Duquesne Light
Our Energy…Your Power

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FILED ELECTRONICALLY

April 28, 2016

Ms. Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
P. O. Box 3265
Harrisburg, PA 17120

Re: **Duquesne Light Company 2015 Annual Electric Reliability Report**
Docket No. M-2016-2522508

Dear Secretary Chiavetta:

Please find enclosed for filing Duquesne Light Company's 2015 Annual Electric Reliability Report.

If you have any questions regarding the information contained in this filing, please contact the undersigned or Audrey Waldock at 412-393-6334 or awaldock@duqlight.com.

Sincerely,

Shelby A. Linton-Keddie
Manager, State Regulatory Affairs
And Senior Legal Counsel

Enclosure
c (w/ enc):
Bureau of Technical Utility Services (dgill@pa.gov, dsearfoorc@pa.gov, dawashko@pa.gov)
Office of Consumer Advocate (TMcCloskey@paoca.org)
Office of Small Business Advocate (jorevan@pa.gov, swebb@pa.gov)

Duquesne Light
Our Energy…Your Power

2015 Annual Electric Reliability Report

to the

Pennsylvania Public Utility Commission

Duquesne Light Company
411 Seventh Avenue
Pittsburgh, PA 15219

April 28, 2016

DUQUESNE LIGHT COMPANY
ANNUAL ELECTRIC RELIABILITY REPORT

Filed April 28, 2016

52 Pa Code §57.195 Reporting Requirements

(a)(2) The name, title, telephone number and e-mail address of the persons who have knowledge of the matters, and can respond to inquiries.

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(b)(1) An overall current assessment of the state of the system reliability in the electric distribution company's service territory including a discussion of the electric distribution company's current programs and procedures for providing reliable electric service.

Duquesne Light Company's ("Duquesne Light" or "the Company") service territory covers approximately 817 square miles, with a well-developed distribution system throughout. Electric service reliability remains very consistent across the service territory. The combination of an effective outage restoration process and significant distribution automation allows the Company to quickly restore power to large numbers of customers in outage situations.

Achieving outstanding performance in system reliability continues to be one of Duquesne Light's most important long-term objectives. The Asset Management Group performs ongoing analysis of reliability indices, root cause analysis of outages, and tracking and monitoring of other performance measures. This is a long-term process to optimize reliability and to identify improvement opportunities. This includes making recommendations for capital projects such as circuit rehabilitation, new substations and distribution circuits. It also includes implementation of new advanced protection and coordination schemes on the distribution system that better localize customer outages and reduce momentary operations.

Duquesne Light continues its Emergent Work Process, which is used to identify problems, set priorities, and resolve reliability issues as quickly as possible. Each day, field personnel perform field inspections and any abnormalities are logged into a database. This database is reviewed regularly by the Emergent Work Team and any high priority problems are identified and a course of action is determined. Analysis at the device level is used to identify small areas where customers have experienced multiple outages. System level and even circuit level indices may mask these isolated

problems. This is the short-term process for real-time analysis and reliability improvement.

Scheduled preventative and predictive maintenance activities continue to reduce the potential for future service interruptions. Corrective maintenance is prioritized with the objective to reduce backlog in the most cost-efficient manner.

Several capital budget projects target distribution reliability improvements, including pole replacement, substation rehabilitation, circuit load relief and voltage improvement, URD rehabilitation, circuit rearrangement and installation of additional automated remotely controlled pole top devices.

Specific programs, procedures and ongoing maintenance activities that support Duquesne Light's commitment to service reliability include:

- An Infrared Inspection Program that systemically identifies circuit problems for remedial action in advance of failure.

- A Rights-of-Way Vegetation Management Maintenance Program with the goal of reducing tree and branch failures through proactive pruning and removal to manage proper clearances. Duquesne Light believes that this program will help to shorten the duration of outages by addressing targeted tree failure conditions that typically result in physical damage to our facilities.

- An all pulse-reclosing protection technology has been implemented on some 23kV circuits. This technology eliminates traditional "hard reclosing", thereby making it easier and faster to conduct repairs and restore circuits to normal operation, enabling customers to be restored more quickly. This technology also reduces stress and damage on the entire circuit since the breaker is no longer required to trip, also contributing to the reduction in momentary outages to customers.

- Line maintenance work of various types is regularly performed in order to maintain distribution plant. This work includes replacement of cross arms, arrestors, insulators, and other equipment on the overhead system as well as inspections and remedial work on the underground system.

- Storm Preparedness Training is conducted each year and Storm Review Meetings are held following major events. These meetings focus on the successes and failures of the most recent emergency service restoration effort. Service restoration process improvements are made as needed to improve response time and effectiveness during the next restoration effort.

(b)(2) A description of each major event that occurred during the year being reported on, including the time and duration of the event, the number of customers affected, the cause of the event and any modified procedures adopted in order to avoid or minimize the impact of similar events in the future.

No major events occurred during 2015.

(b)(3) A table showing the actual values of each of the reliability indices (SAIFI, CAIDI, SAIDI, and if available, MAIFI) for the electric distribution company's service territory for each of the preceding 3 calendar years. The report shall include the data used in calculating the indices, namely the average number of customers served, the number of sustained customer minutes interruptions, the number of customers affected, and the minutes of interruption. If MAIFI values are provided, the number of customer momentary interruptions shall also be reported.

RELIABILITY BENCHMARKS AND STANDARDS
Duquesne Light Company
System Performance Measures with Major Events Excluded**

	SAIDI	SAIFI	CAIDI	MAIFI
2013	75	0.62	121	*
2014	63	0.62	102	*
2015	71	0.75	95	*
3 Year Average	70	0.66	106	
Benchmark	126	1.17	108	*

* Sufficient information to calculate MAIFI is unavailable.

Formulas Used in Calculating the Indices

$$\text{SAIFI} = \frac{\text{(Total KVA interrupted) - (KVA impact of major events)}}{\text{System Connected KVA}}$$

$$\text{SAIDI} = \frac{\text{(Total KVA-minutes interrupted) - (KVA-minute impact of major events)}}{\text{System Connected KVA}}$$

CAIDI = SAIDI/SAIFI

Data used in calculating the indices

2015

Total KVA Interrupted for the Period	5,417,502	KVA
Total KVA-Minutes Interrupted	513,565,543	KVA Minutes
System Connected Load as of 12/31/15:	7,203,346	KVA

2014

Total KVA Interrupted for the Period	4,435,147	KVA
Total KVA-Minutes Interrupted	450,494,020	KVA Minutes
System Connected Load as of 12/31/14:	7,186,118	KVA

2013

Total KVA Interrupted for the Period (Excluding July 10, 2013 Major Event)	4,432,987	KVA
Total KVA-Minutes Interrupted (Excluding July 10, 2013 Major Event)	536,328,687	KVA-Minutes
System Connected Load as of 12/31/13:	7,195,761	KVA
July 10, 2013 Major Event	724,661	KVA
	(10% of System Load)	
	178,805,024	KVA-Minutes

(b)(4) A breakdown and analysis of outage causes during the year being reported on, including the number and percentage of service outages and customer interruption minutes categorized by outage cause such as equipment failure, animal contact, tree related, and so forth. Proposed solutions to identified service problems shall be reported.

January 1, 2015 through December 31, 2015 – No PUC Major Event Exclusions

CAUSE	NO. OF OUTAGES	OUTAGE PERCENTAGE	KVA TOTAL	KVA PERCENTAGE	KVA-MINUTE TOTAL	KVA-MINUTE PERCENTAGE
Storms	292	11%	639,070	12%	82,170,007	16%
Trees (Contact)	59	2%	97,716	2%	8,129,718	2%
Trees (Falling)	699	25%	1,200,006	22%	162,348,224	32%
Equipment Failures	839	30%	1,817,101	34%	159,304,030	31%
Overloads	141	5%	242,213	4%	12,768,158	2%
Vehicles	140	5%	356,668	6%	33,038,798	6%
Other	614	22%	1,064,728	20%	55,806,608	11%
TOTALS	2,784	100%	5,417,502	100%	513,565,543	100%

(b)(5) A list of remedial efforts taken to date and planned for circuits that have been on the worst performing 5% of circuits list for a year or more.

Duquesne Light has 3 circuits that have been on the worst performing 5% of circuits list for four consecutive quarters. All of these circuits have received remedial action that is expected to improve their reliability in 2016. The Company will continue to monitor these circuits closely during 2016 to verify that the remedial actions taken have been successful and that reliability has improved. Many of the circuits have already shown improvement as indicated in the following detailed descriptions and have not seen a repeat outage for one or more quarters. Duquesne uses a sophisticated automated protection system on its 23kV circuits which utilize numerous 3-phase IntelliRupters, sectionalizers and reclosers on the main feeders and as ties to adjacent circuits. This automation technology with remote control generally allows circuit problems to be isolated and rerouted in less than 5 minutes. Only a small portion of the customers on a worst performing circuit generally experience reliability issues.

Rank	Circuit	Name	Device	Remedial Actions Planned or Taken
1	4478	Hiawatha	Breaker	Six total outages: • Five outages were due to a loss of supply; a cable failure, a tree fall-in, emergency safety steps, an unplanned operational outage and an unknown outage. • One was due to cable failure. Remedial Actions: • The Company has installed an IntelliRupter on the overhead conductor side of the sub-transmission circuit feeding Hiawatha Substation to provide Auto Fault-Clearing functionality. This will lessen the impact of tree problems in this heavily wooded section of the circuit by automatically clearing tree faults and rerouting power to customers from the other side of the SS. The installation of the new IntelliRupter was completed at the end of the third quarterly of 2015. • The company will continue to monitor this circuit for reliability issues.

Rank	Circuit	Name	Device	Remedial Actions Planned or Taken
2	23710	Pine Creek	R140 & WA913	Four total outages on each device: • R140 - Two outages were due to tree fall-ins. • R140 - Two outages were due to a storm. • WA913 - Four outages due to trees Remedial Actions: • Trees were mitigated during outage restoration. • The Company will continue to monitor this circuit for reliability issues.
3	23770	Traverse Run	WR505	Three total outages: • Two outages were due to insulator failure. • One outage was due to a transformer failure and an insulator failure. Remedial Actions: • Permanent repairs were made following each outage. • The Company will continue to monitor this circuit for reliability issues.

(b)(6) A comparison of established transmission and distribution inspection and maintenance goals/objectives versus actual results achieved during the year being reported on. Explanations of any variances shall be included.

2015 Transmission and Distribution Goals and Objectives

Program Project	**Unit of Measurement**	**Target for 2015**	**YTD Actuals for 2015**	**Percent Complete**
Communications Goals				
Communication Battery Maintenance	Batteries	96	96	100%
Overhead Distribution Goals				
Recloser Inspections	Circuits	130	130	100%
Pole Inspections	Poles	17,945	18,150	101%
OH Line Inspections	Circuits	130	130	100%
OH Transformer Inspections	Circuits	130	130	100%
Padmount & Below Grade Insp	Circuits	81	81	100%
Overhead Transmission Goals				
Helicopter Inspections	Number of Structures	500	500	100%
Ground Inspections	Number of Structures	350	358	102%
Substations Goals				
Circuit Breaker Maintenance	Breakers	725	806	111%
Station Transformer Maintenance	Transformers	67	97	145%
Station Battery Maintenance	Batteries	968	970	100%
Station Relay Maintenance	Relays	615	876	142%
Station Inspections	Sites*	2,067	2,056	99%
Underground Distribution Goals				
Manhole Inspections	Manholes	700	811	116%
Major Network Insp (Prot Relay)	Ntwk Protectors	92	92	100%
Minor Network Visual Inspection (Transformer/Protector/Vault)	Ntwk Transformers	573	573	100%
Underground Transmission Goals				
Pressurization and Cathodic Protection Plant Inspection	Work Packages	52	59	113%
Vegetation Management Goals				
Overhead Line Clearance	Circuit Overhead Miles	1,300	1,308	101%

*Duquesne Light's goal for Substation Inspections was 2,067 inspections. The Company removed three stations in 2015 as follows: Morningside in May (7 inspections) and Allison Park in August (4 inspections). Consequently, the actual Substation Inspections goal for 2015 to be performed were reduced to 2,056.

(b)(7) A comparison of budgeted versus actual transmission and distribution operation and maintenance expenses for the year being reported on. Explanations of any variances shall be included.

Budget Variance Recap – O&M Expenses
For the Twelve Months Ending December 31, 2015
Favorable/(Unfavorable)

	Total Actual	Total Budget	Variance
Customer Care	56,633,138	52,303,055	(4,330,082)
Human Resources	15,562,339	15,050,967	(511,372)
Operations/Operation Services	66,864,785	71,346,012	4,481,227
Technology	54,612,785	45,163,838	(9,448,946)
General Corporate*	50,751,977	50,094,723	(657,254)
Total	244,425,023	233,958,595	(10,466,428)

* Includes Finance, Office of General Counsel and Senior Management Costs

The O&M expense overspend for the twelve months ended December 31, 2015 is attributable to increases in bad debt expense (Customer Care), hardware and software maintenance agreements (Technology) and all costs related to the newly formed project management office (Technology) in comparison to the budget. The aforementioned overspend was offset by favorability in Operations/Operation Services due to vacancies and professional service costs.

(b)(8) A comparison of budgeted versus actual transmission and distribution capital expenditures for the year being reported on. Explanations of any variances shall be included.

Budget Variance Recap – Capital
For the Twelve Months Ending December 31, 2015
Favorable/(Unfavorable)

	Total Actual	Total Budget	Variance
Customer Care	3,003,486	3,540,919	537,433
Human Resources	10,630,116	12,994,568	2,364,452
Operations/Operation Services	127,513,348	170,686,481	43,173,133
Technology	99,890,928	68,812,160	(31,078,768)
General Corporate*	31,296,573	30,309,834	(986,739)
Total	272,334,451	286,343,962	14,009,511

* Includes Finance, Office of General Counsel and Senior Management Costs

The capital underspend for the twelve months ended December 31, 2015 is attributable to lower storm restoration spending than budgeted and the timing of various projects. Significant material delays for a major capital project are the single largest driver to the capital underspend in Operations/Operation Services. This is offset by overspend in Technology related to CCI, Smart Meter and timing of other various projects.

(b)(9) Quantified transmission and distribution inspection and maintenance goals/objectives for the current calendar year detailed by system area (i.e., transmission, substation, and distribution).

2016 Transmission and Distribution Goals and Objectives

Program Project	**Unit of Measurement**	**Target for Year 2016**
Communications Goals		
Communication Battery Maintenance	Batteries	96
Overhead Distribution Goals		
Recloser Inspections	Circuits	130
Pole Inspections	Poles	17,945
OH Line Inspections	Circuits	130
OH Transformer Inspections	Circuits	130
Padmount & Below Grade Insp	Circuits	80
Overhead Transmission Goals		
Helicopter Inspections	Number of Structures	500
Ground Inspections	Number of Structures	367
Substations Goals		
Circuit Breaker Maintenance	Breakers	585
Station Transformer Maintenance	Transformers	84
Station Battery Maintenance	Batteries	940
Station Relay Maintenance	Relays	2,081
Station Inspections	Sites	2,040
Underground Distribution Goals		
Manhole Inspections	Manholes	700
Major Network Insp (Prot Relay)	Network Protectors	92
Minor Network Visual Inspection (Transformer/Protector/Vault)	Network Transformers	573
Underground Transmission Goals		
Pressurization and Cathodic Protection Plant Inspection	Work Packages	52
Vegetation Management Goals		
Overhead Line Clearance	Circuit Overhead Miles	1,300

(b)(10) Budgeted transmission and distribution operation and maintenance expenses for the current year in total and detailed by FERC account.

	Total Budget
Customer Care	$51,839,566
Human Resources	16,793,022
Operations/ Operation Services	70,938,773
Technology	60,027,967
General Corporate*	$41,940,525
Total	**$241,539,853**

*Includes Finance, Supply Chain, Office of General Counsel and Senior Management Costs

(b)(11) Budgeted transmission and distribution capital expenditures for the current year in total and detailed by FERC account.

	Total Budget
Customer Care	$2,865,991
Human Resources	11,669,755
Operations/ Operation Services	145,231,034
Technology	70,571,452
General Corporate*	$20,107,287
Total	**$250,445,519**

*Includes Finance, Supply Chain, Office of General Counsel and Senior Management Costs

(b)(12) Significant changes, if any, to the transmission and distribution inspection and maintenance programs previously submitted to the Commission.

Duquesne Light has not made any significant changes to its transmission and distribution inspection and maintenance programs.