

# Consultation

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## Shetland Enduring Solution Draft Determination

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Contact: Neill Guha

Team: Price Control Operations - Small & Medium Sized Projects

Email: [reopenerconsultations@ofgem.gov.uk](mailto:reopenerconsultations@ofgem.gov.uk)

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We are consulting on Scottish Hydro Electric Power Distribution's (SHEPD)<sup>1</sup> Shetland Standby Project under the Shetland Enduring Solution reopener.

We particularly welcome responses from people and organisations with an interest in electricity and gas transmission or distribution. We also welcome responses from other stakeholders and the public.

This document outlines the scope, purpose and questions of the consultation and 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](https://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.

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<sup>1</sup> Also known as Scottish and Southern Energy (SSE) Networks

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## 1. Introduction

### Section summary

This section provides an explanation of SHEPD's submission, our assessment process, and how we will handle this consultation process.

### Introduction to RIIO-2

- 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-2 is the second price control under the RIIO model for electricity transmission, gas transmission and gas distribution, and runs from 1 April 2021 until 31 March 2026. It includes a range of Uncertainty Mechanisms (UMs) that allow us to assess applications for further 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-2 price control has flexibility to adapt as the pathways to Net Zero become clearer.
- 1.3 Where possible, we have set automatic UMs, such as the Generation and Demand Connection Volume Drivers, which provide some 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.

## **What are we consulting on?**

- 1.4 We<sup>2</sup> are consulting on adjusting SHEPD's outputs and allowances under Special Condition 3.2 of SHEP's Electricity Distribution licence, the Shetland Enduring Solution Re-opener ("the Re-opener").
- 1.5 In accordance with Special Condition 3.2, SHEPD has applied to Ofgem to add additional allowances for its proposed project into its RIIO-2 price control framework.
- 1.6 The Re-opener may be used where:
- there has been a change in the costs the licensee has incurred or expects to incur related to the Shetland Enduring Solution, relative to any previous allowances for such costs, that exceed the Materiality Threshold; or
  - the licensee has incurred or expects to incur costs related to the Shetland Enduring Solution that are greater than 10% over or under the allowances set in response to an application under Special Condition 3.2.112(a).
- 1.7 Throughout this document, all monetary figures are in 2020/21 prices to align with the original RIIO-ED2 price base.

## **Consultation approach**

- 1.8 We are issuing this consultation following our assessment of SHEPD's re-opener application. This document explains our assessment of that application and the adjustments we are proposing to make to SHEPD's licence, including adjustments to allowances and the addition of any Price Control Deliverables (PCD).
- 1.9 We considered SHEPD's application and its justification for the funding requested in accordance with our principal objective and statutory duties. In line with the Re-opener Guidance and Application Requirement Document<sup>3</sup>, our assessment of each project covers the three following areas:
- the needs case
  - the options assessment and the justification for the proposed project
  - the efficient costs for the proposed project

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<sup>2</sup> The terms "we", "us", "our", "Ofgem" and "the Authority" are used interchangeably in this document and refer to the Gas and Electricity Markets Authority. Ofgem is the office of the Authority.

<sup>3</sup> [Re-opener Guidance and Application Requirements Document: Version 3 | Ofgem](#)

We rely on our assessment of these 3 areas in coming to our Draft Determination on what additional allowances, if any, should be provided to SHEPD to undertake the project.

- 1.1 We will implement our decision from this consultation by way of a formal direction, which we intend to issue alongside our decision. A draft direction is provided in Appendix 1. The content of the final direction may be amended subject to consultation responses.

## Context and related publications

1.10 The scope of this consultation is limited to SHEPD’s Shetland Enduring Solution Re-opener. This document is intended to be read alongside:

- the RIIO-2 Draft Determinations – Core Document, Chapter 7<sup>4</sup>
- the RIIO-2 Final Determinations – Core Document (REVISED), Chapter 7, page 78<sup>5</sup>
- Special Condition 3.2 of SHEPD’s Electricity Distribution Licence<sup>6</sup>
- RIIO-2 Re-opener Guidance and Application Requirements Document<sup>7</sup>.

## Consultation stages

**Figure 1: Consultation stages**

<b>Stage 1</b>	<b>Stage 2</b>	<b>Stage 3</b>	<b>Stage 4</b>
Consultation open	Consultation closes. Deadline for responses	Responses reviewed and published	Re-opener decision
13 September 2024	13 October 2024	Winter 2024	Winter 2024

## How to respond

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

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<sup>4</sup> [RIIO-2 Draft Determinations - Core Document \(ofgem.gov.uk\)](https://www.ofgem.gov.uk/system/files/docs/2021/02/final_determinations_core_document_revised.pdf)

<sup>5</sup> [https://www.ofgem.gov.uk/system/files/docs/2021/02/final\\_determinations\\_core\\_document\\_revised.pdf](https://www.ofgem.gov.uk/system/files/docs/2021/02/final_determinations_core_document_revised.pdf)

<sup>6</sup> [EPR 2013 - Index \(ofgem.gov.uk\)](https://www.ofgem.gov.uk/epr-2013-index)

<sup>7</sup> [Re-opener Guidance and Application Requirements Document: Version 3 | Ofgem](#)

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

1.13 We will publish non-confidential responses on our website at [www.ofgem.gov.uk/consultations](http://www.ofgem.gov.uk/consultations).

## **Your response, data and confidentiality**

1.14 You can ask us to keep your response, or parts of your response, confidential. We'll 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.

1.15 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'll get in touch with 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.

1.16 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 UK'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 1.

1.17 If you wish to respond confidentially, we'll keep your response itself confidential, but we will publish the number (but not the names) of confidential responses we receive. We won't 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.

## **General feedback**

1.18 We believe that consultation is at the heart of good policy development. We welcome any comments about how we've run this consultation. We'd also like to get your answers to these questions:

1. Do you have any comments about the overall process of this consultation?

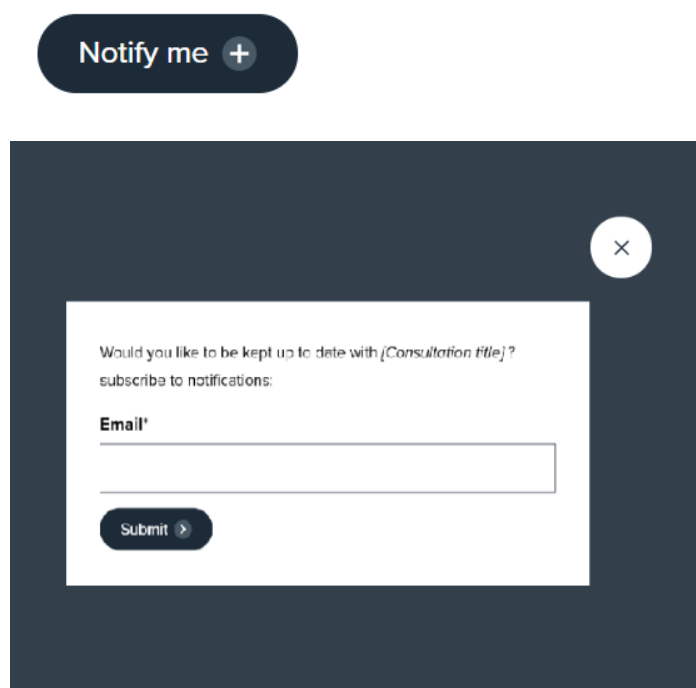
2. Do you have any comments about its tone and content?
3. Was it easy to read and understand? Or could it have been better written?
4. Were its conclusions balanced?
5. Did it make reasoned recommendations for improvement?
6. Any further comments?

Please send any general feedback comments to [stakeholders@ofgem.gov.uk](mailto:stakeholders@ofgem.gov.uk)

## How to track the progress of the consultation

You can track the progress of a consultation from upcoming to decision status using the 'notify me' function on a consultation page when published on our website.

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Once subscribed to the notifications for a particular consultation, you will receive an email to notify you when it has changed status. Our consultation stages are:

**Upcoming** > **Open** > **Closed** (awaiting decision) > **Closed** (with decision)



## 2. Shetland Enduring Solution

### Section summary

This section outlines SHEPD's re-opener application for its proposed project and our assessment of the needs case, optioneering and costs. Based on this assessment we have formed our Draft Determination of what allowances, if any, should be added for this project.

### Questions

- Q1. Do you agree with our Draft Determination on SHEPD's Shetland Enduring Solution needs case, optioneering and costs?
- Q2. Do you agree with our proposal that consumers should not take on any additional costs if the solution fails?

### SHEPD's demonstration of the needs case

- 1.19 SHEPD states that there are currently over 14,000 distribution customers on Shetland and in 2020/21 peak demand was 43.5 MW. It expects peak demand is to increase beyond 70MW in the coming years.
- 1.20 The increase in demand means that Shetland class of supply will change. Therefore, in the event of a fault, a back-up solution must be able to supply a minimum of approximately 40 MW immediately with the remaining demand to be met within three hours. Based on Shetlands current class of Security and Quality of Supply Standards (SQSS)<sup>8</sup>, in the event of a fault, approximately 30MW are required within 15 minutes.
- 1.21 At present there is no interruption of supply to the Shetland islands either because of planned or unplanned outages. This is because there is always additional generation running between Lerwick Power Station (LPS)<sup>9</sup>, Sullom Voe Terminal (SVT)<sup>10</sup> and distributed generation such that the loss of any one generator, or a circuit/transformer fault, will not result in a blackout for the entire Shetland network.

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<sup>8</sup> [SQSS Code Documents | ESO \(nationalgrideso.com\)](#)

<sup>9</sup> A diesel-fired power station that provides approximately 50% of Shetland's electricity demand.

<sup>10</sup> A gas-fired power station that provides approximately 30% of Shetland's electricity demand, primarily to a complex that receives oil by pipeline from the oilfields in the East Shetland Basin and Deep waters West of Shetland, see [Sullom Voe Terminal – Shetland Islands Council](#)

- 1.22 Shetland is currently an islanded electricity network, meaning that it is separate to the mainland GB electricity system. In its application SHEPD explains that, as part of a whole system solution developed with SSE Networks (Transmission), Shetland will soon<sup>11</sup> be connected to the GB electricity system for the first time via a new High Voltage Direct Current (HVDC) link. This will enable LPS to move from full duty operation to standby mode, and for current Power Purchase agreements between SHEPD and SVT to terminate.
- 1.23 The new HVDC link to the GB mainland is a single circuit connection. Therefore, in the event of an unplanned outage, SHEPD proposes to implement a new solution to ensure the security of supply standard for Shetland. SHEPD considers that this solution would require two elements to maintain security of supply:
- the ability to ride through any full system transmission fault;
  - the ability to immediately provide for Shetland's electricity demands for up to 45 minutes until LPS is up and running.
- 1.24 Without a solution that includes the two elements above, SHEPD considers that an unplanned outage on the link would result in a blackout across Shetland for an estimated 3-4 hours until the full supply of electricity can be restored. This is because, without the standby arrangement, LPS would have to recover the system from a black start<sup>12</sup> scenario. SHEPD assumes that over the 10-year operational period, interruptions following the implementation of the HVDC transmission link, a black start scenario could occur approximately 19 times.
- 1.25 SHEPD estimates that the quantified impact of the Value of Lost Load (VOLL)<sup>13</sup>, together with the loss of revenue for SVT, could be in the range of £67m to £428m per year, which does not include the wider economic and social impact on Shetland of a sustained blackout.
- 1.26 As the reason for this re-opener submission, SHEPD explains that no allowances were provided for the Shetland Enduring Solution as part of SHEPD's baseline allowances for RIIO-ED2 as at that stage it had not completed the tendering process, so costs were uncertain. As part of the RIIO-ED2 Final Determinations<sup>14</sup>, Ofgem provided it with the following:

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<sup>11</sup> This link has begun transmitting power since SHEPD submitted its re-opener

<sup>12</sup> Black start is the process of restoring the electricity grid to operation following an extensive loss of supplies

<sup>13</sup> VoLL represents the value that electricity users attribute to security of electricity supply

<sup>14</sup> [RIIO-ED2 Final Determinations | Ofgem](#)

- Confirmation of allowances for continuing to run and extend the life of LPS in standby mode;
- A new licence condition, Special Condition 3.16, providing for SHEPD's contribution to the HVDC link;
- A continuation of the licence condition, Special Condition 6.1 Part C, that allows fuel costs and environmental permit costs for Shetland to be treated as pass through costs;
- Continuation of the Shetland Extension Fixed Energy Costs re-opener from RIIO-ED1 under Special Licence Condition 3.2 Part Q; and
- A new Uncertainty Mechanism (UM) in the form of a bespoke re-opener for the Shetland Enduring Solution under Special Condition 3.2 Part O.

1.27 SHEPD has now submitted its application under the Re-opener to support the Shetland Enduring Solution as it considers that the tendering process is now sufficiently progressed, so it can provide accurate cost estimates, robust technical justification, and finalised details of the proposed overall approach, with a preferred option that will address the needs case set out above.

### **Our Draft Determination on SHEPD's needs case**

1.28 In our Final Determination for RIIO-ED2<sup>15</sup>, we explained that Shetland is supplied by energy generated on the islands, with SHEPD running the distribution network. At the time of our Final Determination, SHEPD agreed that a re-opener was the most appropriate mechanism for funding costs associated with the Shetland enduring solution, noting it was currently carrying out a tender process for the provision of a standby solution service, meaning costs would remain uncertain until this was completed. We agreed that a re-opener was the most appropriate mechanism through which to manage the cost uncertainty for the Shetland enduring solution. The Re-opener was designed to allow for adjustment of allowances to support the delivery of an enduring solution to provide long-term security of supply to Shetland following the completion of the Shetland HVDC link. We set the re-opener timescale to allow SHEPD to make an initial application for the expected costs of implementing the enduring solution and to allow for allowances to be adjusted towards the end of the price control if the outturn costs are materially different from any initial funding.

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<sup>15</sup> [RIIO-ED2 Final Determinations SSEN Annex \(ofgem.gov.uk\)](https://www.ofgem.gov.uk/riio-ed2-final-determinations-sSEN-Annex)

1.29 In line with the rationale explained in the RIIO-ED2 Final Determinations, and reiterated above, we agree with and understand the needs case put forward by SHEPD for an enduring solution will ensure the long-term security of supply for electricity in Shetland.

### **SHEPD's optioneering**

1.30 SHEPD discounted the do-nothing option, stating that if Shetland was connected to the transmission system without a standby solution, an unplanned HVDC link outage would result in a full island blackout on Shetland and supply interruptions to over 14,000 customers. SHEPD estimates that if a fault occurred in this scenario, then it would take 3-4 hours to bring LPS generation online and restore supplies to the majority of Shetland, including network switching and balancing. Even with standby generation, if it is retained without distribution fault ride-through (D-FRT) or blackout avoidance equipment being deployed, then supply interruptions would occur for network faults or outages. This outcome would result in damage to customer confidence, with customers on Shetland receiving a lower standard of security of supply following the introduction of the HVDC link solution. SHEPD estimate the net present value cost of the do-nothing option (over 10 years) would be approximately -£127.75m.

1.31 SHEPD stated that it also considered demand flexibility solutions in this project to potentially reduce the amount of standby equipment, services and generation required. This includes a call for flexibility services on Shetland that was published on its website to identify interest, and a tender exercise was run in December 2021, however there was insufficient interest to affect the requirements of the standby solution for Shetland.

1.32 SHEPD stated that when looking at how it could address the issue presented in the needs case, it assessed numerous options against five critical criteria:

1. The option meets the technical requirement and avoids blackouts;
2. Deliverability in the required timescales (early 2025);
3. Whether the option was proposed in response to the tender;
4. If the option is practical to implement; and
5. Cost of the option.

1.33 Applying these criteria, SHEPD rejected several options as unsuitable and as part of its submission SHEPD provided a CBA to us with two options and two sensitivities. However, we considered that the CBA did not explore enough

options, or enough potential future pathways for Shetland so as part of the Supplementary Question process we instructed SHEPD to provide a new CBA, which we agreed would include the following 5 options against 3 different scenarios<sup>16</sup>:

- Baseline: option of refit of LPS and operate in full duty mode
- Option 1 (Preferred Option)<sup>17</sup>: distribution fault ride through with blackout avoidance with standby generation (LPS in standby)
- Option 2: new build power station in full duty operation
- Option 3: distribution fault ride through with blackout avoidance with standby generation (refit LPS with new engines)
- Option 4: distribution fault ride through with blackout avoidance with standby generation (alternative to LPS such as Aggreko High Speed or similar)
- Option 5: distribution fault ride through with no blackout avoidance with standby generation (LPS in standby)

These options were mapped against the following scenarios:

- A: Proposed 600MW HVDC link with no second link
- C: Proposed 600MW HVDC link with a second link HVDC in place in 2035
- D: Proposed 600MW HVDC link with second HVDC link in place in 2035 and a third HVDC link in place in 2045.

1.34 An additional 'Scenario B' was eliminated as it was similar to scenario C but differed only in size (1800MW link instead of 600MW link). From a SHEPD distribution modelling perspective both scenarios posed a similar outcome.

### SHEPD preferred option

1.35 Following the CBA, SHEPD concluded that the most economic and efficient solution for the standby solution is Option 1: retaining LPS as the standby generation and to procure fault ride-through and blackout avoidance equipment as a service, for a 10-year period.

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<sup>16</sup> A more extensive summary of the options and scenarios is shown in Appendix 2.

<sup>17</sup> The preferred option from the original CBA, previously called Option 2. The other options from the original CBA were removed for this exercise as we already had the preferred option.

- 1.36 In this option, LPS would be converted from full duty operation to standby mode and be complemented by the instantaneous response of the D-FRT and blackout avoidance equipment for 10 years. It would require connection of the Alternating Current (AC) Chopper and Battery Energy Storage System (BESS) to the 33 kV network to maximise its effectiveness and reliability whilst minimising the connection costs and any associated reinforcements. The solution would be procured as a service, as this would be more cost efficient than procuring the asset itself.
- 1.37 This option would deploy D-FRT and blackout avoidance equipment immediately upon a HVDC outage, avoiding loss of supply to Shetland, for up to 45 minutes, while LPS is initiated from standby re initiating most of Shetland back into island mode.
- 1.38 D-FRT and black out avoidance consist of island mode stability equipment (to provide voltage support, inertia, and short circuit current) and energy storage / demand side response, provides sufficient energy until LPS is able to generate on to the system. SHEPD states that this option is modular and can be augmented with additional modules or mobile diesel generation, additional engines, or storage / other flexible services at LPS if a higher demand forecast or future large new connections materialise. The costs assume an AC Chopper and Grid Forming (GF) BESS will constitute the D-FRT and blackout avoidance equipment.
- 1.39 The ability to retain LPS for 10 years would provide the option to flex to a low carbon solution or second network link if available. SHEPD consider the main benefit of Option 2 is that a 10-year service also provides the benefit of allowing additional options to be considered after this point when there is more certainty in terms of other generators and flexible options on Shetland. In addition, SHEPD states that this option has the potential for the service provider to trade/stack benefits from any spare capacity in the BESS to reduce the overall cost of the service to consumers. However, due to the uncertainty around the level of revenue that trading/benefit stacking will reap, SHEPD did not include this potential in the CBA. Therefore, this option assumes no savings assumed as a result of trading/benefit stacking committed into the upfront service costs.

### **Our Draft Determination on SHEPD's optioneering and preferred option**

- 1.40 We have been engaging with SHEPD for around a decade with the aim of creating a long-term solution for security of supply on Shetland. During this time, we have jointly explored multiple different options, including:

- Replacement of LPS with dual fuel 90MW power station (2014)<sup>18</sup>
  - A new distribution link with back up generation (2017)<sup>19</sup>
  - Following the rejection of the new distribution link with backup generation, we agreed that SHEPD would manage an extension of existing services, including LPS, until 2025 (2018)<sup>20</sup>
- 1.41 SHEPD presented its latest potential solution to us in early 2023 and we have been engaging with SHEPD on this solution since then. In May 2023, we advised that based on the information submitted we would not grant approval of the proposed project. We advised that a more comprehensive application would be required for us to be satisfied that the proposed solution is the most appropriate and that the costs are justified. We aimed to address some of the fundamental concerns raised at that time, namely a lack of technical justification, evidence of optioneering and CBA comparisons.
- 1.42 Through a series of weekly bilateral meetings, we provided informal guidance to SHEPD on its re-opener application, including reviewing supporting supplementary material. Subsequently, in a meeting between Ofgem and SHEPD on 17 August 2023, we stated to SHEPD that based on the information provided we broadly agreed that the proposed solution appeared reasonable given the processes to date.
- 1.43 On 13 December 2023 SHEPD provided further information in a letter on a serious technical risk to the project (this is discussed in detail below in paragraphs 1.49 to 1.50). We considered and informed SHEPD that the commercial challenges outlined in the letter may have a significant impact on the overall CBA and therefore the risk profile of the solution. We requested more information on this in the formal re-opener application.
- 1.44 SHEPD formally submitted its re-opener application in January 2024 and our analysis concluded that the optioneering put forward by SHEPD was not comprehensive enough as it did not consider enough of the potential future pathways for Shetland. To gather further information, we asked a total of 23 Supplementary Questions in February 2024, on areas such as the financial and commercial risk issue, the CBA, the do-nothing scenario, and potential future

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<sup>18</sup> [Ofgem's determination of SHEPD's submission under CRC18A](#)

<sup>19</sup> [Decision on Shetland New Energy Solution | Ofgem](#)

<sup>20</sup> [Decision on changes to SHEPD's licence in respect of costs associated with the Extended Interim Energy Solution for Shetland | Ofgem](#)

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demand. We also separately asked SHEPD to expand its CBA to explore five options against four different scenarios to provide a more comprehensive optioneering that reflected alternative proposals and pathways, as discussed above in 1.33.

- 1.45 Following our extensive engagement with SHEPD, and SHEPD's provision of a new, more comprehensive CBA, we are satisfied that SHEPD has explored all options and proposed the best viable solution for consumers given current circumstances. Putting in place the proposed BESS solution would secure electricity demand on Shetland for the next decade. It also maintains future flexibility beyond 2035. There is also potential for the battery being used for electricity trading by the service provider, which could lead to future reductions in the cost of the solution. We therefore consider that the option selected (Option 1) is likely to be the best option available to SHEPD at present.

### **SHEPD's view and our Draft Determination on efficient costs**

- 1.46 SHEPD expects the solution put forward to cost £92.55m over a ten-year contract, of which £27.13m is expected to be incurred by the end of the RIIO-ED2 price control period in 2028. Almost 80% of the total cost is for the BESS service, with approximately 15% of the total cost going towards maintaining the LPS. The remainder of the costs are split between development costs, ongoing contract administration and standby platform costs.
- 1.47 In its submission, SHEPD explains how it has aimed to market test and minimise the costs it has put forward. The bulk of its costs are for the BESS service, which was procured via a tender process, which received two proposals. SHEPD explains that it benchmarked the tender returns using prior engagement with the market, where it looked to attain costs for the procurement of the relevant equipment and construction of the solution. SHEPD also gathered information from other parts of the SSE Group Business and external consultants to gather information on similar BESS related projects and trading opportunities.
- 1.48 As discussed in our optioneering section above, we consider that the option presented by SHEPD is likely to be the most appropriate option. Following extensive engagement with SHEPD to gather more information on its preferred option, including the new Cost Benefit Analysis (CBA), our view is that the option selected is the most cost-efficient option and would represent the best value for consumers. The majority of costs have been tendered, and we are content that the remaining costs, such as the ongoing running of the LPS, have either been previously assessed as part of baseline allowances or are similar to those



previously assessed. We are therefore content that the costs presented by SHEPD for creating and running the BESS solution represent efficient spending that will put in place an enduring solution for securing supply for Shetland.

### **Project finance risk**

1.49 The proposed solution is an innovative, first-of-a kind configuration of technologies for fault ride through blackout avoidance equipment. As part of its discussion of its preferred option, SHEPD has highlighted what it considers to be a very high impact but low probability risk. SHEPD considers that there is a possible technical risk that the proposed solution fails to work correctly to such an extent that the fault cannot be remedied. If this happened, then SHEPD would need to cover its service provider's debt and equity costs outstanding at the point of termination. SHEPD would incur these costs in full, in addition to new costs to implement an alternative solution.

1.50 SHEPD concludes that, whilst it considers the likelihood of a termination event arising is low, the impact is significant and is one that SHEPD are unable to mitigate and ultimately hold without the necessary support from Ofgem. Accordingly, SHEPD requests that our decision must include a confirmation and guarantee, confirming that Ofgem:

- "Accepts the service provider's position on the resulting financial consequences of any termination of the contract; and
- Guarantees that in the event of a termination of the contract, SHEPD will recover all costs, losses, claims and liabilities arising on termination of the contract, including the debt and equity costs, and payable to the Service Provider."

### **Our view of the project finance risk**

1.51 In summary, SHEPD has requested that consumers take on the risk of the solution failing and the debt and equity payments needing to be made to cover the project, in addition to finding a new solution.

1.52 To provide the context for our considerations on these project risks, the Re-opener mechanism was created to "allow for adjustment of allowances to support the delivery of an enduring solution to provide long term security of supply to Shetland following the completion of the Shetland HVDC link"<sup>21</sup>. As explained in

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<sup>21</sup> [RIIO-ED2 Final Determinations SSEN Annex \(ofgem.gov.uk\)](#)

our RIIO-ED2 Draft and Final Determinations, we anticipated that the benefits of using the mechanism would help ensure that “the consumer bears less risk of paying for over- or underinvestment in infrastructure for Shetland”.

- 1.53 We understand the commercial challenges that have been presented by SHEPD in both its submission and during separate engagements. However, as we highlighted in a letter to SHEPD on 16 January 2024, SSEN’s contractual negotiations and procurement activities, while of interest to the consumer, are not for Ofgem to determine. We also consider that the proposal for consumers to take on the risk of a project failing could create a precedent whereby network companies are less incentivised to mitigate project risks or find alternative, less risky solutions.
- 1.54 Therefore, taking into account the purpose and intention of the Re-opener, we do not consider that it is consumers’ interest to bear the risk of additional costs if SHEPD’s proposed solution fails and the debt and equity incurred in creating the solution must be paid off on top of the additional costs of putting a new solution in place.

### **Conclusion**

- 1.55 This re-opener proposes to commit to the necessary funding for this project for the rest of RIIO-ED2. Allowances for future years would then be built into SHEPD’s baseline allowances in future price control periods.

**Table 1:** SHEPD's requested RIIO-ED2 funding and our Draft Determination

<b>SHEPD proposal</b>	<b>Ofgem adjustments</b>	<b>Draft allowances</b>
£27.13m	£0m	£27.13m

## **Appendices**

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## Appendix 1 – Draft Direction

### Introductory note

Following our assessment of SHEPD’s submission, we have set out our Draft Determination. Any decision, for example to add additional allowances for a project, will be implemented into the Licensees licence via a direction. This Appendix provides a draft of the direction that will implement our Final Determination, as required by Special Condition 3.2. Upon consultation, and proper consideration of consultation responses, we intend to confirm the direction at the same time as setting out our Final Determination.

The final direction is subject to responses received in response to our Draft Determination. Any representations with respect to the Draft Determination or associated draft direction below must be made on or before 13 October 2024. These should be sent to Neill Guha, Office of Gas and Electricity Markets, 10 South Colonnade, London, E14 4PU or by email to [reopenerconsultations@ofgem.gov.uk](mailto:reopenerconsultations@ofgem.gov.uk).

Please see paragraphs 1.11 to 1.17 above for more information on responding, including on marking parts of responses that you consider confidential.

### Draft Direction

#### **Direction under Special Condition 3.2 of the electricity distribution licence held by Scottish Hydro Electric Power Distribution plc (the Licensee) to add allowances for Shetland Enduring Solution.**

A1.1 The Gas and Electricity Markets Authority (‘the Authority’) is issuing a direction under Special Condition 3.2 to add additional allowances into the licensee’s licence.

A1.2 Special Condition 3.2 provides a re-opener mechanism by which the Licensee may seek additional funding during the RIIO-2 price control period for activities related to the Shetland Enduring Solution.

A1.3 The Licensee applied under Part O of Special Condition 3.2 in January 2024 and the Authority publicly consulted on its Draft Determination between [x and x] 2024. The Draft Determination included a draft of this direction, as required by Part Q of Special Condition 3.2. The Authority is directing this change as one of the two requirements in SpC 3.2.112 has been satisfied, ‘there has been a change in the costs the licensee has incurred or expects to incur related to the Shetland Enduring Solution, relative to any previous allowances for such costs, that exceed the Materiality Threshold’.

A1.4 The Authority received [x] non-confidential representation(s) and has placed these on ofgem.gov.uk. Having considered these representations, the Authority has decided to [proceed / not proceed] with making this direction because [x].

A1.5 This direction will implement the Authority’s decision on the Licensee’s application to the Authority to [add / not add] additional Shetland Enduring Solution allowances into its RIIO-2 price control framework. Further details on the reasons for and effect of this direction can be found in the Final Determination document published alongside this direction.

A1.6 This direction will update Special Condition 3.2 Appendix 1, as shown in Table A1.

**Table A1**

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

	<b>23/24</b>	<b>24/25</b>	<b>25/26</b>	<b>26/27</b>	<b>27/28</b>	<b>Total allowance (all years)</b>
PSUP <sub>t</sub>	0	0	0	0	0	0
REC <sub>t</sub>	0	0	0	0	0	0
ESR <sub>t</sub>	0	0	0	0	0	0
EVR <sub>t</sub>	0	0	0	0	0	0
SWR <sub>t</sub>	0	0	0	0	0	0
DIG <sub>t</sub>	0	0	0	0	0	0
SAR <sub>t</sub>	0	0	0	0	0	0
LRE <sub>t</sub>	0	0	0	0	0	0
HVP <sub>t</sub>	0	0	0	0	0	0
WDV <sub>t</sub>	0	0	0	0	0	0
HO <sub>t</sub>	0	0	0	0	0	0
SES <sub>t</sub>	0	0	0	0	0	0
<u>SES<sub>t</sub></u>	<u>4.19</u>	<u>0.84</u>	<u>4.65</u>	<u>8.72</u>	<u>8.72</u>	<u>27.12</u>
SEFEC <sub>t</sub>	0	0	0	0	0	0

A1.7 This direction will take effect immediately.

Yours sincerely,

**[Name]**

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**[Title]**

**For and on behalf of the Authority**

## Appendix 2 – Cost Benefit Analysis Summary

A2.1 This appendix summarises the final cost benefit analysis conducted by SHEPD. Table 2 summarises the scenarios used in the CBA, Table 3 summarises the options used in the CBA, and then Table 4 summarises the Net Present Value (NPV) of each option against each scenario.

**Table 2:** CBA Scenarios

Scenario	Detail
A	Proposed 600MW HVDC link (no second link).
C	Proposed 600MW HVDC link. Second 1.8GW HVDC link in place in 2035
D	Proposed 600MW HVDC link. Second 1.8GW HVDC link in place in 2035. Third 1.8GW HVDC link in place in 2045.

**Table 3:** CBA Options

Option	Detail
Baseline	Refit of LPS and Operate in Full Duty Mode
1	Distribution Fault Ride Through (Service, AC Chopper); Black out avoidance (Service, 70MW battery); and Standby Generation (LPS in Standby)
2	New build Power Station for Full Duty Operation
3	Distribution Fault Ride Through (as part of LPS); Black out avoidance (Service, 70MW battery); and Standby Generation (Refit at LPS with New Engines)
4	Distribution Fault Ride Through (Service, AC Chopper); Black out avoidance (Service, 70MW battery); and Standby Generation (Alternate to LPS, such as Aggreko High Speed or Similar)
5	Transmission Fault Ride Through (AC Chopper); Standby Generation (LPS in Standby); and No Blackout avoidance

**Table 4:** CBA Summary, comparing options against scenarios



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<b>Option number</b>	<b>Option considered</b>	<b>10 years NPV (£m)</b>	<b>Whole Life NPV (£m)</b>
A - 1	- Single Link to GB Mainland (November 2025). - Connect to Link (2025/26). - Standby Service, LPS Standby (2025/26), Defer LPS Replacement.	£189.63	£1,949.63
A - 3	- Single Link to GB Mainland (November 2025). - Delay Connection to Link (delayed to 2029/30). - Standby Service (Reduced), Refit LPS & Include D-FRT (by 2029/30).	£102.76	£1,820.32
A - 4	- Single Link to GB Mainland (November 2025). - Connect to Link (2025/26). - Standby Service, Alternate Standby Generation (by 2027/28)	£162.83	£1,940.06
A - 5	- Single Link to GB Mainland (November 2025). - Connect to Link (2028/29). - Refit Partial LPS, T-FRT solution, but no Standby service. - Would result in two to three hour blackout in event of unplanned outage	£89.29	£1,771.61
Sensitivity A1	- As per Option 1 but a maximum debt and equity payout of £63m made in 2027 - Assumption is new Transmission FRT solution needed but battery is workable and can be owned and operated by SSEN This take 2 years to procure and install (2029) In the meantime LPS brought back to full duty to maintain security of supply after only 7 months of being in standby (0.6 of a year)	£135.57	£1,928.89
C - 1	As Per Scenario A with the Addition of: - LPS to Complete Standby, Retained for N-2 (by 2036). - Standby Service Reduced Additional Capacity and Not Renewed Post 2036.	£190.10	£465.85
C - 3	As Per Scenario A with the Addition of: - Replaced LPS to Complete Standby, Retained for N-2 (by 2036). - Standby Service Reduced Additional Capacity and Not Renewed Post 2039.	£102.76	£289.03
C - 4	As Per Scenario A with the Addition of: - Alternate Standby Generation to Complete Standby, Retained for N-2 (by 2036). - Standby Service Reduced Additional Capacity and Not Renewed Post 2036.	£162.83	£447.72

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C - 5	As Per Scenario A with the Addition of: <ul style="list-style-type: none"> <li>- Alternate Standby Generation to Complete Standby, Retained for N-2 (by 2036).</li> <li>- T-FRT solution not replaced every 20 years.</li> <li>- No VoLL for trips once Second HVDC Link installed.</li> </ul>	£90.06	£355.81
Sensitivity C1	- As per Option 1 but a maximum debt and equity payout of £63m made in 2027 - Assumption is new Transmission FRT solution needed but battery is workable and can be owned and operated by SSEN This take 2 years to procure and install (2029) In the meantime LPS brought back to full duty to maintain security of supply after only 7 months of being in standby (0.6 of a year) Battery and T fault ride through asset purchase not renewed after 2035 once second link in place	£136.81	£409.76
D - 1	As Per Scenario A with the Addition of: <ul style="list-style-type: none"> <li>- LPS to Complete Standby, Retained for N-2 (by 2036).</li> <li>- Standby Service Reduced Additional Capacity and Not Renewed Post 2036.</li> <li>- LPS De-Commissioned (2046).</li> </ul>	£190.10	£485.42
D - 3	As Per Scenario A with the Addition of: <ul style="list-style-type: none"> <li>- Replaced LPS to Complete Standby, Retained for N-2 (by 2036).</li> <li>- Standby Service Reduced Additional Capacity and Not Renewed Post 2039.</li> <li>- LPS De-Commissioned (2046).</li> </ul>	£102.76	£288.05
D - 4	As Per Scenario A with the Addition of: <ul style="list-style-type: none"> <li>- Alternate Standby Generation to Complete Standby, Retained for N-2 (by 2036).</li> <li>- Standby Service Reduced Additional Capacity and Not Renewed Post 2036.</li> <li>- Alternate Standby Generation De-Commissioned (2046).</li> </ul>	£162.83	£437.47
D - 5	As Per Scenario A with the Addition of: <ul style="list-style-type: none"> <li>- Alternate Standby Generation to Complete Standby, Retained for N-2 (by 2036).</li> <li>- T-FRT solution not replaced every 20 years.</li> <li>- LPS De-Commissioned (2046).</li> <li>- No VoLL for trips once Second HVDC Link installed.</li> </ul>	£90.06	£369.95

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Sensitivity D1	<ul style="list-style-type: none"><li>- As per Option 1 but a maximum debt and equity payout of £63m made in 2027</li><li>- Assumption is new Transmission FRT solution needed but battery is workable and can be owned and operated by SSEN</li></ul> <p>This take 2 years to procure and install (2029) In the meantime LPS brought back to full duty to maintain security of supply after only 7 months of being in standby (0.6 of a year) Battery and T fault ride through asset purchase not renewed after 2035 once second link in place</p>	£137.07	£402.10
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## Privacy notice on consultations

### 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](mailto: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**

We will not be sharing your personal data with other organisations.

#### **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 up to twelve months after the consultation process closes.

#### **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
- 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 3<sup>rd</sup> 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**

**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.**

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