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June 1, 2022

Via Electronic Filing

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Keystone Bldg. 2nd Floor W
400 N. Street
Harrisburg, PA 17120

Re: Petition of Duquesne Light Company for Approval of Its Second Long-Term Infrastructure Improvement Plan
Docket No. P-2022-_____

Dear Secretary Chiavetta:

Enclosed please find the Petition of Duquesne Light Company for Approval of Its Second Long-Term Infrastructure Improvement Plan ("LTIIP"). Pursuant to 52 Pa. Code § 121.4(a), the Company is serving a copy of its LTIIP 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-2021-3024750.

Please reach out to me with any questions, comments, or concerns.

Sincerely,

Emily M. Farah
Duquesne Light Company
Counsel, Regulatory

Enclosures

cc: Certificate of Service (w/ encl.)

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY
COMMISSION

Petition of Duquesne Light Company for Approval of Its Second Long-Term Infrastructure Improvement Plan	Docket No. P-2022-_____

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

Pursuant to Act 11 of 2012 ("Act 11" or the "Act"), Section 1352(a) of the Pennsylvania Public Utility Code ("Code"), 66 Pa. C.S. § 1352(a), and Pennsylvania Public Utility Commission ("Commission") regulation 52 Pa. Code § 121.5(c), Duquesne Light Company ("Duquesne Light" or the "Company") hereby files this Petition seeking approval of its Second Long-Term Infrastructure Improvement Plan ("LTIIP 2" or "Plan"). In the LTIIP 2, Duquesne Light is proposing to maintain the accelerated distribution investment for the repair, improvement and replacement of aging infrastructure for the six-year period beginning January 1, 2023, through December 31, 2028.

By this Petition, Duquesne Light respectfully requests that the Commission approve the Company's LTIIP 2, and in support thereof, states as follows:

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 Code, 66 Pa. C.S. § 2803. Duquesne Light provides electric distribution service to more than 600,000 customers within its service territory that covers approximately 817 square miles.

2. Duquesne Light's attorneys are:

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

9. 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) EDCs, natural gas distribution companies ("NGDCs"), water utilities, wastewater utilities, and city natural gas distribution operations to establish a distribution system improvement charge ("DSIC").

10. 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 Code. See 66 Pa. C.S. § 1351(1). As a precondition to the implementation of a DSIC, a utility must file an LTIIP with the Commission that is consistent with the

provisions of Section 1352 of the statute. See 66 Pa. C.S. § 1352(a).

11. 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 LTIIP must meet, and gives guidance to utilities for meeting the Commission's standards.

12. On December 20, 2014, the Commission's LTIIP regulation became effective. The Commission's regulations require that an LTIIP 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 LTIIP.

52 Pa. Code § 121.3.

II. DUQUESNE LIGHT'S FIRST LTIIP

13. On April 15, 2016, Duquesne Light filed a petition at P-2016-2540046 for Commission approval of its First Long Term Infrastructure Improvement Plan ("LTIIP 1"), which began with calendar year 2017 and ends on December 31, 2022.

14. In preparing its LTIIP 1, the Company followed the guidelines established in the Commission's August 2, 2012, Final Implementation Order.

15. As filed, LTIIP 1 proposed $651 million of distribution spending, including $130 million of accelerated spending, for the replacement of DSIC eligible property. Actual spending for LTIIP 1 is discussed in more detail in in Section III, below.

16. The objective of LTIIP 1 was 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.

17. LTIIP 1 supported and enhanced the Company's continued 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.

18. On May 26, 2016, Duquesne Light filed a petition for Commission approval to implement a DSIC, consistent with Section 1353 of the Code, 66 Pa. C.S. § 1353, and Act 11.

19. The Company's LTIIP 1 and DSIC petitions were approved by Commission Orders entered on September 15, 2016, and April 20, 2017, respectively, at Docket No. P-2016-2540046.

20. On May 26, 2020, via a Secretarial Letter at Docket No. M-2020-3019708, the Commission initiated the periodic review of the Company's LTIIP 1 as required by Commission regulation, 52 Pa. Code § 121.7(a).

21. By Order dated October 29, 2020, the Commission's midterm review of the Company's LTIIP 1 determined that Duquesne Light's LTIIP 1 was adequately designed to ensure and maintain safe, adequate, reasonable, and reliable service. The Commission's midterm review also found that the Company substantially adhered to its plan.

III. DUQUESNE LIGHT'S SECOND LTIIP

A. DUQUESNE LIGHT'S LTIIP 2 IS DESIGNED TO FACILITATE THE RECOVERY OF REASONABLE AND PRUDENT COSTS INCURRED TO REPAIR, IMPROVE OR REPLACE CERTAIN ELIGIBLE DISTRIBUTION PROPERTY.

22. By way of the present LTIIP 2 Petition, Duquesne Light seeks Commission approval to continue its DSIC mechanism upon the expiration of LTIIP 1 on December 31, 2022, pursuant to 52 Pa. Code § 121.5(c).

23. The Company's LTIIP 2 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.

24. LTIIP 2 covers a broad spectrum of distribution related equipment and facilities, which have been separated into five programs, including: (1) Overhead Program, (2) Substations Program, (3) Underground Program, (4) System Reliability Program, (5) Highway Relocation Program. These programs are discussed in more detail in Section II(A) of the LTIIP 2 and corresponding appendices. Each program is described individually, with an estimated replacement schedule and estimated spend.

25. As part of the LTIIP 2, the Company proposes to maintain an accelerated investment in the amount of $1.094 billion, which will be used to improve and repair Duquesne Light's aged distribution system infrastructure and enhance distribution system resiliency.

26. The Company notes in Appendix 5 that its projected spending in LTIIP 2 is $65 million higher than the DSIC spending for LTIIP 1 period. The increased spending in LTIIP 2 will maintain the accelerated repair and replacement of certain property that is at or nearing the end of its useful life. Further, LTIIP 2 will help Duquesne Light to maintain electrical system reliability as assets reach the end of their expected useful life.

27. LTIIP 2 appropriately considers workforce and conditions, procurement, training, and other planning needs in the design, sequencing, and spending levels of the programs and initiatives.

B. SCHEDULE FOR REPAIR AND REPLACEMENT.

28. The LTIIP 2 covers the six-year period beginning January 1, 2023, through December 31, 2028. Duquesne Light is proposing a six-year LTIIP because this provides a reasonable period of time to plan and carry out the proposed accelerated investments.

29. The Company's schedule for repair and replacement of property is provided in Section II(B) and in Appendix 1. The Company has provided estimated expenditures by year for each of the five programs in Section II(B) of the Plan.

C. LOCATION OF ELIGIBLE PROPERTY.

30. The Company has provided a description of the location of eligible property to be repaired or replaced in Section II(C) of the Plan.

D. QUANTITY OF PROPERTY TO BE IMPROVED.

31. Duquesne Light has provided an estimate of the quantity of eligible property to be improved or repaired in Appendices 1 and 3.

32. 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.

33. The projected annual LTIIP 2 expenditures and means to finance the expenditures are set forth in Section II(E) of the Plan.

34. Appendix 2 of the Plan shows the estimated annual spending for each year of the LTIIP 2, by program.

35. 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.

36. As part of LTIIP 2, the Company will maintain its accelerated level of expenditures established by LTIIP 1 for needed improvements and repairs on its system from 2023 through 2028, as shown in Appendices 4-5 of the Plan.

37. The LTIIP 1 investment in DSIC eligible assets is forecasted to be approximately $1.029 billion for the years 2017 through 2022.

38. The LTIIP 2 forecasted spending on DSIC eligible assets is approximately $1.094 billion for the years 2023 through 2028.

39. Prior to LTIIP 1, DLC's six-year investment in DSIC eligible assets was approximately $505 million for the years 2011 through 2016.

40. The replacement of aged infrastructure in LTIIP 2 will ensure and maintain adequate, efficient, safe, reliable, and reasonable electric distribution service to DLC's customers.

G. WORKFORCE MANAGEMENT AND TRAINING PROGRAM.

41. The Company's workforce management and training program is described in Section II(G) of the Plan.

42. 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, modem and effective work practices and associated training

curriculum.

43. 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.

44. The Company maintains a workforce sized to manage a relatively steady state workload. To accommodate periodic peaks in workload demand or extreme storm damage, 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 LTIIP 2 projects. The Company's contractor procurement process is also explained in Section II(G)(2)-(3) of the Plan.

45. Further, the Company's Project Management Office ("PMO") will manage several of the LTIIP 2 initiatives and projects, as explained in Section II(G)(4) of the Plan. This will ensure that LTIIP 2 projects are managed and completed as efficiently as possible.

H. OUTREACH AND COORDINATION ACTIVITIES

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

I. SERVICE, COMMENTS, AND COMMISSION REVIEW.

47. Pursuant to the Commission's regulations, Duquesne Light is serving its LTIIP 2 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-2021-3024750.

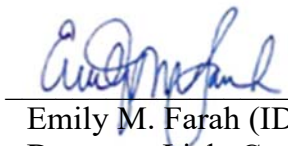
48. Duquesne Light does not anticipate the need to request a modified comment period or litigation schedule at this time. See 52 Pa. Code 121.4(c).

49. In the event that any intervening party raises "material factual issues" related to LTIIP 2, the Company will work with the intervening party or parties to propose a litigation schedule to the assigned Administrative Law Judge for evidentiary hearings. Id.

IV. CONCLUSION

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

Respectfully Submitted,



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BEFORE THE
PENNSYLVANIA PUBLIC UTILITY
COMMISSION

Petition of Duquesne Light Company for Approval of Its Second Long-Term Infrastructure Improvement Plan	Docket No. P-2022-_____

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: June 1, 2022

C. James Davis

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant):

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Table of Contents

I. Introduction

A. Summary of Duquesne Light's First Long Term Infrastructure Improvement Plan

Duquesne Light Company ("Duquesne Light," "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 more than 600,000 customers within its service territory that covers approximately 817 square miles.

Pursuant to Section 1352 of the Public Utility Code, 66 Pa. C.S. § 1352, DLC submitted its first Long-Term Infrastructure Improvement Plan ("LTIIP 1") on April 15, 2016, at Docket Number P-2016-2540046. [1] LTIIP 1 included approximately $130 million of accelerated distribution infrastructure replacement over a six-year period from 2017 through December 2022. LTIIP 1 included five asset programs, as follows:

- 4kV Program - consisted of three major initiatives that eliminated, converted and/or upgraded various 4kV distribution system assets at or approaching the end of expected useful life.
- Overhead Program - consisted of initiatives that addressed aerial cable and other eligible property at or approaching the end of expected useful life.
- Underground Program - consisted of initiatives that replaced, rehabilitated, and improved obsolete, eligible property at or approaching the end of expected useful life.
- Substations Program - consisted of initiatives to upgrade aged substation infrastructure.

[1] LTIIP 1 was approved by Commission Order entered on September 15, 2016. Additionally, on October 29, 2020, the Commission issued an Order at docket number M-2020-3019708 finding that the Company's LTIIP 1 is designed adequately to ensure and maintain safe, adequate, reasonable, and reliable service and that Duquesne Light has substantially adhered to its plan.

- Highway Relocation Program - consisted of work that arose during the course of normal operations required by the State of Pennsylvania, PennDOT, counties, cities, municipalities, or other government agencies.

As a result of the investment in LTIIP 1, Duquesne Light replaced aging infrastructure, reduced the likelihood of asset failure in the associated asset categories, experienced less cable failures on rehabilitated aerial and underground cable circuits, improved operational flexibility as a result of 4kV to 23kV conversions, and experienced better reliability in rehabilitated Underground Residential Distribution ("URD") plans.[2]

B. Overview of Duquesne Light's Second Long Term Infrastructure Improvement Plan

Building upon the successes, opportunities, and lessons from LTIIP 1, Duquesne Light hereby submits this Long-Term Infrastructure Improvement Plan (hereafter, "LTIIP 2") for the six-year period beginning January 2023 through December 2028. LTIIP 2 maintains the accelerated replacement of aging distribution infrastructure to support the modernization of the DLC electric distribution system. The Plan will support DLC's continuing efforts to maintain a high level of reliability and safety that could otherwise suffer due to normal degradation of facilities that occurs with time and natural environmental stresses.

Subject to Commission approval, DLC's LTIIP 2 will maintain an accelerated investment in the distribution system from 2023 through 2028 by including $1.094 billion of distribution infrastructure which is designed to enhance distribution system reliability.[3] DLC's LTIIP 2 appropriately considers available workforce and conditions, 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 and support the feasibility of LTIIP 2's programs and initiatives.

[2] As a result of the URD work competed in LTIIP 1, annual average SAIFI for equipment failures improved from 0.42 to .05, and the annual average SAIDI improved from 74.23 to 7.06. Periodic Review of Duquesne Light Company's Long-Term Infrastructure Improvement Plan, No. M-2020-3019708 at 8 (October 29, 2020).
[3] LTIIP 1 included $1.029 billion of investments for Duquesne Light's distribution system for years 2017 through 2022.

LTIIP 2 will help DLC to maintain electrical system reliability as 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 and is consistent with the six-year time frame of LTIIP 1. Broadly, LTIIP 2 includes $1.094 billion of distribution investment in the following key programs and initiatives include:

- Overhead Program - consists of $514 million of initiatives that convert 4kV circuits to 23 kV and address potential equipment failures on circuits.
- Substations Program - consists of $305 million of initiatives to upgrade aged substation infrastructure and construct a new substation to increase the resiliency of electric service.
- Underground Program - consists of $194 million of initiatives that replace, rehabilitate, and improve obsolete, eligible property at or approaching the end of expected useful life.
- System Reliability Program – consists of $58 million of initiatives to address needs associated with forecasted equipment overloads and maintaining system performance to within PUC requirements.
- Highway Relocation Program - consists of $24 million of work that arises during the course of normal operations required by the State of Pennsylvania, PennDOT, counties, cities, municipalities, or other government agencies.

DLC's LTIIP 2 includes initiatives that will continue to maintain and improve reliability while also providing more resiliency during storm restoration and other unplanned outages. The 4kV Substation Elimination and 4kV Stepdown Conversion initiatives will continue to eliminate aged infrastructure and increase overhead distribution devices to aid in isolating outages and restoring customers. The project to Establish Watson Substation will provide enhanced resiliency to customers in downtown Pittsburgh by diversifying the supply to DLC's downtown area network. The likelihood of equipment and cable failures should be reduced through implementation of several initiatives including the East End Substation Rehabilitation Project and the Unit Substation Rehabilitation, Cable Replacement, URD Rehabilitation, and Circuit Rehabilitation initiatives.

Each program and the initiatives within each program are explained in more detail in Section II, A, below. DLC has selected and prioritized programs and initiatives for inclusion in

its LTIIP 2 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. Using condition assessments, a risk-based capital planning approach and the input of DLC experts, DLC has developed five key LTIIP 2 programs and associated 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 LTIIP 2 will support DLC's mission of maintaining public and employee safety and providing efficient and reliable electric service. The programs and initiatives focus on DLC's aged infrastructure, which are at or 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 aged assets because of the increased risk of failure. Therefore, a proactive replacement program is a prudent, reasonable, and necessary course of action.

DLC's LTIIP 2 addresses each of the eight (8) elements that are required by the Commission's LTIIP regulations, 52 Pa. Code §§ 121.1 *et seq.* and provides substantial benefits to DLC's customers.

II. Elements of DLC's LTIIP 2 Pursuant to 52 Pa. Code §§ 121.1 *et seq*.

Pursuant to 52 Pa. Code § 121.3(a)(1), this section identifies and describes the age of eligible property owned and operated by the DLC for which it is seeking Distribution Service Improvement Charge ("DSIC") recovery.

A. Identification of Types and Age of DLC's Eligible Property

1. Overhead Program

The Overhead Program eliminates, converts, and/or upgrades various distribution system assets at or approaching the end of expected useful life. This program includes initiatives aimed at proactive

infrastructure upgrades and also includes funding to address failed equipment and equipment identified as in need of replacement through inspections.

a) 4kV 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 60 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 DLC crews must install a mobile transformer before the station can be de-energized for maintenance or repairs. 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 units are aged and approaching the end of expected useful life.

Some 4kV substations are islanded or at capacity, which means there is no way to transfer the circuit load to adjacent 4kV circuits when a failure occurs. This can result in extended outage durations. 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 system reliability and operational capabilities of the distribution system. The locations of the work planned in this initiative are throughout DLC's service territory. The following table summarizes the estimated annual spending for this initiative.

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	0.0	0.5	15.6	28.9	15.1	2.8	62.9

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 amount of substation equipment to maintain.
- 4kV transferred areas will now be under System Control and Data Acquisition ("SCADA") control for improved reliability and voltage monitoring.

Measurement of Units of Work

Units of work for this initiative will be the miles of circuit work required to complete the conversion of the substation's circuits to 23 kV.

Initiative Measures of Success

The rate of success for this initiative will be determined by the following:

- Number of substations eliminated.
- Amount of KVA upgraded to 23kV.

- Reduction in SAIFI values attributed to equipment failures.

b) 4kV Stepdown Conversion Initiative

Initiative Description and Purpose

The majority of DLC's 23kV - 4kV stepdown transformers were purchased and installed during the 1970s. The 4kV Stepdown Conversion 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

Select circuits within the existing 4kV voltage class are approaching end of useful life. 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. The locations of the work planned in this initiative are throughout DLC's service territory. The following table summarizes the estimated annual spending for this initiative.

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	2.7	1.9	5.6	3.1	5.6	3.8	22.6

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.

Measurement of Units of Work

Units of work for this initiative will be the miles of circuit work required to complete the 4kV Stepdown Conversion.

Initiative Measures of Success

The rate success for this initiative will be determined by the following:

- Amount of KVA converted to 23kV.
- Number of stepdown transformers eliminated.

c) Circuit Rehabilitation Initiative

Initiative Description and Purpose

This initiative identifies circuits with equipment failures for rehabilitation with the goal of improving reliability on these circuits. Cable, connectors/jumpers, insulators, transformers, and terminations were the highest impact equipment failures as analyzed from 2015-2020, which attribute to 76% CAIDI and 79% SAIFI for equipment failure types.

Identification and Justification

Based upon the outage database and failure history, circuits with the highest KVA minutes and KVA out will be prioritized for performing circuit rehabilitation, in which 16 total equipment failure types will have work performed to improve circuit reliability.

Scope, Location, and Planned Expenditures

The scope for this initiative is circuits throughout DLC's service territory that have been identified as having the highest impact equipment failures. The initiative addresses the aforementioned 16 total equipment failure types and targets work on them in order to overall circuit reliability. Additionally, this initiative replaces aged infrastructure to maintain adequate, efficient, safe,

reliable, and reasonable electric distribution service to DLC's customers. The locations of the work planned in this initiative are throughout DLC's service territory. The following table summarizes the estimated annual spending for this initiative.

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	0.7	4.1	3.6	4.5	3.6	0.4	17.0

Initiative Benefits

- The replacement of aged infrastructure in this initiative will ensure and maintain adequate, efficient, safe, reliable, and reasonable electric distribution service to DLC's customers.
- Rehabilitation work performed on the identified circuits should lower SAIFI values for the rehabilitated circuits compared to historical averages.

Measurement of Units of Work

The units of work for this initiative will be the number of rehabilitated circuit miles.

Initiative Measures of Success

The rate of success for this initiative will be measured by the following criteria:

Reduction in SAIFI values attributed to equipment failures.

d) Overhead Devices Initiative

Initiative Description and Purpose

The purpose of this initiative is to replace distribution overhead devices such as Intellirupters, Vipers, Scadamates, and capacitors.

Identification and Justification

This initiative will focus on the replacement of the equipment listed above based on condition, age, loading, or equipment that is at or approaching end of useful life.

Scope, Location, and Planned Expenditures

The scope of this initiative includes the replacement of problematic distribution overhead devices.

These devices will be located throughout DLC's service territory. The following table summarizes the estimated annual spending for this initiative.

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	5.7	1.4	1.3	1.4	1.4	1.5	12.7

Initiative Benefits

This initiative will replace aged and problematic overhead devices which will maintain equipment and circuit reliability.

Measurement of Units of Work

The units of work will be the number of work orders completed.

Initiative Measures of Success

The success of this initiative will be measured by the number of work orders completed.

e) Deteriorated Pole Replacements Initiative

Initiative Description and Purpose

The purpose of this initiative is to replace or reinforce distribution poles that are identified as deteriorated during DLC's yearly pole inspection program.

Identification and Justification

DLC inspects distribution poles to identify poles that could affect the reliability and safety of the company's distribution assets for its employees, customers, and general public. This initiative replaces and reinforces deteriorated wood poles.

Scope, Location, and Planned Expenditures

The scope of this initiative includes the replacement or reinforcements of poles identified in DLC's inspection program. Reinforcements, which include C-Trusses or Fiber Wraps, will utilize existing equipment and crossarms while pole replacements will include new equipment and crossarms.

The location of this initiative will be across DLC's service territory. The following table summarizes the estimated annual spending for this initiative.

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	21.7	23.8	23.7	20.4	20.9	22.6	133.1

Initiative Benefits

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

- Maintain system reliability.
- Restore pole strength capacity.
- Replacement of aged assets.

Measurement of Units of Work

The units of work will be the number of poles addressed by replacement or reinforcement.

Initiative Measures of Success

The success of this initiative will be measured by the number of work orders or tasks completed.

f) Overhead Line Repairs Initiative

Initiative Description and Purpose

The purpose of this initiative is to fund the capital replacements for problems found during overhead line inspections performed annually on a 5-year cycle.

Identification and Justification

Duquesne Light Company inspects distribution circuits on a 5-year cycle to identify issues that could affect the reliability and safety of the company's distribution assets for its employees, customers, and general public. This initiative will replace deteriorated distribution equipment identified in the inspection process.

Scope, Location, and Planned Expenditures

The scope of this initiative includes the replacement of deteriorated distribution equipment. Distribution equipment is located throughout Duquesne Light's service territory. The following table summarizes the estimated annual spending for this initiative.

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	1.2	1.2	1.3	1.3	1.3	1.4	7.8

Initiative Benefits

This initiative will replace deteriorated infrastructure maintaining adequate, efficient, safe, reliable, and reasonable electric distribution service to DLC's customers.

Measurement of Units of Work

The units of work will be the number of work orders and tasks completed.

Initiative Measures of Success

The success of this initiative will be measured by the number of work orders and tasks completed.

g) Overhead Repairs and Restoration Initiative

Initiative Description and Purpose

The Overhead Repairs and Restoration Initiative will restore overhead equipment during times of outages as well as mitigate landslides affecting distribution assets. This initiative will allow DLC to maintain the reliability of its distribution infrastructure in landslide-prone areas and respond to emergent issues during active landslides.

Identification and Justification

Work will be identified in response to emergent issues that arise as well as equipment failures. For overhead and URD restoration, work will be prioritized by severity of deficiency observed and customer impact.

Scope, Location, and Planned Expenditures

This scope for this initiative includes the restoration and replacement of distribution equipment. The assets addressed by this initiative include distribution towers and poles, transformers (Overhead and Pad Mount), and other overhead equipment on DLC's system. The scope also includes mitigation of landslides by utilizing geotechnical techniques and best practices. The locations of the work planned in this initiative are throughout DLC's service territory. The following table summarizes the estimated annual spending for this initiative.

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	20.5	21.1	21.6	23.4	23.9	25.9	136.4

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.

- Maintain reliability of DLC's infrastructure.
- Reduce risk of outages caused by landslides or equipment failure.
- Restore overhead distribution system to as-designed condition.

Measurement of Units of Work

The units of work will be the number of work orders completed.

Initiative Measures of Success

The success of this initiative will be measured by the number of work orders completed.

2. Substations Program

The Substations Program will upgrade aged and problematic substation infrastructure in DLC's territory. Unit substation upgrades will replace aged transformers and associated equipment that are at or approaching end of useful life. The upgrades of substation equipment will reduce the likelihood of equipment failures and increase the ampacity of select distribution circuits. This Program also includes funding to address failed equipment and equipment identified as in need of replacement through inspections.

a) East End Substation Rehabilitation Project

Initiative Description and Purpose

The East End Substation Project will consist of replacing an existing substation and enabling additional tie points to existing circuits in the substation area. The East End Substation Rehabilitation Project will increase reliability and redundancy in the East Liberty area of Pittsburgh.

Identification and Justification

East End Substation is one of DLC's oldest stations and mostly contains equipment that is at or approaching end of useful life. Manufacturer support for most of this equipment is no longer available, which can increase outage durations until alternative solutions can be developed and implemented.

Scope, Location, and Planned Expenditures

The scope of the project will be to build a new substation next to the existing substation and gradually transfer load over to the new substation once construction is completed. The following table summarizes the estimated annual spending for this project. Included in the project spending estimate are costs associated with underground distribution circuits in the vicinity of the Substation. The work associated with underground circuits includes the rerouting and replacement of distribution circuits exiting the substation as well as a new duct bank around the perimeter of the substation to be used for main distribution circuit feeder routes exiting the substation. The location of this project is in the East Liberty area of Pittsburgh. The following table summarizes the estimated annual spending for this initiative.[4]

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	2.1	16.2	28.6	25.6	8.5	0.0	80.9

Initiative Benefits

The list below summarizes some of the key benefits realized through this initiative.

- Newer equipment will increase reliability in the East Liberty area of Pittsburgh.
- The replacement of aged equipment will reduce maintenance costs.
- A reduction in environmental hazardous material such as asbestos and oil-filled equipment.
- The rehabilitation of the substation will establish the capability of future 4kV to 23kV conversion work in the area of the substation for future reliability and resiliency enhancements.

[4] The figures in this table include only distribution portions of spend, both on the substation and the connecting distribution lines. Included in the estimate of costs for distribution substations assets are costs classified as FERC Account 361. Transmission-related portions of the project are not included.

Measurement of Units of Work

The unit of work for this initiative is "project" which is the rehabilitation of a single substation.

Initiative Measures of Success

The success for the East End SS Rehab Project will be determined by completing a project that replaces approximately 100-year-old substation equipment.

b) Establish Watson Substation Project

Initiative Description and Purpose

This initiative will construct a new bulk substation in the Uptown neighborhood of Pittsburgh and connect it to existing circuits using underground transmission and distribution lines. Watson Substation is necessary for several reasons, including: reliability improvements, resiliency gains, location near upgraded underground infrastructure, and community electrical flexibility.

Identification and Justification

The addition of Watson Substation will provide another feed to Pittsburgh's downtown network, thereby adding redundancy to the network circuits. It will also add tie points to nearby stations and circuits which will minimize the impact of unplanned outages.

Scope, Location, and Planned Expenditures

A new substation will be constructed in the Uptown area. It will feature 138kV transmission sources and feed 23kV/11.8kV circuits. The following table summarizes estimates for the annual expenditures for this project. In addition to the substation construction costs, the cost estimate for the distribution scope of work includes costs for underground infrastructure including new circuit extensions to connect Watson substation to the downtown network and other nearby sub-transmission and distribution circuits. The estimate also includes network tie switches in the downtown network that will allow for network areas to be supplied by an alternate substation if the primary substation experienced an outage rendering it unable to feed its associated network area(s). This project is located in downtown Pittsburgh.[5]

[5] The figures above include only distribution portions of spend, both on the substation and the connecting distribution lines. Included in the estimate of costs for distribution substations assets are costs classified as FERC Account 361. Transmission-related portions of the project are not included.

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	45.4	64.8	21.5	0.1	0.0	0.0	131.9

Initiative Benefits

Since Watson substation will be much closer to the load it serves, it will connect with existing distribution and subtransmission circuits over shorter lengths, with new cable, in mostly new and rebuilt duct and manholes. This new equipment will maintain reliability and reduce unplanned outages.

Establishing the Watson Substation will improve resiliency against lower probability, high consequence events by establishing tie circuits between substations. The establishment of Watson Substation will also establish the capability of future conversion of downtown 11 kV circuits to 23 kV.

Measurement of Units of Work

The unit of work for this initiative is the construction of a single substation.

Initiative Measures of Success

This initiative will be considered a success if Watson Substation is successfully constructed, energized, and results in improved resiliency in the downtown Pittsburgh network.

c) Unit Substation Rehabilitation Initiative

Initiative Description and Purpose

The purpose of this initiative is to replace the most problematic components of unit substations in the DLC territory.

Identification and Justification

A unit substation consists of a set of 23kV switchgear, a 23kV/4kV transformer with a load tap changer, and a 4kV low-side interrupting device, all contained in a metallic enclosure. Many of these units were purchased in the 1950's and are approaching end of useful life. Several of these units are experiencing issues such as moderate oil leaks, load tap changer trouble, combustible gas generation in the transformer tank, or switchgear issues.

Scope, Location, and Planned Expenditures

The preferred solution to unit substation issues is to eliminate the substation by converting the 4kV circuit to a 23kV voltage class, or to replace the substation with distribution-class equipment. However, the option to upgrade/replace the existing equipment with substation-class equipment can be the most feasible option in certain instances. This equipment will be replaced/upgraded by this initiative, including 23kV/4kV transformers and associated switchgear. The locations of the work planned in this initiative are throughout DLC's service territory. The following table summarizes the estimated annual spending for this initiative.

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	1.0	1.0	1.1	1.1	1.2	1.2	6.6

Initiative Benefits

- Newer equipment will increase reliability of the 4kV circuits they feed.
- The removal of aging equipment will reduce maintenance costs.
- Transformers and tap changers with moderate oil leaks will be repaired/replaced.
- Automated service restoration schemes can be installed to reduce outage durations.
- Reduction in number of transformers containing oil leaks or combustible gas accumulation on DLC system.

Measurement of Units of Work

Units of work will be measured by the number of unit substations rehabilitated.

Initiative Measures of Success

The rate of success for this initiative will be determined by the following criteria:

- Reduction in average likelihood of failure risk associated with 4kV unit substations.

d) Substation Upgrades Initiative

Initiative Description and Purpose

The purpose of this initiative is to replace aging or problematic voltage regulators, current-limiting reactors, electrical bus work, substation ground grids, digital fault recorders, substation annunciators, SCADA equipment and remote terminal units (RTU's), protective relays, station

control and communication batteries, structures, foundations, and associated equipment within DLC's distribution substations.

Identification and Justification

DLC has identified equipment within substations in need of replacement based on condition, age, and loading. The replacement of this equipment will decrease the likelihood of unplanned outages due to equipment failure. This initiative also includes funding to address failed equipment.

The table below summarizes estimates for the accelerated annual expenditures for this initiative.

Scope, Location, and Planned Expenditures

The scope of this initiative will be to replace select equipment based on the criteria listed above. The locations of the work planned in this initiative are throughout DLC's service territory. The following table summarizes the estimated annual spending for this initiative.

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	10.8	9.7	7.2	7.0	7.1	7.4	49.1

Initiative Benefits

- Newer equipment will maintain reliability.
- The replacement of aging equipment will reduce maintenance costs and unplanned outages.
- Equipment with higher current ratings will be installed in strategic locations to support additional load during operational contingencies.

Measurement of Units of Work

Units of work will be measured by the number of work orders completed.

Initiative Measures of Success

The success of this initiative will be measured by the number of work orders completed.

e) Breaker & Switch Replacements

Initiative Description and Purpose

The purpose of this initiative is to replace distribution circuit breakers, switches, and associated equipment, such as structures, foundations, and control cable due to age, condition, and loading.

Identification and Justification

Several circuit breakers and switches in DLC substations are aging and approaching end of useful life. This equipment requires frequent maintenance, and spare parts are becoming obsolete. The replacement of this equipment will decrease the likelihood of unplanned outages due to equipment failure.

Scope, Location, and Planned Expenditures

The location of this initiative will be in DLC substations across the territory. The scope of this initiative will be to replace circuit breakers, switches, and any of the following associated equipment:

- Structures.
- Foundations.
- Control cable.

The following table summarizes the estimated annual spending for this initiative:

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	1.4	1.4	1.4	1.4	1.4	1.5	8.7

Initiative Benefits

- Newer equipment will maintain reliability.
- The replacement of aging equipment will reduce maintenance costs and unplanned outages.

Measurement of Units of Work

The units of work for this initiative will be determined by the number of work orders completed.

Initiative Measures of Success

The success of this initiative will be measured by the number of breakers replaced or upgraded.

3. Underground Program

DLC's Underground Program replaces, rehabilitates, and improves obsolete, eligible property approaching the end of its expected useful life. This Program includes proactive replacements and upgrades of underground infrastructure and also includes funding to address failed equipment and equipment identified as in need of replacement through inspections.

a) Cable Replacement Initiative

Initiative Description and Purpose

DLC's underground and aerial 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 and aerial cable alongside their related assets listed in the below section to maintain the current high level of reliability and reduce the likelihood of future failures. Aerial cable is used principally on the 23kV sub-transmission and distribution circuits, often when multiple circuits are on the same pole and through rights-of-way with trees that may cause interference.

Identification and Justification

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

Scope, Location, and Planned Expenditures

This initiative focuses on replacement of deteriorated or aged aerial cable with new aerial cable or overhead conductors as well as deteriorated or aged underground cable. The initiative will help to maintain the current high level of reliability and to reduce the likelihood of future failures. The locations of the work planned in this initiative are throughout DLC's service territory. The following table summarizes the estimated annual spending for this initiative.

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	12.8	9.3	6.7	8.4	4.2	4.6	45.9

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, underground cable, or their related assets
- Reduce or avoid emergency repair or replacement or after-hours work

- May increase circuit capacity

Measurement of Units of Work

The measured units of work for this initiative will be the number of rehabilitated circuit miles.

Initiative Measures of Success

The rate of success for this initiative will be determined by the following:

- Reduction in SAIFI values attributed to cable failures

b) URD 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. 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. Identification will be based on URD plans with the lowest levels of reliability which will be determined by examining the number of failures that occurred on a URD plan as well as the age of the plan.

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, cable junctions, terminations, and associated equipment. The locations of the

work planned in this initiative are throughout DLC's service territory. The following table summarizes the estimated annual spending for this initiative.

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	1.6	3.2	4.2	4.4	5.4	4.9	23.7

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 and after-hours work.
- Transformers will be resized to match loads.
- All submersible transformers and terminations will be moved above grade.
- Reduction in average age of URD equipment.

Measurement of Units of Work

Units of work will be the number of transformers (pad-mount and submersible) replaced.

Initiative Measures of Success

The rate of success for this initiative will be determined by a reduction in the following:

- The number of transformers replaced.

c) Underground Infrastructure Rehabilitation Initiative

Initiative Description and Purpose

The purpose of this initiative is to replace or extend the life of underground infrastructure such as manholes, vaults, transformers, switches, network protectors, and associated electrical equipment.

Identification and Justification

DLC has identified equipment for replacement based on condition, loading, obsolescence, age, or end of useful life. This initiative will be used to replace the identified equipment.

Scope, Location, and Planned Expenditures

This initiative will include the replacement or repair of pad mount transformers, submersible transformers, underground switches, and other electrical equipment included in vaults or manholes. The vault or manhole will also receive repair or refurbishment as part of this initiative.

The location of this initiative will be the underground infrastructure within the DLC Territory. The following table summarizes the estimated annual spending for this initiative.

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	4.9	5.2	2.9	3.4	2.7	2.9	21.9

Initiative Benefits

Equipment replaced due to condition, loading, obsolescence, age, or end of useful life reduces costs associated with unplanned outages due to equipment failure and minimizes associated equipment damage.

Measurement of Units of Work

Units of work will be measured by the number of work orders completed.

Initiative Measures of Success

The success of this initiative will be measured by the number of work orders completed.

d) Network Transformer Replacements Initiative

Initiative Description and Purpose

The purpose of this initiative is to replace underground network transformers and associated equipment based on condition, loading, obsolescence, age, or end of useful life in order to maintain reliability and reduce cost associated to outages associated with equipment failure.

Identification and Justification

DLC has identified equipment for replacement based on condition, loading, obsolescence, age, or end of useful life. This initiative will be used to replace the identified equipment.

Scope, Location, and Planned Expenditures

This initiative will be used to replace network transformers and associated equipment, such as cable terminations, relays, and vacuum interrupters.

The location of this initiative will be underground networks within the City of Pittsburgh. The following table summarizes the estimated annual spending for this initiative.

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	1.3	1.4	1.4	1.5	1.5	1.5	8.6

Initiative Benefits

Equipment replaced due to condition, loading, obsolescence, age, or end of useful life reduces costs associated with unplanned outages due to equipment failure and minimizes associated equipment damage.

Measurement of Units of Work

Units of work will be measured by the number of transformers replaced.

Initiative Measures of Success

The success of this initiative will be measured by the number of transformers replaced.

e) Underground Repairs and Restoration Initiative

Initiative Description and Purpose

The Underground Repairs and Restoration Initiative will restore underground equipment during times of equipment and cable failures and outages. This initiative will allow DLC to maintain the reliability of its distribution infrastructure and respond to emergent issues.

Identification and Justification

Work will be identified in response to emergent issues that arise as well as equipment failures. Work will be prioritized by severity of deficiency observed and customer impact.

Scope, Location, and Planned Expenditures

The scope for this initiative includes the restoration and replacement of distribution equipment. The assets addressed by this initiative are primarily underground cable and transformers. The locations of the work planned in this initiative are throughout DLC's service territory. The following table summarizes the estimated annual spending for this initiative.

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	9.6	9.8	10.0	10.3	10.5	11.4	61.6

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.

- Maintain reliability of DLC's infrastructure.
- Restore underground distribution system to as-designed condition.

Measurement of Units of Work

Units of work will be measured by the number of work orders completed.

Initiative Measures of Success

The success of this initiative will be measured by the number of work orders completed.

4. System Reliability Program

a) System Reliability Initiative

Initiative Description and Purpose

DLC is continuously evaluating the distribution system for near-term capital investment needs associated with forecasted equipment overloads and maintaining system performance to within PUC requirements. The purpose of this initiative is to fund projects required to resolve these needs.

Identification and Justification

Projects related to forecasted equipment overloads are identified annually in a distribution planning system-wide capacity study. Projects related to maintaining system performance to within PUC requirements are identified in quarterly reviews of the poorest performing circuits.

Scope, Location, and Planned Expenditures

The projects created for this initiative vary greatly in complexity and cost. The locations of the work planned in this initiative are throughout DLC's service territory. The following are some example projects within this initiative:

- Conversion of 2.4/4.16 kV to 13.2/23 kV distribution circuits.
- Reconductoring or reconfiguration of distribution circuits to support load growth.
- Installation of additional switching devices and protective equipment to reduce outages in known trouble areas.
- Installation of regulation devices in distribution system areas

One project within this initiative is the "Oakland Capacity and Resiliency Project," which involves the establishment of six new distribution circuits through four new underground duct lines. This project is being constructed to address existing and forecasted overloads of existing distribution circuits. The following table summarizes the estimated annual spending for this initiative.

	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	10.8	15.5	6.8	7.9	8.1	8.8	57.8

Initiative Benefits

The benefits expected from this initiative are improved customer satisfaction, improved reliability metrics, increased system capacity for both existing and forecasted overloads on the existing distribution circuits, and decreased dispatches due to the replacement of aged infrastructure.

Measurement of Units of Work

Units of work will be measured by the number of work orders completed.

Initiative Measures of Success

The success of this initiative will be measured by the number of work orders completed.

5. Highway Relocation Program

a) Unreimbursed Highway Relocations

The Highway Relocation Program consists of work that arises during the course of normal operations required by the Commonwealth 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 LTIIP period. DLC will include the unreimbursed eligible costs as part of its LTIIP. DLC is aware of the potential for increased work in this area due to the Infrastructure Investment and Jobs Act signed into law by President Biden in November 2021. The following table summarizes the estimated annual spending for this initiative.

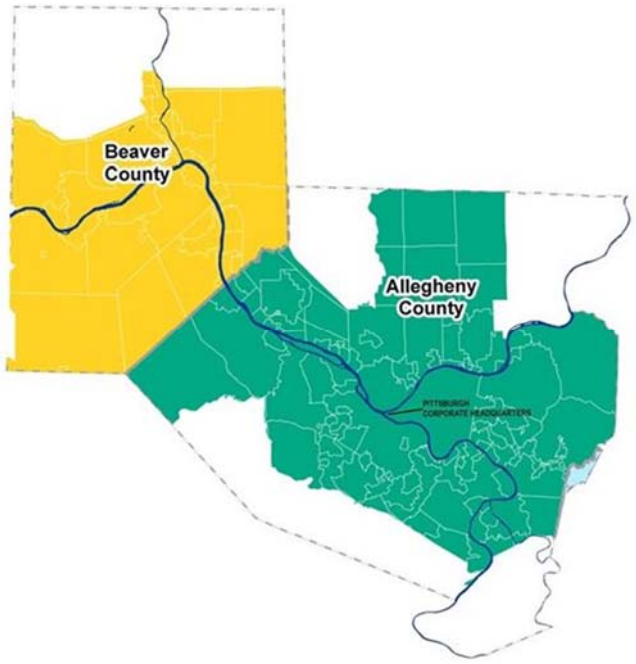
	2023	2024	2025	2026	2027	2028	Total
Estimated Spending ($Millions)	10.5	2.2	3.5	2.4	2.4	2.6	23.7

B. Initial Schedule for Planned Repair and Replacement of Eligible Property

Appendix 1 provides the initial schedule for the planned repair and replacement of eligible property for each program and initiative. Appendices 2 and 3 provide the scheduled expenditures and approximate units of work for planned repair and replacement of eligible property for each program and initiative. The quantities of units of work in the Appendix 1 are presented in ranges, by initiative, with the quantities of units of work in Appendix 3 being shown as a single point estimate. The estimates of eligible quantities to be improved are derived from a typical 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's schedule is reasonable and achievable, based on engineering and planning expertise and judgment.

C. General Description of Location of Eligible Property

Pursuant to 52 Pa. Code § 121.3(a)(3), this section provides a general description of location of eligible property. DLC provides electric service within its service territory in the City of Pittsburgh and portions of Allegheny and Beaver counties, as shown below:



Most of the LTIIP 2 programs and initiatives address all of DLC's service territory. The table, below, identifies the location of eligible property when certain programs and initiatives are concentrated to a specific region of DLC's service area:

Program	Initiative	Eligible Property Location
1. Overhead Program	4kV Substation Elimination	Areas generally outside of downtown Pittsburgh
	4kV Stepdown Conversion	Areas generally outside of downtown Pittsburgh
	Circuit Rehabilitation	Areas generally outside of downtown Pittsburgh
	Overhead Devices	All areas of DLC System
	Deteriorated Pole Replacements	All areas of DLC System

	Overhead Line Repairs	All areas of DLC System
	Overhead Repairs and Restoration	All areas of DLC System
2. Substations Program	East End Substation Rehabilitation	City of Pittsburgh
	Establish Watson Substation	City of Pittsburgh
	Unit Substation Rehabilitation	All areas of DLC System
	Substation Upgrades	All areas of DLC System
	Breaker and Switch Replacements	All areas of DLC System
3. Underground Program	Cable Replacement	All areas of DLC System
	URD Rehabilitation	Areas generally outside of downtown Pittsburgh
	Underground Infrastructure Rehabilitation	All areas of DLC System
	Network Transformer Replacements	City of Pittsburgh
	UG Repairs and Restoration	All areas of DLC System
4. System Reliability Program	System Reliability	All areas of DLC System
5. Highway Relocation Program	Unreimbursed Highway Relocations	All areas of DLC System

D. Reasonable Estimate of Quantity of Eligible Property to be Improved or Repaired

Pursuant to 52 Pa. Code § 121.3(a)(4), this section describes a reasonable estimate of 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 LTIIP period. DLC has based its estimates on the number of projects that DLC believes to be reasonable and prudent, considering 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. Appendices 1 and 3 provide details for the quantity of eligible property to be improved under this LTIIP.

DLC is monitoring the current global supply chain challenge and taking steps to mitigate its impacts on the cost and schedules of projects. Material pricing and lead times are being monitored and communicated to stakeholders across the company in order to understand potential impacts to spending and project planning. Material orders are being placed earlier when there are longer lead times observed, and minimum stocking levels are being confirmed and adjusted as needed. Options are being researched to determine if there are acceptable alternative suppliers or materials that can mitigate the impacts of inflation. Additional scrutiny is being placed on project plans to ensure accurate material order dates are identified and documented.

E. Projected Annual Expenditures and Means to Finance the Expenditures

Pursuant to 52 Pa. Code § 121.3(a)(5), this section describes DLC's projected annual expenditures and means to finance the expenditures.

DLC plans to finance the necessary capital with a combination of external capital, cash from operations, and timely recoveries related to invested funds through the DSIC mechanism. Appendix 2 and Section II, A, above provide the planned annual expenditures by initiative.

F. Infrastructure Replacement Acceleration and How DLC's LTIIP 2 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 LTIIP 2, DLC will maintain its accelerated level of expenditures for making needed improvements and repairs on its system from 2023 through 2028, as shown in Appendices 1, 2, and 3.

DLC's LTIIP 1 demonstrated an acceleration of investment in distribution infrastructure and LTIIP 2 will maintain an accelerated investment in the distribution system. LTIIP 1

investment in DSIC eligible assets is forecasted to be approximately $1.029 billion for the years 2017 through 2022. The LTIIP 2 forecasted spending on DSIC eligible assets is approximately $1.094 billion for the years 2023 through 2028. Prior to LTIIP 1, DLC's six-year investment in DSIC eligible assets was approximately $505 million for the years 2011 through 2016.

The replacement of aged infrastructure in LTIIP 2 will ensure and maintain adequate, efficient, safe, reliable, and reasonable electric distribution service to DLC's customers.

DLC's LTIIP 2 includes initiatives that will continue to maintain and improve reliability while also providing increased resiliency and replace aged equipment. The 4kV Substation Elimination and 4kV Stepdown Conversion initiatives will continue to eliminate aged infrastructure and increase overhead distribution devices to aid in isolating outages and restoring customers. The project to Establish Watson Substation will provide enhanced resiliency to customers in downtown Pittsburgh by diversifying the supply to DLC's downtown area network. The likelihood of equipment and cable failures should be reduced through implementation of several initiatives including the East End Substation Rehabilitation Project and the Unit Substation Rehabilitation, Cable Replacement, URD Rehabilitation, and Circuit Rehabilitation initiatives.

Appendix 5 illustrates the historical DSIC eligible expenditures from 2017 through 2022 and the estimated DSIC eligible expenditures for the LTIIP from 2023 through 2028. Duquesne Light is continuing to maintain the acceleration of DSIC eligible spending established in the first LTIIP period.

G. Workforce Management and Training Program

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.

1. 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 allow students to work in the field as an internship. 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 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 Lineworker, Senior Operator, Underground Splicer, Switching Dispatcher or Electrical Equipment Technician positions and apprenticeships.

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 practical and theoretical aspects of a highly skilled occupation. The apprentice program lasts typically 5 years where the employee progresses through a continuous rotation of hands-on field assignments and classroom instruction held at Duquesne Light's state-of-the-art Training Center.

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.

2. Procurement Philosophy and Practice

a) Philosophy

DLC utilizes the competitive bidding process, Request for Proposal (RFP), to procure materials and/or services for all projects. DLC uses a web-based sourcing platform to manage the RFP process efficiently and objectively by having a Procurement single point of contact manage the bid event and all communications with the bidders.

DLC employs a total scorecard when evaluating bid submittals to ensure an objective rating is generated for each bidder. The technical team comprised of Subject Matter Experts (SME) from Project Management, Engineering, and Asset Management issue ratings based on pre-established technical criteria. Procurement issues the ratings as related to the commercial criteria—pricing, terms and conditions, and supplier diversity. Procurement ensures that all suppliers have an agreed upon Master Service Agreement or terms and conditions on file, which also captures insurance compliance. Procurement issues the safety scores for medium-high risk services as based on grades generated by a third-party safety management partner.

DLC standardizes the collection of a wide range of bid data from bidders based on a detailed work breakdown structure for each project. Pricing is itemized per scope task and each task breaks down the costs into materials, equipment, and labor. Man-hours per task are also collected.

b) Practice

To mitigate inherent supply chain risks, DLC leverages the competitive bid process to create long-term strategic blanket contracts with contractual mechanisms to manage costs and risks effectively. Procurement, in collaboration with business unit stakeholders, manages strategic long-term contracts through a Supplier Relationship Management program, whereby supplier

scorecards are utilized as well as regular supplier governance meetings to manage supplier performance. This ensures all stakeholders are aligned in executing all project work safely, on time, and on budget.

3. Supplier Qualifications

Suppliers that are new to DLC's system are interviewed by Procurement and relevant business unit stakeholders like Project Management, Engineering, Planning, and Asset Management prior to being included on an RFP event.

Suppliers must maintain all professional qualifications, licenses, permits, certifications, skills, and must successfully complete all training required by applicable laws or that are otherwise deemed necessary to perform their assigned work. Suppliers must obtain, verify, and maintain evidence of the identity and employment eligibility under applicable federal and state laws of all contractor and subcontractor personnel performing work at the Company's job site.

Suppliers also must complete any necessary DLC-specific requirements for the specific tasks they are called upon to perform, such as substation awareness and energy control procedures. DLC's Construction Management group maintains a site providing suppliers access to DLC's Engineering Practices, Environmental Alerts, Field Bulletins, Technical Bulletins, Safety Messages, and Construction Specifications. DLC's Construction Management group provides an initial orientation to suppliers before they start work on a specific project. DLC's Construction Management reviews the characteristics and conditions related to the safety of the work to be performed and shares known information about the design and operation of such conditions of lines and equipment.

Duquesne Light Company (DLC) implemented a company-wide supplier diversity policy in 2018. In 2020, the company hired its first supplier diversity program manager responsible for forging connections with qualified, local diverse suppliers who can create value and meet our requirements of safety, affordability, reliability, excellent service, and sustainability. Since the program's inception, the company has obtained six corporate memberships with local and regional supplier development councils and chambers of commerce. These active partnerships have increased DLC's external engagement within the diverse supplier community as well as our spend and the number of diverse suppliers within our supply chain. Total diverse spend for goods and

services has increased year-over-year from 3.2% in 2019 to over 10% in 2021 due to DLC's efforts to include diverse suppliers both directly during the competitive bid process and indirectly as a tier II supplier. The majority of diverse spend is with suppliers who provide professional and shared services, such as consulting and contingent labor, information technology, and facility and construction services. Duquesne Light recognizes the following diverse supplier classifications:

- Disability-Owned Business Enterprise (DOBE)
- Historically Underutilized Business Zone (HUBZone)
- Lesbian, Gay, Bisexual, Transgender Business Enterprise (LGBTBE)
- Minority Business Enterprise (MBE)
- Service-Disabled Veteran Business Enterprise (SDVBE)
- Small Disadvantaged Business (SDB)
- Veteran Business Enterprise (VBE)
- Women Business Enterprise (WBE)

4. Project Management Office

DLC has a Project Management Office ("PMO") that provides the following functions for managing projects and initiatives that are assigned to the PMO.

- Project Management – Project Managers manage in accordance with industry best practices, focus includes budget, schedule, quality, and contractor safety.
- Financial Management – Project finances are managed through all phases of the lifecycle, including budgeting, actuals tracking, estimates to complete, invoicing, and filing support. Financial management is augmented with DLC's Project Controls group, with project specialists and project planners who support project management functions including scheduling, financial forecasting, and schedule and performance cost analysis.
- Construction Management – Oversee construction activities to ensure all work is completed safely and accurately, to applicable standards and specifications.
- Supply Chain Management – Partner with the Procurement and Supply Chain team to execute necessary material and services procurements.

- Engineering Management – Partner with Engineering to ensure engineering support and oversight to all aspects of the engineering phase of projects managed by the PMO.

H. 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. For underground work Duquesne Light follows the PA Act 50 One-Call laws, submitting design one calls to notify other underground facility owners in the area of planned work and to exchange information identifying facilities in the area of the project during design, prior to construction. DLC also uses the National Joint Utilities Notification System ("NJUNS") to coordinate with third-party attachers.

DLC actively coordinates its projects with other entities' nearby projects. For example, DLC's Forbes and Fifth Avenue ductbank replacement project that is included in the Cable Replacement initiative, and the Port Authority of Allegheny County's Bus Rapid Transit Project includes frequent communication and coordination among stakeholders. DLC and its contractor have been engaged with the Port Authority and their contractor, in addition to the City of Pittsburgh Department of Mobility and Infrastructure, Peoples Gas, Pittsburgh Water and Sewer Authority, and Verizon. Recently, DLC hosts bi-weekly update phone calls among all involved stakeholders and weekly on-site meetings focused on traffic management and crew coordination along the Forbes and 5th Avenue corridor through Uptown.

DLC also communicates with customers in the construction areas frequently, beginning with presenting to the Uptown Task Force and Uptown Partners (local community groups) in March 2021 and continuing through a weekly phone call hosted by Duquesne University and ongoing coordination with customers as the construction work progresses into different city blocks. DLC plans to maintain ongoing touchpoints with local stakeholders and community members through the conclusion of the project in early 2024.

Other examples of DLC's coordination with other parties include:

- DLC has coordinated with Allegheny County on a number of bridge rehabilitations in downtown Pittsburgh over the past few years, including the 6th, 7th, and 9th Street Bridges. DLC collaborated with the Allegheny County Department of Public Works during the planning and engineering phases of the projects.

- DLC on average replaced approximately 1,700 poles annually over the past four years. DLC has partnered with numerous municipalities within Allegheny and Beaver Counties to obtain prior authorization to replace groups of poles within these municipalities by proactively communicating planned levels of work and submitting groups of permit requests to each municipality to ease the administrative burden on both DLC and the municipality.

- The Pennsylvania Turnpike Commission (PTC) is constructing a new highway extension starting in Jefferson Hills and heading northeast to Monroeville. The PTC has requested that DLC relocate electrical infrastructure and facilities in the design path. DLC has coordinated the relocation of numerous transmission and distribution lines due to this project.

III. Conclusion

DLC has developed a cost-effective, flexible LTIIP 2 that is capable of being executed efficiently. The Company's LTIIP 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's programs and associated 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 LTIIP is adequate and sufficient to ensure and maintain adequate, efficient, safe, reliable, and reasonable service.

Appendix 1

Estimated Spending and Quantity of Property Addressed

	Unit of Measure	Start Year	End Year	Estimated Units Addressed			Estimated Spending ($MM)	LTIIP 1 Units (Note 1)	LTIIP 1 Spending ($ MM)
Overhead Program									
4kV Substation Elimination	Circuit Miles	2024	2028	34	-	43	$ 62.9	14	$ 81.8
4kV Stepdown Conversion	Circuit Miles	2023	2028	12	-	15	22.6	14	17.1
Circuit Rehabilitation	Circuit Miles	2023	2028	107	-	160	17.0	-	-
Overhead Devices	Work Orders	2023	2028	89	-	134	12.7	212	21.5
Deteriorated Pole Replacements	Poles Addressed	2023	2028	9,273	-	13,910	133.1	10,383	136.7
Overhead Line Repairs	Work Orders and Tasks	2023	2028	486	-	594	7.8	519	6.4
Overhead Repairs and Restoration	Work Orders	2023	2028	20,160	-	30,240	136.4	29,698	126.1
Other Overhead Work							121.5		157.8
Total Overhead Program							$ 513.9		$ 547.3
Substations Program									
East End Substation Rehabilitation	Project	2023	2027	1	-	1	$ 80.9	-	$ 1.5
Establish Watson Substation	Project	2023	2025	1	-	1	131.9	-	24.5
Unit Substation Rehabilitation	Substations	2023	2028	4	-	6	6.6	18	20.3
Substation Upgrades	Work Orders	2023	2028	390	-	585	49.1	527	49.2
Breaker and Switch Replacements	Work Orders	2023	2028	24	-	36	8.7	136	33.7
Other Substations Work							28.1		55.2
Total Substations Program							$ 305.3		$ 184.5
Underground Program									
Cable Replacement	Circuit Miles	2023	2028	23	-	34	$ 45.9	40	$ 96.7
URD Rehabilitation	Transformers	2023	2028	432	-	567	23.7	879	30.5
Underground Infrastructure Rehabilitation	Work Orders	2023	2028	196	-	294	21.9	276	13.1
Network Transformer Replacements	Transformers	2023	2028	48	-	63	8.6	141	18.6
Underground Repairs and Restoration	Work Orders	2023	2028	1,440	-	2,160	61.6	2,259	61.9
Other Underground Work							32.1		1.7
Total Underground Program							$ 193.8		$ 222.5
System Reliability Program									
System Reliability	Work Orders	2023	2028	245	-	368	$ 57.8	244	$ 40.9
Highway Relocation Program									
Unreimbursed Highway Relocations	Work Orders	2023	2028	141	-	212	$ 23.7	105	$ 33.6
						TOTAL	$ 1,094.5		$ 1,028.8

Note 1 - For LTIIP 1, units for 4kV Substation Elimination and 4kV Stepdown Conversion were "Circuits Converted" and units for Breaker and Switch Replacements were "Breakers."

DLC has developed estimates of quantities of replacements, improvements, and rehabilitations as well as estimates of expenditures for the work to be performed under LTIIP 2. 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 LTIIP 2 estimates and its projections for the next year.

Appendix 2

Estimated Annual Spending Plan

(Values in $ Millions)	2023	2024	2025	2026	2027	2028	Total
Overhead Program							
4kV Substation Elimination	-	0.5	15.6	28.9	15.1	2.8	62.9
4kV Stepdown Conversion	2.7	1.9	5.6	3.1	5.6	3.8	22.6
Circuit Rehabilitation	0.7	4.1	3.6	4.5	3.6	0.4	17.0
Overhead Devices	5.7	1.4	1.3	1.4	1.4	1.5	12.7
Deteriorated Pole Replacements	21.7	23.8	23.7	20.4	20.9	22.6	133.1
Overhead Line Repairs	1.2	1.2	1.3	1.3	1.3	1.4	7.8
Overhead Repairs and Restoration	20.5	21.1	21.6	23.4	23.9	25.9	136.4
Other Overhead Work	15.0	10.7	11.9	9.4	9.6	64.9	121.5
Total Overhead Program	67.4	64.7	84.6	92.3	81.4	123.4	513.9
Substations Program							
East End Substation Rehabilitation	2.1	16.2	28.6	25.6	8.5	-	80.9
Establish Watson Substation	45.4	64.8	21.5	0.1	-	-	131.9
Unit Substation Rehabilitation	1.0	1.0	1.1	1.1	1.2	1.2	6.6
Substation Upgrades	10.8	9.7	7.2	7.0	7.1	7.4	49.1
Breaker and Switch Replacements	1.4	1.4	1.4	1.4	1.4	1.5	8.7
Other Substations Work	0.8	-	0.4	3.0	5.5	18.3	28.1
Total Substations Program	61.5	93.2	60.2	38.3	23.6	28.4	305.3
Underground Program							
Cable Replacement	12.8	9.3	6.7	8.4	4.2	4.6	45.9
URD Rehabilitation	1.6	3.2	4.2	4.4	5.4	4.9	23.7
Underground Infrastructure Rehabilitation	4.9	5.2	2.9	3.4	2.7	2.9	21.9
Network Transformer Replacements	1.3	1.4	1.4	1.5	1.5	1.5	8.6
Underground Repairs and Restoration	9.6	9.8	10.0	10.3	10.5	11.4	61.6
Other Underground Work	6.4	1.4	4.5	3.7	4.1	11.9	32.1
Total Underground Program	36.6	30.3	29.7	31.6	28.4	37.2	193.8
System Reliability Program							
System Reliability	10.8	15.5	6.8	7.9	8.1	8.8	57.8
Highway Relocation Program							
Unreimbursed Highway Relocations	10.5	2.2	3.5	2.4	2.4	2.6	23.7
TOTAL	186.9	205.9	184.9	172.5	143.9	200.4	1,094.5

Appendix 3

Estimated Annual Units of Work

	Units of Work	2023	2024	2025	2026	2027	2028	Total
Overhead Program								
4kV Substation Elimination	Circuit Miles	-	-	-	7	36	-	43
4kV Stepdown Conversion	Circuit Miles	2	1	4	2	4	2	15
Circuit Rehabilitation	Circuit Miles	7	39	33	40	31	3	153
Overhead Devices	Work Orders	52	12	12	12	12	12	112
Deteriorated Pole Replacements	Poles Addressed	2,070	2,070	1,863	1,863	1,863	1,863	11,592
Overhead Line Repairs	Work Orders and Tasks	90	90	90	90	90	90	540
Overhead Repairs and Restoration	Work Orders	4,200	4,200	4,200	4,200	4,200	4,200	25,200
Substations Program								
East End Substation Rehabilitation	Project	-	-	-	-	1	-	1
Establish Watson Substation	Project	-	-	1	-	-	-	1
Unit Substation Rehabilitation	Substations	1	1	1	1	1	1	6
Substation Upgrades	Work Orders	97	83	80	76	76	76	488
Breaker and Switch Replacements	Work Orders	5	5	5	5	5	5	30
Underground Program								
Cable Replacement	Circuit Miles	10	3	9	6	-	6	34
URD Rehabilitation	Transformers	40	80	100	100	120	100	540
Underground Infrastructure Rehabilitation	Work Orders	40	45	40	40	40	40	245
Network Transformer Replacements	Transformers	10	10	10	10	10	10	60
Underground Repairs and Restoration	Work Orders	300	300	300	300	300	300	1,800
System Reliability Program								
System Reliability	Work Orders	76	45	43	48	48	47	307
Highway Relocation Program								
Unreimbursed Highway Relocations	Work Orders	65	38	38	12	12	12	177

Appendix 4
DSIC Eligible Expenditures

(Values in $ Millions)	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2011-2016	Average '11-'16
Overhead Program	$ 52	$ 40	$ 48	$ 35	$ 35	$ 32	$ 242	$ 40
Substations Program	$ 19	$ 10	$ 12	$ 10	$ 5	$ 11	$ 68	$ 11
Underground Program	$ 24	$ 15	$ 29	$ 20	$ 17	$ 21	$ 126	$ 21
System Reliability Program	$ 12	$ 6	$ 10	$ 3	$ 2	$ 0	$ 34	$ 6
Highway Relocation Program	$ 1	$ 2	$ 13	$ 11	$ 6	$ 1	$ 35	$ 6
TOTAL	$ 108	$ 72	$ 112	$ 80	$ 66	$ 67	$ 505	$ 84

(Values in $ Millions)	2017 Actual	2018 Actual	2019 Actual	2020 Actual	2021 Actual	2022 Forecast	2017-2022	Average '17-'22
Overhead Program	$ 65	$ 106	$ 106	$ 101	$ 100	$ 70	$ 547	$ 91
Substations Program	$ 18	$ 30	$ 31	$ 33	$ 39	$ 33	$ 184	$ 31
Underground Program	$ 31	$ 29	$ 31	$ 26	$ 46	$ 60	$ 222	$ 37
System Reliability Program	$ 4	$ 4	$ 2	$ 5	$ 7	$ 19	$ 41	$ 7
Highway Relocation Program	$ 1	$ 3	$ 3	$ 3	$ 5	$ 19	$ 34	$ 6
TOTAL	$ 118	$ 172	$ 173	$ 168	$ 197	$ 201	$ 1,029	$ 171

(Values in $ Millions)	2023 Forecast	2024 Forecast	2025 Forecast	2026 Forecast	2027 Forecast	2028 Forecast	2023-2028	Average '23- '28
Overhead Program	$ 67	$ 65	$ 85	$ 92	$ 81	$ 123	$ 514	$ 86
Substations Program	$ 62	$ 93	$ 60	$ 38	$ 24	$ 28	$ 305	$ 51
Underground Program	$ 37	$ 30	$ 30	$ 32	$ 28	$ 37	$ 194	$ 32
System Reliability Program	$ 11	$ 16	$ 7	$ 8	$ 8	$ 9	$ 58	$ 10
Highway Relocation Program	$ 11	$ 2	$ 4	$ 2	$ 2	$ 3	$ 24	$ 4
TOTAL	$ 187	$ 206	$ 185	$ 173	$ 144	$ 200	$ 1,094	$ 182

Appendix 5

DSIC Eligible Investment