CASE STUDY
IMPROVING RELIABILITY

S&C ELECTRIC COMPANY
Excellence Through Innovation

# S&C's Switchgear Meets a Foundry's Special Needs

**S&C Featured Solution:** System VI™ Switchgear

**Location:** Texas, United States

## Customer Challenge

An iron foundry in Texas had a fast-track project to install two new arc furnaces. Each furnace would be served from two new 2717-kVA transformers, with switching and protection provided by new 15-kV switchgear. This switchgear needed to fulfill a number of stringent requirements:

- The switching devices had to be capable of handling the high harmonic content of the rectified load.
- Each transformer had to be individually protected.
- In the event of a transformer or cable fault, the protective devices had to simultaneously interrupt the current to both transformers serving the associated furnace.
- The protective devices had to be capable of being tripped from an external signal.

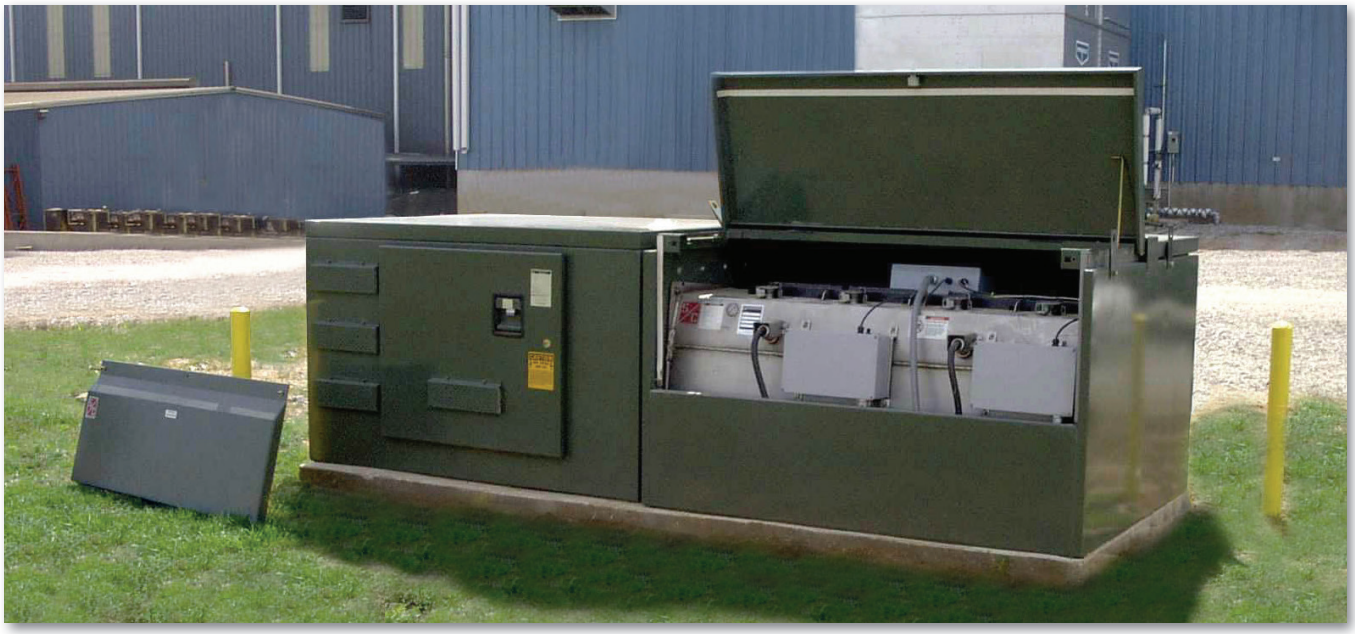
## S&C Solution

After all of the alternatives were considered, S&C's System VI Switchgear was deemed the best equipment for the application.

System VI Switchgear is comprised of S&C Vista® Underground Distribution Switchgear units connected to air-insulated bays by means of $SF_6$-to-air bus-through bushings.

The load-interrupter switches and vacuum-fault interrupters furnished in Vista switchgear units are fully capable of handling the rectified loads and provisions can be made for simultaneously interrupting current to either pair of transformers.

System VI Switchgear is much more cost-effective for this application. And S&C would be able to meet the tight delivery schedule.



The 15-kV System VI Switchgear selected is comprised of two sections: an air-insulated cable-entrance bay and a Vista switchgear Model 404. See the single-line diagram below.

The Vista switchgear unit includes four 600-ampere fault interrupters feeding the loads. Terminals are equipped with 200-ampere bushing wells.

The Vista switchgear unit utilizes a unique microprocessor-based overcurrent control with a variety of time-current characteristic curves, for precise coordination with upstream and downstream protective devices. For this application, the overcurrent control was modified to simultaneously trip the two fault interrupters serving each arc furnace.

An isolation transformer, connected to the overcurrent control, accepts an external trip signal for the fault interrupters. (The transformer is visible on top of the Vista switchgear tank in the photo on page 1.)

## Results

The S&C System VI Switchgear was delivered to the foundry on schedule. It continues to provide excellent performance in this difficult application.