

# AEP Automates Callout

Faster crew assembly improves response time in emergency situations, increasing customer satisfaction and overall operation efficiency.

By **Jim Nowak**, *American Electric Power*

There were no computers on managers' desks 30 years ago. Managers relied on assistants to take dictation and type memos on typewriters. With the advent of the desktop PC, writing letters became incredibly more efficient. The responsibility for writing managers' memos shifted from one person to another. But the letter-writing process — from idea to keyboard to words on paper — remained largely the same. American Electric Power's (AEP's) strategy for speeding up service restoration is not unlike the evolution from typewriters to PCs.

For the past five years, AEP has been studying how to improve service restoration to increase reliability affecting the customer average interruption duration index (CAIDI). Put another way, AEP's leadership wants to reduce the time it takes to restore power to customers. The utility also wants everyone — from field personnel to dispatchers — to work together to provide AEP customers with faster, more precise information about service restoration. AEP also wants to forecast more accurately what a crew might need at a job site. The bottom line is efficiency.

As part of its study, AEP examined its service restoration process. The utility confirmed that its service restoration practices worked well. What managers responsible for the study earmarked for change, though, was the level of efficiency in AEP's outage response work. Those studying AEP's processes saw room for improvement in the utility's internal and mutual-assistance processes for restoring service, especially for non-major events (for example, a pole down or a blown transformer) happening outside normal working hours. Until now, AEP handled every step of these processes manually.

## Studying Efficiency

AEP's emergency restoration planning team calculated that from 2004 to 2009 the utility had spent tens of millions of dollars on the following:

- Storm restoration expenses
- Overtime
- Outside services.

Many utilities simply accept the numbers as the cost of doing business. But the AEP team learned that part of these costs

arose directly from inefficient processes. For example, AEP was manually notifying crews and tracking resources such as vehicles, equipment and callout rosters. On a typical summer evening after normal business hours, AEP might need a handful of crews to respond to outages across a particular service territory. As the team dissected how this callout typically worked, it saw room for greater efficiency.

The job of callouts fell to AEP dispatchers or duty supervisors. Callouts took time away from dispatchers or duty supervisors to support crews and, ultimately, customers. For instance, to assemble one four-person crew, dispatchers could make anywhere from six to 12 calls for line personnel, not to mention additional calls for material, while juggling the needs of crews already in the field. The callouts caused an additional 18 to 36 minutes of work for the dispatcher for



From an AEP dispatch center in Ohio, a dispatcher scans the sort of reports the new callout system replaces.

The system provides AEP supervisors and operations personnel with a real-time, on-demand report of callout activity, which managers can use to see what type of callout took place, how long it lasted and which employees were involved.

every crew AEP had to assemble on an average night. That extra time had a ripple effect. Minutes elapsed as the dispatcher assembled the crew. And because of that, dispatchers took longer to inform the utility's service center about restoration time and update AEP's outage management system.

**Zeroing in on Nightly Outages**

Outages caused by Hurricane Ike in 2008 accelerated AEP's desire to make its restoration processes more efficient. Major storms were not the only catalyst for seeking greater efficiency. The utility also saw a strategic opportunity for improving CAIDI across its 11-state region. From 2004 to 2009, the overtime labor to restore power for typical nighttime outages averaged more than US\$10 million per year.

Here is what AEP's self-examination found: Large storm events can be crippling, but what impacts AEP even more is a storm front that races quickly through an area after normal business hours. Storms like these hurl lightning that might knock out a transformer or cause a tree to fall, which brings down a wire. These random nightly events can really add up in terms of cost and CAIDI. Getting people to the scene quickly to address the situation is the best way to shorten any outage.

**Automate the Process, Do Not Change It**

Getting people to the scene faster did not require reengineering the process. Instead, it required automation. By knowing who is available and reducing the front-end notification and response from crews, both for routine outages and during major events, AEP felt it could trim CAIDI, reduce unnecessary overtime, help dispatchers be more strategic and generally improve efficiency.

Identifying the impediments to greater efficiency was an important first step, but reaching agreement on a solution

required research and building consensus. To do that, AEP's emergency restoration planning team consolidated all of the utility's distribution processes associated with emergency restoration. The team took a proactive look at how it could generate more effectiveness from AEP's processes. Each person on the team helped to explore the challenges to creating greater efficiencies. As the group did this, it came to believe that putting in place one system for callout across all of AEP's operating utilities would trump integrat-

ing separate systems that each operating utility might procure on its own.

In 2005, the emergency restoration planning team learned that Appalachian Power, a unit of AEP, was exploring an automated callout strategy. Appalachian Power was looking at the ARCOS resource allocation system, an Internet-based solution that automatically locates and assembles utility repair crews after normal business hours. That same year, the emergency restoration planning team formed a group that included Appalachian Power employees and AEP's central organization to study automated callout and resource management. Two years later, the newly formed group went to Dominion Virginia Power to benchmark what Dominion had accomplished with callout and resource management.

**Impact of Automation**

Armed with several years of research and the team's collective recommendation, it brought AEP's seven operating utilities to the table in 2007 and reconfirmed its findings. By highlighting the benchmarking it had done against other utilities' methods, the emergency restoration planning team learned that many utilities, like Dominion and Florida Power & Light, had automated callout systems and databases for tracking resources.

As a next step, the team calculated AEP's costs for major and non-major outage events. The team members outlined the operations and maintenance savings that would result from automating callout and resource management. The group then highlighted the reduction in overtime and the savings in outside services and compiled a list of the safety and operational benefits. The team showed the seven operating utilities how automation of callout and resource management would improve scheduling, document safety orientations, help





Today AEP is able to assemble its linemen in the buckets and on the poles and the rest of the emergency response crew members more efficiently.

supervisors schedule rest periods and reduce CAIDI, conservatively speaking, anywhere from 5% to 10%.

Between 2008 and 2009, the emergency restoration planning team put together a business case for AEP's leadership. The team assembled a group of representatives from each of AEP's operating utilities. The team members included managers from dispatch operations, supervisors of distribution systems and information technology. The group presented the costs and savings from automating callouts; it recommended a software solution and the strategic measures of success. Those success measures were: improved callout response rates; shaving time from the moment an outage occurs to the time it would take crews to arrive at the scene; and better CAIDI.

### Implementing the Plan

In 2010, AEP's executive leadership agreed to a strategic plan spearheaded with technology for automating callout and resource management. The implementation began this past spring, with each of AEP's operating utilities bringing automated callout on-line during the summer of 2011. In addition to the automated callout software purchased from ARCOS, AEP is developing a dashboard for operations, regulatory affairs, media relations and external affairs managers to see a real-time breakdown of available resources, restoration resources, estimated times of arrival and releases.

AEP believes automating callout is about more than just getting crews into their trucks. By reducing the duration of

callout, power is restored faster. This, of course, impacts customer satisfaction as well as AEP's ability to hit the marks set by public utility commissions. For dispatch operations managers, bringing greater efficiency to the callout process enables dispatchers to take a little more time reviewing hazard tickets and better prepare crews for what they will find at the scene of an outage. That translates into not only a more efficient process but also a safer one.

### Efficiency is the Bottom Line

By studying the methods and ways AEP works, the emergency restoration planning team confirmed the soundness of the utility's practices. The team also learned it did not need to change AEP's service restoration scheme. Instead, it simply needed to change the way crews get called and secured for emergency work.

Although AEP has implemented a system that covers all of its operating utilities in 11 states, the change-management aspect of this effort is small. AEP will call out crews with an automated system instead of a dispatcher contacting each individual crew member. That requires crews to adapt to responding to an automated message. But like the desktop PCs that replaced the typewriters on managers' desks, the process will not change. It has only become more efficient. **TDW**

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### Companies mentioned:

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