(GUEST OPINION)

Enhanced Outage Restoration

IMPROVING SYSTEM INTELLIGENCE // BY KENNY COLEMAN

RARELY HAVE OUR CUSTOMERS needed us more than they did on April 27, 2011, when two waves of storms moved across west central Alabama, southeast Mississippi and northwest Georgia. More than 60 tornadoes over a 14-hour period resulted in the tragic loss of more than 250 lives. By 9 p.m., the state of Alabama had more than 412,000 customers without power. Ultimately, 41 of its 67 counties would be declared federal disaster areas. When he visited Tuscaloosa, Ala., President Barack Obama said he had "never seen devastation like this."

In its previous 100 years, Southern Company had experienced catastrophic storms, but this time the damage was especially severe and widespread. In many areas, the devastation – including 890 miles of downed wire and 3,000 damaged transformers – meant the electrical system had to be completely rebuilt. More than 300 substations lost power, and some 7,500 power poles and 440 transmission structures were destroyed.

Within a week, service had been restored to all Southern Company customers capable of receiving power. This was due to the commitment of our employees and utility partners. Although much of the success could be attributed to utilizing technology in our restoration plan, reliable infrastructure and redundancy, the company also benefitted from strong partnerships with organizations across the system.

Storm centers were open and monitoring the storms before they struck our service territory. The centers were able to benefit from the company's rich legacy of geographic information system work and an enterprise agreement with the Environmental Systems Research Institute (ESRI), which enabled Southern Company to deploy a robust and mature GIS network of transmission and distribution infrastructure and applications.

GIS solutions, including time-based outage analytics, facility inventory and location-awareness models, were all available on desktop, Web and mobile environments. Engineers and managers were familiar with the technology and IT employees were embedded with crews, creating a responsive environment for developing and deploying immediate system solutions. In addition, our strong relationship with ESRI ensured that its expert team provided on-site guidance.

Applications were integrated in new ways to expedite the repair of damaged infrastructure. GIS experts created a customized dataset for GPS units, which enabled engineers to rapidly navigate to critical switching locations. Connecting the data from mapping, aerial photographs and GIS resulted in an expanded and interoperable system, which is used across the industry today.

Technology-laden staging areas and material distribution facilities supported more than 10,000 restoration personnel from 20 states. The staging areas were fully stocked with wire, fixtures, insulators, utility poles and other necessary materials. Map specialists and IT developers were stationed at all locations and provided more than 5,000 map sheets, GPS updates, GIS analytics and Web-based outage mapping, which assisted storm center managers in safely and effectively directing crew deployments.

For more than 20 years, Southern Company has been adding new technologies to its electrical network. Smart meters, GIS, real-time systems and aerial imagery have fostered the evolution of an integrated system with a dynamic blend of IT and business-unit partners.

Southern Company and its operating companies have a long history of preparing to perform well under difficult circumstances. Our employee teams, with the support of IT systems, leverage technology to achieve business goals and solve a range of challenges. Ultimately, this approach contributes to our success by enabling real-time storm assessments that help us more efficiently utilize the thousands of company and mutual-assistance workers restoring service to our communities.

Kenny Coleman is senior vice president and chief information officer at Southern Company.