

SPEED UP DAMAGE ASSESSMENT

ASSEMBLY AND DISPATCH OF RESOURCES DURING OUTAGE EVENTS

By Bill Perry

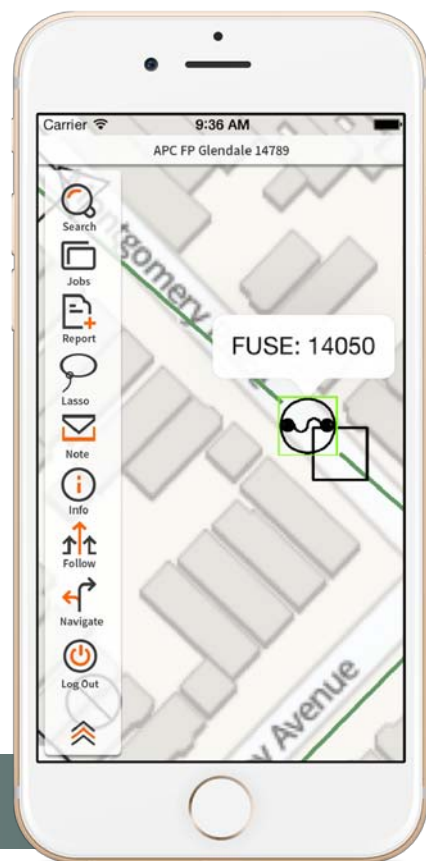
In a survey conducted in September 2016 by ARCOS LLC (a provider of emergency resource management software), the software provider asked utilities how they manage damage assessment in the wake of major events like storms and earthquakes. Thirty-five percent of utilities polled said they relied on paper and pencil along with manually entering data in their outage management systems (OMS). Another 31 percent relied on electronic forms, but still entered data by hand into an OMS. Twelve percent made use of online damage assessment software, which was not integrated with an OMS. And another 12 percent had damage assessment software fully integrated with an OMS.

The results are surprising if for no other reason than technology for assessing damage after major events has existed for more than a decade. One utility that understands the challenge of relying on manual processes for damage assessment is Consolidated Edison of New York (Con Edison). When Superstorm Sandy left 8.2 million of its customers without electricity in October 2012, it took Con Edison more than a week to assess the damage. Using primarily paper and pencil, an army of damage assessors fanned out, recorded what they found and turned in marked-up paper maps at the end of each shift. To complete the job, Con Edison relied on contracted damage assessors as well as mutual-aid crews from other parts of the country. Relying on paper and pencil reporting was only part of the challenge for damage assessors brought in to help; the other hurdle was being unfamiliar with the service territory.

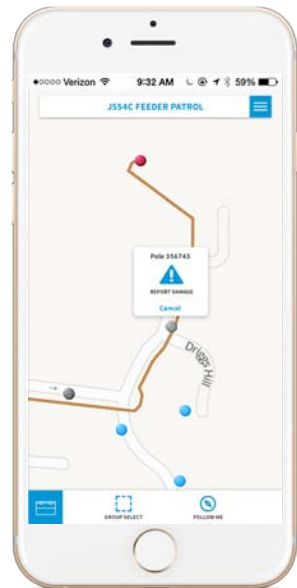
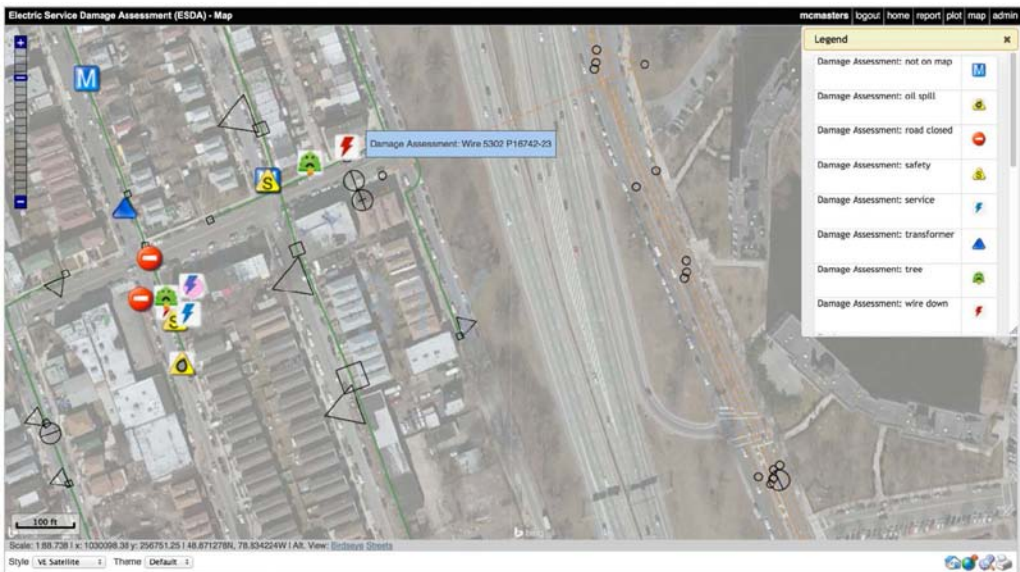
Utility executives are realizing that using paper and even semi-automated methods for assessing damage simply extends restoration efforts and compounds delays because supervisors often don't know the extent of the damage until the end of feeder patrol shifts. A lack of early notification of what's broken affects when a utility can dispatch repair crews. And this, in turn, bogs down communicating with customers and the media.

If these challenges aren't enough, consider how regulators view inaccurate reporting of

From a mobile device the system's mobile application guides users through storm damage assessment.



Data gathered by assessors via the mobile application is displayed on a map and reporting interface for event coordinators and managers to analyze.



damage, increased expenses due to delays and the hit to customer satisfaction.

Instead of relying on an engineering department to print hard copies of feeder maps and distributing paper maps to a damage-assessment team, some utilities like Con Edison have automated the damage assessment process. Con Edison did this in the wake of Superstorm Sandy by putting in place a device-agnostic damage

assessment system that brings assessors an online and offline capability for finding and reporting on circuits. The ARCOS SAMsix Damage Assessment and Field Inspection system, which is now in its second generation, integrates with an OMS and geographic information system (GIS). With a damage assessment system in place, a utility can electronically send a job assignment to an assessor or crew in the field. The damage assessor pulls up a map



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Utility worker removing vegetation hazards caused by ice storm

of the circuit and feeders overlaying real-world coordinates for streets and landmarks from any smartphone or tablet or laptop. The assessor notes the damage on their device and can submit photos or video of the scene, which is then electronically relayed to a utility's OMS. If there is a loss of connectivity due to, for example, a cell tower being down, the assessor's report is held in a queue for transmission to the OMS when connectivity is regained.

Some utilities employing damage assessment system such as the one in place at Con Edison, indicate they have reduced a four-step manual process (e.g., making job assignments, marking up maps with damage, manually entering damage in the OMS and producing map of damage for crews) to a two-step process where jobs are assigned and assessors report on problems, all of which is electronically relayed between the back office, OMS and crews.

Utilities who have automated the process realize that improving damage assessment in this way ensures faster response, restoration, and reporting. That equates to completing assessments in hours versus days.

Putting a system like this in place provides situational awareness for supervisors to make crew-allocation decisions safely, quickly and accurately. Plus, it speeds up damage assessment, which would have

an immediate impact on the 37 percent of utility managers polled, who told ARCOS LLC that it took two days for them to conduct damage assessments after major events. In this same poll, another 30 percent of utilities said they took three or more days to complete assessments in the wake of big restoration efforts.

In light of the work Con Edison undertook with ARCOS SAMsix, utilities relying on manual assessment have a proven way to enhance the assignment and tracking of damage assessment. It's possible for utility managers to use a damage assessment system like this to assign crews in their existing OMS and see crew positions and field reports returned directly to the OMS or WMS. An approach like this will improve the accuracy of collecting damage reports, get up-to-date maps into a crew's hands, and offer real-time reports on repairs and restoration. According to utilities who have been using a damage assessment system in the field, they are completing damage assessments within 12 to 16 hours and allocating restoration work by the end of the first day of an event.

This improves resource planning and enables utilities to tell a story to the media and customers through situational awareness, which leaves a lasting, positive impression that a utility will respond, restore and report with a sense of urgency.

Fundamentally, for a fully automated damage assessment to work, a utility needs:

- A platform that will run on any device that assessors and crews bring with them to the job, so the utility can train them and send them into the field immediately.
- Online and offline capabilities in the event that cell towers or servers are down.
- Integration with an OMS and GIS to eliminate manual entry and duplication of data.

FURTHER INFORMATION

Since 1999, SAMsix has been designing and implementing outage management systems, GIS, network analysis and field data gathering tools for some of the world's largest utility companies and government agencies. <http://www.samsix.com/>

ABOUT THE AUTHOR

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