ENVIRONMENTAL REOPENER

APPENDIX 2 - BIODIVERSITY NET GAIN ENGINEERING JUSTIFICATION PAPER

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1 Executive Summary

1.1 Summary

1.1.1 This Engineering Justification Paper (EJP) sets out SSEN Distribution's need for investment due to legislative changes that require construction projects to deliver Biodiversity Net Gain (BNG). These statutory requirements, introduced through the Environment Act 2021 in England and National Planning Framework 4 (NPF4) in Scotland, came into force after submission of the RIIO-ED2 Business Plan and were therefore not included in baseline allowances. We are requesting additional allowances to deliver these requirements through the Environmental Reopener under Special Licence Condition 3.2. BNG is a legally mandated approach to development and land management that ensures the natural environment is left in a measurably better state post-intervention. Compliance is essential for securing planning permission and avoiding delays or cancellations of capital projects.

1.1.2 This paper details a costing methodology for BNG delivery across the RIIO-ED2 investment programme for SSEN Distribution which includes Scottish Hydro Electric Power Distribution (SHEPD) and Southern Electric Power Distribution (SEPD). The methodology applies a step-by-step approach to calculate costs based on network biodiversity values, statutory uplift requirements, and market evidence for Biodiversity Unit pricing. It considers alternative options and justifies the preferred approach, which involves a single, fully costed application for the entire RIIO-ED2 programme. This approach ensures compliance, provides certainty for planning, and establishes a framework for future price controls.

1.1.3 The proposed investment covers certain costs associated with delivering BNG, however due to the costing methodology approach, some elements of BNG delivery are uncosted, such as ecological survey costs, which are further detailed in sections 5.2 "Implications for SSEN Distribution" and 7.1.37 "Limitations and considerations / Costs not included in this methodology".

1.1.4 The delivery of BNG requirements, through habitat enhancement, creation and procurement of Biodiversity Units, ensures that SSEN Distribution meets statutory requirements and contributes to halting and reversing biodiversity loss by 2030 in line with the UK's National Biodiversity Strategy & Action Plan.1

1.1.5 The total funding adjustment for BNG across the entire RIIO-ED2 capital investment programme is £11.57m (2020/21 prices), summarised in Table 1-1.

Table 1-1 Total BNG allowance adjustment summary (£m, 2020/21 prices)

BNG adjustment summary	2023/24	2024/25	2025/26	2026/27	2027/28	Total
SHEPD	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	0.31
SEPD	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	11.26
Total BNG adjustment	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	11.57

1 UK national biodiversity strategy and action plan - GOV.UK

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2 Investment Summary Table

Table 2-1 – Investment summary

Name of Scheme/Programme	BNG Environmental Re-opener	
Primary Investment Driver	Delivery of BNG is a newly introduced statutory requirement through the Environment Act 2021 in England and the National Planning Framework 4 (NPF4) in Scotland. Costs associated with the delivery of BNG will arise from our capital investment programme. That is, in order for us to proceed with our investment programme, there will be instances where a BNG delivery plan needs to be place. These costs could arise from load or non-load projects; therefore, investment drivers will vary.	
Scheme reference	This request is to fund the additional requirements and costs of delivering BNG, when required, therefore a scheme reference is not applicable.	
Output reference/type	As above.	
Cost	£11,572,591 (2020/21 prices)	
Delivery Year	Costs have already been incurred, with delivery beginning in 2023 and will continue until March 2028 for this requested funding.	
Reporting Table(s)	Costs for BNG could arise from load or non-load projects; therefore, investment drivers will vary. We intend to capture the costs of BNG delivery as part of these project costs. For example, should BNG delivery be required due to a Load Related Expenditure project, we will capture the cost as part of CV1 or as appropriate.	
Outputs in RIIO ED2 Business Plan	No	
Spend Apportionment	**ED2**	**ED3+**
	100%	0%
MVA released	N/A	N/A

3 Appendices Summary

Table 3-1: Appendices Summary

Appendix	Summary of Contents
Appendix 1	Definitions and Abbreviations
Appendix 3	Biodiversity Net Gain Costing Methodology
Appendix 5	Jacobs Full Solution Phase Biodiversity Metric Outputs
Appendix 6	Mott Macdonald Biodiversity Unit Costing Spreadsheet

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4 Introduction

4.1.1 This paper outlines the need for allowances to cover the additional costs of Biodiversity Net Gain (BNG) requirements within the RIIO-ED2 period, to ensure that SSEN Distribution is meeting its legislative and statutory planning requirements in delivering its construction projects.

4.1.2 The new requirements will impact projects in both SEPD and SHEPD's licence areas. Although the statutory drivers are different, they both seek to ensure biodiversity enhancement is delivered to halt and reverse the loss of biodiversity by 2030, in line with the UK's National Biodiversity Strategy & Action Plan (NBSAP).[2]

4.1.3 This paper presents our methodology that costs the BNG requirements across the whole of the RIIO-ED2 Business Plan construction programme. It should be noted that we have not requested funding for BNG under other reopener applications.

4.1.4 Section 5 outlines the background and justification for this investment, defining the statutory changes introduced that mandate BNG for development projects and explains the implications for SSEN Distribution, identifies unfunded costs and sets out relevant exemptions before introducing the costing methodology, the "stages" involved in the process and compares alternative costing approaches.

4.1.5 An overview and a comparison of the advantages and disadvantages of considered options are given in Section 6, along with a table showing the data sources and rationale for each of the costing methodology "stages".

4.1.6 The costing methodology used at each stage is detailed in Section 8, with subsections provided for each stage explaining the sources used to inform each of the options provided, as well as a justification for our "preferred" option.

4.1.7 The deliverability and possible risks of the proposed options are addressed in Section 9, while Section 10 concludes this EJP, providing main conclusions and recommendations contained within this document.

4.2 The SSEN Distribution Context

4.2.1 SSEN Distribution delivers its operations across the varied geographies and landscapes of its licence areas in the north of Scotland and central southern England. These are rich with important habitats and species, and designated areas including nationally designated Sites of Special Scientific Interest (SSSIs) and European designations such as Special Protection Areas (SPAs) and Special Areas of Conservation (SACs), as well as character areas such as National Parks, National Landscapes, Areas of Outstanding Natural Beauty (AONBs) and National Scenic Areas.

4.2.2 Everything that we do as a business has impacts and dependencies on nature, whether directly through activities like construction projects, or indirectly through our supply chain. Recognising the decline in nature, successive governments have put in place regulation and legislation to obligate businesses and individuals to take action to protect it.

2 UK national biodiversity strategy and action plan - GOV.UK

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4.2.3 SSEN Distribution was aware that statutory BNG requirements were forthcoming when developing its RIIO-ED2 Business Plan. As such, our Environmental Action Plan (EAP)[3] commitments were designed to allow us to effectively implement any requirements once they came into force, with a view to the Environmental Reopener providing the mechanism for securing the allowances required to cover additional costs in delivering BNG requirements. These commitments are detailed in our Biodiversity Baselining commitment (Output Reference S7, CV22), which is primarily concerned with the delivery of a tool to baseline and monitor biodiversity in the delivery of our construction and land management activities. Our BNG Manual is an internal document setting out how project delivery teams should go about delivering their construction project BNG requirements to comply with the statutory drivers in England and Scotland.

4.2.4 Our Biodiversity Baselining commitment is complete, the outputs of which have been included in the costing methodology detailed in this EJP. [redacted]

5 Background Information

5.1 Statutory Drivers

5.1.1 Construction projects can have serious negative impacts on biodiversity and there have been long-standing compliance requirements to protect biodiversity, such as protected species and designated site legislation. Despite this, biodiversity continues to decline, with terrestrial and freshwater species abundance declining by 19% on average since 1970[4] due to the cumulative impacts of multiple construction activities, alongside the impacts of pollution, climate change and urbanisation.

5.1.2 In recognition of this, statutory BNG requirements have been implemented to ensure that measurable gains in habitats (used as a proxy for overall biodiversity) are achieved. Ensuring the delivery of the requirements is delivered through the planning system and enforced by Local Planning Authorities (LPAs).

England

5.1.3 The Environment Act 2021[5] set out a requirement for 10% BNG for any development subject to planning decisions (permitted development is exempt) and came into force and applies from:

- 12th February 2024 for any development where the site area is 1 hectare and above, using the full Defra Statutory Metric [6].
- 2nd April 2024 for any development where the site area is below 1 hectare but above 25 m2 (linear thresholds also apply) and there is no impact on priority habitat, protected sites or species, using the Defra Small Sites Metric.
- May 2026 for Nationally Significant Infrastructure Projects (NSIPs).

3 A_13.1_EAP_CLEANOFGEM.docx

4 TP25999-State-of-Nature-main-report_2023_FULL-DOC-v12.pdf

5 Environment Act 2021

6 Statutory biodiversity metric tools and guides - GOV.UK

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5.1.4 Additionally, in England, the National Planning Policy Framework (NPPF)[7] provides Local Planning Authorities (LPAs) with powers to set BNG targets above the Environment Act 2021 minimum of 10% (e.g. 20%, 30% and determined locally).

Scotland

5.1.5 The National Planning Policy Framework 4 (NPF4)[8] is the statutory national planning document for Scotland. Policy 3 requires development proposals to include "measures to conserve, restore and enhance biodiversity" and for national or major development to also include "nature networks so they are in a demonstrably better state than without intervention".

5.1.6 NPF4 introduces a similar requirement to the Environment Act 2021, without a specified percentage gain, and is underpinned by subsequent Scottish Government planning guidance on biodiversity[9]. The Scottish Government, via NatureScot, is currently developing a Scottish biodiversity metric, using the Defra Statutory Metric as the starting point.

5.1.7 NPF4 came into force in February 2023 after Business Plan submission, but before the start of RIIO-ED2. As a statutory national planning policy, SSEN Distribution is of the view that NPF4 is implemented in legislation.

5.1.8 In both England and Scotland, LPAs develop their Local Development Plan requirements for BNG in line with statutory national planning policy.

5.1.9 Both statutory drivers came into force after our RIIO-ED2 Business Plan submission and were therefore not considered as part of our baseline allowances for RIIO-ED2.

5.2 Implications for SSEN Distribution

5.2.1 As previously outlined in Section 4.2, SSEN Distribution anticipated the introduction of statutory BNG requirements during the development of our RIIO-ED2 Business Plan, embedding the Biodiversity Baselining commitment in our EAP to baseline and support future implementation of any requirements that came into force.

5.2.2 The additional costs of meeting BNG requirements, which are unfunded in the SSEN Distribution RIIO-ED2 Business Plan, include:

1. Ecological consultancy costs for completing on-the-ground baseline habitat surveys.
2. Ecological consultancy costs for mapping the habitats identified in the UK Hab Classification.
3. Ecological consultancy costs for applying a biodiversity metric to establish a site biodiversity baseline in Biodiversity Unit terms.
4. Ecological consultancy costs for applying a biodiversity metric to identify the number of Biodiversity Units a construction project needs to meet its targets.
5. Ecological consultancy costs for development of a Habitat Management and Monitoring Plan for onsite gains.
6. Ecological consultancy costs for development of a Biodiversity Gain Plan.

7 National Planning Policy Framework - GOV.UK

8 National Planning Framework 4 - gov.scot

9 Planning guidance: biodiversity - gov.scot

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7. Cost of additional internal resource for establishing and securing legal agreements for biodiversity gains.
8. Ecological consultancy and/or additional internal resource costs required to find suitable off-site Biodiversity Units for sale.
9. Costs for the purchase of Statutory Credits for habitats that cannot be found as Biodiversity Units
10. Costs for the creation and/or enhancement, monitoring and management of on-site habitats, such as ground preparations, sowing and planting.
11. Costs for the purchase of off-site Biodiversity Units, where the creation and/or enhancement, monitoring and management of habitats is delivered by third parties.

5.2.3 The majority of the costs of meeting BNG requirements detailed in this application are in securing on-site or off-site biodiversity units in compensation for the impacts of construction projects (points 10 and 11). These costs are included in our costing methodology. All other costs outlined in the points 1 – 9 are not included as part of our costing methodology or the request for allowances in this application. We intend to continue to work on how these costs can be reflected in the methodology in preparation for ED3 business plan submission.

5.3 Relevant Exemptions to BNG Delivery

5.3.1 In England, mandatory net gain was enacted from 12th February 2024 with planning applications made before this date exempt from mandatory BNG.

5.3.2 The most relevant exemption to BNG delivery for SEPD is the exemption for developments that are granted planning permission by a development order (including permitted development rights).

5.3.3 Additionally, any developments below the de minimis threshold are exempt from mandatory BNG as long are they impact less than the defined limit of area/linear habitats and have no impact on a priority habitat(s).

5.3.4 A full list of developments exempt from BNG delivery in England can be found on the GOV.UK website [10].

5.3.5 In Scotland, National Planning Framework 4 Policy 3b makes no specific exemptions to contribution to the enhancement of biodiversity except for individual householder development.

5.4 Assessing the Costing Methodology Steps as an Alternative to Cost Benefit Analysis

5.4.1 Cost Benefit Analysis (CBA) is a systematic process to compare the benefits and disbenefits of different options to meet a specific outcome/output. In the case of the Environmental Reopener application to secure allowances to cover the additional costs of BNG requirements, these are statutorily mandated requirements that we must meet to enable capital projects to secure planning permissions and, as such, applying a CBA analysis to the costing approaches doesn't add any value.

10 Biodiversity net gain: exempt developments - GOV.UK

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5.4.2 As agreed with Ofgem at a bilateral held on 28th November 2025, instead of the CBA template, we are presenting a costing methodology spreadsheet with a number of building blocks where justifications are made for the calculation steps taken. We are presenting the justifications that are most accurate for BNG delivery across our RIIO-ED2 capital investment programme to build our costed preferred option. Within the costing methodology spreadsheet, we also provide the alternative options considered and discounted within a table that Ofgem can interrogate and apply different scenarios to see how the overall cost is changed.

5.5 Approach to Costing BNG

5.5.1 The stages of the costing methodology are shown below, and descriptions of each stage provided in the following table. These align with the tabs included in Appendix 3 - Biodiversity Net Gain Costing Methodology.

Figure 1 Costing methodology stages

Table 5-1 Description of Costing Methodology stages

Costing methodology stage	Description
1. Identify land impact of investment programme	Calculate the total area of land affected by ED2 projects, [redacted]
2. Apply average Biodiversity Units per Hectare (BU/ha)	Use SSEN-specific biodiversity baseline data to convert land impact into biodiversity units, based on habitat distinctiveness and statutory metric rules.
3. Apply Statutory Uplift	Add a minimum uplift to biodiversity units to meet legislative requirements for net gain.
4. Multiply by suitable £ per Biodiversity Unit figure	Apply cost per unit using market evidence and statutory credit prices to calculate total cost.

Details of the data sources, options, methodology and calculations used at each stage are included in section 6 “Optioneering” and section 7 “Analysis and Cost - BNG costing methodology”.

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6 Optioneering

6.1 Introduction to costing justifications

6.1.1 As outlined in the previous section, the costing methodology has been split into 4 distinct "stages":

1. Identify land impact of investment programme
2. Multiply by an average BU/ha figure
3. Apply uplift based on statutory requirements
4. Multiply by a £/BU figure

6.1.2 Options have been considered for each of these stages, which change the approach at each stage, impacting the total cost. The tables in each section below provide a description of all options considered, noting the advantages and disadvantages of each.

6.1.3 Where options are presented at each stage, they are presented for the approach to be applied to both our SHEPD and SEPD licence areas, though the values may vary between each licence area for the same option (e.g.Table 7-3 Option 1a: SHEPD 4.52, SEPD 3.62 BU/ha).

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6.2 Identify Land Impact of Investment Programme

Table 6-1 – Options considered for "Identify Land Impact" stage

Option Considered	Description	Advantages	Disadvantages	Costing Methodology Consideration
1. Assume all projects will have a permanent impact that can be quantified for BNG	Make no exclusions or reductions to calculated ED2 land take, assuming that all projects will have an impact that needs to be quantified for BNG. Land take is determined by the average land 'footprint' of individual asset types in terms of direct impacts. It does not consider temporary impacts to land as a result of activities like access tracks, which may be included in BNG metric calculations and assumes that the baseline/'red line boundary' corresponds with direct footprint impacts.	Blanket approach that does not require further interrogation of ED2 land take data	This option is too indiscriminate, including ED2 land take that will not be subject to mandatory BNG delivery requirements.	Discounted
2. Exclude cabling replacement projects and Permitted Development projects	[redacted]	Gives a more representative figure of the cumulative land impact of projects required to deliver mandatory BNG, that will have a significant land impact.	Consenting route (PD / PP) and whether a project is an asset/cabling replacement project or not, [redacted]	Preferred option

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6.3 Multiply by an average BU/ha

6.3.1 For this stage, 3 variables are considered:

- Irreplaceable habitat inclusion,
- Application of strategic significance, and
- Inclusion of non-scoring habitats.

6.3.2 These variables have been combined in different permutations to present 8 "options" within the costing methodology (see table 7-3).

6.3.3 Rather than providing justifications for each of these 8 options, the advantages and disadvantages of the 3 variables that make up each option are considered.

6.3.4 A description of each of the 3 variables and a justification for and against their application or inclusion is detailed in table 6-2.

Table 6-2 – Options considered for "Multiply by an average BU/ha" stage

Option Considered	Description	Advantages	Disadvantages	CBA Consideration
Irreplaceable habitat value **removed** (options 1a, 1b, 3a, 3b in table 7.3)	[redacted]	[redacted]	[redacted]	Preferred option
Strategic significance **applied** (options 1a, 1b, 2a, 2b in table 7.3)	[redacted]	[redacted]	[redacted]	Preferred option

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	[redacted]	[redacted]		
Non-scoring habitats **included** (Options 1a, 2a, 3a, 4a in table 7.3)	[redacted]	[redacted]	[redacted]	Preferred option

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6.4 Apply uplift based on statutory requirement

Table 6-3 – Options considered for "Apply uplift based on statutory requirement" stage

Option Considered	Description	Advantages	Disadvantages	CBA Consideration
1. No uplift	Apply no uplift to the baseline biodiversity value of the calculated area of ED2 land impact.	Not a viable option due to statutory net gain requirements in both England and Scotland	Applying no uplift does not meet statutory biodiversity net gain, in either Scotland or England. A verifiable net gain in biodiversity value in required under planning legislation.	Discounted
2. 10% uplift	Apply a 10% uplift to the baseline biodiversity value of the calculated area of ED2 land impact.	A 10% uplift is in line with statutory minimum BNG in England. By applying a 10% minimum, there is a higher certainty that net gain in biodiversity has been achieved, rather than aiming for a target closer to but still greater than No Net Loss (NNL) (0% uplift).	Applying a blanket 10% uplift does not account for Local Planning Authority areas that require a higher minimum % uplift in their Local Development Plans.	Preferred option
3. LDP Uplift	Apply the uplift that is set out in a Local Planning Authority's Local Development Plan (LDP), otherwise apply a 10% uplift.	Applying the uplift required by individual LPAs would more closely represent the actual BNG delivery that will be required over ED2.	The high-level costing methodology has not split out calculated ED2 land impact between LPA regions, making it impossible to know how much of the total calculated area to apply each of the region-specific LDP percentages to.	Discounted

6.5 Multiply by a £/BU figure

Table 6-4 – Options considered for "Multiply by a £/BU figure" stage

Option Considered	Description	Advantages	Disadvantages	CBA Consideration
1. Minimum Biodiversity Unit price from market research (Jul 24)	[redacted]	[redacted]	[redacted]	Discounted

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		[redacted]		
2. Median Biodiversity Unit price from market research (Jul 24)	[redacted]	[redacted]	[redacted]	Discounted
3. Minimum Statutory Credit price	[redacted]	[redacted]	[redacted]	Preferred option
4. Maximum Biodiversity Unit price from market research (Jul 24)	[redacted]	[redacted]	[redacted]	Discounted

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6.6 Cost information

6.6.1 This section provides information on how we have derived and used data in our costing analysis.

Data sources

6.6.2 SSEN Distribution has developed a costing methodology that captures the cost of BNG requirements for the whole RIIO-ED2 capital investment programme. The data sources for each section of the methodology are detailed in the table below, with the rationale provided for their selection in supporting the overall costing methodology.

Table 6-5 – Data sources for costing analysis

Cost data	Source	Rationale
ED2 land impact (ha)	ED2 Investment Programme split into 3 different asset classes – Cabling, Fixed Assets and Land. For Cabling: [redacted] For Fixed Assets: [redacted] For Land: [redacted]	ED2 Investment Programme split into 3 different asset classes – Cabling, Fixed Assets and Land. [redacted]
Average Biodiversity Units per Hectare (BUs/ha) for SHEPD and SEPD licence areas.	Jacobs - Full Solution Phase Biodiversity Metric Outputs v0 05/05/2025 – held by SSEN-D (Appendix 5)	The outputs generated by the consultancy Jacobs from work to provide a biodiversity baseline of network area. [redacted] area was applied to asset GIS data to form area of assessment, meaning that Biodiversity Units per Hectare figures are specific to SSEN Licence Areas.

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Cost data	Source	Rationale
Statutory Requirement for Biodiversity Uplift	Environment Act 2021 [11] National Planning Framework 4 [12] National Planning Policy Framework Guidance [13]	Using 10% as the minimum uplift as required by Statutory BNG and to achieve ecological enhancement in line with NPF4 requirements. Local Planning Authorities (LPAs) have powers to set higher uplift targets through their Local Development Plans.
Average cost per Biodiversity Unit (£/BU)	Statutory Biodiversity Credit Prices - GOV.UK [14] Biodiversity Units UK — The BNG Report: Pricing & Key Insights - July 2024 [15] SSEN Distribution BNG Costing Methodology(Appendix 3)	Market evidence for the costs of Biodiversity Units was compiled by a 3rd party BNG consultant who produce a regular report on the state of the Biodiversity Unit market along with pricing trends and insights. Statutory biodiversity credit prices were first provided in July 2023. While they are based on the cost to create, maintain, and monitor different habitat types and are set to theoretically always be higher than the Biodiversity Unit market. However, statutory credits can be used to deliver BNG, especially in cases where there is a lack of supply of local or national units of specific habitat types, due to application of the Statutory Biodiversity Metric trading rules requiring a “like for like” or “like for better” approach to habitat enhancement or creation.

11 Environment Act 2021

12 National Planning Framework 4 - gov.scot

13 National Planning Policy Framework - Guidance - GOV.UK

14 Statutory biodiversity credit prices - GOV.UK

15 Biodiversity Units UK — The BNG Report: Pricing & Key Insights - July 2024

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7 Analysis and Cost - BNG Costing Methodology

7.1 Developing the Costing Methodology

7.1.1 As agreed with Ofgem at the bilateral meeting held on 28th November 2025, a CBA is not applicable in the context of this Environmental Reopener application. Rather than presenting a list of complete options, the costing methodology for BNG has considered options for each of the stages involved in the calculation of final cost. These are presented in a costing methodology spreadsheet (Appendix 3). A breakdown of the calculation steps taken is provided for the costing methodology below, along with a table showing the options that were considered at each stage. The justifications for each option along with the data sources used to inform them are detailed in section 6 above.

Identifying Land Impact (ha)

7.1.2 The first step of our costing methodology is identifying the land impact of our ED2 investment programme.

7.1.3 The calculation of total ED2 Land Impact is outlined in the costing methodology spreadsheet.

[redacted]

7.1.4 Table 7-1 below is an excerpt from the costing methodology spreadsheet (Appendix 3) that shows the different asset categories included in the calculation, as well as the reductions that are applied to the *Cabling* asset category land impact - accounting for projects that would be excluded from delivering BNG. The exclusions we have made account for:

1. Asset replacement projects that would not require any additional land take.
2. Projects that are not subject to BNG legislation through planning i.e. those with Permitted Development rights.

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Table 7-1 Calculating ED2 Land Impact - Reductions & Exclusions

Asset Category	Licence Area	Asset Sub-category	ED2 Land Footprint (Ha)	Cabling reductions		ED2 Land Impact (Ha)
				[redacted] *reduction in land take due to asset replacements (no land take necessary)*	[redacted] *reduction in land take due to permitted development projects (no statutory net gain requirement)*	
Cabling	SHEPD	UG Cables	[redacted]			
		OHL (Pole)				
		OHL (Tower)				
		SHEPD Cabling Total				
	SEPD	UG Cables				
		OHL (Pole)				
		OHL (Tower)				
		SEPD Cabling Total				
Fixed Assets	SHEPD	OHL Pole Footprint				
	SEPD	OHL Pole Footprint				
Land	SHEPD	Land Purchase				
	SEPD	Land Purchase				

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7.1.5 These exclusions mean that we calculate the land impact which would be subject to statutory BNG legislation as [redacted] of the total ED2 investment programme land take for the *cabling* asset category.

7.1.6 By making exclusions for permitted and replacement projects, the area of impact across the entire ED2 investment programme that we estimate to be subject to mandatory BNG is [redacted] in SHEPD and [redacted] in SEPD for the *cabling* asset category.

7.1.7 As the same exclusions are applied to both licence areas, the large difference in area of impact between SHEPD and SEPD is down to SEPD having a much larger calculated ED2 Land Impact area, based on the total number of assets and their working widths.

7.1.8 The *fixed assets* category includes calculated area of OHL Pole Footprint, based on the number of assets over ED2 investment programme multiplied by an average area of pole footprint (based on average pole diameter).

7.1.9 The *land* asset category is comprised of the Land Acceleration Programme. This represents land required for BNG delivery during the construction of new assets requiring land take (such as GIS, AIS & associated substation buildings), accounting for the permanent loss of habitat which is changed to hardstanding or that is contained within the physical footprint of substation assets after development. In line with metric calculation requirements, statutory BNG targets are applied to the habitat baseline position before the intervention takes place and not just the permanently impacted habitat.

Table 7-2 Land Impact options

Option	SHEPD Unit (Ha)	SEPD Unit (Ha)
1. Assume all projects will have a permanent impact that can be quantified for BNG	[redacted]	[redacted]
2. Exclude OHL replacement projects and Permitted Development projects	[redacted]	[redacted]

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Multiply by an Average BU per ha figure

7.1.10 [redacted]

7.1.11 As part of our ED2 EAP deliverable 8.5.2 Biodiversity Baselining (output S7), SSEN Distribution proposed to develop "a tool to baseline and monitor our biodiversity and enable cultural change required to enhance biodiversity".

7.1.12 We are currently working with the consultancy Jacobs to produce our 'Natural Asset Platform' – a natural capital IT tool to baseline and monitor biodiversity through multiple lenses – the application of a biodiversity metric to quantify habitats in Biodiversity Units as well as both Natural Capital and monetised and non-monetised Ecosystem Service provision.

7.1.13 A component of the work that has been completed to date has been to produce a baseline Defra Statutory Biodiversity Metric assessment using desk-based habitat data developed for our SEPD and SHEPD licence areas. This produced a complete biodiversity baseline of our two licence areas, calculating total biodiversity value of the habitats around our assets as well as providing average Biodiversity Units per Hectare (BU/ha)figures for each of the licence areas. There are different metric approaches to calculating the biodiversity of these areas and therefore multiple options are provided for each licence area.

7.1.14 The baseline results are contained in the technical memorandum document "*Full Solution Phase Biodiversity metric outputs" – Jacobs, June 2025* and an extract is provided in table 7-3 below which lays out the different "metric approaches" and associated BU/ha figures.

7.1.15 The BU/ha units that have been used in our "preferred option" are the highlighted figures from **Option 1a in Table 7-3.**

7.1.16 These represent the units achieved when applying the Defra Metric User approach – irreplaceable habitat unit values removed, no changes to any of the metric strategic significance multipliers and including all non-scoring habitat extents (e.g. hardstanding, sealed surfaces with a biodiversity unit score of 0).

Table 7-3 Average BU/ha options

Option	SHEPD Unit (BU/ha)	SEPD Unit (BU/ha)
1a. Irreplaceable habitat unit value removed, strategic significance applied as low, medium or high in baseline	[redacted]	[redacted]
1b. Irreplaceable habitat unit value removed, strategic significance applied as low, medium or high in baseline. Excluding non-scoring habitat extents	[redacted]	[redacted]
2a. Irreplaceable habitat unit value included, strategic significance applied as low, medium or high in baseline	[redacted]	[redacted]

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2b. Irreplaceable habitat unit value included, strategic significance applied as low, medium or high in baseline. Excluding non-scoring habitat extents	[redacted]	[redacted]
3a. Irreplaceable habitat unit value removed, strategic significance not applied in baseline i.e. always 'low'.	[redacted]	[redacted]
3b. Irreplaceable habitat unit value removed, strategic significance not applied in baseline i.e. always 'low'. Excluding non-scoring habitat extents	[redacted]	[redacted]
4a. Irreplaceable habitat unit value included, strategic significance not applied in baseline i.e. always 'low'	[redacted]	[redacted]
4b. Irreplaceable habitat unit value included, strategic significance not applied in baseline i.e. always 'low'. Excluding non-scoring habitat extents	[redacted]	[redacted]

Apply uplift based on statutory requirements

7.1.17 Legislative drivers for delivering Biodiversity Net Gain in England and Scotland mean that our "preferred option" for calculating the uplift that will be required to deliver BNG is **Option 2. 10% uplift**.

Table 7-4 Uplift options

Option	Unit
1. No uplift	0%
2. 10% uplift	10%
3. LDP Uplift	> or = 10%

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7.1.18 In England, BNG is a legal requirement under the Environment Act 2021, and Local Planning Authorities (LPAs) must ensure that developers meet BNG requirements as part of the planning process. LPAs can and do set higher minimum requirements for BNG uplift than 10%.

7.1.19 In Scotland, BNG is driven through National Planning Framework 4 (NPF4). Developments must demonstrate that they will "*conserve, restore and enhance biodiversity*" and that the "*ecological state is improved from its original condition before intervention*". LPAs are embedding these requirements into their local plans with some (such as Highland Council [16]) requiring a minimum gain of 10%. We are applying a high-level methodology and are therefore not splitting our investment programme across LPA areas. Acknowledging that there is currently no quantitative minimum uplift target in Scotland and that some LPA areas may require higher uplift, we have applied a **10% uplift** to the entirety of the calculated ED2 land impact across both licence areas.

7.1.20 Achieving No Net Loss (NNL) in biodiversity is considered to be an outcome that delivers measurable total BUs of 95%-104% of the baseline position (in line with Chartered Institute of Ecology and Environmental Management (CIEEM) and Building Research Establishment Environmental Assessment Method (BREEAM) guidance [17]), so a minimum 10% target provides more confidence that "significant" net biodiversity gains have been delivered, above the precautionary range for NNL.

7.1.21 The application of a 10% uplift means that the allowances we are looking to secure do not cover any additional uplift that might be required as part of an LPAs Local Development Plan that sets a target above 10% BNG.

7.1.22 A number of LPAs that are located wholly or partly within our SEPD licence area have set requirements in their Local Plans to achieve over 10% net gain or have indicated their intention to.

7.1.23 For example, Bath & North East Somerset Council are "resetting" their local plan in response to changes to national planning policy, with the updated plan to be adopted in 2027[18]. The LPA have confirmed that this may include a 20% minimum target for statutory BNG, subject to consultation and adoption.

7.1.24 Additionally, Guildford Borough Council's current Local Plan 19 developed in 2019 includes "Policy P7: Biodiversity in New Developments" requiring development proposals submitted after statutory BNG was introduced to achieve BNG of at least 20%.

7.1.25 The impact of excluding restoration (up to NNL) costs from the methodology has been considered for this section of the methodology, however we have not applied any exclusions of any part of BNG delivery cost. This is because prior to the implementation of statutory net gain legislation, no allowances were made in our ED2 business plan for habitat enhancement in accordance with a statutory biodiversity metric approach.

7.1.26 BNG must be achieved in a way that meets the 'trading rules' of the Defra Statutory Biodiversity Metric tool. The trading rules safeguard high-value habitat types by requiring BNG to be delivered on a "like-for-like" or "like-for-better" basis. In practice, this means that where certain habitats are lost, equivalent or better habitats must be created or enhanced to comply with trading rules, which apply up to the point of achieving No Net Loss.

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16 Biodiversity | Biodiversity Enhancement Planning Guidance

17 Biodiversity net gain. Good practice principles for development. A practical guide - see Table 11-9 "Ecological Calculators for BREEAM schemes" on page 97

18 Emerging Local Plan development timeline | Bath and North East Somerset Council

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Multiply by £ per BU figure

7.1.27 The final step of this methodology was to apply a Cost per Biodiversity Unit (£ per BU) figure to the overall calculated required Biodiversity Units.

7.1.28 Two sources are used to inform this step; market research sourced from Biodiversity Units UK — The BNG Report: Pricing & Key Insights - July 2024[20] and Statutory Credit pricing.[21]

7.1.29 The figures from both the BNG pricing report and the Statutory Credit prices are split into prices for broad habitats.

7.1.30 Market evidence for the costs of Biodiversity Units was compiled by a 3rd party BNG consultant who produce a regular report on the state of the Biodiversity Unit market along with pricing trends and insights.

7.1.31 The minimum, median and maximum biodiversity unit prices from the BNG pricing report are presented in the table below, along with the cost of the lowest price Statutory Credit. All prices have been adjusted to a 2020/21 price base.

7.1.32 The market evidence data sourced from the BNG pricing report is applied to both SHEPD and SEPD. Due to there being no legislative minimum target % for BNG in Scotland, there is limited market evidence of pricing, and an expectation that landholders looking to create Biodiversity Units for sale in Scotland may look to a more established Biodiversity Unit market in England for examples on pricing. We are confident that the market costs are broadly representative for SEPD and SHEPD licence areas, however when more robust sources of regional data become available, these can be used to refine the methodology further.

Table 7-5 Biodiversity Unit price options

Option	Cost (in 20/21 price base)
1. Minimum Biodiversity Unit price from market research	£ [redacted]
2. Median Biodiversity Unit price from market research	£ [redacted]
3. Minimum Statutory Credit price	£ [redacted]
4. Maximum Biodiversity Unit price from market research	£ [redacted]

19 Guildford Local Plan - Guildford Borough Council

20 Biodiversity Units UK — The BNG Report: Pricing & Key Insights - July 2024

21 Statutory biodiversity credit prices - GOV.UK

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7.1.33 We have applied relevant cost data for £ per Biodiversity Unit (BU) costs from BNG market evidence and the UK Government Statutory Credits prices. The BNG market evidence was compiled by a third-party ecological consultancy providing external assurance to the numbers being applied.

7.1.34 Cost actuals from some projects have been reviewed in order to check the robustness of the outputs of the BNG market evidence. The examples included in Table 7-6 have come from the SEPD licence area and are where SSEN Distribution is looking to secure off-site Biodiversity Unit (BU) offsets.

Table 7-6 Example project actual costs

	Location of construction project	Location/s of offsets	Number of Biodiversity Units (BU)	Price (£)	Average £ per BU
Project actual example 1	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Project actual example 2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
		[redacted]	[redacted]	[redacted]	[redacted]
Project actual example 3	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

7.1.35 These examples also highlight the variability in costs due to location, habitat type, availability of particular habitat Biodiversity Units (BUs), and also where the Biodiversity Metric 'spatial risk multiplier' is a consideration.

7.1.36 [redacted]

Limitations and considerations / Costs not included in this methodology

7.1.37 Any exclusions on the basis on ineligibility within this methodology are included in the detail above.

7.1.38 There are however a range of costs associated with BNG delivery, many of which are not included in this high-level methodology. These are referenced in section 5.2.2, and additional considerations on the limitations of this methodology are listed below.

1. Biodiversity Net Gain applies to area habitats as well as linear habitat features such as hedgerows and watercourses. For the purposes of this high-level methodology, we have not included costings for these linear habitat features.

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2. ED2 land impact calculated from asset footprint alone. Red-line boundaries of construction projects which form the area of assessment for a biodiversity metric baseline will include a larger area than the asset footprint and associated working widths, with requirements for lay-down areas, temporary trackway and other associated land take. Where this land take is temporary, while any relevant habitats may be considered to be "retained", according to statutory metric guidance these areas of habitat must still be included in the baseline and will therefore increase the uplift required to deliver BNG.
3. Costs of producing BNG assessment reports showing baseline and proposed BNG delivery plan have not been included.

7.2 Costing Methodology Results

7.2.1 The results of the costing methodology are included in the "Preferred Option" tab of Appendix 3 – Costing Methodology spreadsheet. The below figure shows the results of combining each of the preferred options at each stage of the costing methodology.

Table 7-7–Results costing methodology – preferred option

Identify land impact of investment	Multiply by an average BU/ha	Total ED2 land impact BUs (baseline)	Apply uplift based on statutory requirements	Multiply by £/BU figure		Estimated total cost of Statutory BNG over ED2 (20/21 price base)
Estimated ED2 land impact (ha)	Bu/ha approach		Uplift percentage	Biodiversity Unit cost (in 20/21 price base)		£m
OPTION: 2 *Exclude OHL replacement projects and Permitted Development projects*	**1a** *Irreplaceable habitat unit value removed, strategic significance applied as low, medium or high in baseline*		**2** *10% uplift*	**3** *Minimum Statutory Credit price (Jul 23)*		
[redacted]					=	£0.31m
[redacted]					=	£11.27m
COMBINED						**£11.57m**

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8 Deliverability and Risk

8.1.1 As set out in the section "Managing Risk" in the core narrative document, there is inherent uncertainty in calculating BNG requirements using a high-level costing methodology. Ecological impacts and the scale of compensation needed cannot be confirmed until surveys and metric assessments are completed, and market availability of Biodiversity Units may also introduce additional cost where units need to be sourced from providers where the spatial risk multiplier would apply and Biodiversity Unit values are expected to continue fluctuating with supply and demand.

8.1.2 These uncertainties are comparable to other environmental constraints, such as protected species or archaeology, where mitigation needs emerge once site investigations begin but still need to be planned for within capital programmes.

8.1.3 Our costing methodology provides a structured approach using biodiversity values representative to our network area, and Biodiversity Unit rates that are based in current market evidence. We believe that it gives reasonable confidence at a programme level.

9 Conclusion and Recommendation

9.1.1 This Engineering Justification Paper demonstrates the need for additional allowances to cover the cost of delivering statutory Biodiversity Net Gain (BNG) requirements, currently uncosted for the RIIO-ED2 price control.

9.1.2 The preferred approach of costing BNG requirements for the entire RIIO-ED2 programme provides a single, transparent, and fully justified methodology based on SSEN Distribution-specific land take and biodiversity baseline data combined with market evidence.

9.1.3 This methodology ensures compliance with legislative drivers, supports efficient delivery, and establishes a framework for future price controls.

9.1.4 A summary of our preferred option for each stage and outcome is noted in table 9-1.

Table 9-1: Cost Breakdown of Preferred Option

Stage	Preferred Option Outcome
Identify ED2 Land Impact Preferred Option: 2 - Exclude cabling replacement projects and Permitted Development projects	[redacted]
Multiply by an Average BU/ha Preferred Option: 1a - Irreplaceable habitat unit value removed, strategic significance applied as low, medium or high in baseline	[redacted]
Apply uplift based on statutory requirement. Preferred Option: 2 - 10% uplift	[redacted]
Multiply by £perBU figure Preferred Option: 3 – Minimum Statutory Credit price	[redacted]
Total Cost (ED2)	**£11,572,591**

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9.1.5 The spend profile over ED2 of the preferred option is included in the Executive Summary as Table 1-1 "Total BNG allowance adjustment summary (£m, 2020/21 prices)",

10 References

10.1.1 The documents detailed in Table 10-1 - Scottish and Southern Electricity Networks Documents, Table 10-2 – External Documents, and Appendix 3 – Biodiversity Net Gain Methodology, should be used in conjunction with this document.

Table 10-1 - Scottish and Southern Electricity Networks Documents

Reference	Title
EAP	A_13.1_EAP_CLEANOFGEM.docx

Table 10-2 – External Documents

Reference	Title
Jacobs (Appendix 5)	Full Solution Phase Biodiversity Metric Outputs
Mott McDonald (Appendix 6)	Mott MacDonald Biodiversity Unit Costing Spreadsheet

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Appendix 1 Definitions and Abbreviations

Table 0-1 – Definitions and Abbreviations

Acronym	Definition
£/BU	Cost per Biodiversity Unit
BU/ha	Biodiversity Units per Hectare
BNG	Biodiversity Net Gain
BREEAM	Building Research Establishment Environmental Assessment Method
CIEEM	Chartered Institute of Ecology and Environmental Management
EAP	Environmental Action Plan
LDP	Local Development Plan
LPA	Local Planning Authority
NNL	No Net Loss in biodiversity
PD	Permitted Development
PP	Planning Permission
SEPD	Southern Electricity Power Distribution
SHEPD	Scottish Hydro-Electric Power Distribution

EXTERNAL APPENDICES

Appendix 3 Biodiversity Net Gain Costing Methodology

Appendix 5 Jacobs Full Solution Phase Biodiversity Metric Outputs

Appendix 6 Mott MacDonald Biodiversity Unit Costing Spreadsheet

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