



Case study

Rail substation electrical refurbishment support

THE CHALLENGE

Our client was upgrading the main high voltage electrical feeds and switchgear for the railway network across a large number of different sites. The project required the design and installation of upgraded equipment within a number of substations within the South London Network Rail zone.

This equipment had to provide similar functionalities to the original equipment, whilst achieving improved reliability and decreasing the maintenance requirements. Frazer-Nash was employed to supply design support for the high voltage electrical protection systems and for the supervisory control system for the switchgear.

OUR SOLUTION

This work was split into two main elements: the supervisory control systems monitoring communication equipment, and the power control system. This required that we survey the substations and control rooms to ensure that we understood the function of this key equipment.

With respect to the supervisory control systems (SCADA) monitoring, our design team reviewed the present installation (as fitted sometime in the 1970s), and determined a new circuit configuration using modern SCADA equipment. In addition we had to determine the programming logic and functionality required, without any original diagrams, whilst working within the boundary of the existing external alarm indication lines.

On the power circuit, Frazer-Nash was required to review the design requirements of the equipment and sub-station and calculate the Translay protection setting. These calculations were produced in Amtec. Our protection setting included both the normal system configuration and the temporary implementation arrangements when one substation was bypassed. In addition we provided calculations and proposed settings for the Bus-bar protection.

RESULTS

Frazer-Nash provided a report detailing the SCADA circuit design and the protection setting for the power equipment, allowing the substation refurbishment and commissioning of the equipment. The provision of the temporary setting allowed interim feeding arrangement of the substation whilst other substations were being refurbished.

Frazer-Nash supported the refurbishments on site allowing the equipment to be fitted and commissioned within the site constraints and preventing delays on the rail network.

Client

Babcock Rail

Business need

Electrical and control system support

Why Frazer-Nash?

Helping our client to deliver an overall design package by supplying design support services. Frazer-Nash supports clients with a fast and reactive experienced engineering team, who meet demanding timescales and solve difficult engineering problems.



For more information please email rail@fnc.co.uk