33kV / 11kV HV Switchgear Renewals

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W J Project Services

Network Rail, Major Projects and Investment awarded the contract in January 2008. The existing GEC KC switchgear was 50 years old and with increasing power demands and less network outage availability for maintenance the metal clad switchgear was replaced with new Areva WSA GIV switchgear. The associated ancillary Auxiliary Transformers and Signalling supply LVAC equipment was also upgraded.

Contract Details

Commenced	January 2008
Completion	January 2011
Client	First Engineering / Babcock Rail / Network Rail

Location

Location	Essex, Kent, Surrey

Principal Works

- Bypass in-service substations
- Removal of old metal clad switchgear
- Install new Areva WSA switchgear
- Commission and switch into service
- Remove old battery system install new charger systems and commission into service
- Replace auxiliary transformers with a new higher rated cable feed types
- Replace old wall mounted signalling switch supply with new Signalling Supply LVAC change over panel

In January 2008, Network Rail MP&I required 14 HV substations within there South East Territory to have there life expired metal clad switchgear replaced as part of its 33 / 11kV oil filled switchgear renewals programme.

Due to increased demand by the train operating companies each location had to be assessed on its operational impact as to how the old switchgear could be isolated from the railway infrastructure and replaced with minimal disruption to train services.

WJ Project Services undertook the role to verify / modify the designs, supervise the removal and replacement of the switchgear and commissioning of the new equipment into service.

Initial works involved bypassing the in-service substation. In many cases this would require an inter-trip scheme to be installed to a remote end feeder circuit breaker to allow an onsite Rectifier Transformer and auxiliary transformer to continue feeding the rail network.

As part of the bypass works the existing feeder cables were cut and joined together. The translay zone protection relays had have new settings applied to protect the bypassed feeder zone during this work.

On completion of the bypass the old metal clad switchgear was removed and the new Areva WI GIV switchgear erected within its foot print. The existing equipment was connected to the new panel and tested for correct operation and inline with the current Network Rail testing standards. Testing of the Supervisory / SCADA interface was carried out to the relevant control rooms

Replacement of auxiliary transformers, battery systems and LVAC changeover panels was carried out with commissioning works undertaken by WJ Project Services.

When the new equipment was ready for service the bypass of the substation was removed and the newly installed equipment switched into service.

The key to the success of the project was the detailed coordination of activities by WJ Project Services and its ability to manage each step with excellent engineering capability and delivery.