Duquesne Light
Our Energy...Your Power

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May 28, 2015

Mr. David Washko
Pennsylvania Public Utility Commission
P.O. Box 3265
Pittsburgh, Pa., 17105-3265

RE: Summer Readiness Overview Report Request

Dear Mr. Washko,

In your email dated May 6, 2015 you had requested information related to each of the Electric Distribution Company's 2015 reliability and summer readiness efforts. Duquesne Light welcomes the opportunity to share information about its 2014 electric system reliablity efforts and performance as well as Duquesne Light's 2015 summer readiness efforts, as discussed in the attached document.

If you would like additional information on any of the items discussed, please do not hesitate to contact me.

Sincerely,

F. Michael Doran
Vice President, Operations

Duquesne Light

Our Energy...Your Power

The Pennsylvania Public Utility Commission's

2015 Summer Reliability Outlook

2014/2015 Storm Response

and

2015 Summer Readiness

Duquesne Light Company (Duquesne Light or Company) provides safe and reliable electric service to more than 588,000 customers in southwestern Pennsylvania, including the City of Pittsburgh.

Although Duquesne Light customers experience electric service relability that is among the best in Pennsylvania, severe weather and other emergency events occur, and service interruptions are unavoidable. When those interruptions occur, Duquesne Light relies on its comprehensive service restoration program to restore service safely and timely. Some of the more significant preparedness initiatives to ensure this high level of service reliability are detailed below.

A. Reliability Enhancement Programs

a. Enhanced Vegetation Management

Duquesne Light's Vegetation Management Department has rolled out a Rights-of-Way Vegetation Management Maintenance Program with the goal of reducing tree and branch failures through proactive pruning and removal to increase clearance distances for specific portions of Duquesne Light's main feeder distribution facilities.

b. Storm Hardening

Duquesne Light believes that the Enhanced Rights-of-Way Vegetation Management Maintenance Program will help to shorten the duration of outages by addressing targeted tree failure conditions that typically result in physical damage to the Company's distribution facilities.

c. Fuses/Reclosers

Duquesne Light's (178) 23kV distribution circuits utilize 1,040 automatic 3-phase sectionalizers and reclosers that divide each circuit into distinct load blocks of 250-600 customers each. These devices automatically isolate a downstream fault on the main feeder without causing outages to upstream customers. This minimizes the number of customers that are affected by each outage. In addition, normally open tie devices are utilized between circuit load blocks that provide an alternate feed to the customers in each load block.

Circuit laterals fed from the main feeder are generally protected by single-phase fuses that coordinate with the 3-phase feeder devices to protect the main feeder and limit outages to a very small number of customers.

As of May 2015, Duquesne Light has 74 circuits that utilize pulse-reclosing fault protection & coordination which tests a circuit for a fault condition without applying fault current. All pulse-reclosing has been implemented on 53 circuits and partial pulse-reclosing has been implemented on 21 circuits with sectionalizer/reclosers without pulse-reclosing capabilities. This reduces the damage that can occur on a circuit during a fault sequence compared to traditional fault reclosing and makes

circuit repair and restoration faster. In 2014, 40 circuits were upgraded to pulse-reclosing operation (including partial and all pulse-reclosing). Duquesne Light's 258 smaller 4kV circuits also utilize single-phase reclosers and fuses to limit outages to a relatively small number of customers.

d. Smart Grid

All of the 23kV sectionalizers and reclosers used on Duquesne Light's 23kV distribution system are continuously monitored over a wireless network to its centralized Distribution Operations Center (DOC). Circuit problems are immediately alarmed at the DOC where operators quickly take action to relieve overloads or to isolate faults and reroute power to customers on non-faulted load blocks. Generally, when an outage occurs, DOC operators have the actual fault isolated from the rest of the circuit and all downstream customers are restored within five minutes. This automation and remote monitoring also helps operators pinpoint the actual faulted load block so field crews can be directed to the failure location more quickly in order to begin repairs.

e. Conservation Voltage Reduction (CVR) Activity

Duquesne Light is not currently participating in Conservation Voltage Reduction (CVR) activities.

The standard configurations of the Company's automated 23kV and 4kV capacitors do provide many of the advantages of CVR with their localized controls. Duquesne Light configures intelligent capacitor controls to switch capacitors on or off depending on localized voltage levels. The use of voltage only configurations normally results in providing maximum var support without exceeding voltage standards. This maximum var support often supplies excess var flow back towards the station allowing the tap-changing transformers at the station to regulate to a lower step since the transformer, and eventually the transmission system, are not burdened with the need to provide additional var support to the distribution circuits.

f. Any Other Relevant Continual Improvement Activity

Fault current indicators (FCI), designed to be placed on three conductor paper insulated lead covered (PILC) cables or three one conductor cable (triplexed) with no interuption of cable shielding, will be tested on a select number of the downtown network circuits. Installation will enable the cable testers to quickly determine if fault is on the station or downtown side of circuits. If this test results in successful identification of cable faults, additional use of FCI will be considered to reduce underground cable outage times.

B. Preventative Maintenance Programs

a. Capacitor Inspections

i. All line capacitors are inspected both visually and with the use of infrared technology as part of our overhead line inspections every five years.

ii. 23kV capacitors are equipped with communication devices that report on the status and condition of devices to the Operations Center. Because the 23kV capacitors have this feature, Duquesne Light uses the automated self-reporting provided by each device to determine if issues exist on a real time basis.

b. Vegetation Management

Duquesne Light professionally manages a comprehensive Vegetation Management Program utilizing industry best management practices to provide safe and reliable distribution service. This extensive program is specifically defined for the management of vegetation on Duquesne Light's rights-of-way (ROW) for the dependable operation of its distribution (4kV, 23kV, and 23TkV) and transmission (69kV, 138kV, and 345kV) system and includes:

i. Select tree pruning and removal within the ROW.
ii. Hazard tree assessment and the removal of defective, dead, or diseased trees within or along the ROW.
iii. The selective mechanical and/or chemical control of incompatible tall-growing brush within the ROW. Specific methods for line clearance are chosen based on the type of work involved while achieving it in a professional, economical, and environmentally sound manner.

c. Substations Inspections

Duquesne Light inspects each distribution substation twelve times annually. The purpose of the substation inspection is to identify any emerging issues within the substation so that they can be corrected in a timely manner.

d. Aerial Patrols

i. Comprehensive visual inspections are performed on specified transmission structures (500 structures scheduled annually). These inspections occur at low speeds (15 to 20 mph) with the helicopter hovering at each structure. An Aerial Lineman stands on the skids of the helicopter (strapped to the helicopter) using a telephoto lens to identify hardware problems.
ii. Annual transmission vegetation patrols focus primarily on vegetation, but additionally report any conditions found on equipment or encroachments. These patrols concentrate on vegetation management issues and include personnel from Duquesne Light's Vegetation Management Department in the helicopter in addition to a contracted observer. These inspections normally occur at 25 to 35 mph and at a slightly higher elevation than the comprehensive visual inspections.

e. Infrared Inspections

Duquesne Light identifies approximately one fifth of its distribution circuits each year for inspection. A two person crew typically drives each circuit (walking the ROW portions) and records the information generated from an infrared camera. Upon returning to the office, any visual observations, the infrared pictures, and digital photos are noted and downloaded. A work order is created in the Company's Work and Asset Management (WAM) software to track and address any deficiency or repairs needed. Each deficiency is assigned a priority based on the condition and type of equipment identified. A report, including the pictures, a description of each deficiency item, and the work order are then sent to the Transmission & Distribution (T&D) field personnel to schedule repairs.

f. Any Other Relevant Continual Improvement Activity

C. Capacity Planning

Duquesne Light annually performs an individual company assessment of the Duquesne Light area bulk electric system for the upcoming summer period. The summer seasonal assessment of local facilities ensures that the system can supply projected customer demands and projected Firm Transmission Services in accordance with Duquesne Light's local reliability standards. The complete analysis addresses Duquesne Light's transmission performance for the 2015 summer forecasted peak load of 2969MW. Included in this assessment are firm transmission upgrades.

Duquesne Light also participates in the PJM Interconnection, LLC (PJM) Operations Assessment Task Force (OATF) summer study and the ReliabilityFirst Corporation (RF) summer seasonal assessment. The OATF and RF studies have been completed and Duquesne Light's internal analysis will conclude by June 15, 2015. Based on the OATF and RF results and the preliminary Duquesne Light results of the system conditions modeled in the assessment of the 2015 summer period, the Duquesne Light bulk electric system is expected to sufficiently support the projected peak load under normal operating conditions.

The Distribution Planning Group continues to review loading of distribution circuits and stations and then prepares an engineering scope of work and Business Case documents in an effort to address situations, such as load growth, that may impact reliability.

D. 2014/2015 Storm Update and Lessons Learned

As in years past, Duquesne Light continues its process to hold internal storm review meetings following all major outage events. These meetings bring representatives from each of the areas involved in the restoration effort together to openly discuss the successes and improvement opportunities of the most recent emergency service restoration effort. Following these storm review meetings, any identified service restoration process improvements are then implemented, as needed, to continually improve response time and restoration effectiveness.

E. 2015 Summer Readiness

a. Capacity Additions

Duquesne Light's capacity additions within the past year on the Distribution/Subtransmission System are as follows:

i. Installed a second 50MVA 138-23kV Transformer at Carson Substation along with a second 23kV Bus.
ii. Two (2) new subtransmission circuits were established out of Carson Substation, Carson – Sarah No. 1 circuit 22058 and Carson – Sarah No. 2 circuit 22059.
iii. New circuit Arsenal D23845 was cut in June 2014).
iv. New circuit Arsenal D23846 is scheduled to be cut in June 2015 to relieve Oakland D23742
v. Oakland D23744 was extended to relieve East End 4307.
vi. Elwyn D23804 was extended to relieve Overbrook 4574.
vii. Converted the entire 4kV load fed from the 6-167 kVA stepdown transformers on Montour – Neville No. 2 D22052, Map D6-11, Site 37 to 23kV.
viii. New circuit Carson D23962 is scheduled to be cut in by the end of June 2015.

Duquesne Light's Transmission Planning group, along with PJM, continues to evaluate Duquesne Light's transmission system to identify system enhancement projects. Recent transmission upgrade projects include the addition of 138kV and 345kV circuits in and around the City of Pittsburgh.

b. Transmission Preparedness

Duquesne Light participated in PJM's Summer Emergency Procedures Drill which is conducted to assess the readiness of sytem operations personnel during emergency conditions. The objectives of the drills are to ensure that the following occurs:

i. PJM personnel and member companies understand emergency procedures.
ii. Communication facilities are adequate between PJM and member companies.
iii. PJM and member company personnel demonstrated effectiveness of corporate/governmental affairs communications.
iv. PJM as a Regional Transmission Operator (RTO), Local Control Centers (LCCs), and Marketing Operations Centers (MOCs) provided adequate information to governmental agencies.

c. Event Preparedness

Duquesne Light utilizes a comprehensively written Storm Plan, which is updated at least annually. The purpose of the Storm Plan is to provide guidelines and procedures for managing response to large scale service interruption events that result from any cause. The Storm Plan continues to include an expanded Social

Media Plan as well as the roles and responsibilities to support the processes implemented this year related to the communication of restoration efforts provided to local municipalities and elected government officials. The 2015 Storm Plan was re-written to better align with FEMA's Incident Management System (IMS).

Starting in 2015, Duquesne Light will perform 4 tests of the Alternate Operations Center (AOC). These quarterly tests include two parts, a full functional test of the AOC systems and technology, and a test of the emergency staffing plan for all critical facilities, which would be implemented upon the loss of its Supervisory Control And Data Acquisition (SCADA) system.

Duquesne Light also maintains a subscription to AccuWeather, a premier weather forecasting service that provides customized forecasts twice a day, severe weather alerts, and 24/7 availability to an AccuWeather forecaster.

d. Training

Duquesne Light conducts Storm Preparedness Training each year for employees serving roles on the Storm Restoration Team. Duquesne Light's most recent Storm Training was conducted on Friday, May 8, 2015. During this exercise, the responsibilities of each storm role was reviewed and participants explained what they do during an event. Check lists were provided for members to use during real events and a question and answer session followed each storm role review.

e. Personnel Sufficient (any plans to hire in the next 6 months)

Duquesne Light established and staffed the Manager, Emergency Preparedness position in 2014. The responsibilities include updating the Company's Emergency Preparedness Plans, training employees on their emergency role, and representing the Company on Mutual Assistance Groups serving as the main point of contact for releasing or acquiring mutual assistance crews.

f. Any Other Relevant Continual Improvement Activity

F. Storm Response

a. Outage Restoration Strategy

When the extent of storm damage to the electrical system is severe and widespread throughout the Duquesne Light service area, restoration activities must be prioritized. In all situations, the safety of the public, as well as those working to restore service, is always the overriding and highest priority. Duquesne Light follows these restoration priorities, which are generally universal throughout the electrical utility industry.

i. Public Safety Hazards:
The Company's first priority is to quickly address public safety hazards, such as wires that are down across major highways, burning wires, or equipment or building fires. While downed power lines are being handled, company

personnel continue to assess the total damage to the electrical system's infrastructure and begin restoring service.

ii. Public Health and Safety Facilities (Critical Customers):
Repair work that restores power to essential facilities that provide emergency services is a high priority. This includes hospitals, police, fire and emergency facilities, water and sanitary authorities, nursing homes and assisted living facilities, etc.

iii. Major Circuits:
Duquesne Light continues rebuilding its system by next focusing on major circuits as it strives to restore power to the greatest number of customers as quickly as possible.

iv. Small Neighborhoods/Individual Homes:
Once major circuits have been repaired, restoration efforts focus on smaller neighborhoods and groups of customers served by a single transformer. Finally, service to individual homes and businesses are restored as crews repair "service drops," which are the wires that bring electricity from the nearest pole to an individual building.

b. Communication and Outreach

During major outages and storms, Duquesne Light utilizes a variety of methods to keep customers informed of outages and restoration efforts. These communication methods include regular updates to local media outlets, postings on the company's Twitter, Facebook, and corporate web page, text messages to customers, and updates to the local Emergency Management Agencies.

In addition to providing storm updates, Duquesne Light also uses its social media channels to share electrical safety messages, preparedness messages in advance of storms as well as to discuss Duquesne Light's community involvement. The Company plans to continue leveraging its use of social media to engage with its customers.

Duquesne Light also provides an outage map which is utilized as part of the company's Power Restoration Update Center (PRUC) website. The PRUC is activated when the company experiences a severe storm event.

Duquesne Light has established a process for communicating storm damage and restoration status information to elected officials. Duquesne Light's Storm Manager and Communications Officer will decide when to activate the Governmental Liaison role, which would then trigger Conference Calls facilitated by a 3rd party. Duquesne Light will conduct two calls; one to include federal and state elected officials, as well as state regulators; the second call will include all local elected leaders.

c. Outage Restoration and Storm Response Best Practices Implemented and/or Identified for Future Implementation

Duqusene Light's Best Practices Implemented:

i. The Company has designed its 23kV radial distribution system with normally open tie points to other circuits allowing for switching to restore customers faster during a storm.
ii. Installation of the Intelliruptor which provides pulse reclosing and limits the amount of customers experiencing an interruption as the circuit attempts to isolate a fault condition.
iii. The T&D system is also continually monitored to identify poor performing circuits. After a circuit has been identified a maintenance plan is put in place to increase the circuit's reliability.
iv. A Vegetation Management Plan is in effect to reduce the outages caused by trees during a reasonably expected storm event.
v. The Company has a Storm Plan in place that defines restoration sequences and priorities. The Company also conducts annual training on its Storm Plan prior to storm season.
vi. The Company belongs to two regional mutual assistance groups that are committed to providing restoration resources after a storm at no profit.

Duqusene Light's Best Practices Identified for Future Implementation:

i. The Company has committed to the installation of an Outage Management System (OMS) to provide customers with more accurate information during a storm event.

d. Any Other Relevant Continual Improvement Activity

Duquesne Light continues to provide Company representative staffing at County EMS 911 Centers, when requested, for utilty representation during major events.