



Relay Upgrade for Southeastern U.S. Utility

S&C Featured Solution: S&C's Power Systems Solutions

Location: Southeast United States

Customer Challenge

To improve the reliability of its distribution system, an investor-owned utility in the Southeastern U.S. turned to S&C to upgrade the existing electromechanical protection and control equipment on its 15-kV and 23-kV feeder breakers.

New relay panels would be required. The microprocessor-based relays would be connected to the utility's SCADA system to improve outage response time, and thus the reliability indices of their distribution system.

S&C Solution

S&C provided design and engineering, panel fabrication and testing, panel installation, and feeder protection and control scheme commissioning. These efforts were often provided in parallel to support the utility's aggressive project schedule.

S&C's Power Systems Solutions designers and engineers gathered information on the existing equipment from the utility's files and obtained

existing as-built drawings from the utility's document management system. New and revised drawings were prepared and submitted to the utility for review. The approved drawings were checked into the utility's document management system.

S&C constructed the new relay panels in accordance with the drawings and utility specifications; mounted and wired the new protection, control, and SCADA equipment; downloaded the relay settings; and functionally tested each panel. The new panels were then packaged and shipped to the substations where they would be installed.

In each instance, S&C's field crew provided the switching necessary to install the new equipment, and then removed the existing panel and all obsolete wiring. After wiring the new relay to the breaker operating mechanism, the crew connected it to the SCADA system through a new fiber-optic multiplexer and cable.

S&C's crew then functionally tested each installation to ensure proper operation and worked with utility personnel to check remote operation.

- 1) *Utility's existing electromechanical protection and control equipment.*
- 2) *Rear view of new microprocessor relay wiring.*
- 3) *Front view of new relay panel with test switches.*





Results

In the first two years of this project, S&C's Power Systems Solutions has upgraded the protection and control equipment of this utility on more than 120 feeders at 40 substations. Work is proceeding on the remaining equipment.