# Pennsylvania Summer Reliability

## WEST PENN POWER

### A. Reliability Enhancement Programs

West Penn Company ("West Penn" or "Company") is committed to providing safe and reliable electric service to its customers. West Penn employs various programs to maintain system reliability. For example, to reduce the likelihood of distribution line and equipment caused outages, West Penn follows inspection and maintenance ("I&M") programs that set forth schedules for regular inspection of its distribution facilities.[1] In addition to I&M, West Penn employs other routine programs to ensure the reliability of its distribution system. For example, West Penn may perform sectionalization of the system to reduce outages, evaluate devices that experience multiple interruptions, and perform enhanced tree trimming in conjunction with the normal cycle based tree trimming.

In addition to the items described above, West Penn has put into place additional plans, through various filings, to further support and improve reliability performance. These filings include a Reliability Plan,[2] Worst Performing Circuit ("WPC") Plan,[3] and the Long Term Infrastructure Improvement Plan ("LTIIP").[4] Components of these plans, in combination with the Company's routine reliability programs, are described in the sections below.

Since implementing its new, more aggressive vegetation management program in 2011, West Penn has experienced positive improvements in overall reliability. In addition to its normal on-cycle tree trimming, West Penn has introduced a program to accelerate the mitigation of trees subject to damage by the Emerald Ash Borer from its current five years to a new three-year completion timeline for the subtransmission system and the zone two portion of its distribution system. This program, combined with the Company's on-cycle tree trimming, will improve both blue sky and minor storm performance on both distribution circuits and subtransmission lines.

West Penn has plans to conduct targeted circuit rehabilitation which consist of a circuit inspection, identification of equipment in need of replacement, and then the replacement of the identified equipment. Equipment may include, but is not limited to, poles, switches, crossarms, insulators, braces and cutouts. West Penn plans to target thirty-eight circuits in 2016 for rehabilitation.

Supervisory control and data acquisition ("SCADA") provides communication with circuit breakers and line switches, which provides the ability to remotely operate the breakers or switches to reduce restoration time. The enhanced overcurrent protection and SCADA control program in West Penn Power will target the installation of new electronic reclosers with SCADA control which will limit the number of customers affected during a lockout and

[1] Pursuant to 52 Pa. Code § 57.198, every two years an electric distribution company shall file, and receive approval from the Commission of, a biennial plan for the periodic inspection, maintenance, repair and replacement of its facilities. On December 30, 2013, Paul Diskin, Director, Technical Utility Services, issued a letter approving the Company's biennial inspection, maintenance, repair, and replacement plan effective January 1, 2015 through December 31, 2016.

[2] On March 30, 2015, the Commission issued an order directing, West Penn Power to prepare and file a revised implementation plan relating to specific topics addressed in the report issued by the Commission's Bureau of Audits on February 12, 2015. *Implementation Plan for the Focused Management Audit of West Penn Power,* Docket No D-2013-2365994,

[3] See Footnote 2.

[4] On October 19, 2015, pursuant to Section 1352 of the Pennsylvania Public Utility Code, 52 Pa. Code §§ 121.1 et seq. and the Commission's final order in Implementation of Act 11 of 2012, West Penn Power Company filed their petition for approval of their LTIIP at Docket No. P-2015-2508931. On February 11, 2016 the Commission approved the plan.

allow remote switching to restore customers more quickly. Adding SCADA control to electronic reclosers in select substations with existing SCADA capabilities will provide additional monitoring and also allow for remote switching to restore customers at the circuit level more quickly. In 2016, West Penn plans to replace a total of twenty-five breakers with electronic reclosers at five substations.

The underground getaway replacement program will replace select underground substation exits which is cable that leads out of the substation to the overhead lines. These exits are also referred to as underground getaways. Specifically, this program will target underground getaways that were installed prior to 1988 and are known to be prone to failure. By replacing these getaways, West Penn may reduce the interruptions to a circuit associated with the cable as well as the long interruption times associated with the replacement. In 2016, West Penn will replace underground getaways at three substations, which will provide positive impact to nine circuits.

The subtransmission modernization and automation program will oversee the installation of SCADA controlled reclosers and switches and automatic air switch modernization. This will provide enhanced sectionalizing for larger blocks of customers at the substation source level. The SCADA controlled switches will also allow for remote switching to sectionalize and restore large blocks of customers more quickly, leading to reduced outage durations. In 2016, West Penn will install forty-five SCADA controlled reclosers and switches at its substations.

## B. Preventative Maintenance Programs

In accordance with 52 Pa. Code § 57.198, every two years, West Penn files a Biennial Inspection, Maintenance, Repair and Replacement Plan (as described in Footnote 1) for approval by the Commission. 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

As a result of ongoing system enhancements and the hard work of employees and contractors, West Penn is able to reliably serve its customers. The primary driver of customer demand this summer is again expected to be weather related.

West Penn does not foresee significant concerns with system delivery capacity during the upcoming summer based on its performance during last summer's peak. Ongoing facility enhancements designed to improve reliability, load-bearing upgrades, and customers' adoption of energy efficiency and conservation opportunities are being viewed as additional opportunities to ensure the reliability and capacity availability of the system.

### D. 2015/2016 Storm Update and Lessons Learned

In calendar year 2015, West Penn Power did not experience any major events.

Throughout restoration 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 significant storm event, West Penn leadership conducts post storm review meetings to identify and disseminate lessons learned which are used to improve the emergency response plan.

### E. 2016 Summer Readiness

**Capacitor Inspections** – West Penn is on track to complete the inspections of all line capacitors banks and complete all necessary repairs or replacements to ensure at least 98% capacitor availability.

**Mobile Substations** – West Penn completed a review of the status of its mobile substations and other spare equipment. This included inspections of the mobile trailer, transformer and breaker. Spare equipment includes voltage regulators and substation cooling items such as transformer fans.

**Substation** – Substation based capacitor banks on the transmission and distribution system were inspected for operability. Any necessary repairs or corrective maintenance will be completed before June 1, 2016 to ensure a minimum of 98% available reactive support.

**Capacity Additions** – West Penn has determined that no additional projects are required to meet the summer demand for 2016.

**Transmission Preparedness** – West Penn 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 2016. Based on the system conditions modeled, the West Penn transmission system is expected to sufficiently support the forecasted peak summer loading. During the

system assessment, a review of the voltage stability analysis was conducted and produced acceptable Power-Voltage response curves.

Two aerial patrols are conducted annually in West Penn 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 will be complete by the end of May 2016 and the second will be completed by year end.

Additionally, PJM Interconnection LLC ("PJM") has operational procedures identified to effectively control and mitigate contingency outage conditions on the transmission system. West Penn has operational procedures 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, West Penn completed a Company-wide emergency exercise on May 3, 2016. 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** – 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, West Penn's executive leadership and operations managers engage the emergency restoration process. Based on available data and collaboration within West Penn, 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 West Penn management.

**Staffing** – For the summer of 2016, West Penn is fully staffed for the storm season. In addition, West Penn 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 and through the Power Systems Institute ("PSI"), which is a unique, two-year program that combines classroom learning with hands-on training, West Penn is expected to

hire fifteen line worker graduates and seven substation electrician graduates in 2016.[5] The objective of the PSI program is to proactively hire a diverse group that will fulfill the line work and substation electrician staffing needs for West Penn Power. The following colleges have partnered with West Penn to support these line worker and substation electrician development:

- Westmoreland Community College
- Pennsylvania Highlands Community College

For larger-scale events, West Penn is able to supplement its own resources by accessing FirstEnergy's portfolio of operating companies that includes the additional three companies located within Pennsylvania, as well as an additional six operating companies in other jurisdictions. The consistency in standards and work practices employed across all ten of these operating companies enables streamlined resource sharing in a way that promotes both safety and efficiency.

FirstEnergy, for itself and its affiliated operating companies, including West Penn, is a member of the following Regional Mutual Assistance Groups ("RMAGs") and can call upon them to request additional resources when needed:

- Great Lakes Mutual Assistance Group ("GLMA")
- North Atlantic Mutual Assistance Group ("NAMAG")
- Southeastern Electrical Exchange ("SEE")

A National Response Event ("NRE") can be activated by EEI member utilities when multiple RMAGs cannot adequately support the resource requirements of the requesting utilities

## F. Storm Response

**Outage Restoration Strategy** – West Penn begins preparing for potential outages long before severe weather hits. When severe weather is forecasted, West Penn plans are activated days before to ensure an adequate number of crews are prepared to tackle the damage. Part of this preparation includes running a model that estimates the impact of an impending weather threat and outputs information such as the expected number of customers impacted. This output, along with historical storm experience, is used to estimate the impact of the weather event so that properly scaled preparations can be made.

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. Additionally,

[5] Numbers are subject to change.

there are two apps that employees can use on mobile devices to automatically enter damage information into the company's OMS. In the past, this process relied on paper maps, hand written notes and phone calls between field responders and dispatch offices.

In response to power outages and other systems emergencies, FirstEnergy maintains a copy of its Emergency Plan for Service Restoration ("E-Plan") which provides the guidelines for all of the common processes and procedures for conducting emergency preparedness, response and service restoration. Further, West Penn is in the process of incorporating the Incident Command System ("ICS") principles in its emergency response organization to adhere to the principles and high level structure to the National Incident Management System ("NIMS") as appropriate in an electric utility environment.

**Communications and Outreach** – External Affairs managers establish communications with emergency management agencies, local officials, county commissioners, legislators and their offices 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. Proactive email alerts and phone messages are initiated to key stakeholders alerting them to the potential for extended power outages. 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 online banner ads.

West Penn uses social media, mobile applications, websites and IVR messaging to communicate outage and restoration information customers Twitter and Facebook are used to communicate outage and restoration information to customers. During the restoration period, West Penn uses social media to share additional safety reminders; estimated time of restoration; updates on restoration efforts, including work progress, explanations of the restoration process and information about the arrival of additional crews; water and ice locations, and links to other resources such as shelters.

The Company's mobile website and mobile app offers customers the ability to report outages and connect to an outage map that is optimized for mobile devices. From the mobile site, customers can view personalized outage status for an outage they have reported to West Penn. The mobile website and app, as well as the full West Penn website, also allow customers to register for outbound billing, payment and outage-related alerts via text messages and/or email, and these platforms also provide instructions to use two-way text messaging, an interactive option for customers to report outages and obtain outage updates.

Customers can access the Storm Restoration Process page of the website, for a description of the damage assessment process, information describing why customer calls and outage reporting are critical to the restoration process, as well as repair prioritization process. Customers can access the 24/7 Power Center outage map that provides county-by-county information. Through this site users can obtain the number of customers served and the number of customers out of power at the county level as well as estimated time of restoration information.

Customers are now able to view the status of crews restoring service on the Company's 24/7 Power Center outage map. This informs customers when crews have been dispatched, when they are working on a repair, and when additional crews or equipment are needed to complete restoration work.

Three stages of messaging are provided to customers during large scale events via its IVR messaging:

- Pre-ETR messaging during, and immediately following the event; and ETR messaging.
- The messaging is also relayed to customers who call regarding their individual outage and is also posted online on the 24/7 Power Center outage maps.
- In addition, Live Agent Customer Service Representatives have the same information at their disposal to clearly communicate to customers at these three stages.

For extended power outages, Communications issues regular news releases and media advisories over both traditional media channels and social media to update customers on the status of power restoration efforts, as well as provide realistic ETRs so customers can plan accordingly. Communications proactively issues safety messaging ranging from avoiding downed wires to properly hooking up and operating generators. The Company also has plans in place to provide free water and ice to customers without service. Once locations have been determined this information is communicated to customers via the IVR, press releases, social media and the website.

**Outage Restoration and Storm Response Best Practices** – West Penn continues to review each and every storm event, and many of the practices adopted as mentioned above stemmed from sharing best practices with other utilities, a practice that continues today.