

Consultation

RIO-ED2 Re-opener 2025: Electricity System Restoration

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We¹ are consulting on our Draft Determinations on the Re-opener submission by SP Energy Networks (SPEN)² which submitted seven different initiatives under the Special Condition (SpC) 3.2 Part D Electricity System Restoration Re-opener. We are proposing to allow £63.512m of the total £65.244m related to seven different initiatives.

We particularly welcome responses from those with an interest in electricity transmission and distribution networks. We also welcome responses from other stakeholders and the public.

This document outlines the scope and purpose of the consultation, the consultation questions, and explains how you can get involved. Once the consultation is closed, we will consider all responses. We want to be transparent in our consultations. We will publish the non-confidential responses we receive alongside a decision on next steps on our website at ofgem.gov.uk/consultations. If you want your response – in whole or in part – to be considered confidential, please tell us in your response and explain why. Please clearly mark the parts of your response that you consider to be confidential, and if possible, put the confidential material in separate appendices to your response.

¹ The terms ‘the Authority’, ‘Ofgem’, ‘we’ and ‘us’ are used interchangeably in this document. The Authority is the Gas and Electricity Markets Authority. Ofgem is the office of the Authority.

² Submitted under SPEN include initiatives submitted on behalf of SP Manweb (SPMW) and SP Distribution (SPD).

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1. Introduction

Background

- 1.1 Network companies are natural monopolies. Effective regulation of privatised for profit monopolies is essential to ensure they cannot unfairly exercise their monopoly power to the detriment of their customers. This is particularly important in the case of essential utilities, such as energy, where consumers have no choice on whether or not to pay what they are charged. It is therefore crucial that an effective regulator protects energy consumers by controlling how much network companies can charge their customers. Ofgem does this through periodic price controls that are designed to ensure network companies are properly incentivised to deliver the best possible outcomes for current and future energy consumers. This includes ensuring that consumers only pay for investments that are needed and do not overpay for those investments.
- 1.2 The current price control model is known as RIIO (Revenue = Incentives + Innovation + Outputs). RIIO-ED2 is the second price control under the RIIO model for electricity distribution and runs from 1 April 2023 until 31 March 2028. It includes a range of Uncertainty Mechanisms (UMs) that provide additional funding during RIIO-2 as the need, cost or timing of proposed projects becomes clearer. This ensures that consumers fund projects only when there is clear evidence of benefit, and we have clarity on likely costs and cost efficiency. These mechanisms also ensure that the RIIO-ED2 price control has flexibility to adapt as the pathways to Net Zero become clearer.
- 1.3 Where possible, we have set automatic UMs, known as Volume Driver mechanisms, such as the Load Related Expenditure Volume Drivers, which provide network companies with immediate funding when they are required to undertake new customer connection works. In other areas, where the degree of uncertainty is too great to allow for an automatic mechanism, we set 'Re-openers' which will allow us to assess proposals robustly once information with sufficient accuracy is made available.

Purpose of this re-opener mechanism

- 1.4 The Electricity Systems Restoration (ESR) Re-opener may be used where there has been a change to the Electricity System Restoration Scope of Work and the licensee has incurred or expects to incur additional costs associated with such changes, which have been agreed with the National Energy System Operator (NESO), in order to assist them to meet the Electricity System Restoration Standard (ESRS). This can include, but is not limited to, changes to Distribution

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Code obligations which relate to the ESRS, or new obligations set out in distribution restoration contracts.

- 1.5 The purpose of this Re-opener mechanism is to allow for upward adjustment of baseline allowances to allow Distribution Network Operators (DNOs)' allowances to be adjusted where the NESO requires DNOs to undertake additional activities to ensure that the ESRS can be met.
- 1.6 The original re-opener window was June 2024, but we directed two additional re-opener application windows under SpC 3.2.22(b) for June 2025 and June 2027.

What are we consulting on?

- 1.7 In the June 2025 re-opener window, SPEN³ submitted an application for additional RIIO-ED2 funding under the ESR Re-opener mechanism. SPEN has applied for £65.244m related to seven different initiatives.
- 1.8 We are consulting on our assessment of SPEN's ESR Re-opener application for its proposed investment in both SPD⁴ and SPM.
- 1.9 The proposed initiatives intend to upgrade the SPEN network to be compliant with the new ESRS code and obligations. As a restoration event timeline progresses there is greater reliance on manual intervention. To reduce the reliance on manual intervention, SPEN proposes to upgrade all network and telecommunications assets to have at least 5 days of resilience as required by the ESRS code.
- 1.10 We are proposing to partially accept SPEN's funding request. At this time, we also propose, following a licence modification, to consult and apply Price Control Deliverables (PCDs) to ensure that the initiatives are delivered to the best standard for the consumer. The funding proposed in this consultation will be considered alongside the PCDs that we will consult on at a later date.
- 1.11 We are consulting on our assessment of the needs case, optioneering, and efficient costs for these submissions, and welcome views from stakeholders on our Draft Determinations (DDs) relating to the initiatives detailed in Chapter 2 and Chapter 3. All monetary figures in this document are in 2020/21 prices to align with the RIIO-ED2 Final Determinations price base.

Context and related publications

- 1.12 This document is intended to be read alongside:

³ SP Energy Networks

⁴ Submitted under SPEN include initiatives submitted on behalf of SP Manweb (SPMW) and SP Distribution (SPD). SPEN will be referred to throughout this consultation.

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- [RIIO-2 Re-opener Guidance and Application Requirements Document Overview](#)
- [RIIO-ED2 SPEN Final Determinations](#)
- SpCs (and SpC 3.2 Parts D) of the [Licence](#)
- [SPEN's website publication document](#)

Next Steps

- 1.13 After considering all consultation responses, we will conclude our assessment of SPEN's re-opener application with a decision in due course.
- 1.14 We will issue a direction to set out any allowance adjustments. These allowances are adjusted by changing the value of the relevant term within the licence and the Regulatory Years to which that adjustment relates. Our proposed direction is set out in Appendix 1 of this consultation and sets out our proposed allowance adjustments; our reasons for the proposed direction are set out in this consultation.
- 1.15 We will also at a later date, consult on the PCDs linked to the delivery of outputs specified in the licence. This framework provides for the adjustment of the level and timing of allowances in the event the output is not delivered, not delivered to the specification required, or delivered late.

Consultation stages

Stage 1 Consultation open: 18 May 2026

Stage 2 Consultation closes (awaiting decision). Deadline for responses: 22 June 2026

Stage 3 Responses reviewed and published

Stage 4 Consultation outcome (decision or policy statement)

How to respond

We want to hear from anyone interested in this consultation. Please send your response to the person or team named on the front page of this document.

We have asked for your feedback in each of the questions throughout. Please respond to each one as fully as you can.

We will publish non-confidential responses on our website.

Consultation RIIO-ED2 Re-opener: Electricity System Restoration 2025**Your response, data, and confidentiality**

You can ask us to keep your response, or parts of your response, confidential. We will respect this, subject to obligations to disclose information. For example, under the Freedom of Information Act 2000, the Environmental Information Regulations 2004, statutory directions, court orders, government regulations, or where you give us explicit permission to disclose. If you do want us to keep your response confidential, please clearly mark this on your response and explain why.

If you wish us to keep part of your response confidential, please clearly mark those parts of your response that you do wish to be kept confidential and those that you do not wish to be kept confidential. Please put the confidential material in a separate appendix to your response. If necessary, we will contact you to discuss which parts of the information in your response should be kept confidential and which can be published. We might ask for reasons why.

If the information you give in your response contains personal data under the General Data Protection Regulation (Regulation (EU) 2016/679) as retained in domestic law following the United Kingdom's withdrawal from the European Union ("UK GDPR"), the Gas and Electricity Markets Authority will be the data controller for the purposes of GDPR. Ofgem uses the information in responses in performing its statutory functions and in accordance with section 105 of the Utilities Act 2000. Please refer to our Privacy Notice on consultations, see Appendix 3.

If you wish to respond confidentially, we will keep your response confidential, but we will publish the number, but not the names, of confidential responses we receive. We will not link responses to respondents if we publish a summary of responses, and we will evaluate each response on its own merits without undermining your right to confidentiality.

How to track the progress of a consultation

1. Find the web page for the call for input you would like to receive updates on.
2. Click 'Get emails about this page', enter your email address and click 'Submit'.
3. You will receive an email to notify you when it has changed status.

A consultation has three stages: 'Open', 'Closed (awaiting decision)', and 'Closed (with decision)'.

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2. Our Assessment

- Q1. Do you agree with our assessment of the needs case for SPEN's ESR project?
- Q2. Do you agree with our assessment of the optioneering analysis for SPEN's ESR project?
- Q3. Do you agree with our cost assessment for SPEN's ESR project?

- 2.1 The ESRS requires that in the event of a total or partial shutdown of the Great Britain electricity system, the NESO must be capable of restoring 60% of demand across Great Britain within 24 hours, and of restoring 100% of demand nationally within 5 days. The ESRS replaced the previous restoration standard which only required control system resilience at substations for a maximum period of 72 hours.
- 2.2 DNOs, including SPEN, have licence and Grid Code obligations to support NESO during system restoration, including providing power corridors under Local Joint Restoration Plans (LJP) and operating Distributed Restart Zones (DRZ).
- 2.3 In its June 2025 re-opener submission, SPEN proposed seven initiatives with a total cost of £65.244m, made up of £50.757m for SP Distribution (SPD) and £14.486m for SP Manweb (SPMW), to ensure compliance and maintain network resilience during major system events.
- 2.4 SPEN's application includes seven initiatives that have been grouped into three themes of:
- Enhanced network asset resilience,
 - Initiative 1 - 132Kv Network Resilience
 - Initiative 2 – Primary Substations Network
 - Initiative 3 – Substation Telecommunications Resilience
 - Establishment of DRZs and,
 - Initiative 4 – DRZ – Central Scotland
 - Initiative 5 – DRZ – Dumfries and Galloway
 - Initiative 6 – DRZ - Fife
 - Supporting resources.
 - Initiative 7 - Staff Resources
- 2.5 We consider the submission meets the eligibility requirements under SpC 3.2.24, i.e. SPEN has incurred or expects to incur costs associated which relate to changes to the Electricity System Restoration Scope of Work agreed on or after 1 December 2021; be confined to costs incurred or expected to be incurred on or

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after 1 April 2023; and take account of allowed expenditure which can be avoided as a result of the change to the Electricity System Restoration Scope of Work, to which the application relates. There is no materiality threshold for the ESR Re-opener.

- 2.6 SPEN has demonstrated that material changes to the ESR Scope of Work have occurred following the introduction of the ESRS in 2021 and subsequent code modifications (GC0156 and DCRP/MP/22/02). These changes impose new obligations on DNOs, including increased substation resilience requirements, new duties related to information provision and control system testing, and particularly for SPD, responsibility for establishing and operating DRZs.
- 2.7 SPEN has set out its justification for designing the proposed interventions to support operation for up to 120 hours, rather than only meeting the 72-hour resilience standard. SPEN has also stated that it has engaged with NESO on its proposed approach and has received a letter of support.
- 2.8 In doing so, SPEN has referenced Grid Code modifications supporting the new ESRS, including GC0156 and the introduction of requirements within the Grid Code (including CC.7.10.5 and CC.7.10.7) for control, communications and telemetry systems to remain robust and reliable during the system restoration period (now up to 120 hours). SPEN has stated that it anticipates that the Grid Code will align with the ESRS such that 120 hours becomes the resilience requirement, and that implementing this approach now enables a ‘touch it once’ investment strategy.
- 2.9 SPEN has stated that its costs were developed by reviewing its RIIO-ED2 unit costings and comparing these against recent quotes for the proposed activities. SPEN has also stated that there is minimal cost difference between designing for 72 hours and 120 hours resilience, and that the extent of any incremental cost varies by asset type.
- 2.10 In regard to costs, for grid substations, SPEN has stated that there is no difference in capital cost where the selected solution is a generator with operational costs varying with outage duration. For primary substation network resilience, there is no difference in design where the selected solution is a 48-hour battery and a black start controller, and all sites included in the re-opener submission are below 48 hours. For the primary substation telecommunications resilience, SPEN have stated that there are additional material costs broadly proportional to the increase in resilience, while labour costs which SPEN has stated account for up to around 40% of the total do not change.
- 2.11 **Table 1** below summarises our DDs for the ESR re-opener covered in this consultation.

Consultation RIIO-ED2 Re-opener: Electricity System Restoration 2025**Table 1: Draft Determinations on the Electricity System Restoration Re-opener submissions in 2025 (£m, 2020/21)**

SPEN Proposed Project	SPEN Requested Forecast Cost Total	Ofgem's DD – Cost Adjustment	Ofgem's DD – Allowances
Initiative 1 - 132Kv Network Resilience	3.904	-	3.904
Initiative 2 – Primary Substations Network	5.998	-	5.998
Initiative 3 – Substation Telecommunications Resilience	8.294	1.563	6.731
Initiative 4 – DRZ – Central Scotland	14.975	-	14.975
Initiative 5 – DRZ – Dumfries and Galloway	3.940	-	3.940
Initiative 6 – DRZ - Fife	18.925	-	18.925
Initiative 7 - Staff Resources	9.207	0.169	9.038
Total	65.244	1.732	63.512

Needs Case and Optioneering

- 2.12 As part of its submission, SPEN provided engineering justification, including the needs case, details of its optioneering and, where appropriate, associated cost benefit analysis (CBAs).
- 2.13 SPEN also provided detail on how the proposed expenditure aligns with its future business strategy, including the consideration of how it relates to its RIIO-ED2 licence and to other statutory obligations.
- 2.14 We have assessed the needs case outlined in the submitted engineering justification papers and analysed the options scope, risks, costs and benefits to inform the need for intervention and SPEN's preferred options.
- 2.15 We agree that there is a need case for the initiatives presented by SPEN. We are satisfied that SPEN has appropriately considered all viable options and, from a consumer perspective, its preferred options are the optimal ones in respect of each of the projects.

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Initiative 1 - 132Kv Network Resilience

- 2.16 SPEN propose to install generator sets and, where necessary, undertake battery upgrades across 132kV substations in the SPMW licence area that currently fall below the required resilience threshold of 72 hours at a total of £3.904m. The aim of this is to strengthen the resilience of the 132kV network in the SPMW licence area so that substations can remain fully operable without manual intervention during an ESR event.
- 2.17 SPEN states that the 132kV network in SPMW is essential for restoring power after outages, requiring upgrades to both network and telecoms batteries at 113 substations to meet new resilience standards. Telecommunications are critical for control and safety, and the investment focuses on boosting backup capacity at substations currently below the required 120 hours. This option achieves the requirements of ensuring site load remains on supply throughout a 120 hour ESR event, providing flexible and quicker restoration at the distribution/transmission system boundary in SPMW.
- 2.18 SPEN presented three options as well as a 'do nothing' counterfactual.
- **Baseline - Do nothing:** (No additional costs). Continue with existing ESR strategy, with a heavy reliance on manual intervention forming SPEN's response to an event.
 - **Option 1 - Generators and Battery combination (£3.904m).** Install 14 generators at 132kV Substations (currently under 120 hours resilience) to achieve at least 120 hours resilience, unless calculations identify minor battery upgrade work will ensure present and future compliance. This brings SPMW 132kV sites in line with Scottish Power Transmission (SPT) Grid Substations.
 - **Option 2 - Battery upgrades and Controller (£0.448m).** Upgrade 14 battery systems including 14 black start controllers at 132kV Substations to achieve at least 120 hours resilience. Sites may also incur additional civils costs where physical space is lacking.
 - **Option 3 - Batteries and Black start Controller (£0.110m).** Install 14 battery systems to achieve at least 48 hours resilience and 14 controllers to ultimately achieve 120 hours resilience.
- 2.19 The baseline option would not allow the substations to remain operational throughout an ESR event, thereby increasing reliance on manual intervention during an ESR event. Option 2 and Option 3 were also rejected due to site-specific constraints, shorter asset life cycles, and the difficulty of reliably achieving the required duration.

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- 2.20 SPEN selected **Option 1** as this was determined to be the most cost-effective compliant solution. This is an evolution over and above existing work that was set out following the updates of ESRS and SPEN policy. This achieves the requirements of ensuring site load remains on supply throughout a 120 hour ESR event, providing flexible and quicker restoration at the distribution/transmission system boundary in SPM.
- 2.21 SPEN has provided additional information, including a letter of support from NESO, in relation to designing substations to remain operational for up to 120 hours. SPEN has stated that this would improve network robustness and flexibility during system restoration, including by supporting coordination with NESO. SPEN has also stated that, where the selected solution is a generator, the capital cost is the same for 72 hours and 120 hours resilience, with operational costs varying with the duration of any outage.

Initiative 2 – Primary Substation Network Resilience

- 2.22 Initiative 2 relates to the need to ensure that selected primary substations within both SPD and SPMW can operate autonomously for up to five days without manual intervention. It outlines the additional proposed work to be carried out in the final 2 years of RIIO-ED2 to increase the network resilience at a proportion of SPD and SPMW primary substations to 5 days, forecasted to be £5.998m.
- 2.23 Primary substations are vital for restoring electricity supply in the UK, acting as the main interface between transmission and distribution, and enabling phased recovery after outages. Their role is crucial for quickly re-energising critical infrastructure and maintaining grid stability, as they allow controlled load increases and decentralised restoration across regions. Without resilient primary substations and reliable telecommunications, restoration would require manual visits to around 1,600 sites, increasing recovery time, costs, and risks during major outage events.
- 2.24 SPEN presented 3 options and a ‘do nothing’ counterfactual:
- **Baseline – Do nothing (No additional cost):** Continue to replace existing batteries and generators like-for-like as per current replacement programme.
 - **Option 1 – Generators only (£65.533m):** Install 75 generators at SPD substations and install 160 generators at SPM substations to achieve 5 days of resilience for substation network assets.
 - **Option 2 – Batteries only (£7.236m):** Install 75 batteries at SPD substations and install 160 batteries at SPM substations to achieve 5 days of resilience for substation network assets.
 - **Option 3 – Do minimum batteries and black start controllers (£5.998m):** Install 61 battery/controller sets and install 14 blackstart controllers at SPD substations

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and install 111 battery/controller sets and install 49 blackstart controllers at SPMW substations to achieve 5 days of resilience for substation network assets.

- 2.25 The baseline option would not allow the substations to remain operational throughout an ESR event and so was rejected. SPEN argued that while all of the other options considered could technically meet the required resilience level, the generator-only option was deemed disproportionately costly, and the battery-only option exceeded the cost of the chosen solution.
- 2.26 SPEN's preferred **Option 3** combines upgraded battery and charger systems with the installation of black start controllers. This combined approach was selected because it provides the minimum necessary level of intervention while allowing remote visibility and control throughout an ESR event. SPEN has stated that, for primary substation network resilience, there is no difference in design between 72 hours and 120 hours where the selected solution is a 48-hour battery and a black start controller, as all substations included in the re-opener have resilience below 48 hours. SPEN has also stated that the work proposed within the re-opener period was determined based on deliverability, with delivery prioritised towards substations with the lowest existing resilience.

Initiative 3 – Substation Telecommunications Resilience

- 2.27 SPEN's analysis shows that many SPD and SPMW substations currently lack sufficient battery capacity to support essential communications equipment over a 120-hour period. SPEN propose increasing the telecommunications resilience at the majority of SPMWs grid supply points, and SPD and SPMW primary substations to 5 days to comply with the ESRS at a total cost of £8.294m.
- 2.28 SPEN claims that, without resilient telecommunications during an ESR event, critical restoration activities would need to be undertaken through physical attendance at substations rather than remotely from control rooms, materially increasing restoration times, operational costs, and risks to staff safety. SPEN further claims that the availability of telecommunications, alongside the resilience of substation network assets for the duration of an ESR event, is essential to effective system restoration and notes that this approach is supported by NESO. SPEN therefore proposes, to undertake additional works in the final two years of RIIO-ED2 to enhance telecommunications resilience to five days across the majority of SPMW grid, SPD primary and SPMW primary substations
- 2.29 SPEN presented three options as well as a baseline option.
- Baseline – Do nothing (No additional cost): Continue to replace existing batteries and generators like-for-like as per current replacement programme. No additional costs from those already funded.

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- Option 1 – Generators only (£208.589m): Install 340 generators at SPD substations and install 408 generators at SPMW substations to achieve 5 days of resilience for substation telecommunications.
- Option 2 – Batteries only (£9.400m): Install 340 batteries at SPD substations and install 408 batteries at SPMW substations to achieve 5 days of resilience for substation telecommunications.
- **Option 3 – Do minimum, batteries only, replace and upgrade when feasible (£8.294m):** Upgrade 73 batteries and install 267 batteries at SPD substations and upgrade 16 batteries and install 392 batteries at SPMW substations to achieve 5 days of resilience for substation telecommunications.

2.30 The baseline option was rejected because it does not reduce the need to manually intervene in an ESR event. The ability to remotely intervene for the duration of an ESR event is supported by the NESO, through a letter of support). Option 1 and Option 2 were the more expensive options and were therefore rejected by SPEN.

2.31 **Option 3** was selected because it represents the lowest-cost approach capable of meeting the technical requirements while ensuring functionality during a system restoration event. SPEN has stated that, for telecommunications resilience at primary substations, the incremental cost of moving from 72 hours to 120 hours is driven primarily by additional materials required to increase battery autonomy, while labour costs, which SPEN has stated can account for up to around 40% of total costs, do not change.

2.32 SPEN has also stated that intervention volumes were refined to reflect deliverability within the remainder of RIIO-ED2, and that delivery would be prioritised towards sites with the lowest existing resilience.

Initiative 4, 5 and 6 Distribution Restoration Zones

2.33 Initiatives 4, 5, and 6 involve the establishment of three Distribution Restoration Zones (DRZs) across the SPD licence area. SPEN's proposals are based on contracts already entered into with NESO and generator partners, and the initiatives seek funding for the network reinforcement and control-system upgrades required to support DRZ operation.

2.34 Following an ESR event, rapid and secure restoration of electricity supply is required across affected parts of the network. In SPD, the historic role of large fossil-fuel power stations in providing initial restoration capability has reduced following their closure in line with Net Zero objectives.

2.35 In response, SPEN developed DRZs to complement the traditional top-down restoration approach by enabling the formation of local power islands using independently connected generation on the distribution network. These DRZs provide

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additional restoration pathways and contribute to meeting NESO's ESRS restoration targets.

- 2.36 To achieve this, SPEN and NESO have developed the concept of DRZs, building on previous innovation projects to use distributed energy resources for system restoration in Central, Fife, and Dumfries and Galloway. Each DRZ uses contracted anchor and top-up generators to initiate and stabilise restoration, supported by wider distribution-connected generation and expansion via the 132kV network to restore more customers and strengthen resilience.
- 2.37 For each of the DRZ initiatives, the "do nothing" option was rejected in all cases because it would leave SPEN non-compliant with its licence obligations which now require DNOs to be capable of delivering DRZ functionality where applicable.
- 2.38 The option involving only the minimal connection of contracted generation was also rejected because it would not enable the expansion of islands beyond the limited anchor-and-top-up capacity, thereby preventing SPEN from supporting the restoration of demand at the scale required to meet the ESRS targets.
- 2.39 SPEN instead proposes a full DRZ delivery model for each area, including the installation of new switchgear, protection upgrades, resilient communications, Supervisory Control and Data Acquisition (SCADA) integration, and dedicated DRZ controllers. SPEN argues that this option is the only one capable of enabling the safe creation, control, and expansion of power islands, ensuring voltage and frequency stability, and integrating additional non-contracted DERs as the restoration progresses.
- 2.40 To support delivery, SPEN also proposed a dedicated project team of [Redacted] staff to deliver the works, with the team subsequently redeployed into the RIIO-ED3 programme. In addition, SPEN identified the need for increased Operational Control Centre resourcing to support deployment of up to three DRZs plans alongside the existing LJR Plan. This included provision of an additional Control Engineer on shift, supported by an increase in headcount to maintain a resilient shift pattern and meet growing operational and assurance requirements.

Initiative 4 - Central Zone:

- 2.41 The Central Zone works are proposed at £14.975m and are planned for concurrent delivery over two years to meet the agreed accelerated timeline.
- 2.42 SPEN proposed installing an Earthing Transformer which is required during the establishment of the DRZ, installing 29 new 33kV switchgear across strategic locations, installing communications equipment required for the support and delivery of the DRZ, and deploying a DRZ Controller to manage real-time balancing of load and generation.

Consultation RIIO-ED2 Re-opener: Electricity System Restoration 2025**Initiative 5 – Dumfries and Galloway**

- 2.43 The Dumfries and Galloway works are proposed at £3.94m across three primary substations and will be delivered on an accelerated, concurrent programme.
- 2.44 SPEN proposed installing 3 new 11kV switchgear across strategic locations, installing communications equipment required for the support and delivery of the DRZ, and deployment of a DRZ Controller to coordinate real-time balancing of load and generation during islanded operation.

Initiative 6 – Fife

- 2.45 The Fife works are proposed at £18.93m to deliver the required technical upgrades to allow a remote, bottom-up re-energisation.
- 2.46 The proposals included installing an Earthing Transformer which is required during the establishment of the DRZ, installing 62 new 33kV switchgear across strategic locations, installing communications equipment required for the support and delivery of the DRZ, and deploying a DRZ Controller to manage real time balancing of load and generation.

Initiative 7 – Staff Resources

- 2.47 SPEN state staff resources are required to support delivery of asset resilience upgrades and DRZs as indirect costs of Initiative 1 to 6, operate DRZs in an ESR scenario and support ESR assurance requirements at a proposed total of £9.207m. This will cover until the end of RIIO-ED2 and SPEN expect to make further funding requests in RIIO-ED3.
- 2.48 SPEN have proposed to reflect the Indirects Scalar at 10.8% for Closely Associated Indirects (CAIs) at a total cost of £6.052m included in Initiative 7.
- 2.49 SPEN presented two options for the remaining proposals:
- Option 1: Operating three DRZ islands in real time would have required [Redacted] dedicated operators, plus [Redacted] engineers to manage ESR responsibilities, meaning [Redacted] engineers per shift. A 24/7 rota would therefore require a minimum of [Redacted] staff. With only [Redacted] distribution control engineers currently in SPENs identified Operational Control Centre (OCC) resourcing, this option would have required [Redacted] additional engineers.
 - **Option 2 (Do Minimum):** Advances in SCADA tele-control meant that DRZ switching schedules could be pre-configured and executed automatically by a single authorised engineer. Three DRZ teams, [Redacted] authorised persons per island, would still need to be deployed on site, and the OCC would require [Redacted] engineers to maintain normal network management during an ESR

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event. Updated shift patterns and standby arrangements meant a minimum of [Redacted] staff were required which is an [Redacted] engineer increase.

- 2.50 Doing nothing was rejected because the introduction of new DRZs on the SPD network created additional operational and testing demands that existing control room staff could not absorb. The new technology required dedicated resourcing, meaning the baseline was not viable.
- 2.51 **Option 2** was recommended as the most efficient and proportionate approach, requiring [Redacted] additional control engineers rather than the [Redacted] required under **Option 1**. It also allowed SPMW's control room to shadow DRZ operation, supporting wider organisational readiness.

Cost Assessment

- 2.52 We set out below the key cost assessment considerations and adjustments that inform our views for the ESR Re-opener.
- 2.53 We propose to set ESR Re-opener allowances on the basis of SPEN's evidenced cost estimates, subject to the adjustments set out below.
- 2.54 SPEN has stated that there is minimal incremental capital cost in designing for 120 hours compared to 72 hours for certain asset types, and that this supports a 'touch it once' strategy. However, for the purposes of this Re-opener, we consider that allowances should be targeted at meeting the minimum requirements to comply with the current coded obligations.
- 2.55 Consistent with our cost assessment for **Initiative 3** in 2.63 to 2.67, we therefore propose to exclude from the Re-opener scope those sites that already meet the current coded telecommunications resilience requirement of 72 hours (178 sites in total), with any further enhancement above this threshold to be considered in the context of RIIO-ED3.
- 2.56 SPEN has confirmed that all investment proposed through this Re-opener is additional to RIIO-ED2 ex ante allowances. SPEN has also stated that it intends to deliver both the RIIO-ED2 baseline CV12 programme and the ESR re-opener interventions across SPD and SPMW and, therefore, has not assumed any savings against baseline allowances.
- 2.57 SPEN has indicated that efficiencies could arise on elements of the CV12 baseline programme through wider deployment of black start controller devices. However, SPEN has stated that the scale and timing of any such efficiencies are uncertain and that the baseline and re-opener programmes target different sites. On this basis, SPEN has not proposed any recovery of baseline allowances.

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2.58 Taking into account these arguments by SPEN and the provided information, including supporting documentation from NESO, we propose to implement PCDs in respect of the ESR re-opener outputs. In our view, the PCD will provide protections for consumers through a clear link between funding and delivery of outputs, including consequences where delivery is late, does not meet the required specification, or is not delivered. The costs proposed to be approved in this consultation will be subject to the PCDs which will later be published for consultation.

Initiatives Cost Assessment

- 2.59 For **Initiatives 1 and 2**, we propose to accept SPEN's evidenced costs as submitted, and to set allowances accordingly subject to the proposed PCDs framework.
- 2.60 We consider that SPEN's proposals to establish and operate DRZs in the SPD licence area in **Initiatives 4, 5 and 6** in response to the updated ESR scope of work and associated code changes are required to support compliance with the relevant DRZ requirements.
- 2.61 While SPEN's preferred solution includes additional arrangements that go beyond the coded requirements, we have engaged with NESO's ESR team and consider that the proposed approach is consistent with the intent of the DRZ arrangements and is likely to improve the stability and expandability of restoration islands. SPEN has also confirmed that no ex ante provision was made for DRZs. On this basis, we propose to accept SPEN's preferred approach for the DRZ initiatives through this Re-opener, subject to the proposed PCDs framework.
- 2.62 For **Initiative 7**, SPEN has proposed to utilise its SCADA capability to support the operation of each DRZ with [Redacted] dedicated control engineer, alongside business-as-usual control room resources, resulting in an additional [Redacted] control engineers to maintain 24/7 capability. Based on the information provided, we consider this approach to be proportionate to the operational requirements of supporting DRZ operation during an ESR event. We therefore propose to accept SPEN's preferred approach for additional resourcing, subject to the proposed PCD framework.
- 2.63 Regarding **Initiative 3**, while we partially agree with the needs case proposed by SPEN to install 120-hour resilience as opposed to the coded 72-hour requirement (as per GC0156 modification) due to the minimal incremental cost, SPEN's trigger for investment is where sites currently have less than 120-hours resilience. We consider this is beyond the scope of this reopener which should align to the minimum requirements to comply with ESRS requirements (as per the modified codes). We propose to remove 178 sites included within SPEN's requested volumes for **Initiative 3** where the existing telecommunications resilience is already sufficient to meet

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current coded requirements. Specifically, SPEN has confirmed that 178 substations included in the submission (117 in SPD and 61 in SPM) currently have telecommunications resilience greater than 72 hours.

Table 2 Draft Determinations on the Initiative 3 Substation Telecommunications Resilience (£m, 2020/21)

Network	SPEN Requested Forecast Cost Total	Ofgem's DD – Cost Adjustment	Ofgem's DD – Allowances
SPD	3.366	0.995	2.371
SPMW	4.928	0.568	4.360
Total	8.294	1.563	6.731

- 2.64 SPEN has stated that the intervention volumes were modelled from sites with less than 120 hours of telecommunications resilience and then refined with its delivery function to reflect what was achievable within the remainder of RIIO-ED2, resulting in proposed volumes of 340 sites in SPD and 408 sites in SPMW. SPEN has also stated that delivery would be prioritised towards sites with the lowest existing resilience.
- 2.65 SPEN has confirmed that all substation battery interventions relate to sites below 72 hours resilience. However, the higher delivery rate assumed for telecommunications batteries resulted in 178 sites with telecommunications resilience above 72 hours being included within the re-opener period, with SPEN stating that remaining requirements would be addressed in RIIO-ED3.
- 2.66 Across the 178 sites, the telecoms upgrade works comprises of a mix of interventions including for SPD 33 battery upgrades, 80 new battery types (Type 1), and 4 new battery types (Type 2), and for SPM 14 battery upgrades, 39 new battery types (Type 1) and 8 new battery types (Type 2).
- 2.67 On this basis, we propose to exclude these 178 sites from the scope of **Initiative 3** for the purposes of the ESR re-opener. We consider that, where sites already meet the current coded requirement of 72 hours telecommunications resilience, it is not appropriate to fund further improvements through this re-opener. We therefore propose to remove the associated costs from **Initiative 3** and, consequentially, to remove the related indirect costs within **Initiative 7**.

Consultation RIIO-ED2 Re-opener: Electricity System Restoration 2025**Table 3 Draft Determinations on the Initiative 7 Staff Resources (£m, 2020/21)**

Network	SPEN Requested Forecast Cost Total	Ofgem's DD – Cost Adjustment	Ofgem's DD – Allowances
SPD	7.490	- 0.107	7.383
SPMW	1.717	-0.061	1.656
Total	9.207	-0.169	9.039

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3. Next steps

- 3.1 We welcome your responses to this consultation, both generally, and in particular to the specific questions in Chapter 2. After having considered all consultation responses, we will endeavour to conclude our assessment of SPEN's ESR re-opener application with a decision in due course.
- 3.2 If we decide to modify the value of the ESR_t term, we will do so by direction in accordance with SpC 3.2 Part D and paragraph 3.125 of SPEN's licence. We have included the draft text of a direction in Appendix 1 of this consultation.

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Appendix 1. Draft Direction for Electricity System Restoration Re-opener

A1.1 Introductory Note

Following our assessment of SPEN's 2025 Electricity System Restoration Re-opener application, we have set out our Draft Determinations above. Any decision to add additional allowances for a project, will be implemented into the Licence via a direction. This Appendix provides notice of the proposed direction that we intend to issue to implement our final decision. We intend to confirm the direction at the same time as setting out our Final Determinations, taking into account responses to our Draft Determinations and representations on the proposed direction. Any representations with respect to the Draft Determinations or associated draft direction below must be made on or before 22 June 2026.

Proposed Direction

To: SP Distribution plc, SP Manweb plc

Direction issued by the Gas and Electricity Markets Authority ("the Authority") under Special Condition ("SpC") 3.2.20 of the Electricity Distribution Licence ("the Licence") held by SP Distribution plc and SP Manweb plc ("the Licensees") to modify the value of licence term ESRt.

1. The Licensees are the holders of a licence granted or treated as granted under section 6(1)(c) of the Electricity Act 1989.
2. SpC 3.2 Part D: Electricity System Restoration Re-opener of the Licence provides a mechanism by which the licensee may apply for a direction modifying the value of term ESRt in SpC 3.2 Appendix 1.
3. In June 2025, the Licensees submitted a Re-opener application under SpC 3.2 Part D for modification to the term ESRt.
4. Further details of the reasons for and effect of this direction can be found in our decision document published alongside this direction.
5. The Authority hereby issues a direction under SpC 3.2.27 and SpC3.125 to modify the ESRt term in SpC3.2 Appendix 1 as follows:

To: SP Distribution plc

Consultation RIIO-ED2 Re-opener: Electricity System Restoration 2025**Appendix 1****Uncertain Costs without Evaluative Price Control Deliverables allowances (£m)**

	23/24	24/25	25/26	26/27	27/28	Total allowance (all years)
PSUP _t	0	0	0	0	0	0
REC _t	0	0	0	0	0	0
ESR _t	0	0	0	0	0	0
			<u>8.1.06</u>	<u>19.672</u>	<u>21.877</u>	<u>49.654</u>
EVR _t	0	0	0	0	0	0
SWR _t	0	0	0	0	0	0
DIGI _t	0	0	0	0	0	0
LRE _t	0	0	0	0	0	0
HVP _t	0	0	0	0	0	0
WDV _t	0	0	0	0	0	0
HO _t	0	0	0	0	0	0
SES _t	0	0	0	0	0	0
SEFEC _t	0	0	0	0	0	0

New text is double underscored, and text removed is double struck through.

To: SP Manweb plc

Appendix 1

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Uncertain Costs without Evaluative Price Control Deliverables allowances (£m)

	23/24	24/25	25/26	26/27	27/28	Total allowance (all years)
PSUP _t	0	0	0	0	0	0
REC _t	0	0	0	0	0	0
ESR _t	0	0	0	0	0	0
			<u>0.113</u>	<u>6.413</u>	<u>7.332</u>	<u>13.858</u>
EVR _t	0	0	0	0	0	0
SWR _t	0	0	0	0	0	0
DIGI _t	0	0	0	0	0	0
LRE _t	0	0	0	0	0	0
HVP _t	0	0	0	0	0	0
WDV _t	0	0	0	0	0	0
HO _t	0	0	0	0	0	0
SES _t	0	0	0	0	0	0
SEFEC _t	0	0	0	0	0	0

New text is double underscored, and text removed is double struck through.

6. This direction will take effect immediately.

7. If you have any questions in relation to this direction, please contact:

ReopenerConsultations@ofgem.gov.uk.

Yours sincerely,

.....

Consultation RIIO-ED2 Re-opener: Electricity System Restoration 2025

**Duly authorised on behalf of the
Gas and Electricity Markets Authority**

[xxx 2026]

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Appendix 2. ESR Licence conditions

Part D: Electricity System Restoration Re-opener (ESRt)

3.2.20 This Part establishes the Electricity System Restoration Re-opener.

3.2.21 The Electricity System Restoration Re-opener may be used where there has been a change to the Electricity System Restoration Scope of Work and the licensee has incurred or expects to incur additional costs associated with such change.

3.2.22 The licensee may only apply to the Authority for modifications to this licence under the Electricity System Restoration Re-opener:

- (a) Between 24 June 2024 and 28 June 2024; and
- (b) during such other periods as the Authority may direct.

3.2.23 The licensee must when making an application under the Electricity System Restoration Re-opener, send to the Authority a written application that:

- (a) sets out the changes to the Electricity System Restoration Scope of Work, to which the application relates;
- (b) sets out any modifications to the value of ESRt in Appendix 1 being sought;
- (c) explains the basis for calculating any modifications requested to allowances and the profiling of those allowances;
- (d) sets out the engagement undertaken with the ISOP and other Relevant Network Licensees on the proposed scope of works; and
- (e) provides such detailed supporting evidence as is reasonable in the circumstances.

3.2.24 An application under this Part must:

- (a) relate to changes to the Electricity System Restoration Scope of Work agreed on or after 1 December 2021;
- (b) be confined to costs incurred or expected to be incurred on or after 1 April 2023; and
- (c) take account of allowed expenditure which can be avoided as a result of the

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change to the Electricity System Restoration Scope of Work, to which the application relates.

3.2.25 The Authority may also instigate this Re-opener in accordance with Part S.

3.2.26 The following modifications to this licence may be made under the Electricity System Restoration Re-opener:

- (a) modifications to the value of ESRt set out in Appendix 1;
 - (b) modifications confined to allowances related to the change to the Electricity System Restoration Scope of Work, that are the subject of the Re-opener;
- and
- (c) modifications confined to allowances for Regulatory Years commencing on or after 1 April 2023.

3.2.27 The Authority may only make modifications to this licence under the Electricity System Restoration Re-opener by direction where:

- (a) the circumstances in paragraph 3.2.21 exist;
- (b) the requirements in paragraphs 3.2.23 and 3.2.24 have been met; and
- (c) the modification to allowances is efficient.

Appendix 3. Privacy policy

Personal data

The following explains your rights and gives you the information you are entitled to under the General Data Protection Regulation (GDPR).

Note that this section only refers to your personal data (your name address and anything that could be used to identify you personally) not the content of your response to the consultation.

1. The identity of the controller and contact details of our Data Protection Officer

The Gas and Electricity Markets Authority is the controller, (for ease of reference, “Ofgem”). The Data Protection Officer can be contacted at dpo@ofgem.gov.uk

2. Why we are collecting your personal data

Your personal data is being collected as an essential part of the consultation process, so that we can contact you regarding your response and for statistical purposes. We may also use it to contact you about related matters.

3. Our legal basis for processing your personal data

As a public authority, the GDPR makes provision for Ofgem to process personal data as necessary for the effective performance of a task carried out in the public interest. i.e. a consultation.

4. With whom we will be sharing your personal data

Information: Include here all organisations outside Ofgem who will be given all or some of the data. There is no need to include organisations that will only receive anonymised data. If different organisations see different set of data then make this clear. Be as specific as possible.

5. For how long we will keep your personal data, or criteria used to determine the retention period.

Your personal data will be held for (be as clear as possible but allow room for changes to programmes or policy. It is acceptable to give a relative time e.g. ‘six months after the project is closed’)

6. Your rights

The data we are collecting is your personal data, and you have considerable say over what happens to it. You have the right to:

- know how we use your personal data
- access your personal data

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- have personal data corrected if it is inaccurate or incomplete
- ask us to delete personal data when we no longer need it
- ask us to restrict how we process your data
- get your data from us and re-use it across other services
- object to certain ways we use your data
- be safeguarded against risks where decisions based on your data are taken entirely automatically
- tell us if we can share your information with 3rd parties
- tell us your preferred frequency, content and format of our communications with you
- to lodge a complaint with the independent Information Commissioner (ICO) if you think we are not handling your data fairly or in accordance with the law. You can contact the ICO at <https://ico.org.uk/>, or telephone 0303 123 1113.

7. Your personal data will not be sent overseas (Note that this cannot be claimed if using Survey Monkey for the consultation as their servers are in the US. In that case use “the Data you provide directly will be stored by Survey Monkey on their servers in the United States. We have taken all necessary precautions to ensure that your rights in term of data protection will not be compromised by this”).

8. Your personal data will not be used for any automated decision making.

9. Your personal data will be stored in a secure government IT system. (If using a third party system such as Survey Monkey to gather the data, you will need to state clearly at which point the data will be moved from there to our internal systems.)

10. More information For more information on how Ofgem processes your data, click on the link to our “[ofgem privacy promise](#)”.