Midcircuit reclosers

+ ComED AVOIDS 70,000 CUSTOMER OUTAGES

By William J. Gannon

Chuck Brown, a principal technician with ComEd distribution testing, tests the controller cabinet near a recently installed midcircuit reclosure on Chicago's North Side.

WE HEAR ABOUT THE SMART GRID EVERYWHERE nowadays. Recently, I even saw the new White House Chief of Staff Rahm Emanuel lecture a Wall Street Journal forum of Fortune 500 CEOs about it. The promise of smart grid technology is obviously great, but as we await its full flowering, utilities can use innovative technologies right now to get smarter and more reliable.

Within ComEd's northern Illinois service territory, we have made a significant commitment to midcircuit reclosers (MCRs) on 12-kV lines. Automated sectionalizers are a common feature on our 34-kV lines, but with the aid of MCRs, we are now registering our lowest number of customers affected per mainline outage in nearly a decade.

MCRs are automated devices typically installed near the halfway point on 12-kV lines that feed large customer counts. If a disruption occurs at one end of the circuit, the MCR can open automatically and isolate the problem so only half experience an extended interruption of service. MCRs are also installed at feeder tie-points to enable customer restoration in the event of a problem on the front half of the feeder.

Utilities can pave the way with foundational technology such as MCRs.

ComEd installed 138 MCRs in 2007 and more than 300 in 2008. Over the next four years, we hope to install a minimum of 150 MCRs per year to bring our system-wide total to more than 1,300. ComEd has proposed additional installations as part of its local smart grid proposal.

We estimate that these investments over the past two years have reduced our outage frequency system average interruption frequency index (SAIFI) by 0.02. This includes 70,000 avoided customer outages in the last year alone.

These gains required outstanding cross-departmental coordination. Project management and distribution automation groups coordinated on the design, installation and testing to enhance overall MCR operability. These groups also interacted with IT, construction & maintenance, distribution system operations, and work management groups to double the originally planned number of MCRs installed in the first year.

For the two-way communication system, ComEd has used a Utilinet 900-MHZ radio system. IT also plays an important role in ensuring system readiness, accurate switch control via supervisory control and data acquisition (SCADA) and the capturing of data for performance measurement and monitoring.

These advances will eventually seem rudimentary when compared with future intelligent systems. However, while the smart grid is indeed the future of electrical systems, that future will not be realized tomorrow.

Until then, utilities can pave the way with foundational technology such as MCRs that improve reliability for our customers today.

William J. Gannon is manager of distribution reliability programs at ComEd.