Select Committee Ask

AP2 Briefing- Tuesday 26\textsuperscript{th} March 2019

Phase 2a Traction Power Connection Q&A

This briefing note seeks to provide an overview of the proposed change in AP2 and to respond to particular matters raised by the Select Committee on Tuesday 26\textsuperscript{th} March 2018.

Background

- A resilient connection to the National Electricity Transmission System is required to provide the power to run HS2 trains.
- The original Bill scheme connected to Rugeley Substation, adjacent to the former Rugeley Power Station.
  - Rugeley Power Station has been decommissioned and no longer generates electricity. The (existing) Rugeley Substation receives power from the National Electricity Transmission System which is then distributed by National Grid to the wider area (and also, as proposed under the original Bill scheme, to the HS2 railway line, via the Newlands Lane Auto Transformer Feeder Station).
- In AP2, the Promoter seeks powers for a different connection to the National Electricity Transmission System, via a new section of overhead lines between Parkgate and the Newlands Lane Auto Transformer Feeder Station (The proposed connection from Rugeley to Newlands Lane is removed). This change has been driven, and informed, by work undertaken by both HS2 and National Grid.
- The connection will be designed, built and operated and owned by National Grid. It will therefore be physically separate from HS2.

Why the change?

- Since submitting the Bill, it is now understood that National Grid cannot provide sufficiently reliable power from Rugeley Substation to the railway while still providing a reliable service to other customers in the area.
- National Grid do not support a connection between Rugeley Substation and Newlands Lane. National Grid petitioned against the Bill scheme to this effect.
- Therefore any solution which includes the connection between Rugeley Substation and Newlands Lane as included in the original Bill does not meet the requirements of either HS2 or National Grid.

What is required to make a reliable connection at Rugeley?

- Rugeley Substation is currently served by two circuits (connections) from the National Electrical Transmission System. A third circuit is required to provide a reliable and resilient supply.
- This would involve constructing a new 8km connection from the south, between the villages of Longdon and Armitage, which would increase cost, risk and environmental impacts.
- It would also require an Additional Provision.
- The work undertaken by HS2 and National Grid has established that the new Parkgate connection offers a better alternative to connecting at Rugeley Substation when balancing engineering, environmental impact and cost.
Could the Newlands Lane ATFS further south to be closer to the National Electricity Transmission System?

- The electricity supply from Newlands Lane ATFS provides power at 25kV for rolling stock for the entire length of Phase 2a and this means it cannot be moved further south. This is because there is a limit to the length of track that can be supplied by a single feeder station because the voltage drops along the line as trains move further from the in-feed location. Trains will not be able to run to the required train service if voltage is not at a suitable level. Increasing the length of electrical feeding section by moving the ATFS further south would decrease train performance to unacceptable levels and increase infrastructure costs.
- Additionally, a substation at Kings Bromley would increase land take and environmental impacts at this location and greatly complicate the construction of HS2 in an area that already has a high intensity of construction activity. Strong opposition could be expected from local residents and Staffordshire County Council.
- This change would require an Additional Provision.

Can the Newlands Lane ATFS be fed within the rail corridor from a connection at Kings Bromley where the National Electricity Transmission System crosses the railway?

- This connection would follow close to the rail corridor for 8km north to Newlands Lane. This double pylon run would need to be offset from HS2 by up to 100m to avoid electrical interference between the National Grid lines and the HS2 railway systems (including the HS2 overhead traction lines), introducing additional land take, environmental impacts and construction complexity.
- This would also require an Additional Provision.

Why can't you provide your connection alongside HS2 within the rail corridor?

- The connection will be a National Grid asset and will need to be separate from HS2 for operation and maintenance.
- Moreover, sufficient clearance is required between the high voltage connection and the HS2 rail systems (traction power, signalling & communications) to avoid interference during operation. The pylons could need to be as far as 100m from the tracks, greatly increasing the width of the HS2 rail corridor and impacts on landowners in this area.

Can the Parkgate connection be placed underground?

- The National Policy Statement for Electricity Networks Infrastructure, provides guidance to decision-makers considering proposed new overhead electricity lines. The provision of overhead, as opposed to underground lines, in this location is in line with that policy. The additional cost of undergrounding this connection would not clearly outweigh any environmental benefits during operation that would result from undergrounding in this location.
- Undergrounding the Parkgate connection would be more disruptive with higher levels of complexity during construction.
- Undergrounding of the Parkgate connection would require an Additional Provision.

What would happen if the Committee considered that none of the Options which had been considered by HS2 were acceptable?

- An absence of the necessary reliable power connection to the National Electricity Transmission System would result in an inability to run train services on Phase 2A.