



# Trans-Rupter II® Transformer Protector Model SE Provides a Permanent Solution for a Temporary Substation

## Customer Problem

An electric utility in the Midwest needed to provide service to an ethanol plant under construction. They were temporarily serving the facility through a 20-MVA transformer mounted on a mobile substation. This mobile substation had been at the site for over six months, but the utility didn't want to tie it up for the two years in which they were responsible for providing service.

They decided to build a temporary substation next to an existing substation. The problem: The neighboring substation's control house was far away and the utility didn't want to invest in trenching, relays, and possible battery upgrades for a temporary substation.

## S&C Solution

S&C worked with Waukesha Electric to mount a 138-kV Trans-Rupter II Transformer Protector, Model SE and manual disconnect directly on a 138- to 12-kV, 10/12-MVA transformer. Waukesha has been mounting S&C Circuit-Switchers to their transformers since 1990—a technique which saves space in distribution substations, and avoids the trenching runs and additional foundation costs associated with a free-standing circuit-switcher and relays.

The protective relays of the Model SE are powered by the transformer's internal bushing current transformers, eliminating the need for substation batteries. The Model SE control cabinet was installed on the side of the transformer, and the entire installation was mounted to railroad ties to facilitate delivery and installation.

Mounting the Model SE directly to the transformer allowed the entire package—transformer, relays and protective device—to be tested at Waukesha's factory before shipment to the site. So the new temporary substation installed very quickly.

*Figure 1. 138-kV Trans-Rupter II® Transformer Protector Model EX.*



## Results

The utility is well pleased with the performance of their new “portable” substation transformer and the Trans-Rupter II Transformer Protector. The temporary substation will be moved by rail to another location after construction has been completed and a permanent substation is built.