

Jubilee Line – more power for more passengers

ABB carried out a fast-track, two-year contract to upgrade the DC traction power systems on the Jubilee Line, in readiness for more frequent services, as part of London Underground's programme of improvements across the capital's transport infrastructure.

More trains, more often

The Jubilee Line will carry a large proportion of the traffic generated by the 2012 Olympics to the main site at Stratford, East London. The first phase of the planned improvement in passenger capacity was completed in early 2006, when a seventh car was added to the 59 existing six-car train sets and four complete new trains were introduced. This increased capacity by some 17 per cent – equivalent to an extra 3,000 people per hour at peak times.

In the second phase, the Jubilee Line signalling systems were renewed to enable Automatic Train Operation (ATO). This has permitted a higher train operating frequency and increased passenger capacity.

Transformer rectifier units

ABB's role was to provide an extra 8 MW of power for the Jubilee Line's 630 V DC traction supply to support the additional demand created by the extra traffic. The project included the design, supply, installation and commissioning of nine Transformer Rectifier Units (TRUs) (sometimes called Traction Converters) at four existing substations. The TRUs, each rated at 2.5 MW, convert the 11 kV and 22 kV AC supplies from the London Underground network to the +420 V/-210 V DC power required by the trains. ABB also carried out civil engineering works at most of the sites.





The Jubilee Line contract was awarded in May 2008, following a competitive tender that placed a major emphasis on supply chain performance and demonstration of excellent relationships with sub-suppliers. The main delivery team was established and all major equipment orders such as for the TRUs, HV and DC cables and civil engineering design placed within 30 days of contract signature – a key milestone set at the outset by London Underground.

Factories in Poland, Spain and Finland

The ABB Power Systems Rail team, based in London, worked with the main manufacturing plants in Poland, Spain and Finland to develop a complete understanding of the contract requirements. This called for detailed workshop meetings in

Spain and Poland, prior to the contract award, to establish acceptance in principle of the terms and conditions that would apply to the project. Then, when the contract was awarded, the success of these workshops enabled orders to be placed very quickly. Other important factors in ABB's favour included: system knowledge gained over many years working on the London Underground network; London office base; ability to meet the programme; and demonstration of the competencies of the rail project delivery team.

ABB is proud to be working with London Underground to help it realize its vision and that of Transport for London to have a 'world class metro system for a world class city'.

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