




SPD & SPM 33kV Telecoms Network Resilience improvements

ED2 Engineering Justification Paper Addendum

ED2-NLR(O)-SPD-001-TEL-EJP-ADD

ED2-NLR(O)-SPM-001-TEL-EJP-ADD

Issue	Date	Comments
Issue 0.1	Aug 2022	Internal Draft for Review
Issue 0.2	Aug 2022	Internal Draft with Comments Addressed
Issue 1.0	Aug 2022	First Issue - Draft Determination Response
Scheme Names		SPD and SPM Telecoms Network Resilience improvements
PCFM Cost Type		NLR(O)
Activity		Investment in the Resilience of the Telecommunication Network
Primary Investment Driver		Improve Telecommunications Network Resiliency
Reference		ED2-NLR(O)-SPD-001-TEL-EJP-ADD ED2-NLR(O)-SPM-001-TEL-EJP-ADD
Output Type		Telecommunication Network
Cost		SPD: £17.247mSPM: £34.155m
Delivery Year		2023-2028
Reporting Table		CV11/CV12
Outputs included in ED1		No
Business Plan Section		Maintaining a Safe & Resilient Network
Primary Annex		Annex 4A.16: Operational IT and Telecoms Strategy
Spend Apportionment		ED1ED2ED3 £m£51.402m£m

	Proposed by	Endorsed by	Approved by
Name	Derek Wilkie	Charlie Gilmore	John Gray
Signature			
Date	23.08.2022	23.08.2022	23.08.2022

I Purpose

This addendum has been prepared to provide additional information and justification to ED2-NLR(O)-SPD-001 TEL-EJP and ED2 NLR(O) SPM-001 TEL EJP SPD and SPM Telecoms Network Resilience improvements EJPs and following receipt of RIIO-ED2 Draft Determination.

The content of this addendum is in response to comments and feedback provided by Ofgem as to the “Partial Justification” status of the EJP. The purpose of this document is to support Ofgem’s assessment for Final Determination including supporting any associated impact on engineering adjustments within Ofgem’s financial modelling.

2 Ofgem Comments & Feedback

2.1 RIIO-ED2 Draft Determination SPEN Annex

The following comments are taken from Table 26 of “*RIIO-ED2 Draft Determination SPEN Annex*”.

Ofgem Comment Partially Justified Overall, we agree with SPEN’s needs case and methodology driving the proposed intervention volumes. We have low confidence in the needs case or delivery of relocation of vulnerable sites and new fibre routes as the EJP and SQ responses provide little information on what / where the site relocations involve, and how the risks are currently managed.

Ofgem Identified Risks - The EJP is lacking justification for the needs case for the vulnerable assets and new fibre routes. Therefore, there is a risk that the EJP’s outputs may change significantly during RIIO ED2.

3 Additional Justification

3.1 Summary of Ofgem SQs

SPEN responded to SQ (SPEN060) issued by Ofgem on 07/02/2022 and SQ (SPEN106) issued by Ofgem on 04/04/2022, and the responses have been appended in Section 4 for reference. SPEN’s response to these SQs provided further detail on:

- Volumes of ODN and PDH
- Relocation of vulnerable assets
- New fibre routes
- Batteries

3.2 Vulnerable Sites

There is a register of sites that SPEN has that contain telecoms equipment. These range from substations to District Offices and other non-operational buildings. As these buildings reach end of life, are deemed surplus to requirements or we are asked to remove our telecoms equipment then

we are required to relocate that equipment or to decommission it and make the necessary changes to the network configuration to accommodate. To manage the risks there is a programme of these sites, and we work through it on a prioritised basis dependent on the issues identified. Some of the risks include:

- Vandalism / theft. It is common for buildings that appear unused to have a higher level of vandalism. If this occurs, we manage the risk by increasing our inspection frequencies.
- Deterioration of equipment: Again, in buildings that are not fully occupied there is a risk that the heating / air conditioning may cease to function causing the equipment to deteriorate. We mitigate this risk by increasing inspection and by prioritising the relocation of the telecoms equipment.

In RIIO-ED1 so far we have relocated our equipment from four sites - Waterloo St (Glasgow) (Hotel), Yoker Metering Office (Demolished), Middlewich District Office (Demolished), and Queensferry Phase 1 (Redundant Stores)

We also take the opportunity when relocating the equipment to consider enhancing the security of our equipment to meet NIS Regulations.

In RIIO-ED2 there are 5 sites in the programme, these are discussed in more detail below. The specific locations identified are important from an electrical asset viewpoint and from a Telecomm asset viewpoint. In the event of an issue at these locations, there will be a significant impact on the telecoms network. This will reduce the ability to restore supplies using telecontrol and will also delay any power restoration due to the loss of control of the network.

In all these projects the opportunity will be taken to rationalise the telecoms equipment and services to ensure efficiency. Of course, there may be another project that unexpectedly arises due to request to relocate or failure of a building. This will simply be added to the programme and prioritised based on risk.

Kilmarnock Office

The SPEN telecoms assets are the only remaining assets located with the building and due to age (ca 1920s) and condition of the building, SPEN propose to transfer all the services to a new Kilmarnock 33kV substation. This will provide a secure environment under SPEN telecoms control.

Yoker Ferry Substation

Yoker Ferry Substation has seen a substantial growth in telecoms traffic volume. Due to the age of the equipment at this site (over 25 years old) and to enhance resilience of the services, it is proposed

to upgrade the equipment at this substation and transfer some of the services by upgrading the equipment at Partick Substation

Queensferry (Phase2)

In RIIO-EDI an upgrade of Block 8 of the Queensferry site was undertaken (Queensferry Phase 1) and now contains a new dedicated telecoms equipment room. All equipment in other sites in Queensferry will be relocated / replaced and transferred to this room.

The telecoms equipment currently in Block 1 is a major SPEN network hub not just for the local geographic area but also as a location for both the SDH and ODN core ring equipment. This equipment sits alone in a huge warehouse building that is deteriorating. This project will relocate / replace that equipment into Block 8. The site is a key node in the network and will be designed such that the resilience will be improved

Warrington Retail Office

The telecoms room is located within part of the building that is due for closure and is not owned by SPEN. Over several years this site has seen a large growth in the number of services and is now a critical node. This project will relocate / replace that equipment into to the Warrington 132KV substation which has a dedicated telecoms room.

Lister Drive

The telecoms equipment at Lister Drive is located in three separate telecoms rooms that are in need of demolition due to the condition of the concrete. In addition, similar to Warrington, over several years this site has seen a large growth in the number of services and is now a critical node. This project will relocate / replace that equipment into to a dedicated telecoms room in the Lister Drive site.

3.3 Fibre Installations

At present SPEN relies on BT to provide fibre for several of our key nodes. This provision is via an Ethernet Access Direct (EAD) solution. The current solutions provided by BT are not resilient and present a significant risk of a loss of comms between our substations. We are managing this risk by implementing a long-term strategy for the telecoms network by removing our reliance on third parties for the provision of services (e.g., BT) and moving to our own fibre medium diverse circuits on the SPM core network. This will allow SPEN to control the prioritisation of resources required to respond to faults. This is not possible with a third party. These circuits will also have the necessary resilience allowing us to mitigate the risk of a loss of comms. It also ensures that we can enhance the Cyber

Resilience of our network. We would like to move more quickly on that strategy but are aware of deliverability and funding challenges

Table 1 Circuits required

Site 1	Site 2	Length
Speke 132kV Substation	Halewood 132kV Substation	1.9km
Bromborough 132kV Substation	Prenton Office	11.9km
Chester 132kV Substation	Capenhurst 132kV Substation	0.8km

Speke- Halewood

Both sites form part of the SPM ODN core network. Speke currently utilise 2 BT EADs as the bearer technology and as such is a single point of failure. SPEN propose to install a fibre optic cable between these sites to mitigate the dependency on BT EAD's services at Speke.

In the event of both EADs being faulty due to a single BT network fault this would result in a loss of several services at several 132/33kV sites

Chester-Capenhurst

Both sites form part of the SPM ODN core network. Capenhurst currently utilise 2 BT EADs as the bearer technology and as such is a single point of failure. SPEN propose to install a fibre optic cable between these sites to mitigate the dependency on BT EADs at Capenhurst. In the event of both EADs being faulty due to a single BT network fault this would result in a loss of several services at several 132/33kV sites

Bromborough- Prenton

Bromborough is proposed to be introduced into the ODN core network to provide resilient paths for the substations that are part of the ODN expansion. By completing this work this will remove the dependency on BT provided service to both Bromborough and Prenton and remove any diversity issue relating to the BT network at Prenton.

4 Appendix

The content of this appendix has been redacted.