

APPLICATION GUIDE- AG259

PHASED BUILDOUT OF UL1558 SWITCHGEAR AND GENERATOR CONTROLS

Products: SAI AGC-200 Automatic Transfer Controls, Eaton Magnum SB Circuit Breakers, GE Versamax Micro PLCs, Satec PM130P Power Meters, Alcad AT10.1 series battery chargers, Monolite SLA batteries

Issue: A major Midwest logistics provider for the freight transportation industry needed to add a new data center to their system to better manage their complex and ever-expanding operations. The project scope called for (3) incoming utility services, each with a full-sized backup generator to support all of their planned building and facility loads. Because they needed to bring a portion of the datacenter capacity on line quickly, they wanted to execute the project in phases, with Phase I incorporating the first two utility services and generators, and with Phase II adding the third set. The control system needed to be designed such that in the event of a utility or generator outage, the services could support one another's loads, and if necessary, shed less critical loads in order to continue to provide power to the most critical loads. Additionally, because of the 24/7 nature of the operation, and the criticality of the loads, the third utility and generator needed to be added to the system via a quick install and commissioning process, as a complete overhaul and resulting prolonged shutdown would not be possible.

Solution: SAI designed and built the initial two UL1558 service entrance switchgear lineups, and using the SAI AGC-200 main and generator controls platform, pre-programmed all of the required functionality of both the initial two service configuration and the eventual three service configuration. The SAI control system took into consideration a broad range of potential tie conditions and load calculations that would not be present at the time of installation of Phase I, but would be once Phase II was completed.

Both scenarios were completely simulated at SAI during factory acceptance testing before shipment. Then, during startup and commissioning, by using the Emulation Mode of the SAI control system, SAI was able to demonstrate how the system would operate once the third was eventually installed. As a result, all of the control pre-testing and commissioning for both phases of the installation were completed during the installation of Phase I.

Result: Phase I was installed and commissioned successfully and on schedule. At a later date, the Phase II installation went quickly and smoothly, saving the customer a substantial amount of time and cost, and more importantly, avoiding an extended shutdown.

