identified by operational and customer satisfaction data. The merger with Exelon has brought new opportunities for enhancing performance through analysis of operational data, comparisons of processes for common activities, and discussions with peer utilities to define best practices.

While the original Report addressed causes of dissatisfaction based on 2016 data, Pepco has ongoing processes in place to track performance, develop customer-focused service enhancements, and measure the impact on customer satisfaction.

Commitment to Improving Customer Satisfaction

The primary goal of a root cause analysis of District of Columbia customer satisfaction is to better understand causes of customer dissatisfaction, identify ways to improve satisfaction, and plan and execute identified initiatives to sustain improvement. This Supplemental Report includes information on the processes and data analyses in place to continue to monitor customer satisfaction, the systems in place to develop initiatives to improve performance, and the people that review the data and execute the various initiatives.

Pepco and Exelon Utilities (EU) recognize the importance of ensuring customer satisfaction as a key business outcome. Pepco and EU use a variety of tools to measure, understand, and improve performance. There are multiple systems in place to help ensure processes and services will support the goal of improving customer satisfaction. Pepco continues to focus on improving the customer experience across the key drivers of customer satisfaction, and is using all of the tools below to improve various aspects of the customer experience.



Many of the identified issues in the original Report are not unique to the root cause analysis. In many cases, Pepco has been working on both short and longer term solutions to problems identified in the Report. Corrective actions may take time to implement and are incorporated into planned process improvements due to technology and staffing availability, as well as customer priorities.

The launch of an EU-wide customer experience strategy further demonstrates the commitment to improving performance. While still in the planning phases, this initiative will focus on improvements to key customer journeys, which are the primary activities and events a customer may experience. This initiative will review all aspects of specific customer journeys from beginning to end, to identify customer expectations, assess actual performance, and find opportunities for technology, processes and innovations designed to enhance this customer interaction. Customer feedback is an integral component in the ongoing focus on improving the customer experience.

Commitment to Improving Customer Satisfaction

Processes and Metrics in Place to Improve Customer Satisfaction

Pepco has had processes in place to monitor and improve customer satisfaction for many years and will continue to measure customer satisfaction. Both overall customer satisfaction and call center satisfaction are key performance indicators used to measure company-wide performance. The metrics are measured and reported on a monthly basis, with visibility at all levels of the company. The Vice President of Customer Operations has primary responsibility for this metric.

Pepco has launched an executive level Customer Satisfaction Improvement Team to oversee customer satisfaction performance and ensure initiatives designed to improve customer satisfaction are in place. The team tracks major initiatives to improve customer satisfaction and reviews quarterly satisfaction analyses. The team will ensure that progress is being made and resources are being deployed to achieve improved performance.

This team includes representation at the senior vice president and vice president level across all areas, including the Vice President of Customer Operations, the Senior Vice President of External Affairs, the VP of Technical Services, the VP of Electric Operations, the Vice President of Communications, and the Pepco Region President. Quarterly updates are provided to the PHI CEO and the EU Leadership team.

Root Cause Analysis: Detailed Process

The original Root Cause Analysis Report provides an overview of the process used to develop the analysis and corrective actions. The general framework that Pepco used to develop the root cause analysis is shown below. For customer satisfaction, the exercise involves developing action plans for a wide variety of issues, rather than focusing on a single incident or problem type.

The project was led by the Customer Experience and Market Research leads reporting to the Vice President for Customer Operations. There was also a core team for report review that included a cross-functional team who provided input and reviewed the report. The Customer Experience and research leads consulted with internal Subject Matter Experts, including Operational and Planning Managers who provided performance data to assess and understand the scope of specific problem areas, and information related to the improvements and projects expected to improve customer satisfaction across key areas. It is important to understand that each operational team has an ongoing system of scheduled meetings and metrics designed to measure performance and institute corrective actions as soon as variances are identified. Further details are provided in the relevant sections in this Supplemental Report.

Pepco used a wide range of resources to develop the root cause analysis for customer satisfaction. These resources included the involvement of internal and external subject matter experts, as well as the information below:

- Internal process documents that document performance monitoring and initiative tracking
- Internal metrics and key performance indicators
- Performance measurements across the customer experience
 - Operational data
 - Customer touchpoints research
- Discussions with consultants: JD Power, MSI, peer utilities
 - JD Power and MSI data performance data for Pepco and other utilities
- Peer group initiatives and best practices
- Regulatory metrics reports and filed improvement plans

By developing the modeling using customer feedback, Pepco developed core drivers of satisfaction, reviewed direct comments from customers and looked across data sources for common themes. The team held Individual meetings with operational leads to discuss ideas and plans for improving key drivers of customer satisfaction. These discussions included a review of the following:

- Review and development of initiatives tied to drivers of satisfaction
- Additional analyses, including technical, conducted to define system improvements
- Ongoing, fully-funded initiatives and timeframes for implementation

Identification of Corrective Actions and EU Business Planning

Pepco has a structure and processes in place that formalize the plans that will improve customer satisfaction. Pepco's action plans for improving customer satisfaction are monitored from a managerial and operational level at Pepco, and at the EU level.

Root Cause Analysis: Detailed Process, continued

Business Plan Initiative Process

The Exelon Utilities have processes in place to plan, perform, manage, assess results, innovate and improve. These processes provide the structure to document initiatives that leverage best practices and standardization across EU, in this case as they affect Customer Satisfaction Key Drivers. The flowchart below provides an overview of the EU business planning process.



In order to provide more focus on the progress of what is referred to as the “Peer Group Business Plan initiatives”, a set of initiatives across the Exelon Utilities that operational groups identify as performance improvement opportunities, a new reporting system was implemented in 2016. Charters for each initiative are developed, certified, and submitted to the EU Business Planning Team, with oversight and direct interaction with the Vice President of Utility Performance. Progress for Peer Group Business Plan initiatives is reported monthly and distributed across EU. Any changes to milestone or initiative end dates are submitted for review and approval. The Customer Operations Council, which includes Pepco’s Vice President of Customer Operations and Vice President of Communications, and Vice President of Technical Services, maintain oversight of issues impacting Pepco’s progress on these initiatives and organizational dependencies.

There are a number of key components to this process:

- Cross utility teams compare performance metrics and processes in order to define effective practices. Variances in performance and process are discussed and best practices identified. Project plans are developed in order to improve performance and leverage efficiencies.
- Projects and initiatives are tracked by project managers using a defined plan, which includes a charter identifying objectives, sponsors, project teams, and major milestones. The plan updates
 - Planned-start information, revised dates (if needed), and actual end dates
 - Status – on target, off track, delayed, etc.
 - Percentage completed to date (updated each month)
 - Monthly commentary regarding progress

Root Cause Analysis: Detailed Process, continued

Business Plan Initiative Tracking

Corrective actions resulting from the projects and initiatives do not always have an immediate impact on customer satisfaction, unless a customer experiences the type of issue the corrective action is designed to fix. For example, improvements to the process for developing a more accurate estimated time for restoration will only impact customers who experience an outage, and use a communication tool to find out their estimated time of restoration.

Across the EU, there are more than 50 Peer Group Business Plan Initiatives defined in 2017. This requires detailed tracking and monitoring to ensure completion, with oversight by the Customer Operations Council.

A business plan lead is responsible for reporting Pepco's progress in the monthly report providing initiative updates. The report includes explanations / recovery plans for Overdue and Off Track items. This report is sent to Pepco's executive management team, and consolidated to the EU level by the EU principal business analyst.

Initiatives are tracked using a detailed document that provides an overview of the progress based on the detail tracking information. The table below provides an example of the documentation employed to track an initiative.

Business Initiative Tracking										Utilities Impacted			
Tower	CoreFunction	Utility Sub-Function	Initiative Title	Start Date	End Date	APPROVED end date was revised)	ORIGINAL End Date (used if Actual Compl Date	Status	BGE	ComEd	PECO	PHI	
##	Customer	Customer Care	Correspondence Management System	5/1/2015	3/31/2017		4/28/2017	Complete	X	X	X	X	
##	Customer	Customer Care	Telephony North Star	12/1/2015	9/30/2018			On Track	X	X	X	X	
##	Customer	Customer Solutions	eChannels Mobile App	12/1/2016	5/15/2018			On Track	X	X	X	X	
##	Infrastructure	Design Configuration Control	Engineering & Design	Align Underground Equipment and Feeder Segmentation for replacement and new build opportunities		1/16/2017	12/22/2017	On Track	X	X	X	X	
##	Infrastructure	Operate and Restore	Electric	Establish CAIDI Targets, Conduct Gap Analysis and Implement Improvements to Close Gaps - 2017 CAIDI Initiatives – Anatomy of an Outage II		1/1/2017	10/31/2017	On Track	X	X	X	X	

Customer Comments and Complaint Resolution Metrics

Mapping of Customer Comments Included in the Report

Customer feedback examples were included in the original Report to illustrate how customers feel about the issues outlined in the Report. They were provided to offer insight into customer perceptions by demonstrating how customers view specific issues, in the customer's own words. The customer comments were not meant to represent the entirety of data used to identify root causes. The Report overall focuses on systematic issues determined using performance data, and is not meant to be an individual problem resolution process. However, an overview of the specific initiatives related to each customer comment (thus providing the rationale for the comment's inclusion in the report) has been included in the Appendix to demonstrate how these general issues are being addressed.

Moreover, Pepco is unable to follow-up on specific instances identified in the Report given confidentiality rules regarding anonymity of survey respondents. Unless explicit permission is given, Pepco does not receive information regarding the specific account or customer name of the individual making the comment.

Procedures to Resolve Individual Customer Complaints

There are multiple mechanisms in place for customers to contact Pepco regarding individual customer complaints. Through the call center, customers can speak with a representative or supervisor, or can be referred as an escalated complaint via a customer service email or letter. In addition, Pepco's Customer Advocate is available to address concerns and will follow up to resolve individual customer issues, with a defined process to obtain results and communicate with customers. Customer concerns provided through community meetings by individual customers are also followed up through the Customer Advocate office.

The call center survey provides a follow-up mechanism for addressing unresolved customer issues, and an opportunity for more immediate identification and resolution within a short period of time. Both the data and customer comments are reviewed monthly to assess performance. Customers who respond to the survey are asked if they wish to receive a follow-up by a call center supervisor. Within a few days, their feedback, along with contact information, is sent to a supervisor. The supervisor reviews the account information, listens to the call recording, and contacts the customer to resolve the problem or discuss their experience.

Customer Complaint Tracking and Reporting to the Commission

Pepco maintains a database of all incoming complaints from various external entities, including the Commission, OPC, the Better Business Bureau, and various government offices and agencies. Complaint activity is categorized based on complaint type (i.e., billing, credit-related issues, field, etc.) and a report is issued monthly to key stakeholders within the company. Additional metrics tracked include average days to respond, on-time complaint resolution, and key drivers of complaint activity. This report provides insight to monitor and improve performance, as increases in response time and specific types of complaints are addressed through process changes, enhanced customer communications, or training.

Customer Comments and Complaint Resolution Metrics

The Special Investigations team for Pepco handles all regulatory and executive complaints presented to the company. The Sr. Supervisor of the Special Investigations team holds monthly meetings with the Escalated Investigations Analysts who receive, investigate and respond to customer complaints. A review of monthly complaint activity is conducted and trends or areas of concern are discussed and later shared with key stakeholders within the company. The Manager of the Customer Relations team meets monthly with the Customer Advocate to discuss complaint activity from customers within the District of Columbia.

Pepco's Customer Advocate, Manager and Sr. Supervisor have met with members of the Commission, Office of Consumer Services in the last year to discuss complaint volumes (based on tracking provided by the Public Service Commission) and any areas of concern they had with Pepco's handling of customer complaints. None were noted, however, future meetings will continue to be scheduled in order to ensure ongoing and effective communication.

Pepco's Customer Advocate, Manager and Sr. Supervisor have met with the District of Columbia Office of the People's Counsel, Consumer Services Division quarterly in recent years to answer questions relating to Pepco processes and policies/requirements or terms and conditions as outlined in the tariffs.

The Customer Advocate's office provides a monthly report in accordance with Order No. 14293 in Docket ARDIR. The ARDIR Information on Disconnects for Non Payment report provides data on the numbers of residential customers and low-income customers who have been disconnected due to non-payment, the associated total arrearages and number of customers reconnected. Set forth below is an example of the information contained in the monthly report.

DC PSC Case 813-1043 Order Nos. 14293 and 15134	July
the number of residential customers	268,012
the number of low income residential customers	15,937
the number of residential customers in arrears and total dollars	
# customers in arrears	69,502
\$ customers in arrears	\$9,360,174
the number of low income residential customers in arrears and total dollars	
# customers in arrears	13,674
\$ customers in arrears	\$1,391,946
the number of residential terminations for nonpayment	543
the number of low income residential terminations for nonpayment	174
the number of residential service arrearage related restorations	486
the number of low income residential service arrearage related restorations	126
the total dollar amount of residential accounts determined uncollectible	
# deem as Bad Debt	2,648
\$ deem as Bad Debt	\$311,911
the total dollar amount of low income residential accounts determined uncollectible	
# deem as Bad Debt	426
\$ deem as Bad Debt	\$73,547
the number of disconnection notices issued to residential customers	11,012
the number of disconnection notices issued to low income residential customers	2,507
the total revenues from residential	\$26,144,280
the total revenues from low income residential customers	\$1,030,357
the number & total dollars of residential customers with deferred payment agreements	
# Time Payment Arrangement (TPA)	2,317
\$ Time Payment Arrangements (TPA)	\$1,142,832
the number & total dollars of low income residential customers deferred payment agreements	
# Time Payment Arrangement (TPA)	647
\$ Time Payment Arrangements (TPA)	\$328,945

Note: The total number residential customers includes the total number of low income customers

Customer Comments and Complaint Resolution Metrics

The Customer Advocate, Manager and Sr. Supervisor of the Special Investigations Team for Pepco also conduct peer review meetings with counterparts at PECO and BGE to discuss and review processes and best practices surrounding complaint reduction measures/initiatives.

In addition, Pepco is launching a new internal initiative that will engage key stakeholders within the company to share accountability in addressing complaint activity that may have been prevented through performance or process-related efforts. The initiative helps identify root bases for individual complaints. Through the identification of issues on a more granular level, key stakeholders can take appropriate action to help improve the customer experience which could include refresher training for employees regarding policies or process, removing barriers in particular processes that impact the customer experience, or identifying new tools or resources that can enhance customer satisfaction. The goal of the initiatives is to identify opportunities to help reduce complaint activity.

Call Center Root Cause Analysis Process and Metrics

As discussed on page 16 of the original Report, the analysis of root causes of dissatisfaction with the call center includes actions involving processes, training, technology, and operational changes. The call center consists of two primary ways to serve customers, customer service representatives and an integrated voice response (IVR) system. The analysis of ways to improve that experience involves multiple data sources, in-depth analyses, and performance metrics. The call center analysis in the original Report provides insight into improvement opportunities across the primary performance areas. The ongoing monitoring of call center metrics will continue to identify needs for further improvement.

The call center analysis (page 16-19 of the Report) includes corrective actions related to the IVR technology, call center responsiveness, and customer service representative performance.

Call Center Performance Analysis Used to Identify and Monitor Corrective Actions

The call center teams analyze performance data and soft skills in order to resolve existing and emerging customer service issues. Performance variances are discussed within teams and corrective actions are instituted to address them, including both short and longer term.

Key metrics are monitored daily. The Call Center Managers receive a daily update on the previous day's performance and discusses the results during daily morning meetings. Attendees include the Director of Customer Care, the Manager of Customer Care, the Manager of Resource Management, and the Manager of Operations Planning and Analysis. Other analysts attend as needed.

The metrics reviewed include service levels, call volume, abandon rate, and average speed of answer. Actual and planned performance measures are reviewed. The call center team can identify problems and institute corrective actions quickly, via technology, additional resources, or training. Beyond the morning meeting, some metrics are reviewed throughout the day by resource management teams to ensure that the call volume is being effectively handled. Below is a sample of the daily report:

Customer Operations Daily Report

Exelon Utility	PHI	
Safety	No Issues to Report	
Key Metrics	Actual	Planned
Service Level	90.2%	89.0%
Service Level (Agent)	80.8%	80.0%
Abandon Rate	1.2%	1.5%
Avg Speed of Answer (ASA)	16.0	20.0
Volume	Actual	Forecast
Calls Offered	30,850	24,892
Self Service	50.1%	42.0%
Daily Highlights	<ul style="list-style-type: none"> •Targets met for key metrics. •Actual volume was 23.94% higher than forecast; driven by outage volume in the ACE and Delmarva regions and credit and billing volumes in the Pepco region. <ul style="list-style-type: none"> •MTD TSF is 92.76% 	

Goal Achieved/ <5% unfavorable
Minor Goal Miss/ 5-10% unfavorable
Goal Miss/ >10% unfavorable*

Call Center Root Cause Analysis Process and Metrics

Weekly peer meetings with the other EU call center managers and Directors of Customer Care are held to compare performance metrics, identify variances, and to formulate ways to improve. Metrics are compared across the various call centers. Processes are compared using a side by side comparison of practices in a specific area across the EU call centers. Monthly in-person meetings are held to further discuss initiatives and strategize means of resolving issues.

In addition, there is monthly reporting of key performance indicators, including call center performance statistics, and targets. Variance information is entered into the tracking system. This data is reviewed in a monthly meeting that includes Departmental Managers, the Vice President of Customer Operations, and the Chief Operating Officer, in order to track accountability for performance variances,

Quarterly and Annual Reporting to DC Public Service Commission

In addition to Pepco's internal monitoring, Pepco files quarterly and annual data with the Commission in its quarterly Electricity Quality of Service Standards ("EQSS") reports, filed in Formal Case No. 766, and its Annual Consolidated Report ("ACR"), filed in Docket PEPACR. These reports provide information on the following, as required by Commission rules:

- Calls answered within 30 seconds;
- Call abandonment rate; and
- Completion of installation requests for new residential service

If Pepco fails to meet the standards outlined in the Commission's rules, it is required to submit a corrective action plan.

Call Center Performance Analysis -- Soft Skills and Process Changes

Systems and functions are in place to drive continuous improvements for both customer service representative training and process changes. These systems include monitoring of calls, in which customer interactions and problem resolution efforts are captured and reviewed daily. The quality analysts can listen to live calls and review performance with the CSR, in order to ensure calls are being handled properly and the correct information is updated in the customer information system.

Immediate coaching and training with individual representatives takes place, along with triaging of real-time errors. In addition, a feedback process helps to determine training issues and process improvements. Any systematic changes that are needed can be addressed quickly, with team huddles and new job aids or training provided to the entire team.

Monthly call listening sessions are also conducted with call center management, which includes the Customer Operations Vice President. These sessions provide insight into process and training issues from a customer viewpoint.

Pepco has a defined process in place to evaluate the types of calls that are coming into the call center and identify opportunities for improvement. The quality team is responsible for tracking and identifying emerging issues. In order to improve call center performance on an ongoing basis, the quality team holds monthly sessions to review reports on the type-of-call data, calls per customer, and handle-time per call category.

Call Center Root Cause Analysis Process and Metrics

Each of these metrics is analyzed monthly. The team takes the following steps:

- Reviewing data trends
- Identifying spikes or opportunities for improvement
- Vetting possible solutions, both short and long term, including training, technology, process change, policy change
- Developing project timeline and key milestones
- Monitoring project plans
- Assessing results

Intra-departmental reviews are conducted, and collaboration occurs to examine issues, and develop solutions. This team includes the call center managers, training staff, and quality staff.

First Call Resolution Initiative (FCR)

The call center has launched an initiative focused on improving first call resolution (FCR) using this process. “First Call Resolution” refers to appropriately answering the customer’s questions or resolving their need on the customer’s first contact with the call center, in order to improve the customer experience by eliminating the need for multiple calls. Customer satisfaction decreases when customers need to follow-up multiple times. The expected benefits of Pepco’s FCR initiative are to identify ways to improve problem resolution including enhancing training and processes, provide faster problem resolution, establish a continuous improvement culture, and improve customer satisfaction. In addition to improved customer satisfaction, reducing the number of times a customer calls about the same issue will also help reduce the total call volume, providing better access to available agents for customers.

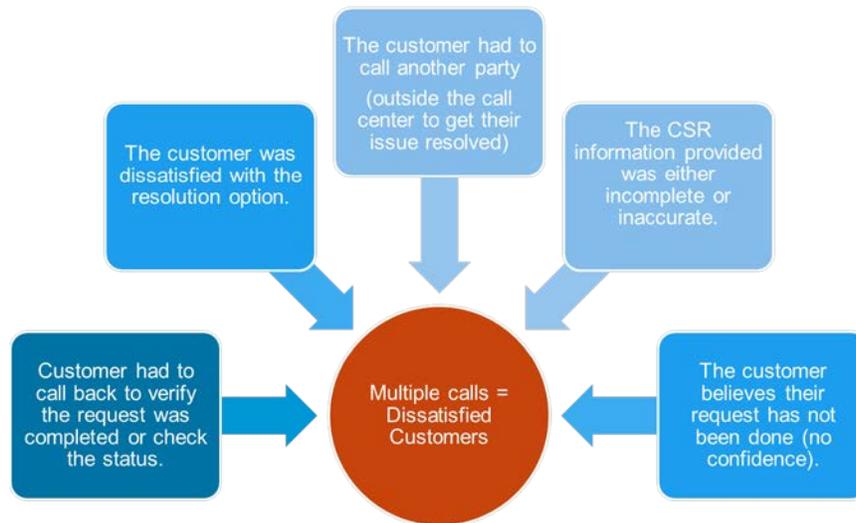
Metrics reviewed include:

- First call resolution question on monthly survey: Customers are asked whether their problem or question was resolved on their first call. They are also asked to indicate the number of times that they contacted Pepco regarding the same issue.
- Calls per Customer Count (the higher this number, the more repeat calls)
- Speech Analytics: this technology is used to identify call themes and quantify customer comments and customer service representative (CSR) resolution using key words
- Tracking topics of calls for escalated complaints

Call Center Root Cause Analysis Process and Metrics

For example, the Report identified the following top call types for repeat calls: billing, credit, meter-related, move in/out issues and outage/trouble/engineering.

A review of repeat call recordings revealed the following primary causes of repeat calls:



The process improvement team then identified action steps and resources to leverage data to further reduce repeat calls:

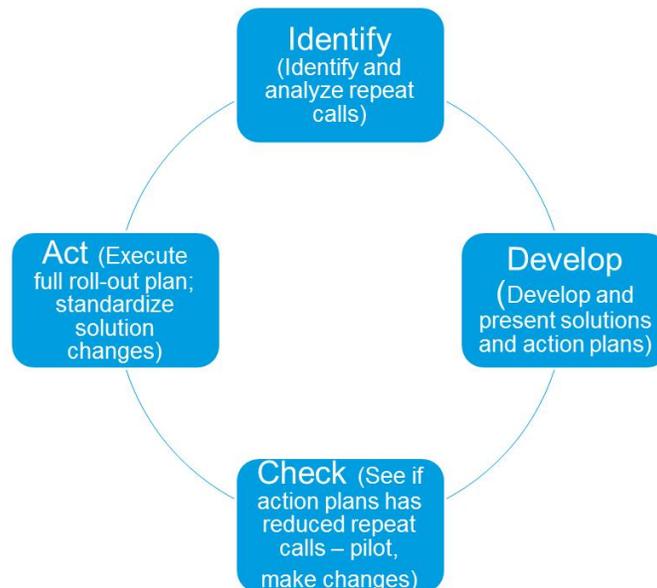
- **Telephony Information:** There is a need to better understand which types of customers are calling repeatedly, how many times, and why. The implementation of the new West IVR platform allows new reporting capabilities related to call length, transactions completed, and containment.
- **Call Content Analytics:** create new queries to investigate repeat calls and identify likely repeat call types. The system identifies call recordings related to specific call types so the quality team can review them, for use in identifying problems and solutions.
- **Wrap-up Codes Process:** Wrap-up codes are used by the CSR to categorize to call types. These call types are used in the reporting system to analyze call trends. The team found that approximately half of all calls are updated with a wrap-up code. CSRs can move to the next call without wrapping up the call, which impedes the tracking of call type data. Accordingly, increased utilization of wrap-up codes by CSRs will enhance the call analytics. In order to accomplish this, training for the representatives will remind them of the need and reason to code the accounts. The team investigated the feasibility of adding a new "repeat call" field.

Call Center Root Cause Analysis Process and Metrics

Using the data discussed above, the process improvement team identified process changes with both short and longer term impacts in order to address the primary causes of repeat calls. These corrective actions include the following:

Corrective Actions	
Short term	Longer term
<ul style="list-style-type: none"> ✓ Review Voice of the Customer data (satisfaction trends) and verbatims ✓ Partner with team leads for Business Improvement Initiatives. ✓ Review and analyze BPEM and escalation trends ✓ Identify top 5 reasons for repeat calls and work on low hanging fruit ✓ Use structured methodology (IDCA) to track process 	<ul style="list-style-type: none"> ✓ Review autonomy and authority levels for representatives ✓ Review quality assurance, training and coaching processes ✓ Overhauling quality assurance process including modifying QA form ✓ Gather data from other collaboration projects (i.e., Meters and Call Center meetings, credit and call center meetings) ✓ Determine feasibility of new post call survey

In order to ensure the success of this initiative, the “Identify, Develop, Check, Act” (IDCA) process is being used.



This initiative is being led by the Manager of Operations Planning and Analysis, with support by Call Center Quality Team Business Analysts, the Supervisors of Utility Training, and the Senior Supervisor of Customer Service. A critical component in this process is the ongoing tracking and communication of results across the various levels, including the CSRs.

Call Center Root Cause Analysis, continued

Process for Addressing Dissatisfaction with Billing or High Bills

One initiative focusing on improving first call resolution was related to billing. A team of quality analysts worked with the Customer Advocate team to analyze customer complaints regarding high bills. After using data from both the call center and the complaint process, a number of solutions were developed. The team listened to calls and gained insight into issues involving two customer types—low income and senior citizens. A number of improvements were identified:

- **Enhanced Training:** Training is conducted on both an individual and group basis. On an informal basis, Team Leaders have a “team huddle” to immediately address any issues that are heard during daily call monitoring. The team meets prior to their shift and discusses an issue and resolution. Individual training is also provided whenever the Quality Analyst hears a problem while monitoring calls. Sometimes this identifies an emerging issue that should be discussed with the entire team for process information.
- **Resources:** the Training Team prepares both written job aids and presentations to inform representatives of appropriate procedures and resources. For example, updated job aids regarding low income and senior programs were provided to the customer service representatives, and refreshed on a seasonal basis.
- **Front-line Focus Groups:** These meetings are held to get feedback from employees who answer the calls and can sometimes better identify the best ways to remove barriers to helping customers. Call Center Managers and Quality Supervisors are accountable to add these recommended changes to the planning list and ensure completion.

Call Center Root Cause Analysis, continued

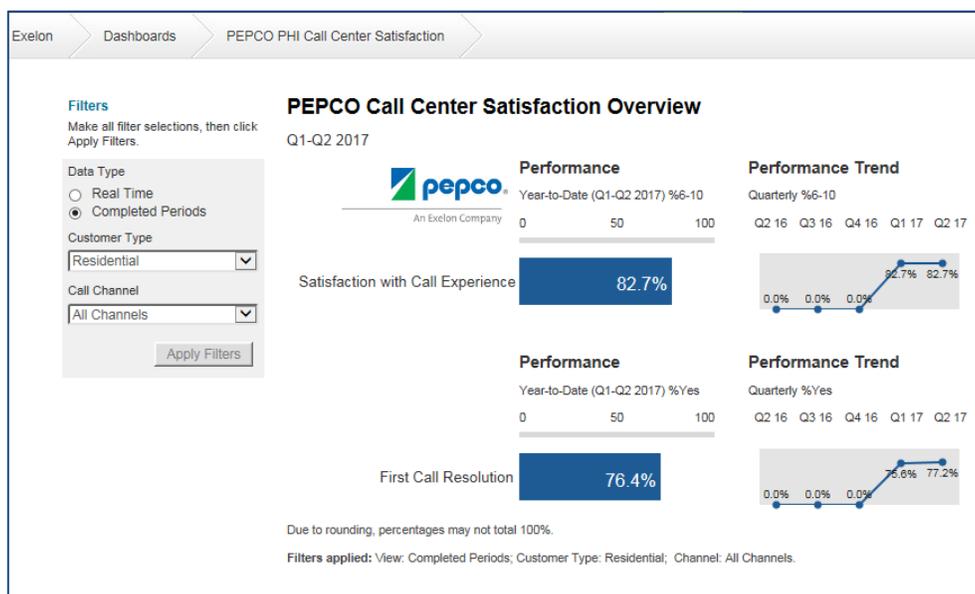
Customer Feedback Used for Measuring Performance and Improvement Opportunities

Pepco measures the customer experience for customers who contact the call center on an ongoing basis. On a daily basis, a random sample of customers is contacted based on the list of the previous day's callers. Customers are contacted by phone to complete a survey administered by an outside research vendor, Market Strategies (MSI). The survey includes questions to assess their interaction and satisfaction with the call center, including problem resolution, the IVR experience and/or the interaction with the CSR. Customers are also asked the number of times they called regarding this problem. Customers provide both numerical ratings and verbatim comments regarding their reasons for dissatisfaction.

Data from this study is used to measure satisfaction, train and coach customer service representatives, track problems and resolution, and follow-up with customers. Processes are analyzed and improved based on feedback from both customers and CSRs.

The call center survey results are tracked on a monthly basis. Call center satisfaction is a key performance indicator (KPI) used as part of the annual incentive plan for Pepco employees. The Vice President of Customer Operations is responsible for performance on this KPI and works with the Call Center Management team to ensure corrective actions are in place to improve performance. The satisfaction score is entered into the monthly tracking system for KPIs, and performance variances explained. Corrective actions are developed by the Call Center Management Team. Pepco's customer satisfaction number is compared across both the other PHI sister utilities and the other Exelon utilities. The KPIs are distributed across multiple levels of the company, including Pepco executives and EU leadership.

Below is a sample screenshot from an online tool that Pepco uses to track performance based on specific time periods. The Call Center Team uses this tool to obtain real time results and compare performance with the other Exelon utilities.



Call Center Root Cause Analysis, continued

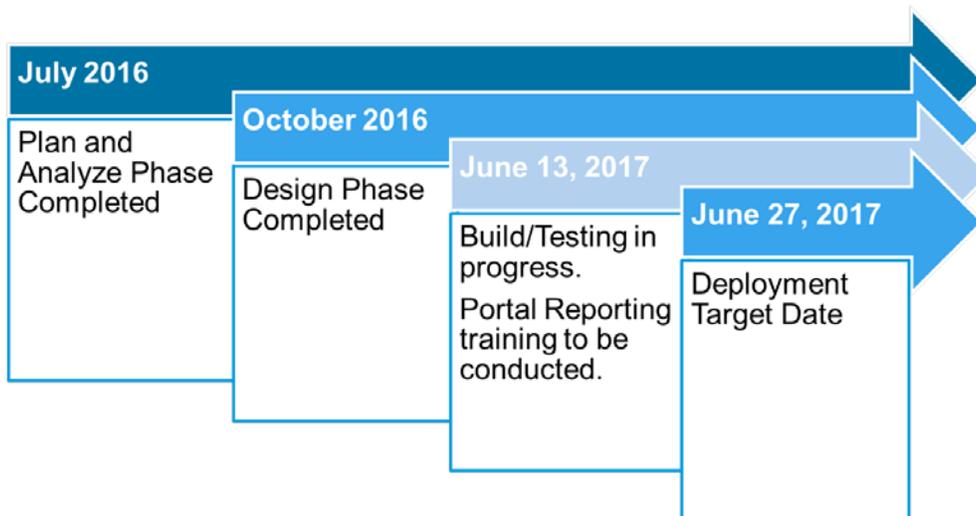
IVR Upgrade Project

One of the new initiatives designed to improve satisfaction is the launch of a new IVR system, as discussed on page 19 of the original Report. While Pepco had targeted the IVR as needing improvement prior to 2016, the new customer information system upgrade (in 2015) was a key component for upgrading the IVR technology. The post-merger collaboration with the other Exelon Utilities, who recently upgraded to their new IVR, made the process more efficient, as Pepco could rely on the other utilities' process to identify technology, design process improvements, and learn from their implementation. The call center peer group team, which includes managers from each Exelon utility call center, meets to compare IVR performance, discuss customer satisfaction, review performance variances, and develop action plans for improvements to the menu design or technology.

One important metric is containment within the IVR. This is a measure of how successfully customers are able to get account information and complete their transaction within the IVR. Customers are able to get information but have ability the transfer to a CSR if desired. The IVR menu is also used to direct customers to the right CSRs for their specific issue. Other metrics related to the calls are also reviewed, including disconnects, call length, and customer satisfaction with the IVR.

Also considered was IVR's ability to recognize customers using key data points. This measure assesses the effectiveness of the system with regard to allowing customers to access their own account information quickly and reduces the need for multiple menus and branching. Both performance and customer satisfaction measures were compared to peers.

The implementation of a new IVR was designed as a business initiative for 2017, with a dedicated project team including Call Center Management, a project manager, IT managers, and a process manager. There was a detailed project plan and monthly tracking of the implementation milestones. Below is an overview of the project timeline.



Call Center Root Cause Analysis, continued

The implementation timeline included the following:

- Soft Launch, 6/8 – West IVR changes were migrated into the vendor production environment for further verification and testing by the project and User Acceptance Testing teams.
- Go-Live, 6/27 – IVR migration activated. Once migration completed, IVR enhancements were available and accessible to customers via the existing toll-free call center phone numbers.
- Post Day 1 Warranty Support – Project team resources provided production support for a period of 90 days following go-live to ensure a smooth transition. Enhanced support was provided to CSRs.

The IVR launch included internal and external communications, including an All-Hands Leadership meeting, as well as a multiple presentations. Helpful tips and menus were distributed. Pepco also highlighted customer benefits with a “Did You Know?” weekly CSR campaign and information to all employees. In June, Pepco provided a project update to the DC Public Service Commission.

Benefits and New Features of the IVR to Improve the Customer Experience

Pepco’s IVR upgrade includes a number of enhancements designed to improve the customer experience, by allowing the customer to access their required information as quickly as possible while maintaining account security. These features include:

- Predictive Intent, which enables the IVR to anticipate why customers may be calling based on account characteristics or flags passed from the customer information system to the IVR.
- Spanish language options, which provides IVR service to more customers, and which also contains more calls in the IVR and reduces call volume to CSRs.
- Self Service Functionality, which allows customers to perform a variety of account actions independently (i.e. Budget Billing, Payments, Meter Readings, Stop Service, etc.)

The Predictive Intent technology reduces the amount of information the customer must provide and simplifies the number of menus the customer hears. This streamlined process helps make the call shorter and increases customer satisfaction. The operational path starts with account verification (through phone, address or account number), the identification of the account flags, and then the customer is asked questions or prompted to take certain actions based on the account flags. For example, a customer who has a disconnect notice for non-payment will first receive options related to making a payment. After the customer’s account is verified, the IVR reviews the disconnect notice details and the amount that needs to be paid to stay connected. The customer is prompted to make payment or can make payment arrangements through the IVR options.

Customers are now able to make a wider range of transactions using the IVR. Customers can complete their customer service request faster and access the system at a time that is convenient to them. They are able to transfer to a CSR if they want to speak to someone instead of or after completing a transaction. Transactions that a customer can complete within the IVR include:

- Account Information and updates
- Budget Billing and payment arrangements
- Payment
- Report outages and receive an estimated time of restoration
- Request meter reading
- Stop service

Ongoing Customer Service Initiatives

There are multiple customer service plans and initiatives in place or in development at Pepco. They include the following projects below. These projects are considered business initiatives and included in the business initiatives tracking. They are being completed under the leadership of Vice President of Customer Operations.

Interactive Voice Response (IVR) Stabilization

While the new system is launched, performance data continues to be monitored in order to determine any need to make upgrades and increase responsiveness in collaboration with the system vendor and project team. Throughout this process, performance and customer satisfaction are monitored.

Training for CSRs

As discussed in the original Report, the Axonify training system (piloted last year) is being used to train CSRs. This online training system is used for individualized training using an online platform that including knowledge testing capabilities. Based on monitoring by Quality Analysts, new topics can be added to the system as needed. CSRs can be referred to training modules, as needed.

Implementation of Customer Contact Preference Center.

In 2018, Pepco will provide a contact preference center that will enable customers to sign up to receive proactive outbound communications regarding outages and other communications.

Improving Customer Self Service

A new website design, including a new My Account platform, will increase the ability for self-service. Best practices and learnings from other Exelon utilities are being used to enhance processes.

Implementing process improvements

Customer Operations will be streamlined and organized to better track customer interactions, and a framework is being completed for journey-mapping of customer experiences in order to develop more effective strategies.

Reliability Plans, Processes and Metrics

Pepco has multiple business plan initiatives underway to drive reliability improvement so customers experience fewer and shorter outages. These initiatives are designed to address the causes of customer dissatisfaction discussed on page 10 of the original Report. This section of the Supplemental Report discusses both the internal initiative tracking mechanisms and the external plans and metrics provided to the Commission.

Daily Operations Call

Pepco conducts a daily operations call to review operating metrics including the number of outages, their resolution and performance variances. Potential operating concerns such as weather impacts are discussed along with planned activities. These calls include the Vice President and/or representatives from all operating and support areas of the company such as Electric Operations, Technical Services, Project Management, Customer Operations, Transmission and Substation and Support Services. Each functional area reports on any operational issues from the previous day including an action plan on the remedy. All action plans are tracked and require an update on resolution. Depending on the issue, action plans may include a Root Cause Analysis which involves a documented process that is tracked to ensure completion.

COO Quarterly Reliability Meeting

Each quarter, the COO has a cross functional meeting with attendees from a variety of departments, including Operations, Communications, External Affairs, Key Accounts, Customer Operations, and Customer Experience.

The agenda includes a detailed discussion of reliability performance metrics, performance variances, updates on major reliability projects, an overview of new initiatives, customer satisfaction performance, specific concerns of large customers, and a discussion of issues of concern related to reliability performance. The objective is to provide a forum for input from a broader team and ensure all team members are informed. Customer concerns are shared and leadership can ensure issues are being addressed or refer issues to the appropriate team for further action.

Business Plan Initiatives

Reliability-related business plan initiatives are identified through a rigorous evaluation process that prioritizes the list of potential/proposed work based on the numbers of customers impacted, an analysis of operational data, severity of the issue, and other operational dependencies. The project team is responsible for implementation, with milestones developed and required status updates reported on a monthly basis. Each initiative has a project manager who monitors performance, communicates updates, and ensures performance variances are addressed. The Director of Engineering and Projects for Pepco or the Director of Engineering have oversight, depending on the type of project.

Similar to the call center performance data, there are multiple reliability performance metrics used as a key performance indicator, including SAIFI, CAIDI, and other outage metrics. These metrics are tracked each month with data compared to goals, and to peers. Performance variances are indicated with corrective actions noted. The Vice President of Electric and Gas Operations has responsibility for these metrics.

Reliability Plans, Processes and Metrics, continued

Example of an Initiative Charter

One initiative discussed in the original Report (page 13) is the Feeder Improvement Plan. The process includes identifying and implementing corrective actions to mitigate outages from occurring at key points on a specific feeder. This initiative is meant to improve the performance of each feeder to reduce outages. The annual process includes the following steps:

- Review of outage data to identify feeders that are not performing effectively
- Create targeted feeder lists
- Review proposed remediation activities
- Design work to be performed
- Schedule work and monitor key milestones
- Complete and submit evidence of completion, which is reviewed by Operations Council comprised of PHI Senior Management
- Track Feeder Performance, which is provided to the PSC and other stakeholders on an annual basis

Here is the charter used to document key milestones at an overall level. Further details are provided in the following section.

Level 1 Charter - SAIFI

Level	2	Initiative ID	SP01PHI16		Initiative Title		Targeted Feeder Improvements	
Tower	Infrastructure				Core Function		System Performance	
Utility Owner	Miguel Ortega							
Project Team	Brian Clark, Paul Lipari		Funded Y/N/LOE	Y	Start Date	10/1/16	End Date	12/31/17
Major Milestones / Deliverables	Task Description						Start Date	End Date
	Identify targeted feeders						10/01/16	10/31/16
	Review proposed remediation activities						11/01/16	11/30/16
	Perform designs and release work to construction						12/01/16	06/30/17
	Schedule work and construct						01/02/17	11/30/17
	As-built work						03/01/17	12/15/17
	Complete and submit Evidence of Completion (EOC), review by Ops Council						12/01/17	12/31/17
Scope	<p>Objectives:</p> <ul style="list-style-type: none"> • Identify and implement correct actions to mitigate outages from occurring at key points on a feeder. <p>Expected Results:</p> <ul style="list-style-type: none"> • Improve the performance of each feeder by reducing SAIFI and CAIDI while improving the customer experience. 							
Risks/ Interdependencies	<ul style="list-style-type: none"> • Resource availability. 							

Reliability Plans, Processes and Metrics, continued

Detailed Reliability Plans and Metrics

One of the concerns with the original Report was that it did not provide detailed data analysis and action plans. The section to follow demonstrates the level of planning and analysis that is provided to the Commission, along with work plans and supporting information. Pursuant to Commission Order No. 15568, Pepco submits an annual continuous improvement plan for reliability, including resourcing, specific performance targets and milestone dates.

Each year, the Annual Consolidated Report (ACR) is filed, including the reliability analysis for the District of Columbia, which provides planned improvements, detailed work plans, and performance information. Some excerpts of the full report are provided in this section to illustrate the level of detail Pepco provides related to reliability improvement. These plans were originally cited in the original Report on page 13.

Pepco submitted its ACR on February 15 and April 1, 2017. Pepco's Work Plan provides a comprehensive strategic framework and assigns metrics for evaluating the successes and assessing necessary strategic changes to further improve system performance.

Pepco is committed to maintaining a safe and reliable electric distribution system and has programs in place that advance the operation of the electric distribution system by increasing the capabilities to monitor and analyze the system performance and enhance the ability to determine where to make modifications and additions to replace poorly performing equipment. The detailed plan for these programs includes extensive information on the timelines and specific actions, and as such, was not fully detailed in the original Report. Below is an overview of the data, processes, and plans included in the ACR:

- Distribution Projects
- Technology: Monitoring, Automation, And Information Systems
- Equipment Standards & Inspections
- Vegetation Management Program Detail
- Industry Comparisons and Best Practices
- Storm Readiness
- Distribution Substation Automation Projects
- 4 Kv To 13 Kv Conversion Projects
- Priority Feeder Projects
 - Priority Feeders & Aggressive Initiatives
 - Feeder Performance And Aggressive Initiatives
 - 2017 Priority Feeder Program
- Aggressive Corrective Action Program
- Reliability Statistics
- Neighborhood Analysis
- Outage Causes

Reliability Plans, Processes and Metrics, continued

The ACR includes the Comprehensive Plan for the Planning, Design, and Operation of the Distribution System within the District of Columbia (Comprehensive Plan), and the Productivity Improvement Plan (PIP). These two sections provide detailed action plans and describe the data, technology, teams, and systems in place for reliability improvement. The following is a brief description:

Part 1: Comprehensive Plan: Pepco's report presents a compilation of major elements of its underground distribution construction and plans as well as supporting technologies and conversion programs to improve system reliability.

Part 2: Productivity Improvement Plan (PIP): The PIP includes data regarding Pepco's transmission and distribution system operating performance and measures to improve service reliability.

Systems and Technology

The discussion below addresses the Company's technology used to identify corrective actions.

System Control and Data Acquisition System (SCADA)

The System Control and Data Acquisition (SCADA) System is the primary tool used by the System Operators to monitor and operate the electric system. This system provides the System Operator at the Control Center the ability to remotely monitor and operate all major equipment at all substations and selected equipment outside of the substations. The System Operator is able to oversee what is happening across the electric system and can take appropriate actions to maintain a safe and reliable system and restore service during outages.

The Remote Terminal Unit (RTU) at each substation gathers data from all substation monitored equipment, and provides an interface to pass the data to the central computer system, Energy Management System (EMS), and to the System Operator, who can then remotely control devices at each substation. Major equipment status (open or closed) and equipment metering (watt, var, voltage and ampere) is monitored by the Operator. Additionally, there are equipment alarms that indicate abnormal conditions such as high temperatures, low oil pressure or overloads on a particular device or feeder.

Pepco maintains its own extensive communication system that allows for direct communication between the RTUs at the substations and the computer system at the Control Center. The computer system at the Control Center gathers the data from all the RTUs, analyzes the data, displays results to the System Operators, and provides the interface for the System Operator to remotely operate the system to protect equipment. Any change of electric system status at the substation is displayed to the System Operator within approximately 4 seconds.

The system also provides performance analysis data. For example, it indicates when substation equipment exceeds its capability limits. Automatic switching activities can be performed or the System Operator can take action manually to protect remote system equipment and relieve the condition that caused the equipment to be operating outside of its limits.

Reliability Plans, Processes and Metrics, continued

All raw data from the SCADA system (meter values and status changes) are retained and used by various areas (System Planning, Distribution and Engineering, etc.) that require the data for performance analysis and planning purposes. The available data consists of meter values (watts, vars, volts and amps) and status (open and closed) of various facilities, equipment and feeders. The data are used to plan improvements and corrective actions.

The SCADA system also provides input to the Outage Management System (OMS). When a feeder breaker at a substation opens and the entire feeder is out, all customers connected to that feeder are known to be out of service. Information obtained from AMI meters and customers (pole struck, line down, tree limb on wire, etc.) is used to determine the source of the problem and to dispatch crews. For trouble involving these pieces of equipment, the customer calls can improve the data necessary to fully assess the problem. The OMS analyzes all the customer calls as well as AMI meter statuses and determines the common source of the problem.

Information is also passed back through the OMS to the Call Center to provide that information to the customer when they call in, access the outage map, or use the mobile app. This information includes knowledge of outage causes and estimated restoration time under non-major storm outage conditions. As discussed on page 13 of the original Report, accurate outage and restoration information will enhance the customer experience when outages occur. Proactive outbound customer outage alerts, which will utilize data from the OMS system, are expected to be launched in early 2018.

Pepco continues to increase the use of GIS data throughout the company, primarily in the area of mobile accessibility to GIS data and more efficient field reporting of activities.

Overhead Feeder Inspection Program

Pepco's Overhead Feeder Inspection Program provides the data and corrective actions needed to anticipate and resolve feeder equipment problems. It provides insights used to make feeder investments cited in the original Report (page 13). It ensures that all feeders with overhead exposure are inspected within a two-year period. Pepco currently has 186 District of Columbia feeders with overhead exposure.

The inspection consists of a mobile scan of all main line poles on a feeder, from ground line to the top of the pole including the conductors from pole to pole, utilizing Ultrasonic and Infrared Non-Destructive Testing (NDT) methodology. Ultrasonic and Infrared scans are also conducted on equipment and connections for each pole and pertinent ancillaries. Scan results (sound waves), infrared and full spectrum images are obtained and analyzed to determine feeder condition. Visual inspection is performed on all feeder mainlines to determine feeder/equipment condition and identify immediate threats to reliability on the following equipment:

Cross-arms and braces	Insulators
Grounds	Lightning arrestors
Conductors	Transformers
Reclosers	Capacitors
Regulators	Ancillary equipment
Vegetation	

Reliability Plans, Processes and Metrics, continued

Process for Feeder Improvements

Overhead feeder inspection results, required remediation work and completion status are tracked. Prioritization of remedial work is based on both safety and reliability attributes. Immediate or near-term response is assigned to those conditions that must be addressed to mitigate imminent safety or reliability issues. Less emergent conditions are required to be remediated within the typical design and build cycle for distribution projects. Conditions that do not pose a reliability or safety threat in neither the near-term nor long-term, are identified for possible upgrade in conjunction with other planned work.

Repairs or upgrades to correct or eliminate conditions observed during inspections are categorized with the following prioritizations for corrective action:

- Priority 1: A condition where upon inspection, a Pepco facility is deemed to present an imminent safety hazard to utility personnel and/or the public. In this case, steps are taken to immediately eliminate the hazard. Inspectors are required to immediately notify Pepco and to stand by until relieved by Pepco personnel.
- Priority 2: A condition where upon inspection, a component of an overhead feeder is observed and confirmed to pose a threat to service reliability, but does not pose a direct public safety threat.
- Priority 3: A condition where damage or degradation exists on a component of an overhead feeder line, does not pose a direct public safety threat, and if left uncorrected, has the potential to affect service reliability under adverse system conditions.
- Priority 4: A condition that poses no threat to safety or reliability, but does not conform to current Pepco standards.

In 2016, 106 District of Columbia feeders were inspected as part of the Overhead Feeder Inspection Program. Forty-one conditions were identified as needing improvement. Conditions have been referred to the appropriate engineering area for further evaluation and remediation. A sample of the type of data collected and included in the Comprehensive Plan is shown below.

Feeder	Condition
119	Visual/thermal scan identified crossArm / cracked
122	Visual/thermal scan identified crossArm / splitMinor
164	Visual/thermal scan identified primaryWire / floating; crossArm / splitMajor
323	Visual/thermal scan identified crossArmBrace / broken
365	Visual/thermal scan identified crossArmBrace / decayed; crossArm /leaningBent
367	Visual/thermal scan identified crossArm / cracked/floating primary
368	Visual/thermal scan identified primaryWire floating/crossarm split/cracked
369	Visual/thermal scan identified crossArm splitMinor/floating primary
385	Visual/thermal scan identified crossArm / splitMinor; crossArmBrace / other
386	Visual/thermal scan identified poleTop / splitHardwareAffected; crossArm /splitMinor

Reliability Plans, Processes and Metrics, continued

Feeder Performance Analytics

As discussed earlier, the Feeder Improvement Plan provides the timelines and activities to improve specific feeders. To determine which feeders to target, Pepco analyzes the performance of its feeders to determine the relative ranking of each feeder from the best to the least reliable. From this ranking, Pepco selects the least reliable two percent (2%) of its feeders (excluding the selected feeders from the prior year) to analyze and identify actions which likely will improve the reliability of the feeders, and therefore the system. Pepco uses the SPC (System Performance Contribution), a method that provides greater system performance improvement potential. The SPC value for each feeder is calculated using the following equation:

$$\text{SPC} = 75\% \times (\text{Feeder CI} / \text{System CI}) + 25\% \times (\text{Feeder CMI} / \text{System CMI})$$

Where:

Feeder CI = Customer Interruptions of the feeder

System CI = Customer Interruptions of the total system

Feeder CMI = Customer Minutes of Interruption of the feeder System

CMI = Customer Minutes of Interruption of the total system.

When selecting the annual priority feeders, the selections are made based on the combination of the following criteria:

- Feeders blended performance ranking by SPC values (i.e., individual feeder contribution to system SAIFI and SAIDI);
- Feeders that are not repeated from the year prior;
- Feeders with a minimum SAIFI value of 2.00; and
- Feeders experienced at least 10 outage occurrences in the evaluation period.

Additional analysis at the feeder level is conducted to ensure the proper feeders are selected and corrective actions are reasonable (e.g., excluding feeders with abnormal configuration at the time of the outage occurrence, when outage causes were remediated during initial outage restoration work, etc.). Excluded from this annual study are the Priority Feeders from the prior year, which typically would not show the full results of corrective actions until a full year following the completion of the corrective actions.

As of December 2016, there were 773 feeders (4 kV and 13 kV) in the District of Columbia. The sixteen 2017 Priority Feeders (based on performance during the twelve-month period ending September 30, 2016), along with customers served, are provided in the Comprehensive Plan (Section 2.4.1.2.), and each includes a narrative outlining the initial measures necessary to improve performance. Additional corrective actions may result from continuing analysis of the outage data and detailed engineering throughout the year.

The priority feeder program is an enhanced initiative including both reliability work routinely performed on the selection of priority feeders supplemented with more aggressive initiatives.

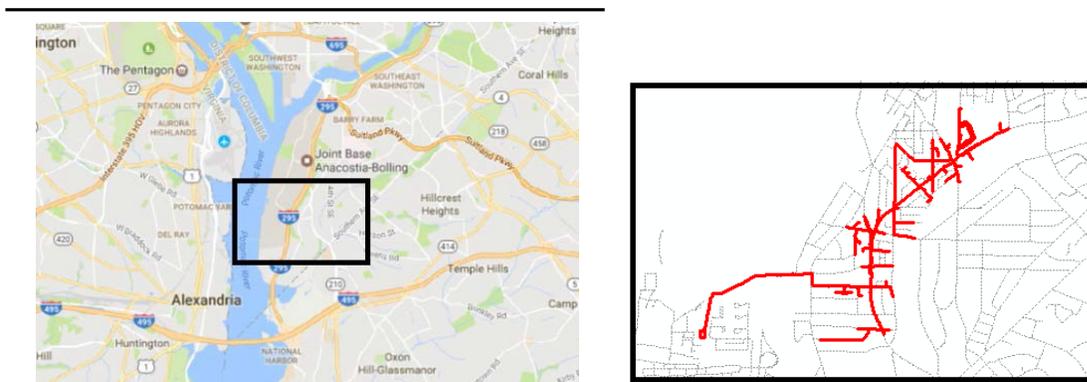
Reliability Plans, Processes and Metrics, continued

The plan information below demonstrates the information included in the Comprehensive Plan for each feeder identified as needing improvements. It includes the data supporting the need for improvement, planned corrective actions, timeline, and budget.

Improvement Plan Circuit 14755

County	Substation	Customers Served	Number of Outages	Oct. 2015-Sept. 2016 Reliability Indices (In Hours)			Feeder Miles			Repeated Last 2 Years?
				SAIFI	SAIDI	CAIDI	OH	UG	Total	
DC	N.R.L. (168)	1,592	20	3.421	3.49	1.02	73%	27%	6.56	N

Feeder Map and Location:



Outage Data Summary (Past 3 years):

2014: (Oct 13-Sep 14) Eighty-six percent (86%) of customer outages were due to six fused lateral events; three events caused by equipment failure, one event caused by load, two events caused by weather. Fourteen percent (14%) of outages were due to six localized transformer events; two caused by equipment failure, one caused by load, one event caused by trees, two caused by vandalism.

2015: (Oct 14-Sep 15) Seventy-eight percent (78%) of customer outages were due to eight fused lateral events; one event caused by animal, one caused by trees, five events due to unknown cause, one caused by weather. Twenty-two percent (22%) of customer outages were due to six localized transformer events; three caused by equipment failure, two caused by vandalism, one caused by weather.

2016: (Oct 15-Sep 16) Ninety-five percent (95%) of customer outages were due to three mainline events; two events due to equipment failure, one due to an unknown cause. Four percent (4%) of customer outages due to nine fused lateral events; seven caused by equipment failure, one by trees, one due to an unknown cause. One percent (1%) of customer outages due to eight localized transformer events; one caused by animal, two caused by employee, two caused by equipment failure, two caused by trees, and one caused by weather.

Feeder Performance (Oct 15-Sep 16)		
Outage Cause	SAIFI	% of Feeder SAIFI
Unknown	2.238	65.4%
Equipment Failure	1.112	32.5%
Tree	0.031	<1%
Animal	0.024	<1%
Weather	0.014	<1%
Other*	0.001	<1%

Reliability Plans, Processes and Metrics, continued

Improvement Plan Circuit 14755

Field Observations:

Feeder 14755 serves customers in the Bellevue area of Southeast Washington. The loads served are both residential and commercial, the majority being residential, smaller sized multi-unit apartment buildings in an urban environment. The main line runs along busy urban streets with the laterals reaching out into the side streets along the route. Despite the urban setting, the side streets are lined with substantial amount of trees.

This feeder originates out of the substation on Beyer Rd. Its getaway riser pole is located on Danbury St. The circuit transitions to 477 ACSR Tree wire for the length of Danbury St. until it meets the intersection at South Capital St. At that junction, it runs both north and south on South Capital St. where it becomes cross arm construction with 1/0 bare wire. To the south its conductor is 1/0 CU, and to the North 1/0 ACSR bare. The feeder turns northeast on Mississippi Ave. with an ACR to the North of First St to segment the feeder at this point, providing a potential isolation from the long run north on Mississippi Ave. The circuit continues on Mississippi Ave to 4th St. where it meets a tie point with feeder 15166 on the north side of Mississippi Ave. A lateral section ends past the school at 4th street. There is an additional tie point to feeder 14752 on South Capital St, just north of Atlantic St. South of the Danbury-Capital St intersection, the circuit heads south on South Capital until Forrester Street. The circuit turns west onto Forrester St. and then onto Galveston Place. On both Forrester St. and Galveston the circuit meets to a tie point with feeder 14753 at open switches.

Previous Actions Taken (Past 3 years):

- Tree trimming completed in 2015
- 2016 Comprehensive Feeder work - \$359K (Completed 4th Quarter 2016)

Planned Remediation (Current Year):

The filed plan includes details of the improvements on each street, with a couple of examples shown below. A full listing is included in the Comprehensive Plan.

- South Capitol St:
 - Replace three-phase mainline primary wire with 477 ACSR Bare
 - Upgrading mainline neutral wire to 4/0 ACSR Bare
 - Replace mainline secondary open wire with 4/0 Triplex
 - Replace poles
- Halley Terrace:
 - Remove three-phase mainline #4 CU Bare primary wire due to reconfiguration
 - Install three-phase 1/0 ACSR Bare primary wire
 - Upgrading neutral wire to 1/0 ACSR Bare
 - Miscellaneous upgrades such as animal guards, lightning arrestors, crossarms, missing grounds, uninsulated down guys, etc.

Milestones/Schedule:

- Work on this feeder will require approximately 7 months to be completed.
- Budget: \$250,000 under the Priority Feeder budget. \$90,405 is planned under the DA budget.

Anticipated Benefits:

The benefits of the proposed work include reduction of service interruptions from outages related to equipment failure, weather, and vegetation, thus improving system reliability and customer satisfaction. During the outage review period October 2015 through September 2016, unknown cause accounted for 65% of the outages and equipment failure 33%; permanent repairs were made following each incident. Installation of ACR will mitigate the impact of outages that occur on the mainline sections of the feeder and will improve sectionalization capability, thus minimizing the number of customers interrupted. Installation of tree wire will decrease the likelihood of tree related outages. Installation of secondary triplex wire will decrease the likelihood of faults during storm conditions due to its higher strength. All of the facility upgrades will improve the overall reliability of this feeder.

Reliability Plans, Processes and Metrics, continued

Additional Metrics and Action Plan Updates

Neighborhood Analysis

Pepco developed a comprehensive list of the feeders serving District of Columbia customers and the neighborhoods served by each in order to identify the neighborhoods impacted by reliability issues and remediation work. In order to provide neighborhood identification that is both accurate and consistent, Pepco is now using assessment neighborhoods as defined by the District of Columbia Office of Tax and Revenue (OTR) Real Property Tax Administration (RPTA). Pepco is assessing new methods to programmatically identify the neighborhoods each Pepco feeder serves and plans to discuss these options with the PIWG group. The analyses listed below are included.

- Neighborhoods warranting infrastructure improvements due to increased load growth
- Neighborhoods with decreased planned spending on 4 kV to 13 kV conversions
- Neighborhoods with decreased planned spending on 4 kV to 13 kV conversions that are among previously identified Most Susceptible Neighborhoods
- Explanation of how reduced conversion spending will improve reliability in Most Susceptible Neighborhoods
- Neighborhoods served by Priority Feeders
- Neighborhoods served by equipment subject to failure data rate analysis

Electricity Quality of Service Standards (EQSS)

Pepco tracks and reports metrics related to a number of customer service area on an ongoing basis and as part of the annual Consolidated Report. These metrics provide further insight into the progress Pepco is making in areas discussed in the Root Cause Analysis Report.

The EQSS establish standards for ensuring that electric utilities operating in the District of Columbia meet an adequate level of quality and reliability in the electric service provided to District residents. Pepco and all electricity suppliers within the District of Columbia collect EQSS data on a monthly basis and file quarterly submissions of the monthly data. The data included is detailed below:

- Progress on current corrective action plans on customer calls answered
 - Actual call center performance during the reporting period
- Progress on any current corrective action plans on call abandonment rates
 - Actual performance obtained during the reporting period
- Data on completion of installation of new residential service requests within ten (10) business days of the start date for the new installation.
 - Progress on any current corrective action plans on new residential service installation
 - Actual performance obtained during the reporting period in the annual Consolidated Report of the following year.
- Progress of the corrective action plan on repeat least performing feeders
- The number and percentage of non-major service outages that extend beyond the twenty-four (24) hour standard and the reasons the outage extended beyond the 24 hour standard.
- The progress of the corrective action plan on SAIFI, SAIDI and CAIDI benchmarks
- Annual reliability indices of SAIFI, SAIDI and CAIDI (with and without major events)

Reliability Plans, Processes and Metrics, continued

Pepco District of Columbia Reliability Program 2017 Work Plan Summary

As a Merger condition, Pepco filed a report with the Commission which includes a forecast of planned reliability-related work for that calendar year, including general project descriptions, locations, and associated reliability-related capital and O&M spending. This information is also being included in the Annual Consolidated Report. The report provides details on Pepco's 2017 planned projects for the following operations and maintenance ("O&M") and capital reliability categories:

- Vegetation Management;
- Scheduled and Preventive Maintenance;
- Feeder and Substation Reliability Improvement;
- Distribution Automation;
- 4kV to 13kV Conversions;
- Emergency Restoration; and
- DC PLUG.

Each category includes a description of the 2017 projects, the budget, and the location of the work to be done for planned activities. Where applicable, the category's historical reliability performance is provided in addition to the reliability improvement metric used to track each category of projects. In addition, where applicable, the System Average Interruption Frequency Index ("SAIFI") and System Average Interruption Duration Index ("SAIDI") that the Company expects to achieve from the upcoming work has been included to reflect the overall modelled benefits expected.

Reliability Plans, Processes and Metrics, continued

Pepco District of Columbia Reliability Program 2017 Work Plan Summary

The following table provides a general description, performance metric, and O&M and capital dollars planned for 2017. The budget amounts are the current budget levels, all of which are within the annual capital and O&M reliability spending levels as set forth in Commitment 55 of Order No. 18148.

Work Plan Summary			
Project Name	Project Description	Performance Metric	2017 Budget \$000s
Vegetation Management	Program to address vegetation, designed to maintain appropriate clearance on the system, remediate trouble spots (e.g., Priority Feeders), and remove the vegetation hazards that have the greatest impact on system reliability.	Annual tree related SAIFI/SAIDI performance for all feeders.	\$2,413
Scheduled and Preventative Maintenance	Program designed to maintain equipment in operable condition.	Inspections planned versus inspections completed and priority conditions identified addressed in a timely manner.	19,281
Total O&M Reliability Budget			\$21,694
Feeder Reliability Improvement	Program to address equipment, vegetation, weather, and animal-related interruptions which negatively impact reliability performance. These projects involve installing, removing, and replacing reclosers, switches, conductors, animal guards, lightning arresters and other equipment deemed necessary on the 2% Priority and Comprehensive Feeders (top SAIFI contributing, and high customer interruption feeders) to maintain safe operation and improve reliability. URD Cable replacement involves replacing or rejuvenating cable in order to minimize failures	Annual cumulative SAIFI/SAIDI performance for the group of feeders included within the annual feeder improvement program. URD Cable Replacement performance is further measured by tracking the trend in URD cable failures.	33,046
Substation Reliability Improvement	Program to proactively retire and replace aging or damaged substation equipment and support upgrades to improve substation reliability.	Equipment failure rates and equipment failure SAIDI/SAIFI. Operate substations within design loading criteria.	23,521
Distribution Automation	Program to address system reliability by deploying system automation technology. These projects involve installing advanced control systems across the distribution system in order to automatically identify and isolate faults in real time and restore service to customers in the unaffected parts of the system.	Performance metric tracks the number of installed devices relative to the planned number of devices scheduled to be installed. In addition an evaluation is performed that compares the number of customers interruptions per event compared to potential customer interruptions without automation device installed.	16,580
4kV to 13kV Conversions	This program involves upgrading aging 4kV feeders in order to reliably supply customers and support increased usage required by existing customers. Conversion projects improve reliability by replacing aging 4kV infrastructure. These projects are performed on feeders where the 4kV feeders are experiencing little or no growth however due to the operational condition of the equipment the feeders need to be converted to improved system performance and reliability.	Performance metric monitors the completion of conversion work by tracking the number of customers scheduled to be converted to 13 kV supply compared to actual number of customers converted.	19,875
Emergency Restoration	Blanket projects to restore electric plant damaged by storms, struck poles, dig-ins and miscellaneous component failures.	N/A	18,400
Other Miscellaneous	Projects including security, miscellaneous equipment replacement, accruals and salvage for scrap wire/cable. ²	N/A	3,328
Total Pepco District of Columbia Distribution Capital Reliability Budget			\$114,422
*Scheduled Maintenance includes total Pepco System (D.C. & Maryland)			

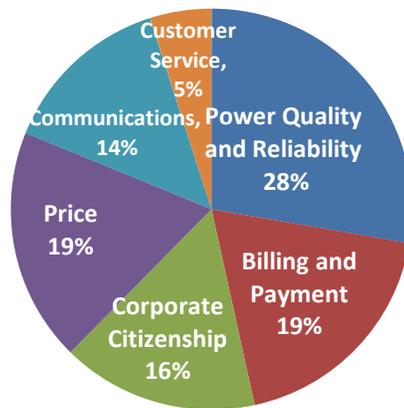
Appendices

Appendix: JD Power Customer Satisfaction Data

J.D. Power Overview

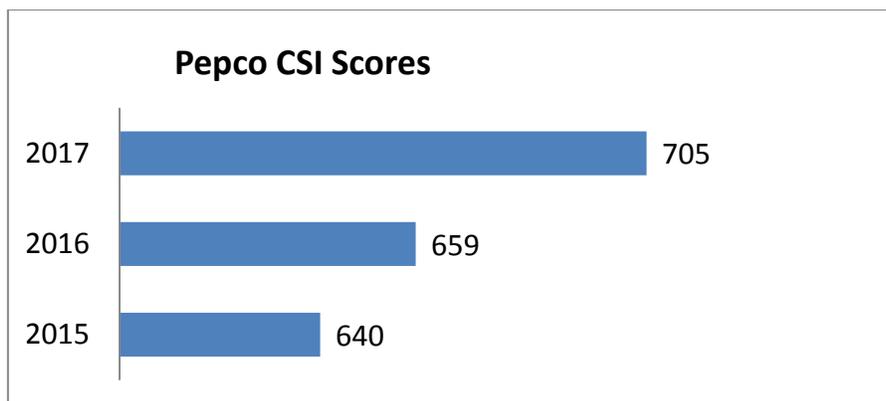
Pepco subscribes to the Residential and Business study by JD Power. This study provides an additional resource for benchmarking and improving customer satisfaction. The J.D Power Electric Utility Residential Customer Satisfaction Study provides analytic data to help measure and manage performance for ongoing improvement. The satisfaction score is calculated on a 1,000 point scale.

J.D. Power's Electric Utility Residential Customer Satisfaction Report is in its 19th year. It measures six key factors to determine customer satisfaction. Power Quality (28%) and Billing and Payment are the largest factors impacting satisfaction in this study. Customer service plays a smaller role because the majority of customers do not have a specific customer service experience during the course of a year. For customers who require customer service, the impact score more than doubles.



The study ranks utility companies by their size (midsize and large) and the region in which they are located. Pepco is located in the East Large region.

According to the J.D. Power Electric Utility Residential Customer Satisfaction Report, Pepco's customer satisfaction score has improved in each of the last three years. In 2017, Pepco's customer satisfaction score (705) improved by 46 points from its 2016 customer satisfaction score (659).



Appendix: Customer Comment Mapping

In order to clarify how the illustrative comments relate to the corrective actions cited in the report, Pepco has identified the corrective actions related to each customer comment.

Reliability and Restoration Customer Comments

As noted in the original Report (page11), the customer comments below illustrate customers' perceptions of the types of concerns related to both reliability and restoration. In order to clarify how the illustrative comments relate to the corrective actions cited in the report, Pepco has identified the corrective actions related to each customer comment.

"I've had probably seven service outages in the last 12 months. The primary reason for the outages is their failure to primarily maintain the transformer that is six blocks from where I am. That's enough."

- Actions taken to reduce the number and length of outages, including a focus on areas with repeat outages to upgrade equipment and make proactive feeder improvements
- Actions taken to enhance the outage information provided by field personnel, including the need to update system information on the cause and to provide more accurate ETRs
- Proactive outage alerts planned for 2018 will notify customers of ETR updates
- Actions taken to improve customer service, including better first call resolution, complaint tracking and focused training

"We have had repeated power outages for no reason. There was no storm or anything. The power just goes out. I have gone back and forth with them about changing the name on the account. It took multiple phone calls to get it done. I feel like they have poor communication when it comes to repairs. It takes longer to repair."

- Actions taken to reduce the number and length of outages, including a focus on areas with repeat outages to upgrade equipment and make proactive feeder improvements
- Actions taken to enhance the outage information provided by field personnel, including the need to update system information on the cause and to provide more accurate ETRs
- Proactive outage alerts planned for 2018 will notify customers of ETR updates
- Actions taken to improve customer service, including better first call resolution, complaint tracking and focused training

"I was without electricity for a number of days. It was more than five days. I was not paid or reimbursed for being without service because of Pepco's bad maintenance to their lines. They fell on my house and they had to be replaced at my expense. Other things like high bills that were unexplained. The bills are higher in the summer than when I use more electricity in the winter."

- Actions taken to reduce the number and length of outages
- Actions taken to improve customer service, including better first call resolution, complaint tracking and focused training

"Primarily a tree cutting. It took five years of complaints for them to cut a dead tree near my house. We have had numerous blackouts. I'm in a big city and they are fairly unresponsive. They are starting to put in new wiring though."

- Actions taken to reduce the number and length of outages, including more proactive maintenance and tree trimming
- Actions taken to improve customer service, including better first call resolution, complaint tracking and focused training

Appendix: Customer Comment Mapping

“Because we’ve had unreliability in the service in the past. It is not clear what the cause is or what the reason for outages is. In the past it’s taken some time for the power to be restored. In the summertime, whenever there’s a lighting storm it takes the grid out and we have been without power for more than a day sometimes. Just that it’s not clear what causes the interruption in service, and it’s hard to get an update. They do not proactively reach out to their customers with the cause and the expected time of restoration when there is an interruption. It could be maintained more properly. It could be getting old, so it could be repaired. Also, their customer service could improve on updating their customers when they will be bringing the service back online.”

- Actions taken to reduce the number and length of outages
- Actions taken to enhance the outage information provided by field personnel, including the need to update system information on the cause and to provide more accurate ETRs
- Proactive outage alerts planned for 2018 will notify customers of their outage and any ETR updates

Customer Service and Call Center Customer Comments

“The amount of time it takes when I call and the wait when I have to speak to a person when I have a problem or a question.”

- Actions taken to monitor and reduce wait time, including the enhanced IVR and hold time reductions

“One hour on hold for customer service. They’re not staffed enough for the volume of calls.”

- Actions taken to monitor and reduce wait time, including the enhanced IVR and hold time reductions

“Billing mistake one year ago. I attempted to switch it to my name from the previous owner. I was told the change was successful. 10 months later, I received a collection notice. When I called to resolve it, they told me tough luck and didn’t care. The second bill wasn’t my bill. I thought it was a closed account while I was paying my current bill. I had the worst customer service in my life. It was as if the billing mistake was my fault.”

- Process changes focusing on customer journeys, including customers who have moved.
- Actions taken to track and improve first call resolution for specific call types which drive call volume, including process changes and CSR training

“Because it’s not the easiest place to reach sometimes, and they’re not proactive in reaching out. We always have to call about outages.”

- Actions taken to enhance the outage information provided by field personnel, including the need to update system information on the cause and to provide more accurate ETRs
- Proactive outage alerts planned for 2018 will notify customers of ETR updates

“I don’t think they know what they’re talking about. I always have to ask for a manager. For whatever reason, they don’t have the right answers.”

- Actions taken to improve customer service, including better first call resolution, complaint tracking and focused training for individual CSRs and teams
- Actions taken to track and improve first call resolution for specific call types which drive call volume, including process changes and CSR training

Appendix: Customer Comment Mapping

“They don't have any specific answers and they always transfer me because they don't know the answers.”

- Actions taken to improve customer service, including better first call resolution, complaint tracking and focused training for individual CSRs and teams
- Actions taken to track and improve first call resolution for specific call types which drive call volume, including process changes and CSR training

“When I contacted Pepco earlier this year about my upgrade, they couldn't answer my questions. They didn't know my situation or who I was supposed to be talking to. They told me they couldn't help with my engineering issues at all. I was so frustrated that there was nobody who could talk to me about my problem. I just wanted to know what was going on.”

- Actions taken to improve customer service, including better first call resolution, complaint tracking and focused training for individual CSRs and teams
- Follow-up calls made by supervisors to resolve issues based on customer request

“Hire more people and get someone during the day from 9 a.m. to 5 p.m. or whatever, to be there to talk to their customers so that they can answer and talk to us. Talking one-on-one and getting a better understanding from each other. Don't have that machine to talk to. Better communication from someone being there and directing our calls. If they can't help us, then maybe the next person can. With these meters, they don't have to come out. They don't have to come out. What do you call it? They just snap, and they simply get the meter reading that way. I'd like someone human working there and talking, not a machine.”

- Actions taken to improve customer service, including better first call resolution, complaint tracking and focused training for individual CSRs and teams
- A more efficient IVR system will reduce the number of calls going to CSRs, so that CSRs are better able to address the needs of customers who need to discuss their questions with a person.
- Actions taken to track and improve first call resolution for specific call types which drive call volume, including process changes and CSR training

“I think they need to cut some of their automated things back. There is too much automation. They also need to train their customer service reps better. Some of them are not knowledgeable. Some of them are not respectful and some of them just don't care how they treat their customers. When one couldn't answer my question, I was automatically disconnected and I would have had to call back again. Each customer service of all four gave me a different answer. I shouldn't get four different answers.”

- Actions taken to improve customer service, including better first call resolution, complaint tracking and focused training for individual CSRs and teams
- Actions taken to monitor and reduce wait time, including the enhanced IVR and hold time reductions
- A more efficient IVR system will reduce the number of calls going to CSRs, so that CSRs are better able to address the needs of customers who need to discuss their questions with a person.

Appendix: Customer Comment Mapping

Rates and Billing Customer Comments

"The bills are too high. I think they should work with the customer more when they can't pay their bill."

- Actions taken to track and improve first call resolution for specific call types which drive call volume, including process changes and CSR training
- Actions taken to improve customer service through call monitoring and focused training for individual CSRs and teams
- Corrective action designed to improve service for customers who cannot pay their bills, including training CSRs with information about programs that can help

"Prices keep going up. I don't want to change providers. I like Pepco."

- Actions taken to improve customer service through call monitoring and focused training for individual CSRs and teams
- Corrective action designed to improve service for customers who cannot pay their bills, including training CSRs with information about programs that can help.
- Actions taken to improve reliability and increase efficiency that increase value to customers.

"When I first moved into my apartment, they sent me a bill for \$200. I live in a one bedroom apartment and they didn't look into it. They assumed I had a washer and dryer or air conditioner on. They said a manager would call back, but no one ever called back. They sent a letter in the mail saying they would adjust the bill."

- Actions taken to track first call resolution for specific call types which drive call volume, including process changes and CSR training
- Actions taken to improve customer service through call monitoring and focused training for individual CSRs and teams

"Pepco added on extra fees after a year of service. I didn't know why those extra fees were added."

- Actions taken to track and improve first call resolution for specific call types which drive call volume, including process changes and CSR training
- Actions taken to improve customer service through call monitoring and focused training for individual CSRs and teams

"If you're having trouble paying the bill, they're not very helpful. I may be being a bit unfair to them in this regard, but it seems better if we always pay something as opposed to nothing every month. The rates seem high."

- Actions taken to track and improve first call resolution for specific call types which drive call volume, including process changes and CSR training
- Actions taken to improve customer service through call monitoring and focused training for individual CSRs and teams
- Corrective action designed to improve service for customers who cannot pay their bills, including training CSRs with information about programs that can help
- Actions taken to improve reliability and increase efficiency that increase value to customers.
- Upcoming initiatives to improve the customer journey for billing, including potentially enhancing bills and online information

Appendix: Customer Comment Mapping

“They need to bring solutions. They just can't explain to me that everything is online. They need to tell me or offer me some sort of service. My bill is skyrocketing and I haven't changed anything. It's totally unacceptable. They have the record of my history. I pay every time, but my bill is just ridiculous. Give solutions. Take out the automated solutions or make them better and more accurate. Make them so the person doesn't have to repeat the same thing a hundred times. Their service sucks. They solved my problems. I had to call three times. On the last call I had given up and they couldn't tell me anything but to go online. I saw my usage online as well and it was totally false.”

- Actions taken to enhance the IVR including more flexible menus and predictive systems to streamline access to information and CSRs
- Actions taken to track and improve first call resolution for specific call types which drive call volume, including process changes and CSR training
- Actions taken to improve customer service through call monitoring and focused training for individual CSRs and teams
- Actions taken to monitor and reduce wait time, including the enhanced IVR and hold time reductions

“Don't have so many prompts to get to customer service. That should be the first option. I had to go to their credit department and that should be an option, but it's not. I had to talk to someone first, and then get transferred to the credit department because there are no options there.”

- Actions taken to enhance the IVR including more flexible menus and predictive systems to streamline access to information and CSRs
- Actions taken to track and improve first call resolution for specific call types which drive call volume, including process changes and CSR training

“They need to put a little more explaining on the bill. It just tells us what we used last month and this month.”

- Actions taken to track and improve first call resolution for specific call types which drive call volume, including process changes and CSR training
- Actions taken to improve reliability and increase efficiency that increase value to customers.
- Upcoming initiatives to improve the customer journey for billing, including potentially enhancing bills and online information

CERTIFICATE OF SERVICE

I hereby certify that a copy of Potomac Electric Power Company's Supplemental Report on the Root Cause Analysis for DC Customer Satisfaction was served this October 23, 2017 on all parties in Formal Case No. 1119 by electronic mail.

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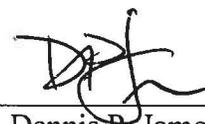
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