

Carbon Offsetting

ED2 Engineering Justification Paper Addendum

ED2-NLR(A)-SPEN-005-ENV-EJP-ADD

Issue	Date	Comments
Issue 0.1	August 2022	Internal Draft for Review
Issue 0.2	August 2022	Internal Draft with Comments Addressed
Issue 1.0	August 2022	First Issue - Draft Determination Response

Scheme Name	Carbon Offsetting		
PCFM Cost Type	Non-Load Related		
Activity	Carbon Offsetting		
Primary Investment Driver	Carbon Reduction		
Reference	ED2-NLR(A)-SPEN-005-ENV-EJP-ADD		
Output	Carbon Offsetting		
Cost	SPD - £1.263m	SPM - £1.270m	
Delivery Year	2023-2028		
Reporting Table	CV22		
Outputs included in ED I	Yes/No		
Business Plan Section	Delivering an Environmentally Sustainable Network		
Spend Apportionment	ED I	ED2	ED3
	£m	£2.533	£m

	Proposed by	Endorsed by	Approved by
Name	Steven Vallance	Gill Renwick	Jane McMillan
Signature	<i>S. Vallance</i>	<i>G Renwick</i>	<i>Jane McMillan</i>
Date	25.08 2022	25.08 2022	25.08 2022

1 Purpose

This addendum has been prepared to provide additional information and justification to ED2-NLR(A)-SPEN 005-ENV-EJP Carbon Offsetting EJP following receipt of RIIO ED2 Draft Determination. The content of this addendum is in response to comments and feedback provided by Ofgem as to the “Partial Justification” status of the EJP. The purpose of this document is to support Ofgem’s assessment for Final Determination including supporting any associated impact on engineering adjustments within Ofgem’s financial modelling.

2 Ofgem Comments & Feedback

2.1 RIIO-ED2 Draft Determination SPEN Annex

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

Ofgem Comment - Partially Justified. We agree with the needs case presented by SPEN, and SPEN’s optioneering resulting in a preferred solution of carbon offsetting through rewilding.

Ofgem Identified Risks - There is a risk that the out-turn volumes will differ from the volumes that SPEN have proposed in their submission.

2.2 Any Other Ofgem Feedback

Ofgem Comment - At this stage, we would like to invite DNOs to submit as part of their responses to this consultation, where it has not already been provided, the following information:

- A marginal abatement cost curve for carbon.
- A joint consumer willingness-to-pay study for carbon offsetting and/or carbon removal projects.
- Stakeholder and/or consumer support for offsetting activities.
- A summary of the benefits to network consumers.
- Detail on any carbon offsetting projects or schemes undertaken and/or supported, including expected emissions to be offset per annum in RIIO-ED2.

3 Additional Justification

3.1 Summary of our position on the risk to out-turn volumes

As presented in Section 5.1 Technical Option Summary of the EJP, the activity volumes are tCO₂e. We have derived these volumes using a linear delivery rate, using the best available data (see later Sections of this addendum for further details), and they are part of a variety of measures to reach our target of carbon neutrality. Further information is provided in the subsequent sections of this addendum.

As Ofgem have identified, there is risk surrounding how carbon offsetting (effectively, delivery of the tCO₂e volumes) will be delivered through rewilding schemes and we have reflected on this further

This risk was identified in full in the EJP (Section 6.3) along with the uncertainty and variability in the cost of delivery. These risks will be mitigated through ongoing collaboration and engagement with stakeholders and ensuring early communication to potential partners regarding the volumes of carbon offsets required. We believe this is the best possible risk mitigation.

However, as shown by Table 8 of the EJP, there is a significant margin in the Social Return on Investment (SROI) from this programme – £5.72 per £ spent over the five-year RIIO-ED2 price control period.

The EJP also recognises that certainty in volumes could be achieved through commercial replanting or through emissions reduction schemes; however, our preferred carbon offsetting approach of rewilding is a robust and credible approach that will offset our emissions local to the emissions source, driving additional environmental and social benefits over non-local schemes. *Note: Section 3.2.4 and Appendix A of this addendum gives further information and an example of carbon offsetting achieved through rewilding. As stated in the EJP Section 5.2, indicative costs for carbon offsetting through rewilding have been developed through consultation with potential carbon offsetting partners.*

Therefore, despite the uncertainty in the outputs of rewilding schemes, it remains our view that persevering with the proposed scheme is the socially responsible course of action and given the SROI margins, the least regrets option.

Furthermore, our stakeholders supported this view: as discussed in Section 6.5 of the EJP, there was almost a complete consensus among stakeholders that it would be preferable to focus on reducing carbon emissions rather than offsetting them (and indeed, carbon reduction is a key focus of our RIIO-ED2 plans). However, they acknowledged that offsetting would have to feature as part of the approach in the short term.

3.2 Additional Supporting Information

We have a good understanding of our Scope 1 & 2 carbon emissions – which have been measured and monitored over a number of years – and we have made significant carbon reductions through RIIO ED1. We have identified a number of cost effective, high impact Scope 1 & 2 carbon reduction initiatives which will be delivered in the RIIO-ED2 price control, and these initiatives have been accepted by Ofgem in Draft Determination.

The remainder of our Scope 1 & 2 carbon footprint include emissions which cannot feasibly be reduced through the RIIO ED2 price control. By removing carbon from the atmosphere, we will balance our carbon emissions and help mitigate the effects of climate change.

In August 2021, the Intergovernmental Panel on Climate Change (IPCC), released their Sixth Assessment Report on climate change. The IPCC warns that human-driven climate change has occurred on a global scale, affecting the atmosphere, oceans and biosphere. The IPCC states that changes to the oceans and ice sheets are considered to be irreversible. Only drastic cuts in greenhouse gas emissions this decade can prevent rising global temperatures.

The changing climate presents a wide range of threats and challenges to the environment, infrastructure, economy and people of the United Kingdom. The 'Independent Assessment of UK Climate Risk 2021' report highlighted the following issues:

Natural environment - Climate change poses risks to the UK's soils, natural carbon stores, agriculture, wildlife and coastal habitats and seas.

Infrastructure - Flooding poses the greatest long-term risk to infrastructure performance from climate change, but the growing risks from heat, water scarcity and slope instability caused by severe weather could be significant.

Health, communities and the built environment - There are potential health benefits from warmer winters in the UK, but more action is needed to manage current risks to people from cold temperatures through addressing fuel poverty.

Business - Flooding and extreme weather events which damage assets and disrupt business operations pose the greatest risk to businesses now and in the future. This could be compounded by poor capacity to adapt to climate change.

International dimensions - Climate change will impact upon water security, agricultural production and economic resources around the world. The main risks arising for the UK from climate change overseas are through impacts on the food system, economic interests abroad, and increased demand for humanitarian aid.

Given the urgent need to reduce greenhouse gas emitted to the atmosphere and mitigate the effects of climate change, it is important that we develop our network in support of the net zero transition in a way that achieves neutral or positive environmental and social impacts. In order to do this, we must reduce carbon emissions within our operations as far as possible within technological and regulatory boundaries and remove or offset what cannot be reduced in line with the PAS2060 specification for the demonstration of carbon neutrality.

Investment is needed to offset carbon emissions across areas of our carbon footprint which cannot be technically or feasibly reduced. The principal driver for investment is therefore to offset equivalent carbon emissions using a net zero aligned approach to reduce the impact of our operations on the wider environment and mitigate the effects of climate change.

As we develop and maintain the critical infrastructure which will facilitate the decarbonisation of electricity, heat and transport, we will need to build more and increase our operational activity. More construction and operational activity will increase our carbon footprint and although we have laid out robust plans within our RIIO-ED2 Business Plans to reduce our carbon emissions, we will have fugitive emissions which are either unfeasible to reduce or are not cost effective to eliminate.

If we are to achieve net zero in line with the UK and devolved Government targets it is important that we develop and implement robust carbon offsetting strategies in line with industry best practice.

3.2.1 MAC Curve

As a responsible Distribution Network Operator, we have a commitment to develop and maintain our network in a way that provides the best value for value for money for our customers, in addition to aggressively pursuing our decarbonisation targets. Therefore, we have created a Marginal Abatement Costs Curve (MACC) to outline the costs of our carbon reduction initiatives. This will allow us to continue to identify the most cost-effective solutions to reduce carbon and pursue our decarbonisation goals in an economic and efficient way. Figure 1 below shows our Marginal Abatement Costs Curve. As we progress towards and through the RIIO-2 price control period we will continue to review and add data to the MACC to allow us to continually assess the decisions we make.

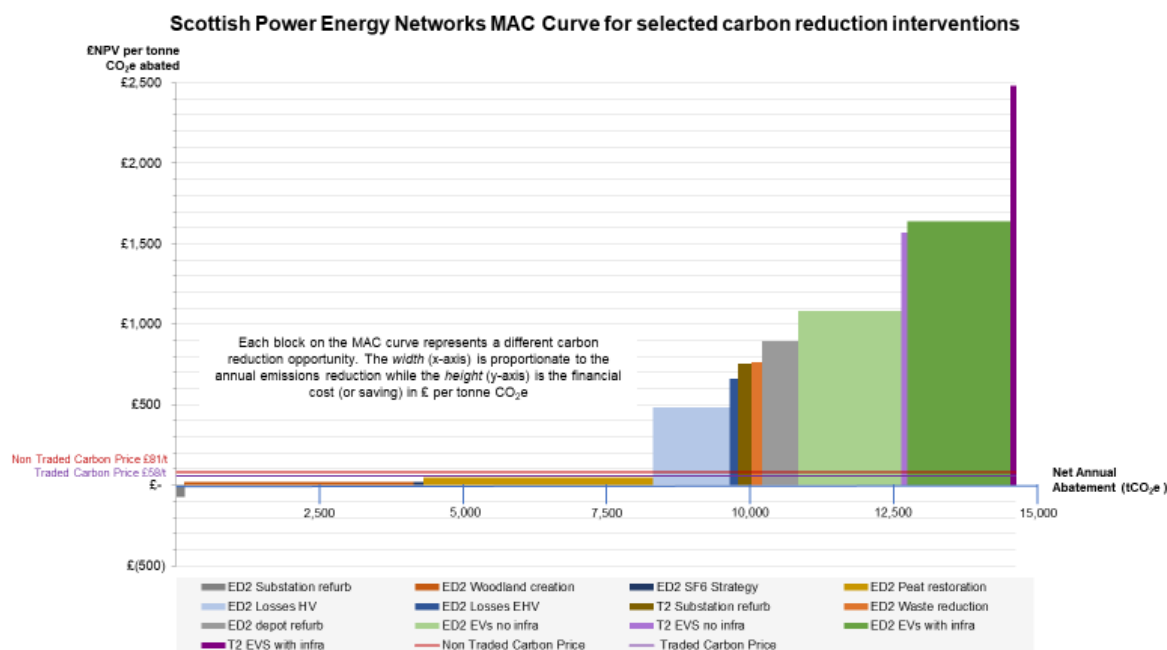


Figure 1: Marginal Abatement Costs Curve

Within the MAC curve above, carbon offsetting through woodland creation and peat restoration are two of the most cost-effective methods of abating carbon emissions. While our focus is – and will remain – on reducing our own carbon emissions, it should be recognised that carbon offsetting can be used to balance out emissions that are currently either unfeasible or are not cost effective to eliminate.

3.2.2 Joint Customer Willingness to Pay

On this occasion, SPEN and other Distribution Network Operators do not feel that a Willingness to Pay study is a suitable approach. Consumers are often shown to be willing to pay inflated amounts with regard to environmental and sustainability topics, and we do not feel that this work would enhance our proposals or provide any evidence further to that supplied in response to this question.

3.2.3 Stakeholder and/or Customer Support

The development of our carbon offsetting approach was discussed with stakeholders during Phases 3 and 4 of our stakeholder engagement programme.

Engagement	Purpose	Outputs
Phase 3 – Co-creating our business plan (Winter/Spring 2021)		
Developing our strategy for carbon emissions Workshop	In this online event, we sought feedback from stakeholders on our carbon reduction strategy across several areas of our business plan.	<ul style="list-style-type: none"> While stakeholders encouraged SPEN to move towards carbon neutrality as soon as possible, it was underlined that any emission target SPEN sets for itself must be achievable given SPEN's lack of control over certain elements (e.g., technological development or regulation). The majority of stakeholders were in favour of SPEN setting an interim carbon reduction target based on the controllable portion of its footprint. Most stakeholders were broadly opposed to carbon offsetting, as they felt this does not address the fundamental challenge. Stakeholders urged SPEN to decarbonise its heavy vehicles as aggressively as possible and to consider solutions such as hydrogen or green gas, which may be more suitable and realistic than electrification for these vehicle types. Stakeholders recommended that SPEN establish a carbon management culture and embed this into procurement strategy in order to deliver an effective carbon management programme. This could be complemented by incentivising suppliers to reduce emissions and working with industry bodies to drive low carbon innovations.
Phase 4 – Business Plan acceptability (Autumn 2021)		
Developing our targets and plans for greenhouse gas reduction and removal Workshop	In this online event, we sought feedback from stakeholders on carbon reduction and removal within our business operations	<ul style="list-style-type: none"> There was almost a complete consensus among stakeholders that it would be preferable to focus on reducing carbon emissions rather than offsetting them. At the same time, they acknowledged that offsetting would have to feature as part of the approach in the short term. Stakeholders supported the proposed focus on Scope 1 and 2 emissions, emphasising the need for early industry-wide collaboration to align processes and goals. Stakeholders largely believed that the Net Zero target should be brought forward if it was a realistic ambition. Stakeholders were very much of the view that the Oxford Principles were an appropriate standard to adopt for carbon offsetting purposes.

There was almost a complete consensus among stakeholders that it would be preferable to focus on reducing carbon emissions rather than offsetting them. At the same time, they acknowledged that offsetting would have to feature as part of the approach in the short term.

3.2.4 A summary of the Benefits

3.2.4.1 Primary Economic Driver

The primary driver for intervention is to mitigate the effects of climate change by reducing the overall impact of our carbon emissions and to develop a methodology for a net zero aligned carbon offsetting methodology.

We have sought to align our carbon offsetting approach to a net zero definition outlined by the Science Based Targets Initiative. Under this definition, we must deliver 1.5°C aligned greenhouse gas reductions across our value chain (scopes 1, 2 and 3) and permanently remove atmospheric greenhouse gas emissions (through carbon offsetting mechanisms) equivalent to residual emissions that remain unfeasible to eliminate.

3.2.4.2 Environmental Considerations

Operational and embodied carbon emissions

This carbon offsetting approach supports net zero carbon targets by developing a carbon removal mechanism which will offset fugitive carbon emissions which cannot feasibly be reduced. In RIIO-ED2, we anticipate there will be 100 ktCO₂e of direct greenhouse gas emissions following this approach

Biodiversity/ natural capital

Given the carbon offsetting approach involves carbon removal through rewilding, it is anticipated that this will result in significant biodiversity and natural capital enhancement. Based on the outcomes of our recent pilot project at Hawkshaw, please see **Appendix A**, utilising the RIIO-ED2 offsetting funds for rewilding projects would result in approximately 275 hectares of native woodland being created by planting around 400,000 trees. In addition, rewilding projects support restoration of peatland projects like blanket bog habitats. This will provide important habitats for wildlife, amenities for local people and can have indirect benefits to flooding by limiting surface water runoff.

Visual amenity

Given the carbon offsetting approach involves carbon removal through rewilding, there is likely to be significant gains in visual amenity.

Climate change resilience

Climate change resilience has not been considered as a driver in our approach to carbon offsetting, although it is recognised that benefits may be indirectly achieved through effective vegetation and soil management. SP Energy Network's approach to Carbon Offsetting is included in **Appendix B**.

3.2.4.3 Societal Benefits and Costs

In order to mitigate direct emissions which, we cannot feasibly reduce through RIIO-ED2, it is important that we act now. Carbon sequestration through rewilding takes time as trees / peatland sequester carbon over decades.

The UK Department of Business, Energy and Industrial Strategy Greenbook broader outlines a carbon cost of £248 per tCO₂e. This is used in cost-benefit analysis to assess whether a particular policy may be expected to improve or reduce the overall welfare of society. In 2028, it is anticipated that the cost of carbon emissions will have risen to £272 and by 2050, it is anticipated that this will rise to £378. Given the timescales for carbon removal, it is important that we develop a robust carbon approach now and start mitigating fugitive emissions as soon as possible.

Based on our methodology outlined in our Carbon Offsetting ED2 Engineering Justification Paper (ED2-NLR(A) SPEN 005-ENV-EJP Issue 1), our carbon offsetting approach is estimated to cost a total of £2,533m and will deliver net present value of £12.2m and a social return on investment of £5.72 per £ spent over the five-year RIIO ED2 price control period.

Table 1: Optioneering Table

Option	Scope	Technical Option	Cost	SROI (per £ spent) (5-year RIIO ED2 period)
2C	Scope 1 & 2 Excluding Losses	Rewilding	-£2.533m	+£5.72

4 Appendix A – Existing Carbon Offsetting Projects: Hawkshaw Case Study

In an effort to ensure our carbon offsetting activities are delivered local to our projects, SP Energy Networks are working with [Forest Carbon](#) at their Hawkshaw site in the Scottish Borders. We have purchased 800 tonnes of future carbon credits to support the planting of new native woodland which, once mature, will sequester carbon and provide habitat for other local wildlife species. We are looking to further develop this project and others like it as part of our work on carbon offsetting throughout ED2.

Project Summary

**FOREST
CARBON**

Hawkshaw: New Native Woodland

Country	Scotland
Location	Scottish Borders, nr. Biggar
UK grid reference	NT077226
Project completion date	May 2021
Total gross planted area	31.54 hectares
Anticipated CO ₂ capture	11,491 tonnes
Approximate trees planted	44,550
Species planted	Alder, Aspen, Bird Cherry, Downy Birch, Holly, Scots Pine, Sessile Oak, Rowan, Willow Species
Meets UK Forestry Standard	Yes
Woodland Carbon Code status	Registered

Narrative:

The vision at Hawkshaw is to restore rough grazing land into native woodland, with a sensitive design allowing for integration of trees with existing peatlands, including an area of blanket bog.

The resulting suite of habitats will become an important refuge for a range of wildlife, an area of amenity for local people, and help to provide future seed sources for native woodland expansion in a denuded part of southern Scotland.

Wildlife friendly tree species like juniper, hazel and bird cherry will provide food for a wide variety of insects, birds and mammals and careful planting of birch around areas of blanket bog will lead to the formation of bog woodland, which has become a rare habitat in the UK.



www.forestcarbon.co.uk

5 Appendix B – SP Energy Network’s Carbon Offsetting Approach

We will apply [The Oxford Principles for Net Zero Aligned Carbon Offsetting](#) to ensure our approach to offsetting is robust and credible.

We will offset carbon in line with the Oxford Carbon Offsetting Principles, ensuring high probability of ‘Additionality’ and low probability of ‘Reversibility’

- We will offset our emissions ‘locally’ relative to the emissions source
- We will prioritise ‘carbon removal’ over ‘carbon reduction’ in line with Net Zero target setting, as defined by the Science Based Target Initiative
- We will focus on rewilding and explore environmental restoration options (e.g., peat restoration) rather than commercial forestry where practical, to drive additional environmental and social benefits

- We will revise our carbon offsetting approach as best practice evolves and new technologies become technically and commercially viable, moving to carbon removal technology with long term storage

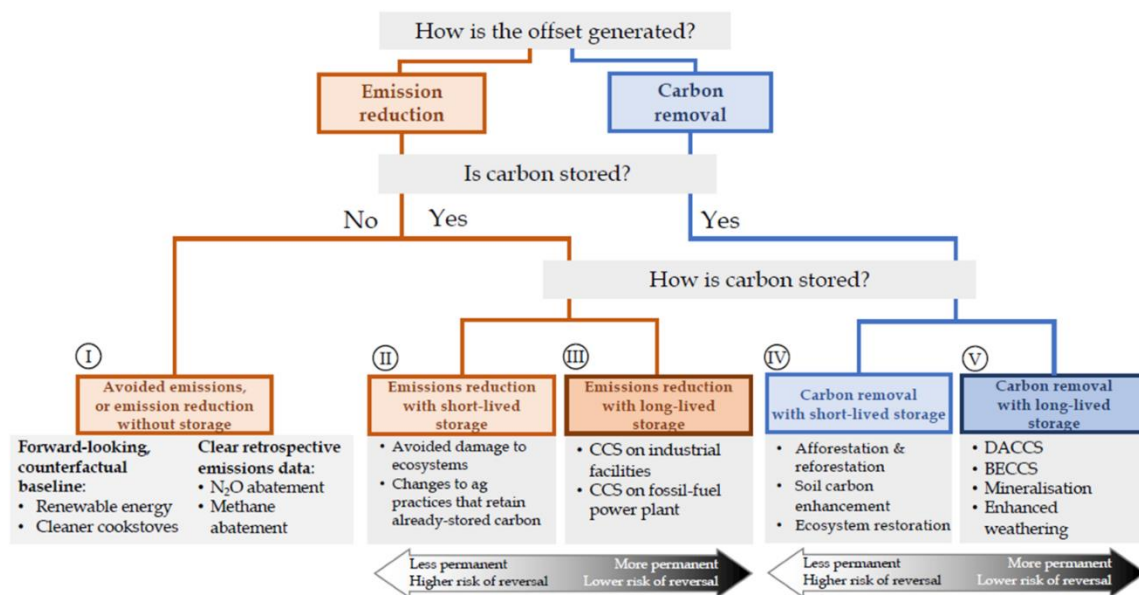


Figure: Oxford Carbon Offsetting Principles

Source: [The Oxford Principles for Net Zero Aligned Carbon Offsetting](#)