Pennsylvania Summer Reliability

PENELEC

A. Reliability Enhancement Programs

Pennsylvania Electric Company ("Penelec" or "Company") has developed a plan that is designed to improve its overall ability to reliably serve its customers. Penelec's plan is divided into four main components which include: targeted circuit rehabilitation; porcelain cutout replacement; sectionalizing and SCADA control; and accelerated enhanced vegetation management.

As part of its standard vegetation management program, Penelec thoroughly inspects and performs vegetation management on every circuit once every five years. Penelec has added an enhanced tree trimming component to its plan that will specifically address the large number of tree outages that occur mostly from healthy trees outside the right-of-way. Additional miles of trimming will also be accelerated ahead of the normal cycle.

Penelec also continues to install additional radio controlled remote sectionalizing equipment on its distribution system to enhance operations. In addition, annual inspections of the distribution system are carried out in an attempt to find areas of the system in need of repair before a potential outage can occur. The Company's inspection and maintenance program is geared towards specific components such as capacitors, poles, radio controlled switches, and reclosers.

B. Preventative Maintenance Programs

In accordance with 52 Pa. Code § 57.198, every two years, Penelec files a Biennial Inspection, Maintenance, Repair and Replacement Plan. This Biennial Plan is designed to reduce the risk of outages on the Company's system and form the basis for the Company's inspection and maintenance objectives. The Biennial Plan includes programs to conduct vegetation management, pole inspections, distribution overhead line inspections, distribution transformer inspections, recloser inspections and substation inspections.

These well-established maintenance programs ensure the existing system will continue to operate in a safe and reliable manner, and serve to identify any potential system issues so that they can be proactively addressed.

C. Capacity Planning

Penelec's electric delivery system is able to serve customers' needs without problems as a result of ongoing system enhancements and the hard work of employees and contractors. The weather is again expected to be the primary driver of customer usage this summer.

Penelec does not foresee significant concerns in system performance during the upcoming summer based on last summer's peak. Ongoing facility enhancements designed to improve reliability, load-bearing upgrades, and customers' adoption of energy conservation and efficiency opportunities are being viewed as additional opportunities to strengthen the system.

Penelec also has a system review process in place whereby substation and circuit feeders are monitored to ensure accurate capacity planning. Results are reviewed to determine potential projects necessary to correct any capacity or voltage issues. Using the results of this review, Penelec can make upgrades to the system by way of capacitors, regulators, transformer tap changes, transformer upgrades, etc. as needed on a case by case basis.

D. 2014/2015 Storm Update and Lessons Learned

In calendar year 2014, Penelec did not experience any major events. Throughout coordination efforts, working safely and efficiently is the main objective. Regional conference calls are executed to plan and prepare logistics. Effective planning allows for the precise deployment of crews, supplies, and equipment. Employees are also staggered around the clock to maximize productivity.

After each major storm event, Penelec leadership conducts post storm review meetings to identify and disseminate lessons learned to be used for improving the emergency response plan.

E. 2015 Summer Readiness

Capacitor Inspections – Penelec is on track to complete inspections by June 1 on all line capacitor banks and completed all necessary repairs or replacements to ensure at least 98% availability.

Substation - Substation based capacitor banks at the transmission and distribution level were inspected for operability. Any necessary repairs or corrective maintenance will be completed before June 1 to ensure a minimum of 98% available reactive support.

Aerial Patrols - Two aerial patrols are conducted annually in Pennsylvania to inspect transmission facilities. The purpose of routine patrols is to ensure the integrity of in-service transmission lines to maintain safe and reliable service. The first aerial patrol of transmission lines was completed in May and the second will be completed by year end.

Capacity Additions:

- **Construct Four Mile Junction 230/115kV Substation and Install 230kV Capacitor**: This project enhances customer reliability in the Erie area by providing an additional 230kV source. The substation was completed in December 2014 and the capacitor was put in service in January 2015.

- **Install 100 MVAR 230kV Capacitor Bank at Johnstown Substation**: This project improves transmission system voltages under certain contingencies and is expected to be completed in June 2015.

- **Install 250 MVAR 500kV Capacitor Bank at Conemaugh Substation**: This project improves transmission system voltages under certain contingencies and is expected to be completed in June 2015.

- **Install 47 MVAR 230kV Capacitor Bank at Grover Substation**: This project improves transmission system voltages under certain contingencies and is expected to be completed in June 2015.

- **Construct Mainesburg 345/115kV Substation**: This project enhances customer reliability in the northern region of Penelec by providing a 345kV source to the area and is expected to be completed in June 2015.

- **Expand Claysburg Substation to a Ring Bus**: This project eliminates a "stuck breaker" condition that could outage four 115kV lines at Claysburg substation and is expected to be completed in June 2015.

Transmission Preparedness - Penelec conducts an annual transmission readiness review with transmission operations to discuss the capability and reliability of the system for the summer. The Company's detailed review did not reveal any significant issues for the summer of 2015. Based on the system conditions modeled, Penelec's transmission system is expected to sufficiently support the forecasted peak summer loading.

In addition, PJM has operational procedures identified to effectively control and mitigate contingency outage conditions on the transmission system. Penelec has operational procedures outlined to implement any PJM required actions and to mitigate contingency conditions on the lower voltage systems (<100kV).

Emergency Exercises – As part of the FirstEnergy Utilities ("FEU") Emergency Preparedness program, Penelec completed a company-wide emergency exercise on March 12, 2015. The structure of the exercise facilitated the testing and validation of key emergency response roles, systems and processes. The primary objective of each exercise was to ensure a complete understanding of the restoration process by all participants through exposure to a variety of real-world scenarios and decision making challenges that could be experienced during actual restoration events.

Event Preparedness – The primary cause for significant effects to the electric transmission and distribution system is the impact of severe weather. FirstEnergy's in-house meteorologists use highly sophisticated, proprietary data and forecasting models specifically designed to provide actionable intelligence. When predicted weather meets specific criteria, planning and preparation work is immediately initiated, many times days before any impact.

As part of the preparation efforts, Penelec's executive leadership and operations managers locally engage the emergency restoration process. Based on available data and collaboration within Penelec, resource needs are evaluated and requests are submitted as needed to the FEU Emergency Operations Center for fulfillment. These requests can include, but are not limited to: line resources (both internal to FirstEnergy and external), hazard responders, damage assessors, public protectors, vegetation crews, equipment needs, and material requirements. Depending on the predicted magnitude of the event, staging areas are pre-identified and can be quickly activated to prepare for the efficient deployment of crews and equipment.

Refresher Training – All employees with emergency response roles receive appropriate refresher training at specified intervals in order to be immediately deployable when an event impacts the system. Expectations for employees to complete appropriate training and verify all equipment and personal protective equipment are available and in proper working order are communicated each year during emergency exercises and verified by Penelec management.

Staffing – Penelec conducts a staffing analysis annually which accounts for attrition, including retirements, to determine the proper staffing levels of craft workers. As a result of this analysis, the Power Systems Institute ("PSI"), which is a unique, two-year program that combines classroom learning with hands-on training, will be reinstated beginning with fall enrollment 2015. The PSI enrollment summary for Penelec in 2015 includes twenty-four line workers and six substation electricians.[1] Students enrolling in 2015 will graduate in 2017, after which eligible graduates will go through the standard hiring process. The following colleges have partnered with Penelec to support these line worker and substation electrician development:

- Porreco College of Edinboro University
- Pennsylvania Highlands Community College

F. Storm Response

Outage Restoration Strategy – Information obtained through the use of various tools and resources is critical to determine the type, number and location of resources needed to assure prompt restoration of service. Line personnel, damage assessors and hazard responders are integral resources in providing initial and ongoing assessments of the damage in the field. Line personnel are equipped with mobile data terminals ("MDTs") in their vehicles and will input damage information directly into the MDT. This information is immediately available for viewing in the Outage Management System ("OMS"). The OMS is the central collection point for all relevant information concerning damage reports, assessment and configuration of the electric distribution system. During emergencies that meet triggering criteria, the circuit quarantine process is used for rapid assessment of heavily damaged circuits.

In addition to the resources discussed above, a number of tools are also available for determining the extent of outages and damage, as well as the number of customers affected. These include: aerial patrols, remote indicators, OMS and associated dashboards, customer calls, and police and fire personnel.

Communications and Outreach - External Affairs managers establish communications with emergency management agencies, local officials and regulators in advance of and throughout a storm to keep them apprised of preparation and planning efforts. Communications representatives also contact the media to enlist their help in encouraging customers to prepare for the likely storm events and provide information on who to call if they lose power. These efforts and face-to-face outreach are closely aligned with the Company's service restoration efforts. The Company also provides safety messages via newspapers, radio, and as online banner ads. Proactive email

[1] Enrollment numbers are subject to change.

alerts and phone messages are initiated to key stakeholders, critical care, and well water customers alerting them to the potential for extended power outages.

Outage Restoration and Storm Response Best Practices – Penelec has implemented various best practices, tools and technology to continuously improve both the restoration process and communications with key stakeholders and customers during events.

Penelec is making it easier for customers to check the progress of service restoration efforts when they experience a power outage. The Company's "24/7 Power Center" outage maps display the status of crews restoring service after a power outage in the Penelec service territory. Penelec customers can see when crews have been dispatched, when they are working on a repair, and when additional crews or equipment are needed to complete restoration work.

In addition, customers can subscribe to *email and text message alert notifications* to receive billing reminders, weather alerts in advance of major storms, and updates on scheduled or extended power outages.

Hazard Responder iPhone App – This application allows for direct dispatching of critical information regarding identified hazards to a responder team in the field. The app provides location information, customer call comments, turn-by-turn directions to the location and has the ability to input information and pictures directly into assigned orders. This information is passed directly into the OMS and is available to more accurately prioritize resources and ensure the correct resource and materials are sent to the site for repairs.

Enhanced ETR tools – Several new and enhanced tools have been developed and implemented that improve and streamline the process of establishing ETRs. Dashboards have also been developed that make it much easier to monitor ETR performance and adherence.

Work Prioritization Tool – A tool that assimilates and helps prioritize emergency work based on selected inputs and parameters whose purpose is to maximize restoration progress.

Staging Site Standardization – A full audit of all sites is ongoing to ensure appropriate agreements are in place, facilities are mapped, needed equipment is staged at strategic warehouse locations, and appropriate vendors are immediately deployable.

Incident Command System (ICS) Implementation – All Penelec employees are currently undergoing appropriate training on basic ICS principles.

Electronic Damage Assessment – Damage Assessors are now trained to use the Panasonic Toughpad, a ruggedized mobile display device to provide electronic documentation of damage. The Toughpad provides the Damage Assessor with an electronic field copy of circuit maps, allows for more rapid damage assessments, and can be used to generate an inventory list of damaged equipment.

Foreign Crew Texting – Penelec has implemented an innovative program that allows mutual assistance crews to text order status information. The OMS will be directly updated with information received from the field.