Distribution System Operation (DSO) Infrastructure

ED2 Engineering Justification Paper Addendum

ED2-NLR(O)-SPEN-001-DSO-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 Name	Distribution System Operation (DSO) Infrastructure
PCFM Cost Type	Non-Load Related - Other
Activity	Enabling DSO Infrastructure for RIIO-ED2
Primary Investment Driver	Addressing Net Zero, the energy system transition and changing customer requirements
Reference	ED2-NLR(O)-SPEN-001-DSO-EJP-ADD
Output Type	DSO
Cost	**SPD** £35.086m **SPM** £27.497m
Delivery Year	2023-2028
Reporting Table	CV11, C4 & C13
Outputs included in ED1	~~Yes~~/No
Business Plan Section	Develop the Network of the Future
Primary Annex	Annex 4A.3 DSO Strategy

Spend Apportionment	ED1	ED2	ED3
	£m	£62.58m	£m

	Proposed by	Endorsed by	Approved by
Name	Mark Goudie	Gerry Boyd	Russell Bryans
Signature	*M. Goudie.*	*Gerry Boyd*	*[signature]*
Date	24.08.2022	24.08.2022	24.08.2022

1   Purpose

This addendum has been prepared to provide additional information and justification to ED2-NLR(O)-SPEN 001-DSO EJP DSO Infrastructure EJP 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 Determinations SPEN Annex

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

Ofgem Comment - Partially Justified - We agree with the needs case and optioneering presented by SPEN, however there is uncertainty in relation to the proposed volumes

Ofgem Identified Risks - There is uncertainty in the volume, location and size of CMZs, therefore there is a risk that such changes will impact the proposed project costs.

3   Additional Justification

3.1   Summary of any Ofgem SQs

SPEN responded to SQ (SPEN062) Issued by Ofgem on the 07/02/22 and SQ (SPEN103) issued on 04/04/2022, which are included in the appendix. SPEN also provided a response to SQ (SPEN100) on DSO FTE, this has not been appended as it was an excel data request.

3.2   Our Response

Our RIIO-ED2 DSO Strategy seeks to roll out CMZs more widely, forming the backbone of our DSO infrastructure, and to extend their functionality from RIIO-ED1 to coordinate a wide variety of DSO functions
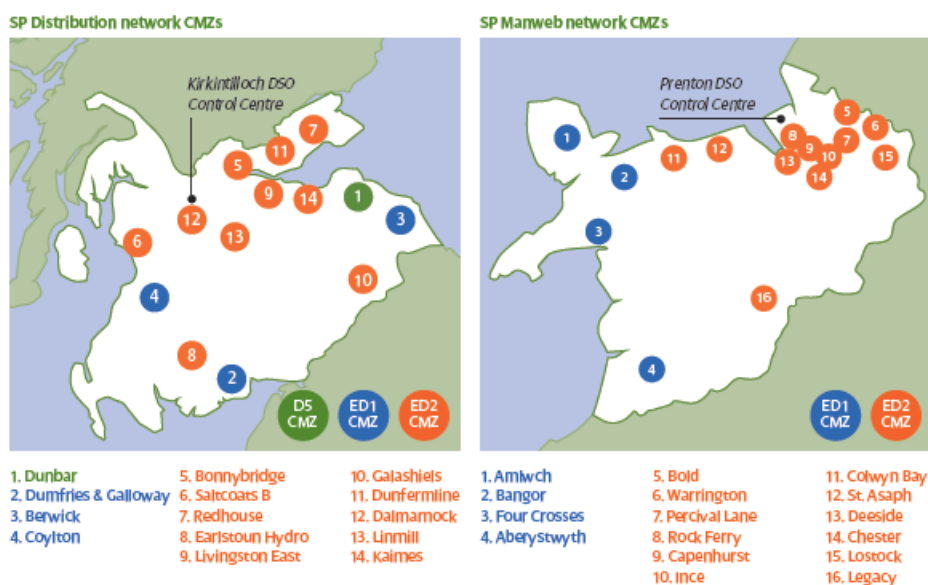
We have identified the areas of network we expect to become constrained during the RIIO-ED2 period using our DFES forecasts. Our RIIO-ED2 plans involve rolling-out an additional 22 CMZs (10 in SP Distribution, 12 in SP Manweb).

We view that the likelihood of cost-reductions from uncertainties in the volume, location and size of CMZs is significantly outweighed by greater likelihood that additional CMZs will be required. We view our proposed roll out of CMZs to be the minimum required to facilitate DSO functionality and the baseline uptakes of distributed generation

Our baseline scenario is already at the lower end of the net-zero compliant scenario range, making this investment more certain. Furthermore, the outcomes and impacts from the Access SCR final decision published in May 2022 carry significant uncertainty but will radically increase both demand and generation connections activities. The decision for a shallower boundary will reduce reinforcement contribution for generation connections and remove this contribution for demand customers. This will drive a strong need for wider CMZ deployment because it will not always be possible, timely, or cost effective to provide customers with unconstrained connections in the short term. Flexible, smart, and innovative solutions will play an important role in facilitating the pace of connections and will provide both a short-term solution and clear evidence for future reinforcement requirements. Additional DSO Constraint Management Zones (CMZs) will be fundamental to facilitate Access SCR driven generation uptake CMZs will also play a key role in facilitating the improvement in Access rights, specifically around curtailable connections, outlined in Ofgem's Access SCR decision.

We have used our DFES forecasts, coupled with these network assessments detailing capacity headroom to focus on those areas where system level capacity is likely to be constrained and require Constraint Management Zones to facilitate the real-time management of network capacity. These assessments are detailed in Section 11 and 12 of the EJP

Our CMZs will be rolled out in a priority order based on these assessments and are shown in the figure below We will keep the priority order of the roll out of CMZs under review, and if additional constrained areas arise within RIIO-ED2, we will seek to ensure the CMZ infrastructure includes the additional areas. The centralised CMZ infrastructure has been designed to be scalable and can be extended as required.

The phasing, and location of the CMZs can be adjusted to meet emerging requirements and stakeholder needs. For example, if a location receives its forecast generation or demand earlier based on an updated DFES forecast, it would be considered for acceleration of the deployment of that CMZ The architectural design and the focus on meeting customer requirements, means that this conservative deployment in the face of new external factors, reduces the risk of stranded assets while prioritising customer and network need   as highlighted in Section 5.7 on deployment scale risk.

Overall, the delivery of the infrastructure in this paper is critical to enable the safe operation of a more dynamic system as a Distribution System Operator. Our SQ response from February 2022 reinforced the important co-ordination role that the Constraint Management Zones (CMZs) infrastructure will have for more complex smart grid functions

4   Appendix

The content of this appendix has been redacted