

2012 UGI Electric Division Reliability and Storm Preparedness Summary

1. Keys to Success

Reliability Enhancement Programs

In 2012, UGI began an intensive review of its distribution lines to identify line sections that based on criteria such as customer density, vegetation density, and line length would benefit from additional sectionalizing, interconnection, or protection points. The goal is to improve service reliability by limiting customer exposure to outages by investing in additional protective devices and providing system operations and repair crews the ability to quickly sectionalize and restore large customer groups through switching after an outage occurs. UGI has conducted field reviews on 4 of its 44 feeders so far and identified 20 locations where additional devices are proposed to be installed. These devices range from single phase disconnect switches and fuses to “radio-ready” remotely operable airbreaks and circuit reclosers on 3-phase line sections. These automated devices are being installed in conjunction with UGI’s distribution automation pilot project which is currently underway. UGI will include funding for this program in its 2013 FY budget.

Also in 2012 UGI initiated a project to purchase and install an advanced Outage Management System (OMS). UGI currently uses a work order system supplemented by an enhanced electronic mapping system and an internally developed OMS. UGI has completed the vendor demonstration phase of this project and is currently developing the system specification. The goal is to have a product selected and tested by the end of the year with full implementation in 2013.

Preventative Maintenance Programs

All of UGI’s planned preventative maintenance programs including its line clearance program as described in UGI 2011/2012 I & M Plan as filed with the Commission are on track to be completed as scheduled. UGI’s delivery system is in generally good physical condition. No specific areas of weakness or concern are identified.

Capacity Planning

On an annual basis, UGI assesses the capability of each element of transmission and distribution system to carry expected loading under peak loading conditions. Given UGI’s relatively low growth rate and its non-uniformity across the system, the planners use a conservatively high 4% increase in the current summer peak to verify that all elements of the system have adequate capacity. The planners also consider any potential

increases in load due to known large customer additions that may be specific to certain feeders. In 2011, UGI set a new summer peak of 214 MWs which was an increase of 2% over the previous summer peak set in 2006. Overall the UGI delivery system is expected to have adequate capacity to provide reliable customer service throughout its four year planning horizon.

2. 2011 Storms and Lessons Learned

2011 proved to be the most challenging storm season in UGI's history due to the affects of Hurricane Irene and Tropical Storm Lee. Although UGI was well prepared for storms of traditional magnitude, the magnitude of these events exceeded all expectations and highlighted areas for improvement with respect to both preparedness and response.

On the positive side, UGI re-affirmed that its restoration plan which utilizes experienced personnel in the field to manage restoration crews on an area basis is effective. This plan along with its skilled workforce resulted in highly efficient and productive teams. UGI also utilized a dedicated contractor crew for setting poles ahead of repair crews which significantly reduced repair times. UGI learned that it had the capability to manage more repair crews than it previously thought possible. UGI also learned that it must increase its safety stock of certain sizes of wire, repair sleeves, and other commonly used items in order to support the increased staffing.

In the communications area, UGI conducted several face-to-face customer meetings during the Hurricane Irene restoration efforts. These meetings proved to be an excellent way to personally address customer concerns and in general provide up to date information on the restoration efforts. UGI learned that its customers have a higher need for accurate estimates of when they can expect their service to be restored so they can plan accordingly. UGI learned that its restoration time prediction capability and its public communications function needed to be more robust.

Hurricane Irene also exposed several areas for improvement. The magnitude of the event highlighted the need for an enhanced and fully integrated Outage Management System (OMS). Robust capability with respect to identification and prioritization of service outages, storm damage restoration management, and the assembly of information required for communication to all stakeholders during large scale events is essential. As mentioned above, UGI has already initiated a project to purchase an OMS by the end of 2012.

It became clear that mutual assistance resources had to be expanded and utilized more effectively in order to reduce restoration times when events of the magnitude of Hurricane Irene occur.. UGI realizes there is keen competition among EDC's for outside resources during such widespread events and its business process for getting approval for outside resources was not sufficiently responsive and needed to change. To that end, UGI has refined its internal mutual assistance approval and communication processes in an effort to ensure that its mutual assistance coordinator has the information and authority to acquire resources in a timely manner. UGI also learned that its small size puts it at a

disadvantage in the Mid-Atlantic Mutual Assistance (MAMA) Group. The MAMA Group is comprised of EDC's much larger than UGI who favor sharing their large numbers of crews as a unit, on an all or nothing basis. To address this issue, UGI entered into a mutual assistance relationship with the Pennsylvania Rural Electric Association (PREA) in late 2011. This agreement provides another source for external crews. In addition, the REA operations are more similar in size to UGI and have resource contingents more consistent with UGI's expected needs. Lastly, UGI learned that it needed better forecasting of expected damages and faster assessment of damages after the event occurs. Mutual assistance has to be called in when forecasted or assessed damages exceed UGI's ability to restore service to its customers in an acceptable time using its internal resources. UGI is developing its ability to forecast damage using weather forecasts and its storm history. It has expanded its internal OMS to quantify the amount of work to be done due to a storm damage event and to form restoration time estimates. This process will be enhanced by the new OMS scheduled to be in place by the end of 2013.

UGI has revamped its crisis communication plan. The new plan was successfully tested during the March 29, 2012 statewide PUC Emergency Management Drill. It incorporated additional communication staff to disseminate this information to all of its stakeholders. Its goal is to provide essential information such as customer counts, areas affected, safety information, customer outreach and estimated restoration times to all its stakeholders in a timely manner.

3. 2012 Summer Readiness

Capacity Additions

As a result of its annual review of the capacity of its transmission and distribution system, UGI recently increased the capacity of two substations, added one new distribution line, and is currently upgrading sections of two distribution circuits with higher capacity wire. In late 2011, UGI replaced a 20MVA transformer at our Hanover substation which serves our only industrial park with a 25MVA unit. The 20MVA unit was then moved to the Hunlock substation to replace an aging 16MVA unit. In addition to the transformer replacement at Hunlock, a third feeder is being added in 2012 to provide load relief to the Lincoln St. substation and to act as a switching option in the event of a fault on the corresponding tie-circuit.

Employee/Event Preparations

On March 29, 2012 UGI conducted a comprehensive Spring Storm Restoration Drill in conjunction with a statewide PUC Emergency Management Drill. Electric Division personnel along with the UGI communications team participated in the drill. The goal of the drill was to prepare for the upcoming storm season and to test some new technology along with an updated communication plan. During the drill the restoration teams received training on the new Partner Damage Assessment module. The tool enables field personnel to view damage locations on a mobile data terminal based map and enter repair

estimates into a central database. Field personnel simulated visiting incident locations and adding information on the type of damage to facilities and an estimated repair time. This is fed into a central database where it was combined with available resource information to produce reports on the nature and extent of the damages by circuit and area. This information is used to estimate expected repair times and assess if additional resources are required. The storm management team also produced customer outage statistics based on the simulated storm and provided this information to the communications team to disseminate per the UGI Crisis Communication Plan. Overall, the drill provided UGI with an excellent opportunity to revisit its current restoration plans and to evaluate the newly deployed technologies. Based on the results, several minor modifications were made to the damage assessment tool to improve its functionality and flexibility. The drill also validated the changes to the UGI Crisis Communications Plan and process.

Transmission Preparedness

In early 2012, UGI completed its annual patrol of its transmission system. No instances of significant damage requiring urgent repair were found. Several minor issues were found that are being addressed as the lines become available for removal from service for maintenance. Overall, UGI's transmission system is in generally good shape with no specific concerns.

4. Storm Response

Storm Preparations

While no two storm events are the same, the common characteristic of all storms is that customers lose service due to damage to the delivery system caused by a weather event. UGI has reviewed and updated its storm restoration plan for 2012. UGI monitors the weather channels in its area along with information provided by PA Emergency Management for potentially severe weather events.

When a storm is forecasted, the Superintendent of System Operations issues a Storm Readiness email to all UGI personnel involved in storm damage restoration providing them with an assessment of the situation and alerting them to prepare for the restoration effort if required. The Superintendent will call a pre-storm preparation meeting when he expects a widespread damage event. Job assignments are made at the pre-storm preparation meeting.

Outage Restoration Strategy

UGI's outage restoration strategy for widespread damage events is similar to those of other EDC's. UGI gives highest priority to outages potentially affecting the safety of the public, so known danger situations are addressed first. All reports of "wires down" are verified as soon as possible since such wires are considered live until determined otherwise. Included in this priority level are reports of wires down across major

highways and equipment and structure fires. Once safety situations are addressed, outages are prioritized and the restoration process begins. Repair crews first focus on restoring service critical loads such as sanitation, nursing home, other highly electric service dependent customers and then on all affected customers as a whole. The backbone of the delivery system is restored first with emphasis on service restoration through switching. Then focus is placed upon restoring service to the largest number of customers per repair until restoration of service to all customers that can take service is completed.

Communications and Outreach

UGI Utilities Inc. recently expanded and refined its methods of communication channels used to reach customers, including the development of an Outage Crisis Communication Plan that details methods for communicating emergency outage information to customers via numerous outlets. The plan has been developed to address the needs of all customers to receive up to date and ongoing specific outage and restoration information. This plan was tested and revised following our Spring 2012 Emergency Drill.

In addition to templates for news releases to be sent to media that includes versions for potential outage situations, initial outage response and ongoing outage updates, the plan includes a full contact list for internal and external communications including media contacts, public officials and government agencies.

Specific methods for communication are laid out by levels of emergency with enhanced efforts in Level 3 Outages (greater than 48 hours) that includes frequent social media updates (Facebook & Twitter), twice daily media news releases, updates to the Outage Center of UGI's website (www.ugi.com/outages) and the ability for customers to sign up for outage updates via e-mail. Additionally, on-site community outreach will be made available for those without access to phone/Internet/media outlets in the form of a central information center staffed by company personnel to provide up to date information on outage restoration efforts as well as information on services available to customers experiencing extended electric service interruptions.