

# Pennsylvania Summer Reliability Forum

## WEST PENN POWER

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### Keys to Success: Reliability Overview

The table below, taken from the 2011 Annual Reliability Report, shows two reliability indices (CAIDI and SAIDI) in 2011 were better than the Commission's 12-Month Standard (shown in green).

2011 (12-Month Rolling)	Benchmark	12-Month Standard	12-Month Actual
SAIFI	1.05	1.26	1.40
CAIDI	170	204	151
SAIDI	179	257	211

West Penn Power did not experience a major event during 2011. The higher-than-normal SAIFI is directly attributed to several non-excludable storm events, including five (5) high wind and rain events in the first five months of 2011 that had a significant impact on SAIFI.

West Penn Power has implemented technology to measure reliability and respond to forced outage events. These include automated mapping/facilities management, outage management system ("OMS"), call center interactive voice response, computerized work management system and mobile technologies to support timely response to outage conditions. West Penn Power also had the benefit of a dashboard software system for OMS ("Obvient") and a mobile workforce management system ("Avail").

West Penn Power has programs and processes in place to continually address and enhance distribution reliability. Well-established maintenance programs ensure the existing system will continue to operate in a safe and reliable manner. West Penn Power also employs maintenance programs aimed to specifically address poor performing circuits and identified line segments where reliability issues may exist.

### Reliability Enhancement Programs

**SAIFI Initiative** - In May 2011, West Penn Power initiated a program to address SAIFI on 165 circuits that had the worst twelve-month rolling SAIFI. The program involves reviewing the mainline of the circuit between the substation and the first set of protective devices to identify any issues that could potentially cause a circuit lockout, followed by corrective actions. This work had an immediate effect on the targeted circuits. West Penn Power's SAIFI for the second half of 2011 was 7% below target, which did not completely offset the high storm-related customer interruptions experienced in March and April, but did change the trend. In the first quarter of 2012, these circuits continued to reflect the SAIFI benefits achieved in 2011. For 2012, West Penn Power plans to extend the program to additional circuits.

### Preventative Maintenance Programs

**Expanded Forestry Danger Tree Program** - West Penn Power has instituted a Danger Tree Program, which consists of removing, or significantly reducing in height, diseased or damaged trees located outside the boundary of the right-of-way that may pose a threat to service reliability or the integrity of the line under any weather condition. West Penn Power has also begun targeting live, healthy trees that may pose a threat to service reliability or integrity of the line by uprooting, breaking, or otherwise falling into the line. This program will continue for 2012.

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In 2011, West Penn Power instituted a heightened danger tree inspection and removal on 638 miles of mainline feeder on 143 distribution circuits which were identified as having the worst performance from tree-caused lockouts. This program was in addition to West Penn Power's cycle tree trimming work that was scheduled for 2011.

In 2012, West Penn Power will continue the heightened danger tree inspection and removal on approximately 500 more miles of main line feeder on 246 distribution circuits which were identified on the next tier of worst performance from tree-caused lock-outs. This program is in addition to West Penn Power's cycle tree trimming work that is scheduled for 2012.

**Reliability-based Vegetation Management Program** – West Penn Power has implemented a program whereby rural distribution circuits are scheduled based on a predetermined formula which factors in: (1) time since last trimmed; (2) tree-related customer minutes of interruption over at least three years; and (3) the number of customers on the circuit. Rural circuits with the worst cumulative ranking are given the highest priority in scheduling. Circuits trimmed within the past three years are not eligible for schedule trimming evaluation, while urban distribution circuits are planned on a cyclical schedule based on time since last trimmed. This program will continue for 2012.

### 2011 Lessons Learned

After each storm event in 2011, West Penn Power leadership conducted post storm review meetings. The meetings were utilized to identify and disseminate lessons learned to be used for improving the emergency response plan. The following were identified as action items during those meetings:

#### **Enhance Communication Efforts**

In an effort to ensure more consistent and accurate communications with community leaders and local Emergency Management Agencies ("EMAs"), West Penn Power representatives have held 111 meetings with these groups as well as emergency first responders to communicate the Company's restoration process and provide emergency contact information. These communications proved to be valuable on June 1, 2012 when Westmoreland County was hit by severe weather. Ligonier Township contacted West Penn Power and requested a physical presence in their Emergency Operations Center ("EOC"). A West Penn Power representative was available and reported to the EOC to provide a direct channel of communication between the township and West Penn Power. In the future, West Penn Power will make every effort to provide a physical presence in an EMA if requested.

As a result of an enhanced Emergency Communications Plan, West Penn Power has also implemented the Critical Information Team (CIT). This team is designed to provide a consistent, reliable and timely flow of information to a variety of key stakeholders (customers, media, community leaders, etc.) during a major storm event.

#### **Consider Social Media Presence**

West Penn Power has implemented the use of Twitter to communicate with customers. The @W\_Penn\_Power Twitter account provides timely information on the numbers of customers restored to service, the number of customers remaining without power, restoration efforts and electrical safety. These efforts and face-to-face outreach are closely aligned with our service restoration efforts, and include safety messages that run in newspapers, on the radio and as online banner ads.

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### Create a more user-friendly, mobile version of our website for outage information

On April 2, 2012, FirstEnergy implemented a new outage map on the FirstEnergy website ([www.firstenergycorp.com](http://www.firstenergycorp.com)). This new functionality applies to FirstEnergy's West Penn Power service territory. The outage map allows for optimized viewing on mobile devices and provides outage information at the county level as well as the zip code level. In addition, the website provides statewide alerts, estimated time of restoration and planned outage information.

### 2012 Summer Readiness

**Capacitor Inspections** – As of June 1, West Penn Power inspected all line capacitor banks and completed all necessary repairs or replacements to ensure at least 98% availability

**Mobile Substations** - West Penn Power 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.

**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 in West Penn Power was completed in April.

**Refresher Training** – All employees with secondary storm response roles (hazard responder, hazard dispatcher, storm analyst, etc.) have received appropriate refresher training.

### Storm Response

**Preparation and Planning** - Planning, preparation and pre-staging work is initiated days before a storm strikes. As part of those efforts, West Penn Power's in-house meteorologists closely monitor weather data and track storms to assess the potential impact on our electrical system and service area.

If it is determined that a storm could potentially disrupt service, Company leadership and operations managers hold conference calls and conduct meetings to evaluate the need for hazard responders, damage assessors and line crews as well as supplies and equipment. This core management team also evaluates the need for additional crews from other FirstEnergy operating companies, and outside utilities and contractors. Depending on the magnitude of the storm, staging areas are organized to prepare for the efficient deployment of crews and equipment.

**Outage Restoration Strategy** - In the early stages of service restoration, hazard responders go into the field to assess damage to the electric system and identify electric hazards – such as downed and potentially energized wires – and then remain at those locations to protect the public until linemen safely isolate or clear the hazard. Next, forestry crews clear fallen trees and branches as well as other debris so utility workers can repair and re-energize power lines.

Once debris has been cleared from the affected areas, service is initially restored to high-voltage transmission equipment, lines and substations, because they supply power for local distribution

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systems. After that, crews focus on restoring service on a high-priority basis to hospitals, critical care and life-support facilities, fire departments and other first responders. Focus is then placed on repairs that will bring the greatest number of customers back in service. Next, repairs that restore service to individual customers occur.

**Communications and Outreach** – External Affairs managers establish communications with emergency management agencies, local officials and regulators 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.

In 2012, West Penn Power representatives have held 111 meetings with municipalities/boroughs, fire/police departments, county commissioners and 911 centers to communicate the Company's restoration process and have worked with these officials to provide representation in these emergency facilities during major storm events.

## Projects

In addition to the programs and specific initiatives identified to help improve West Penn Power distribution reliability, TrAILCo, a subsidiary of FirstEnergy, has initiated several large projects scheduled to start in 2012 with completion in 2013 in the West Penn Power territory to support Transmission reliability:

- Osage-Whiteley Project – Construction have begun on approximately 14.5 miles of new double circuit, 138-kV transmission line that will connect Osage Substation, in Monogalia County, W. Va., to the Whiteley Substation near Kirby in Greene County, Pa. This segment will ultimately interconnect with the 502 Junction Substation, recently completed near Mt. Morris, Pa. The transmission line is required to be in service by June 1, 2013 to support Greene County, Pa. under loss of transmission (N-1) contingency.
- 502 Junction Substation – Install a 500/138-kV transformer and associated 138-kV breakers to interconnect the Osage-Whiteley 138-kV line for added transmission support in Greene County, Pa. The transformer is scheduled to be in service by June 1, 2013.

West Penn Power is also addressing a transformer contingency issue by purchasing and placing a spare 230/46-kV transformer at Carbon Center Substation, near St. Marys, in Elk County, Pa. The purchase of a system spare will enable West Penn to react relatively quickly to the catastrophic loss of any one of six 230/46-kV transformers on the West Penn system in the St. Marys and State College service center areas. The worst case scenario is (double-contingency) loss of 46kV transformation at Carbon Center substation. The spare 230/46-kV transformer is scheduled to be purchased in 2012 and placed at Carbon Center Substation in 2013.