



Detroit Edison Co. Forms Alliance to Improve Distribution Automation

Detroit Edison Co. (DECo) took a problem with communications protocol compatibility and turned it into better protection at a lower cost, through a strategic alliance with Cooper Power Systems. Cooper was able to provide reclosers for DECo's three-recloser protection schemes with greater capability and simpler design, while saving costs over the lifetime of the reclosers.

DECo has been using three recloser schemes for improving system reliability since 1992. But since that time, improvements in equipment designs and capabilities were making DECo's original solution out of date. The challenge was to integrate the new equipment with the existing legacy system, with its many different protocols. DECo posed that challenge to their major suppliers: develop equipment that will integrate seamlessly into DECo's existing system without any additional proprietary interfaces or hardware. DECo uses System Northwest's S-COMM protocol for their pole-mounted devices.

Cooper Power Systems took on this challenge, and with DECo formed a team to meet this goal. Along the way, this partnership expanded into a strategic alliance which saved the company as much as \$1 million per year on recloser scheme costs. Their concentration focused not just on recloser scheme compatibility, but expanded to include life cycle cost, inventory management and process improvement.

By changing the focus from first cost to life cycle cost, they were able to assess all of the costs associated with procuring and operating a piece of equipment throughout its life. Several design features and process improvements resulted in life cycle cost savings as well as enhanced capability.

Control/RTU Integration

Cooper's new recloser control and automation platform, the Kyle[®] Form 5, has an integral loop scheme and imbedded communications functionality that uses S-COMM protocol. A second independent communications port gives DECo the capability of upgrading in the future to DNP 3 protocol. Since RTU function is built into the control, there is no need for a separate RTU cabinet and its associated wiring and installation. Elimination of the separate RTU is estimated to save DECo \$8,500 per installation (DECo installs more than 40 reclosers per year). The Form 5 and recloser integrates seamlessly into DECo's existing system with no discernable difference to the distribution management system or the substation submaster.

All existing loop sectionalizing, midline and tie controls are integrated into the Form 5 control, so DECo can install the same control in any of those loop functions. The new control takes the place of five differently configured controls that DECo previously had to stock, and a total of 21 line items from its stock shelves.

In addition, the NOVA[™] recloser is more sensitive to ground fault trip settings, improving hot line work safety for crews.

Installation

The new NOVA recloser, a vacuum recloser using completely solid state insulation, is 600 pounds less than DECo's previous recloser and 30 per cent smaller. It is much easier to handle, and can be installed much faster than the old reclosers. Because of

“For us, distribution automation helps limit customers affected by outages. Cooper's state-of-the-art recloser and recloser controls easily integrated into our existing system – and reduced the cost of a three recloser loop scheme by \$40,000.”

Jim Evans, Principal Engineer,
Relay Engineering DAS/SCADA



its reduced weight, it can be installed on most existing poles, saving the cost of replacing the pole with a heavier version. Since the NOVA recloser contains no oil, there is no chance of leaks or spills.

Reduced Maintenance

Studies have shown that the true costs of removing, transporting and maintaining a recloser every twelve years is as much as installing a completely new recloser. The NOVA recloser doesn't need maintenance throughout its life, translating to a \$15,000 savings per unit to amortize over 24 years.

Another advantage of the NOVA recloser is its epoxy insulators in contrast to the traditional porcelain insulators. The new insulators are more resistant to damage and cracking from flashover or physical abuse. This also reduces maintenance costs and improves reliability.

The strategic alliance was able to reduce inventories and delivery costs by "drop ship" deliveries directly to service centers, with no additional testing needed on the units, cutting the transportation adder by 19 percent.

As a result of the demonstrated success in three-phase reclosers, DECo and Cooper plan to expand the alliance to single-phase reclosers for even greater reliability gains and cost savings.

Distribution Automation Solutions from Cooper Power Systems

- Easy integration into existing systems
- Interrogation and programming via personal computer
- User-friendly Microsoft® Windows® based application solutions
- Communications capability for SCADA systems
- Variety of protocols utilizing radio communications
- Solutions with a wide range of products: relays, reclosers, regulators, three-phase switches, capacitors, fault indicators, etc.

***Contact your Cooper Power Systems Representative,
or call 1-877-CPS-INFO for more information.***

**COOPER** Power Systems

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