



# Case study

## Network Rail - Integrated Protection and Control Safety Strategy

### THE CHALLENGE

As part of the renewal, enhancement and development of new electrification projects, Network Rail is responsible for the delivery of more cost effective electrification schemes. A recent example of this has been in the development of Integrated Protection and Control (IPC) technology.

The emergence of the IEC 61850 standard (for the design of electrical substation automation) has resulted in a new generation of IPC equipment for use in electrification schemes. IPC and the framework provided by IEC 61850 can bring about a significant step change in IPC technology, functionality and power distribution system architecture.

Although the primary driver for Network Rail adopting IPC technology has been related to the cost savings it generates, Network Rail is also committed to ensuring that the required level of safety is maintained and can be demonstrated for the proposed changes.

### OUR INVOLVEMENT

Frazer-Nash was asked to develop a Safety Strategy to support the introduction of IPC equipment for Network Rail's Electrification Plant Development Group (EPDG). The Safety Strategy outlines the activities that need to be undertaken in order to deliver generic safety cases for the IEC 61850 based IPC and rationalised arrangements. We provided the following support to the EPDG:

- ▶ Working in close partnership with the group to understand the existing design and the proposed changes for the rail electrification and protection systems
- ▶ Determining the key benefits and safety risks associated with the adoption of IPC technology
- ▶ Outlining the approval requirements with regard to applicable legislation, regulations, standards and Network Rail governance processes
- ▶ Development of a Safety Strategy, based on the V-Lifecycle, to allow the EPDG to develop the IPC and rationalised generic safety cases
- ▶ Co-ordination and delivery of HAZOP activities in support of the IPC trial phases

### THE OUTCOME

In producing the IPC Safety Strategy, Network Rail were able to progress from developing an IPC and rationalised scheme in a lab, to begin the initiation of trials on the West Coast Main Line with the aim of a national roll out following that. The work has led to a follow on contract being awarded for Frazer-Nash to deliver the generic safety cases as described within the IPC Safety Strategy.

#### Client

Network Rail

#### Business need

Develop a Safety Strategy to support the introduction of Integrated Protection and Control Technology equipment.

#### Why Frazer-Nash?

We are experienced in applying our safety management expertise to electrification projects in a number of sectors, including the rail sector.

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Offices throughout the UK and Australia

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