

Citizens' Electric Company  
2018 Summer Readiness Overview  
05/22/2018

**Summary**

Citizens' Electric Company's approved 2018 inspection and maintenance plan is well underway. This plan was designed to help ensure that system facilities remain in good condition and ready for the storm season.

**A. Reliability Enhancement Program**

**a. Enhanced Vegetation Management**

Since 2012, Citizens' Electric has been investing increasing resources to identify and remove off right-of-way hazard trees. A primary focus has been the continuing impact from the Emerald Ash Borer. As this invasive beetle moved through the territory, a significant number of deteriorating Ash trees became apparent. The Company has again committed additional resources to identify, prioritize and remove significant threats to reliability from hazard trees during 2018. The Company's vegetation coordinator, line crews, and trimming contractors have all been trained to continue identifying and resolving off right-of-way priority trees where possible.

During 2017, a positive trend began to emerge. The Company began seeing a decrease in the number of outages caused by off right-of-way trees. Through continued focus on these trees, the Company believes this downward trend will continue.

Citizens' Electric was recently recognized for the sixteenth consecutive year as a "Tree Line USA" utility. This award from the National Arbor Day Foundation recognizes the Company for using nationally approved trimming techniques and procedures in its vegetation management program.

**b. Storm Hardening**

The most frequent cause of storm outages in the Company's territory during 2017 was weather. The Company is continuing its efforts to identify and replace specific equipment it has identified as failure-prone. This includes certain vintages of overhead arrestors and porcelain cutouts. In an effort to improve longevity and reliability, all new cutouts being installed utilize polymer-based insulators rather than porcelain. To maximize protection for the coming storm season, inspection of important arrestor locations such as switch points has been completed. Arrestors found to be problematic have been replaced.

In addition to the above steps, the Company has completed line design changes at several locations to make certain circuit sections less vulnerable to weather-induced tree outages. These changes include moving sections of line from difficult-to-access wooded areas to roadsides and altering some pole-top configurations to push conductors farther from trees that might encroach the right-of-way during strong winds.

**c. Fuses/Reclosers/Automatic Switches**

The company is currently in the process of completing scheduled recloser inspections for 2018, in accordance with its PUC-approved comprehensive inspection and maintenance program. Recloser maintenance is also currently in progress. This year, comprehensive

maintenance will be performed on eight reclosers. This work includes removing the units from service, filtering or replacing the dielectric oil, inspecting contacts and replacing if needed, and testing to ensure proper response timing. All scheduled units are expected to be maintained and returned to service for the coming thunder storm season.

The Company does not utilize automatic switches.

**d. Smart Grid**

The Company recently began a project to replace all remaining first-generation smart meters within five years. There are approximately 4,700 of these meters still in service. Replacing these meters will provide many benefits, including faster, more-reliable communications. This will help operations staff more quickly assess outages, dispatch repair crews, verify restorations, monitor voltage quality and identify areas of load growth.

All smart grid systems, including AMR infrastructure, Outage Management System, GIS Mapping and associated online and telephone customer service systems are fully operational and ready for processing outage transactions.

**e. Conservation Voltage Reduction (CVR) Activity**

Citizens' Electric does not utilize substation voltage regulation equipment. As a result, the Company does not currently have a Conservation Voltage Reduction (CVR) program.

**B. Preventative Maintenance Programs**

**a. Capacitor Inspections**

The Company currently has 22 capacitor locations in service. In accordance with its approved inspection and maintenance plan, all locations have been inspected and are available as needed.

**b. Vegetation Management**

Nearly all of the Company's routine vegetation work is completed by contractors. Typically, this work is conducted during the early spring and summer months. This allows the Company to better respond to any unexpected "hot spots" that may require attention during the growing season. This schedule also helps ensure that contract crews will be present during the bulk of the summer storm season so they can be quickly deployed for restoration work if needed.

This year's contract has been awarded and trimming work is underway. As discussed above, the Company will continue its aggressive program of maintenance and danger tree removals again this year.

As trimming is completed, the Company's inspector closely monitors work performed to ensure it is done in accordance with contract specifications and to verify that all work included in the contract is completed. Daily work reports are received from the contractor. These reports include a listing of work performed by each crew on a particular day. Reports are reviewed by the Company's inspector to verify overall contract completion.

As an additional performance measure, the Company's Vegetation Management Coordinator monitors all tree-related outages to help identify and respond to emerging trends as quickly as possible, and to assess the Company's overall vegetation program effectiveness.

**c. Substation Inspections**

All monthly substation inspections have been completed on schedule. Any issues requiring attention have been addressed.

**d. Aerial Patrols**

The Company does not own any transmission facilities and does not conduct any aerial patrols of its distribution facilities.

**e. Infrared Inspections**

Infrared inspections are performed on all three-phase primary overhead line sections each year and all single-phase line sections on a three-year cycle. To date, approximately 80% of this year's inspections have been completed. The Company expects to complete 100% of these inspections by year-end. Any issues found have been addressed.

**C. Capacity Planning**

The Company provides load forecasts and works closely with its transmission provider and System Operator to ensure continued transmission capacity availability. Long-range plans for additional substation or transmission facilities are refined periodically as load forecast trends are adjusted. System and feeder loading patterns and circuit voltage profiles are analyzed to ensure adequate capacity at all points on the Company's distribution system.

**D. 2017/2018 Storm Update and Lessons Learned**

The Company experienced typical outages from spring wind, summer thunderstorms and winter snows. No significant tropical systems impacted the area. As mentioned above, a positive trend emerged in the form of a reduction in outages caused by off right-of-way trees. In 2016, the Company experienced sixteen outages from this cause; in 2017, the number was just ten. The Company plans to continue its aggressive identification and removal of off right-of-way priority trees during 2018. The Company continues to participate with various statewide and national best practices groups to maintain awareness and incorporate lessons learned where appropriate.

**E. 2018 Summer Readiness**

**a. Capacity Additions**

During 2017, crews worked on the upgrade of approximately 6,500 feet of three-phase overhead line to provide enhanced capacity and reliability. This project will continue throughout 2018.

**b. Transmission Preparedness**

The Company does not own any transmission facilities. However, it provides load forecasts and works closely with its transmission provider to ensure continued transmission capacity availability.

**c. Event Preparedness**

Lessons learned during 2017 have been incorporated into the Company's storm process. Access to resources from utilities in the PREA group and across the region will continue to play a significant role in any major event response.

The Company continues to foster relationships with local EMA officials to ensure efficient coordination during storm efforts. Emergency material stock levels are adequate, the construction fleet is in good operating condition and staffing is at expected levels. All technology systems are fully operational.

**d. Training**

In an effort to ensure efficient response to customer outage calls, refresher training has again been provided to all office personnel involved in outage activities. All line personnel training is up-to-date in accordance with Company training plans and OSHA requirements.

**e. Personnel**

As with many electric utilities, Citizens' must address the pressures of an aging workforce. It is expected that within the next 7 to 9 years, 12 of Citizens' current 17 employees will retire. Eight will be in the operations area. Turnover has already begun, with the retirement of an inside employee in 2016, and another in 2017.

Citizens' Electric's management team has been entrusted by the shareholders, customers and the Public Utility Commission to provide safe and reliable service at a fair cost. To address this core responsibility and the potentially negative impact from failure to plan, management has adopted a long-term and methodical transition strategy that will prevent a lapse in experience and job knowledge that is so necessary to effectively operate the Company. To begin this orderly transition process, the Company increased its line crew staffing level by 12.5%, through the hiring of one additional apprentice in 2015.

It typically takes up to seven years to fully develop a journeyman lineman. While no retirement announcements have been made, 75% of the line crew is considered as "approaching" retirement age. Incorporating additional apprentices in a timely manner will ensure there is an adequate supply of knowledge and skills available to provide a safe and proficient workforce.

**F. Storm Response**

**a. Outage Restoration Strategy**

Citizens' Electric employs a restoration strategy which aims to restore customers in the most efficient way possible. Ensuring the safety of the public and the Company's employees is the first priority. Crews are first dispatched to trouble locations that will restore service to the largest number of customers in the shortest amount of time, with priority given to incidents that will restore service to critical public infrastructure. Next, outages affecting individuals or small groups of customers are restored.

**b. Communications and Outreach**

In addition to providing timely information through traditional methods such as newsletters, newspaper articles, and direct employee contact, the Company utilizes social media including Facebook and Twitter.

During 2017, the Company continued enhancing its online customer service portal called SmartHub. This tool allows customers to securely access a rich set of features via a web interface or by downloading a free application to their smartphone or tablet. Recent enhancements enabled customers to sign up to receive email or text messages that will automatically inform them of status and ETR for outages affecting them. This system can also be used to inform subscribing customers of planned outages and other emergencies.

To increase public safety awareness, the Company conducted electrical safety training with various groups during the year. Demonstrations were provided for members of the local university community and the general public.

The Company maintains effective information exchange with county EMA officials and coordinates response to local emergencies as needed.

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

The Company participates in various statewide and national industry organizations, including the PA Best Practices Team. It will continue monitoring the findings and recommendations of these groups and will implement them where appropriate.

**G. ASAI (Average Service Availability Index)**

**a. Small EDCs provide ASAI for one of the worst circuits.**

The worst performing circuit during 2017 was the Rt. 15 circuit, fed from the Saint Mary Street substation. It had an annualized ASAI of 0.99951. Significant resources have been focused on vegetation management along this circuit. This focus is expected to yield results in the form of improved reliability throughout 2018.

**Conclusion**

The Company believes it is ready and well-positioned for the coming summer storm season. Through the application of the above initiatives, safety, reliability and customer satisfaction will be maintained throughout 2018.