



S&C's Technical Services Shrinks A Series 2000 Circuit-Switcher For Use In A Reactor Switching Application

S&C Featured Solution: 230-kV Model 2010 Series 2000 Circuit-Switchers

Location: Northern California

Customer Challenge

A utility in Northern California was looking for a solution to regulate power flow on their 230-kV lines. Power flow problems were preventing use of all of the available capacity in some areas of their system while overloading others. Their solution was to apply two- and three-stage single-phase reactors to the lines in order to direct power flow and balance the use of total system capacity. The reactors were designed to be added to the system in 21/42/64mH steps as required, depending on the line loading limits. The utility needed to be able to apply each section of the reactors independently to have the flexibility required to balance system conditions.

The challenge was the severely limited space in the existing substation where the reactors were to be installed. Using three separate switching devices (such as Circuit-Switchers or breakers) would not work because the complex bus work to each stage of the reactor would require more space than was available.

S&C Solution

S&C's solution was to offer three 230-kV Model 2010 Series 2000 Circuit-Switchers in a custom "nested" design that allowed three Circuit-Switchers to be placed in an area that would normally fit only one device. Each Circuit-Switcher phase was supplied with its own operator and the high-speed base modified to operate the single pole-unit. The operators were then electrically linked to reduce the amount of space normally required by the Series 2000's horizontal high-speed base, while maintaining three-phase switching simultaneity. This arrangement allowed the utility to fit the required switching equipment and bus work within the available space. In addition, each individual pole-unit was seismically rated to meet requirements for the Northern California area.

Results

The utility is pleased with their custom equipment and the work that S&C's Technical Services did to creatively solve their application issues using Series 2000 Circuit-Switchers.

A Series 2000 Circuit-Switcher protecting a single-phase reactor.



Series 2000 with voltage and current sensors.

