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April 15, 2016

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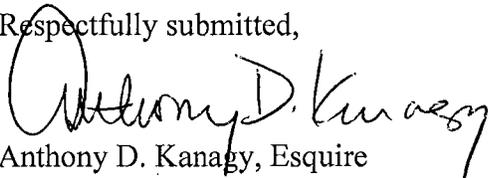
Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor North
P.O. Box 3265
Harrisburg, PA 17105-3265

**Re: Petition of Duquesne Light Company for Approval of Its Long-Term Infrastructure Improvement Plan
Docket No. P-2016-**

Dear Secretary Chiavetta:

Enclosed please find the Petition of Duquesne Light Company for Approval of Its Long-Term Infrastructure Improvement Plan ("LTIP"). Pursuant to 52 Pa. Code § 121.4(a), the Company is serving a copy of its LTIP on the Bureau of Investigation & Enforcement, the Office of Consumer Advocate, the Office of Small Business Advocate and all active parties in the Company's most recent base rate case at Docket No. R-2013-2372129.

Respectfully submitted,



Anthony D. Kanagy, Esquire

ADK/skr
Enclosure

cc: Certificate of Service

CERTIFICATE OF SERVICE

I hereby certify that true and correct copies of the foregoing have been served upon the following persons, in the manner indicated, in accordance with the requirements of § 1.54 (relating to service by a participant).

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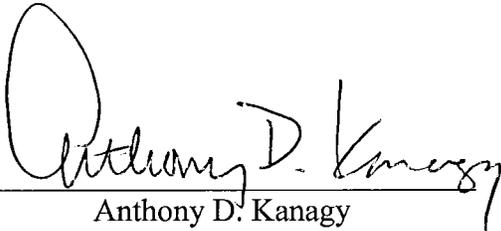
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Date: April 15, 2016


Anthony D. Kanagy

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of Duquesne Light Company for :
Approval of Its Long-Term Infrastructure : Docket No. P-2016-_____
Improvement Plan :

**PETITION OF DUQUESNE LIGHT COMPANY FOR APPROVAL
OF ITS LONG-TERM INFRASTRUCTURE IMPROVEMENT PLAN**

Pursuant to Act 11 of 2012 (“Act 11” or the “Act”), which amends Chapters 3, 13 and 33 of the Pennsylvania Public Utility Code (“Code”), Duquesne Light Company (“Duquesne Light” or the “Company”) hereby files this Petition seeking approval of its Long-Term Infrastructure Improvement Plan (“LTIIIP” or “Plan”). This filing is also being made pursuant to the Final Implementation Order of the Pennsylvania Public Utility Commission (the “Commission”) entered at Docket No. M-2012-2293611 on August 2, 2012¹ and the Commission’s LTIIIP regulations at 52 Pa. Code §§ 121.1 *et seq.* In the LTIIIP, Duquesne Light is proposing its plan to accelerate the repair, improvement and replacement of aging infrastructure for the six-year period beginning January 1, 2017 through December 31, 2022.

By this Petition, Duquesne Light respectfully requests that the Commission approve the Company’s LTIIIP.

I. INTRODUCTION

1. Duquesne Light is a public utility as that term is defined under Section 102 of the Public Utility Code, 66 Pa. C.S. § 102, certificated by the Commission to provide electric service in the City of Pittsburgh and in Allegheny and Beaver Counties in Pennsylvania. Duquesne Light is also an electric distribution company (“EDC”) as that term is defined under Section 2803 of the Public Utility Code, 66 Pa. C.S. § 2803. Duquesne Light provides electric

¹ *Implementation of Act 11 of 2012*, Docket No. M-2012-2293611, entered on August 2, 2012 (“Implementation Order”).

distribution service to approximately 588,000 customers within its service territory that covers approximately 817 square miles.

2. Duquesne Light's attorneys are:

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Duquesne Light's attorneys are authorized to receive all notices and communications regarding this filing.

3. On February 14, 2012, Governor Corbett signed into law Act 11, which amends Chapters 3, 13 and 33 of Title 66 of the Code to allow: (1) jurisdictional utilities to make rate case claims based on a fully projected future test year; (2) wastewater utilities to allocate a portion of their revenue requirement to the combined wastewater and water utility customer base; and (3) electric distribution companies ("EDCs"), natural gas distribution companies ("NGDCs"), water utilities, wastewater utilities and city natural gas distribution operations to establish a distribution system improvement charge ("DSIC").

4. Act 11 authorizes the Commission to approve a DSIC for utilities to recover reasonable and prudent costs incurred to repair, improve or replace certain eligible distribution

property that is part of the utility's distribution system. Eligible property for EDCs is defined in Section 1351 of the statute. *See* 66 Pa.C.S. § 1351(1). As a precondition to the implementation of a DSIC, a utility must file an LTIP with the Commission that is consistent with the provisions of Section 1352 of the statute. *See* 66 Pa.C.S. § 1352(a).

5. On April 5, 2012, the Commission held a working group meeting for discussion and feedback from stakeholders regarding its implementation of Act 11. The purpose of the meeting was to address certain key implementation issues in advance of the issuance of a Tentative Implementation Order. On May 10, 2012, the Commission issued its Tentative Implementation Order addressing and incorporating input from the stakeholder meeting.

6. On August 2, 2012, the Commission issued the Implementation Order establishing procedures and guidelines necessary to implement Act 11. The Implementation Order adopts the requirements established in Section 1352, provides additional standards that each LTIP must meet, and gives guidance to utilities for meeting the Commission's standards.

7. On December 20, 2014, the Commission's LTIP regulation became effective. The Commission's regulations require that an LTIP include the following eight major elements:

- a) Identification of types and age of eligible property owned and operated by the utility for which it is seeking DSIC recovery.
- b) An initial schedule for planned repair and replacement of eligible property.
- c) A general description of location of eligible property.
- d) A reasonable estimate of quantity of eligible property to be improved or repaired.
- e) Projected annual expenditures and means to finance the expenditures.
- f) A description of the manner in which infrastructure replacement will be accelerated and how repair, improvement or replacement will ensure and maintain adequate, efficient, safe, reliable and reasonable service to customers.

- g) A workforce management and training program designed to ensure that the utility will have access to a qualified workforce to perform work in a cost-effective, safe and reliable manner.
- h) A description of a utility's outreach and coordination activities with other utilities, Department of Transportation and local governments regarding the planned maintenance/construction projects and roadways that may be impacted by the LTIP.

52 Pa. Code § 121.3.

8. For ease of reference, Duquesne Light has structured its LTIP Petition to be consistent with the eight major elements listed in the LTIP regulations.

II. DUQUESNE LIGHT'S LTIP

A. PROPERTY TO BE IMPROVED, REPAIRED AND REPLACED.

9. In accordance with the Commission's Implementation Order, the LTIP Regulations and the statute, Duquesne Light has focused its LTIP on distribution plant that is DSIC eligible. *Implementation Order* at 18; 52 Pa. Code § 121.3(b).

10. Duquesne Light has employed three primary goals in developing its LTIP. These three goals are cost-effectiveness, flexibility and executability. In order to ensure cost-effectiveness, the Company will rely on qualified, competitive contractors and Company employees that will be overseen by a Project Management Office. Duquesne Light's LTIP is also flexible. The Company has designed its LTIP so that flexibility can be exercised across Initiatives while program outcomes can still be achieved. Finally, the Company has created a rigorous, practical plan that is executable.

11. A large portion of Duquesne Light's distribution system was constructed 40 or more years ago, as a result of the economic expansion and building boom of the 1960's and 1970's. As this equipment deteriorates due to age, environmental exposure and added load, it

has become increasingly critical to plan for the repair, upgrade and/or replacement of these assets.

12. The LTIIIP covers a broad spectrum of distribution related equipment and facilities, which have been separated into six distinct programs. These programs include: (1) 4kV Program, (2) Overhead Program, (3) Underground Program, (4) Substations Program, (5) Highway Relocation Program, and (6) Microgrid Program. These programs are discussed in more detail in Section IV(1) of the LTIIIP and Appendix A. Each program is described individually, with an estimated replacement schedule and estimated spend.

13. Certain Programs also have separate Initiatives which focus repair and replacement on specific types of property under the Program. The 4 kV Program has three Initiatives: Substation Eliminations Initiative, Stepdown Transformer Conversions Initiative and Modular Integrated Transformer System Initiative. The Overhead Program has one Initiative: Aerial Cable Replacements Initiative. The Underground Program has three Initiatives: Underground Cable Replacements Initiative, Network Transformer and Protector Replacements Initiative and Underground Residential Distribution Rehabilitation Initiative. The Substation Improvement Program has two Initiatives: Breaker and Switch Replacements Initiative and Substation Upgrades Initiative.

B. SCHEDULE FOR REPAIR AND REPLACEMENT.

14. The LTIIIP covers the six-year period beginning January 1, 2017 through December 31, 2022. Duquesne Light is proposing a six-year LTIIIP because this provides a reasonable period of time to plan and carry out the proposed accelerated investments.

15. The Company's schedule for repair and replacement of property is provided in Section IV(2) and in Appendix B. The Company has provided estimated expenditures by year for each of the six Programs. The Company notes that its projected spending in 2018 and 2019

is higher than later years to further accelerate the repair and replacement of certain property that is at or nearing the end of its useful life.

C. LOCATION OF ELIGIBLE PROPERTY.

16. The Company has provided a description of the location of eligible property to be repaired or replaced in Section IV(3) of the LTIP.

D. QUANTITY OF PROPERTY TO BE IMPROVED.

17. Duquesne Light has provided an estimate of the quantity of eligible property to be improved or repaired in Appendix B. The Company based its estimates on the number of projects that it believes to be reasonable and prudent for purposes of acceleration of existing investment, taking into account workforce conditions, procurement practices, the likelihood of discovering “as found” field conditions that take time to address and plan, and other similar real-world planning and engineering circumstances.

E. PROJECTED ANNUAL EXPENDITURES AND MEANS TO FINANCE THE EXPENDITURES.

18. The projected annual LTIP expenditures and means to finance the expenditures are set forth in Section IV(5) of the LTIP. Appendix B of the LTIP shows the estimated annual spending for each year of the LTIP, by program.

19. DLC’s LTIP provides for annual average DSIC eligible expenditures of approximately \$108.5 million from 2017 through 2022 as compared to annual average DSIC eligible expenditures of approximately \$83.6 million for the period 2011 through 2015.

20. Duquesne Light plans to finance the necessary capital with a combination of debt, cash from operations and ultimately the timely recovery of invested funds through the DSIC mechanism.

F. ACCELERATION OF INFRASTRUCTURE IMPROVEMENT.

21. Section IV(6) of the LTIP describes how Duquesne Light will accelerate infrastructure replacement and how the repairs, improvements, and replacements will maintain adequate, efficient, safe, reliable, and reasonable service to customers. Under the LTIP, Duquesne Light proposes to accelerate its expenditures for making needed improvements and repairs on its system from 2017 through 2022 by an estimated \$212 million, as shown in Table 12 in Appendix B. Several of the programs and initiatives described as part of the LTIP are active Duquesne Light electric system improvement programs and initiatives. With the LTIP, however, Duquesne Light will accelerate these improvements significantly, thereby getting the benefits of these repairs, improvements, and replacements to customers in an accelerated time frame.

22. Appendix B illustrates Duquesne Light's forecasted DSIC eligible expenditures for 2017 through 2022. With the acceleration of the expenditures outlined here and the benefits described in Section IV(1) of the plan for each Program and Initiative, the LTIP will help ensure that Duquesne Light can maintain adequate, efficient, safe, reliable and reasonable service to its customers.

G. WORKFORCE MANAGEMENT AND TRAINING PROGRAM

23. The Company's workforce management and training program is described in Section IV(7) of the LTIP.

24. The Company adheres to the Occupational Safety and Health Administration ("OSHA") Regulation 29 CFR 1910.269 for "Electric Power Generation, Transmission, and Distribution" for the minimum requirements for establishing safety-related work practices and training to ensure a qualified and competent workforce. In addition, the Company leverages "industry best practices" and consensus standards, such as American National Standards

Institute, American Society for Testing Materials and Institute of Electric and Electronics Engineers, to develop safe, modern and effective work practices and associated training curriculum.

25. The Company has a comprehensive employee training program, the Electrical Distribution Technology Program, which is a joint partnership between the Company and the Community College of Allegheny County. In addition, the Company has a structured apprentice training program for certain field positions. These programs are managed by the Company's Workforce Development Organization or WFD team, which also conducts comprehensive training sessions.

26. To accommodate periodic peaks in workload demand or extreme storm damage, the Company supplements its own resources with qualified skilled contract services. It is common for the Company to supplement its workforce for large scale capital projects, and the Company anticipates doing so with the LTIP projects. The Company's contractor procurement process is also explained in Section IV(7) of the LTIP.

27. Further, the Company will rely on its Project Management Office ("PMO") to manage the LTIP as explained in Section IV(7)(c) of the LTIP. This will ensure that LTIP projects are managed and completed as efficiently as possible.

H. OUTREACH AND COORDINATION ACTIVITIES.

28. Duquesne Light's outreach and coordination activities with other utilities, the Pennsylvania Department of Transportation ("PennDOT") and local governments is set forth in Section IV(8) of the LTIP. Duquesne Light has established procedures for communicating with such entities regarding construction projects.

III. EVIDENTIARY HEARINGS AND SERVICE

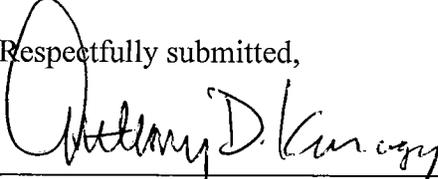
29. Neither Act 11 nor the Commission’s Regulations require hearings on a proposed LTIIIP. The Regulations provide that comments to the plans are to be filed within 30 days of the proposed LTIIIP, and that comments that raise material factual issues will result in the LTIIIP being referred to the Office of Administrative Law Judge. 52 Pa. Code § 121.4(c). Therefore, it is not clear whether the Company’s Plan will be subject to evidentiary hearings.

30. The Company notes that it intends to file a Petition for Approval of a DSIC within the next several weeks.

31. Pursuant to the Commission’s regulations, Duquesne Light is serving its LTIIIP on the statutory advocates as well as all of the parties of record in the Company’s most recent base rate proceeding at Docket No. R-2013-2372129.

IV. CONCLUSION

WHEREFORE, Duquesne Light Company respectfully requests that the Pennsylvania Public Utility Commission approve the Company’s Long-Term Infrastructure Improvement Plan.

Respectfully submitted,


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Date: April 15, 2016

Attorneys for Duquesne Light Company

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of Duquesne Light Company for :
Approval of Its Long-Term Infrastructure : Docket No. P-2016-_____
Improvement Plan :

VERIFICATION

I, C. James Davis, Director, Rates, Energy Procurement and Federal/RTO Affairs of Duquesne Light Company, hereby state that the facts set forth in the above-captioned Petition are true and correct to the best of my knowledge, information and belief, and that if asked orally at a hearing in this matter, my answers would be as set forth therein.

I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: April 13, 2016



C. James Davis

Duquesne Light Company's Electric Long Term Infrastructure Improvement Plan



Duquesne Light
Our Energy...Your Power

April 15, 2016

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I. Introduction

1) Summary of Duquesne Light's Long Term Infrastructure Improvement Plan

Duquesne Light Company (“DLC” or the “Company”) is a public utility as that term is defined under Section 102 of the Public Utility Code, 66 Pa. C.S. § 102, certificated by the Pennsylvania Public Utility Commission (“PUC” or “Commission”) to provide electric service in the City of Pittsburgh and in Allegheny and Beaver Counties in Pennsylvania. DLC is also an Electric Distribution Company (“EDC”) as that term is defined under Section 2803 of the Public Utility Code, 66 Pa. C.S. § 2803. DLC provides electric distribution service to approximately 590,000 customers within its service territory that covers approximately 817 square miles.

DLC is submitting this Long Term Infrastructure Improvement Plan (“LTIIP”) pursuant to Section 1352 of the Public Utility Code, 66 Pa. C.S. § 1352. The LTIIP provides for accelerated replacement of Distribution System Improvement Charge (“DSIC”) eligible property to support the modernization of the DLC electric distribution system. As such, it provides an opportunity to support and fulfill the goals of Act 11, which are aimed at constructing, installing, rehabilitating, improving and replacing portions of the Pennsylvania electric distribution system in an accelerated time frame to the betterment of Pennsylvania electricity customers. The LTIIP will support and enhance DLC’s continuing efforts to sustain its high level of reliability and safety that could otherwise suffer due to normal degradation of facilities that occurs with time and natural environmental stresses.

DLC has employed three primary goals in developing its LTIIP. These three goals are cost-effectiveness, flexibility, and execution.

- DLC’s LTIIP is cost-effective. It will rely on qualified DLC employees and competitive contractors overseen by a DLC Project Management Office (“PMO”) to ensure cost-effective repair and replacement of facilities.
- DLC’s LTIIP is flexible. Flexibility is essential to account for real world, “as found” field conditions and to secure and train the necessary work force. Providing flexibility is inherently prudent as it will help ensure that customer dollars are used wisely. Furthermore, DLC has designed its LTIIP in such a way that flexibility can be exercised across initiatives while sustaining program outcomes.
- DLC’s LTIIP provides a reasonable path on which to execute successfully. DLC has created a rigorous, practical LTIIP and has considered workforce, procurement, training, and other planning needs in the design, sequencing, and spending levels of the programs and initiatives. These planning characteristics and attributes support cost-effectiveness, are prudent both in nature and in execution, and support the feasibility of the DLC LTIIP in its entirety and underlying initiatives.

Duquesne Light Company's Electric Long Term Infrastructure Improvement Plan

DLC's LTIIIP addresses each of the eight (8) elements that are required by the Commission's LTIIIP regulations, 52 Pa. Code §§ 121.1 *et seq.*, which are summarized below:

- (1) *Identification of types and age of eligible property owned and operated by the utility for which it is seeking DSIC recovery.*

Section IV.1 of the LTIIIP identifies the types and ages of the Company's electrical system distribution property. DLC has categorized its LTIIIP into six (6) different programs, which are summarized in Figure 1. Additional information on programs and initiatives is provided in Appendix A.

- (2) *An initial schedule for planned repair and replacement of eligible property.*

DLC is proposing a six-year LTIIIP because it provides a reasonable period of time to plan, carry out, and complete the investments. A six-year period also supports the overall plan's cost-effectiveness, feasibility to execute, reasonableness, and prudence. In addition, DLC has provided a schedule for the planned repair and replacement of eligible property by year, for each year of the plan in Section IV.2 and Appendix B.

- (3) *A general description of the location of eligible property.*

The eligible property to be replaced is located throughout DLC's service territory. Descriptions of the location of eligible property to be repaired and replaced are provided in Figure 2 and Table 1 of the LTIIIP in Section IV.3.

- (4) *A reasonable estimate of the quantity of eligible property to be improved or repaired.*

DLC's estimate of the quantity of eligible property to be improved or repaired is provided in Section IV.4 and Appendix B.

- (5) *Projected annual expenditures and means to finance the expenditures.*

DLC has provided an estimate of total annual expenditures and expenditures by program and initiative, by year, in Section IV.5, Appendix A, and Appendix B of the LTIIIP. DLC plans to finance the necessary capital with a combination of debt, cash from operations, and ultimately, the timely recovery of invested funds through the DSIC mechanism.

- (6) *A description of the manner in which infrastructure replacement will be accelerated and how repair, improvement or replacement will ensure and maintain adequate, efficient, safe, reliable, and reasonable service to customers.*

DLC's LTIIIP summarizes annual average DSIC eligible expenditures of approximately \$108.5 million from 2017 through 2022 as compared to annual average DSIC eligible expenditures of approximately \$83.6 million for the period 2011 through 2015. Additional details regarding acceleration are provided in Section IV.6, Appendix A, and Appendix B.

The replacement of aged infrastructure in the LTIIIP will ensure and maintain adequate, efficient, safe, reliable, and reasonable electric distribution service to DLC's customers.

Accelerated replacement or upgrades of these assets will also be cost-effective in that it will avoid the significant operational and capital costs associated with restoration of service.

- (7) *A workforce management and training program designed to ensure that the utility will have access to a qualified work force to perform work in a cost-effective, safe and reliable manner.*

DLC's program will use a trained and qualified workforce to perform work in a cost-effective, safe and reliable manner. DLC adheres to Occupational Safety and Health Administration ("OSHA") regulations, provides adequate workforce training, utilizes an apprenticeship program, and provides refresher training for its workforce. Additionally, DLC has a detailed procurement process and will establish a Project Management Office ("PMO") to help ensure work is performed in a cost-effective manner. Additional details on the PMO are provided in Section IV.7.

- (8) *A description of the utility's outreach and coordination activities with other utilities, Department of Transportation and local governments regarding the planned maintenance/construction projects and roadways impacted by the LTIIIP.*

DLC's outreach and coordination activities are described in Section IV.8 of the LTIIIP.

As proposed, DLC's comprehensive LTIIIP meets all statutory and regulatory requirements and provides substantial benefits to DLC's customers.

2) 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 DSIC upon petition by an EDC, a Natural Gas Distribution Company ("NGDC"), a water utility or a wastewater utility.¹ 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 sets forth the Commission's expectations with regard to the contents of: (1) a LTIIIP, 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 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 implement the provisions of Subchapter B.

¹ 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.

Duquesne Light Company's Electric Long Term Infrastructure Improvement Plan

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 LTIPs (the “LTIP Regulations”). The procedures and criteria set forth in the LTIP Regulations reflect both the Subchapter B requirements and certain provisions in the Implementation Order.

Pursuant to 66 Pa.C.S. Sections 1352, 1353(b)(3) and 52 Pa. Code § 121.3, DLC is submitting this LTIP and requests that, pursuant to Section 1352(a)(7) and 52 Pa. Code § 121.3(a)(7), the Commission find that this LTIP is “adequate and sufficient to ensure and maintain adequate, efficient, safe, reliable, and reasonable service.”

II. LTIIIP Requirements

1) Elements

Section 1352(a) provides that a utility must submit a LTIIIP “in order to be eligible to recover costs under Section 1353 (relating to a DSIC). In addition, Section 1352 provides that a LTIIIP shall include the following:

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

The Commission’s Implementation Order provided further guidance on standards by which the LTIIIP would be reviewed and approved. The LTIIIP Regulations include six statutory components of a LTIIIP and two additional requirements applicable to an EDC: (1) a workforce management and training program (52 Pa. Code § 121.3(a)(7)); and (2) a description of a utility’s outreach and coordination activities with other utilities, the Department of Transportation and local governments (52 Pa. Code § 121.3(a)(8)).

The Commission has determined that a 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 (52 Pa. Code § 121.3(b)).

The LTIIIP Regulations do not establish a standard term of duration for a LTIIIP. Rather, the Commission has provided discretion to the utility to propose the appropriate duration term for its LTIIIP (Final Rulemaking Order, p. 29). 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.”

The LTIIIP Regulations provide that the Commission will review a LTIIIP to determine whether the plan “specifies the manner in which it *accelerates or maintains an accelerated rate of*

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infrastructure repair, improvement or replacement.” (emphasis added). (52 Pa. Code § 121.4(e)(2)).

The LTIIIP Regulations also require a utility 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.” (52 Pa. Code § 121.4).

2) Procedures

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

The Final Rulemaking Order provides that a LTIIIP must be filed by Petition and approved before a DSIC may be approved. (Final Rulemaking Order, p. 1; 52 Pa. Code § 121.5(c)). 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.” 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.

A utility must file a separate Petition for Modification if it proposes a major modification to any of the LTIIIP elements. (52 Pa. Code § 121.5(b), (c)). “Major modification” is defined in the LTIIIP Regulations. A less formal process of review applies to minor modifications.

The Commission will review a utility’s LTIIIP at least once every five (5) years. (52 Pa. Code § 121.7). 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. Duquesne Light Company's LTIIIP Overview

Section IV and Appendices A and B of DLC's LTIIIP contain all of the components of a LTIIIP specified by Section 1352, the Implementation Order and Section 121 of the Commission's regulations. The contents of Section IV and the Appendices are summarized below.

Section IV.1 describes the types and ages of eligible property that are the subject of DLC's LTIIIP. In this section, DLC describes the eligible property, the programs and the initiatives that make up its LTIIIP, including the types of property being replaced, rehabilitated, constructed, installed and/or improved. This section also explains why the infrastructure improvements are being undertaken and how they will support the efficient, safe, reliable operations and maintenance of DLC's electrical distribution system. This section also describes acceleration of DLC's distribution system investments and why this acceleration is prudent and beneficial.

Section IV.2 describes the initial schedule for the planned repair and replacement of eligible property in the LTIIIP.

Section IV.3 describes, in a manner consistent with Act 11 and Implementation Order, the location of the eligible property that comprises the LTIIIP.

Section IV.4 describes the estimated quantities of eligible property to be replaced, rehabilitated and / or improved as part of the LTIIIP.

Section IV.5 describes DLC's estimated expenditures for the LTIIIP and the means to finance the expenditures.

Section IV.6 describes DLC's forecasted repair, improvement, and replacement activities of eligible property in the LTIIIP and demonstrates how DLC will accelerate the repair and improvements of eligible property.

Section IV.7 describes DLC's workforce management program that will assist the Company in implementing the LTIIIP programs and initiatives in a cost-effective, safe, and timely manner.

Section IV.8 describes DLC's outreach and coordination activities. These activities will be implemented in conjunction with other nearby and regional utilities, the State of Pennsylvania, the Pennsylvania Department of Transportation ("PennDOT"), and local government, when possible.

IV. DLC's LTIP Programs and Initiatives

1) Identification of the Types and Age of Eligible Property for which DLC is Seeking Recovery

Pursuant to 52 Pa. Code § 121.3(a)(1), this section presents the types and age of eligible property for which DLC is seeking recovery through this LTIP. This is a six-year LTIP, beginning in 2017 and concluding in 2022.

Like many other electric and gas distribution utilities, DLC's system expanded significantly during the 1960s and 1970s. This LTIP will help DLC to maintain its high levels of electrical system reliability as those assets reach the end of their expected useful life. DLC is filing a six-year plan because it provides the amount of time reasonably necessary to plan and carry out the investments.

DLC has selected and prioritized programs and initiatives for inclusion in its LTIP based on DLC's engineering, program, and project planning skill and judgment. This engineering and planning skill and judgment includes important considerations about skilled labor availability, work sequencing, and organizing techniques necessary to minimize the number and duration of customer outages. DLC has also applied an asset risk analysis method to help identify and prioritize the replacement of aged assets making up the LTIP programs and initiatives. Using condition assessments, a risk-based capital planning approach and the input of DLC experts, DLC has developed a set of six (6) LTIP programs and nine (9) initiatives that, once implemented, will result in cost-effective improvements to aged components of its distribution system.

Making the investments included and described in the LTIP will support DLC's mission of maintaining public and employee safety, and providing efficient and reliable electric service. The programs and initiatives address DLC's areas of aged infrastructure, which are approaching the end of their expected useful life, and are therefore at an increasing level of failure risk. As such, DLC can no longer rely on the continued long term operation of these LTIP-included aged assets. They are at risk of failing, therefore, an accelerated, proactive replacement program is a prudent, reasonable, and necessary course of action.

Figure 1 summarizes the hierarchy of programs and initiatives in this LTIP. Briefly mentioned, these programs and initiatives include:

- 4kV Program - consists of three major initiatives that eliminate, convert and/or upgrade various 4kV distribution system assets at or approaching the end of expected useful life.
- Overhead Program - consists of initiatives that address aerial cable and other eligible property at or approaching the end of expected useful life.
- Underground Program - consists of initiatives that replace, rehabilitate, and improve obsolete, eligible property at or approaching the end of expected useful life.

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- Substations Program - consists of initiatives to upgrade aged substation infrastructure.
- Highway Relocation Program - consists of work that arises during the course of normal operations required by the State of Pennsylvania, PennDOT, counties, cities, municipalities, or other government agencies.
- Microgrid Program - a program to install a microgrid at DLC's Woods Run location and a second microgrid, which the specific type and scope is yet to be determined.

Information on the eligible property in these programs and initiatives is included in the following sections and the appendices.

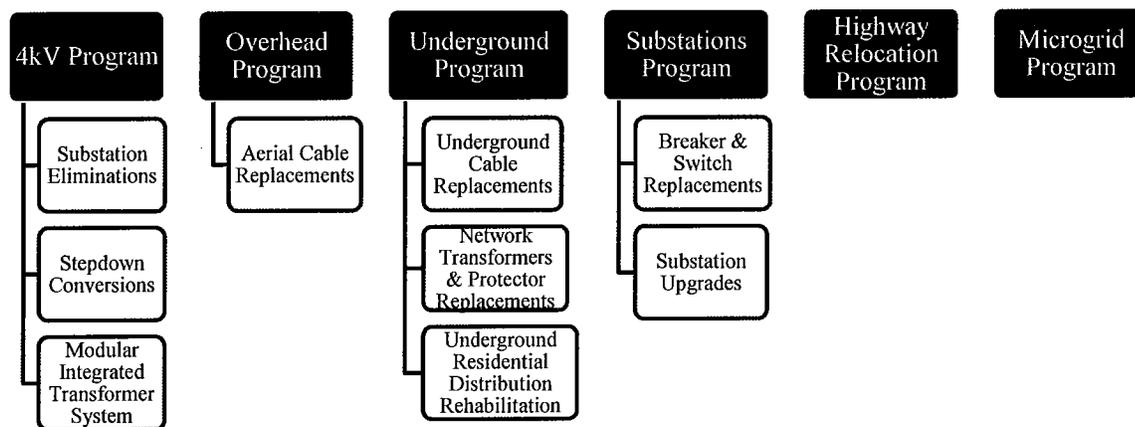


Figure 1 LTIIIP Programs and Initiatives

a. 4kV Program

Most of DLC's 4kV infrastructure is near obsolete, having reached the end of its expected useful life. As time passes, the overall degree of obsolescence grows as an asset class ages. The 4kV Program eliminates, converts and/or upgrades various 4kV distribution system assets at or approaching the end of expected useful life. The Substation Eliminations Initiative and the Stepdown Conversion Initiative are intended to replace the aged, 4kV infrastructure on DLC's system. In certain instances, renewal of the 4kV substation infrastructure may be prudent, as opposed to substation elimination or conversion. In those instances, DLC will install a Modular Integrated Transformer System ("MITS").

i. Substation Eliminations Initiative

The average age of DLC's 4kV substations and its equipment is approximately 55 years old. Accelerating the elimination of these substations is very important in maintaining adequate, efficient, safe, reliable, and reasonable service. This initiative will convert a substation's 4kV load to 23kV operation. This means that 4kV equipment will not be replaced with other 4kV equipment, but instead will be removed altogether from the system and upgraded to 23kV. This is a benefit to DLC's system because the total number of substations DLC will own and operate will be reduced. Through this initiative, poles, hardware, anchors, guying, and other line

equipment will most likely need to be replaced in some locations. It is likely that some tree trimming will also be required to provide adequate line clearance in support of worker safety and to meet clearance specifications. Additionally, utilization of the MITS (described below) is critical in performing the transition work in a cost-effective and efficient manner, and thereby will aid considerably in the success of this initiative.

ii. *Stepdown Conversions Initiative*

The majority of DLC's 23kV - 4kV stepdown transformers were purchased and installed during the 1970s. As such, they range in age from 35 to 46 years. As part of this LTIIIP initiative, DLC will replace various components required to convert the stepdown transformer load to 23kV distribution. Specifically, this improvement work includes removing poles, wires, transformers, and other related equipment and installing new 23kV conductors, automated devices, and other associated equipment that operates at 23kV. All of the equipment being removed and improved, and all of the newly installed 23kV equipment, is part of DLC's electrical distribution system.

iii. *Modular Integrated Transformer System Initiative ("MITS")*

MITS are packaged 23kV - 4kV substations containing transformers, breakers, switches, and regulators. When the condition of the current station is deteriorating and has a high probability of failure, a MITS may be installed. When 4kV is converted to 23kV, this unit can be relocated to other locations as necessary. As a result, MITS involve minimal design time and using MITS substantially reduces construction cost. MITS are also re-deployable.

b. Overhead Program

DLC's Overhead Program addresses aerial cable and other eligible property on the overhead distribution system approaching the end of its expected useful life.

i. *Aerial Cable Replacement Initiative*

Over time, DLC has installed various types of aerial cable as part of its system expansion. Accelerating the investment as described in this LTIIIP will help DLC maintain adequate, safe, efficient, and reliable customer service. Through this initiative, DLC will replace aged aerial cable with new aerial cable or overhead conductors.

c. Underground Program

DLC's Underground Program replaces, rehabilitates, and improves obsolete, eligible property approaching the end of its expected useful life.

i. *Underground Cable Replacement Initiative*

Through this initiative, DLC will be replacing aged underground cable and installing alternative solutions. The eligible property in this initiative includes but not limited to cable, splices, and racking systems. Accelerating the investment as described in this LTIIIP will help DLC maintain adequate, safe, efficient, and reliable service.

ii. Network Transformers & Protector Replacement Initiative

Through this initiative, DLC will be replacing network transformers and associated protectors and equipment. DLC's network transformers and protector equipment primarily exist inside downtown Pittsburgh. The majority of these network transformers are over 35 years of age and some have been in service for over 50 years. This equipment is used to directly serve customer load as part of DLC's distribution system. The eligible property in this initiative includes, but not limited to network transformers, protectors, and cable terminations.

iii. Underground Residential Distribution Rehabilitation Initiative

Through this initiative, DLC will be converting the Underground Residential Distribution ("URD") plans from subsurface to pad mounted equipment. A significant amount of the URD facilities for DLC were installed in the 1970s, and consequently, the equipment is over 35 years old. As such, these assets are approaching the end of expected useful life. Replacements include cable, transformers, and cable splices and terminations. This equipment is used to directly serve customer load as part of DLC's distribution system.

d. Substations Program

DLC's Substations Program addresses eligible property associated with its substations that are approaching the end of expected useful life. The eligible property under this LTIIIP includes circuit breakers, associated switches, line protection devices, and substation infrastructure.

i. Breaker & Switch Replacement Initiative

The average age of DLC's oil circuit breakers is approximately 40 years old and approaching the end of expected useful life. Through this initiative, DLC will be replacing the circuit breakers and associated disconnect switches.

ii. Substation Upgrades Initiative

The bulk of DLC's distribution system and substations were installed prior to the 1970s. The substation upgrades initiative will address DLC's substation infrastructure that is approaching the end of expected useful life. The eligible property in this initiative principally includes, but is not limited to: relays, structures, buildings foundations, transformers, ground grid systems, and battery systems. This equipment will be replaced and /or rehabilitated as part of this initiative.

e. Highway Relocation Program

The Highway Relocation Program consists of work that arises during the course of normal operations required by the State of Pennsylvania, PennDOT, counties, cities, municipalities, or other government agencies. As part of unreimbursed road and bridge projects, DLC is required to relocate its distribution facilities. During these relocations, there is the potential for system improvements. Due to the nature of how these relocation projects are scheduled, DLC cannot definitively determine the annual expenditures or number of projects that will be required during the LTIIIP period. DLC will include eligible costs as part of its LTIIIP.

f. Microgrid Program

This program includes the installation of a microgrid at DLC's Woods Run location and contemplates a second microgrid, with the type and scope yet to be determined. Consistent with the recent developments in the electric utility industry, DLC will deploy a microgrid within our service territory at the Company's Woods Run campus for the provision of "premium reliability" electrical service to critical community infrastructure assets in Allegheny and Beaver Counties. Additional information about DLC's planned microgrid program is outlined in Appendix A. As the program moves closer to construction, DLC will file an amended LTIP to include detailed information and costs.

2) Initial Schedule for Planned Repair and Replacement of Eligible Property

Pursuant to 52 Pa. Code § 121.3(a)(2), this section provides the initial schedule for the planned repair and replacement of eligible property in this LTIP. The LTIP period is January 1, 2017 through December 31, 2022. Table 11 in Appendix B provides the initial schedule for the planned repair and replacement of eligible property for each Program and Initiative. Table 12 in Appendix B provides the scheduled expenditures for planned repair and replacement of eligible property for each Program and Initiative. The quantities in the table are presented in ranges, by Program and Initiative. The estimates of eligible quantities to be improved are derived from an average cost per project, but these ranges reflect the uncertainty as to the exact number of projects that will be completed in each year due to unforeseen individual project issues, timing and schedule changes, work force availability, weather conditions, and procurement cost and/or availability. DLC has taken care to develop an initial schedule that it believes, based on engineering and planning expertise and judgment, to be reasonable and achievable.

3) General Description of Location of Eligible Property

Pursuant to 52 Pa. Code § 121.3(a)(3), this section provides the general description of the location of eligible property covered in this LTIP. DLC provides electric service within its service territory in Pittsburgh and portions of Allegheny and Beaver counties. The service territory map is identified below as Figure 2.

Although the LTIP programs and initiatives address all parts of DLC's system, the geographic location of the eligible property for some of its programs and initiatives can be narrowed down. Accordingly, Table 1 identifies the location of eligible property by program and initiative.

Service Area Map

Facts about DuquesneLight:

Service Area: 817 square miles in Allegheny and Beaver Counties

No. of Customers: 588,000 (Approx. 90% Residential)

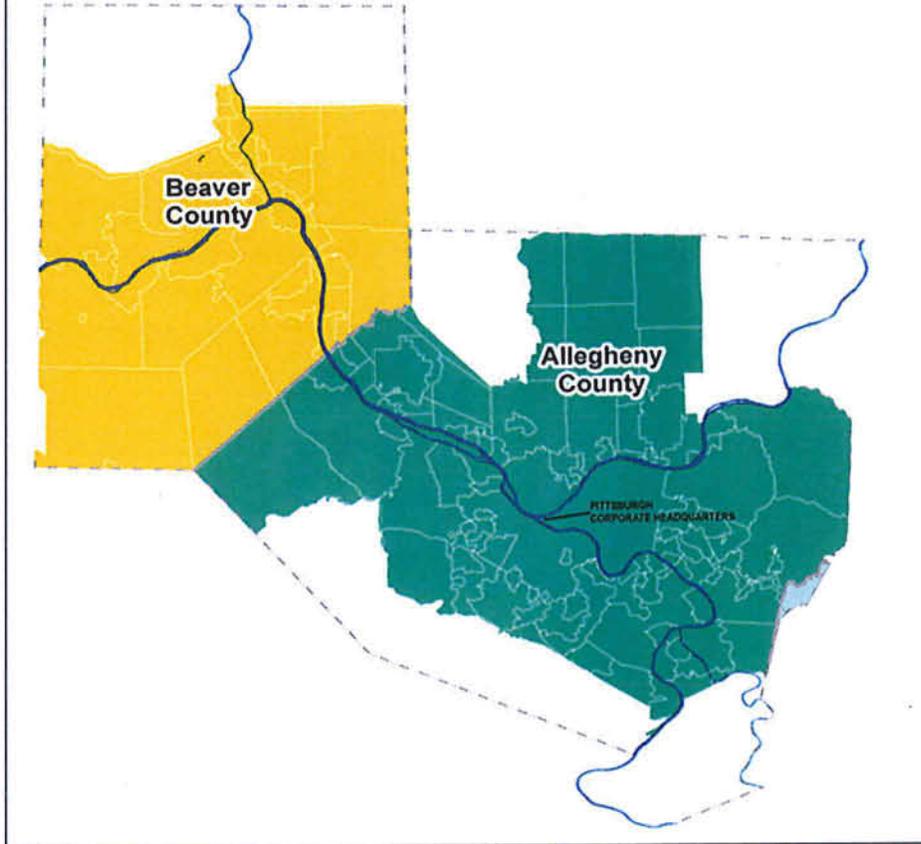


Figure 2 DLC's Service Territory

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Table 1 Location of Eligible Property

Program	Initiative	Eligible Property Location
1. 4kV Program	Substation Eliminations Initiative	Areas generally outside of downtown Pittsburgh
	Stepdown Transformer Conversion Initiative	Areas generally outside of downtown Pittsburgh
	Modular Integrated Transformer System Initiative	All areas of DLC System
2. Overhead Program	Aerial Cable Replacements Initiative	Areas generally outside of downtown Pittsburgh
3. Underground Program	Underground Cable Replacement Initiative	Areas generally inside downtown Pittsburgh
	Network Transformer and Protector Replacement Initiative	Areas generally inside downtown Pittsburgh
	URD Rehabilitation Initiative	Areas generally outside of downtown Pittsburgh
4. Substations Program	Breaker & Switch Replacements Initiative	All areas of DLC System
	Substation Upgrades Initiative	All areas of DLC System
5. Highway Relocation Program		All areas of DLC System
6. Microgrid Program		DLC Woods Run Campus TBD

4) Reasonable Estimate of Quantity of Eligible Property to be Improved or Repaired

Pursuant to 52 Pa. Code § 121.3(a)(4), this section provides reasonable estimates of the quantity of eligible property to be improved or repaired. DLC has developed estimates of the quantity of eligible property to be replaced, rehabilitated, or improved during the six-year LTIP period. DLC has based its estimates on the number of projects that DLC believes to be reasonable and prudent for purposes of acceleration of existing investment, taking into account workforce conditions, procurement practices, the likelihood of discovering “as found” field conditions that take time to plan and address, and other similar real-world planning and engineering circumstances. Table 11 in Appendix B provides details for the quantity of eligible property to be improved under this LTIP.

5) Projected Annual Expenditures and Means to Finance the Expenditures

Pursuant to 52 Pa. Code § 121.3(a)(5), the projected annual expenditures and means to finance the expenditures are discussed in this section. There are two types of DSIC expenditures mentioned in this section, baseline and accelerated. The baseline DSIC expenditures present

DLC's normal capital improvement spending levels as they have been planned from 2017 through 2022 without inclusion of the LTIIIP accelerated expenditures. The accelerated expenditures represent an incremental level of spending over and above DLC's baseline expenditures. The projected LTIIIP baseline and accelerated expenditures are detailed in Appendix B. DLC plans to finance the necessary capital with a combination of debt, cash from operations and ultimately the timely recovery of invested funds through the DSIC mechanism.

6) Description of the Manner in which Infrastructure Replacement will be Accelerated and How the Repair, Improvement, or Replacement will ensure and Maintain Adequate, Efficient, Safe, Reliable and Reasonable Service to Customers

Pursuant to 52 Pa. Code § 121.3(a)(6), this section describes how DLC will accelerate infrastructure replacement and how the repairs, improvements, and replacements will ensure and maintain adequate, efficient, safe, reliable, and reasonable service to customers. As part of the LTIIIP, DLC will accelerate its expenditures for making needed improvements and repairs on its system from 2017 through 2022, as shown in Tables 11 and 12 in Appendix B. Several of the programs and initiatives described as part of the LTIIIP are active DLC electric system improvement programs and initiatives. With the LTIIIP, however, DLC will accelerate these improvements significantly, thereby getting the benefits of these repairs, improvements, and replacements to customers in an accelerated time frame.

Figure 4 in Appendix B illustrates DLC's forecasted DSIC eligible expenditures and the 2016 through 2022 forecast. By performing the majority of the accelerated LTIIIP work in the earlier years of the plan, DLC's customers will realize the plan's benefits sooner than if work were more evenly distributed throughout the six-year LTIIIP period. With the acceleration of the expenditures outlined here and the benefits described in Section IV.1 of this plan for each program and initiative, this LTIIIP will help ensure that DLC can maintain adequate, efficient, safe, reliable, and reasonable service to its customers.

DLC has developed estimates of quantities of replacements, improvements, and rehabilitations as well as estimates of expenditures for the work to be performed under this LTIIIP. Information on the quantities and expenditures is provided in Section IV.2, 4, 5, Appendix A, and Appendix B. Over time, the estimates in these sections will be improved as DLC gathers additional program and initiative detail. This additional detail will be provided and submitted as part of future Annual Asset Optimization Plans. These plans will also provide information on DLC's prior year achievements with regard to the LTIIIP estimates and its projections for the next year.

7) A Workforce Management and Training Program Designed to Ensure that the Utility will have Access to a Qualified Workforce to Perform Work in a Cost-effective, Safe, and Reliable Manner

Pursuant to 52 Pa. Code § 121.3(a)(7), this section describes DLC's workforce management and training program. It also provides detail on the additional steps taken by DLC to perform the work in a cost-effective, safe, and reliable manner.

a. Duquesne Light Workforce

Duquesne Light has a long standing history of maintaining a skilled and qualified workforce to ensure safe and reliable service to our customers. DLC adheres to the OSHA Regulation 29 CFR 1910.269 for "Electric Power Generation, Transmission, and Distribution" for the minimum requirements for establishing safety-related work practices and training to ensure a qualified and competent workforce. In addition DLC leverages "industry best practices" and consensus standards, such as American National Standards Institute, American Society for Testing Materials and Institute of Electrical and Electronics Engineers, to develop safe, modern, and effective work practices and associated training curriculum.

DLC's primary system for training and ensuring access to individuals with the prerequisite knowledge and skills to enter into the electrical industry has been via our Electrical Distribution Technology ("EDT") program which is a joint partnership between the Community College of Allegheny County ("CCAC") and Duquesne Light. The one year certificate program will be split between two semesters; each will consist of theory and practical application of electric utility work practices and academic courses that will develop the student's cognitive and analytical abilities. In addition, two practical learning opportunities will end each semester. The program design, including pre-qualification testing and course content, is intended to not only produce candidates who possess the skills to safely and confidently perform the manual tasks associated with electrical utility work, but also build the foundational skills that will allow them to advance further in their careers. The course content provides a combination of theory and practical applications allowing students to develop the skills, knowledge, abilities and a strong commitment to teamwork; needed to succeed in an ever evolving landscape of technology, regulations, and customer demands. Upon completion of the program the graduates will have achieved 44 hours of academic college credits and approximately 1,300 hours of practical hands-on technical training.

Successful EDT graduates may be offered positions within DLC subject to the standard hiring process. Newly hired individuals will enter into a structured apprentice training program, for the Overhead Lineman, Underground Splicer or Electrical Equipment Technician positions. The apprenticeship is a combination of on-the-job training ("OJT") and related classroom instruction under the supervision of experienced journey-level craft personnel and training instructors. Through the apprenticeship program the employees continue to learn the practical and theoretical aspects of a highly skilled occupation. The apprentice program last typically 5 years where the employee progresses through a continuous rotation of hands-on field assignments and classroom

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instruction, which is held at Duquesne Light's state-of-the-art training facility located at its Woods Run Campus. Employees who successfully complete the apprenticeship reach the "journeyman" level of competence.

The EDT and Apprenticeship programs are managed by DLC's Workforce Development ("WFD") organization located at the Woods Run training facility. The organization consists of four management personnel and seven "union-instructors". During periods of peak demand, the team is supplemented with contracted instructors who are typically qualified ("journeyman") retired employees. The WFD team is responsible for the curriculum development, training delivery and evaluating proficiency required to graduate from the EDT program or progress to the next level of the apprenticeship program. They ensure employees have the required training and preparedness to effectively, efficiently, and safely contribute to the success of DLC in meeting overall business objectives and plans.

In addition, WFD conducts ongoing refresher training, training associated with the introduction of new equipment or technology and reoccurring regulatory required training. WFD conducts an "Annual Compliance Training" program where approximately 700 employees come to the Woods Run training facility to receive regulatory training required by various government agencies including OSHA, DOT, and EPA. The Annual Compliance Training ensures the workforce receives consistent, accurate and quality training. WFD maintains DLC training materials and records to ensure compliance and completeness of the training.

DLC maintains a workforce sized to manage a relatively steady state workload and to ensure effective storm response based on historical experience. To accommodate periodic peaks in workload demand or extreme storm damage, DLC will supplement its own resources with qualified skilled contract services as well as mutual assistance resources in the case of storm response. It is not uncommon for DLC to supplement its workforce for large scale capital projects.

b. Procurement Philosophy and Practice

- i. Philosophy – A competitive bid process creates more savings, and provides the organization the most cost-effective means, in sourcing materials and suppliers for projects
- ii. Practice – Leverages sourcing platform to incorporate an unbiased method of pricing with one single point of contact for more efficient supplier identification and pricing competition
 - Contract intelligence module – used to track contract performance to ensure work is being performed in a cost-effective, safe, and reliable manner
- iii. Contractors
 - Pre-approved Vendor Program - In conjunction with Procurement, employ a pre-approved Vendor program to expedite work bidding while still controlling costs

c. Project Management Office

DLC will establish a PMO that will provide the following services specifically dedicated to executing the LTIP:

- i. Project Management – Project Managers manage in accordance with industry best practices
- ii. Financial Management – Project finances are managed through all phases of the lifecycle, including budgeting, actuals tracking, estimates to complete, invoicing, and filing support
- iii. Supply Chain Management – Partner with the Supply Chain team to execute necessary material and services procurements and contractual arrangements and then, oversee the materials and manage the contracts
- iv. Engineering Management – Provide engineering support and oversight to all aspects of the engineering phase of distribution projects
- v. Construction Management – Oversee construction activities to ensure all work is completed safely, accurately, to applicable standards and specifications and with quality

8) Description of DLC's Outreach and Coordination Activities

Pursuant to 52 Pa. Code § 121.3(a)(8), DLC regularly communicates with PennDOT, other utilities, local municipalities, and local governments regarding planned work that may impact those entities. Communication includes the use of the Accella² program for underground work in the City of Pittsburgh. However, unlike gas or water utilities, most of the planned work in DLC's LTIP will not involve opening roadway or highway, so the opportunities to reduce cost or cost share with other entities is anticipated to be minimal. DLC also uses the National Joint Utilities Notification System ("NJUNS") to coordinate with third-party attachers.

² Accela is an industry leader in providing a robust, cloud-based platform of solutions that increases engagement, improves efficiency and delivers transparency to strengthen communities. Accela serves more than 2,200 communities worldwide, including over half of America's largest cities.

V. Conclusion

DLC has developed a cost effective, flexible LTIIIP that is capable of being executed efficiently. The Company's LTIIIP fully complies with both the statutory requirements of Act 11, 66 Pa. C.S. § 1352(a), and the Commission's regulations, at 52 Pa. Code §§ 121.1 *et seq.*

DLC believes that the six (6) programs and nine (9) initiatives set forth herein are a prudent and reasonable plan for accelerating the repair and replacement of the Company's aging distribution infrastructure and will allow the Company to continue to provide safe and highly reliable service to customers.

DLC respectfully requests that the Commission find, pursuant to 66 Pa. C.S. § 1352(a)(7), that the Company's LTIIIP is adequate and sufficient to ensure and maintain adequate, efficient, safe, reliable and reasonable service.

Appendix A

Appendix A – LTIIIP Programs and Initiatives

a. 4kV Program

The 4kV Program eliminates, converts, and/or upgrades various 4kV distribution system assets at or approaching the end of expected useful life. The Substation Eliminations Initiative and the Stepdown Conversion Initiative are intended to replace the aged, 4kV infrastructure on DLC's system. In certain instances, renewal of the 4kV substation infrastructure may be prudent, as opposed to substation elimination or conversion. In those instances, DLC will install a Modular Integrated Transformer System ("MITS").

i. Substation Elimination Initiative

Initiative Description and Purpose

The Substation Elimination Initiative will convert a substation's 4kV load to 23kV operation. By removing the 4kV equipment and upgrading to 23kV, this initiative will permit the decommissioning of 4kV substations.

Identification and Justification

The bulk of DLC's 4kV substations were installed prior to the 1970s and, as such, the equipment is approximately 55 years old and is deteriorating. Additionally, some of the 4kV substations are operational islands with no ability to transfer load through circuit ties. This means that when taking out the substations for repairs, DLC repair crews must bring mobile transformers to the sites. The 4kV system also has greater losses and less capacity than the 23kV system. Additionally, voltage regulation is provided by a load tap changer built into the 4kV substation and these are aged and approaching the end of expected useful life.

Some 4kV substations are islanded or at capacity and therefore, when they fail there is no way to transfer the circuit load to adjacent 4kV circuits and therefore, the outages tend to be longer. It is therefore beneficial for both economic and operational reasons to accelerate the elimination of the 4kV substations and transfer load to 23kV circuits fed from other substations.

Scope, Location, and Planned Expenditures

This initiative will eliminate 4kV substations and transfer the existing circuit load from the 4kV system to the 23kV system. This load transfer will be accomplished by replacing poles, transformers, hardware, and other line equipment. Anchors and guying will need to be upgraded and tree trimming may also be required to provide adequate line clearances.

Substations that supply the 4kV distribution system are routinely evaluated for safety and reliability, taking into account a multitude of factors, such as capacity, physical condition, and electrical condition. As loading and maintenance issues arise in aged 4kV substations, the preferred solution becomes substation elimination via load conversion to a 23kV supply. The expansion of the 23kV system during these conversions increases the overall load capacity, system reliability, and operational capabilities of the distribution system. Table 2 below summarizes estimates for the accelerated annual expenditures for this initiative.

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Table 2 4kV Substation Elimination Initiative Summary

	2017	2018	2019	2020	2021	2022	Total
Estimated Expenditures (\$M)	\$13.0	\$28.0	\$47.0	\$-	\$-	\$7.5	\$95.5

Initiative Benefits

This initiative provides several benefits to DLC and its customers. The list below summarizes the benefits that will be realized through this initiative.

- ▣ Improve operational flexibility
- ▣ Reduce system losses
- ▣ Reduce risk of outages caused by aged 4kV equipment failure
- ▣ Reduce likelihood of 4kV equipment failure for which no spare or replacement parts are readily available
- ▣ Reduce or avoid emergency repair or replacement or after hours work
- ▣ Reduces 4kV system footprint and moves closer to a single distribution voltage of 23kV
- ▣ Reduces the total number of substations owned and operated by DLC
- ▣ Reduces the number of breakers, switches, and batteries to maintain.
- ▣ 4kV transferred areas will now be under System Control and Data Acquisition (“SCADA”) control for improved reliability and voltage monitoring

ii. Stepdown Conversions Initiative

Initiative Description and Purpose

The 4kV Stepdown Conversions Initiative will convert 4kV load fed from a stepdown to 23kV. By eliminating 4kV stepdown and upgrading the associated infrastructure to 23kV, this initiative will permit the decommissioning of the 4kV system.

Identification and Justification

The majority of this equipment is approaching the end of expected useful life and is due for replacement. As part of the initiative, 4kV load will be converted to 23kV and the appropriate line hardware will be replaced.

Scope, Location, and Planned Expenditures

The scope for this initiative includes replacement of all poles, wires, and associated equipment to remove stepdown transformers and install appropriate 23kV conductors. Additional tree trimming may be required to facilitate installation and allow adequate clearance for the higher voltage. Proper line fusing will be installed to coordinate with automated devices. Table 3 below summarizes estimates for the accelerated annual expenditures for this initiative.

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Table 3 Stepdown Transformer Conversion Initiative Summary

	2017	2018	2019	2020	2021	2022	Total
Estimated Expenditures (\$M)	\$-	\$5.0	\$5.0	\$5.0	\$-	\$-	\$15.0

Initiative Benefits

This initiative provides several benefits to DLC and its customers. The list below summarizes some of the key benefits realized through this initiative.

- Improve operational flexibility
- Reduce system losses
- Reduce risk of outages caused by aged 4kV equipment failure
- Reduce likelihood of 4kV equipment failure for which no spare or replacement parts are readily available
- Reduce or avoid emergency repair or replacement or after hours work
- Reduces 4kV system footprint and moves closer to a single distribution voltage of 23kV
- 4kV transferred areas will now be under System Control and Data Acquisition (“SCADA”) control for improved reliability and voltage monitoring

iii. Modular Integrated Transformer System Initiative (“MITS”)

Initiative Description and Purpose

MITS are packaged 23kV - 4kV substations containing transformers, breakers, switches, and regulators. When the condition of the current substation is deteriorating and is approaching the end of expected useful life, a MITS may be installed. Due to its modular design, when the 4kV is ultimately converted to 23kV, this unit can be relocated to other locations as necessary. As a result, MITS involve minimal design time and cost and using MITS substantially reduces construction cost. The MITS initiative is complementary to the 4kV Substation Elimination Initiative.

Identification and Justification

The bulk of the components of DLC’s 4kV system were installed prior to the 1970s. DLC recognizes the need for replacement of legacy and deteriorated 4kV substations.

Scope, Location, and Planned Expenditures

The scope of this program introduces an interim solution for replacement of aged 4kV substations and defers the need for immediate 4kV conversion. A MITS will be used to replace an aged 4kV substation, which is approaching the end of useful life. The MITS will replace the existing 4kV substation and continue to feed load connected to the existing 4kV feeder circuit. Table 4 below summarizes estimates for the accelerated annual expenditures for this initiative.

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Table 4 Modular Integrated Transformer System Initiative Summary

	2017	2018	2019	2020	2021	2022	Total
Estimated Expenditures (\$M)	\$2.0	\$8.0	\$8.0	\$-	\$-	\$-	\$18.0

Initiative Benefits

This initiative provides several benefits to DLC and its customers. The list below summarizes some of the key benefits realized through this initiative.

- Update a 4kV substation’s operating equipment
- Reduce risk of outages caused by 4kV substation equipment failure
- Reduces on-site setup and commissioning time and expenses

b. Overhead Program

i. Aerial Cable Replacements Initiative

Initiative Description and Purpose

Aerial cable is used when multiple circuits are on the same pole. It is also used through rights-of-way with trees that may cause interference. Aerial cable is used principally on the 23kV sub-transmission and distribution circuits. This initiative focuses on the replacement of aged, failure-prone aerial cable to maintain DLC’s current high level of reliability and reduce the likelihood of failures.

Identification and Justification

Several of the types of cable DLC has installed in its system are at or approaching the end of expected useful lives. The equipment included for replacement of aerial cable under this initiative is the pothead, terminal pole, and the aerial cable itself. It is important for DLC to replace aged aerial cable in order to maintain a high level of system reliability.

Scope, Location, and Planned Expenditures

This initiative focuses on replacement of aged aerial cable with new aerial cable or overhead conductors. Table 5 summarizes estimates for the accelerated annual expenditures for this initiative.

Table 5 Aerial Cable Replacement Initiative Summary

	2017	2018	2019	2020	2021	2022	Total
Estimated Expenditures (\$M)	\$-	\$8.5	\$8.0	\$0.5	\$1.0	\$1.0	\$19.0

Initiative Benefits

This initiative provides several benefits to DLC and its customers. The list below summarizes some of the key benefits realized through this initiative.

- Reduce risk of unplanned outages from failed aerial cable
- Reduce or avoid emergency repair or replacement or after hours work

- May increase circuit capacity

c. Underground Program

i. Underground Cable Replacement Initiative

Initiative Description and Purpose

DLC’s underground cable has served the system for several years, but it is approaching the end of its expected useful life. This initiative focuses on the replacement of underground cable to maintain the current high level of reliability and reduce the likelihood of future failures.

Identification and Justification

Several of the types of cable DLC has installed in its system are at or approaching the end of expected useful lives. The equipment included for replacement of underground cable under this initiative is the underground cable, splices, and manhole cable support. It is important for DLC to replace aged underground cable in order to maintain a high level of system reliability.

Scope, Location, and Planned Expenditures

This initiative focuses on replacement of deteriorated, underground cable with new cable. The initiative will help to maintain the current high level of reliability and to reduce the likelihood of future failures. Table 6 summarizes estimates for the accelerated annual expenditures for this initiative.

Table 6 Underground Cable Replacement Initiative Summary

	2017	2018	2019	2020	2021	2022	Total
Estimated Expenditures (\$M)	\$5.0	\$3.5	\$3.0	\$0.5	\$1.0	\$2.0	\$15.0

Initiative Benefits

This initiative provides several benefits to DLC and its customers. The list below summarizes some of the key benefits realized through this initiative.

- Reduce risk of unplanned outages from failed underground cable
- Reduce or avoid emergency repair or replacement or after hours work
- May increase circuit capacity

ii. Network Transformers and Protector Replacements Initiative

Initiative Description and Purpose

The majority of network transformers and protectors are located in downtown Pittsburgh in sidewalk vaults. Many of these vaults are exposed to natural and human elements that may lead to corrosion. These factors contribute to the deterioration of the transformers. This initiative focuses on the rehabilitation of network transformer and protector installations in downtown Pittsburgh to maintain the current high level of reliability and reduce the likelihood of failures.

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Identification and Justification

This initiative will accelerate the replacement of network transformer and protector installations in downtown Pittsburgh.

Scope, Location, and Planned Expenditures

This initiative involves aged network transformer and protector replacements. Table 7 summarizes estimates for the accelerated annual expenditures for this initiative.

Table 7 Network Transformer and Protector Replacement Initiative Summary

	2017	2018	2019	2020	2021	2022	Total
Estimated Expenditures (\$M)	\$-	\$3.0	\$3.0	\$-	\$-	\$-	\$6.0

Initiative Benefits

This initiative provides several benefits to DLC and its customers. The list below summarizes some of the key benefits realized through this initiative.

- Reduce risk of outages caused by network transformer/protector failure
- Prevent unplanned closures of downtown sidewalks, which disrupts pedestrian traffic
- Reduce or avoid emergency repair or replacement or after hours work

iii. Underground Residential Distribution Rehabilitation Initiative

Initiative Description and Purpose

DLC installed a significant number of Underground Residential Distribution (URD) facilities in housing developments in the 1970s. This equipment is approaching the end of expected useful life. Some of this equipment is below grade. The equipment has been exposed to wet conditions due to rain runoff. In addition, chemicals from lawn treatment in the water in below-grade vaults further deteriorate the equipment. The deteriorated equipment includes transformers, primary cable, splices, bushing junctions, elbows, brackets, and the vaults themselves.

This initiative focuses on the rehabilitation of the failure-prone underground residential (URD) system in order to maintain the current high level of reliability and reduce the likelihood of future failures.

Identification and Justification

Replacements in this initiative include cable, transformers, and cable splices and terminations.

Scope, Location, and Planned Expenditures

The scope of this initiative includes conversion from subsurface to pad mount equipment. Additionally, this initiative involves replacement of all primary equipment and installation of new cable, transformers, and associated equipment. Table 8 summarizes estimates for the accelerated annual expenditures for this initiative.

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Table 8 URD Rehabilitation Initiative Summary

	2017	2018	2019	2020	2021	2022	Total
Estimated Expenditures (\$M)	\$-	\$5.0	\$5.0	\$5.0	\$5.0	\$2.5	\$22.5

Initiative Benefits

This initiative provides several benefits to DLC and its customers. The list below summarizes some of the key benefits realized through this initiative.

- ☒ Reduce risk of outages caused by equipment failure
- ☒ Support faster evaluation and restoration of outages
- ☒ Eliminate abnormal system configurations caused by equipment failure
- ☒ Reduce or avoid emergency repair or replacement or after hours work
- ☒ Transformers will be resized to match loads
- ☒ All submersible transformers and terminations will be moved above grade

d. Substations Program

i. Breaker & Switch Replacements Initiative

Initiative Description and Purpose

The 23kV distribution infrastructure is the backbone of DLC's delivery system. As part of that system, substation breakers are important for reliable operation. The line protection of the system must also work as appropriate and in coordination with other protective devices such as Intellirrupters and line fuses. Currently, there are approximately 500 oil circuit breakers that can be replaced with vacuum circuit breakers. The line and bus disconnect switches will be changed while the breakers are being replaced. The disconnect switches are used to establish a valid clearance for a visual break, allowing construction crews to perform line work safely.

Identification and Justification

Many of DLC's circuit breakers are approaching the end of expected useful lives. Additionally, based on the design specifications of DLC's system, disconnect switches are typically installed in conjunction with breakers. Based on this design norm, we can assume the disconnect switches were installed at the same time as the circuit breakers. Accordingly, it is an efficient use of DLC's resources to replace the disconnect switches along with the circuit breakers.

Scope, Location, and Planned Expenditures

The scope of this initiative is replacing aged circuit breakers. Additionally, the line and bus disconnects will be replaced for each circuit position. Table 9 summarizes estimates for the accelerated annual expenditures for this initiative.

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Table 9 Breaker and Switch Replacements Initiative Summary

	2017	2018	2019	2020	2021	2022	Total
Estimated Expenditures (\$M)	\$-	\$4.0	\$4.0	\$4.0	\$2.0	\$1.0	\$15.0

Initiative Benefits

This initiative provides several benefits to DLC and its customers. The list below summarizes some of the key benefits realized through this initiative.

- Reduce risk of outages caused by circuit breaker misoperation
- Support adequate clearance through new disconnect switches
- Reduce or avoid emergency repair or replacement or after hours work

ii. Substation Upgrades Initiative

Initiative Description and Purpose

The Substation Upgrades Initiative replaces substation infrastructure that is approaching the end of expected useful life. Within the substation, DLC has identified several pieces of equipment and/or systems that need to be replaced or rehabilitated. The infrastructure principally includes, but is not limited to transformers, relays, substation structures, system control equipment, foundations, ground grid systems, and battery systems.

Identification and Justification

This initiative targets the remaining equipment in DLC's aged substations that are not directly addressed by other programs or initiatives. This remaining equipment includes important components in the substations that are deteriorating. Without an accelerated, proactive replacement program, transformers, relays, substation structures, foundations, system control equipment, grid ground systems, and battery systems would be replaced primarily as result of failures.

Scope, Location, and Planned Expenditures

The scope of the initiative is to replace aged substation infrastructure. The initiative includes, but is not limited to:

- Transformers
- Relays
- Substation Structures
- System Control Equipment
- Foundation
- Ground Grid system
- Battery Systems

Table 10 summarizes estimates for the accelerated annual expenditures for this initiative.

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Table 10 Substation Upgrades Initiative Summary

	2017	2018	2019	2020	2021	2022	Total
Estimated Expenditures (\$M)	\$-	\$3.0	\$3.0	\$-	\$-	\$-	\$6.0

Initiative Benefits

This initiative provides several benefits to DLC and its customers. The list below summarizes some of the key benefits realized through this initiative.

- Reduce risk of outages caused by equipment failure
- Reduce risk of unplanned events from failed legacy substation equipment
- Reduce likelihood of substation equipment for which no spare or replacement parts is readily available
- Reduce or avoid emergency repair or replacement or after hours work

e. Highway Relocations Program

For information and additional details on the Highway Relocations Program, please see Section IV.1.e and Appendix B.

f. Microgrid Program

i. Woods Run Microgrid

As a first step in DLC’s microgrid activities, we intend to build a microgrid on the premises of our own Woods Run operations campus, located on Beaver Avenue in Pittsburgh’s Marshall-Shadeland neighborhood in the North Shore district. The rationale for building this microgrid at our own Woods Run operations campus, treating ourselves as a customer, is three-fold:

- 1) *To Provide “Premium Reliability” for a Critical Community Infrastructure Asset.* DLC’s Woods Run operations campus, including neighboring company-owned operations facilities, serves as DLC’s largest operations facility and the one responsible for ensuring the ongoing, reliable functioning of downtown Pittsburgh’s electrical infrastructure. In the event of any service-interruption in downtown Pittsburgh, it is the employees from Woods Run and its neighboring operations facilities who are responsible for restoring power to the areas residential, commercial, industrial, institutional, and governmental customers. For this reason, DLC regards its Woods Run operations campus and its neighboring operations facilities as a critical community infrastructure asset for the greater Pittsburgh region.
- 2) *To Provide a “Living Laboratory” In Which DLC, in Partnership with the University of Pittsburgh, can Research the Interconnection of Distributed Energy Resources With Both Microgrids and the Macrogrid.* On November 16, 2015, DLC and the University of Pittsburgh announced a strategic partnership with the intent, amongst other objectives, to design and install the microgrid at our Woods Run operations campus and neighboring,

company-owned operations facilities. Apart from protecting an operationally-critical operations facility, the Woods Run microgrid is intended to:

“[...] serve as a real-world laboratory to research microgrid resiliency and the integration of distributed and renewable energy resources into the electric power distribution grid, as well as other key enabling technology areas such as power electronics controllers, direct current (DC) infrastructure, energy storage systems, and smart grid technologies.”³

DLC regards its collaboration with the University of Pittsburgh on our Woods Run microgrid project as representing an important potential source of technical knowledge that we intend to utilize for the benefit of our customers as microgrids and distributed energy resources, whether interconnected to microgrids or the macrogrid, become increasingly prevalent.

- 3) *To Provide the Option to Expand DLC's Own Microgrid into a Larger Utility Microgrid Serving Critical Community Infrastructure Assets in the Immediate Vicinity.* By expanding the Microgrid located at our own Woods Run operations campus, we will add distributed energy resources to the Beaver Avenue geographic area and create the potential to expand the project into a larger microgrid serving such nearby critical community infrastructure.

As DLC's microgrid project at our Woods Run operations campus is further developed and moves closer to construction, we would file an amended LTIP to include detailed project information and costs in the plan.

Apart from our own microgrid project at the Woods Run Campus, DLC intends to evaluate other locations within our service territory that may benefit from the deployment of microgrid projects. Our approach to this evaluation is to identify which specific critical community infrastructure assets within our service territory would provide sufficient benefit to all of our customers to justify the cost of protecting them, through the deployment of a microgrid, from extraordinary outages caused by such low-probability, but high-consequence events as major storms or potential attacks. As we identify specific projects, DLC will file an amended LTIP to include detailed project information and costs in the plan.

³ Duquesne Light Company. “Duquesne Light and University of Pittsburgh's Swanson School of Engineering Partner to Advance the Electric Power Industry.” November 16, 2015.

Appendix B

Appendix B – LTIIIP Annual Schedule (units) and Expenditures

Table 11 provides the initial schedule for planned repair and replacement of eligible property in this LTIIIP. The table shows that DLC's LTIIIP under this filing will begin in 2017 and end in 2022. The table also provides a reasonable estimate of the accelerated quantity of eligible property that will be improved and repaired as part of this LTIIIP.

Table 11 Schedule for Planned Repair and Replacement of Eligible Property

Program/Initiative	Start Year	End Year	Estimated Quantity Addressed
Accelerated Programs and Initiatives			
4kV Program			
Substation Eliminations Initiative (circuits)	2017	2022	21 - 29
Stepdown Conversions Initiative (banks)	2018	2020	12 - 14
Modular Integrated Transformers System (unit)	2017	2019	16 - 20
Overhead Program			
Aerial Cable Replacement Initiative (miles)	2018	2022	21 - 27
Underground Program			
Underground Cable Replacement Initiative (miles)	2017	2022	6 - 8
Network Transformer & Protector Replacement Initiative (unit)	2018	2019	47 - 57
URD Rehabilitation Initiative (transformer)	2018	2022	675 - 825
Substations Program			
Breaker & Switch Replacement Initiative (unit)	2018	2022	113 - 138
Substation Upgrades Initiative (project)	2018	2019	9 - 11
Highway Relocation Program (project)			-
Microgrid Program (project)	2017	TBD	2

Figure 3 illustrates the historical average DSIC eligible expenditures from 2011 through 2015 and the average DSIC eligible projected baseline and accelerated expenditures for the LTIIIP from 2017 through 2022. The total LTIIIP expenditures are estimated to be \$651.1 million, of which \$439.1 million represents baseline expenditures and \$212 million represents accelerated expenditures.

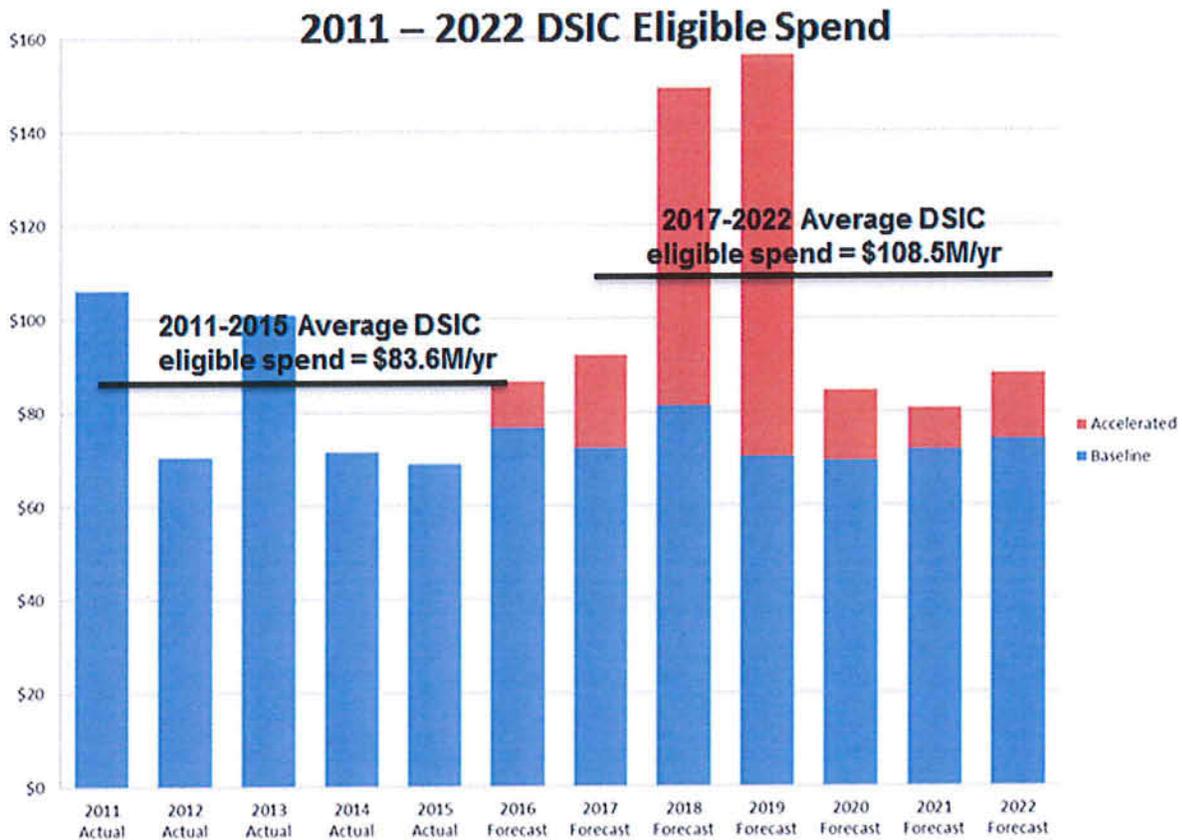


Figure 3 LTIP Baseline and Accelerated Expenditures by Year⁴

Table 12 provides the annual accelerated expenditures by program and initiative over the six-year LTIP period. Figure 4 illustrates the annual historical DSIC expenditures from 2011 through 2015 and the projected annual LTIP expenditures from 2017 through 2022 by program.

⁴ The West Carson Street Rehabilitation project (\$25.7M) was excluded from historical data due to the fact it was a significant outlier, non-reimbursable project, that is not expected to occur in DSIC period.

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Table 12 Summary of LTIP Expenditures

Program/Initiative	2017	2018	2019	2020	2021	2022	Total
	Accelerated Expenditures						
4kV Program	2017	2018	2019	2020	2021	2022	Total
Substation Eliminations Initiative	\$13.0	\$28.0	\$47.0	\$-	\$-	\$7.5	\$95.5
Stepdown Conversions Initiative	\$-	\$5.0	\$5.0	\$5.0	\$-	\$-	\$15.0
Modular Integrated Transformers System	\$2.0	\$8.0	\$8.0	\$-	\$-	\$-	\$18.0
Overhead Program							
Aerial Cable Replacement Initiative	\$-	\$8.5	\$8.0	\$0.5	\$1.0	\$1.0	\$19.0
Underground Program							
Underground Cable Replacement Initiative	\$5.0	\$3.5	\$3.0	\$0.5	\$1.0	\$2.0	\$15.0
Network Transformers & Protector Replacement Initiative	\$-	\$3.0	\$3.0	\$-	\$-	\$-	\$6.0
URD Rehabilitation Initiative	\$-	\$5.0	\$5.0	\$5.0	\$5.0	\$2.5	\$22.5
Substations Program							
Breaker & Switch Replacement Initiative	\$-	\$4.0	\$4.0	\$4.0	\$2.0	\$1.0	\$15.0
Substation Upgrades Initiative	\$-	\$3.0	\$3.0	\$-	\$-	\$-	\$6.0
Highway Relocation Program							
Microgrid Program	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Total Accelerated	\$20.0	\$68.0	\$86.0	\$15.0	\$9.0	\$14.0	\$212.0

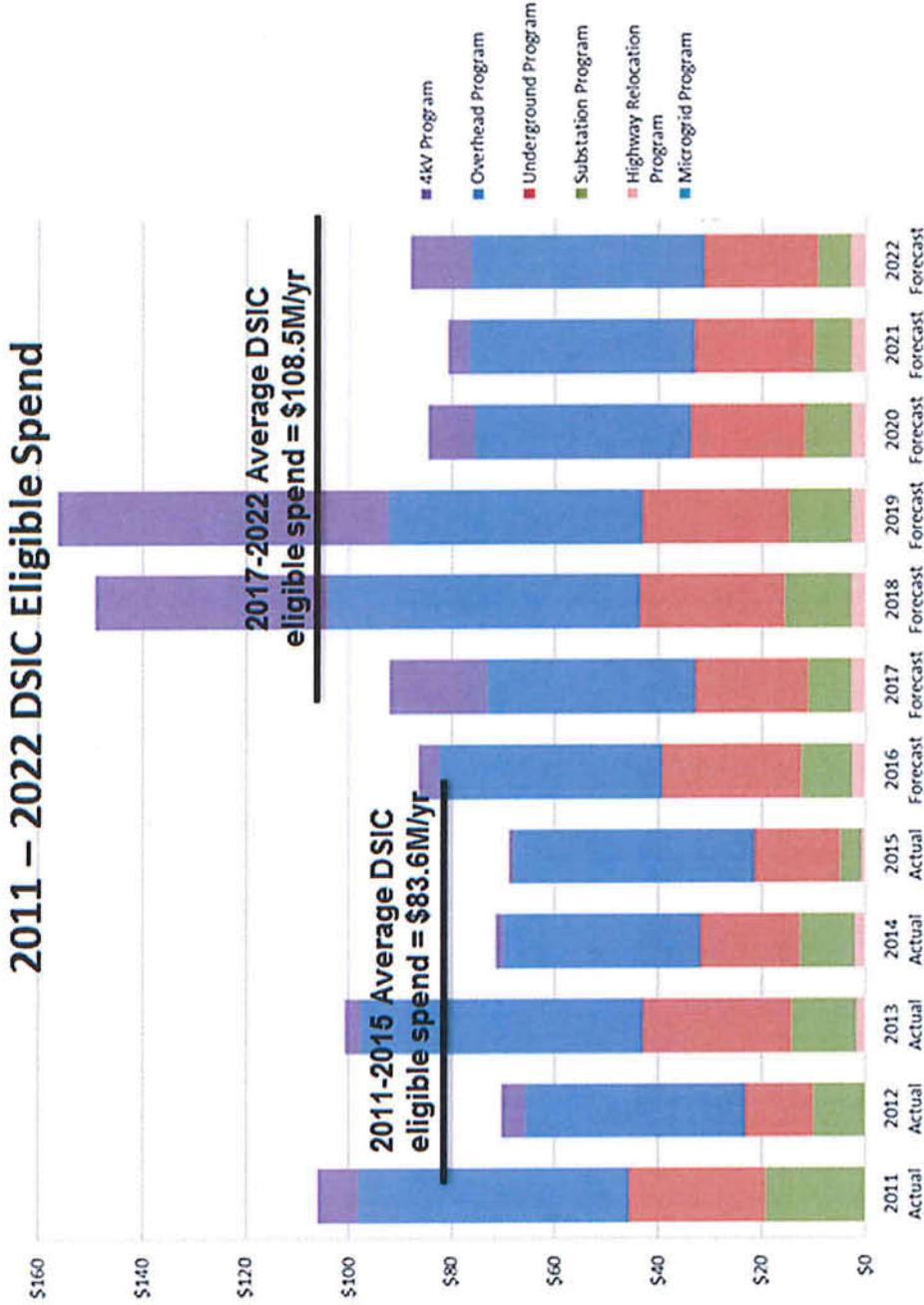


Figure 4 LTIIIP Program Expenditures by Year⁵

⁵ Similar to the statement in footnote 3, the West Carson Street Rehabilitation project (\$25.7M) was excluded from historical data due to the fact it was a significant outlier, non-reimbursable project, that is not expected to occur in DSIC period.