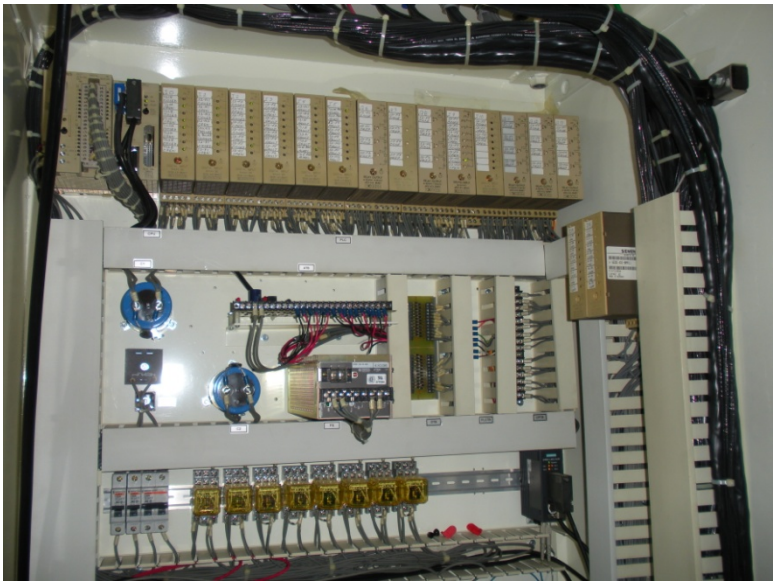
BEFORE

Obsolete - Siemens S5 PLC



AFTER

New – GE RX3I, CRU320 Redundant PAC Controller

THE CHALLENGE

A national telecommunications company needed to upgrade their aging electrical infrastructure in order to prevent compromising the reliability of their entire landline communications networks in a large metropolitan area. Since the original equipment was installed by Prime Power back in 1995 and had operated trouble-free since then, the company knew they could rely on Prime Power to bring their system into the 21st Century without a hitch.

This massive plant consists of three separate identical medium voltage substations that are fed from two sides by separate 2,500 KVA transformers. This way each substation can be supported by two different utility or generator sources allowing for maximum up time. Also, two-megawatt generators are configured with an N+1 configuration for each substation.

The old equipment contained obsolete Siemens S5 Programmable Logic Controllers (PLCs). If one of the PLCs failed, the reliability of the entire system could be severely compromised, resulting in unintended down time and the interruption of vital communications operations for several million

telecom customers. The upgrade required the replacement of all PLCs with a system of redundant Programmable Automation Controllers (PACs) utilizing a 2.12-gigabit fiber network.

THE SOLUTION

Prime Power Engineers assessed the situation and authored a plan to replace each of the obsolete PLCs with redundant PACs and then tie them in with Ethernet remote monitoring capabilities. The new technology allows for each CPU to operate in coordination with each other, thereby allowing for a seam-less transfer to the secondary controller in one scan in the unlikely event of a fault within the primary controller. New redundant 48 to 24 Volt DC to DC converters were also installed to provide continuous supply voltage to the system.

Each substation's controls were upgraded one at a time with the new redundant PAC controllers. Prime Power successfully performed the entire upgrade without a moment's downtime afflicting the plant. The plant maintained full operability throughout the operation.

Once the system was upgraded, Prime Power engineers ran redundant fiber connections from each PAC controller through memory exchange modules to display pertinent information on a graphical user interface (or HMI). From this HMI, the customer has the ability to control any generator or breaker in any of the three substations. This capability makes system reconfigurations effortless for the system operators.

THE BENEFIT

It is important for this site to remain online at all times to prevent outages to its customers. Millions of people need this site to stay operational throughout the day for their communications requirements. If this site were to go down, an entire state capitol could risk communications blackout. Under the new configurations, back-up batteries will provide eight hours of continuous additional power support in the unlikely event of a complete power outage.