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March 27, 2015

**VIA eFILING**

Rosemary Chiavetta, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street  
Harrisburg, PA 17105-3265

**Re: Petition Of PECO Energy Company For Approval Of Its Electric Long Term  
Infrastructure Improvement Plan And To Establish A Distribution System  
Improvement Charge For Its Electric Operations  
Docket No. P-2015-2471423**

Dear Secretary Chiavetta:

With this letter, we are filing the Petition Of PECO Energy Company For Approval Of Its Electric Long Term Infrastructure Improvement Plan And To Establish A Distribution System Improvement Charge ("DSIC") For Its Electric Operations ("Petition"). In addition, PECO Exhibit No. 1 is PECO's Electric Long Term Infrastructure Improvement Plan ("LTIIIP"), also known as PECO's System 2020 plan. PECO Statements No. 1 and 2 are the Direct Testimony of John E. McDonald and Alan B. Cohn. PECO Exhibit No. 2 is the Company's tariff supplement setting forth its proposed Distribution System Improvement Charge (the "DSIC Tariff"). PECO is requesting that the Commission authorize the Company to file the DSIC Tariff on at least one days' notice, to become effective on January 1, 2016.

As evidenced by the enclosed Certificate of Service, copies of the enclosed Petition and accompanying LTIIIP and testimony are being served upon the Bureaus of Investigation and Enforcement and Technical Utility Services, the Office of Consumer Advocate, the Office of Small Business Advocate and the parties to PECO's last electric base rate case.

If you have any questions regarding this filing, please contact me at 215.841.5777.

Sincerely,



c: Per Certificate of Service

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**PETITION OF PECO ENERGY :  
COMPANY FOR APPROVAL OF ITS :  
ELECTRIC LONG TERM :  
INFRASTRUCTURE IMPROVEMENT : DOCKET NO. R-2015-2471423  
PLAN AND TO ESTABLISH A :  
DISTRIBUTION SYSTEM :  
IMPROVEMENT CHARGE FOR ITS :  
ELECTRIC OPERATIONS :**

**CERTIFICATE OF SERVICE**

I hereby certify and affirm that I have this day served a copy of the **Petition Of PECO Energy Company For Approval Of Its Electric Long Term Infrastructure Improvement Plan And To Establish A Distribution System Improvement Charge For Its Electric Operations** on the following persons in the matter specified in accordance with the requirements of 52 Pa. Code § 1.54:

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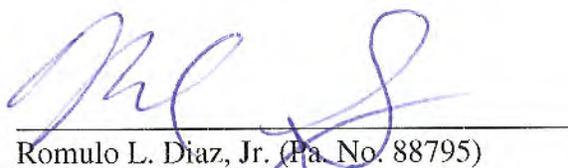
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Date: March 27, 2015

*Counsel for PECO Energy Company*

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

<b>PETITION OF PECO</b>	<b>:</b>	<b>DOCKET NO. P-2015-2471423</b>
<b>ENERGY COMPANY FOR</b>	<b>:</b>	
<b>APPROVAL OF ITS</b>	<b>:</b>	
<b>ELECTRIC LONG TERM</b>	<b>:</b>	
<b>INFRASTRUCTURE</b>	<b>:</b>	
<b>IMPROVEMENT PLAN AND</b>	<b>:</b>	
<b>TO ESTABLISH A</b>	<b>:</b>	
<b>DISTRIBUTION SYSTEM</b>	<b>:</b>	
<b>IMPROVEMENT CHARGE</b>	<b>:</b>	
<b>FOR ITS ELECTRIC</b>	<b>:</b>	
<b>OPERATIONS</b>	<b>:</b>	

**PETITION OF PECO ENERGY COMPANY FOR APPROVAL  
OF ITS ELECTRIC LONG TERM INFRASTRUCTURE  
IMPROVEMENT PLAN AND TO ESTABLISH A  
DISTRIBUTION SYSTEM IMPROVEMENT CHARGE  
FOR ITS ELECTRIC OPERATIONS**

**March 27, 2015**



**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**PETITION OF PECO ENERGY COMPANY :  
FOR APPROVAL OF ITS ELECTRIC :  
LONG TERM INFRASTRUCTURE :  
IMPROVEMENT PLAN AND TO : DOCKET NO. P-2015-2471423  
ESTABLISH A DISTRIBUTION SYSTEM :  
IMPROVEMENT CHARGE FOR ITS :  
ELECTRIC OPERATIONS :**

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**PETITION FOR APPROVAL OF PECO'S  
ELECTRIC LONG TERM INFRASTRUCTURE IMPROVEMENT PLAN AND  
TO ESTABLISH A DISTRIBUTION SYSTEM IMPROVEMENT CHARGE  
FOR PECO'S ELECTRIC OPERATIONS**

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Pursuant to 66 Pa.C.S. §§ 1352(a) and 1353(b) and 52 Pa. Code § 121.5(a), PECO Energy Company (“PECO” or the “Company”) hereby petitions the Pennsylvania Public Utility Commission (“PUC” or the “Commission”) to approve its electric Long Term Infrastructure Improvement Plan (“LTIIIP” or the “Plan”) also known as PECO’s “System 2020” plan, which accompanies this Petition as PECO Exhibit No. 1, and to establish a distribution system improvement charge (“DSIC”) to recover, outside of a base rate case, a return on and a return of capitalized costs related to eligible property constructed or installed to rehabilitate, improve and replace portions of its electric distribution system.

As more fully explained below, the LTIIIP covers a five-year period (2016 through 2020) and focuses on infrastructure improvements designed to enhance reliability by strengthening and modernizing PECO’s electric distribution system. The LTIIIP reflects PECO’s implementation of a plan designed to increase its projected capital investment by \$274.3 million for: (1) storm

hardening and resiliency; (2) replacing underground cable that is exhibiting the beginning of a rising trend in failure rates; and (3) retiring aging and obsolete Building Substations and upgrading and redesigning the distribution facilities those substations supply. The LTIIIP also includes \$50 million to be invested over the LTIIIP's term in facility relocations, which represents "eligible property" as defined in Section 1351 of the Public Utility Code, 66 Pa.C.S. § 1351. Schedules showing PECO's actual and projected expenditures and quantities of eligible plant to be replaced from 2016 to 2020 are provided in Appendix A to the Plan and are described in Section IV.A. of the Plan.

PECO's LTIIIP contains all of the elements required by 66 Pa.C.S. § 1352(a)(1)-(6) and 52 Pa. Code § 121.1 *et seq.* (the "LTIIIP Regulations") and therefore satisfies all the requirements for Commission approval set forth in 66 Pa.C.S. § 1352(a)(7) and the LTIIIP Regulations.<sup>1</sup> Accordingly, PECO requests that the Commission approve PECO's LTIIIP and authorize the Company to file Supplement No. XX to Tariff Electric Pa. PUC No. 4 (the "DSIC Tariff") on at least one day's notice to become effective on January 1, 2016, subject to any necessary adjustments following Commission review and approval. A copy of the DSIC Tariff accompanies this Petition as PECO Exhibit No. 2.

Although PECO anticipates that its initial DSIC charge will be zero, the Company is seeking approval to include a DSIC in its tariff to assure it will have the ability to implement DSIC charges in the future as necessary to support the additional investment in its electric distribution system described in its LTIIIP.

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<sup>1</sup> The LTIIIP Regulations were established pursuant to a May 23, 2014 Final Rulemaking Order at Docket No. L-2012-2317274 and became effective on December 20, 2014. *See* 44 Pa.B. 7856.

## I. INTRODUCTION

1. PECO is a corporation organized and existing under the laws of the Commonwealth of Pennsylvania with its principal office in Philadelphia, Pennsylvania. PECO provides electric delivery service to approximately 1.6 million customers and natural gas delivery service to approximately 503,000 customers in southeastern Pennsylvania. PECO furnishes electric service within its authorized service territory in Bucks, Chester, Delaware, Montgomery and York Counties and the City of Philadelphia. PECO is a “public utility,” as defined in 66 Pa.C.S. § 102, and, with respect to its provision of electric service, an “electric distribution company,” as defined in 66 Pa.C.S. § 2803.

2. On February 14, 2012, former Governor Corbett signed into law Act 11 of 2012 (“Act 11”). Act 11 amended the Public Utility Code in several respects, including the addition of Subchapter B (66 Pa.C.S. §§ 1350 – 1360), which authorizes the Commission to approve a DSIC upon petition by an electric distribution company (“EDC”), a natural gas distribution company, a water utility or a wastewater utility. In addition, Subchapter B sets forth various requirements that must be satisfied by a qualifying utility in order to establish a DSIC and to recover the reasonable and prudent costs to repair, improve or replace eligible property. Act 11 further identifies the mandatory components of a petition requesting approval of a DSIC.

3. Section 1352(a)<sup>2</sup> provides that a utility must submit an LTIP “in order to be eligible to recover costs under section 1353 (relating to distribution system improvement charge).” In addition, Section 1352 provides that an LTIP should include the following:

- (1) Identification of the types and age of eligible property owned or operated by the utility for which the utility would seek recovery under this subchapter.

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<sup>2</sup> Unless otherwise indicated, references to a “section” are to the Public Utility Code.

- (2) An initial schedule for the planned repair and replacement of eligible property.
- (3) A general description of the location of the eligible property.
- (4) A reasonable estimate of the quantity of eligible property to be improved.
- (5) Projected annual expenditures to implement the plan and measures taken to ensure that the plan is cost effective.
- (6) The manner in which the replacement of aging infrastructure will be accelerated and how the repair, improvement or replacement will ensure and maintain adequate, efficient, safe, reliable and reasonable service.

4. On August 2, 2012, the Commission entered an Implementation Order,<sup>3</sup> most of which is devoted to explaining how the Commission intended to implement the provisions of Subchapter B. In particular, the Implementation Order set forth the Commission's expectations with regard to the contents of: (1) an LTIP; (2) Annual Asset Optimization Plans, which must be filed each year by a utility that has an approved DSIC and LTIP (*see* 66 Pa.C.S. § 1356); and (3) a petition requesting Commission approval to include a DSIC in a utility's tariff (*see* 66 Pa.C.S. § 1353); and (4) the DSIC itself, which must be consistent with the Model Tariff promulgated as part of the Implementation Order track, and build upon, the provisions of Subchapter B.

5. On May 23, 2014, the Commission finalized the LTIP Regulations at Docket No. L-2012-2317274, which establish the procedures and criteria for the filing, modification and periodic review of LTIPs. The procedures and criteria reflect both Subchapter B requirements and certain provisions in the Implementation Order.

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<sup>3</sup> *Implementation of Act 11 of 2012*, Docket No. M-2012-2293611 (Final Implementation Order entered August 2, 2012).

6. The LTIIIP Regulations build on the Implementation Order and include the six statutory components of an LTIIIP as well as two additional requirements for submission of: (1) a workforce management and training program; and (2) a description of a utility's outreach and coordination activities with other utilities, the Department of Transportation and local governments.

7. A workforce management and training plan must be "designed to ensure that the utility will have access to a qualified workforce to perform work in a cost-effective, safe and reliable manner." *See* 52 Pa. Code § 121.3(a)(7). It is intended to implement the standards set forth in Section 1359 (i.e., that utilities must demonstrate that work done on eligible property is performed by "qualified employees of either the utility or an independent contractor").

8. The LTIIIP Regulations require a "description of a utility's outreach and coordination activities with other utilities, Department of Transportation and local governments regarding their planned maintenance/construction projects and roadways that may be impacted by the LTIIIP." *See* 52 Pa. Code § 121.3(a)(7). The Commission believes these activities are necessary to ensure that LTIIIP projects are properly planned, coordinated with other stakeholders, and executed in an efficient and cost-effective manner.

9. The LTIIIP Regulations also provide that a utility has the burden of proof to "demonstrate that its proposed LTIIIP and associated expenditures are reasonable, cost effective and are designed to ensure and maintain efficient, safe, adequate, reliable and reasonable service to consumers." *See* 52 Pa. Code § 121.4(d).

10. Section 1353(b) provides that a petition requesting Commission approval to establish a DSIC must include:

- a. An initial tariff that conforms to a Model Tariff adopted by the Commission containing the minimum requirements specified in Section 1352(b)(1);
- b. Testimony, affidavits, exhibits or other evidence that demonstrate that a DSIC is in the public interest and will facilitate the utility's compliance with Section 1501, the Commission's regulations and orders and the requirements of state and federal law as each relates to the utility's provision of adequate, efficient, safe, reliable and reasonable service;
- c. An LTIP that conforms to the requirements of Section 1352; and
- d. Certification that a base rate case has been filed within five years of the date the petition is filed and, if not, the utility must file a base rate case to be eligible to implement a DSIC.

11. In the Implementation Order, the Commission incorporated the terms of Section 1353(b) and, as noted earlier, adopted a Model Tariff. In addition, the Implementation Order (pp. 22-24) provided guidance on the form of notice that would be required to establish a DSIC and for quarterly changes in the charge. *Id.* at 24-26.

12. This Petition summarizes PECO's proposed LTIP and DSIC Tariff, which include all of the required elements identified in Section 1352(a) and the LTIP Regulations and Section 1353(b), respectively. In further support of its LTIP and DSIC Tariff, PECO is submitting the following statements, which are attached hereto and incorporated herein by reference:

**PECO Statement No. 1 – Direct Testimony of John E. McDonald**

Mr. McDonald is Vice President, Technical Services for PECO. His testimony provides an overview of PECO's LTIP, including the types of property being replaced or rehabilitated, how the proposed infrastructure improvements will enhance reliability and customer service and the acceleration of PECO's investment provided for in the Plan.

**PECO Statement No. 2 – Direct Testimony of Alan B. Cohn**

Mr. Cohn is PECO’s Manager of Regulatory Strategy. Mr. Cohn explains the operation of the DSIC Tariff and why its establishment is in the public interest.

**II. PECO’S LTIIIP SATISFIES ALL OF THE REQUIREMENTS SET FORTH IN SECTION 1352(A) AND THE LTIIIP REGULATIONS AND IS REASONABLE, COST-EFFECTIVE AND DESIGNED TO ENSURE AND MAINTAIN ADEQUATE, EFFICIENT, SAFE, RELIABLE AND REASONABLE SERVICE**

13. As previously explained, Act 11 requires that PECO submit a long term infrastructure improvement plan in order to be qualified to recover eligible improvement costs through a DSIC. To that end, PECO has developed a five-year plan of accelerated infrastructure improvements to enhance system resiliency and reliability and is filing its LTIIIP for Commission review and approval along with its request to establish the proposed DSIC Tariff. PECO’s LTIIIP is discussed in greater detail in the direct testimony of John E. McDonald and is summarized below.

**A. Types And Ages Of Eligible Property (66 Pa.C.S. § 1352(a)(1); 52 Pa. Cod § 121.3(a)(1); LTIIIP Section IV.A.); The Manner In Which The Replacement Of Aging Infrastructure Will Be Accelerated Under The LTIIIP And How The Repair, Improvement Or Replacement Will Ensure And Maintain Adequate, Efficient, Safe, Reliable And Reasonable Service (66 Pa.C.S. § 1352(a)(6); LTIIIP Section IV.F.)**

14. The accelerated investment totaling \$324.3 million encompassed by the LTIIIP consists entirely of “eligible property,” as defined in 66 Pa. C.S. § 1351. As described in detail in Section IV.A and Appendix A of the Plan, the reliability-related property totaling \$274.3 million included therein covers a broad spectrum of distribution-related equipment and facilities, including overhead and underground conductors; underground cables, transformers and distribution substation equipment; and fixtures and switching devices such as poles, lightning arresters, fuses, circuit breakers, reclosers and cross arms.

15. Upgrading PECO's distribution system with the property additions identified in its LTIP will enable the Company to enhance its capacity to withstand and recover from major storms, to maintain or improve its overall system reliability, and, in general, continue to provide its customers the adequate, efficient, safe, reliable and reasonable service they have come to expect. As noted above, the new and accelerated reliability-related investment included in the LTIP is focused on the following three areas: (1) storm hardening and resiliency; (2) replacing underground cable that is exhibiting the beginning of a rising trend in failure rates; and (3) retiring aging and obsolete Building Substations and upgrading and redesigning the distribution facilities those substations supply. Each of these elements of the LTIP is discussed, in turn, below.

### **1. Storm Hardening and Resiliency Investments**

16. PECO has experienced a number of significant weather events in recent years, which have included hurricanes and tropical storms, such as Irene and Sandy, and extreme winter weather, such as Winter Storm Nika. As Mr. McDonald explains in Statement No. 1, as a consequence of Hurricane Sandy, approximately 850,000 customers of PECO experienced interruptions of service. In the aftermath of Hurricane Sandy, PECO had to replace or repair over 140 miles of conductors and 2,538 cross arms. Winter Storm Nika caused interruptions and storm damage of similar magnitude. The frequency and severity of major storms has elevated the need for PECO and other Pennsylvania EDCs to reinforce and upgrade their electric distribution infrastructure to better withstand extreme weather events. Accordingly, if approved, PECO's LTIP will increase PECO's investment in plant and equipment to achieve storm hardening and resiliency.

17. Storm hardening involves physical changes to improve or retrofit facilities to make them less susceptible to the impact of extreme weather conditions, such as damage from falling trees and branches, high wind, flooding, or wind-driven debris. Resiliency refers to a utility's ability to maintain or restore service to customers after its facilities have suffered damage from storms or other causes. The storm hardening and resiliency components consist of two initiatives that increase PECO's investment for above its baseline level of capital expenditure for these measures.

**(1) PECO's CEMI/Spacer Cable Program (LTIP Section IV.A.1.a.)**

18. Pursuant to its proposed LTIP, PECO will accelerate infrastructure improvements in pockets of the distribution system that exhibit below average reliability performance as measured by the Customers Experiencing Multiple Interruptions ("CEMI") index and the data underlying it. Unlike system-wide averages, the CEMI index, which tracks the number of customers that have experienced more than four interruptions in a year, provides focused information on circuit-specific or location-specific customer outages. Based on that information, improvements can be specifically designed for, and targeted to, circuits and geographic areas where customers experience a higher number of sustained interruptions relative to the overall system average. As explained in detail by Mr. McDonald, these measures include replacing existing overhead conductors with "spacer" cable designed to prevent outages caused by falling trees and branches, replacing obsolete or degraded equipment (such as poles, cross arms and lightning arresters), investment in "smart" switching equipment (e.g., reclosers) to automatically restore power, and extension of circuits closer to the pockets of increased CEMI to facilitate the construction of feeder lines from multiple substations to serve those areas. Because

weather and vegetation are the main drivers of the interruptions measured by the CEMI index, these measures were considered prime targets for accelerated investments.

**(2) PECO’s Circuit Rebuild/Unit Substation Retirement Program (LTIP Section IV.A.1.b.)**

19. PECO’s LTIP proposes to enhance storm hardening and resiliency by eliminating aging Unit Substations (i.e., those constructed 40 or more years ago) that are experiencing an increasing failure rate and upgrading all downstream low-voltage supply facilities to operate at higher voltages consistent with modern modes of operation. Beginning in 2017, PECO plans to retire an additional five or six Unit Substations per year and perform the associated down-stream facility upgrades. The specific Unit Substations selected for retirement will be prioritized on the basis of their susceptibility to storm damage (for example, if they are located in flood plains), the need to obtain spare equipment that is not readily available, capacity constraints, the number of customers served, and equipment obsolescence, among other considerations that may be location or unit-specific.

**2. Investments to Address Conditions With the Potential to Degrade Reliability Performance**

20. In addition to storm hardening and resiliency, PECO is committed to continuously improving the reliability of its service and has implemented numerous programs to maintain, protect and enhance its electric distribution system, including proactive inspection, electric infrastructure replacement, and general reliability construction programs. As a result of those infrastructure improvements, over the past three years, PECO has maintained a continuing trend of reliability improvement in terms of the average number of times that a customer may be interrupted over the course of a year (System Average Interruption Frequency Index or “SAIFI”), the average power restoration time for those interruptions (Customer Average Interruption

Duration Index or “CAIDI”) and the average length of time customers are without service (System Average Interruption Duration Index or “SAIDI”), which Mr. McDonald describes in PECO Statement No. 2. In addition, since 2012, PECO has performed better in each of those key metrics than the Commission’s benchmarks and minimum performance standards established in Docket No. M-00991220.<sup>4</sup>

21. In order to address the anticipated effects of aging infrastructure and bolster PECO’s ability to maintain and enhance reliability, PECO’s LTIP proposes new investment in the Company’s underground cable replacement programs, as well as acceleration of the retirement and removal of Building Substations and the redesigning and upgrading of the distribution system in the surrounding areas.

**(1) Underground Cable Replacement – Main Stem Cable (LTIP Section IV.A.2.a.) and URD Cable (LTIP Section IV.A.2.b.)**

22. PECO owns and operates 15,928 miles of underground distribution cable throughout its service territory, consisting of Main Stem and Underground Residential Development (“URD”) cable. While underground distribution cable experiences fewer outages than aerial conductors, when outages occur, they can have a much longer duration because of the logistical difficulty with locating and repairing faults in underground facilities. As part of its infrastructure improvement strategy, PECO carefully assesses its reliability experience (e.g., equipment failure rates and CAIDI performance) to take appropriate action to reverse negative trends before reliability problems are experienced. Consistent with that prudent approach to maintaining reliability, PECO’s LTIP will complete approximately an additional 68 miles and 123 miles of Main Stem and URD cable replacements, respectively, over the five-year LTIP

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<sup>4</sup> See, e.g., Pennsylvania Public Utility Commission, *Electric Service Reliability in Pennsylvania 2013* (August 2014), pp. 18-21; Pennsylvania Public Utility Commission, *Electric Service Reliability in Pennsylvania 2012* (August 2013), pp. 21-23.

term. The Main Stem cable selected to be replaced will be prioritized to address first those areas that have higher historical failure rates, and the Company will focus on replacing URD cable that was installed before 1984.

**(2) Building Substation Retirements (LTIP Section IV.A.3)**

23. PECO's electric distribution system currently contains 23 Building Substations, which supply power to down-stream facilities that serve a large number of customers. Nearly ninety percent PECO's existing Building Substations were constructed over fifty years ago. Moreover, all of PECO's Building Substations contain obsolete equipment requiring customized replacement parts and have limited capabilities for remotely monitoring loading and equipment status. Given all of these factors, Building Substations pose an increasing risk of failures that, should they occur, would interrupt service to many customers. To address the potential reliability risk posed by Building Substations, the current rate of replacement (on average, one unit per year) will be increased commencing in 2019 and will be prioritized based on the existing substations' condition, the number of customers and load served and the risk of failure.

**3. Facility Relocations (LTIP Section IV.A.4)**

24. "Unreimbursed costs related to highway relocation projects" are eligible for recovery under Sections 1351 and 1353. These costs arise when PECO moves facilities at the direction of the state, a municipality or another governmental entity to construct a new road or to perform other construction. Such facility relocation costs are difficult to predict and estimate and, therefore, the \$10 million annual estimate for this category of eligible property that is set forth in Appendix A of PECO's LTIP is based on the five-year average (2009-2014) of PECO's expenditures for facility relocations net of reimbursements. Additional information on facility

relocation costs will be provided with PECO's Annual Asset Optimization Plans to be filed after PECO's LTIP and DSIC are approved.

25. In summary, PECO's LTIP provides a rigorous framework for analyzing and prioritizing and accelerating infrastructure improvements that will reduce overall risks to its distribution system and improve resiliency, reliability and customer service.

**B. Initial Schedule For The Planned Repair And Replacement Of Eligible Property And Reasonable Estimates Of The Quantity Of The Eligible Property To Be Improved (66 Pa.C.S. § 1352(a)(2) and (4); 52 Pa. Code § 121.3(a)(2) and (a)(4), LTIP Sections IV.B. and D.)**

26. Appendix A to the Plan provides detailed estimates of PECO's planned annual expenditures for 2016 through 2020. The Company is proposing to increase its overall reliability-related capital expenditures by \$274.3 million over the five-year LTIP term (2016-2020). The tables in Appendix A also show the number of storm hardening, resiliency and Building Substation retirement projects, as well as the miles of conductors to be replaced in PECO's service territory each year. These figures are estimates in light of the fact that issues can arise during the implementation period that could alter PECO's work plans. The number of projects and miles of conductors replaced for any given level of investment may differ from PECO's estimates if actual work site conditions are more or less favorable than those assumed for purposes of those estimates.

27. In addition to the expenditures and quantities of eligible property set forth in Appendix A, the Company believes there are future distributed generation and microgrid technology investment opportunities that could enhance reliability and resiliency by replacing obsolete infrastructure. PECO has been monitoring recent trends in the utility industry around the development of microgrid technology along with regulatory developments in other states.

PECO is currently evaluating potential opportunities as an alternative to the traditional transmission and distribution (“T&D”) solutions. PECO is interested in pursuing projects that will:

- Benefit the public by improving resiliency during major storm events;
- Address existing reliability and capacity needs;
- Efficiently integrate with and leverage the existing centralized electric grid;
- Develop cost effective alternatives for conventional T&D methodologies; and
- Utilize technology that will provide valuable information, which can be used to enhance future projects.

PECO anticipates selecting one or more of these types of projects for development and expects to spend approximately \$50 to \$100 million in the 2017 to 2020 timeframe. As the projects are further developed and closer to construction, PECO will file an update to its LTIIIP to include detailed project information and costs in the plan. *See* LTIIIP Section IV. J.

**C. Location Of Eligible Property (66 Pa.C.S. § 1352(3); 52 Pa. Code § 121.3(a)(3), LTIIIP Section IV.A.)**

28. As explained in Section I, *supra*, PECO’s authorized service territory is located in all or portions of Bucks, Chester, Delaware, Montgomery and York Counties and the City of Philadelphia. The Company’s investment under its LTIIIP will be targeted and prioritized based on the factors described in Section IV.A of the Plan and Section II.A, *supra*.

**D. Projected Annual Expenditures To Implement The LTIIIP And Measures Taken To Ensure That The Plan Is Cost Effective (66 Pa.C.S. § 1352(a)(5); 52 Pa. Code § 121.3(a)(5); 52 Pa. Code § 121.4(d); and LTIIIP Sections IV. E. and IV. G.)**

29. Appendix A (p. 1) and the table set forth in Section IV.E of PECO’s LTIIIP show PECO’s plan to increase annual investment in storm hardening and resiliency and general reliability related measures to a total of \$21.8 million in 2016, \$52.5 million in 2017, \$65.0

million in 2018, \$63.0 million in 2018 and \$72.0 million in 2020. Approximately, 45% (\$123.9 million) of the total reliability-related investment encompassed by PECO's LTIP over its five-year term (\$274.3 million) will be dedicated to storm hardening and resiliency. The reliability-related portion of the investment to be made under PECO's LTIP during the first year of the plan (2016) of \$21.8 million has been reflected as a pro forma adjustment to increase the fully projected future test year plant additions included in PECO's measures of value in its electric distribution base rate case at Docket No. R-2015-2468981, which was filed with the Commission at the same time as this Petition. The pro forma adjustment of \$21.8 million reflects the additional, incremental investment in 2016 LTIP storm hardening and resiliency and general reliability-related measures above the expenditure levels for such measures in PECO's 2016 capital budget. Because that pro forma adjustment has been included in PECO's fully projected future test year revenue requirement, PECO will not seek to recover the capital costs of that incremental 2016 investment under its DSIC if its DSIC Tariff is approved by the Commission.

30. The overall cost-effectiveness of PECO's LTIP is established by data presented in Section IV.A. of the Plan, which show that new and accelerated investments to increase the ability of the distribution system to withstand storm events, to replace facilities that are subject to increasing levels of maintenance costs and to proactively upgrade and improve infrastructure to maintain and enhance reliability are the focus of PECO's LTIP. Additionally, as also explained in Section IV.A. of the Plan, the eligible property within each project is being prioritized for improvement and replacement using risk assessment measures designed to help plan and optimize expenditures.

**E. Workforce Management And Training Plan (66 Pa.C.S. § 1359(a); 52 Pa. Code § 121.3(a)(7); LTIP Section IV. H.)**

31. PECO employees must follow an extensive training regimen that provides the basic, advanced, and specialized skills required to operate the distribution system and prepares them to design, build and install aerial, underground and substation electrical systems. Hands-on training is provided in a safe and controlled environment tailored to PECO's operating system and OSHA standards. Additional training, which is required before an employee may perform work independently on exposed, energized electrical equipment greater than 50 Volts, is provided that is unique to specific job classifications and the associated scope of work. All training is provided by experienced professionals using a carefully developed curriculum. It may take up to five years to complete the full regime of training, which includes regular assessments and incremental qualifications throughout the duration of the program. Retraining is conducted periodically as required by OSHA or more frequently when PECO determines it is necessary.

32. PECO anticipates that it will use outside contractors to perform much of the work it is planning to undertake to implement its LTIP. To the extent PECO uses outside contractors, its contractor workforce will be fully qualified, in accordance with the standards set forth in Section 1359. In that regard, PECO administers a standard process for soliciting contractors. Part of that process includes evaluating the contractors' qualifications to perform work, including technical and financial capabilities and the level of it employees' qualification. Most independent contractors employ personnel through the building trade unions, which have apprenticeship programs to ensure that employees are qualified to perform assigned work. Employee qualification programs for non-union independent contractors are stringently reviewed to assess the contractor's training program, such as on-the-job training and certification programs. Contractors also must complete any necessary PECO-specific training, as PECO may

require, for specific tasks. Each major task on the system has specific training requirements that must be met. PECO's Methods & Training Department reviews the contractor programs to assure that they comply with PECO's requirements and may require testing of contractors before they are eligible to work on PECO's system and monitors industry developments for, among other reasons, to assure the long-term effectiveness of PECO's training program. Additionally, a contractor information website, maintained by PECO's Project and Contract Management Department, is available to contractors and provides Engineering Practices, Environmental Alerts, Field Bulletins, Technical Bulletins, Safety Messages, and Construction Specifications. Initial orientation training is provided to contractors by Project and Contract Management. Additional information about PECO's use of a qualified work force is provided in Section IV. H. of PECO's LTIP.

**F. Outreach And Coordination Activities (52 Pa. Code § 121.3(a)(8); LTIP Section IV. I.)**

33. PECO will continue to coordinate with municipalities, the Department of Transportation and other utilities to coordinate their respective work schedules and minimize the impact of activities on the public. Unlike plant replacement activities for gas or water utilities most of the work under the LTIP will not require street opening and restoration.

**III. PECO'S REQUEST TO ESTABLISH A DSIC FOR ITS ELECTRIC OPERATIONS SATISFIES ALL OF THE REQUIREMENTS SET FORTH IN SECTION 1353(B) AND THE IMPLEMENTATION ORDER AND IS IN THE PUBLIC INTEREST**

34. PECO Exhibit No. 2 is a tariff supplement that conforms fully to the Model Tariff adopted by the Commission in the Implementation Order and, therefore, complies with the requirements of Section 1353(b)(1). In particular, the description of eligible property in Section

1.B. of the DSIC Tariff has been adopted verbatim from the description of eligible property for EDCs in the Model Tariff, which, in turn, is the same as the description of eligible EDC property in Section 1351. As set forth in Section 2 of the DSIC Tariff, PECO proposes that its DSIC Tariff become effective on January 1, 2016 and that quarterly changes in the DSIC become effective on the first day of each calendar quarter (i.e., January 1, April 1, July 1 and October 1). The method of calculating each quarterly DSIC is set forth in Section 2.D. of the DSIC Tariff and is identical to the formula set forth in the Model Tariff. In that regard, PECO has elected to use quarterly revenues that are determined on the basis of one-fourth of projected annual revenues. As required by the Implementation Order, the DSIC will be applied on a bills-rendered basis. *Id.* at 26-28. Finally, the customer safeguards set forth in the Model Tariff and required by Section 1358 are included in the DSIC Tariff. The Company's DSIC Tariff is explained further in the direct testimony of Mr. Cohn (PECO Statement No. 2).

35. As explained previously, pursuant to Section 1352(a), PECO is submitting its proposed LTIIP as PECO Exhibit No. 1 for Commission review and approval with this Petition. PECO has included the same categories of eligible property, as that term is defined in Section 1351(1), in both its DSIC Tariff and LTIIP.

36. PECO has also filed an electric distribution base rate case concurrent with this Petition at Docket No. R-2015-2468981. The Company is submitting the Affidavit of Richard G. Webster, Jr., Vice President, Regulatory Policy and Strategy, identified as PECO Exhibit No. 3, certifying that it has filed an electric distribution base rate case within five years of the filing of this Petition.

37. Although PECO requests approval of the DSIC Tariff, which will authorize PECO to implement a DSIC charge in the future, PECO estimates that its initial DSIC charge

will be set at zero. For the reasons discussed below, while it is not necessary for PECO to implement a DSIC charge at this time, it is important that PECO have the ability to do so in the future as explained below and in Mr. Cohn's direct testimony (PECO Statement No. 2).

38. As previously explained, PECO's LTIP provides for accelerated investments in the Company's distribution system to better withstand storms and natural disasters and enhance reliability and customer service. The increased level of investment required to meet the LTIP goals cannot be sustained without the assurance that PECO has an approved mechanism to recover the capital costs imposed by those investments in a more timely fashion than that afforded solely by seeking an increase in base rates. The time required to prepare a base rate filing and the duration of the associated notice and statutory suspension periods would allow the effects of attrition to reduce PECO's earnings to levels that could – and likely would – compromise its ability to sustain accelerated rates of plant replacement without driving PECO's returns to unacceptably low levels.

39. Accordingly for the foregoing reasons, and for the further reasons set forth in the accompanying direct testimony of Mr. Cohn, approval of PECO's proposed DSIC Tariff is in the public interest and will facilitate PECO's compliance with Section 1501 and applicable Commission regulations, orders and other policy directives relating to the provision of adequate, efficient, safe, reliable and reasonable service.

#### **IV. CUSTOMER NOTICE**

40. Section 1354 requires utilities to provide notice to customers "in bill inserts or through other means as prescribed by the Commission" for each of the following: (1) a utility's submission to the Commission of a proposed DSIC and its initial tariff; (2) the Commission's

disposition of the utility's proposed DSIC and initial tariff; (3) quarterly changes in the DSIC; and (4) any other information, as the Commission may require.

41. In the Implementation Order, the Commission considered various comments on the notice requirements and held as follows:

NFGD, First Energy and EAP all suggest that the Final Implementation Order should follow the straightforward language from the proposed model tariff, which required a bill insert on the initial filing of the DSIC and a bill message on subsequent changes. We agree and clarify that the notice requirement set forth in the proposed model tariff governs.

*Id.* at 26.

42. As required by Section 1354 and the Implementation Order, PECO is providing its electric distribution customers with notice of the filing of this Petition by bill inserts in the form set forth in PECO Exhibit No. 3, which accompanies Mr. Cohn's testimony (PECO Statement No. 2). PECO will begin inserting the bill insert notice in bills beginning with the first billing route beginning in April of this year and will continue inserting such bill insert notices until all such customers have received notice of this filing. PECO will provide an appropriate bill insert and/or bill message on the bills of all customers to notify them of the implementation of a DSIC and of each quarterly change in the DSIC, when they occur.

## **V. SERVICE, COMMENTS AND COMMISSION REVIEW**

43. This Petition and the accompanying testimony and exhibits, are being served upon the Commission's Bureaus of Investigation and Enforcement and Technical Utility Services, the Office of Consumer Advocate, the Office of Small Business Advocate and the parties to PECO's last electric base rate case at Docket No. R-2010-2161575.

44. The LTIIIP Regulations (52 Pa. Code § 121.5(a)) provide a 30-day comment period for utility long term infrastructure improvements plans. The LTIIIP Regulations further provide that an LTIIIP will not be assigned to the Office of Administrative Law Judges (“OALJ”) unless comments to the LTIIIP “raise material factual issues.” With respect to DSIC filings, Section 1355 provides that the Commission shall hold evidentiary hearings and public input hearings “as necessary” to review the petition.

45. PECO is not providing a proposed litigation schedule because it does not believe that its LTIIIP or proposed DSIC Tariff will raise any “material factual issues” or otherwise require evidentiary hearings.

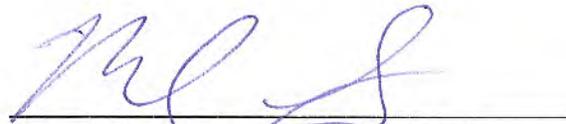
## **VI. CONCLUSION**

For the reasons set forth above, PECO’s LTIIIP satisfies the requirements set forth in Section 1352(a) and the LTIIIP Regulations. The LTIIIP identifies the age and type of eligible property included in the plan; provides schedules depicting the levels of investment and quantity of property targeted for accelerated repair and replacement; provides the general location of eligible property covered by the LTIIIP; explains the measures being taken to ensure the plan is cost-effective; explains the manner in which aging infrastructure will be accelerated to ensure and maintain adequate, efficient, safe, reliable and reasonable service; and provides an effective workforce management plan and discussion of coordination and outreach activities. In addition, PECO has satisfied all of the requirements set forth in Section 1353, 52 Pa. Code § 121, and the Commission’s Implementation Order to establish a DSIC for the Company’s electric distribution operations in conformity with the terms of the DSIC Tariff provided as PECO Exhibit No. 2.

Based on the foregoing, including the attached testimony and exhibits, PECO respectfully requests that the Commission grant this Petition and enter an Order:

- (1) Approving PECO's LTIP;
- (2) Finding that PECO's LTIP is "adequate and sufficient to ensure and maintain adequate, efficient, safe, reliable and reasonable service" pursuant to Section 1352(a)(7);
- (3) Authorizing PECO to establish a DSIC for its electric operations; and
- (4) Authorizing the Company to file the DSIC Tariff, on at least one day's notice, to become effective on January 1, 2016.

Respectfully submitted,



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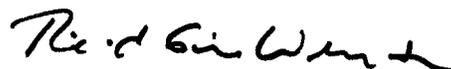
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Date: March 27, 2015

*Counsel for PECO Energy Company*

## VERIFICATION

I, Richard G. Webster, hereby declare that I am the Vice President of Regulatory Policy and Strategy of PECO Energy Company; that, as such, I am authorized to make this verification on its behalf; that the facts set forth in the foregoing Petition for Approval of PECO Energy Company For Approval Of Its Electric Long Term Infrastructure Improvement Plan and to Establish a Distribution Service Improvement Charge are true and correct to the best of my knowledge, information and belief; and that I make this verification subject to the penalties of 18 Pa.C.S. §4904 pertaining to false statements to authorities.



Richard G. Webster, Jr.  
Vice President of Regulatory Policy and  
Strategy of PECO Energy Company

Date: March 27, 2015



**PECO ENERGY COMPANY  
STATEMENT NO. 1**

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PETITION OF PECO ENERGY COMPANY FOR APPROVAL OF  
ITS ELECTRIC LONG TERM INFRASTRUCTURE  
IMPROVEMENT PLAN AND TO ESTABLISH A DISTRIBUTION  
SYSTEM IMPROVEMENT CHARGE FOR ITS ELECTRIC  
OPERATIONS

DOCKET NO. P-2015-2471423

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DIRECT TESTIMONY

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WITNESS: JOHN E. MCDONALD

SUBJECT: PECO ENERGY COMPANY'S ELECTRIC  
LONG TERM INFRASTRUCTURE  
IMPROVEMENT PLAN

DATED: MARCH 27, 2015

**TABLE OF CONTENTS**

	<b>Page</b>
I. INTRODUCTION AND PURPOSE OF TESTIMONY .....	1
II. OVERVIEW OF PECO’S ELECTRIC DISTRIBUTION SYSTEM .....	3
III. PECO’S RELIABILITY PERFORMANCE, STORM HARDENING AND RESILIENCE, AND THE NEED FOR THE LTIP INVESTMENTS.....	3
IV. PECO’S LTIP .....	7
V. CONCLUSION.....	20



1 County/Montgomery County Region (2000-2002) and Director of Distribution  
2 System Operations (2003-2006). I assumed my current position in 2007.

3 **5. Q. What is the purpose of your testimony?**

4 A. I will begin by providing a general overview of PECO's electric distribution system.  
5 Next, I will discuss PECO's reliability performance as measured by the relevant  
6 reliability metrics, which is materially better than the Benchmarks and Standards  
7 established by the Pennsylvania Public Utility Commission ("PUC" or the  
8 "Commission"). In that regard, I will explain why, even with PECO's strong  
9 reliability metrics, it is important for PECO to increase its investment in storm  
10 hardening and resiliency measures and to anticipate and forestall the potential for  
11 adverse trends in reliability metrics in certain components of its distribution system.  
12 Thereafter, I will discuss PECO Exhibit No. 1, which is PECO's electric Long Term  
13 Infrastructure Improvement Plan ("LTIIIP") also known as the Company's "System  
14 2020" plan. PECO's LTIIIP contains detailed information about the property the  
15 Company will construct pursuant to that plan. Consequently, I will identify and  
16 describe the principal components of PECO's LTIIIP and explain, generally, why the  
17 acceleration of PECO's investment in the property encompassed by the LTIIIP will  
18 increase its distribution system's reliability, resistance to storm damage and capacity  
19 to recover from the impact of major storms.

1           **II.     OVERVIEW OF PECO’S ELECTRIC DISTRIBUTION SYSTEM**

2   **6.   Q.   Please describe, generally, PECO’s electric distribution system.**

3           A.   PECO provides electric service to approximately 1.6 million retail customers located  
4           throughout a 2,100 square-mile area in southeastern Pennsylvania that comprises its  
5           authorized electric service territory in all or portions of Bucks, Chester, Delaware,  
6           Montgomery, Philadelphia and York Counties. Across that area, PECO serves a total  
7           population of approximately 4.0 million people.

8           To provide electric service to its customers, PECO operates and maintains  
9           approximately 1,067 miles of higher-voltage transmission lines, 15,928 miles of  
10          underground distribution cable, and 12,971 miles of aerial distribution lines. In  
11          addition, PECO operations 472 power substations.

12          PECO’s service area encompasses both densely populated urban areas, such as the  
13          City of Philadelphia, and suburban areas, located in the counties surround  
14          Philadelphia. Maintaining reliable distribution service poses different kinds of  
15          challenges in urban and suburban areas.

16           **III.   PECO’S RELIABILITY PERFORMANCE, STORM HARDENING AND**  
17           **RESILIENCE, AND THE NEED FOR THE LTIP INVESTMENTS**

18   **7.   Q.   Please describe PECO’s reliability performance.**

19          A.   PECO has demonstrated excellent reliability performance, as measured by the indices  
20          used to assess reliability, specifically, the System Average Interruption Frequency  
21          Index (“SAIFI”), the System Average Interruption Duration Index (“SAIDI”) and the

1 Customer Average Interruption Duration Index (“CAIDI”).<sup>1</sup> Pursuant to its electric  
2 service regulations at 52 Pa. Code §§ 57.191 – 57.198, the Commission has  
3 established performance standards for reliability consisting of a “Benchmark” and a  
4 “Standard,” with the Benchmark being the more rigorous of the two. As evidenced  
5 by its quarterly and annual reports to the Commission, PECO has achieved  
6 Benchmark performance in most of the years of the last decade. In addition, PECO  
7 achieved Standard performance with respect to the SAIFI and SAIDI indices for the  
8 entire decade and, as to CAIDI, was above the Standard – marginally – in only three  
9 of the forty quarters over that ten-year period. Moreover, in the PUC’s most recent  
10 annual report on electric service reliability in Pennsylvania, it found that “PECO’s  
11 performance is excellent based on their performance trends, which are significantly  
12 below [i.e., better than] benchmark.”<sup>2</sup> Specifically, in 2013 (the most recent year for  
13 which statewide data are available), PECO ranked first among large electric utilities  
14 for its twelve-month rolling CAIDI and SAIDI, and second in terms of twelve-month  
15 rolling SAIFI. Moreover, PECO was the only large electric utility in Pennsylvania  
16 with reliability performance better than its baseline score prior to restructuring (i.e.,  
17 1994-1998 five-year average of annual system wide metrics) in every quarter in 2013.

---

<sup>1</sup> SAIFI measures the average frequency of interruptions per total number of customers. It is the number of Interruptions divided by the total number of customers served. SAIDI measures the average duration of service interruptions per total number of customers. It is the Minutes Interrupted divided by Total Number of Customers Served. CAIDI measures the average duration of service interruptions for affected customers. It represents the Minutes Interrupted divided by the number of Customers Affected.

<sup>2</sup> Pennsylvania Public Utility Commission, *Electric Service Reliability in Pennsylvania 2013* (August 2014), p. 18, available at: [http://www.puc.state.pa.us/General/publications\\_reports/pdf/Electric\\_Service\\_Reliability2013.pdf](http://www.puc.state.pa.us/General/publications_reports/pdf/Electric_Service_Reliability2013.pdf).

1 8. Q. Do the system average metrics you discussed above capture the impact of major  
2 storms?

3 A. No, they do not. The major performance indices assess a utility's reliability over a  
4 broad range of day-to-day operating conditions. However, in accordance with the  
5 Commission's electric service regulations, those indices exclude the effects of "major  
6 events," as that term is defined in the Commission's regulations. In general, a major  
7 event affects at least ten percent of an electric distribution company's ("EDC's")  
8 customers, which, in PECO's case, puts the threshold for a major event at  
9 approximately 160,000 customers. The Commission has properly recognized that  
10 major storm events have significant impacts on electric distribution systems and,  
11 therefore, they need to be considered separately from reliability performance over the  
12 broad range of day-to-day operating conditions.

13 9. Q. How have major storm events affected PECO's service area?

14 A. As shown in the table below, there have been ten major events that affected PECO's  
15 service area over the last ten years (2005-2014):

Storm	Customers Affected
2006 (July 18) Wind Rain Lightning Storm	484,699
2008 (June 10) Wind Rain Lightning Storm	199,240
2010 (February 10) Wind Snow Storm	186,720
2010 (June 24) Wind Lightning Storm	337,351
2011(August 27) Hurricane Irene	511,102
2011 (October 29) Snow/Rain Storm	275,710
2012 (October 29) Hurricane Sandy	845,709
2014 (February 5) Winter Storm Nika	723,681
2014 (July 3) Rain Lightning Storm	180,277
2014 (July 8) Rain Lightning Storm	236,177

1  
2  
3 As the data in the table above show, the frequency and intensity of major events has  
4 increased. In the first five years of the last decade, PECO’s service area experienced  
5 two major events affecting a total of 684,000 customers. In the succeeding five years,  
6 PECO’s service area experienced eight major events that affected a total of 3,297,000  
7 customers. Significantly, the two largest storms occurred in the last three years.

8 **10. Q. Why are the data on major storm events relevant to PECO’s plan for**  
9 **accelerating its investment as set forth in its LTIP?**

10 A. PECO, along with the Commission and other utilities, has recognized that the  
11 frequency and severity of major storm events have elevated the need for EDCs to  
12 reinforce and upgrade their electric distribution infrastructure to better withstand  
13 extreme weather events and to improve the resiliency of their distribution system to  
14 recover from storm-related damage. Accordingly, approximately 45% (\$123.9  
15 million) of the total reliability-related investment encompassed by PECO’s LTIP  
16 over its five-year term (\$274.3 million) will be dedicated to storm hardening and  
17 resiliency. The balance of the reliability-related spending covered by PECO’s LTIP  
18 is designed to improve broader reliability measures.

19 **11. Q. Why is PECO accelerating its investment in broader reliability measures, given**  
20 **the excellent reliability performance PECO has already achieved, which you**  
21 **summarized previously?**

22 A. Reliability is not a “once and done” exercise. A variety of forces are continuously  
23 acting upon distribution infrastructure to degrade its condition and increase its risk of

1 failure. Consequently, it is important to identify incipient trends that evidence even  
2 marginal increases in interruption and failure rates in order to get ahead of those  
3 trends and address conditions with the potential to degrade performance before they  
4 seriously affect the reliability of service to our customers. That is precisely what  
5 PECO intends with the broader reliability measures covered in the LTIP, namely,  
6 underground cable replacement and Building Substation retirements.

#### 7 **IV. PECO'S LTIP**

8 **12. Q. Please summarize the term, size and principal elements of PECO's proposed**  
9 **LTIP.**

10 A. The LTIP has a term of five years, from 2016 through 2020. Over that period,  
11 PECO proposes to make additional capital investments totaling \$274.3 million to  
12 construct reliability-related improvements, as shown in the table set forth in Section  
13 IV.E of Exhibit No. 1. As previously noted, approximately \$123.9 million of PECO's  
14 accelerated investment is focused on storm hardening and resiliency measures.  
15 Approximately \$137.4 million will be invested in accelerated replacement of  
16 underground cable in order to anticipate and forestall a rising trend in interruptions  
17 related to those facilities. Approximately \$13 million is being invested in PECO's  
18 program to eliminate Building Substations, up-rate the voltage of the distribution  
19 facilities supplied by those substations and upgrade those facilities as necessary or  
20 appropriate. In addition to the \$274.3 million PECO proposes to invest in reliability  
21 related improvements, the LTIP includes \$50 million of investment for facility  
22 relocations, as permitted by Section 1351 (definition of "eligible property").

1           Consequently, LTIP investments over the term of the LTIP total \$324.3 million. I  
2           will provide an overview of each principal component of the LTIP separately, below,  
3           recognizing that each of those elements is discussed in detail in the LTIP itself.

4 **13. Q. What do storm hardening and resiliency measures entail?**

5           A. Storm hardening, for the most part, entails reconstructing or retrofitting facilities to  
6           make them less susceptible to the impact of extreme weather conditions, such as  
7           damage from falling trees and branches, high wind, flooding, or wind-driven debris.  
8           Hardening measures may include deploying new technology, upgrading equipment,  
9           constructing protective barriers, and increasing communications and monitoring  
10          capabilities. Resiliency refers to a utility’s ability to maintain or restore service to  
11          customers after its facilities have suffered damage from storms or other causes.  
12          Resiliency measures do not prevent damage but, instead, enable electric facilities to  
13          continue operating despite incurring damage. Resiliency measures also promote a  
14          rapid return to normal operations if storm damage causes service interruptions to  
15          occur.

16 **14. Q. What are the principal storm hardening and resiliency measures in the LTIP?**

17          A. Two significant components of PECO’s LTIP are designed to harden PECO’s  
18          distribution system and increase its resiliency. These consist of what PECO has  
19          denominated its CEMI/Spacer Cable Program and its Circuit Rebuild/Unit Substation  
20          Retirement Program.

21

1 **15. Q. Please describe the CEMI/Spacer Cable Program.**

2 A. The acronym “CEMI” stands for “Customers Experiencing Multiple Interruptions.”  
3 CEMI is an index that tracks the number of customers that have experienced more  
4 than a specified number of interruptions in a given period. PECO has established for  
5 itself a threshold of four interruptions per year. Detailed CEMI index data are  
6 provided and graphed in the LTIP. In summary, PECO uses the CEMI data to  
7 identify pockets within its distribution system that exhibit below average  
8 performance, measured on the basis of multiple interruptions being experienced by  
9 the same customers. Using CEMI data, PECO can target these areas for  
10 infrastructure improvement. The principal driver of increased CEMI metrics is  
11 falling trees and tree branches, which, in many instances, is storm-related.  
12 Accordingly, the measures PECO will use to address the higher-CEMI pockets of its  
13 system are designed to strengthen the system against such tree and storm-related  
14 impacts.

15 **16. Q. What kinds of improvements will be made under the CEMI/Spacer Cable**  
16 **Program?**

17 A. As its name implies, a major component of the program involves replacing existing  
18 overhead conductors of bare, open-wire construction with spacer cable. As explained  
19 in more detail in the LTIP, spacer cable consists of aerial conductors installed in a  
20 compact configuration that makes it more resistant to falling trees and branches.  
21 Spacer cable is more durable and can withstand temporary contact with tree branches  
22 and other vegetation without causing an interruption or power quality problems.

1 As part of this program, PECO will replace or upgrade poles, cross arms, lightning  
2 arrestors, line hardware and associated equipment that is obsolete or degraded or  
3 otherwise is not suited to withstanding more frequent and more severe storms and the  
4 impact of falling limbs and trees. Another important contributor to improved  
5 reliability will be the increased deployment of “smart” switching equipment or  
6 “reclosers,” which reduce the number of customers affected by an outage and  
7 automatically restore power to groups of customers, where possible, in less than five  
8 minutes. Installing more reclosers at appropriate intervals on a circuit makes the  
9 circuit more resilient when, for example, a tree-to-line contact occurs.

10 Finally, PECO will extend circuits closer to the pockets of increased CEMI to  
11 facilitate the construction of feeders from multiple substations to serve those areas.  
12 This will provide an alternative source of power to maintain service if the normal  
13 substation feed is damaged or otherwise removed from service.

14 As shown in the LTIP, PECO will increase investment for this program by \$62.7  
15 million over the term of the LTIP.

16 **17. Q. Please describe the Circuit Rebuild/Unit Substation Retirement Program.**

17 A. This program is designed to remove Unit Substations, upgrade downstream low-  
18 voltage supply facilities, and convert those facilities to operate at higher voltages.  
19 These improvements will enhance reliability by eliminating aging Unit Substations  
20 that are experiencing an increasing failure rate and that, in many instances, contain  
21 obsolete equipment that is difficult or costly to replace. Because each Unit Substation  
22 supplies a feeder that, in turn, supplies multiple customers, a Unit Substation failure

1 could interrupt service to up to 1,000 customers. In addition to improving the  
2 distribution system, retiring Unit Substations will eliminate costs currently incurred to  
3 operate and maintain those substations.

4 **18. Q. What will be done to facilities down-stream of the retired Unit Substations?**

5 A. Because Unit Substations transform power from higher to lower voltage, they cannot  
6 be retired unless the portion of the distribution system down-stream from each  
7 substation is upgraded to operate at the higher voltage level to which the facilities are  
8 being converted. Accordingly, the down-stream facilities will be redesigned to  
9 operate at higher voltage. As part of that process, a significant portion of those  
10 facilities (largely poles, cross arms, conductors and associated equipment) will be  
11 rebuilt to current construction standards. As part of this process, various storm  
12 hardening and resiliency measures will also be deployed, where it is appropriate to do  
13 so, by implementing many of the same measures described in connection with  
14 PECO's CEM/Spacer Cable Program.

15 **19. Q. How much will the Circuit Rebuild/Unit Substation Retirement Program be**  
16 **accelerated?**

17 A. Investment on this program will increase by \$61.2 million over the LTIIP term.  
18 PECO estimates that, after ramping up and reaching the steady state spending level  
19 for this program, it will be retiring five to six additional Unit Substations per year and  
20 performing the associated voltage up-rating and upgrading to the down-stream  
21 facilities in connection with those retirements.

1 **20. Q. Describe PECO’s LTIP initiative to increase investment in underground cable**  
2 **replacement.**

3 A. PECO owns and operates 15,928 miles of underground distribution cable throughout  
4 its service territory. Underground distribution cable is broadly divided between Main  
5 Stem cable and Underground Residential Development (“URD”) cable. PECO is  
6 proposing to increase investment in Main Stem cable replacement by \$72.2 million  
7 over the LTIP’s term, and to increase its investment in URD cable replacement by  
8 \$65.2 million over that same period.

9 **21. Q. Why is PECO accelerating its investment in Main Stem and URD cable**  
10 **replacement?**

11 A. As explained in detail in its LTIP, PECO has carefully reviewed data on faults and  
12 failures of underground cable and its overall CAIDI index, which is the index most  
13 relevant to the performance of underground cable. Although PECO’s performance  
14 metrics in these areas are very good, PECO has identified the beginning of a rising  
15 trend in faults and interruptions in Main Stem and URD cable, as indicated by the  
16 graphs of experienced fault data for both categories of underground cable from 2006  
17 to the present as set forth in the LTIP. Accordingly, it is appropriate to begin to take  
18 action to reverse such negative trends before material reliability problems are actually  
19 experienced. Consistent with that prudent approach to maintaining reliability,  
20 PECO’s LTIP will accelerate Main Stem and URD cable replacements. In addition  
21 to preserving overall reliability performance, the accelerated investment should  
22 reduce the cost of repairing underground distribution cables and allow PECO to more

1 effectively manage its workflow in light of the significant resources that must be  
2 reallocated to repair underground distribution cable when cable failures occur.

3 **22. Q. Explain the Main Stem cable replacement program and what it entails.**

4 A. Main Stem cable is generally installed in industrial and densely populated areas (such  
5 as city streets) and near substations; operates at medium voltage; and is located in  
6 underground conduits and in ducts with manholes. Main Stem cable supplies power  
7 to customers through underground distribution transformers and secondary wires and  
8 provides a supply from substations to most aerial circuits on the distribution system.

9 As previously noted, PECO has experienced a rising trend in Main Stem cable  
10 failures since 2006, including some pronounced “spikes” in failure rates in recent  
11 years. The Main Stem Cable Replacement Program is designed to prevent the  
12 extensive interruptions, lengthy repair periods, and significant restoration costs  
13 associated with Main Stem cable faults. Given the nature and purpose of Main Stem  
14 cable, failures of those facilities will impact a large numbers of customers as well as  
15 customers with critical or high-demand needs, such as hospitals. The accelerated  
16 level of investment provided for in the LTIP will reduce the risk of such failures.  
17 Additionally, the replacement of Main Stem cable should improve overall system  
18 reliability by increasing the Company’s flexibility to switch the circuits serving load  
19 in a particular area so that service can be maintained even if one of the circuits  
20 serving that load were to fail.

21 **23. Q. What rate of Main Stem cable replacement is reflected in PECO’s proposed**  
22 **LTIP and how will the areas targeted for replacement be prioritized?**

1 A. At the accelerated rate of investment reflected in PECO's LTIP, namely, an  
2 additional \$72.2 million over the LTIP's term, the Company plans to replace  
3 between 8 and 17 miles of Main Stem cable per year or approximately 68 miles over  
4 the term of the LTIP. The Main Stem cable selected for replacement will be  
5 prioritized to address first those areas that have higher historical failure rates.  
6 Accordingly, cables that have experienced multiple failures or are of a type and  
7 vintage that are expected to have higher rates of failure will be replaced first.  
8 Replacements will be further prioritized based upon the presence of high-priority dual  
9 service customers (e.g. hospitals) and failure trends on similar types of cable. Given  
10 the nature of Main Stem cable and its typical applications, a large part of PECO's  
11 accelerated spending will occur in the City of Philadelphia.

12 **24. Q. Explain why PECO is accelerating URD cable replacement.**

13 A. URD cable is normally installed by direct burial in underground trenches without  
14 conduit. Direct-buried cable is used primarily in residential developments and in  
15 small commercial and small industrial locations. As previously noted, PECO has  
16 experienced a rising trend in URD failures since 2006, including some pronounced  
17 "spikes" in failure rates in recent years, as shown in the graph of URD cable faults in  
18 the LTIP. Interruptions caused by the failure of URD cable are significant because it  
19 takes a significant length of the time, after the failure occurs, to locate, excavate for,  
20 and repair the URD fault(s) that caused the interruption. The impact of accelerated  
21 URD replacement is not expected to have a significant impact on PECO's SAIFI and  
22 SAIDI system metrics. However, accelerated URD replacement will have an

1 important positive impact on the clusters of between 10 and 50 customers served by  
2 each URD installation and, in that respect, should improve PECO's CAIDI metric.

3 **25. Q. Describe the focus of the URD cable replacement program and how PECO is**  
4 **prioritizing and accelerating that work.**

5 A. PECO will focus on the replacement of URD cable that was installed prior to 1984,  
6 which PECO estimates is approximately 1,420 miles of URD cable. At the  
7 accelerated rate of investment reflected in PECO's LTIP, the Company plans to  
8 replace approximately 24.6 additional miles of URD cable per year or approximately  
9 123 additional miles over the term of the LTIP. As I previously noted, PECO will  
10 invest an additional \$65.2 million in this program over the five years of the LTIP.

11 **26. Q. Please describe PECO's LTIP initiative to increase expenditures to retire**  
12 **Building Substations and up-grade the facilities those substations serve.**

13 A. Building Substations contain multiple transformers with most substation facilities  
14 located within structures. All of PECO's existing Building Substations are aging and  
15 contain obsolete equipment. As a consequence, it is becoming much more difficult to  
16 operate and repair this equipment. Replacement parts are not available off-the-shelf,  
17 which requires fabricating customized replacements. Existing Building Substations  
18 also have limited telemetry capabilities for remotely monitoring loading and  
19 equipment status, which directly impedes efforts to maintain reliability. Given all of  
20 these factors, Building Substations pose an increasing risk of sudden failures that,  
21 should they occur, would interrupt service to many customers.

1 In order to address the reliability risk posed by Building Substations, PECO will  
2 accelerate the retirement and removal of those substations and the redesigning and  
3 upgrading of the portions of the distribution system those substations supply.  
4 Because Building Substations transform power from higher to lower voltage, they  
5 cannot be retired unless the down-stream portion of the distribution system is  
6 upgraded to operate at higher voltage.

7 As a consequence of retiring the Building Substations and up-rating the down-stream  
8 facilities, an entire level of transformation will be eliminated. However, this work  
9 will also entail replacing or up-rating the transformers down-stream from the  
10 Building Substations. Those transformers will have to be replaced or up-rated  
11 because they will receive power at higher voltage than the power they currently  
12 receive from the Building Substations. The feeders supplying the up-rated  
13 transformers will be equipped with modern telemetry, which provides the Company  
14 with important information on system conditions that can improve its response if  
15 outages or power quality issues arise.

16 **27. Q. Explain what the down-stream upgrades entail.**

17 A. The Company will use the opportunity provided by the system redesign and voltage  
18 up-rating to upgrade the distribution facilities formerly supplied by the Building  
19 Substations to current construction standards where it is necessary to do so or where  
20 upgrading can be done cost-effectively as part of this project. Also, increasing the  
21 voltage on lines that are currently feeders from existing Building Substations will  
22 make it possible to integrate those feeders with other, existing facilities of more

1 current vintage that already operate at those higher (13 kV or 34 kV) voltages. That  
2 integration will help improve reliability by creating alternative paths for supplying  
3 power to distribution transformers in the event an outage occurs on the principal  
4 feeders to those transformers.

5 **28. Q. How will PECO accelerate its investment in this program under its LTIP?**

6 A. PECO will accelerate its investment in retiring Building Substations beginning in  
7 2019 in order to increase the rate at which retirements are projected to occur, as  
8 shown by the tables of annual investment in Section IV. E. and Appendix A of the  
9 LTIP. The accelerated work schedule includes the improvements to distribution  
10 infrastructure necessitated by the substation retirements that were previously  
11 described.

12 **29. Q. You also indicated that facility relocations are included in PECO's LTIP.  
13 Explain what this component of the LTIP involves.**

14 A. PECO's facilities must be relocated from time to time to accommodate construction  
15 projects of the PennDOT, the Pennsylvania Turnpike Commission and local  
16 municipalities. Normally, these projects require PECO to move its facilities as part of  
17 road or bridge projects. To the extent that PECO's relocation work is not paid for by  
18 a third party, PECO will include its unreimbursed costs in its LTIP. Expenditures  
19 are anticipated to be approximately \$10 million per year, net of reimbursements.  
20 During the five years ended December 31, 2014, PECO's expenditures for facility  
21 relocations averaged \$13 million per year net of reimbursements.

1 **30. Q. Will PECO's LTIP provide for a material acceleration of its investment in plant**  
2 **and equipment necessary to maintain or enhance its distribution system's**  
3 **reliability, storm hardening and resiliency?**

4 A. Yes, clearly it will, for all the reasons I discussed above and as explained in detail in  
5 PECO's LTIP. Accordingly, the proposed LTIP will enhance PECO's capacity to  
6 provide and maintain adequate, efficient, safe, reliable and reasonable service  
7 consistent with the service obligations imposed on PECO as a public utility and an  
8 EDC.

9 **31. Q. Does PECO anticipate that its LTIP may be enhanced in the future to reflect its**  
10 **implementation of new technologies and microgrids?**

11 A. Yes, it does, as explained in Section IV.J. of the plan, PECO has been monitoring  
12 recent trends in the utility industry with regard to the development of microgrid  
13 technology.<sup>3</sup> PECO has also been monitoring regulatory developments in other states  
14 where regulatory authorities are assessing the role utilities can play in facilitating  
15 system-wide efficiencies that may be achieved from expanded installation of  
16 distributed energy resources and load management. In particular, those regulatory  
17 authorities are analyzing policy changes that may be required to enable the  
18 development and installation of microgrids and community grids. Locally, PECO is  
19 partnering with PIDC, Philadelphia's public-private economic development  
20 corporation, on its project at The Navy Yard to install a microgrid controller in

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<sup>3</sup> As explained in the LTIP, a microgrid is generally defined as a group of interconnected loads and distributed energy resources with clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid and can connect and disconnect from the grid to enable it to operate in both grid connected or island modes.

1 support of The Navy Yard’s smart grid initiative. The project will benefit all electric  
2 customers in the PECO service territory by enabling advanced energy management  
3 programs and optimizing the use of existing and future infrastructure, by refining  
4 these integrations with The Navy Yard, before rolling them out to the broader market.  
5 PECO has provided consultative assistance to The Navy Yard on this project to date,  
6 and along with PIDC is analyzing potential needs and opportunities for direct  
7 engagement.

8 PECO believes that the potential exists to pursue future distributed generation and  
9 microgrid technology opportunities that could enhance reliability and resiliency by  
10 replacing obsolete infrastructure. PECO is currently evaluating potential  
11 opportunities as an alternative to traditional transmission and distribution (“T&D”)  
12 solutions. PECO is interested in pursuing projects that will:

- 13 • Benefit the public by improving resiliency during major storm  
14 events;
- 15 • Address existing reliability and capacity needs;
- 16 • Efficiently integrate with and leverage the existing centralized  
17 electric grid;
- 18 • Develop cost effective alternatives for conventional T&D  
19 methodologies; and
- 20 • Utilize technology that will provide valuable information, which can  
21 be used to enhance future projects.

22 Projects being evaluated are focused on areas where distributed generation can  
23 provide significant benefits to diverse customer segments. Examples include health  
24 care and retirement communities, emergency service providers, utility services  
25 (water, wastewater, telecommunications, gas, electric), food services (supermarkets,

1 convenience stores, restaurants) and critical customer supplies and services (gas,  
2 pharmacies, banks, home improvement and building supplies, and hotels and motels).

3 PECO anticipates selecting one or more such projects for development and  
4 anticipates spending approximately \$50 to \$100 million on those projects in the 2017  
5 to 2020 timeframe. PECO will file updates to its LTIP to include detailed project  
6 information and costs as such projects are developed and are closer to construction.

7 **V. CONCLUSION**

8 **32. Q. Does this conclude your direct testimony?**

9 A. Yes.



**PECO ENERGY COMPANY  
STATEMENT NO. 2**

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY CORPORATION

PETITION OF PECO ENERGY COMPANY FOR APPROVAL OF  
ITS ELECTRIC LONG TERM INFRASTRUCTURE  
IMPROVEMENT PLAN AND TO ESTABLISH A DISTRIBUTION  
SYSTEM IMPROVEMENT CHARGE FOR ITS ELECTRIC  
OPERATIONS

DOCKET NO. P-2015-2471423

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DIRECT TESTIMONY

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WITNESS: ALAN B. COHN

SUBJECT: PECO'S DSIC TARIFF, CUSTOMER NOTICE,  
PUBLIC INTEREST CONSIDERATIONS

DATED: MARCH 27, 2015

## TABLE OF CONTENTS

	<b>Page</b>
I. INTRODUCTION AND PURPOSE .....	1
II. THE DISC TARIFF AND CUSTOMER NOTICE.....	3
III. PUBLIC INTEREST CONSIDERATIONS.....	8



1 Regulatory Affairs Division. Since that time, I have held various management  
2 positions in PECO's Rate and Regulatory Affairs Department and Strategic  
3 Planning Department with responsibility for managing base rate case filings, cost  
4 of service studies and financial and economic analyses.

5 **5. Q. Have you previously testified before this Commission or other regulatory**  
6 **bodies?**

7 A. Yes. I have testified in regulatory proceedings before the Pennsylvania Public  
8 Utility Commission ("PUC" or the "Commission") and the Maryland Public  
9 Service Commission. A listing of the cases in which I have submitted testimony  
10 is attached hereto as Appendix A.

11 **6. Q. What is the purpose of your direct testimony?**

12 A. My testimony is being submitted in support of PECO's *Petition For Approval Of*  
13 *Its Electric Long Term Infrastructure Improvement Plan And To Establish A*  
14 *Distribution System Improvement Charge For Its Electric Operations*  
15 ("Petition"). The purpose of my testimony is twofold. First, I will discuss the  
16 Company's proposed tariff supplement to establish a Distribution System  
17 Improvement Charge ("DSIC") for its electric operations (the "DSIC Tariff") and  
18 explain how the Company plans to notify customers of its request to establish a  
19 DSIC. Second, I will explain why the establishment of a DSIC is in the public  
20 interest and will facilitate PECO's implementation of its five-year long term  
21 infrastructure improvement plan ("LTIIIP"). PECO's LTIIIP is described by PECO  
22 witness John E. McDonald in PECO Statement No. 1, which also accompanies,

1 and supports, the Company's Petition. As Mr. McDonald explains, PECO's  
2 LTIIIP describes the investments PECO plans to make to enhance its distribution  
3 system's capacity to withstand and recover from major storms and to maintain  
4 adequate, efficient, safe, reliable and reasonable electric service.

5 **7. Q. Are you sponsoring any exhibits?**

6 A. Yes. I am sponsoring the following exhibits:

7  
8 PECO Exhibit No. 2 – Supplement No. XX to PECO Tariff Electric – Pa. PUC  
9 No. 4 (the DSIC Tariff)  
10 PECO Exhibit No. 3 – Form Bill Insert  
11 PECO Exhibit No. 4 – Rate Case Certification  
12 PECO Exhibit No. 5 – 52 Pa. Code § 53.52 Responses  
13

14 **II. THE DISC TARIFF AND CUSTOMER NOTICE**

15 **8. Q. What is a distribution service improvement charge or a DSIC?**

16 A. A DSIC is a charge imposed by a utility to recover the reasonable and prudent  
17 costs incurred to repair, improve or replace eligible property that is part of the  
18 utility's distribution system. Until the enactment of Act 11 of 2012, only  
19 Pennsylvania water utilities were authorized to establish a DSIC. The purpose of  
20 a DSIC is to allow utilities to recover the costs of DSIC-eligible property that is  
21 placed in service between base rate cases and, therefore, is not included in the  
22 revenue requirement being recovered in the utility's base rates. Section 1353(A)  
23 of the Pennsylvania Public Utility Code states that the DSIC is designed "to  
24 provide timely recovery of reasonable and prudent costs incurred to repair,  
25 improve, or replace eligible property in order to ensure and maintain adequate,  
26 efficient, safe, reliable and reasonable service."

1    **9.    Q.    Has PECO filed an LTIP as required by Section 1352 of the Pennsylvania**  
2           **Public Utility Code?**

3           A.    Yes, PECO has filed an LTIP along with its Petition, which requests that the  
4                   Commission approve its LTIP as a precursor to approving PECO's proposed  
5                   DSIC. As I previously noted, PECO's LTIP is discussed by Mr. McDonald.

6    **10.    Q.    Please describe the Company's proposed DSIC Tariff.**

7           A.    The DSIC Tariff tracks the Commission's Model Tariff<sup>1</sup> with only minor editorial  
8                   changes necessary to make the DSIC part of PECO's Electric Service Tariff. In  
9                   particular, the description of eligible property in Section 1.B. of the DSIC Tariff  
10                  has been adopted verbatim from the description of eligible property for electric  
11                  distribution companies in the Model Tariff. As set forth in Section 2 of the DSIC  
12                  Tariff, PECO proposes that the DSIC become effective on January 1, 2016, and  
13                  that quarterly changes in the DSIC become effective on the first day of each  
14                  calendar quarter (i.e., January 1, April 1, July 1 and October 1). The method of  
15                  calculating each quarterly DSIC rate is set forth in Section 2.D. of the DSIC Tariff  
16                  and is identical to the formula set forth in the Model Tariff. Finally, all of the  
17                  customer safeguards set forth in the Model Tariff are included in Section 4 of the  
18                  DSIC Tariff.

19

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<sup>1</sup> The Commission adopted the model tariff as part of its August 2, 2012 Final Order in *Implementation of Act 11 of 2012* at Docket No. M-2012-2293611.

1    **11.    Q.    How will PECO’s DSIC be calculated?**

2            A.    Consistent with the Model Tariff proposed by the Commission, the formula for  
3                    PECO’s DSIC is:

$$4 \qquad \qquad \qquad \text{DSIC} = \frac{(\text{DSI} * \text{PTRR}) + \text{Dep} + e}{\text{PQR}}$$

5  
6            Where:

7            DSI = Original cost of eligible distribution system improvement projects net of  
8            accrued depreciation.

9            PTRR = Pre-tax return rate applicable to DSIC eligible property.

10           Dep = Depreciation expense related to DSIC-eligible property.

11           e = Amount calculated under the annual reconciliation feature or Commission  
12           audit, as described below.

13           PQR = Projected quarterly revenues for distribution service (including all  
14           applicable clauses and riders) from existing customers plus netted revenue from  
15           any customers which will be gained or lost by the beginning of the applicable  
16           service period.

17           PECO has elected to use quarterly revenues that are determined on the basis of  
18           one-fourth of projected annual revenues.

19    **12.    Q.    What capital structure and long-term debt cost rate will be used in the DSIC**  
20            **calculation?**

21            A.    The DSIC calculations will be based on the Company’s capital structure and actual  
22                    cost rates for long-term debt and preferred stock, if any, set forth in the  
23                    Company’s most recent Quarterly Earnings Report at the time the calculation is  
24                    prepared.

1   **13.   Q.    What cost of equity will be used in the DSIC calculation?**

2           A.    The calculation of the DSIC will use the return on equity (“ROE”) authorized by  
3                   the Commission in PECO’s base rate case filed on March 27, 2015 at Docket No.  
4                   R-2015-2468981. If an ROE is not expressly approved in that case either by a  
5                   Commission finding in a litigated proceeding or by the Commission’s approval of  
6                   a DSIC ROE stipulated by the parties in settlement, then PECO will use the ROE  
7                   authorized for use in calculating an electric DSIC in the most recent Quarterly  
8                   Earnings Report issued at the time PECO’s DISC calculation is made.

9   **14.   Q.    What constitutes distribution revenue for purposes of the DSIC calculation?**

10          A.    For purposes of calculating the DSIC charge under the DSIC Tariff, distribution  
11               revenue includes all amounts that are billed to customers for distribution service,  
12               including all applicable charges and riders. Specifically, the revenues include  
13               distribution charges, consumer education charges, energy efficiency and  
14               conservation charges, universal service charges (for residential customers only),  
15               nuclear decommissioning costs, state tax adjustments, certain nonbypassable  
16               transmission service charges that recover costs imposed by the Pennsylvania New  
17               Jersey Maryland Interconnection LLC (“PJM”) under PJM’s Open Access  
18               Transmission Tariff, and the bill credit reflecting the revenue effect of PECO’s  
19               catch-up deduction for electing a tax repair allowance. As a consequence, the  
20               DSIC rate, expressed as a percentage, will be applied to the totality of a  
21               customer’s bill (i.e., after all other charges and riders have been calculated and  
22               included in the billed amount).

1    **15.    Q.    Please describe the customer safeguards included in the DSIC Tariff.**

2           A.    Consistent with the Model Tariff, the DSIC will apply equally to all customer  
3                   classes and is capped at 5.0% of the amount billed to customers for distribution  
4                   services, on an annualized basis.  Additionally, the DSIC is subject to audit by the  
5                   Commission and annual reconciliation of recoveries and costs, with over-  
6                   collections subject to refund with interest.  The DSIC will be reset to zero upon  
7                   application of new base rates to customer billings that provide for prospective  
8                   recovery of the annual costs that had previously been recovered under the DSIC.  
9                   It will also be reset to zero if, in any quarter, PECO would earn a rate of return  
10                  that would exceed the allowable rate of return used to calculate its fixed costs  
11                  under the DSIC.

12   **16.    Q.    Has PECO estimated a DSIC rate that it would begin to impose upon the**  
13                   **effective date of Supplement No. XX if its DSIC is approved as filed by the**  
14                   **Commission?**

15           A.    Yes.  PECO is requesting that the Commission authorize the Company to file the  
16                   DSIC Tariff, on at least one day’s notice, to become effective on January 1, 2016.  
17                   The Company expects that the DSIC rate as of the tariff’s effective date will be  
18                   zero.  As a result, I have not included an indicative calculation of a DSIC charge  
19                   under PECO’s proposed DSIC Tariff.

20                   The Company expects the DSIC to be set at zero because the planned new and  
21                   accelerated investment in infrastructure improvements for the first year of the  
22                   LTIIP (2016) has been included in the Company’s fully projected future test year

1 claim for plant additions in PECO's electric distribution base rate filed at Docket  
2 No. R-2015-2468981. Following the completion of PECO's pending base rate  
3 case, PECO will monitor its LTIP investments relative to other factors relating to  
4 whether a DSIC rate may be implemented to determine when it may propose to  
5 start charging a DSIC rate.

6 **17. Q. How will PECO notify its customers regarding its request to establish a**  
7 **DSIC?**

8 A. Beginning with the first billing cycle beginning in April, 2015, PECO will include  
9 a bill insert, in the form set forth in PECO Exhibit No. 3, to all customers  
10 informing them of the filing and the estimated impact of a DSIC on their bills. It  
11 will continue inserting such notices in customer bills until all customers have  
12 received the notice.

13 **18. Q. How will PECO notify its customers of the quarterly updates to the DSIC?**

14 A. The Company will include a bill insert or an appropriate bill message on the bills  
15 of all electric distribution customers following any quarterly changes in the DSIC,  
16 as directed by the Commission's Final Implementation Order and Model Tariff.

17 **III. PUBLIC INTEREST CONSIDERATIONS**

18 **19. Q. If PECO expects to implement an initial DSIC of zero, why is approval of the**  
19 **DSIC Tariff in the public interest?**

20 A. A DSIC provides financial assurance that will enable PECO to make sustained  
21 investments in infrastructure improvements designed to enhance reliability by

1 strengthening and modernizing PECO's electric distribution system. As  
2 explained by Mr. McDonald, PECO's LTIP sets forth PECO's plan to accelerate  
3 its investment in storm hardening and resiliency measures as well as measures to  
4 enhance general distribution system reliability.

5 The increased level of investment required to meet the LTIP's goals cannot be  
6 sustained without the assurance that PECO has an approved mechanism to  
7 recover the capital costs imposed by those investments in a more timely fashion  
8 than that afforded solely by seeking an increase in base rates. While the  
9 Company could seek recovery of such costs in a base rate filing, the time required  
10 to prepare a base rate filing and the duration of the notice and suspension period  
11 could still compromise the Company's ability to sustain its accelerated plant  
12 upgrade and replacement goals. In sum, a DSIC will facilitate PECO's  
13 compliance with Section 1501 of the Public Utility Code and other state and  
14 federal laws or orders related to the provision and maintenance of adequate,  
15 efficient, safe, reliable and reasonable electric service.

16 **20. Q. In addition to the public interest benefits you described, are there any timing**  
17 **requirements which affected PECO's decision to file for approval of a DSIC?**

18 A. Yes. A DSIC must be filed within five years of the filing of a utility's last base  
19 rate case. PECO filed an electric distribution base rate case on March 27, 2015 at  
20 Docket No. R-2015-2468981, as evidenced by the Affidavit of Richard G.  
21 Webster, Jr., Vice President, Regulatory Policy and Strategy, submitted as PECO

1 Exhibit No. 4, which certified the filing of that case. Therefore, PECO's Petition  
2 has been timely filed within the five-year period since its last base rate case.

3 **21. Q. Have you prepared responses to the filing requirements set forth at 52 Pa.**  
4 **Code Section 53.52 which specify the standard information to be submitted**  
5 **with a proposed tariff?**

6 A. Yes. The responses are provided in PECO Exhibit No. 5.

7 **22. Q. Does this complete your direct testimony?**

8 A. Yes, it does.

## Listing of Prior Case Testimony

### Maryland

Conowingo Power Company Case No. 7982 – Revenue, expense, rate base and taxes  
Conowingo Power Company Case No. 8352 – Revenue, expense, rate base and taxes

### Federal Energy Regulatory Commission

Docket No. ER91-478 – Revenue, expense, rate base, taxes, cost of service and rate design  
Docket No. ER04-156 – Revenue Requirement under Schedule 12 of the PJM OATT

### Pennsylvania

Docket No. R-891364 – Revenue, expense, rate base and depreciation  
Docket No. I-900005 – Impact of demand side management on off-system sales  
Docket No. R-922479 – Appropriate ratemaking treatment of SFAS 106  
Docket No. R-973877 – Quantification of assets, jurisdictional allocation, revenue requirement and allocation of revenue requirement  
Docket No. R-973953 - Quantification of assets, jurisdictional allocation, revenue requirement and allocation of revenue requirement  
Docket No. C-20016610- Appropriate discount rate for use in determining a CTC buyout  
Docket No. P-072260 – Appropriate cost recovery mechanism for providing full and current recovery of cost of complying with the Alternative Energy Portfolio Standards  
Docket No. P-2008-2062739 – Default Service Tariff Changes  
Docket No. P-2008-2062741 – Market Rate Transition Phase-In Rider and Cost Recovery  
Docket No. M-2009-2093215 – Energy Efficiency and Conservation Plan, Avoided Cost Projections  
Docket No. M-2009-2123944 – Cost Allocation and Cost Recovery Mechanism for Smart Meter Costs  
Docket No. R-2010-2161575 – Rate Design/Revenue Allocation/Tax Repair  
Docket No. R-2010-2161592 - Merchant Function Charge/Tax Repair  
Docket No. P-2012-2283641 - Default Service Program Rate Design and Tariff Changes  
Docket No. M-2009-2123944 – Ratemaking Treatment of Accelerated Depreciation of Automated Meter Reading Investment  
Docket P-2012-2283641 – Recovery of Customer Assistance Program Shopping Plan Costs and Retail Tariff Changes  
Docket No P-2014-2409362 – Default Service Rate Design and Tariff Changes  
Docket P-2014-2451772 – Proposed tariff changes for a new gas main extension policy and a new Neighborhood Gas Pilot program.  
Docket P-2013-2347340 – Implementation of a Gas Distribution System Improvement Charge



**PECO Energy Company**

**Long Term Infrastructure Improvement Plan**  
**(“System 2020”)**

**MARCH 27, 2015**

## TABLE OF CONTENTS

	<b>Page</b>
I. INTRODUCTION .....	1
A. Summary Of PECO Energy Company’s Long Term Infrastructure Improvement Plan (“System 2020”).....	1
B. Background, Legal Authority And PUC Guidance .....	2
II. REQUIRED ELEMENTS OF AN LTIP.....	3
III. OVERVIEW OF PECO’S ELECTRIC LTIP .....	7
IV. PECO’S ELECTRIC LTIP .....	8
A. Identification Of The Types And Age Of Eligible Property Included In PECO’s Electric LTIP .....	8
1. Storm Hardening and Resiliency Measures.....	9
a. CEMI/Spacer Cable Program .....	11
b. Circuit Rebuild/Unit Substation Retirement Program .....	14
c. Age and Type of Eligible Property for Storm Hardening and Resiliency .....	16
2. Underground Cable Replacement .....	17
a. Main Stem Cable Replacement Program.....	20
b. URD Cable Replacement Program .....	22
c. Age and Type of Eligible Property for Underground Cable Replacement.....	23
3. Building Substation Retirements .....	24
a. Age and Type of Eligible Property for Building Substation Retirements .....	27
4. Facility Relocations .....	27
B. Initial Schedule For The Planned Repair And Replacement Of Eligible Property.....	28
C. Location Of Eligible Property.....	28
D. Estimate Of The Quantity Of Eligible Property To Be Improved.....	28

E.	Projected Annual Expenditures To Implement The LTIP And Measures Taken To Ensure That The Plan Is Cost Effective .....	29
F.	The Manner In Which The Replacement Of Aging Infrastructure Will Be Accelerated Under The LTIP And How The Repair, Improvement Or Replacement Will Ensure And Maintain Adequate, Efficient, Safe, Reliable And Reasonable Service.....	30
G.	Detailed Expenditure Plans For The LTIP Period.....	30
H.	Use Of A Qualified Work Force.....	31
	1. Qualified Employees.....	31
	2. Qualified Contractors.....	32
I.	Outreach And Coordination With Other Utilities And Government Entities.....	33
J.	Future Enhancement Of PECO’s LTIP To Implement New Technology And Microgrids.....	33
V.	CONCLUSION.....	35

## I. INTRODUCTION

### A. Summary Of PECO Energy Company's Long Term Infrastructure Improvement Plan ("System 2020")

PECO Energy Company ("PECO" or the "Company") provides electric distribution service to approximately 1.6 million customers across its authorized service territory in Philadelphia, Bucks, Montgomery, Delaware, Chester and York Counties subject to the jurisdiction of the Pennsylvania Public Utility Commission ("PUC" or the "Commission"). To furnish that service, the Company owns and operates a distribution system comprising approximately 29,000 miles of aerial and underground distribution lines. The Company also owns and operates approximately 1,100 miles of transmission lines that are under the operational control of the Pennsylvania-New Jersey-Maryland Interconnection LLC ("PJM") and are subject to the jurisdiction of the Federal Energy Regulatory Commission ("FERC").

Pursuant to Section 1352 of the Public Utility Code,<sup>1</sup> 66 Pa.C.S. §1352, PECO is submitting this Long Term Infrastructure Improvement Plan ("LTIIIP") also known as the Company's "System 2020" plan for approval by the Commission. As explained in greater detail hereafter, under its LTIIIP, PECO proposes to make additional capital investments totaling \$274.3 million to construct reliability-related improvements over the period 2016 through 2020, as shown in the table set forth in Section IV.E.

Approximately \$123.9 million of PECO's accelerated investment focuses on storm hardening and resiliency measures. Approximately \$137.4 million will be invested in accelerated replacement of underground cable in order to anticipate and forestall a rising trend in interruptions related to those facilities. Approximately \$13 million is being

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<sup>1</sup> Unless indicated otherwise, references to a "section" are to the Public Utility Code.

invested in PECO's program to eliminate Building Substations and up-rate the voltage and upgrade the distribution facilities supplied by those substations. In addition to the \$274.3 million PECO proposes to invest in reliability related improvements, the LTIP includes \$50 million of investment for facility relocations, as permitted by Section 1351 (definition of "eligible property").

**B. Background, Legal Authority And PUC Guidance**

On February 14, 2012, Governor Corbett signed into law Act 11 of 2012 ("Act 11"). Act 11 amended the Public Utility Code in several respects, including the addition of Subchapter B (66 Pa.C.S. §§ 1350 – 1360), which authorizes the Commission to approve a distribution system improvement charge ("DSIC") upon petition by an electric distribution company ("EDC"), a natural gas distribution company ("NGDC"), a water utility or a wastewater utility.<sup>2</sup> In addition, Subchapter B sets forth various requirements that must be satisfied by a qualifying utility in order to establish a DSIC and to recover the reasonable and prudent costs to repair, improve or replace eligible property.

On August 2, 2012, the Commission entered its Final Implementation Order in *Implementation of Act 11 of 2012*, Docket No. M-2012-2293611 ("Implementation Order"), which explained how the Commission intended to implement the provisions of Subchapter B. In particular, the Implementation Order set forth the Commission's expectations with regard to the contents of: (1) an LTIP, which must be filed in order to request authority to establish a DSIC (*see* 66 Pa.C.S. § 1352); (2) Annual Asset Optimization Plans, which must be filed each year by a utility that has an approved DSIC

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<sup>2</sup> Prior to the enactment of Act 11, the Public Utility Code expressly provided only for water utilities to establish a DSIC. *See* former 66 Pa.C.S. § 1307(g), which was repealed by Act 11.

and LTIIIP (*see* 66 Pa.C.S. § 1356); and (3) a petition requesting Commission approval to include a DSIC in a utility's tariff (*see* 66 Pa.C.S. § 1353). The terms of the Implementation Order track, and build upon, the provisions of Subchapter B.

On May 23, 2014, the Commission entered a Final Rulemaking Order at Docket No. L-2012-2317274 ("Final Rulemaking Order") to establish the procedures and criteria for the filing, modification and periodic review of LTIIIPs (the "LTIIIP Regulations"). The procedures and criteria set forth in the LTIIIP Regulations reflect both the Subchapter B requirements and certain provisions in the Implementation Order.

Pursuant to 66 Pa.C.S. §§ 1352, 1353(b)(3) and 52 Pa.Code § 121.3, PECO is submitting this LTIIIP for its Electric Division and requests that, pursuant to Section 1352(a)(7) and 52 Pa.Code § 121.3(a)(7), the Commission find that this LTIIIP is "adequate and sufficient to ensure and maintain adequate, efficient, safe, reliable and reasonable service."

## **II. REQUIRED ELEMENTS OF AN LTIIIP**

Section 1352(a) provides that a utility must submit an LTIIIP "in order to be eligible to recover costs under section 1353 (relating to a distribution system improvement charge)." In addition, Section 1352 provides that an LTIIIP should include the following:

- (1) Identification of the types and age of eligible property owned or operated by the utility for which the utility would seek recovery under this subchapter.
- (2) An initial schedule for the planned repair and replacement of eligible property.
- (3) A general description of the location of the eligible property.
- (4) A reasonable estimate of the quantity of eligible property to be improved.

(5) Projected annual expenditures to implement the plan and measures taken to ensure that the plan is cost effective.

(6) The manner in which the replacement of aging infrastructure will be accelerated and how the repair, improvement or replacement will ensure and maintain adequate, efficient, safe, reliable and reasonable service.

In the Implementation Order, the Commission incorporated the six elements of an LTIIP required by Section 1352(a) and provided further guidance on what an LTIIP should contain and the standards by which such plans would be reviewed and approved. The LTIIP Regulations build on the Implementation Order and include the six statutory components of an LTIIP and three additional requirements: (1) a workforce management and training program; (2) a description of a utility's outreach and coordination activities with other utilities, the Department of Transportation and local governments; and (3) for NGDCs, identification of certain critical valves. Areas of particular importance related to the content of an EDC's LTIIP and the process for reviewing and approving an EDC's LTIIP consist of the following:

**Workforce Management and Training Plan** (52 Pa. Code § 121.3(a)(7)). As an appropriate means of implementing the standards set forth in Section 1359 (i.e., that utilities must demonstrate that work done on eligible property is performed by "qualified employees of either the utility or an independent contractor"), the LTIIP Regulations require a workforce management and training plan that "is designed to ensure that the utility will have access to a qualified workforce to perform work in a cost-effective, safe and reliable manner."

**Outreach and Coordination Activities** (52 Pa. Code § 121.3(a)(8)). The LTIIP Regulations require a "description of a utility's outreach and coordination activities with

other utilities, Department of Transportation and local governments regarding their planned maintenance/construction projects and roadways that may be impacted by the LTIIIP.” The Commission believes these activities are necessary to ensure that LTIIIP projects are properly planned, coordinated with other stakeholders, and executed in an efficient and cost-effective manner.

**LTIIIP Must Only Address Specific Property Eligible for DSIC Recovery** (52 Pa. Code § 121.3(b)). The LTIIIP filed by a utility need only identify the specific eligible distribution plant property, as defined in 66 Pa. C.S. § 1351, that the utility has determined it will repair, improve or replace based upon the age, functionalities, reliability and performance of such property and for which it may seek DSIC recovery.

**Time Frame For LTIIIP** (Final Rulemaking Order, p. 29). The LTIIIP Regulations do not establish a standard term for an LTIIIP, and the Commission has left it to the discretion of the utility whether to develop a five or ten-year term for its individual LTIIIP. In the Implementation Order (pp. 18-19), the Commission determined that “a five to ten-year term for the LTIIIP is appropriate as this time period is forward-looking enough for utilities to make accurate predictions and also provides sufficient time for long-term planning of planned repairs and replacement of eligible property.”

**Accelerates Or Maintains An Accelerated Rate Of Infrastructure Improvement** (52 Pa. Code § 121.4(e)(2)). The LTIIIP Regulations provide that the Commission will review a filed LTIIIP to determine whether the plan “specifies the manner in which it *accelerates or maintains an accelerated rate* of infrastructure repair, improvement or replacement.” (emphasis added). As explained in the Implementation Order, p. 19, this language reflects the Commission’s acknowledgment that “some

utilities have already taken substantial steps recently to increase prudent capital investment to address their aging infrastructure.”

**Burden of Proof and Review Process** (52 Pa. Code § 121.4). The LTIIIP Regulations provide that a utility has the burden of proof to “demonstrate that its proposed LTIIIP and associated expenditures are reasonable, cost effective and are designed to ensure and maintain efficient, safe, adequate, reliable and reasonable service to consumers.” LTIIIP filings are subject to a 30-day comment period, and the LTIIIP will be referred to the Office of Administrative Law Judge if comments raise “material factual issues.”

**Confidential Information** (52 Pa. Code § 121.4(b)). A utility may obtain a protective order for confidential or proprietary information contained in an LTIIIP.

**Time For Filing An Initial LTIIIP And New LTIIIP** (Final Rulemaking Order, p. 1; 52 Pa. Code § 121.5(c)). The Final Rulemaking Order provides that an LTIIIP must be filed and approved before a DSIC may be approved. In addition, a utility seeking to continue its DSIC mechanism after the expiration of its LTIIIP must file a new LTIIIP at least 120 days prior to the expiration of its currently-effective LTIIIP.

**Making Modifications To An Existing LTIIIP** (52 Pa. Code § 121.5(b), (c)). A utility must file a separate petition for modification if it would like to incorporate a major modification to any of the LTIIIP elements in Section 121.3(a). “Major modification” is defined in the LTIIIP Regulations. A less formal process of review applies to minor modifications.

**Periodic Review Of An LTIIIP** (52 Pa. Code § 121.7). The Commission will review a utility’s LTIIIP at least once every five years. The periodic review will include:

(1) whether the utility has adhered to the parameters of its LTIIIP; and (2) whether changes to the LTIIIP are necessary to continue to maintain the efficiency, safety, adequacy and reliability of the utility's existing distribution infrastructure.

### **III. OVERVIEW OF PECO'S ELECTRIC LTIIIP**

Section IV and Appendix A of this LTIIIP contain all of the components of an LTIIIP specified by Section 1352, the Implementation Order and Section 121 of the regulations. The contents of Section IV and Appendix A are summarized below.

**Section IV.A.** identifies the types and ages of eligible property that is the subject of PECO's LTIIIP. In this section, PECO describes each of the components of its LTIIIP including the kinds of property being replaced or rehabilitated; explains why the infrastructure improvements are being undertaken and how they will enhance reliability and customer service; and discusses the extent of the acceleration of PECO's investment provided for in its LTIIIP and why it is prudent to accelerate those investments.

**Section IV.B.** sets forth the initial schedule for PECO's planned repair and replacement of eligible property.

**Section IV.C.** describes, generally, the location of eligible property slated for modernization under PECO's LTIIIP. For purposes of presenting the data in its LTIIIP.

**Section IV.D.** discusses, generally, the estimated quantities of eligible property to be replaced or upgraded.

**Section IV.E.** summarizes PECO's actual and anticipated expenditures for the LTIIIP. In addition, PECO explains why it will be cost effective to implement the LTIIIP over its five-year term (2016-2020).

**Section IV.F.** discusses how PECO has accelerated the repair, improvement and replacement of eligible property and describes its plans to maintain that accelerated level of work for the term of the current LTIP.

**Section IV.G.** identifies the charts and tables depicting estimated expenditures during the five-year term of the LTIP, as set forth in Appendix A, and explains how the estimates will be augmented with additional detail when PECO files future Asset Optimization Plans.

**Section IV.H.** explains PECO's workforce management plan for utility and contractor employees.

**Section IV.I.** describes PECO's outreach and coordination activities with other utilities, the Pennsylvania Department of Transportation ("PennDOT") and local governments regarding the planning and implementation of LTIP projects.

**Section IV.J.** discusses anticipated future enhancements to PECO's LTIP to reflect the implementation of new technology and, in particular, the construction and use of microgrids.

#### **IV. PECO'S ELECTRIC LTIP**

##### **A. Identification Of The Types And Age Of Eligible Property Included In PECO's Electric LTIP**

PECO's LTIP covers a five-year period (2016 through 2020) and focuses on infrastructure improvements designed to enhance reliability by strengthening and modernizing PECO's electric distribution system. If the LTIP is approved, PECO projects spending an additional \$274.3 million on reliability improvements during the LTIP's term. A summary of the projected year-by-year and total expenditures for each

component of PECO's LTIIP is provided in the table in Section IV.E., below, and in Appendix A, which also discusses the need for, and the nature and scope of, the components of PECO's LTIIP. The accelerated investment totaling \$274.3 million encompassed by the LTIIP consists entirely of "eligible property," as defined in 66 Pa.C.S. § 1351 and as described more fully below. As such, PECO's investments made under its LTIIP will qualify for cost recovery under a DSIC.

Upgrading PECO's distribution system with the property additions identified in its LTIIP will enable the Company to enhance its capacity to withstand and recover from major storms, to maintain or improve its overall system reliability, and, in general, continue to provide its customers the adequate, efficient, safe, reliable and reasonable service they have come to expect. To that end, PECO's LTIIP will accelerate PECO's investment in three areas of infrastructure improvement, consisting of the following: (1) storm hardening and resiliency; (2) replacing underground cable that is exhibiting a rising trend in failure rates; and (3) retiring aging and obsolete Building Substations and upgrading and redesigning the distribution facilities they supply. Additionally, investment related to government-required facility relocations is a fourth category included in PECO's LTIIP, which is expressly designated as DSIC "eligible property" in 66 Pa.C.S. § 1351. Each of these areas of investment is discussed separately below.

**1. Storm Hardening and Resiliency Measures**

PECO has experienced a number of significant weather events in recent years, which have included hurricanes and tropical storms, such as Irene and Sandy, and

extreme winter weather, such as Winter Storm Nika.<sup>3</sup> The frequency and severity of major storms have increased over the last ten years.<sup>4</sup> The impact of those storms has elevated the need for PECO and other Pennsylvania EDCs to reinforce and upgrade their electric distribution infrastructure to better withstand extreme weather events.

Accordingly, a significant portion of PECO's LTIP is dedicated to accelerating PECO's investment in plant and equipment designed to achieve storm hardening and resiliency.

Storm hardening involves physical changes to improve or retrofit facilities to make them less susceptible to the impact of extreme weather conditions, such as damage from falling trees and branches, high wind, flooding, or wind-driven debris. Hardening can cover a number of measures, including installing new technology, upgrading equipment, constructing protective barriers, and increasing communications and monitoring capabilities. These measures typically require significant investments and may take years to implement on a scale that will materially improve reliability.

Resiliency refers to a utility's ability to maintain or restore service to customers after its facilities have suffered damage from storms or other causes. Consequently, resiliency measures do not prevent damage. Rather, they enable electric facilities to continue operating despite incurring damage, and they promote a rapid return to normal operations if storm damage causes service interruptions to occur.

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<sup>3</sup> To illustrate, as a consequence of Hurricane Sandy, approximately 850,000 of PECO's customers experienced interruptions of service. In the aftermath of Hurricane Sandy, PECO had to replace or repair over 140 miles of conductors and 2,538 cross arms. Winter Storm Nika caused interruptions and storm damage of similar magnitude.

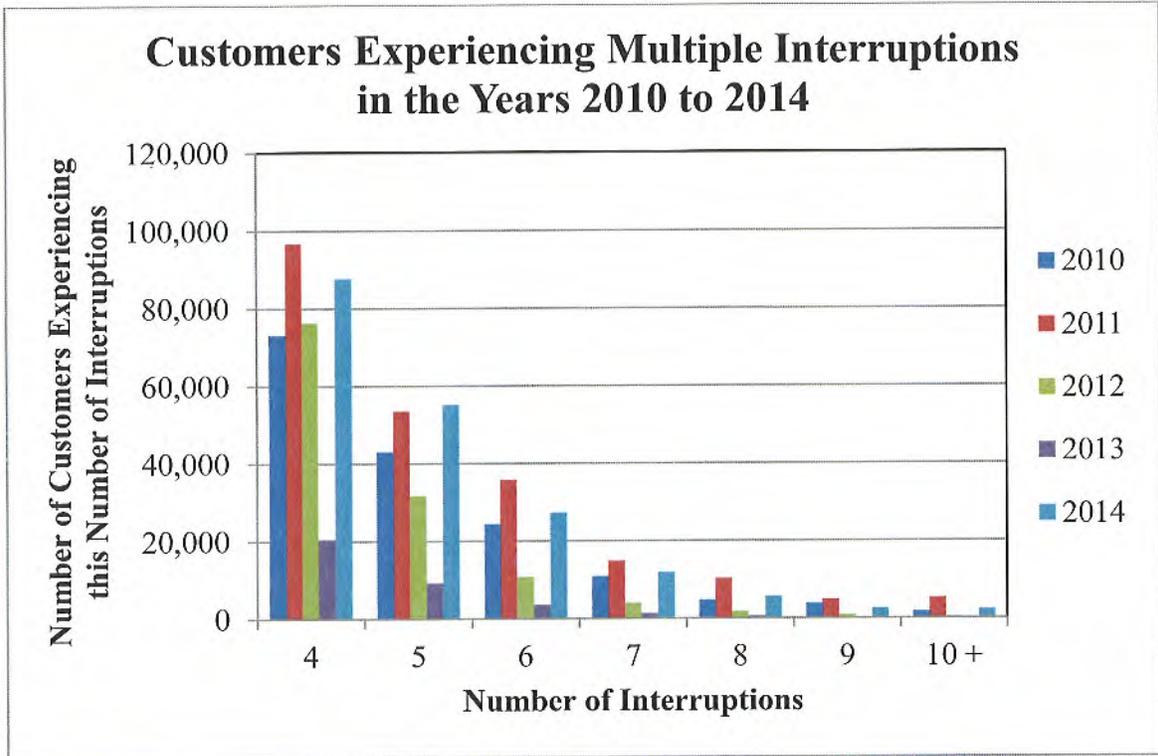
<sup>4</sup> From 2005 through 2009, PECO experienced two major storms that affected 684,000 customers. During the subsequent five years (2010-2014), there were eight major storms – with the two largest occurring in the last three years – affecting a total of 3,297,000 customers.

The storm hardening and resiliency components of PECO's LTIIP consist of two initiatives for new or accelerated investment, namely, PECO's *CEMI/Spacer Cable Program* and its *Circuit Rebuild/Unit Substation Retirement Program*, which are described below.

**a. CEMI/Spacer Cable Program**

This program is designed to improve reliability as measured by the Customers Experiencing Multiple Interruptions ("CEMI") index. The CEMI index tracks the number of customers that have experienced more than a specified number of interruptions in a given period. PECO uses a CEMI index benchmark of four or more interruptions in a year. Unlike system-wide averages, the CEMI index provides focused information on circuit-specific or location-specific customer outages. Based on that information, improvements can be specifically designed for, and targeted to, areas where customers experience a higher number of sustained interruptions relative to the overall system average. The accelerated investment in improvements to be made under the *CEMI/Spacer Cable Program* will implement enhanced storm hardening and resiliency measures because weather and the impact of vegetation are the main drivers of the interruptions measured by the CEMI index.

The following chart shows, for 2010 through 2014, the number of customers who have experienced four or more interruptions per year and the number of customers in each interruption interval, by year.



To put the data in the table in perspective, for the period analyzed, only approximately 5% of PECO’s customers have experienced four or more outages in a given year excluding the effects of major storms. Approximately 9% of PECO’s customers experienced four or more outages if major storms are included. However, certain circuits or geographic areas contributed to the interruptions per year in multiple years during the study period. Using the CEMI index and the data underlying it, PECO identifies pockets of its distribution system that exhibit below average reliability performance and, therefore, should be specifically targeted for infrastructure improvements.

The LTIP provides for accelerated investment in storm-hardened facilities designed to improve performance in the targeted areas. The principal measure that PECO

will employ is replacing existing overhead conductors with spacer cable.<sup>5</sup> Spacer cable construction is designed to prevent outages caused by falling trees and branches, which are a leading cause of CEMI for PECO's customers. Spacer cable is more resistant to falling trees and branches than ordinary bare, open-wire construction. Spacer cable consists of overhead, covered conductors that are held in a close triangular configuration by a "spacer" and supported by a high strength cable, which also serves as a lightning shield. Spacer cable designs are durable and can withstand temporary contact with tree branches and other vegetation, and, in that way, reduce interruptions and improve power quality.

As part of this program, PECO will replace or upgrade poles, cross arms, lightning arrestors, line hardware and associated equipment that is obsolete or degraded or otherwise is not suited to withstanding more frequent and more severe storms and the impact of falling limbs and trees. The Company will also increase its investment in "smart" switching equipment, the prime example of which is commonly referred to as "reclosers", which reduce the number of customers affected by an outage and automatically restore power to groups of customers, where possible, in less than five minutes. Installation of reclosers at appropriate intervals on a circuit makes the circuit more resilient when, for example, a tree-to-line contact occurs.

Additionally, PECO will extend circuits so that they will be closer to the pockets where reliability problems have been experienced. Doing so will facilitate the interconnection of multiple feeders to serve the targeted areas and, in that way, provide

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<sup>5</sup> Based on location-specific analyses, PECO may install, in lieu of spacer cable, aerial cable consisting of multiple individual cables secured to steel wire.

an alternative source of power to maintain service if the principal substation feed is damaged or otherwise removed from service.

Based on historical performance, the *CEMI/Spacer Cable Program* will focus on aerial facilities in Bucks, Chester, Delaware, Montgomery and York Counties. Specific pockets targeted for remediation will be prioritized by giving consideration to the following factors: (1) historical outage patterns, outage locations and outage causes; (2) continued adequacy of equipment in locations with elevated outage frequencies; and (3) opportunities to replace, repair or improve existing circuits.

**b. Circuit Rebuild/Unit Substation Retirement Program**

This program is designed to remove Unit Substations, upgrade downstream low-voltage supply facilities, and convert those facilities to operate at higher voltages that are consistent with the modern mode of operation. Unit Substations contain a single transformer operating within a range of 1 to 5 Megavolt-Amperes (“MVA”). Unit Substations are supplied power from sub-transmission lines at voltages of either 34 kV or 13 kV. Each Unit Substation transforms power to lower, distribution level voltages to supply power to a single “feeder” that operates at 13 kV, 4 kV or 2.4 kV. Feeder lines are generally overhead lines, but may be underground lines, that run along streets to supply power to distribution transformers located on or near customers’ premises that further reduce voltage to levels at which secondary voltage customers receive service.

The *Circuit Rebuild/Unit Substation Retirement Program* will enhance reliability by eliminating aging Unit Substations that are experiencing an increasing failure rate – which will accelerate over the next twenty years – and that, in many instances, contain

obsolete equipment that is difficult or costly to replace. In short, the distribution system can be improved and made more reliable if Unit Substations are removed and necessary and appropriate upgrades are made to down-stream facilities. Because each Unit Substation supplies a feeder that, in turn, supplies multiple customers, a Unit Substation failure could interrupt service to as many as 1,000 customers. In addition to upgrading the distribution system, retiring Unit Substations will eliminate costs currently incurred to operate and maintain those substations.

Because Unit Substations transform power from higher to lower voltage, they cannot be retired unless the portion of the distribution system down-stream from each substation is upgraded to operate at the higher voltage level such as that which feeds the substation. Accordingly, the down-stream facilities need to be redesigned to operate at the higher voltage. As part of that process, a significant portion of those facilities (largely poles, cross arms, conductors and associated equipment) will be rebuilt to current construction standards, and the measures described in connection with PECO's *CEMI/Spacer Cable Program* will be deployed, as appropriate, to strengthen the facilities' ability to withstand storms and to improve resiliency if any damage is incurred.

PECO currently has 780 Unit Substations at various locations throughout its six-county service territory, as shown, by county, in the table below:

<b>Location (By County)</b>	<b>Number of Unit Substations</b>
Bucks	183
Chester	169
Delaware	109
Montgomery	190
Philadelphia	119
York	10
<b>Total</b>	<b>780</b>

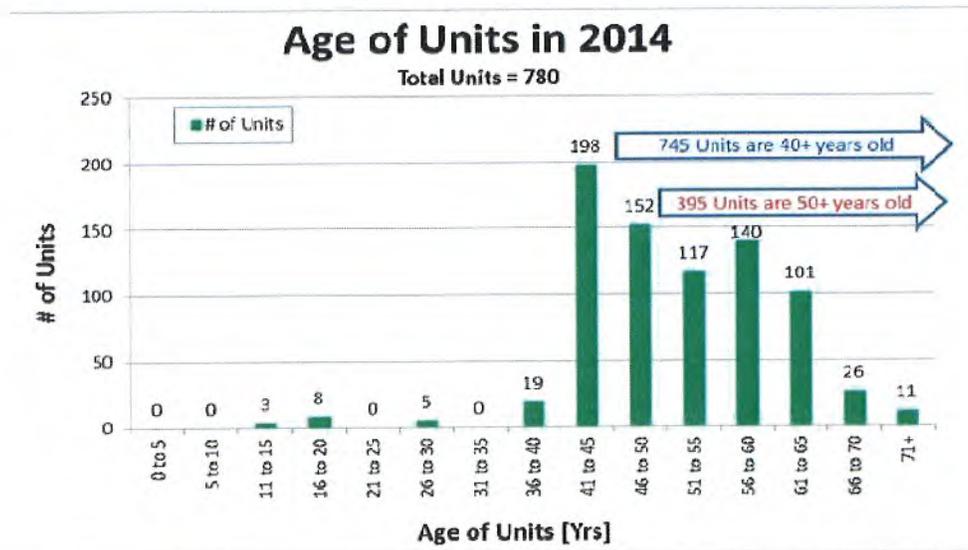
Currently, PECO is retiring between one and two Unit Substations per year and, in connection with those retirements, is upgrading the associated down-stream facilities. Pursuant to its LTIP, PECO plans to retire, on average over the LTIP's term, an additional five to six Unit Substations per year and perform the associated down-stream facility upgrades. The specific Unit Substations selected for retirement will be prioritized on the basis of their susceptibility to storm damage (for example, if they are located in a flood plain), the need to obtain spare equipment that is not readily available, capacity constraints, the number of customers served, and equipment obsolescence, among other considerations that may be location or unit-specific.

**c. Age and Type of Eligible Property for Storm Hardening and Resiliency**

**CEMI/Spacer Cable Program.** The plant and equipment in the areas that are the focus of this program consist of the full range of distribution property, including poles, cross arms, conductors, switches, fuses, breakers, transformers, and a variety of associated equipment, in varying amounts and configurations. It is not possible to determine the ages of the specific equipment being replaced. Moreover, any replacement

or upgrade of distribution plant and equipment in a particular location will be based on a determination that it is obsolete, degraded or not suitable to withstanding more frequent and more severe storms. In short, the determination of the plant to be replaced is not strictly, or primarily, a function of the age of that property but, instead, is dependent upon the various factors discussed in subsection a., above.

**Circuit Rebuild/Unit Substation Retirement Program.** Three hundred and ninety-five of PECO’s 780 Unit Substations are older than 50 years. The following table shows the distribution of the ages of PECO’s Unit Substations, from approximately 10 to 75 years. As shown below, a majority of these substations are between 40 and 65 years old.



## 2. Underground Cable Replacement

PECO owns and operates 15,928 miles of underground distribution cable throughout its service territory. Underground distribution cable is broadly divided between Main Stem cable and Underground Residential Development (“URD”) cable.

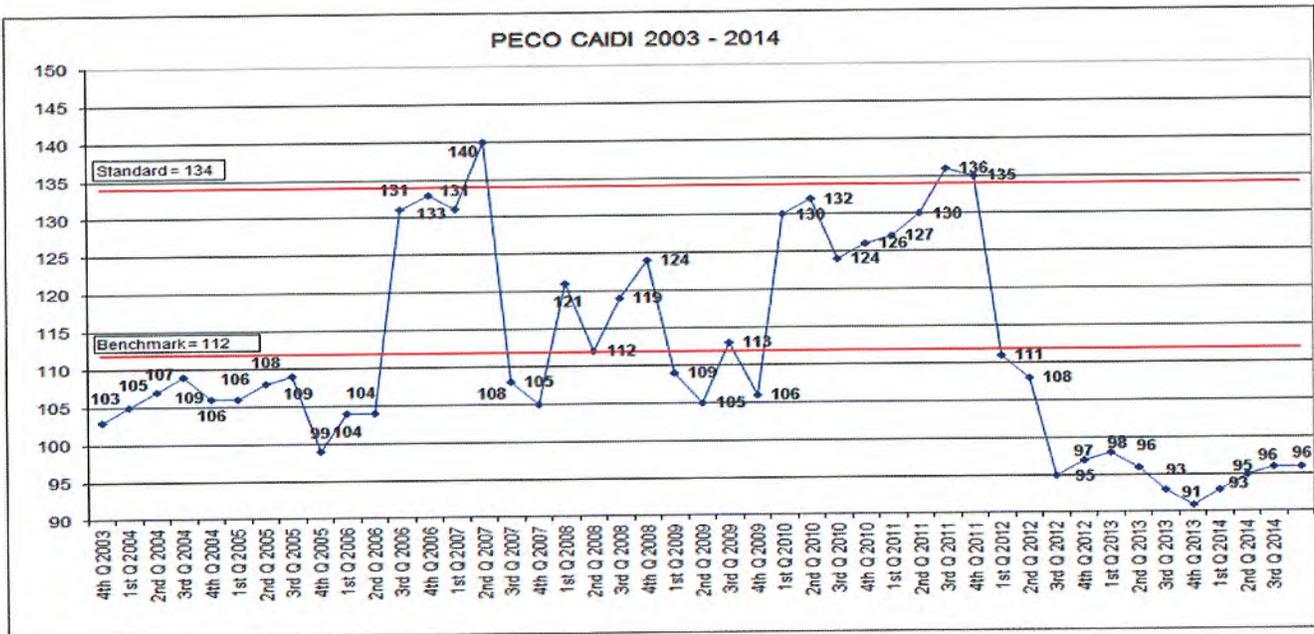
The characteristics of each category of underground distribution cable are discussed further in subsequent subsections.

Underground distribution cable is less susceptible to outages than aerial lines. Consequently, the index that measures the frequency of interruptions, namely, the System Average Interruption Frequency Index (“SAIFI”),<sup>6</sup> and the index that is materially affected by the frequency of interruptions, namely, the System Average Interruption Duration Index (“SAIDI”),<sup>7</sup> are less informative for assessing the performance of underground distribution cable. While underground distribution cable experiences fewer outages than aerial conductors, when outages occur, they can have a much longer duration because of the logistical difficulty with locating and repairing faults in underground facilities. Therefore, the reliability metric that is most relevant for assessing the performance of underground distribution cable is the Customer Average Interruption Duration Index (“CAIDI”), which measures the average duration of service interruptions for affected customers. CAIDI represents the “Minutes Interrupted” divided by the number of customers affected. The table below shows PECO’s CAIDI for the period 2003 through 2014 in relation to the Commission’s benchmark for PECO of 112 minutes and its “Standard” of 134 minutes.

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<sup>6</sup> SAIFI measures the average frequency of interruptions per total number of customers. It is the number of Interruptions divided by the total number of customers served.

<sup>7</sup> SAIDI is a measure of the average duration of service interruptions for the total number of a utility’s customers. It represents the “Minutes Interrupted” divided by “Total Number of Customers Served.” As such it is affected by the frequency as well as the duration of interruptions.



As shown in the table above, since 2012, PECO’s CAIDI performance has been materially better than the Commission’s benchmark of 112. However, maintaining system reliability is not a “once and done” exercise. The factors that degrade plant and equipment and, in that way, adversely affect reliability are on-going. For that reason, it is important to carefully assess trends in reliability indices and take appropriate action to reverse negative trends before reliability problems are experienced. Consistent with that prudent approach to maintaining reliability, PECO’s LTIP will accelerate Main Stem and URD cable replacements. In addition to preserving overall reliability performance, the accelerated investment should reduce the cost of repairing underground distribution cables and allow PECO to more effectively manage its workflow in light of the significant resources that must be re-prioritized to repair underground distribution cable when cable failures occur.

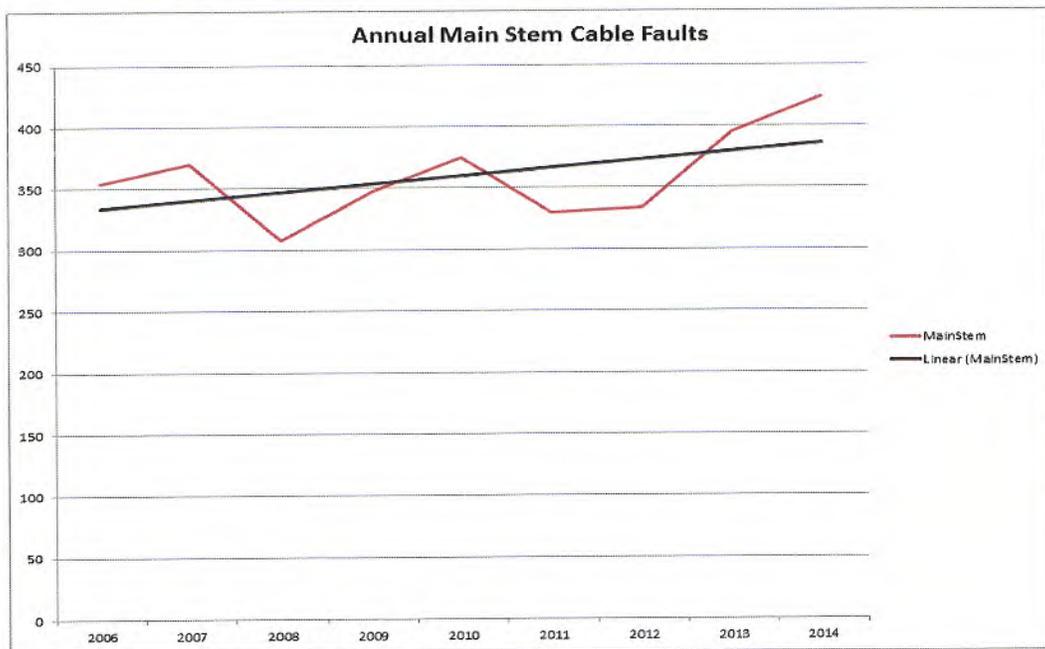
PECO has two initiatives to accelerate investment in underground cable replacement, namely, its *Main Stem Cable Replacement Program* and its *URD Cable Replacement Program*. Each is discussed separately below.

**a. Main Stem Cable Replacement Program**

Main Stem cable is generally installed in industrial and densely populated areas (such as city streets) and near substations. It operates at medium voltage and is located in underground conduits and in ducts with manholes. Main Stem cable supplies power to customers through underground distribution transformers and secondary wires and provides a supply from substations to most aerial circuits on the distribution system.

PECO has experienced a rising trend in Main Stem cable failures since 2006, including some pronounced “spikes” in failure rates in recent years, as shown in the table below, which graphs the actual Main Stem fault data and provides a regression analysis showing the linear trend.

**PECO’s Main Stem Cable Failure Rates (2006 – 2014)**



The *Main Stem Cable Replacement Program* will address extensive interruptions, lengthy repair periods, and significant restoration costs associated with Main Stem cable faults. Given the nature and purpose of Main Stem cable, failures of those facilities will impact a large number of customers and customers with critical or high-demand needs, such as hospitals. The accelerated level of investment provided for in the LTIP will reduce the risk of such failures. Additionally, the replacement of Main Stem cable should improve overall system reliability by increasing the Company's flexibility to switch the circuits serving load in a particular area so that service can be maintained even if one of the circuits serving that load were to fail.

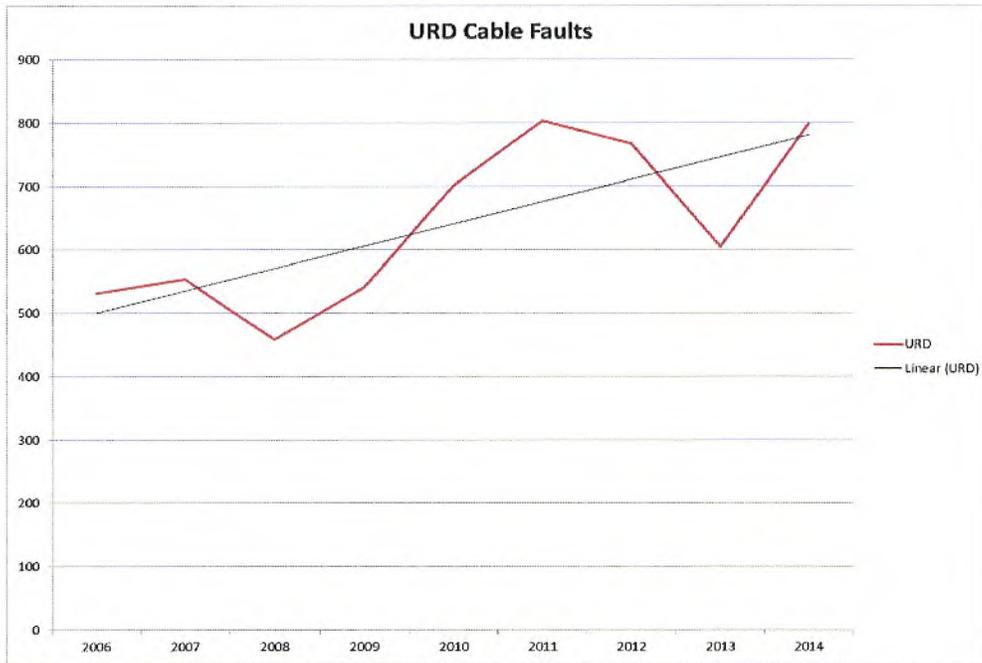
At the accelerated rate of investment reflected in PECO's LTIP, the Company plans to replace approximately 13.6 miles of Main Stem cable on average per year or approximately 68 miles over the term of the LTIP. The Main Stem cable selected for replacement will be prioritized to address first those areas that have higher historical failure rates. Accordingly, cables that have experienced multiple failures or are of a type and vintage that are expected to have higher rates of failure will be replaced first. Replacements will be further prioritized based upon the presence of high-priority dual service customers (e.g. hospitals) and failure trends on similar types of cable. Given the nature of Main Stem cable and its typical applications, a large part of PECO's accelerated spending will occur in the City of Philadelphia.

**b. URD Cable Replacement Program**

URD cable is normally installed by direct burial in underground trenches without running it through conduit. Direct-buried cable is the primary construction method used in residential developments and to serve some small commercial and small industrial establishments. Developments served with URD cable may be fed either from a single source (radial), or from two separate sources (looped) with an open point in the middle that separates the supplies but allows for switching flexibility.

PECO has experienced a rising trend in URD failures since 2006, including some pronounced “spikes” in failure rates in recent years, as shown in the table below, which graphs the actual fault data and provides a regression analysis showing the linear trend.

**PECO’s URD Failure Rates (2006-2014)**



Interruptions caused by the failure of URD cable are significant because it takes a significant length of the time, after the failure occurs, to locate, excavate for, and repair the URD fault(s) that caused the interruption. The impact of accelerated URD replacement is not expected to have a significant impact on SAIFI and SAIDI. However, accelerated URD replacement will have an important positive impact on the clusters of between 10 and 50 customers served by each URD installation and, in that respect, will affect PECO's CAIDI metric.

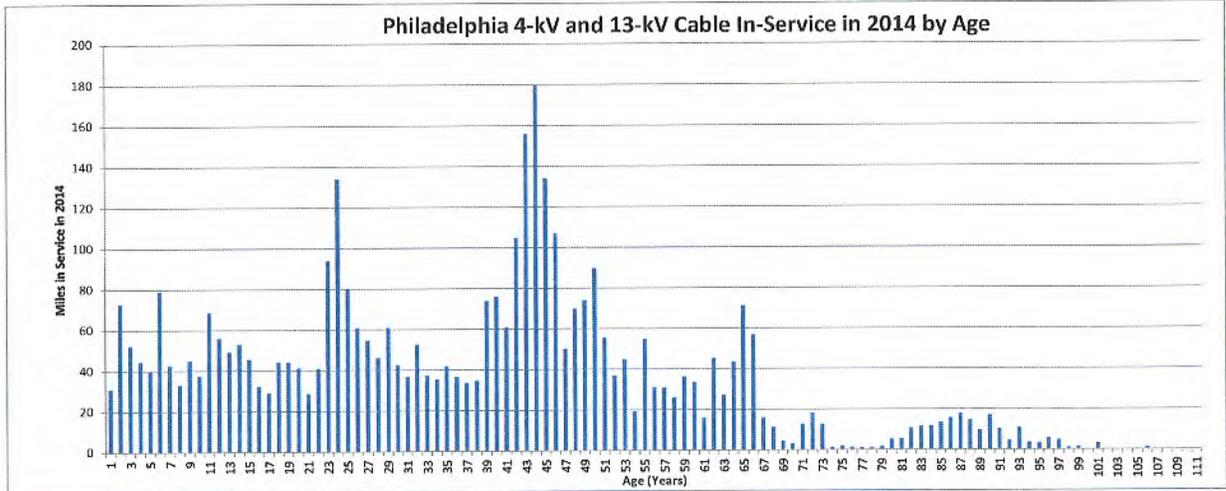
Because of the nature of URD cable and its application principally in residential developments, the accelerated investment will be made mostly in suburban areas where such developments are located. Accordingly, PECO estimates that its spending will be evenly split between Bucks/Montgomery and Delaware/Chester Counties.

PECO will focus on the replacement of URD cable that was installed prior to 1984, which PECO estimates is approximately 1,420 miles of URD cable. At the accelerated rate of investment reflected in PECO's LTIP, the Company plans to replace approximately 24.6 additional miles of URD cable per year or approximately 123 additional miles over the term of the LTIP.

**c. Age and Type of Eligible Property for Underground Cable Replacement**

Although the types of Main Stem cable installed have varied over time, PECO currently has some cable in service that was installed in the early 1900s. The ages of

PECO's Main Stem Cable are set forth in the chart below.



PECO began installing URD cable in the 1960s principally to expand its distribution capacity in order to serve new residential developments. The focus of the *URD Cable Replacement Program* will be URD cable that was installed before 1984.

### 3. Building Substation Retirements

This program entails the retirement and removal of Building Substations and the redesigning and upgrading of the distribution facilities they supply to operate at higher voltages. Building Substations contain multiple transformers that typically operate in the range of 5 to 15 MVA and supply power to down-stream facilities that serve a large number of customers. Building Substations are supplied power from sub-transmission lines at 34 kV or 13 kV. Each Building Substation transforms power to lower, distribution level voltages and provides power to multiple feeders, which operate at 4 kV or 2.4 kV. The feeders are generally overhead lines, but may be underground lines, that run along streets to supply power to distribution transformers that, in turn, further reduce the voltage to levels at which customers receive service.

All of PECO's existing Building Substations are aging and contain obsolete equipment. As a consequence, operating and repairing this equipment requires specialized skill sets that are not readily available and not necessarily transferable to other, more modern facilities. In addition, replacement parts are not available off-the-shelf, which requires PECO to have customized replacement parts specially fabricated in order to make permanent repairs. Obviously, that same problem makes it difficult to maintain an appropriate inventory of spare parts. Additionally, existing Building Substations have limited telemetry capabilities for remotely monitoring loading and equipment status. This limitation can directly affect reliability. Given all of these factors, Building Substations pose an increasing risk of sudden failures that, should they occur, would interrupt service to many customers.

In order to address the reliability risk posed by Building Substations, PECO has incorporated into its LTIP a program for accelerating the retirement and removal of those substations and redesigning and upgrading the portions of the distribution system supplied by those substations. Because Building Substations transform power from higher to lower voltage, they cannot be retired unless the down-stream portion of the distribution system is upgraded to operate at a higher voltage. As a consequence of retiring the Building Substations and up-rating the down-stream facilities, an entire level of transformation provided by the Building Substations will be eliminated. However, this work will also entail replacing or up-rating the transformers down-stream from the Building Substations to transform power supplied to the high side of those transformers at higher voltage than currently occurs in order to achieve the same voltage level, after transformation, at which power is currently supplied to customers. Moreover, the circuits

supplying the up-rated transformers will be equipped with modern telemetry, which provides the Company with important information on system conditions that can improve its response if outages or power quality issues arise.

Additionally, the Company will use the opportunity provided by the system redesign and voltage up-rating to upgrade the distribution facilities supplied by the Building Substations to current construction standards where it is necessary to do so or where upgrading can be done cost-effectively as part of this project. Also, increasing the voltage on lines that are currently feeders from existing Building Substations will make it possible to integrate those feeders with other, existing facilities of more current vintage that already operate at those higher (13 kV or 34 kV) voltages. That integration will help improve reliability by creating alternative paths for supplying power to distribution transformers in the event an outage occurs on the normal feeders to those transformers.

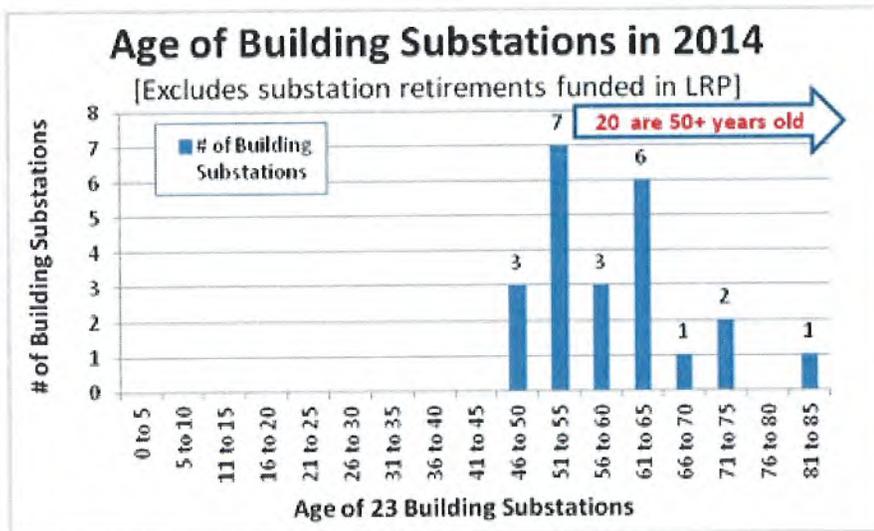
Under the LTIIP, PECO will accelerate its investment in retiring Building Substations beginning in 2019 in order to increase the rate at which those retirements are projected to occur. The accelerated work schedule includes the improvements to distribution infrastructure necessitated by the substation retirements that were previously described. In addition to accelerating the rate at which this work is done, implementing a well-defined retirement plan will allow for more efficient use of PECO's resources and more efficient and cost-effective procurement of materials.

Building Substation retirement projects are generally large, costly, complex and take multiple years to design and complete. Therefore, PECO will prioritize these retirements based on appropriate consideration of the existing substations' condition, the number of customers each serves, the load each supplies, and the risk of failure.

**a. Age and Type of Eligible Property for Building Substation Retirements**

Eighteen of PECO existing 23 Building Substations are located at various sites within the City of Philadelphia. The five remaining Building Substations are located in Delaware (three) and Montgomery (two) Counties.

Twenty of PECO’s Building Substations are older than 50 years. As the following table shows, the age distribution of PECO’s Building Substations is from approximately 45 to 80 years.



**4. Facility Relocations**

The eligible property, type of work and schedules comprising facility relocation projects are driven by the construction plans of the PennDOT, the Pennsylvania Turnpike Commission and local municipalities. Normally, these projects require PECO to move its facilities as part of road or bridge projects undertaken by a government entity. To the extent that PECO’s relocation work is not paid for by a third party, PECO will include its

unreimbursed costs in its LTIP. Expenditures are anticipated to be approximately \$10 million per year, net of reimbursements. During the five years ended December 31, 2014, PECO's expenditures for facility relocations averaged \$13 million per year net of reimbursements, as shown in the table below.

Capital (\$ millions)		2010	2011	2012	2013	2014	5-year Average
Programs	PECO Facility Relocation Spend	21.3	20.4	19.5	20.0	18.9	20.0
	Facility Relocate Expenditures	(7.9)	(6.2)	(6.5)	(7.9)	(6.6)	(7.0)
	Contribution in Aid of Construction (CIAC)						
	Expenditures Net of CIAC	\$ 13.4	\$ 14.2	\$ 13.0	\$ 12.1	\$ 12.2	\$ 13.0

**B. Initial Schedule For The Planned Repair And Replacement Of Eligible Property**

The schedule of expenditures for each LTIP program is provided in the applicable table in Appendix A. This is a preliminary schedule, which is subject to changes based on near-term changes in one or more of the material conditions or assumptions underlying PECO's LTIP work plans.

**C. Location Of Eligible Property**

PECO provides electric service within its authorized service territory in Bucks, Chester, Delaware, York, and Montgomery Counties and the City of Philadelphia. Facilities included in PECO's LTIP are located throughout the service territory and are selected based on criteria discussed in other sections of this document.

**D. Estimate Of The Quantity Of Eligible Property To Be Improved**

Estimates of the quantity of eligible property to be repaired or replaced have been provided in Appendix A and have been discussed in Sections IV.A., above. Accordingly,

those elements of PECO’s LTIIIP are incorporated by reference in this section and described more fully in the tables below.

PECO’s expenditures to complete highway relocation projects are the net of total expenditures minus the project sponsor's reimbursements and are estimated to total approximately \$10 million per year. As noted previously these dates and amounts are subject to change based upon external requirements. The annual amounts of other components of the LTIIIP are provided in the table in Appendix A.

**E. Projected Annual Expenditures To Implement The LTIIIP And Measures Taken To Ensure That The Plan Is Cost Effective**

The table below identifies accelerated spending for DSIC-eligible investments in PECO’s LTIIIP. The specific items included in this table were discussed in the preceding sections.

**PECO’s Accelerated DSIC-Eligible Capital Investment**

Capital (\$ millions)		2016	2017	2018	2019	2020+	Total
<b>PECO LTIIIP Spending Plan</b>							
<b>Storm Hardening Programs</b>							
	Customers Experiencing Multiple Interruptions (CEMI)	7.7	10.0	15.0	15.0	15.0	62.7
	Circuit Rebuild Enabling Unit Substation Retirement	1.7	14.5	15.0	15.0	15.0	61.2
<b>Cable Replacement Program</b>							
	Mainstem Cable	8.2	18.0	18.0	15.0	13.0	72.2
	Underground Residential Development (URD)	4.2	10.0	17.0	17.0	17.0	65.2
<b>Building Substation Retirement Program</b>							
		-	-	-	1.0	12.0	13.0
<b>Electric LTIIIP Eligible / Programs</b>		\$ 21.8	\$ 52.5	\$ 65.0	\$ 63.0	\$ 72.0	\$ 274.3
<b>Facility Relocate Projection</b>		10.0	10.0	10.0	10.0	10.0	50.0
<b>Total</b>		\$ 31.8	\$ 62.5	\$ 75.0	\$ 73.0	\$ 82.0	\$ 324.3

Section 1352(a)(5) provides that the LTIIIP should describe measures being taken to ensure the projected expenditures are cost-effective. The projected annual expenditures are set forth above. The accelerated investment is cost effective because the accelerated investment targets facilities that impact reliability and will have a direct

positive impact on customer service. Additionally, for the most part, the facilities that are being replaced on an accelerated basis are those that are causing, or will cause, increasing levels of maintenance cost. Furthermore, through the use of a qualified workforce and quality work management tools, overall construction cost will be minimized. Through the planned acceleration of the capital projects identified in the LTIP, work scheduling and work quality will be optimized and, in that way, overall cost effectiveness and efficiency in construction will be improved.

**F. The Manner In Which The Replacement Of Aging Infrastructure Will Be Accelerated Under The LTIP And How The Repair, Improvement Or Replacement Will Ensure And Maintain Adequate, Efficient, Safe, Reliable And Reasonable Service**

The manner in which the replacement of aging or otherwise vulnerable infrastructure will be accelerated under the LTIP and the explanation of how such replacements and enhancements will ensure and maintain adequate, efficient, safe and reliable service have been set forth in Sections IV. A, B and E, which are incorporated in this section by reference.

**G. Detailed Expenditure Plans For The LTIP Period**

The charts and tables in Appendix A provide the Company's estimated expenditures that will be made to implement PECO's LTIP. Consistent with the requirements of the Implementation Order, additional details will be provided in the Annual Asset Optimization Plans that will be filed after PECO's LTIP is approved and a DSIC is fully implemented. The Annual Asset Optimization Plans will also provide information on how the Company performed in achieving the estimated scope of work

for each prior year of the LTIP and what the Company's expectations are for the then-upcoming year.

## **H. Use Of A Qualified Work Force**

### **1. Qualified Employees**

Section 1359 and the Commission's Implementation Order (pp. 17-18) require that all work performed under an LTIP should be done by a qualified work force. PECO has an extensive training regimen for its electric employees through various schools that provide the basic, advanced, and specialized skills required to operate the distribution system. PECO's training programs prepare employees to design, build and install aerial, underground and substation electrical systems. The schools provide hands-on training in a safe and controlled environment, and in a manner that is tailored to both PECO's operating system and OSHA standards. The training protocols consist of a compilation of best practices created through input from field employees and other affiliated utilities. Hazard recognition and safety are paramount to the program and the training protocols are revised to evolve with new technology and changes in the customer service, and the electric industry.

Additionally, training is required before an employee may perform work independently on exposed, energized electrical equipment greater than 50 Volts. This type of training is unique to the job classification and work being performed. The training is provided by experienced training professionals using a carefully developed curriculum. It may take up to five years to complete, with regular assessment and incremental qualifications throughout the duration of the training program. Retraining is conducted

on a periodic basis as required by OSHA or more frequently when determined to be necessary.

## **2. Qualified Contractors**

PECO anticipates that it will use outside contractors to perform much of the work it is planning to undertake to implement its LTIP. To the extent PECO uses outside contractors, its contractor workforce will be fully qualified, in accordance with the standards set forth in Section 1359.

PECO administers a standard process for soliciting contractors to perform work identified to be completed by independent contractors. Part of that process includes evaluating the qualification of contractors to perform work (both technical and financial capabilities to meet the contractual commitments, and level of qualification of employees), and may include reference checks if appropriate. Most independent contractors employ personnel through the building trades, which include union apprenticeship programs to help ensure that employees are qualified to perform assigned work. Employee qualification programs for non-union independent contractors are stringently reviewed to assess the contractor's training program, such as on-the-job training and certification programs.

Contractors also must complete any necessary PECO-specific training that PECO may require for the specific tasks they are called upon to perform. PECO's Methods & Training Department reviews the contractor programs to assure that they comply with PECO's requirements and may require testing of contractors before they are eligible to work on the system. Each major task on the system has specific training requirements that must be met. Moreover, PECO's Methods and Training Department monitors

industry developments for more efficient and effective procedures to use on the system and to assure the long-term effectiveness of PECO's training program.

Additionally, a contractor information website, maintained by Project and Contract Management, is available to contractors with Engineering Practices, Environmental Alerts, Field Bulletins, Technical Bulletins, Safety Messages, and Construction Specifications. Initial orientation training is provided to contractors by Project and Contract Management.

**I. Outreach And Coordination With Other Utilities And Government Entities**

PECO communicates and coordinates with PennDOT, local municipalities, other utilities and other entities, such as SEPTA and Amtrak, regarding work to be performed and work schedules that may affect, or be affected by, the construction or day-to-day operations of those entities. However, unlike gas or water utilities, most of the work that will be performed under PECO's LTIP will not require opening streets or highways and, therefore, the same opportunities to reduce costs by coordinating work schedules for street opening and restoration are not available.

**J. Future Enhancement Of PECO's LTIP To Implement New Technology And Microgrids**

As defined by the Department of Energy, a microgrid is "a group of interconnected loads and distributed energy resources with clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid and can connect and disconnect from the grid to enable it to operate in both grid connected or

island modes.”<sup>8</sup> Consistent with recent trends in the utility industry, PECO has been monitoring the development of microgrid technology as well as regulatory developments in other states where regulatory authorities are assessing the role utilities can play in facilitating system-wide efficiencies that may be achieved from expanded installation of distributed energy sources and load management. In particular, those regulatory initiatives are analyzing policy changes that may be required to enable the development and installation of microgrids and community grids.

Locally, PECO is partnering with PIDC, Philadelphia’s public-private economic development corporation, on its project at The Navy Yard to install a microgrid controller in support of The Navy Yard’s smart grid initiative. The project will benefit all electric customers in the PECO service territory by enabling advanced energy management programs and optimizing the use of existing and future infrastructure, by refining these integrations with The Navy Yard, before rolling them out to the broader market. PECO has provided consultative assistance to The Navy Yard on this project to date, and along with PIDC is analyzing potential needs and opportunities for direct engagement.

PECO believes that the potential exists to pursue future distributed generation and microgrid technology opportunities that could enhance reliability and resiliency by replacing obsolete infrastructure. PECO is currently evaluating potential opportunities as an alternative to traditional transmission and distribution (“T&D”) solutions. PECO is interested in pursuing projects that will:

- Benefit the public by improving resiliency during major storm events;

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<sup>8</sup> See *Summary Report: 2012 DOE Microgrid Workshop*, DOE EERE, Chicago, 2012; *DOE Microgrid Workshop Report*, DOE Office of Energy Reliability, Smart Grid R&D Program, San Diego, CA, 2011.

- Address existing reliability and capacity needs;
- Efficiently integrate with and leverage the existing centralized electric grid;
- Develop cost effective alternatives for conventional T&D methodologies; and
- Utilize technology that will provide valuable information, which can be used to enhance future projects.

Projects being evaluated are focused on areas where distributed generation can provide significant benefits to diverse customer segments. Examples include health care and retirement communities, emergency service providers, utility services (water, wastewater, telecommunications, gas, electric), food services (supermarkets, convenience stores, restaurants) and critical customer supplies and services (gas, pharmacies, banks, home improvement and building supplies, and hotels and motels).

PECO anticipates selecting one or more of these types of projects for development and expects to spend approximately \$50 to \$100 million in the 2017 to 2020 timeframe. As the projects are further developed and closer to construction, PECO will file an update to its LTIP to include detailed project information and costs in the plan.

## **V. CONCLUSION**

In summary, PECO's LTIP satisfies the requirements set forth in Section 1352(a) and the Implementation Order. The LTIP identifies the age and type of eligible property included in the plan; provides schedules depicting the levels of investment and quantity of property targeted for accelerated repair and replacement; provides the general location of eligible property covered by the LTIP; explains the measures being taken to ensure the plan is cost-effective; explains the manner in which aging infrastructure will be

accelerated to ensure and maintain adequate, efficient, safe, reliable and reasonable service; and provides an effective workforce management plan.

PECO Energy believes that the expenditures for these initiatives constitute a prudent and reasonable investment for managing its distribution assets and that each of the listed programs will successfully achieve one or more of the following benefits:

- Maintaining public and employee safety;
- Reducing customer interruptions;
- Reducing customer interruption duration;
- Improving storm performance; and
- Improving pocket reliability areas.

Consequently, the Commission should find and determine that PECO's Electric LTIP is "adequate and sufficient to ensure and maintain adequate, efficient, safe, reliable and reasonable service" and should, therefore, approve PECO's LTIP pursuant to Section 1352(a)(7).

## **APPENDIX A**

## SUMMARY OF LTIP EXPENDITURES

Capital (\$ millions)		2016	2017	2018	2019	2020+	Total
<b>PECO LTIP Spending Plan</b>							
<b>Programs</b>	<b>Storm Hardening Programs</b>						
	Customers Experiencing Multiple Interruptions (CEMI)	7.7	10.0	15.0	15.0	15.0	62.7
	Circuit Rebuild Enabling Unit Substation Retirement	1.7	14.5	15.0	15.0	15.0	61.2
	<b>Cable Replacement Program</b>						
	Mainstem Cable	8.2	18.0	18.0	15.0	13.0	72.2
	Underground Residential Development (URD)	4.2	10.0	17.0	17.0	17.0	65.2
	<b>Building Substation Retirement Program</b>						
		-	-	-	1.0	12.0	13.0
	<b>Electric LTIP Eligible / Programs</b>	\$ 21.8	\$ 52.5	\$ 65.0	\$ 63.0	\$ 72.0	\$ 274.3
	<b>Facility Relocate Projection</b>	10.0	10.0	10.0	10.0	10.0	50.0
<b>Total</b>	\$ 31.8	\$ 62.5	\$ 75.0	\$ 73.0	\$ 82.0	\$ 324.3	

**NAME/TYPE OF ASSET: Customers Experiencing Multiple Interruptions (CEMI)/Storm Hardening & Resiliency**

**Program Description and Purpose**

This portion of the Company’s LTIP focuses on customers in pocket areas that have a history of multiple interruptions when compared to PECO’s system-level or circuit-specific reliability performance. The proposed plan will apply more significant investments in connection of lines for operational flexibility, automated problem isolation and service restoration, storm hardening and resiliency leading to permanent solutions to persistent outage frequency.

**Identification/Justification Process**

Common contributors to CEMI are dense vegetation, susceptibility to storms, and 34 kV circuits near the borders of the service territory. Pocket areas are identified through a review of sustained customer interruptions in excess of 4 and reviewed for pocket size, outage causes, existing circuit design and opportunities to strengthen lines and automate switching. Projects are ranked systematically based on historical CEMI performance, year-to-date CEMI performance, cost per customer benefit, and expected reliability improvements. It should be noted that sizes of projects vary significantly which can result in material swings in the number of planned projects.

**Scope/Location/Planned Expenditures**

Locations are identified based upon reliability history and needs.

Capital (\$ millions)	2016	2017	2018	2019	2020+	Total
<b>PECO LTIP Spending Plan</b>						
<b>Storm Hardening Programs</b>						
Customers Experiencing Multiple Interruptions (CEMI)	7.7	10.0	15.0	15.0	15.0	62.7

Planned Projects	2016	2017	2018	2019	2020+	Total
<b>PECO LTIP Spending Plan</b>						
<b>Storm Hardening Programs</b>						
Customers Experiencing Multiple Interruptions (CEMI)	5-8	6-9	8-13	8-13	8-13	35-56

**NAME/TYPE OF ASSET: Circuit Rebuilding Enabling Unit Substations Retirements**

**Program Description and Purpose**

This portion of the Company’s LTIP focuses on building circuits to current standards, strengthening the facilities against storms and enabling the retirement of Unit Substations to maintain the current high level of system reliability.

**Identification/Justification Process**

780 Unit Substations exist on the system supplying approximately 380,000 customers and 391 of these units are over 50 years old (with an average of 4 to 5 unit failures per year). PECO’s assessment is that the annual failure rate for its Unit Substations will increase to 25 per year by 2035. The supply of spare units to replace failed ones has diminished to the point where new units must be purchased for replacements. PECO is currently purchasing 4 new units per year with plans to increase to 8 new units per year.

The load served by the units being retired will be converted to a higher distribution voltage. This will introduce new equipment built to current standards and eliminate the routine and periodic maintenance costs for these units.

**Scope/Location/Planned Expenditures**

The planned expenditures are included in the table, below. Specific units will be prioritized based on the need to create spares, loading concerns, equipment obsolescence, geographic challenges (e.g. flood plains) and other factors.

PECO plans to retire these units at a rate of approximately six per year in the later years of the proposed LTIP as shown below.

Capital (\$ millions)	2016	2017	2018	2019	2020+	Total
<b>PECO LTIP Spending Plan</b>						
<b>Storm Hardening Programs</b>						
Circuit Rebuild Enabling Unit Substation Retirement	1.7	14.5	15.0	15.0	15.0	61.2

Planned Units	2016	2017	2018	2019	2020+	Total
<b>PECO LTIP Work Plan</b>						
<b>Storm Hardening Programs</b>						
Circuit Rebuild Enabling Unit Substation Retirement	-	5	6	6	6	23
Unit Substation Retirement	-	5	6	6	6	23

**NAME/TYPE OF ASSET: Underground Cable Replacement – Main Stem**

**Program Description and Purpose**

This portion of the Company’s LTIP focuses on replacement of main stem underground cable to maintain the current high level of reliability and to reduce the likelihood of future failures.

**Identification/Justification Process**

Replacements will be prioritized based on circuit sections with near-term fault increases, specific circuits with high cable failure rates, aerial cable with multiple splices per span, cables with high-priority dual service customers (c.g. hospitals), and the failure history of similar types of cable. Replacing main stem cables will reduce the future frequency and duration of service interruptions to a large numbers of customers, or to customers with critical or high-demand needs. Work may also include additional infrastructure upgrades including, but not limited to, upgrading oil switches to more modern equipment, installing or replacing ducts where necessary for cable installation, and installing or replacing underground secondary main cables serving general service and street lighting customers, among other categories of work.

**Scope/Location/Planned Expenditures**

Locations are identified based upon cable type, age, failure history and potential impacts of failures to customers. The majority of this cable is located within the city of Philadelphia and in more urban areas immediately outside the city.

Capital (\$ millions)	2016	2017	2018	2019	2020+	Total
<b>PECO LTIP Spending Plan</b>						
<b>Cable Replacement Programs</b>						
Mainstem Cable	8.2	18.0	18.0	15.0	13.0	72.2

Planned Units (in miles)	2016	2017	2018	2019	2020+	Total
<b>PECO LTIP Spending Plan</b>						
<b>Cable Replacement Programs</b>						
Mainstem Cable	8	17	17	14	12	68

**NAME/TYPE OF ASSET: Underground Residential Development (URD) Cable Replacement**

**Program Description and Purpose**

This portion of the Company’s LTIIIP focuses on the replacement of a specific type of cable that is prone to failure - underground residential (URD) cable. The LTIIIP will replace this cable to maintain the current high level of reliability and reduce the likelihood of future failures.

**Identification/Justification Process**

Identification of URD cable replacements will be based on reliability histories of cable sections showing the highest rates of failure. Specific focus will be placed on replacing URD with XLPE insulation that was manufactured before 1984. This category of URD cable shows a trend in higher failure rates than other cables and the failure rates are increasing over time. Additional URD cable in stretches or developments with demonstrated high failure rates will also be replaced.

**Scope/Location/Planned Expenditures**

There is an estimated 1,420 miles of Targeted XLPE cable currently on system. Planned expenditures per year are set forth in the following table. Specific projects will be prioritized according to reliability history and may include additional infrastructure improvements, including, but not limited to, looping of developments, voltage changes, upgrading to padmounted transformers from fiber tube housing, and similar categories of work. While these locations may be anywhere in the service territory, the majority will be in the suburban areas outside the city of Philadelphia, where most URD cable footage is located.

Capital (\$ millions)	2016	2017	2018	2019	2020+	Total
<b>PECO LTIIIP Spending Plan</b>						
<b>Cable Replacement Programs</b>						
Underground Residential Development (URD)	4.2	10.0	17.0	17.0	17.0	65.2

Planned Units (in miles)	2016	2017	2018	2019	2020+	Total
<b>PECO LTIIIP Spending Plan</b>						
<b>Cable Replacement Programs</b>						
Underground Residential Development (URD)	8	19	32	32	32	123

**NAME/TYPE OF ASSET: Building Substations**

**Program Description and Purpose**

This portion of the Company’s LTIP focuses on the retirement and replacement of Building Substations in order to maintain the current high level of reliability on the system.

**Identification/Justification Process**

The Building Substations being retired contain obsolete equipment, which requires specialized training and, in some cases, manufacturing customized replacement equipment. Higher maintenance expenses, the increasing risk of failures, and the risk of an extensive outage if the substation is significantly damaged are the reasons for pursuing this area. The proposed plan will prioritize the building substation retirements based on: condition, customers served, load supplied, risk, etc.

In most cases the substations will be eliminated by converting the load they serve to a higher level distribution voltage, which presently supplies the substation. This will eliminate the risk of failure and maintenance costs associated with the Building Substations.

**Scope/Location/Planned Expenditures**

The timing of when the retirements will occur and the funding required will be based on the condition assessment of the substations. PECO expects to increase the retirement rate by starting one additional Building Substation retirement during the term of the LTIP.

The retirement projects will be designed to integrate the upgraded facilities with existing facilities in the surrounding area to provide additional operating flexibility. This will require converting more load than just the facilities supplied by one substation to provide operating flexibility for the converted and remaining facilities in the area.

Capital (\$ millions)	2016	2017	2018	2019	2020+	Total
PECO LTIP Spending Plan						
Building Substation Retirement Program	-	-	-	1.0	12.0	13.0

Planned Units	2016	2017	2018	2019	2020+	Total
PECO LTIP Spending Plan						
Building Substation Retirement Program	-	-	-	-	1	1

**NAME/TYPE OF ASSET: Facility Relocations**

**Program Description and Purpose**

This portion of the Company's LTIP focuses on the relocation of distribution facilities necessitated by highway and other work by municipalities or other governmental entities for which PECO is not reimbursed.

**Identification/Justification Process**

This work is driven by the plans of PennDOT, the PA Turnpike Commission and local municipalities for road or bridge work. Pursuant to this work, PECO is required to relocate its facilities. To the extent that PECO is not reimbursed for this work, it will be included in the LTIP.

To accommodate highway relocations and other municipal projects, PECO undertakes approximately 50-95 projects and spends approximately \$13 million per year, net of reimbursements. PECO typically is notified to relocate its equipment 12 months or less prior to the start of the project.

**Scope/Location/Planned Expenditures**

Scope and locations are determined as requests are received.

**Planned Expenditures**

PECO's expenditures to complete highway relocation projects are the net of total expenditures minus the project sponsor's reimbursements and total approximately \$10 million per year.



**PECO Energy Company**

**Electric Service Tariff**

**COMPANY OFFICE LOCATION**

**2301 Market Street**

**Philadelphia, Pennsylvania 19101**

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**For List of Communities Served, See Page 4.**

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**Issued XXX X, 2015**

**Effective January 1, 2016**

**ISSUED BY: C. L. Adams – President & CEO  
PECO Energy Distribution Company  
2301 MARKET STREET  
PHILADELPHIA, PA. 19101**

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**NOTICE**

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PECO Energy Company

Supplement No. XX to  
Tariff Electric Pa. P.U.C. No. X  
XXX Revised Page No. 1  
XXX Revised Page No. 1

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**LIST OF CHANGES MADE BY THIS SUPPLEMENT**

**DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC) - Original Pages No. 40F – 40K**

Adding this rider in accordance with the Commission Order at Docket No. - P-2015-2471423.

**PECO Energy Company**

TABLE OF CONTENTS

List of Communities Served.....	4
How to Use Loose-Leaf Tariff.....	5
Definition of Terms and Explanation of Abbreviations .....	6 <sup>2</sup> ,7,8 <sup>2</sup> ,9
<b>RULES AND REGULATIONS:</b>	
1. The Tariff .....	10 <sup>2</sup>
2. Service Limitations .....	10 <sup>2</sup>
3. Customer's Installation .....	11 <sup>1</sup>
4. Application for Service.....	12
5. Credit.....	13 <sup>2</sup>
6. Private-Property Construction.....	14 <sup>2</sup>
7. Extensions .....	15 <sup>1</sup> ,16
8. Rights-of-Way.....	17
9. Introduction of Service.....	18 <sup>1</sup>
10. Company Equipment .....	18 <sup>1</sup>
11. Tariff and Contract Options.....	19 <sup>1</sup>
12. Service Continuity .....	20 <sup>1</sup>
13. Customer's Use of Service .....	21
14. Metering.....	21
15. Demand Determination.....	22 <sup>3</sup>
16. Meter Tests.....	23
17. Billing and Standard Payment Options.....	24 <sup>5</sup>
18. Payment Terms & Termination of Service.....	25 <sup>5</sup>
19. Unfulfilled Contracts .....	25 <sup>4</sup>
20. Cancellation by Customer.....	26 <sup>1</sup>
21. General.....	27 <sup>2</sup>
22. Rules For Designation of Procurement Class.....	27 <sup>2</sup>
23. EGS Switching .....	28 <sup>2</sup>
24. Load Data Exchange.....	29
<b>STATE TAX ADJUSTMENT CLAUSE</b>	
Generation Supply Adjustment For Procurement Class 1, 2, 3.....	30 <sup>5</sup>
Generation Supply Adjustment For Procurement Class 4.....	31 <sup>22</sup> , 32 <sup>21</sup>
Reconciliation.....	33A <sup>24</sup>
Provision for Surcharge Recovery of Alternative Energy Portfolio Standard Costs.....	34 <sup>5</sup>
NUCLEAR DECOMMISSIONING COST ADJUSTMENT CLAUSE (NDCA).....	35 <sup>6</sup> , 36 <sup>4</sup>
Provisions for Recovery of UNIVERSAL SERVICE FUND CHARGE (USFC) .....	37 <sup>1</sup>
Provisions for Recovery of SUPPLEMENTAL UNIVERSAL SERVICE FUND COSTS.....	38 <sup>6</sup>
PROVISION FOR THE RECOVERY OF CONSUMER EDUCATION PLAN COSTS.....	39 <sup>1</sup>
TRANSMISSION SERVICE CHARGE.....	40 <sup>6</sup>
SMART METER COST RECOVERY SURCHARGE.....	40A <sup>9</sup>
PROVISION FOR THE RECOVERY OF ENERGY EFFICIENCY AND CONSERVATION PROGRAM COSTS (EEPC).....	40B <sup>7</sup>
Provision for the Tax Accounting Repair Credit (TARC) .....	40C <sup>7</sup>
PROVISION FOR THE RECOVERY OF ENERGY EFFICIENCY AND CONSERVATION PROGRAM COSTS PHASE II.....	40D <sup>1</sup>
DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC).....	40E
<b>RATES:</b>	
Rate R Residence Service .....	40F-K
Rate R-H Residential Heating Service.....	41 <sup>19</sup>
Rate RS-2 Net Metering .....	43 <sup>19</sup>
Rate OP Off-Peak Service.....	44 <sup>1</sup> , 45 <sup>2</sup>
Rate GS General Service.....	46 <sup>4</sup>
Rate PD Primary-Distribution Power.....	47 <sup>15</sup> , 48 <sup>3</sup> , 49 <sup>2</sup>
Rate HT High-Tension Power.....	50 <sup>13</sup>
Rate POL Private Outdoor Lighting .....	51 <sup>15</sup>
Rate SL-S Street Lighting-Suburban Counties.....	52 <sup>4</sup> , 53
Rate SL-E Street Lighting Customer-Owned Facilities .....	57 <sup>4</sup> , 58
Rate TLCL Traffic Lighting Constant Load Service.....	59 <sup>5</sup> , 60
Rate BLI Borderline Interchange Service .....	61 <sup>5</sup>
Rate EP Electric Propulsion .....	62
Rate AL Alley Lighting in City of Philadelphia.....	63 <sup>9</sup>
<b>RIDERS:</b>	
Applicability Index of Riders .....	64 <sup>4</sup>
Auxiliary Service Rider .....	65 <sup>3</sup>
CAP Rider - Customer Assistance Program.....	66 <sup>1</sup> , 67 <sup>2</sup> , 68 <sup>1</sup>
Casualty Rider.....	69 <sup>30</sup> , 70 <sup>14</sup>
Commercial/Industrial Direct Load Control Program Rider.....	71 <sup>1</sup>
Construction Rider .....	71A <sup>1</sup> , 71B <sup>1</sup>
	72

**DISTRIBUTION SYSTEM IMPROVEMENT CHARGE**  
**(DSIC)**

In addition to the net charges provided for in this Tariff, a charge of 0.XX% will apply consistent with the Commission Order dated XXXX at Docket No. P-2015-2471423, approving the DSIC.

**DISTRIBUTION SYSTEM IMPROVEMENT CHARGE**  
**(DSIC) (CONTINUED)**

**1. General Description**

**A. Purpose:** To recover the reasonable and prudent costs incurred to repair, improve, or replace eligible property which is completed and placed in service and recorded in the individual accounts, as noted below, between base rate cases and to provide the Utility with the resources to accelerate the replacement of aging infrastructure, to comply with evolving regulatory requirements and to develop and implement solutions to regional supply problems.

The costs of extending facilities to serve new customers are not recoverable through the DSIC.

**B. Eligible Property:** The DSIC-eligible property will consist of the following:

Poles and Tower (Account 364);  
Overhead conductor (Account 365) and underground conduit and conductors (Accounts 366 and 367);  
Line transformers (Account 368) and substation equipment (Account 362);  
Any fixture or device related to eligible property listed above, including insulators, circuit breakers, fuses, reclosers, grounding wires, crossarms and brackets, relays, capacitors, converters and condensers;  
Unreimbursed costs related to highway relocation projects where a natural gas distribution company or city natural gas distribution operation must relocate its facilities; and  
Other related capitalized costs.

**C. Effective Date:** The DSIC will become effective January 1, 2016.

**DISTRIBUTION SYSTEM IMPROVEMENT CHARGE**  
**(DSIC) (CONTINUED)**

**2. Computation of the DSIC**

**A. Calculation:** The initial DSIC, effective January 1, 2016, shall be calculated to recover the fixed costs of eligible plant additions that have not previously been reflected in the Company's rates or rate base and will have been placed in service between September 1, 2015 and November 30, 2015. Thereafter, the DSIC will be updated on a quarterly basis to reflect eligible plant additions placed in service during the three-month periods ending one month prior to the effective date of each DSIC update. Thus, changes in the DSIC rate will occur as follows:

Effective Date of Change	Date to which DSIC Eligible Plant Additions Reflected
January 1	September - November
April 1	December - February
July 1	March - May
September 1	June - August

**B. Determination of Fixed Costs:** The fixed costs of eligible distribution system improvements projects will consist of depreciation and pre-tax return, calculated as follows:

**1. Depreciation:** The depreciation expense shall be calculated by applying the annual accrual rates employed in the Company's most recent base rate case for the plant accounts in which each retirement unit of DSIC-eligible property is recorded to the original cost of DSIC-eligible property is recorded to the original cost of DSIC eligible property.

**2. Pre-tax return:** The pre-tax return shall be calculated using the statutory state and federal income tax rates, the Company's actual capital structure and actual cost rates for long-term debt and preferred stock as of the last day for the three-month period ending one month prior to the effective date of the DSIC and subsequent updates. The cost of equity will be the equity return rate approved in the Company's last fully litigated base rate proceeding for which a final order was entered not more than two years prior to the effective date of the DSIC. If more than two years shall have elapsed between the entry of such a final order and the effective date of the DSIC, then the equity return rate used in the calculation will be the equity return rate calculated by the Commission in the most recent Quarterly Report on the Earnings of Jurisdictional Utilities released by the Commission.

**DISTRIBUTION SYSTEM IMPROVEMENT CHARGE**  
**(DSIC) (CONTINUED)**

**C. Application of DSIC:** The DSIC will be expressed as a percentage carried to two decimal places and will be applied to the total amount billed to each customer for distribution service and the State Tax Adjustment Surcharge (STAS). To calculate the DSIC, one-fourth of the annual fixed costs associated with all property eligible for cost recovery under the DSIC will be divided by the Company's projected revenue for distribution service (including all applicable clauses and riders) for the quarterly period during which the charge will be collected, exclusive of the STAS.

**D. Formula:** The formula for calculation of the DSIC is as follows:

$$\text{DSIC} = \frac{(\text{DSI} * \text{PTRR}) + \text{Dep} + e}{\text{PQR}}$$

Where:

DSI = Original cost of eligible distribution system improvement projects net of accrued depreciation.

PTRR = Pre-tax return rate applicable to DSIC eligible property.

Dep = Depreciation expense related to DSIC-eligible property.

e = Amount calculated under the annual reconciliation feature or Commission audit, as described below.

PQR = Projected quarterly revenues for distribution service (including all applicable clauses and riders) from existing customers plus netted revenue from any customers which will be gained or lost by the beginning of the applicable service period.

Revenue shall be based upon one-fourth of the estimated annual distribution revenue.

**DISTRIBUTION SYSTEM IMPROVEMENT CHARGE)**  
**(DSIC) (CONTINUED)**

**3. Quarterly Updates:** Supporting data for each quarterly update will be filed with the Commission and served upon the Commission's Bureau of Investigation and Enforcement, the Office of Consumer Advocate, and the Office of Small Business Advocate at least ten (10) days prior to the effective date of the update.

**4. Customer Safeguards**

**A. Cap:** The DSIC is capped at 5.0% of the amount billed to customers for distribution service (including all applicable clauses and riders) as determined on an annualized basis.

**B. Audit/Reconciliation:** The DSIC is subject to audit at intervals determined by the Commission. Any cost determined by the Commission not to comply with any provision of 66 Pa C.S. §§ 1350, *et seq.*, shall be credited to customer accounts. The DSIC is subject to annual reconciliation based on a reconciliation period consisting of the twelve months ending December 31 of each year. The revenue received under the DSIC for the reconciliation period will be compared to the Company's eligible costs for that period. The difference between revenue and costs will be recouped or refunded, as appropriate, in accordance with Section 1307(e), over a one-year period commencing on April 1 of each year. If DSIC revenues exceed DSIC-eligible costs, such over-collections will be refunded with interest. Interest on over-collections and credits will be calculated at the residential mortgage lending specified by the Secretary of Banking in accordance with the Loan Interest and Protection Law (41 P.S. §§ 101, *et seq.*) and will be refunded in the same amount as an over-collection.

**C. New Base Rates:** The DSIC will be reset at zero upon application of new base rates to customer billings that provide for prospective recovery of the annual costs that had previously been recovered under the DSIC. Thereafter, only the fixed costs of new eligible plant additions that have not previously been reflected in the Company's rates or rate base will be reflected in the quarterly updates of the DSIC.

**D. Customer Notice:** Customers shall be notified of changes in the DSIC by including appropriate information on the first bill they receive following any change or through an explanatory bill insert included with the first billing.

**E. All customer classes:** The DSIC shall be applied equally to all customer classes.

**DISTRIBUTION SYSTEM IMPROVEMENT CHARGE**  
**(DSIC) (CONTINUED)**

**F. Earning Reports:** The DSIC will also be reset at zero if, in any quarter, data filed with the Commission in the Company's then most recent Annual or Quarterly Earnings reports show that the Company would earn a rate of return that would exceed the allowable rate of return used to calculate its fixed costs under the DSIC as described in the pre-tax return section.



## NOTICE OF PROPOSED ELECTRIC DISTRIBUTION SYSTEM IMPROVEMENT CHARGE

PECO Energy Company (PECO or the Company) has filed a request with the Pennsylvania Public Utility Commission (PUC) to implement a Distribution System Improvement Charge (DSIC). This notice describes the Company's request, the PUC's role, and what actions you can take.

In February 2012, Act 11 was signed into law to allow the use of a DSIC by natural gas and electric distribution companies to help accelerate the replacement of aging facilities. This surcharge on customers' bills will reduce the frequency and the associated costs of base rate cases filed with the PUC while maintaining a high level of customer protection. DSIC charges are designed to provide customers with improved service quality, greater rate stability, increased safety and lower levels of system losses.

The proposed effective date of the initial DSIC is January 1, 2016. The actual effective date will depend on when the DSIC is approved by the PUC. The initial DSIC rate will be set at 0% and, therefore there will be no change in customers' rates on the effective date. In the future, PECO may file additional requests with the PUC to change the DSIC rate.

You may examine the material filed with the PUC, which explains the requested DSIC and the reasons for it. The docket number is P-2015-2471423. A copy of this material is kept at PECO's office at:

2301 Market Street  
Philadelphia, PA 19103

The state agency which approves electric rates for public utilities is the PUC. The PUC will examine the requested DSIC filing and can prevent the implementation of the DSIC until it investigates and/or holds hearings on the request. The Company must prove that the requested rates are reasonable. After examining the evidence, the PUC may grant all, some or none of the request.

(Over)

There are three ways to challenge a Company's request for a DSIC:

1. You may file a formal complaint. If you want a hearing before a judge, you must file a formal complaint. By filing a formal complaint, you assure yourself the opportunity to take part in hearings about the DSIC request. All complaints should be filed with the PUC as soon as possible. If no formal complaints are filed, the PUC may grant all, some or none of the request without holding a hearing before a judge.

2. You may send the PUC a letter telling why you object to the requested DSIC. Sometimes there is information in these letters that makes the PUC aware of problems with the Company's service or management. This information can be helpful when the PUC investigates the DSIC. Send your letter or request for a formal complaint form to:

Pennsylvania Public Utility Commission  
Post Office Box 3265  
Harrisburg, PA 17105-3265

Complaint forms can also be accessed at the PUC website in Adobe Acrobat format: [http://www.puc.state.pa.us/general/onlineforms/pdf/official\\_complaint\\_form\\_final.pdf](http://www.puc.state.pa.us/general/onlineforms/pdf/official_complaint_form_final.pdf).

3. You may be a witness at a public input hearing. Public input hearings are held if the PUC opens an investigation of the Company's DSIC request and if there is a large number of customers interested in the case. At these hearings, you have the opportunity to present your views in person to the PUC judge hearing the case and the Company representatives. All testimony given "under oath" becomes part of the official case record. These hearings are held in the service area of the Company.

For more information call the PUC at 1-800-692-7380. You may leave your name and address so you can be notified of any hearings that may be scheduled in this case.



An Exelon Company

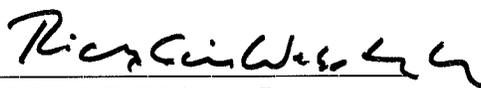
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PEC 513 04/15

[www.peco.com](http://www.peco.com)



## AFFIDAVIT

I, Richard G. Webster, Jr., in my capacity as Vice President, Regulatory Policy and Strategy of PECO Energy Company (“PECO”), hereby certify that PECO filed: (1) a base rate case on March 31, 2010 under Docket No. R-2010-2161575 (the “2010 Case”); and (2) a base rate case on March 27, 2015, contemporaneously with the filing of PECO’s Electric DSIC Petition, under Docket No. R-2015-2468981. The Commission entered its Opinion and Order for the 2010 Case approving the Joint Petition for Partial Settlement, with certain clarifications, and resolving the contested issue on December 21, 2010.



Richard G. Webster, Jr.  
Vice President, Regulatory Policy and Strategy  
PECO Energy Company

Dated: March 27, 2015



**Proposed Changes to  
PECO Energy Company Electric Service Tariff No. 4 Supplement No. XX**

Information furnished with the filing of rate changes under 52 Pa. Code, Section 53.52(a).

**(a)(1) The specific reason for each change.**

PECO Energy Company (“PECO” or the “Company”) is proposing changes to its electric service tariff to establish a Distribution System Improvement Charge (“DSIC”) of zero dollars to become on one day’s notice after the entry of a Pennsylvania Public Utility Commission (“Commission”) Order approving PECO’s DSIC and Long Term Infrastructure Improvement Plan (“LTIIIP”), which is being filed concurrently with this tariff.

The LTIIIP will span the years 2016-2020 and will result in a significant increase in annual capital spending on infrastructure improvements that will maintain adequate, efficient, safe, reliable and reasonable service. The DSIC provides financial assurance that will enable PECO to make sustained investments in infrastructure improvements designed to enhance reliability by strengthening and modernizing PECO’s electric distribution system.

A more detailed discussion of the reasons for the tariff changes are discussed in the *Petition of PECO Energy Company for Approval of Its Electric Long Term Infrastructure Improvement Plan and to Establish A Distribution System Improvement Charge for Its Electric Operations* and the Direct Testimony of John E. McDonald, PECO Statement No.1 and the Direct Testimony of Alan B. Cohn, PECO Statement No.2.

**(a)(2) The total number of customers served by the utility.**

The total number of electric customers served by PECO was 1,595,994 as of December 31, 2014.

(a)(3) A calculation of the number of customers, by tariff subdivision, whose bills will be affected by the change.

PECO estimates that its initial DSIC Charge will be set to a value of zero so the customers’ bills will not be affected by the implementation of the initial DSIC Tariff. However, if the charge is ever set to a value other than zero, then the customers’ bills in the following tariff subdivisions will be affected:

<u>Rate</u>	<u>Customers</u> (as of December 31, 2014)
R	1,258,007
RH	176,003
GS	149,149
POL	2,766 (included in GS)
PD	496

HT	2,607
EP	5
SLS	353
SLE	576
TL	8,797
AL	1

(a)(4) The effect of the change on the utility's customers.

There is no immediate effect on PECO's customers as a result of this proposed change. This change however will provide PECO with the ability to charge, with Commission approval, a DSIC rate that would increase customers' distribution bills. This amount is limited to no more than 5% of the amount billed for distribution service as determined on an annual basis.

(a)(5) The effect, whether direct or indirect, of the proposed change on the utility's revenue and expenses.

The initial DSIC charge is set to a value of zero. Therefore, there is no impact on the Company's revenue and expenses.

**(a)(6) The effect of the change on the service rendered by the utility.**

There is no effect to the retail service rendered by PECO as a result of the initial DSIC Tariff implementation.

(a)(7) A list of factors considered by the utility.

Please refer to the response to Question (a)(1).

**(a)(8) Studies undertaken by the utility in order to draft its proposed change.**

No formal studies were prepared in connection with the proposed change.

(a)(9) Customer polls taken and other documents, which indicate customer acceptance and desire for the proposed change.

No customer polls were taken in connection with the proposed change.

**(a)(10) Plans the utility has for introducing or implementing the changes with respect to its customers.**

The Company is providing a bill insert notice to its electric distribution customers of the Petition filing as directed by the Commission's Final Implementation Order. See *Implementation of Act 11 of 2012*, Docket No. M-2012-2293611.

**(a)(11) F.C.C., or FERC or Commission Orders or rulings applicable to the filings.**

In the preparation of the proposed tariff changes, PECO considered the Commission's Final Implementation Order in *Implementation of Act 11 of 2012*, Docket No. M-2012-2293611 (Order entered on August 2, 2012).