

# Railway electrification

## Overhead and 'third rail' methods

The first electric trains were run on the London underground, then the tram system. Their success encouraged two London railway companies to consider electrifying their lines. The first public electric railway in the south opened in 1909.

### Underground and trams

The first electric underground services were the City & South London (Northern Line) in 1892 and the Waterloo & City Line (London & South Western Railway) in 1898. From 1900, London trams were electrified, providing stiff competition for the railways in suburban areas.

### London Brighton & South Coast Railway (LB&SCR) – Overhead system

Prompted by the electrification of the trams, the LB&SCR obtained powers in 1903 to electrify its suburban lines. They opted to use an overhead supply system at 6600 volts AC.

The first section of the line to be electrified was between London Bridge and Victoria via Denmark Hill, which opened in December 1909. Marketed as 'The Elevated Electric', it was an immediate success.

Other routes followed in 1911 and 1912. In 1913, the railway decided to electrify all remaining London suburban lines. However, the outbreak of the First World interrupted their plans.

### London & South Western Railway (LSWR) – third rail system

The LSWR chose a 600 volt 'third rail' system for its electrified lines. This provides electricity via a continuous conductor (a third rail) placed alongside the track. It was cheaper to install than overhead wires as no structures were needed for carrying the wires. It was also less visible, making it preferable for residential areas.

The first section, from Waterloo to Wimbledon, opened in October 1915, and other routes followed in 1916.



### Grouping of the railways

The 'Grouping' of the railways in 1923, meant that the separate companies of LSWR, LB&SCR and SECR joined together to become Southern Railway. It planned to make major extensions to the network, converting to third rail throughout. By April 1925, the inner London suburban lines were completely electrified.

The last section of the LB&SCR overhead system was taken down in October 1929.

### Cutbacks after the Second World War

The Second World War broke out before the completion of Southern Railway's plans. Cutbacks meant that some sections of the railway remained non-electrified, including East Grinstead to Lewes via Horsted Keynes (as at right). This left them ripe for closure.

From 1934, an electric service ran from Seaford via Haywards Heath to Horsted Keynes. This was in operation when the Bluebell Railway opened, and continued until 1963.

