

Our approach to powering trains

To support the government’s commitment to decarbonisation – and our goal of delivering a net zero carbon passenger railway – we plan to power trains using overhead electrification. In November 2025, we confirmed that this will be delivered using a method called discontinuous electrification.

Discontinuous electrification would mean overhead lines are only needed on some sections of the route, reducing the amount of construction work required. Passenger trains would use onboard batteries to run on the other sections. This approach offers a more cost-effective alternative to full electrification.

The system is designed so that trains can keep running if there are delays to the service or if something unexpected happens on the line, such as a short power cut, because they can switch to using their onboard batteries.

The map below indicates the sections of the route where we’re currently considering overhead electrification.

Map of proposed electrification of the EWR line



On the sections where electrification is to be provided, we would install a network of wires above the tracks to supply electric power to the trains. These wires would be supported by masts parallel to the railway.

Our designs have not ruled out electrifying the rest of the route in the future. For example, we're designing new bridges with decks that are high enough for overhead lines to be installed at a later date if required. We've also identified land for potential utility diversions on sections of the route that may not be electrified. This land would be used if utilities need to be relocated to provide safe space for future electrification. We are continuing to explore whether these are still required.

Temporary approach

To introduce services as soon as possible and allow communities to enjoy the benefits of EWR, diesel trains will be used temporarily between Oxford, Bletchley and Bedford until overhead electrification has been installed and new battery-electric trains can enter into service. This temporary solution would allow trains to run as and when sections of the route are completed, helping deliver the benefits of the railway as early as possible.

When battery-electric trains are in service, some diesel trains may still use the EWR route, but these would be operated by other passenger and freight operators.

Get in touch

If you have any questions, please get in touch using the details below:



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