ABB completes HV cable installation in the Dartford Cable Tunnel

Two 400kV XLPE cable circuits have been installed in the new 2.4km cable tunnel under the River Thames

ABB has completed an £11 million project to install two 400kV cable circuits running through National Grid’s new Dartford Cable Tunnel under the River Thames. The project combines a major reinforcement to the power system with the replacement of older, time-expired, cables to meet the increasing demand for electricity in London.

The two-year cable replacement programme at Dartford involved the removal of existing 275kV oil-filled cables that ran beneath the road deck of the west Dartford Road Tunnel (DRT), and the construction of a dedicated cable tunnel beneath the Thames, running 2.4km from Littlebrook in Kent to Thurrock in Essex. The three-metre internal diameter tunnel has been bored at up to 35m below ground level (up to 20m below the river bed). It was constructed by AMEC with Jacobs Babtie acting as National Grid’s technical consultant and site representative.

ABB’s role in the project has been to work with Sudkabel, the cable manufacturer, to supply, install, commission and test two 400kV cable circuits in the tunnel. These use high-technology cross-linked polyethylene (XLPE) insulation technology, that requires less maintenance than conventional oil and gas filled cables. Each circuit requires three cables, one for each phase of the three-phase electricity supply, so six 150mm diameter cables have been installed. ABB has also supplied the cable sealing ends and surge arresters.

Currently, the cables will only carry 275kV – as a direct replacement for the cables removed from the road tunnel – however they have been specified at 400kV to allow scope for future load growth. Installation in a dedicated tunnel will facilitate future maintenance without the need to impact traffic flow on London’s orbital motorway network.