

# Overcoming barriers to the engagement of supply-side actors in Scotland's peatland natural capital markets - Final Report



**AGRICULTURE, ENVIRONMENT AND MARINE**

# **Overcoming barriers to the engagement of supply-side actors in Scotland's peatland natural capital markets – Final Report**

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# 1 Executive summary

Reed MS<sup>1</sup>, Stevens B<sup>1</sup>, Jensen E<sup>1</sup>, Merrel I<sup>1</sup>, Grandemange Y<sup>2</sup>, O'Halloran F<sup>2</sup>, Frere-Scott J<sup>2</sup>, Glendinning J<sup>1</sup>

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The Dasgupta Review underscores the need for significant investment in nature-based solutions to combat biodiversity loss and climate change. Peatlands are crucial for water, flood control, biodiversity, and carbon storage, but require extensive restoration to meet Scotland's net-zero goal by 2045. Despite the commitment of £250 million public funding from Scottish Government, more funding is needed to meet peatland restoration targets. Private finance could help meet this need, but there are a number of barriers to scaling up restoration activity via markets for responsible investment in natural capital.

## 1.1 Aims and approach

This project sought to understand the motivations and preferences for supply-side actors (defined as landowners, managers, and anyone with decision-making power to restore peatlands) to engage in Scotland's peatland natural capital markets, along with their perception of risks, barriers, opportunities and potential solutions to the challenge of responsibly scaling these markets to meet restoration targets. The research considered attitudes towards both public (e.g. Peatland ACTION) and private investment in peatland restoration, including different approaches to blended finance (defined as any combination of public and private funding within the same project). This was done through a combination of pre-interview surveys (n=54), interviews (n=38), workshops (n=3) and financial modelling.

## 1.2 Literature review

Evidence from previous research suggests that supply-side actors' engagement with peatland natural capital markets is shaped by a range of factors, including:

- Concerns that existing market models may benefit intermediaries more than landowners, and issues around the compatibility of post-restoration restrictions on land management with other economic activities;
- Future uncertainties including eligibility for future agri-environment schemes, inheritance tax implications, and the need to retain carbon for insetting purposes; and
- Project management risks including cashflow problems, concerns about restoration works failing and liabilities for long-term maintenance.

The literature also highlights the importance of individual and social factors, such as values, place attachment, risk perception, and social norms, in shaping supply-side actors' decisions. Material factors like land tenure, land holding characteristics, and costs versus benefits also play a role. It is important to integrate these insights with

a broader understanding of values and beliefs about the natural environment and wider moral and environmental justice perspectives when communicating the risks and benefits of engaging with peatland carbon markets.

### 1.3 Scenarios

Four peatland restoration finance scenarios were explored in the research. These are summarised below and in Table 1. Two scenarios representing options currently available to supply side actors:

- **Current scenario A:** capital works of restoration funded by Peatland ACTION *without* carbon finance via the Peatland Code; and
- **Current scenario B:** capital works of restoration funded by Peatland ACTION *with* carbon finance via the Peatland Code.
  - To retain Peatland Carbon Units generated via the Peatland Code, Peatland ACTION can fund up to a maximum of 85% of the project's lifetime costs (i.e., capital works of restoration and ongoing maintenance costs), with 15% of funding sourced by the project owner, potentially via the sales of carbon units.

Two scenarios representing potential future blended finance mechanisms that combine carbon finance via the Peatland Code with publicly funded capital and / or maintenance payments:

- **Potential scenario C:** 50% of capital works of restoration and first 10 years of maintenance costs funded by Peatland ACTION *with* carbon finance via the Peatland Code;
- **Potential scenario D:** First 10 years of maintenance costs funded by Peatland ACTION *with* carbon finance via the Peatland Code. Publicly backed price floor guarantee that ensures a minimum price for carbon, allowing applicants to sell to Government at the agreed price if carbon prices fall below a pre-agreed price floor, while allowing them to sell into a rising market if prices increase.
  - In the potential scenarios, the costs not funded by Peatland ACTION are financed by the project owner, either from own funds or by accessing private investment (debt finance).

**Table 1: Summary of the four scenarios explored in this research, with detail on sources of funding.**

Scenario	Capital grant	Maintenance grant	Peatland carbon income	Price floor guarantee
Current scenario A	Up to 100% of restoration costs	No	No	No

Scenario	Capital grant	Maintenance grant	Peatland carbon income	Price floor guarantee
Current scenario B	Up to 100% of restoration costs	No	Yes	No
Potential scenario C	Up to 50% of restoration costs	Yes, for the first 10 years	Yes	No
Potential scenario D	No	Yes, for the first 10 years	Yes	Yes

## 1.4 Responses to scenarios

There were positive responses and constructive feedback on the current funding model, where this included carbon revenues via the Peatland Code (current scenario B), and the inclusion of private finance mechanisms, where these included measures to reduce market risk (e.g. a price floor guarantee) and maintenance payments (potential scenario D). Although the current scenario B combining Peatland ACTION with carbon finance via the Peatland Code potentially generated the highest financial returns for peatland carbon projects, it was perceived as higher risk than the two new private finance scenarios by supply-side actors. Although current scenario B has lower upfront cost, unknown maintenance costs and exposure to carbon market fluctuations were causes of concern, with the integration of a price floor guarantee significantly reducing project risk, to supply-side actors, shifting this risk to government (see Table 2 for a detailed comparison of findings between scenarios).

## 1.5 Policy options

Based on feedback from surveys, interviews, and workshops, two proposed mechanisms could support peatland restoration while responsibly scaling peatland carbon markets. These two mechanisms are not mutually exclusive and can coexist, accommodating different preferences within the market:

### 1. Retention of current Peatland ACTION funding:

- This approach retains the existing Peatland ACTION funding model, with or without accreditation to the Peatland Code.
- It allows those who prefer not to engage with peatland carbon markets or private investment to continue accessing restoration funding.

### 2. Blended finance option within Peatland ACTION:

- This option suggests the introduction of a blended finance approach for Peatland Code projects within Peatland ACTION.
- It introduces a price floor guarantee for Peatland Carbon Units (PCUs).
- It also provides funding for ongoing maintenance costs and advice based on site assessments by Peatland ACTION officers.

**Proposed blended finance mechanism:** To create an efficient funding and financing model for peatland carbon projects, build market integrity and attract private investment in peatland restoration, a proportion of existing public funding (Peatland ACTION) would be repurposed to:

1. **Establish a price floor guarantee for PCUs.** A price floor guarantee shifts risk away from investors and project developers to government by ensuring a minimum price for PCUs over a fixed period. If market prices fall below the floor price, projects can sell PCUs at the guaranteed price. If market prices are higher, projects can benefit from the higher prices. Examples of similar mechanisms include the UK Feed-in Tariff and the Woodland Carbon Guarantee; and
2. **Provide annual maintenance grants.** A portion of Peatland ACTION funding would be allocated as annual maintenance grants to support ongoing project maintenance costs. These grants may be conditional or outcomes-linked, ensuring that specified restoration goals are met.
3. **Provide subordinated Capital to a proposed Scotland Carbon Fund.** The SCF would provide upfront financing for peatland restoration projects by aggregating private capital. It would leverage public capital from the Scottish Government to attract private investors, reducing risk through a first-loss guarantee.

These new measures would be offered in parallel with the existing funding available through Peatland ACTION. Further analysis will be required to assess whether Peatland ACTION capital grants should be fully removed from the blended finance mechanism or gradually phased out (as carbon market prices increase).

Although these new measures may act to sufficiently de-risk and reward landowners to engage with peatland carbon markets, this may be more successful when combined with a degraded peatland tax. There are a number of other enabling factors that could also increase the pipeline of projects coming to market.

**Enabling factors:** Based on the results of the research, to ensure the success of these mechanisms, additional considerations include:

- Simplifying the application process to any new schemes offered and aligning to Peatland ACTION and Peatland Code processes, including providing clear comparisons;
- Addressing concerns about greenwashing by implementing buyer integrity tests;
- Exploring options for maintenance payments to reward good stewardship;
- Considering the introduction of a degraded peat tax, following the polluter pays principle, which could be controversial but may incentivize engagement with the new mechanisms and increase supply of restoration projects to market; and
- Developing a communication strategy that tailors messages to different stakeholders' values, uses trusted intermediaries, and provides outcome scenarios for various landholdings.

The proposed policy options aim to responsibly scale peatland restoration in Scotland by increasing the supply of peatland restoration projects to market. To do this, this report recommends combining public funding with private financing mechanisms that can de-risk engagement with peatland carbon markets for both landowners and investors. This solution has the potential to help Scottish Government meet and potentially exceed its peatland restoration targets as part of its net zero ambitions for the land use sector. As peatland restoration markets scale, this solution would enable Scottish Government to increasingly target public funding to sites that are difficult to restore on a commercial basis.

**Table 2: Summary of financial modelling per scenario, showing levels of private finance needed (investment potential), clarity and attractiveness of each scenario to respondents, and key considerations for project owners and Scottish Government.**

Scenario	Description	Investment potential	Clarity (0-100, average) <sup>1</sup>	Attractive-ness (0-100, average)	Key considerations for supply side actors	Key considerations for Scottish Government
Current scenario A	Public funding from Peatland ACTION for capital works	N/A	79	38	<ul style="list-style-type: none"> <li>Least attractive, as leads to a net loss for project owners due to exposure to long-term (50+ years) maintenance costs, and no carbon revenues.</li> <li>This was the only scenario deemed appropriate for crofting communities (led by a Common Grazing Committee) or NGOs/Charities that do not wish to be associated with carbon trading.</li> </ul>	Unfunded maintenance costs and the absence of long-term contractual obligation to maintain and monitor success may result in site deteriorating in condition over time.
Current scenario B	Funding from Peatland ACTION for capital works alongside sale of verified carbon units via Peatland Code	Low	71	61	<ul style="list-style-type: none"> <li>Perceived as least risky and most beneficial by the majority of respondents, due to the ability to offset maintenance costs with carbon revenues, and the potential to generate new revenue streams from carbon.</li> <li>However, project owner is exposed to changes in</li> </ul>	<ul style="list-style-type: none"> <li>Carbon revenues can be used to fund maintenance costs and reduce the risk of the project degrading over time after the restoration is completed.</li> <li>Peatland Code long-term management agreement requires</li> </ul>

<sup>1</sup> Mean score, rounded to nearest whole number.

Scenario	Description	Investment potential	Clarity (0-100, average) <sup>1</sup>	Attractive-ness (0-100, average)	Key considerations for supply side actors	Key considerations for Scottish Government
					carbon prices and project maintenance costs.	projects to sign up for independent Monitoring, Reporting and Verification (MRV) systems to monitor performance.
Potential scenario C	Funding from Peatland ACTION for 50% of capital works and 10 years of maintenance costs alongside sale of verified carbon units via Peatland Code	Medium	72	49	<ul style="list-style-type: none"> <li>Grant payments for maintenance reduce delivery risk for project owners.</li> <li>Project owner remains exposed to changes in carbon prices and maintenance costs.</li> <li>Reduced Peatland ACTION capital grant (50% of restoration costs), creates an upfront financing need that an investor could cover.</li> <li>Landowners can share project value and risks with investors.</li> <li>However, participants struggled to evaluate the financial risks associated with repayable finance and uncertainty in future carbon markets</li> <li>Engagement with carbon markets conflicted with</li> </ul>	<ul style="list-style-type: none"> <li>Scottish Government is contributing less grant money to the project than in scenario A and B.</li> <li>Part of the project failure risk can be transferred to a private investor.</li> </ul>

Scenario	Description	Investment potential	Clarity (0-100, average) <sup>1</sup>	Attractive-ness (0-100, average)	Key considerations for supply side actors	Key considerations for Scottish Government
					<p>the values and beliefs of some who were concerned about the potential for investors to use their carbon in greenwashing.</p>	
Potential scenario D	Funding from Peatland ACTION for 10 years of maintenance costs along with price floor guarantee and sale of verified carbon units via Peatland Code	High	70	62	<ul style="list-style-type: none"> <li>• Absence of Peatland ACTION capital grant creates a larger upfront financing need (compared to other scenarios) that an investor could cover.</li> <li>• Landowners can share project value and risks with investors.</li> <li>• A guaranteed carbon price combined with maintenance grant funding reduces the level of project risk for landowners and investors.</li> <li>• Although there were still concerns about the ethics of engaging with carbon markets, the guarantee and maintenance costs was perceived positively by the majority of respondents and clear options were identified to address most of the key</li> </ul>	<ul style="list-style-type: none"> <li>• Scottish Government is contributing less grant money to the project than in scenario A, B and C.</li> <li>• Part of the project failure risk can be transferred to a private investor.</li> <li>• Introduction of a publicly backed price floor guarantee creates a conditional liability for Scottish Government. If carbon prices &gt; price floor, no costs are incurred. If carbon prices &lt; price floor Scottish Government must commit to purchase verified carbon units at the level of the price floor guarantee.</li> </ul>

Scenario	Description	Investment potential	Clarity (0-100, average) <sup>1</sup>	Attractive-ness (0-100, average)	Key considerations for supply side actors	Key considerations for Scottish Government
					risks and concerns that were expressed.	

## 2 Introduction

### 2.1 Aims and objectives

The key aim of this project was to design and deliver a piece of primarily qualitative research with supply-side actors in Scotland's peatland natural capital markets to better understand their motivations and preferences for market participation, along with their perception of risks, barriers, opportunities and potential solutions to these. The research considered attitudes towards both public (e.g. Peatland ACTION, future agricultural support payments) and responsible private investment in peatland restoration, including different approaches to blended finance.

Blended finance is defined as any combination of public and private funding within the same project. Blended finance has the potential to decrease risk for private investors, while allowing public funds to be spread further and allocated for greatest impact.

Supply-side actors are landowners, managers, and anyone with decision-making power to restore peatlands. Encouraging and enabling this group to fund their restoration is key to driving large-scale peatland restoration.

Specifically, the objectives of the research, summarised from the brief, were to:

- Incorporate a geographic focus, including three regions that Scottish Government is currently considering for the development of landscape scale peatland restoration pilots: (a) South of Scotland Enterprise (SOSE) region; (b) Loch Lomond and the Trossachs National Park; and (c) Highlands and Islands (with a focus on the West coast);
- Validate, refine and elaborate on barriers to participation and potential solutions identified in previously commissioned research on *Mobilising private investment in natural capital*;
- Conduct a concise evidence review to identify and summarise existing evidence relating to natural capital markets and the role of supply side actors in a Scottish context, including evidence relating to existing market uptake, barriers to uptake, potential solutions and key existing evidence gaps relating to supply side actors;
- Use the evidence review and a preliminary scoping exercise with key stakeholders to inform survey questions and discussion themes, piloting surveys and interview topic guides, and designing deliberative regional workshops;
- Include a diverse cross section of peatland natural capital market supply side actors in surveys, interviews and workshops, with a particular emphasis on large private estate owners and managers, including estates with different core objectives (e.g. conservation holdings including NGOs, mixed objectives and sporting / recreational estates), in addition to forestry managers, community landowners / managers and larger and smaller-scale in-hand farmers and tenant farmers, and crofters, with peatland on their holding (including peatland in different condition); and

- Integrate qualitative and quantitative analysis of surveys, interviews and workshops with financial modelling to provide a comparative analysis of current and future funding scenarios that integrate private finance using different mechanisms.

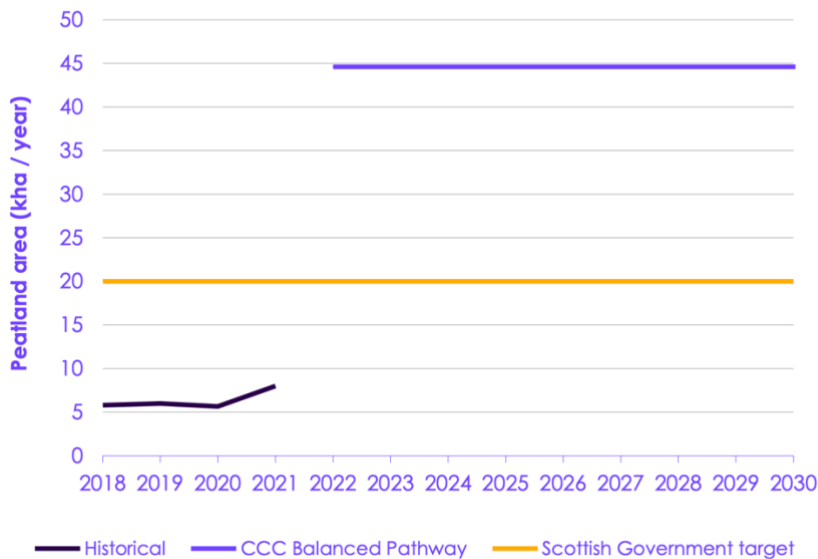
## 2.2 Context

The 2021 Dasgupta Review recommended significant investment in nature-based solutions to address biodiversity loss and contribute to climate change mitigation and adaptation, whilst delivering wider economic benefits (Dasgupta, 2021).

However, the need for large-scale, rapid deployment of funding into nature-based solutions is largely beyond the reach of current public funding commitments. The United Nations Environment Programme (UNEP) estimates that finance for nature-based solutions is currently USD 133 billion per year but needs to at least triple by 2030 and increase fourfold by 2050 to meet international climate, biodiversity and land degradation targets (UNEP, 2021; Deutz et al., 2020). The Green Finance Institute (2021) estimated that the gap between public spending commitments in Scotland and the funding needed to deliver climate targets for the land use sector via nature-based solutions is £9bn between 2022-2032, around 90% of which was based on the cost of reaching afforestation targets (Vivid Economics, 2020). Hollingdale (2023) argued without land acquisition costs, afforestation costs might be closer to £90M, and suggested that the sale of carbon credits may be necessary to meet the shortfall.

However, despite Scottish Government's multi-annual investment of more than £250M, significant investment is still needed to meet peatland restoration targets. Peatlands cover approximately a third of Scotland's land area (when afforested peatlands are included), and are critical for drinking water, flood risk mitigation, biodiversity and carbon storage (Bain et al., 2011). However, it is estimated that around 2 million hectares (75-80%) are in a modified or degraded state, and in their current condition, Scotland's peatlands are a very significant net source of greenhouse gases (GHGs) (CCC (CCC), 2022; NatureScot, 2022).

To support its net zero target by 2045, Scotland will need to restore the majority of its peatlands. Although public investment in peatland restoration has increased in recent years, it remains below what is needed (CCC, 2022). Current restoration rates (6,000 hectares per year) are around a third of the Government's target of 20,000 hectares per year, which if met, would still fall short of the CCC's recommendation of restoring 45,000 hectares per year (Figure 1; CCC, 2022). According to the CCC, "detail is required on how barriers...will be overcome" to significantly scale up peatland restoration in line with their proposed targets".



**Figure 1: Peatland area under restoration management – historical delivery and targets (source: CCC, 2022).**

Unpublished data from Kana based on a survey of 100 FTSE 350 firms in 2022 and 2023 showed that 59% had “dramatically increased” their spending on carbon offset units over the last three years, with those closer to reaching net zero prepared to pay more per unit, especially if these units could be sourced from the UK. 76% wanted to increase their spending on UK offset projects but complained that there was a lack of availability of UK-based units. Unpublished data from the IUCN UK Peatland Programme, consulted as part of this research show that demand for peatland carbon is rising significantly and could in theory incentivise engagement with peatland restoration among the landowning community. However, the Peatland Code is currently generating carbon units on a relatively small scale (see evidence review in Appendices). Moreover, there are concerns about the scale and viability of the pipeline of peatland restoration projects to supply this demand. The CCC (2022) highlighted issues with skills shortages and contractor availability as a key constraint to the delivery of peatland restoration targets in Scotland. However, there are many other barriers that may be more important, especially on the supply-side of the market.

Hurley et al. (2022) identified a number of concerns among landowners, including concerns around failure of restoration works, long-term maintenance liabilities, power imbalances between large investors and landowners, and the need to retain carbon as insets in order to retain supply contracts in future. This research sought to validate, refine and elaborate on these barriers to engagement, seeking perspectives from different types of landowners, tenants, crofters, advisors and intermediaries, whilst further exploring the potential for some of the blended finance mechanisms proposed by Hurley et al. (2022) to overcome these barriers.

## 2.3 Purpose and structure of the report

This report provides a summary of the methods used, and a concise account of the key findings and policy options. A more detailed account of the methods, the

evidence review, and details of financial modelling are provided in a series of accompanying appendices. The report comprises the following chapters:

- **Chapter 1: Executive summary.** A covering document which gives a succinct overview of the report, including findings and policy options.
- **Chapter 2: Introduction.** The aims and objectives of the study are articulated, along with a concise account of the context, including policy targets, challenges and previous research that this report builds upon;
- **Chapter 3: Methods overview.** The approach to the research is summarised, before detailing how a relevant sample of peatland managers was obtained for the three target regions, taking into account participant profile and land manager typologies. Methods are provided for the development of financial scenarios and the collection of empirical data via pre-interview surveys, qualitative interviews and regional workshops. The chapter concludes by describing the data analysis methods that were used;
- **Chapters 4-6: Findings.** Findings from survey, interview, workshop and modelling work are integrated to summarise feedback on two current opportunities (Peatland ACTION only versus Peatland ACTION with the Peatland Code) and two potential blended finance mechanisms (Peatland ACTION and Peatland Code with public support for maintenance costs, versus Peatland Code with guaranteed carbon price and public support for maintenance costs). The chapter triangulates findings using different methods in relation to each scenario and concludes by summarising a number of additional cross-cutting themes, including reasons to restore or not to restore, attitudes towards carbon finance, crofting considerations and taxing unrestored peatlands; and
- **Chapter 7: Policy options.** The main findings are summarised, as they are relevant to different audiences, including supply and demand side interests, Scottish Government, and agencies. Recommendations are made for the introduction of new blended finance mechanisms, adapted on the basis of feedback from the research, alongside a range of additional enabling policies that could help responsibly scale the operation of peatland carbon markets in Scotland. The chapter concludes with potential areas for future research.



This research design was aimed at gathering complementary insights from the different methods, including quantitative and qualitative elements, to address the research objectives, triangulate findings and add depth and detail to the findings (see Table 3). The primary focus was the qualitative interview data. The data analysis is therefore mostly qualitative in focus, with descriptive statistics provided for context. Methods were agreed in collaboration with the project Research Advisory Group (RAG), which was made up of Scottish Government and NatureScot officials. The RAG input and gave feedback on the design of the survey and interview questionnaire in the early phases of the project.

**Table 3: Research objectives mapped to research methods.**

Research objective	Methods to address
<p>1) Better understand the motivations and preferences of supply-side actors in Scotland's peatland natural capital markets for market participation, perception of risks, barriers, opportunities, and solutions.</p> <p>2) Engage a core group of land managers in an in-depth way and identify case-specific examples of barriers/opportunities for peatland natural capital markets in the future.</p>	<p>Pre-interview surveys (n=54) and interviews (n=38, all of which completed survey)</p>
<p>3) Incorporate a geographic focus to include a diverse range of peatland natural capital market supply-side actors in terms of owner type, ownership scale and regional socio-economic and environmental context.</p>	<p>Sample recruitment was focussed in three target regions which were chosen to represent the full range of Scottish peatland contexts: (i) South of Scotland; (ii) Loch Lomond and the Trossachs National Park area; and (iii) Skye. We constructed a sample frame and categorised respondents to ensure representation across different land manager types.</p>
<p>4) Emphasize large private estate owners / managers, to include (where feasible) estates with different core objectives.</p>	<p>During multiple rounds of sample recruitment, we reviewed the stakeholder groups of those that we confirmed would attend an interview against our sample frame. We then targeted further calls for participation towards groups and networks to round out our sample for the desired representation from each stakeholder group. We were striving to have 50% of our sample be made up of large, private estates and achieved 12/38 interviewees (31.6%), although some other categories could also give good insight on motivations of estate owners (e.g. land agents, advisors, project developers).</p>

## 3.2 Achieving a relevant sample of peatland managers

This project sought to include a representative range of supply-side actors to peatland restoration projects. Although the main focus of this research was the qualitative interviews, all interview participants completed pre-interview surveys. Ultimately, however, there were more survey respondents (n=54) than interview participants (n=38) as time and logistical constraints limited some participants' ability to contribute to both the survey and interview. The workshops offered those involved in interviews as well as additional participants an opportunity to contribute.

### 3.2.1 Target regions

The sampling procedure was based around three target regions, with modest expansion beyond these regions to complete the sample. Sampling focussed on three case study regions of Scotland to make the sample size feasible to collect the depth of qualitative data required, while achieving a representative mix of perspectives across different Scottish peatland contexts. The following regions were chosen in collaboration with the RAG:

- Loch Lomond and the Trossachs National Park (LLTNP);
- South of Scotland Region (SoS); and
- Skye and Lochalsh (Highland).

These regions were chosen based on the following criteria:

- Good coverage of the land ownership types being investigated (private estates, farms, community ownership, tenancies, and crofts);
- Distinctiveness in their regional profiles, representing the diversity of regional and geographic contexts across Scottish peatlands; and
- Contain a significant amount of degraded peatland that could be restored under the Peatland Code (i.e., actively eroding or drained).

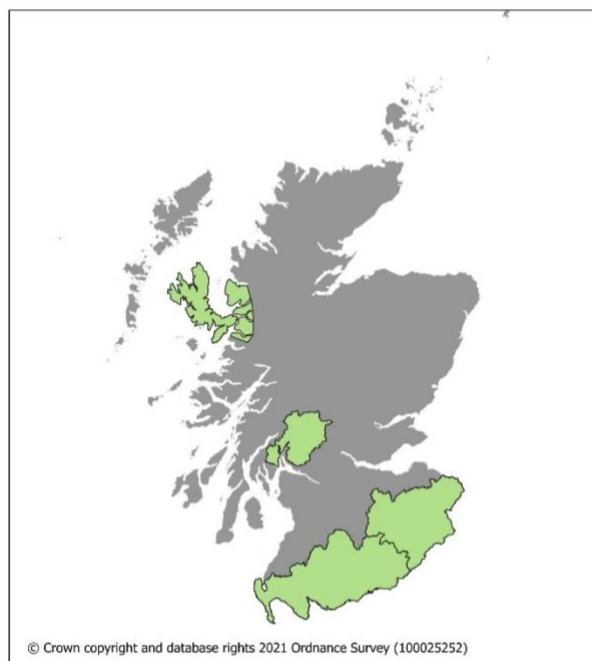


Figure 3: Map of target regions.

### 3.2.2 Participant recruitment

To recruit participants, key organisations across Scotland were asked to help and distribute our invitation to join the study. Participation requests were distributed via email through existing contacts lists via:

- The **environmental NGO (eNGO)** community (including the John Muir Trust, Scottish Wildlife Trust, National Trust for Scotland, RSPB Scotland, Scottish Futures Trust and Nourish Scotland);
- The **land management** community (NFUS, Moorland Forum, Scottish Land & Estates, Galbraiths, Savills, Bidwells, Forestry & Land Scotland, Scottish Tenant Farmers Association, Borders Forest Trust, Scottish Water, Tillhill, CONFOR, Scottish Woodlands, Crown Estates and Community Land Scotland); and
- **Rural communities** (Scottish Rural Action, Crofting Commission or Scottish Crofters Federation, Scottish Community Alliance, Community Woodlands Association, Community Land Trust Network and the Rural Youth Project).

In addition, participation requests were distributed through existing contacts and relationships developed through previous, relevant projects.

There was difficulty recruiting the desired sample size (aiming for 40-50 interview participants). After making multiple calls for participation among the networks above, the scope was broadened beyond the original three target regions.

During this time, we reviewed the stakeholder groups of those that we confirmed would attend an interview against our sample frame. We then adjusted each successive call for participation, targeting groups and networks to round out our sample for the desired representation from each stakeholder group, with the goal of having 50% of our sample be made up of large, private estates. By working with representative organisations (e.g., Scottish Land and Estates), local SAC consultants and other networks, we achieved 12 out of 38 interviewees (31.6%), supplemented by others with good insights on motivations of estate owners (e.g. land agents, advisors, project developers).

### 3.2.3 Pre-interview survey sample

Through the pre-interview survey, a detailed portrait of the participants in this research was obtained. This is presented below to clarify who was consulted for this research. While most of the profile information came from the survey data, these respondents also comprised the interview sample. Many of the survey questions for this section were 'tick all that apply', meaning that a respondent could select more than one response for these questions. In these questions, counts are references using the shorthand *f* for frequency rather than *n* for number of people. Other survey questions were only presented under certain conditions, depending on a respondent's prior answers. This was done to ensure the relevance of survey questions. This also means that the sample base varies across different survey questions.

The survey sample ( $n=54$ ;  $f=67$ )<sup>2</sup> included several types of landowner and manager. The category with the largest number of responses was *Owner*, with nearly half of the respondents (48%,  $f=26$ ) self-identifying with this category. Further detail about this *Owner* category specified the type of ownership<sup>3</sup>. *Private estate owners* constituted 54% of the *Owner* responses ( $f=14$ ), while 50% identified as a *Farm owner* ( $f=13$ ). Three of these respondents reported being a *Farm owner on a contract farming agreement* and one each self-identified as *Landlord for a crofting estate* and *Community estate* respectively.

The next largest group in the sample was made up of those who self-identified as *Land agent, advisor, broker, project developer*, comprising 26% of the total responses ( $f=14$ ). *Factor/estate manager* was the third most frequent category, with 22% of respondents ( $f=12$ ) indicating they belong to this group. Those who identified as *Crofter* made up 15% of the respondents ( $f=8$ ). Within the *Crofter* category, the survey further specified the nature of the respondents' roles: All 8 identified as *Crofting tenants* and one of those also identified as a *Crofting owner occupier*.

Fewer respondents classified themselves as *Common grazings user*, representing 7% ( $f=4$ ) of the sample. The *Common grazings user* category was divided into more specific classifications: One indicated being part of a *Sheep Stock Club*, three identified as a *Common Grazing Shareholder* and three respondents reported being part of a *Common Grazing Committee*<sup>4</sup>.

Finally, 6% ( $f=3$ ) of the overall sample identified as *tenant farmers*. Within this category, two reported having a *Secure Tenancy* and one respondent each indicated that they hold a *Short Limited Duration Tenancy* and a *Grazing Let*.

The survey also provided an *Other* option for respondents to specify how they categorise themselves, if they felt the predefined categories did not cover their situation. Respondents in this category identified as an 'investor', a 'representative of a community land owner', 'staff at a government-supported peatland restoration project', a 'conservation manager of a private estate', a 'head of agriculture / natural capital' and someone working at a nature reserve run by a non-governmental organisation.

### 3.2.4 Qualitative interview sample

The survey was designed to feed into the interview process, meaning that all interview participants completed a pre-interview survey. Therefore, it is unsurprising that the interview sample is very similar to the larger, overlapping pre-interview

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<sup>2</sup> The total number of responses to this survey question (67,  $f=67$ ) exceeded the total number of individuals who responded to the survey. This is because some individuals identified with more than one category. Moreover, the number of responses varies by question because 18 of the survey respondents only partially completed the survey and question logic meant respondents were not asked about questions that had little or no relevance to them.

<sup>3</sup> Please note that the total number of responses in the 'Owner' category (32,  $f=32$ ) is greater than the number of individuals who responded, meaning that some individuals identified themselves under more than one type of ownership.

<sup>4</sup> Given the total responses ( $f=7$ ) exceed the number of respondents, it is clear some individuals identified with more than one sub-type within this category.

survey sample. Among those who completed the interview ( $n=38$ )<sup>5</sup>, there was a very similar spread of respondent categories represented, matching the larger set of survey responses reported above. These similarities between the full sample and the interview sub-sample offer reassurance that there was not a problematic distortion in who stayed with the study to complete an interview after the survey.

### 3.2.5 Workshop sample

For the workshops, we invited those who had participated in interviews and sent invitations to the networks we had initially contacted, in particular inviting representation from national-level organisations and other sectors that might have broad perspectives and key insights on peatland natural capital markets, including:

- Land agents, advisors and brokers to the land management community;
- Nature-based solutions project developers; and
- Financial advisors and brokers to natural capital investors and policymakers (Table 4).

Workshops included 12 people who had been involved in surveys and interviews and 19 people participating in the research for the first time.

**Table 4: Detail on stakeholder groups of people who participated in the three workshops.**

Stakeholder group	Highland	LLTNP / online	SoS	Total
Private estates	1	2	1	4
Farm owners	-	1	1	2
Crofters	3	1	-	4
Gov agencies & NGOs	1	5	3	9
Community groups	1	-	-	1
Land agents, advisory, developers etc.	2	4	2	8
Academia	-	2	-	2
<b>Total</b>	<b>8</b>	<b>16</b>	<b>7</b>	<b>31</b>

### 3.3 Sample limitations

Significant time and effort was spent in trying to secure a representative sample of peatland owners and managers, in addition to other relevant actors. The sample achieved was diverse and generated a great depth of data and wealth of perspectives on this complex topic. However, it is important to make note of several key limitations and biases in the group of participants represented in the sample.

<sup>5</sup> Please note that the total number of responses is greater than the number of individuals who responded, indicating that some individuals associated themselves with more than one category.

Because the opportunity to this engage with the research was advertised through networks of people interested and involved in peatland restoration, the participants are likely to be better informed and may regard restoration more positively than other peatland owners. Although a number of crofters were included, we were not able to engage with any tenant farmers, another key group who are less likely to benefit directly from peatland carbon markets than their landlords, but who may be able to play a role in developing and sharing benefits from projects in future.

### 3.4 Scenarios tested in the research

Four peatland restoration finance scenarios were developed iteratively with the RAG. The detailed financial assumptions and outputs of each scenario are available in the “Financial modelling” section of the report.

#### Current scenario A: Peatland ACTION only

- **Capital costs:** 100% capital grant from Peatland ACTION covers the capital works costs of restoration only (typically around £1500 per hectare, based on figures from Peatland ACTION and corresponding to the estimated cost of restoration for an area of peat made of 15% ‘Actively Eroding: Hagg/Gully’, 45% ‘Drained: Artificial’ and 40% ‘Modified’ as per the Peatland Code’s condition categories, highly degraded peat would likely be more expensive to restore but also generate more carbon).
- **Maintenance costs:** Long-term maintenance costs are covered by a project’s own funds (estimated at around £15-20 per ha per year, based on estimates from Peatland ACTION but could raise or fall depending on a range of factors).
- **Carbon revenue:** No revenue from the sale of carbon units.

#### Current scenario B: Peatland ACTION and Peatland Code

- **Capital costs:** Peatland ACTION capital grant covers up to 100% of works costs of restoration (typically around £1500 per hectare).
- **Maintenance costs:** Long-term maintenance costs are covered by a project’s own funds (estimated at around £15-20 per ha per year but could risk and fall depending on a range of factors).
- **Carbon revenue:** Revenue from the sale of verified carbon units (PCUs) via the Peatland Code.
  - To meet the Peatland Code’s additionality criteria, at least 15% of the project’s lifetime costs (capital + ongoing maintenance and monitoring) must be covered by carbon revenues.
- **Financing requirement:** Financing need is limited because Peatland ACTION can fund 100% of upfront capital costs.
- **Profit:** Any carbon revenues not needed to cover capital investment, maintenance costs, and Peatland Code costs would be profit.

### **Potential scenario C: Peatland ACTION and Peatland Code with public support for maintenance costs**

- **Capital costs:** Grant from Peatland ACTION covers 50% of the capital works costs (typically £1500 per hectare) the remaining £750 per ha must be met through private finance or forward sale of peatland carbon units (Pending Issuance Units or PIUs).
- **Maintenance costs:** Maintenance costs fully met for the first 10 years by grant funding in the region of £15-20 per hectare per year. The maintenance costs after 10 years are the responsibility of the project owner.
- **Carbon revenue:** Revenue from the sale of verified carbon units via the Peatland Code.
- **Financing requirement:** Upfront finance required to meet the 50% of capital costs not covered by Peatland ACTION can be met by the forward sale of peatland carbon units (PIUs) or by accessing a private finance facility (potentially supported or managed by Scottish Government). Liability for 50% of initial capital costs (typically £750 per ha, known at outset) and Peatland Code costs must be covered by project owner.
- **Profit:** Any carbon revenues exceeding capital investment, maintenance costs, and Peatland Code costs would be profit, to be shared between the landowner and investors (if the project is financed by investors).

### **Potential scenario D: Peatland Code with price floor guarantee and public support for maintenance costs**

- **Capital costs:** 100% of capital costs met by a private finance facility (potentially supported or managed by Scottish Government).
- **Maintenance costs:** Maintenance costs to be fully met for the first 10 years by grant funding in the region of £15-20 per hectare per year at current prices. Beyond 10 years, the cost of maintenance to ensure permanence, required by the Peatland Code and the overall financial viability of the project, are the responsibility of the project owner. The project owner will need to put in place adequate monitoring, reporting and verification (MRV) systems, as well as carry out required maintenance works, to ensure that the project generates the projected number of PCUs.
- **Carbon revenue:** Revenue from the sale of verified carbon units via the Peatland Code.
  - **Carbon price guarantee:** The Scottish Government guarantees a minimum price paid for peatland carbon units to cover project costs and ensure the project's economic viability. If carbon prices are above the minimum carbon price guarantee, the project can benefit from the upside by selling its carbon credits directly in the market.
- **Financing requirement:** Upfront finance required to meet 100% capital cost can be met by accessing a private finance facility (potentially supported or managed by Scottish Government – see Scotland Carbon Fund, section 7.2.4).

- **Profit:** Any carbon revenues exceeding capital investment, maintenance costs, and Peatland Code costs would be profit, to be shared between the landowner and investors (if the project is financed by investors). A minimum level of revenue is guaranteed by the price floor guarantee for the duration of the project. For the first 10 years, the combined maintenance grant and price floor guarantee will guarantee profit to the project. After 10 years, the project owner would need to pay maintenance costs, but should be better able to predict and budget for these based on 10 years of experience.

### 3.5 Financial modelling

To demonstrate the potential financial implications of each of the four tested scenarios, indicative financial models were created for financing peatland restoration activities. Note that each of the four scenarios are not designed as like-for-like in terms of the cost to Scottish Government. For instance, potential scenario C has a lower cost because the 10 years of maintenance payments (NPV = £14,000 under modelling assumptions) is lower than 50% of upfront Peatland ACTION grant (NPV = £54,000) that the newly introduced maintenance payments replace. Further analysis will be required to define the payment rates and associated conditions for any new funding mechanism.

A number of core model assumptions were chosen to remain constant across each scenario (Table 5). These assumptions were selected based on inputs from the RAG, Peatland Code published statistics and Finance Earth observed market data. The purpose of these assumptions is to demonstrate the impact varying the key scenario components can have, allowing for more simple and consistent comparisons to be made between scenarios.

Only strategies involving the sale of verified carbon units (rather than PIUs) were modelled. Selling only verified credits creates space for upfront private finance (given the absence of upfront revenues from the sale of PIUs) and avoid risks associated with the upfront sale of PIUs, such as:

- Underfunding of future peatland operation and maintenance costs if the proceeds from the sale of PIUs are not sufficient and/or not managed appropriately;
- Forgoing the potential of projects to benefit from higher prices that can potentially be achieved upon verification; and
- Selling more PIUs than the number of PCUs that a project can generate (for instance because the project is underperforming carbon generation projections based on PC emission factors or has been subject to a reversal event), thereby creating a future liability (assuming that the risk is not borne by the PIU buyer and that the project must replenish its Peatland Code buffer<sup>6</sup>).

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<sup>6</sup> The Peatland Code has a “risk” buffer and a “precision” buffer, in which every project allocates 15% and 10% of its claimable emissions, respectively. The risk buffer aims to cover unforeseeable losses that may occur from the project over time because of restoration reversal. If a project uses the units in the buffer

**Table 5: Core financial model assumptions (constant across all four modelled scenarios)**

Category	Model input	Assumption	Source of assumption
Project	Area	100ha	Based on average registered Peatland Code project size of 136 hectares as of 31 August 2023; typically projects are downsized on validation.
	Duration	50 years	Based on average registered Peatland Code project duration of 81 years as of 31 August 2023; typically project duration reduced on validation.
Carbon revenues	Carbon prices	Peatland Carbon Unit (PCU) price of £30 +2% real annual growth <sup>7</sup> (equivalent to £81 in 2073 in real terms)	PIU price of £20 + 50% verification premium (i.e. £30 starting PCU price)
	Sales strategy	Verified carbon (i.e. sale of PCUs)	See explanation on sales strategy above the table.
	Project registration, validation and verification costs	£2,000 (one-off validation fee) £2,000 verification fee incurred every 5 years) £400 one-off Land Carbon Registry registration	In line with average Peatland Code and Land Carbon Registry fees.
Peatland Code baseline condition (% of project area)	Actively Eroding: Hagg/Gully (17.7 tCO <sub>2</sub> e/ha annual emissions)	15%	Illustrative baseline condition mix
	Drained: Artificial (3.3 tCO <sub>2</sub> e/ha annual emissions)	45%	
	Modified (2.5 tCO <sub>2</sub> e/ha annual emissions)	40%	
Costs	Long-term inflation rate	2.5%	In line with Office of Business Responsibility (OBR) RPI long-term inflation forecast

because of a reversal, it might be required to replenish the buffer (which is not possible if all the claimable PIUs that were available for sale upfront have been sold).

<sup>7</sup> The “real” carbon growth rate is 2% and excludes the 2.5% inflation rate applied to the model. The “nominal” carbon growth rate is 4.5% (made of a 2.5% inflation rate and a 2% real carbon growth rate.<sup>8</sup> Risks mentioned included length of contract commitments, general worries about engaging with private financiers, being sued or otherwise held responsible due to events outside of project owners’ control.

Category	Model input	Assumption	Source of assumption
	Restoration	£1,500/ha	Finance Earth assumptions based on discussion with Peatland ACTION
	Maintenance	£20/ha/year	Peatland ACTION

## 3.6 Data Collection

An interlocking series of data collection activities were undertaken to address the research questions for this project. Both the survey instrument and interview questions were piloted with 6 participants and further refined (addressing some technical difficulties with the survey software and clarifying question wording).

### 3.6.1 Pre-interview survey

The full survey design is available in Appendix 2. The clarity of the peatland restoration financing scenario descriptions was assessed first by respondents, using a 0-100 sliding scale, with 0 signifying 'not at all clear' and 100 signifying 'extremely clear'. Then, the attractiveness of each of these scenarios was assessed on the same scale, where 0 represents 'not at all attractive' and 100 stands for 'extremely attractive'.

A series of Likert-type level of agreement measures were used to evaluate the views of supply side actors in a way that could be compared across finance scenarios. These items addressed a range of variables, including value alignment ('This scenario aligns with my personal values') and risk assessment ('This scenario is too risky for me'). Responses were gathered using a standard seven-point scale, ranging from strongly agree to strongly disagree (with a neutral midpoint, and a 'don't know / no opinion' option).

Throughout the pre-interview survey, open-ended follow-up questions were used after the quantitative items to probe for greater detail or to clarify the rationale for a quantitative response.

### 3.6.2 Qualitative interviews

After completing the pre-interview survey, the next stage for participants was the qualitative interview. The research team developed a schedule of interview questions (see Appendix 2 for the full interview guide), building on findings from the Evidence Review (see Appendix 1) and feedback from the RAG, exploring the following themes:

1. Motivations to restore peatland
  - a. Participants were asked why they have or have not restored their peatland and, if they had restored, which barriers they had to overcome.
2. Consultation on current and potential peatland restoration finance mechanisms

- a. After talking through each of the four scenarios with the interviewer, participants were asked how each scenario fitted with their personal priorities, views and values.
  - b. Follow-up questions asked participants to elaborate on perceptions of risk and whether they thought other land managers would be interested.
3. Future developments
- a. Participants were asked about their experience accessing information about peatland restoration and if more information would be helpful.
  - b. Finally, participants were asked to share their views on the interaction of peatland carbon markets with agricultural support schemes, the potential for a tax on unrestored peatlands, and other types of credits, for example biodiversity or flood mitigation.

In addition, the interviews were designed to allow for other topics to be raised where participants felt they were relevant. Interviews were completed by a total of 38 participants, with an average duration of around 50 minutes. 27 were conducted remotely via Microsoft Teams call and 11 were conducted face-to-face. All interviews were conducted by Brady Stevens.

### 3.6.3 Regional Workshops

A workshop was held for each of the three study regions (and expanded areas) and included a mix of participants (i.e., those within the survey/interviews samples) and other key stakeholders to ensure a balanced representation of interests.

Workshops were attended by 31 total participants, 12 people who had been involved in surveys and interviews and 19 people participating in the research for the first time. An overview of findings was presented from the evidence review and interviews at the outset of each workshop. These were discussed in professionally-facilitated, small groups to ensure a high quality of deliberation, around the following prompts:

1. What role should private finance play in restoring Scottish peatlands?
2. How would you like to engage with private finance to restore your peatlands, if at all?
3. Which of the risks identified in this research is most important to you?<sup>8</sup>
4. Are there other barriers or enablers to peatland restoration not covered in these slides?

In addition to triangulating results, this provided an opportunity to fill gaps and enrich the data, providing a robust source of evidence.

In the second part of each workshop, Finance Earth presented detail on the four scenarios. A subsequent small group discussion reflected on these, focusing on the following prompts:

1. How do the core assumptions in these scenarios compare to your circumstances?
2. Now that you have seen more detailed budgets (i.e., financial figures) for these scenarios, did these surprise you at all?

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<sup>8</sup> Risks mentioned included length of contract commitments, general worries about engaging with private financiers, being sued or otherwise held responsible due to events outside of project owners' control.

### 3. Which (if any) of these would be a viable way to restore your peatlands?

Finally, workshop participants engaged in a strengths, weaknesses, opportunities and threats (SWOT) exercise, and wrote down their key take-away messages for Scottish Government. Writing on paper gave participants time to reflect on the entire workshop and clearly communicate their thoughts. Sticky notes were collected and incorporated into workshop data collection.

Workshops were held the week of 10 July 2023. The Highland and South of Scotland workshops were held in person, while the LLTNP workshop was held online and opened to all participants who were unable to attend an in-person meeting. Each workshop ran for three hours. Workshops were chaired by Brady Stevens, with at least two facilitators (including Brady) present for each workshop.

## 3.7 Data management and analysis

Data management and analysis procedures were designed to efficiently address the research objectives for this project while adhering to established ethical guidelines.

Informed consent was confirmed by participants through online forms. Informed consent was obtained for all participants, who are anonymised within all reports. This work is covered by a formal ethics clearance from SRUC's Ethics Committee.

Survey data were collected using the GDPR-compliant platform, Qualia Analytics ([qualiaanalytics.org](http://qualiaanalytics.org)). Quantitative survey data were analysed with descriptive statistics using the software IBM SPSS. Qualitative survey data were analysed using a thematic analysis to identify patterns and representative quotations.

All interviews (face-to-face and virtual) were recorded and transcribed, and then analysed using a thematic analysis, supported by NVivo qualitative analysis software. The coding rationale was a combination of deductive and inductive coding. Codes were created *a priori* for each of the four scenarios, including codes for the 'fit' (good fit or bad fit), positive and negative aspects, risks, improvements and preferred choice. Following the interview schedule, codes were also created *a priori* for 'attitudes to restoration', 'sources of guidance', 'clash with agricultural support' and 'tax or financial penalties'. All of the other codes emerged during the analysis and followed a thematic analysis rationale (see Appendix 2 for a full list of coding categories).

Project team members took detailed notes and parts of workshops were recorded and transcribed. Data analysis was aimed at identifying relevant insights that had not already been covered by existing information from the pre-interview survey and qualitative interviews. This means that points from the workshop were selected with the goal of augmenting and clarifying the results presented in this report.

## 4 Findings – Cross-cutting themes

In this section, findings from the survey, interviews, workshops and financial modelling are drawn together. A number of cross-cutting issues are explored first, including drivers and barriers to engaging with peatland restoration, sources of guidance, additional considerations for restoration on crofting land and wider benefits of restoration.

### 4.1 Motivations for peatland restoration

Participants were asked their motivations for restoring peatland. The most frequently mentioned reason was for environmental gain or preventing environmental degradation, followed by financial gain, either for profit or to be reinvested into the business. Insetting of any carbon credits gained was a less-cited motivation, but one discussed more by farmers.

#### 4.1.1 Environmental motivations

Several participants highlighted that supporting biodiversity and mitigating climate change was a key part of their motivation to restore peatland. These motivations were more commonly given together, rather than independently. NGOs highlighted that they saw it as their job to manage land for “*maximum biodiversity*” and that peatlands were a key part of that strategy (Participant 11). Private landowners also indicated that they already managed land to support environmental outcomes. These included a crofter whose land formed part of the Golden Eagle Special Protection Area (Participant 15), a crofter who undertook habitat restoration for waders as part of restoring “*an overgrown neglected croft that hadn’t been crofted in decades*” (Participant 20), and a farmer who considered nature restoration to be their primary interest:

*“We want to look after the land starting with the soil, the flora, the vegetation, the birds, the insects, the whole thing because ... nature is my primary interest actually and also carbon storage with the peatland.” (Participant 23)*

Several participants alluded to a sense of “*land stewardship*” (Participant 14), with peatland restoration being seen as the “*right thing to do*” (Participant 12). One participant referred to land managers as “*ambassadors*” (Participant 33). Other participants perceived a sense of duty to restore degraded peat and that “*with land comes responsibility*” (Participant 3). Restoring peatlands was seen to have spillover benefits for multiple parties:

*“We are doing it to enhance the landscape and for wildlife and for people that come to our holiday cottages, the fishermen, lots of different people” (Participant 18)*

Healthy peatlands are important for mitigating harmful natural events such as flooding and wildfires. Some participants were worried about the spread of wildfires (particularly as the largest fire in Scottish history occurred during interviewing) and saw restoration as a wildfire mitigation strategy.

Two participants highlighted that their land formed part of the catchment to a reservoir and that improvements to water quality was a motivator, which they saw as part of their duty as a “*responsible land manager*” (Participant 11) and to “*protect their community water asset*” (Participant 1).

#### 4.1.2 Financial motivations

The potential to generate revenues from carbon credits was commonly referred to, however, relatively few participants indicated that carbon revenues were their ultimate focus. Often it was highlighted that revenues would be attractive to help fund existing management objectives, to support further restoration, or that carbon revenues were attractive alongside wider benefits. Illustrating this, one farmer highlighted that revenues were important in the context of uncertainty around future agricultural support:

*“Any money I make goes back into the place anyway ... I would be interested in a payment because what is going to happen when our single farm payment goes? If there is money from the peatland that would be very welcome.” (Participant 23)*

Another participant highlighted that while they were seeking a financial return “as fast as [they] can” to “*generate more cash flow*”, this would be leveraged to support further restoration (Participant 33). Similarly, a long-term landowner indicated peatland restoration would create “*profit [that] can be re-invested to create a more sustainable local economy and also creates a landscape and jobs that people can stay in the local area.*” (Participant 16)

Some participants thought that profit was required to convince landowners to begin restoration projects, as landowners were currently “sitting on” (Participant 25) large amounts of land, and that the government “*can’t expect land managers to do things just for that altruistic fuzzy feeling*” (Participant 33).

#### 4.1.3 Insetting motivations

Those with agricultural businesses indicated that a strong motivator to engage in peatland restoration was a perception that there may be a future requirement to achieve net zero within their business. It was suggested that this could occur as a condition of sale, or that the future agricultural support could become conditional upon achieving a certain carbon balance. Overall, it was highlighted that there was significant uncertainty around the form such requirements could take, however it was clear that this was considered a risk to guard against. Commonly, participants highlighted that their aim would be to “*bank up the carbon credits*” (Participant 18) until there was a better understanding of future compliance needs. Contrastingly, participants during the Online workshop suggested that uncertainty over the future support and compliance landscape could presently pose a barrier to engagement and the greater clarity was required of post CAP arrangements. Investing in carbon storage within your business’s supply chain is known as insetting.

#### 4.1.4 Access

Crofters considering peatland restoration indicated that improvements to access and grazing were part of their considerations. It was highlighted that degraded / unrestored peat has little agricultural benefit as “bare peat does not feed anything” and that the bogs and holes can make land difficult to access (Participant 1). It was

also suggested that restored peat may reduce lamb losses (Participant 18) and allow for easier access for quad bikes and other crofting activities (Participant 13).

## 4.2 Perceived barriers to undertaking peatland restoration

Many participants expressed how they would like to engage with peatland restoration but noted several barriers. These included a lack of capacity from both supply and demand-side actors, negative attitudes towards carbon finance, and site-specific issues. The barriers manifested themselves as hesitancy (wariness around entering into agreements, low risk tolerance), a lack of urgency (waiting for carbon markets to develop or holding out for more incentive) or participants feeling discouraged (at the complexity, price or technicalities of restoration, or peatland restoration not being perceived as a suitable fit for crofting).

### 4.2.1 A lack of capacity at multiple points across the supply and demand-side

A lack of capacity within the industry was indicated as a barrier to delivery at scale. While it was noted that contractors were working hard to increase capacity, a common perception was that there was a lack of local contractors with suitable skills and experience, which could hold up delivery of projects and was an issue in relation to a desire to support the local economy.

*“The company who did the work came from Yorkshire ...It was disappointing that no local firms were interested in doing the work.”  
(Participant 12)*

Seven other participants expressed similar opinions to the above, however, one participant expressed an alternative perspective:

*“We put four tenders out over the last couple of weeks and they have all had over ten expressions of interest ... and all of them have availability. Some of them are new entrants desperate to get into it as well. It really frustrates me, this lack of contractor thing, I just don’t believe it.” (Participant 9)*

A lack of capacity at both Peatland ACTION and the Peatland Code were further highlighted as a barrier to a timely approval process, and indeed a lack of capacity to address the volume of applications was acknowledged by Peatland ACTION, stating they had *“waiting lists as long as their arm”* (Participant ID retracted). It was further highlighted that the timescale of the Peatland ACTION approvals process, combined with contractor availability and the relatively short restoration season, created a bottleneck in the system which resulted in projects being pushed into the following year and increased project management costs to the landowner. This sentiment was also expressed at the Peatland Code validation stage:

*“[It] still hasn’t been validated but we have done all the work. All the validation documents have been there for months with the validators”  
(Participant 22)*

Several participants expressed how supply-side actors lacked the capacity to introduce peatland management into their remits, given existing priorities and a perception that there would be a steep learning curve. This was the case for NGOs, private companies, estates and some of the larger farms.

*“Number one reason would be the amount of time required to learn about it, do it, organise it, potential open ended financial obligations ... it is never going [be] top of the priority list. ... I really don’t know how valuable that is against other projects I could be spending an equal amount of time on which I can see a more tangible return on them and move to net zero.” (Participant 36)*

This point relates to the opportunity costs involved with the initial stages of education and capacity building as well as the alignment with existing business interests and existing land management trajectory both being barriers that need to be overcome, even before a project is in the planning stages.

Participants also discussed their financial capacity, with some stating it as a barrier. It was indicated that a requirement to raise finance or inconsistent cashflow could pose a barrier particularly to smaller businesses. Concerns were raised that initial upfront costs were high and financial returns took a long time to arise – especially as verification and validation costs were also incurred before payments released.

A lack of knowledge capacity was highlighted as a barrier to restoration. While noting a changing context, one participant considered that there continued to be a lack of awareness of the harms arising from degraded peat:

*“The biggest barrier was what is peatland restoration, why are we doing it and what does it all mean, why should we do it. ... what do we mean by degraded and what does a peatland that is emitting carbon look like.” (Participant 5)*

Another participant alluded to the significance of personal networks and trusted intermediaries as sources of knowledge, and it was highlighted that a lack of exposure to those with first-hand experience could pose a barrier.

#### **4.2.2 Attitudes to carbon trading and carbon finance were a barrier for some actors**

Various risks and uncertainties of carbon trading were highlighted throughout interviews and workshops and were incorporated throughout discussions involving all the scenarios that contained an element of carbon finance.

The relative newness of the market, and the knowledge and experience of ecosystem markets needed to enable participation, were both off-putting to participants. There is uncertainty around the current and future price of peatland carbon credits, which makes financial forecasting of a project difficult and risky, with participants also unsure that the quantity of verified carbon units obtained could be less than initially expected (conversion of PIUs to Peatland Carbon Units - PCUs). There was also a concern that the regulatory environment could change in future.

Some organisations and businesses indicated that reputational risk was a factor which warranted hesitancy, with managers, staff, and board members were unsure whether to ethically trust carbon finance.

Tied to this, the long durations of Peatland ACTION and Peatland Code contracts were highlighted as a potential barrier to uptake given perceived risks that may occur during the contract period. Participants noted uncertainty around the future of upland management, natural risks such as wildfire, and the wider context of climate

uncertainty. Within this context, landowners related a hesitancy to “*burden ... future generations*” (Participant 31) with long-term agreements.

The administrative burden required was said to be challenging by some participants and it was suggested that this process could pose a particular barrier to smaller landowners. Relatedly, one participant noted that securing a buyer for their carbon credits had entailed a far greater degree of time and effort than had been anticipated and that, while the Peatland Code maintain a brokerage service, they had found this process to be less than efficient.

Participants perceived that there could be frictions when combining Peatland ACTION and Peatland Code. They suggested that more effort could be made to align the required documentation and processes:

*“The two schemes are too different, so they do not align, they do not align in time and they do not align in terms of the documentation required in the project development. They are actually diverging where they should be coming together.” (Participant 6)*

Areas of divergence noted by participants included the requirement for peat depth surveys (50m vs 100m) and buffers (30m vs 50m). It was further suggested that divergence reflected a lack of communication between Peatland ACTION and the Peatland Code which could pose a barrier to implementing blended finance (South of Scotland Workshop).

#### **4.2.3 Site-specific practicalities and restrictions posed individual barriers**

The relative remoteness and inaccessibility of (particularly upland) peat was highlighted as a barrier to restoration at some sites due to the additional cost and effort of mobilizing machinery.

*“We have some very remote and inaccessible ground ... getting it fully assessed, working out plans for what to do and then find people that are willing to take diggers all the way in ... was a massive challenge.” (Participant 25)*

Potential restrictions to grazing were further highlighted as a barrier. In one case, a requirement to exclude livestock had entailed fencing off the area at a cost of over £50,000 due to the size and location of the fence (Participant 34). It was further highlighted that restrictions on grazing become more difficult to navigate where the land has been tenanted.

*“Whether it is going to affect the current farming enterprise is really crucial because the contract is based on a certain amount per head. If I am going to take ground away that is going to mean we need to reduce our sheep numbers.” (Participant 19)*

Relatedly, it was noted that high deer densities could prevent projects from being eligible for support from Peatland ACTION.

### **4.3 Sources of guidance**

Peatland ACTION was the most frequently mentioned source of advice. Multiple participants mentioned the importance of ‘on the ground’ Peatland ACTION Officers, including one who was employed through a National Park. Having these

advisors and officers close to come and undergo site surveys was considered an excellent service and responses were overwhelmingly positive about the quality of advice.

*“I cannot fault them whatsoever. I thought they were fantastic and if it wasn’t for them, I don’t think that project would have gone ahead.”*  
(Participant 18)

Conversely, it was clear that those who had not contacted Peatland ACTION were struggling to understand or coordinate different sources of knowledge together without assistance:

*“Loads of information but I can’t sew it together, it is like a patchwork of information ... I can’t connect it up and apply it.”* (Participant 20)

Without assistance from Peatland ACTION, some participants were approached by private companies offering advice, however, overall, it appears that participants were hesitant to accept this advice, as there were trust issues over whether the company were acting in their own self-interest. Impartiality appears to be a key factor when assessing the quality of advice, and most landowners wanted information about how to restore peat, rather than advice on carbon credits and carbon trading, which is the underlying rationale of many private advisors. This sentiment was confirmed with one participant who worked for Peatland ACTION:

*“Our role increasingly is to be the independent advisor; we give impartial advice ... We are not afraid to say where we don’t think the Peatland Code projects are going to work or too risky for the landowner.”* (Participant ID Retracted)

Peer-to-peer learning from those who have already undergone restoration was also seen as an important source of advice:

*“I have seen it in action at an estate near us ... where we arranged an event to show members what it looked like on the ground because obviously work happens in the winter, usually in quite inaccessible places. ... The contractor was there, and we had interesting conversations about the practical side of it.”* (Participant 19)

Other sources of knowledge mentioned by participants include NatureScot, contractors (especially in helping to cost a project), National Farmers Union Scotland (NFUS), moorland management groups, wader bird advisory groups and the Crichton Carbon Centre.

#### **4.3.1 Future guidance needs**

Participants were asked directly what future guidance would be useful. There was a clear need for information to become more user-friendly and less academic. Beyond speaking to an advisor directly, participants found current guidance fragmented or hard to understand. Having clear guidance would help to streamline the number of requests for guidance and free up time for Peatland ACTION officers to conduct surveying and for granting approval to applications. It would also better prepare landowners for their initial contact with Peatland ACTION *“to make sure that you have actually got the baseline data that you need at the beginning”* (Participant 30) – meaning discussions can begin beyond an entry-level of

understanding. Helping landowners to identify areas of peat, judge the quality of the peat (areas of severe degradation versus lightly degraded or healthy peat) will help to speed up initial engagements with Peatland ACTION and a judgement can be made much quicker as to the viability of the site, as well as its profitability based on potential carbon sequestration.

Participants also felt like more information about the methods and techniques used in restoration should be more clearly explained, to help them deal or negotiate with contractors.

Participants who had completed a restoration project thought future guidance should be focused on ongoing maintenance and the holistic management of peatlands to ensure they do not degrade in the first place.

Going further into the future, after initial guidance has been released, further guidance, expertise and research should focus on harder to restore sites, for which many restoration techniques do not produce satisfactory results. Lastly, relevant participants felt future advice should focus on the farming community where land is more heavily managed (as opposed to lightly managed upland estates) and to demonstrate how farming and peatland restoration can occur simultaneously.

#### 4.4 Crofting considerations

A common question across all four of the scenarios was how applicable each scenario was for crofters. Crofting is a historic form of small-scale agriculture and a way of life in Scotland, with land held in common typically governed by a Common Grazing Committee. Crofting arrangements and laws are somewhat of a paradox for peatland restoration, as large swathes of Scottish peatlands are located on upland sites, where crofting practices are present. With the introduction of natural capital and carbon credits, several issues have arisen around the ownership and sharing of carbon credits.

The key question that needs answering when it comes to crofters engaging in peatland restoration is who owns the carbon credits that are produced, as landowners have mineral rights, yet crofters have the right to cut peat. Further questions stem from this, concerning whose responsibility the work or ongoing maintenance is, and where liabilities should lie.

Crofting is protected by a set of historic crofting laws and these do not account for the relatively new phenomenon of carbon trading. There was confusion over whether crofter's rights allowed them to generate and hold/sell carbon credits:

*“The key point is I don't even know if it is an asset I can ever hold as a tenant crofter so that is a fundamental to clear up. ... There is a concern that carbon markets could run a coach and horse through the stuff that has been carefully balanced for hundreds of years”*  
(Participant 15)

Another part of crofting law that is coming under debate with the introduction of carbon credits is apportionment which gives a crofter the right to take a portion of the common grazing for their own exclusive use. One participant questioned the ethics of taking an apportionment of peatland away from the common ownership:

*“But you could take your portion on the hill and just take the peatland portion ... You could take an apportionment at any time.” (Participant ID retracted)*

Crofters also have a right to cut peat for heating their houses. Although participants said that this historic practice is fading away, the right to do so remains, and a renewed uptake in this activity would obviously affect an ongoing restoration project. One participant in the workshops suggested that as the Cost-of-Living Crisis continues, and as some crofters are subjugated to fuel poverty, they were noticing an increase in peat cutting in their area.

The management of common grazing land is overseen by Grazing Committees which are made up of local crofters elected to positions. As alluded to in a previous quote, there appears a mismatch between the role of the Grazing Committee, with one participant expanding on this:

*“We could, as a Grazing’s Committee under the current regulations, take forward a peatland restoration [project] purely as a management role on the common grazings. It is not possible for us to engage with carbon trading because we cannot do that on behalf of our shareholders.” (Participant 1)*

This raises the question as to whether peatland restoration can occur on common land with the current laws and Committee arrangements, especially due to the extra “*bureaucracy*” (Participant 31). Tied to this, the Grazing Committees do not have liabilities protection which public bodies or businesses can attain, which is particularly salient when long-term agreements imply liabilities will be the responsibility of the land manager.

All major choices around investment needs group decision-making by the entire community and reaching consensus on scenarios that have uncertainties (e.g., maintenance fees) is proving hard for champions of peatland restoration in crofting communities.

Questions were raised as to when a group of crofters would sell their credits. If the current group of crofters had to front money to pay for the initial work to commence (plus potentially ongoing maintenance which will be expensive due to inaccessibility of many sites), the makeup of the group may be drastically different in 30 years’ time (on verification) if people have died or moved away from the area. Groups would need to make decisions on when is best to sell the credits, potentially holding off for higher prices, using them to fund maintenance or to cash in as soon as possible, all of which are still hypothetical debates.

Like other farmers, crofting participants were unsure of how peatland restoration would interact or clash with new agricultural support systems. To make matters more complex for the crofters, since the Single Farm Payment was introduced, subsidies are largely based on their share of common grazing. If a peatland restoration project was to take a significant amount of land out of the common grazing, subsidies would effectively be reduced for all the crofters in the current system.

Potential scenarios C and D involved bringing private finance into the equation to help fund restoration projects. Like other participants, the crofters were wary of

entering into agreements with private companies, especially considering the complexity of crofting law and the security of their tenancies:

*“I don’t know as a tenant if the private finance can’t really take a charge against the land, [which] means that they wouldn’t be interested at all.” (Participant 15)*

#### **4.5 Wider benefits of restoration**

The potential for peatland restoration (and introduction of blended finance) to deliver wider benefits was a further theme emerging from workshops.

During the Highland Workshop, participants discussed benefit sharing between landlords and crofters and further questioned whether the introduction of carbon finance could provide direct monetary benefits to communities:

*“Depopulation, childcare shutting, no doctors, all of the things that the Highlands are facing... [is there] another scenario where the carbon credits, can go to become community wealth? It shouldn’t just be about the peat; it surely has to be about the communities living there” (Highlands Workshop)*

Participants also noted the potential for peatland restoration to deliver non-monetary benefits to communities, through biodiversity, hydrological regulation, and clean air, providing “tangible benefits for the people living in those areas”; following from this, it was noted that safeguarding the local water supply had been a key motivation for previous restoration nearby (Highlands Workshop).

At various stages, participants reflected on how financial mechanisms might best support multiple benefit schemes. Differences in the “quality” of credits became a focus for discussion during the South of Scotland Workshop, where participants questioned how differences between units could be priced. Similarly, during interview, one NGO land manager questioned whether a single price floor could effectively incentivise multiple benefit schemes (Participant 4). Relatedly, another participant suggested that the current interpretation of “additionality” could pose a barrier to market recognition of multiple benefits (Highland Workshop).

## 5 Findings – Feedback on the scenarios

This section is dedicated to each of the four scenarios, presenting their key components and respondent perceptions around the clarity, appeal, risks and suggested improvements.

### 5.1 Current scenario A: Peatland ACTION only

**Overview:** This scenario presents a currently available opportunity for supply-side actors to engage in peatland restoration. In this scenario, 100% of the capital works costs are covered upfront by Peatland ACTION grants, with long-term liability of maintenance costs covered by the landowner / manager. Given no carbon units are generated in this scenario, the project is under no obligation (Peatland Code or otherwise) to maintain the site beyond the initial 10-year requirement that Peatland ACTION requires, from the date of the final grant. Therefore, the risk of the site degrading over time is considered high (see the Scenarios section under Methods Overview and Table 5 for more details on this scenario and its assumptions).

#### **Key scenario components:**

- Peatland ACTION – grant funding supports 100% of capital works costs only.

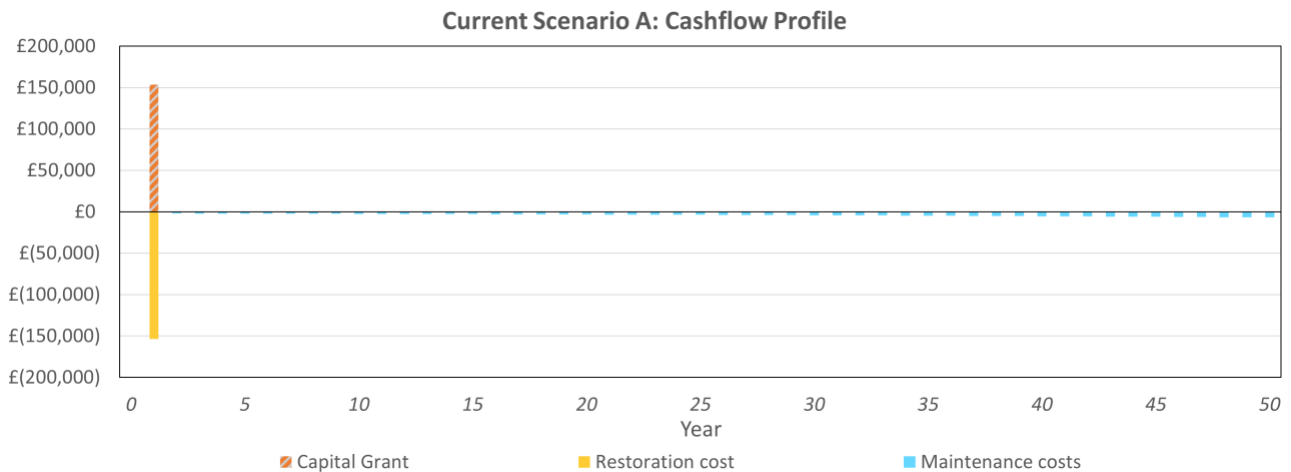
**Net operating cash flow:** Minus £43,000, discounted at a rate of 6%, with this being the sum of HMG's Green Book Rate of 3.5% and modelled inflation rate of 2.5%.

- Net operating cash flow is a measure of a project's ability to generate cash over time. It can be used to assess a project's ability to cover its lifetime costs. In this scenario, the net operating cash flow is negative, hence the project is not able to cover its lifetime costs (Figure 4).
- While the cash position is negative, restoring peatlands still create carbon savings and other ecosystem services, despite not converting to carbon credits. The resulting benefits to society are real and quantifiable but not monetised for project owner.

**Key considerations for the project owner:** The project owner must cover uncertain long-term (50+ years) maintenance costs using their own funds which creates a funding liability.

**Key considerations for Scottish Government:** The NPV of the cost to the Scottish Government is minus £137,000 (corresponding to the Peatland ACTION grant provided to cover upfront restoration costs and equivalent to £1,500 per hectare).

The project is high risk because of the unfunded maintenance liabilities and the absence of contractual obligation to maintain beyond year 10. As a result, the site condition might degrade over time after the restoration has been completed.



**Figure 4:** Cash flow profile of current scenario A over a 50-year period.

**Clarity of the scenario:** When participants were asked to indicate how clear the scenario was to them, on a scale of 0 (not at all clear) to 100 (extremely clear), the mean rating was 78.78, indicating a relatively high level of clarity. The spread was large with a minimum score of 19. However, in stark contrast to the high clarity scores, the mean attractiveness rating was 37.57 on a scale of 0 (not at all attractive) to 100 (extremely attractive) (n=42). This implies the scenario is easy to understand, but not very appealing to landowners.

**Alignment with personal values:** When asked if 'this scenario aligns with my personal values', the mean response was *neutral* (3.92 out of 7). While a slight majority of respondents (40%) felt that the scenario aligned with their personal values, others did not (31%), indicating that the Peatland ACTION only scenario may be somewhat divisive in terms of personal values alignment.

**Likelihood of adoption:** When participants were asked if they would want to sign up to this scheme, with only 16% expressing strong or moderate agreement with the statement. On the contrary, a significant proportion of respondents (52%) expressed they would not. The results suggest that while there is some interest, this may be considered a niche scenario to sign up for, or other scenarios were more appealing. Reinforcing this point, when asked if they considered the scenario to be appealing to land owners/managers in Scotland, 57% expressed disagreement, again, suggesting other scenarios may be more appealing or potentially indicating a need for adjustments to the policy to increase its attractiveness to these stakeholders. This is significant because this scenario describes the business-as-usual option available to fund peatland restoration in Scotland. However, when supply-side actors are made fully aware of the cost profile and liabilities of the Peatland ACTION only scenario and have alternative options, it is not considered very attractive.

Nonetheless, 5% of participants strongly agreed with the statement, again implying there is a niche where some landowners would consider it very appealing to sign up to.

### **Attractiveness of the scenario**

In stark contrast to the high clarity scores for this scenario, the mean attractiveness rating for the Peatland Action only policy scenario was 37.57 on a scale of 0 (not at all attractive) to 100 (extremely attractive) (n=42). The median and mode were both 50/100. The standard deviation was 24.95/100, indicating substantial variation in the response pattern. Continuing on from this, 56% of the respondents expressed some degree of agreement that the scenario was a poor fit for their financial circumstances (with 25% *strongly agreeing*), with future obligations and potential burdens of ongoing costs after the initial restoration cited as financial issues.

The remainder of this section provides an analysis of qualitative feedback on the scenario, and how it might be enhanced, based on data from surveys, interviews and workshops.

### **Demand was niche but highly valuable for those who cannot trade carbon**

The positive responses tended to be people alluding to *other* groups that might see this as a good option, rather than reflecting on their own situation. Of those who answered this way, charities, NGOs, philanthropists or environmental groups tended to be their focus:

*“Yeah, only if there is some kind of sufficient altruistic angle, in general there is minimal out there unfortunately” (Participant 32)*

However, two participants saw this as a good fit. Firstly, one was a crofter, who chose this scenario due to personal principles and ethos towards land management:

*“Certainly [this scenario] was the one I identified with from a local crofting level, my own croft, and what we try and do with the land” (Participant 13)*

The second was a staff member of a charity with an environmental focus. They saw the value in the simplicity of the scenario, the assistance provided from Peatland ACTION and being able to avoid carbon credits:

*“We have a lack of capacity in terms of staff, [so] that is quite an attractive option. Plus, ... our senior management haven't decided whether we want to go with carbon credits ... how ethical it is. That means with this option, we could just get on with the work and deliver biodiversity and carbon sequestration objectives.” (Participant 24)*

Another participant considered it a good fit as they were "unsure how the finances work" (Survey response) in latter scenarios. It was seen to be a “simple and straightforward” (Participant 11) process, and it was perceived as positive in that there are no ongoing (multi-generational) agreements beyond the maintenance. It seems that the participants who held this opinion had relatively accessible sites with no severely degraded peat, where ongoing maintenance would be minimal:

*“The simplicity of the first one appeals; you did the work, it is all paid for, and your only worry is, “are we doing the maintenance correctly”. You are not worrying about ... selling carbon credits.” (Participant 2)*

The upfront capital costs help to mitigate risk and get projects off the ground for those who may not be cash-rich, such as charities, owners of small (potentially amenity) land, or crofters:

*“It is not so much risk in terms of whether the project is going to work; it is not really a big risk because Peatland ACTION itself works really well, the funding, and they give you the capital costs, so it is not the risk that put us off” (Participant 22)*

So overall, despite very few participants agreeing that this scenario was appealing to them, there does appear to be two groups who might take this option going forwards – NGOs/charities and crofters. This option would help to overcome initial hurdles and get more projects from these groups underway.

### **Negative or unattractive aspects**

It was clear from both quantitative and qualitative analysis that this scenario was considered a bad fit for the majority of participants, for example, those who owned their land, but were cash poor. Companies did not like this option either, because they could not show profits to shareholders and the scenario results in an overall loss.

The clearest negative aspect of this option (compared to all the other scenarios) is there are no ongoing carbon payments associated with it. These carbon credits would be useful to cover the ongoing (and unknown) maintenance costs, or, as the following interviewee explains, to inset their own activities elsewhere:

*“I think every client I have is looking at it for the generation of carbon credits ... to sell units or to inset ... against their portfolio. ... I don't think there is many farming clients or ours that would be happy to do a project with no future revenue.” (Participant 7)*

Interestingly, while lack of carbon finance is seen as unattractive by some, one respondent points out that the "absence of the carbon standard does mean that there are no validation/verification costs etc... which could mean this is a lower risk over the long term as liabilities are reduced" (Survey response).

The second clearest theme was that the maintenance costs were not covered by the grant. This concern suggests that the lack of guaranteed support for maintenance and upkeep could discourage some landowners from pursuing restoration projects:

*“The big unknown is ... what is involved in the management and maintenance of it. Is it walk round the site once a year and go, “oh that looks ok”? Is it walk round the site once every five years and go, “well I hope that's ok”? ... not actually knowing what the technical expectation is.” (Participant 2)*

More negative sentiments were aired from a farming participant, who decided to act swiftly in restoring their peatlands, to then feel disappointed later, when newer options included carbon payments:

*“It has earned nothing, there is no income from it, which is quite annoying. It doesn't fall into the agricultural support mechanism, it may do in the future, but at the minute, it doesn't” (Participant 12)*

The data suggest that while some aspects of the scenario may be appealing, there are several significant concerns that could make it less attractive for many landowners and managers in Scotland. These include the potential for ongoing maintenance costs, the lack of revenue / profit potential compared to carbon market opportunities, and the need for more incentives or financial support.

### **Risks involved in this scenario**

In terms of individual survey responses, a significant number of participants (48%) expressed some level of agreement that the scenario is too risky, with 20% *strongly agreeing*. On the other hand, the largest single category was *neutral*, selected by 30% of respondents, again suggesting that if they were not considering this option, then they would also not consider the risks involved, described by the following participant:

*“Yes, it is a negative return, so the risk is almost irrelevant, it is not a financially sensible decision.” (Participant 16)*

As discussed above, the biggest risk that participants saw was “the risk of future costs associated with maintenance and uncertainty over other future land uses” (Survey Response).

One additional risk that was highlighted by three separate participants was around deer management, and how this might incur maintenance costs to rise:

*“Our neighbour has extremely high deer numbers. I am concerned about the deer tracking over some of the restored peatland and that might require some real ACTION if more erosion starts occurring.” (Participant 11)*

Farmers were one group that considered this option a risk, as conserving peatland clashes with the management of the farm unit:

*“Farmers, to the best of my knowledge, are not going for this because there is a management risk and there is a financial risk, simple as that.” (Participant 10)*

One additional response touched on the operational risk of potentially causing more harm through intervention:

*“I find the idea of intervention a bit risky in case doing something is worse than doing nothing.” (Survey Response)*

It should be noted that this scenario places the lightest obligation to maintain a peatland project in good condition on the project owner out of the four scenarios in this research. As a condition for the funding the capital works of restoration, Peatland ACTION requires the restoration to be kept in place for a minimum of 10 years, with any costs associated with this maintenance being the responsibility of the project owner. Ideally, though, the peatland would be kept in good condition permanently, such that the sequestered carbon stays trapped in the restored and healthy peatland.

### **Making the scenario more appealing**

Beyond participants suggesting that carbon credits should be included (which are available in the other three scenarios so will not be discussed here), other

suggestions were made to improve the scenario. One of the most salient themes was that the scenario needed to consider cross-boundary agreements more, and the equity of these arrangements, particularly for crofters on common grazing:

*“So, we are hoping ... to be working with [Public Organisation] who we share a large boundary with, sharing the contractor to do some of that work and then hopefully the same for the private landowner who shares another of our boundaries. So, facilitating that kind of work is really important to making this kind of thing efficient and effective on the ground.” (Participant 11)*

*“It would have to be an equitable model across those that have a direct share, but also anybody that ... has access to use the land. ... Depending on how you are using the land - if that is having a greater impact on the work, then that would be the old user pay model.” (Participant 3)*

Another theme was for the scenario to provide more details around ongoing maintenance costs and to potentially implement a tiered approach. Here, if the maintenance costs were predicted to be low then an entry level grant could be applied for. However, if the site was more complex or the peat was heavily degraded and frequent maintenance was required, a basic grant with ongoing capital released to ensure the project succeeded might be more appealing and increase uptake.

Some respondents suggested that the scenario could be made more attractive by providing more detailed information about the conditions of the grant (including land use restrictions) and how to secure it. As one participant pointed out:

*“There is no explanation ... of what the conditions of the 100% grant are (there are always conditions!) and also no explanation of how to get to the position of having a grant in place. Without the prior knowledge ... this information would be helpful”. (Survey Response)*

## 5.2 Current scenario B: Peatland ACTION and Peatland Code

**Overview:** This scenario builds on current scenario A (above) by introducing carbon revenues, and long-term contractual commitments through the Peatland Code, to support the long-term maintenance costs of the project (see the Scenarios section under Methods Overview and Table 5 for more details on this scenario and its assumptions).

### Key scenario components:

- Peatland ACTION – grant funding supports 100% of restoration costs as an upfront payment.
- Carbon revenue – carbon credits generated through the Peatland Code are sold upon verification (5-year cycle) to fund long-term maintenance costs.
- Private finance – there may be a small requirement for private finance (c. £20,000) to cover maintenance costs between Years 1 and 5 before the first verified carbon units (PCUs) are generated and sold in Year 5. In addition, costs related to project development (pre-restoration) process under the PC

are not eligible for Peatland ACTION funding and therefore may also require upfront private finance.

The use of private finance entails financing costs (i.e. the private investor will require a rate of return in exchange for its participation). Table 6 shows what Internal Rate of Return (IRR) an investor could achieve based on a certain carbon price and inflation-linked lease payment made to the landowner. Investors typically have IRR requirements correlated with the level of risk of the investments that they are making. Peatland restoration is likely to be considered high risk given the nascency of the market and lack of track record of successful repayable investment, therefore, investors are likely to require higher rates of returns to invest in this type of opportunity. Under the base case assumptions, with a carbon price of £30, an investor could pay annual inflation-linked lease payments of £50 per hectare and achieve an IRR of 15%.

**Table 6: Scenario analysis illustrating how IRR for the scenario, current scenario B, varies depending on the market price of PCUs and inflation-linked lease payments made to the landowner.**

**Note:** Internal Rate of Returns (IRR) are dependent on a range of factors including but not limited to carbon prices, cost of restoration and maintenance and carbon unit generation rate. The figures in Table 6 are illustrative only and not meant to represent any existing project.

		PCU price (2% real annual growth)							
		10	20	30	40	50	60	70	80
Inflation-linked lease payment per hectare p.a.	IRR	10	20	30	40	50	60	70	80
	0	12%	26%	37%	45%	52%	59%	64%	69%
	50	<0%	8%	15%	22%	28%	34%	39%	44%
	100	<0%	0%	6%	11%	16%	20%	25%	29%
	150	<0%	<0%	1%	6%	9%	13%	16%	20%
200	<0%	<0%	<0%	2%	5%	8%	11%	14%	

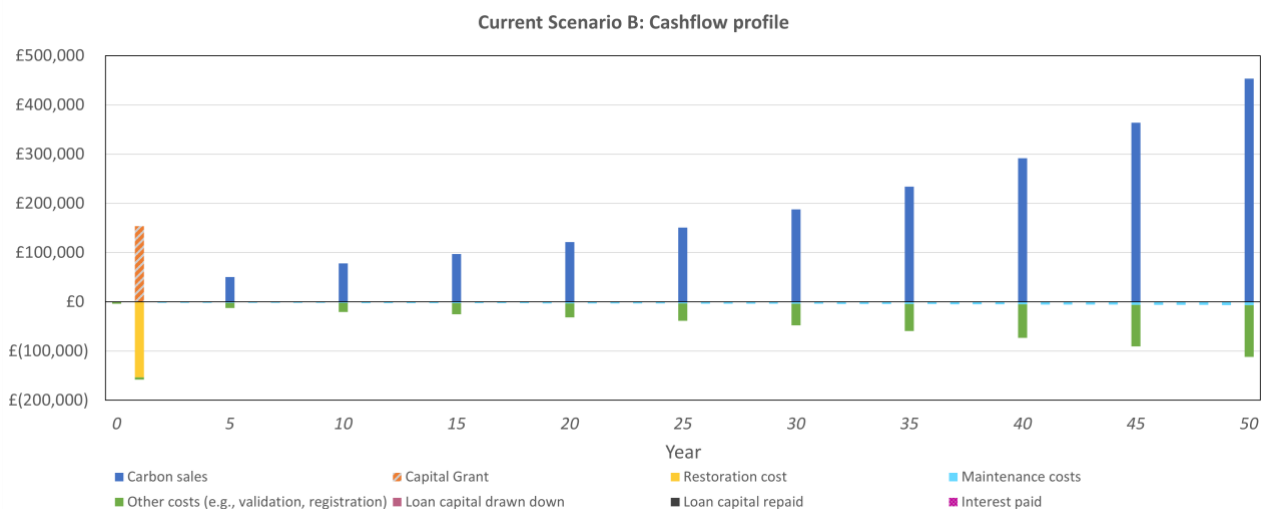
IRR <5%
5% <= IRR < 15%
15% <= IRR < 25%
IRR >= 25%

**Net operating cashflow** (6% discount rate): £193,000 (Figure 5).

**Key considerations for the project owner:** The project owner is exposed to changes in carbon prices and project maintenance costs. Should carbon prices rise, there is an opportunity for the project developer to benefit from the upside by selling credits that are verified over time. Should the price of carbon decrease, the project might not generate sufficient revenues to cover its costs or maintenance liabilities.

**Key considerations for Scottish Government:** The NPV of the cost to the Scottish Government is minus £137,000 (corresponding to the Peatland ACTION grant provided to cover upfront restoration costs and equivalent to £1,500 per hectare).

The project is less risky than in current scenario A because the carbon revenues can be used to fund maintenance costs and the Peatland Code agreement contains a contractual obligation to maintain the project site. As a result, the project site condition is less at risk of degrading over time after the restoration is completed.



**Figure 5: Cash flow profile of current scenario B, over a 50-year period**

**Clarity of the scenario:** The respondents' perceptions regarding the clarity of the scenario were tested (scale of 0 to 100), with a mean (average) score of 70.56. This suggests that, on average, respondents found the scenario moderately clear and showed a reasonable understanding based on the description provided. It's worth noting that the mode was 100 out of 100, which indicates that a notable segment of the respondents found the scenario extremely clear.

**Alignment with personal values:** Regarding the statement, 'this scenario aligns with my personal values', 49% agreed (6% *strongly agree*; 23% *agree*; 20% *somewhat agree*) while just 19% disagreed (11% *strongly disagree*; 3% *disagree*; 6% *somewhat disagree*). 31% (n=11) remained *neutral*. The median, mode, and mean (4.37 out of 7) responses were all *neutral*, indicating that, on average, respondents did not feel strongly about this scenario, with a slight inclination towards agreeing. Results were very similar when asked if the scenario fit their financial needs.

**Likelihood of adoption:** When respondents were asked to evaluate the statement 'I would be keen to sign up to this scenario', 69% agreed to some extent (3% *strongly agree*; 19% *agree*; 47% *somewhat agree* [n=15]). The *somewhat agree* category was both the mode and the median (n=32), therefore most respondents are generally inclined towards agreeing, but with reservations. However, when considering the statement 'In general, I think this scenario would be appealing to land owners/managers in Scotland' more widely (beyond their own land) the mean response fell into the *somewhat agree* category (4.85), indicating a general trend of partial agreement among respondents. While there was a tendency towards agreement, there were varying opinions about the appeal of this scenario. It is noteworthy that a considerable portion, 28% (n=11), opted for a neutral stance,

suggesting some degree of uncertainty or ambivalence about the scenario's potential appeal.

**Attractiveness:** The mean attractiveness score was 61.38 out of 100 (n=34). This result indicates that, on average, participants found the scenario somewhat attractive. The median score was 61.5 which is very close to the mean, suggesting that the data are reasonably symmetrically distributed. Furthermore, the mode was 70, implying that a considerable number of respondents found the scenario relatively attractive. However, the range of 90 (from 0 to 90) shows that there were diverse views on the attractiveness of the scenario. Some respondents found the scenario not at all attractive, while others found it extremely attractive.

**Fit with financial needs:** The results signalled an ambivalent response to whether this scenario met their financial needs. The median and modal responses indicated a neutral stance with scores of 4 out of 7 (n=31). At 3.87 out of 7, the mean (average) response was slightly below the mid-point, suggesting a slight leaning towards disagreement with the negatively-coded statement. The standard deviation was 1.65 out of 7, indicating a moderate spread of responses.

A narrow plurality of respondents remained neutral (26%, n=8), indicating uncertainty or ambivalence towards the financial applicability of the scenario. This is followed by a near equal split among those who somewhat disagreed (23%, n=7), disagreed (19%, n=6), and the combined sum of those who strongly agreed (10%, n=3), agreed (10%, n=3), and somewhat agreed (10%, n=3). A very small percentage of respondents (3%, n=1) strongly disagreed with the statement, indicating they didn't find the scenario a poor fit with their financial needs. In total, the question saw 31 responses.

The remainder of this section provides an analysis of qualitative feedback on the scenario, and how it might be enhanced, based on data from surveys, interviews and workshops.

### **The attractiveness of carbon credits to provide new revenue streams**

During interviewing, a significant number of participants (13) indicated that this scenario was their preferred option. This might have been due to the scenario being a currently available option to participants (as opposed to being hypothetical). Nevertheless, there were still clear themes emerging as to why this was their preferred choice.

Some respondents found the scenario attractive because it facilitated initial restoration work, which is capital-intensive. There was hope that the scheme could *“offset the capital risk and provides an opportunity to earn revenue in the future”* (Participant 5).

The *“scope for income generation”* (Participant 2) from carbon credits would be attractive to help meet existing management arrangements or would be invested back in the business:

*“Any money I make ... gets fully invested in the farm. ... If there is money from the peatland that would be very welcome.”* (Participant 23)

A farming participant cited pressure on farm incomes as a reason to explore peatland restoration as a means of diversification:

*"The whole reason why we are having to diversify is because you don't make a huge amount of money in farming and the bank balances aren't always as good as we would like them to be." (Participant 38).*

However, another farmer had more nuanced views:

*"The notion of farmers being paid for looking after peat is not something that aligns with my own personal views. However, taking into account the political objectives of the current government, I would consider undertaking the said works in order to create a new source of income." (Survey Response)*

This comment represents a pragmatic approach, demonstrating that despite personal value misalignment, financial considerations and political realities could influence decisions. Similarly, a sentiment among several survey respondents was the balancing act between generating income and ensuring responsible land management. As one respondent put it, the scenario would enable them to *"provide income whilst doing the right thing by the land."*

To some NGO landowners (although not exclusively, as explored later), the potential to have income that was not restricted to a specific purpose was attractive:

*"From a [NGO] point of view a carbon income is very useful because it is not restricted to a particular workstream." (Participant 11)*

*"Being a charity, to be able to sit on money and have it available as-and-when is [beneficial]. ... Going with the PIUs rather than the actual carbon credits has helped cash flow." (Participant 25)*

Two participants involved in an advisory role considered that this scenario was likely to be the best option forthcoming and that they actively advised their clients to take it up:

*"We are in a unique position, at the moment, where you can get 100% of the capital costs for restoration and you make a profit out of carbon credits. If you are going to do peatland restoration, now is the time to do it ... In the past, it was just a grant and in the future it will be maybe just the carbon credits." (Participant 22)*

### **The attractiveness of carbon credits to inset against other activities**

Not all participants wished to sell carbon credits and instead wished to retain control of these. This was particularly important to some participants who wished to wait and see how the market would develop (or to be banked for future carbon inseting):

*"Even though we have an upfront cost, we retain full control of the carbon afterwards. ... We haven't decided whether we would use it ourselves or whether we would sell it, we just want to quantify the carbon initially." (Participant 34)*

*"As farming businesses, we also try to strive to be carbon neutral so do we want to actually keep some of our carbon credits for our own carbon bank balance?" (Participant 38)*

Similar sentiments were expressed by one estate manager, who voiced concern for their carbon footprint (South of Scotland Workshop).

### **The complexity of the scenario was off-putting or daunting**

There was a perception among some participants that there was a high knowledge requirement or there was an administrative burden due to the “*convoluted process of applying*” (Survey Response):

*“If I was to be faced with putting an application in for the Peatland Carbon Code by myself ... I would probably just give up because it is onerous and complicated.” (Participant 11)*

*“We ended up working with [Agent] who did all the work for us, so they set up an agreement with us, took all the PIUs, bought them from us, so we don't have to deal with any of the validation, verification, all that kind of process ... there is a lot of knowledge that is needed to go through that.” (Participant 25)*

One agent/advisor affirmed that contracting entailed a “*high knowledge requirement on the part of landowners*” (Participant 32).

This line of thinking was extended when considering the complications associated with validation and verification through the Peatland Code. The intricacy of merging two financial mechanisms and the resulting uncertainties appear to deter the respondents. A survey respondent stated “*It is less attractive as it is very complicated to blend the two finance mechanism and many types of restoration project are either not eligible or economically viable under Peatland Code.*” Another stated “*[The] only unattractive aspect is complication of validating/verifying through the Peatland Code*”. Especially during the workshop held in the South of Scotland, a key conclusion from participants was that if this mismatch was resolved then uptake of projects would be drastically increased.

A Peatland ACTION Project Officer expressed his concern with combining two sources of funding, remarking, “*It is very risky ... to deliver restoration as the time delays in dealing with the Peatland Code in combination with Peatland ACTION has delayed a number of projects we have worked on.*” (Survey Response) The complexities involved in this scenario has placed “*considerable strain on Peatland ACTION capacity, possibly unfairly so*” (Survey Response), hinting at potential issues of sustainability and scalability.

Smaller landowners thought the cost and effort of achieving Peatland Code registration and validation seemed disproportionate to their circumstances:

*“We are really at the small end. ... It makes no sense whatsoever for us. I can see the need for the registration and verification but whoever designed it was not thinking about incentivising small crofters” (Participant 20)*

This sentiment was expressed by multiple participants who saw verification and validation to be costly, both financially and through time invested:

*“I couldn't commit to this financially as it would be impossible to sustain. I would be better not registering, trying to do the best thing by*

*the peatland myself without thinking about paying out for verification every five years into the future." (Survey Response)*

Suggestions from participants on how to improve to this aspect of the process and make the scenario more financially attractive included:

*"Increased verification events (at lower cost and more efficiently delivered) is key to delivering a commercially attractive product to the market." (Survey Response)*

*"Project can be validated after works have started, providing there is sufficient evidence through a feasibility study." (Survey Response)*

### **Carbon markets are embryonic and agreements are lengthy**

Several participants highlighted that it would not fit their circumstances due to critical perceptions on the risks of carbon trading. This scenario was the first option to include carbon credits, therefore the first-time participants discussed their opinions of this subject. Many of these sentiments also apply to later options which also include a carbon trading element, which may not have been discussed in those latter scenarios.

Some participants were unsure as to the reputational kick-back they may receive for engaging in carbon trading, with some airing ethical concerns:

*"I mean again when you are talking about values and things like that, I do struggle quite a lot with the whole ethics of carbon trading."  
(Participant 11)*

The length of the agreement was seen as highly risky and entirely inappropriate for some people:

*"A 50-year agreement is beyond anything that I have experience of ... if it all goes horribly wrong ... you are saddling a future generation."  
(Participant 10)*

Expanding on this, the agreement was "too restrictive" with an advisor suggesting they would avoid telling clients to sign a 50-year contract without a break clause (Participant 17). Participants provided examples of external and unanticipated events that could occur over that long timeframe which could affect the restoration:

*"You are signing up for a project which you are committing to for the long-term whereas the effect of climate change could actually make committing to that ... difficult." (Participant 36)*

*"Why would you take the risk of going into carbon trading scheme where some large company could hold you personally responsible for a fire that was lit by somebody else?" (Participant 1)*

Participants suggested measures such as a price floor (discussed in potential scenario B) could make the scenario more attractive.

### **Unknowns are perceived as added risk**

When asked about how risky the scenario was during the survey, 21% (n=7) of people held neutral opinions (mean was 3.88 out of 7). 9% of respondents (n=3) *strongly agreed*, another 9% (n=3) *agreed*, and a further 18% (n=6) *somewhat*

agreed that the scenario was too risky for them, indicating a moderate level of risk perception. However, not all respondents shared these concerns, with a significant 24% (n=8) *disagreeing* that the scenario was too risky, with another 18% (n=6) somewhat disagreed.

Some respondents referred back to the complexity of assessing the risks involved, for example, saying it is "*too difficult to understand and appreciate the risks*", or, "*I doubt many advisors know the intricacies, let alone provide advice on these risks*" (Survey Responses).

The largest unknown was the size of maintenance costs, which were unfunded in this scenario. While carbon credits could be sold to generate revenue, some participants saw significant uncertainty around unknown maintenance costs, especially if carbon revenues fell to below future maintenance costs: "*the entire debate is so sensitive to the price of carbon which is a complete unknown*" (Participant 32). One participant thought this the uncertainty would be a dealbreaker:

*"You are relying on a carbon credit market to fill the funding gap. ... From an owner's perspective you are at risk for the deficit and if your only way of funding it through the sale of carbon credits, which you may or may not get at a certain price ... that is not a risk that they would take"* (Participant 28)

Another unknown resulting in increased risk was that the regulatory environment could change in future, for example if there was to be a future requirement for inseting:

*"I think people naively think that they don't have much of a carbon footprint, but they are still running a tractor, herd of cows, using fertiliser, all these things are emitters."* (Participant 31)

Reflecting multiple risk factors, participants perceived that there was a risk to forward selling carbon and one agent noted that they advised clients to retain credits until units were verified:

*"I think the minimum verification is at year 5, year 15, so it is those trigger points that we would probably advise clients if they were wanting to sell, rather than each year."* (Participant 7)

Where there is shared responsibility of the land (tenanted farmers or crofters for example) then the assessment of risk becomes even more challenging:

*"If you owned the whole place ... and you are 100% in charge of the management and you take the risk to do something that is fine but we ... and taking the risk on behalf of other people i.e. our shareholders and that makes it much more challenging."* (Participant 1)

### **5.3 Potential scenario C: Peatland ACTION and Peatland Code with public support for maintenance costs**

**Overview:** This Scenario proposes a partial restructuring of the Peatland ACTION grant, with 50% of the upfront Peatland ACTION restoration grant transferred to cover the first 10 years of maintenance costs (see the Scenarios section under

Methods Overview and Table 5 for more details on this scenario and its assumptions).

**Key scenario components:**

- Peatland ACTION – upfront restoration grant reduced to cover 50% of upfront restoration costs.
- Maintenance payments – a portion of Peatland ACTION funding is restructured as fixed annual maintenance payments over 10 years.
- Carbon revenue – carbon credits generated through the Peatland Code are sold upon verification (5-year cycle) to support the liability of long-term maintenance costs.
- Private finance – the restructuring of the upfront restoration grant results in a upfront financing gap of c. £100,000 which could be addressed through the use of private finance.

The greater need for private finance in potential scenario C (compared to current scenario B above) implies higher capital costs.

**Table 7: Scenario analysis illustrating how IRR for potential scenario C, varies depending on the market price of PCUs and inflation-linked lease payments made to the landowner.**

		PCU price (2% real annual growth)							
		IRR	10	20	30	40	50	60	70
Inflation-linked lease payment per hectare p.a.	0	5%	9%	12%	15%	18%	20%	22%	24%
	50	<0%	4%	8%	11%	13%	16%	18%	20%
	100	<0%	0%	4%	7%	10%	12%	14%	16%
	150	<0%	<0%	1%	4%	7%	9%	11%	13%
	200	<0%	<0%	<0%	1%	4%	6%	8%	10%

IRR <5%
5% <= IRR < 15%
15% <= IRR < 25%
IRR >= 25%

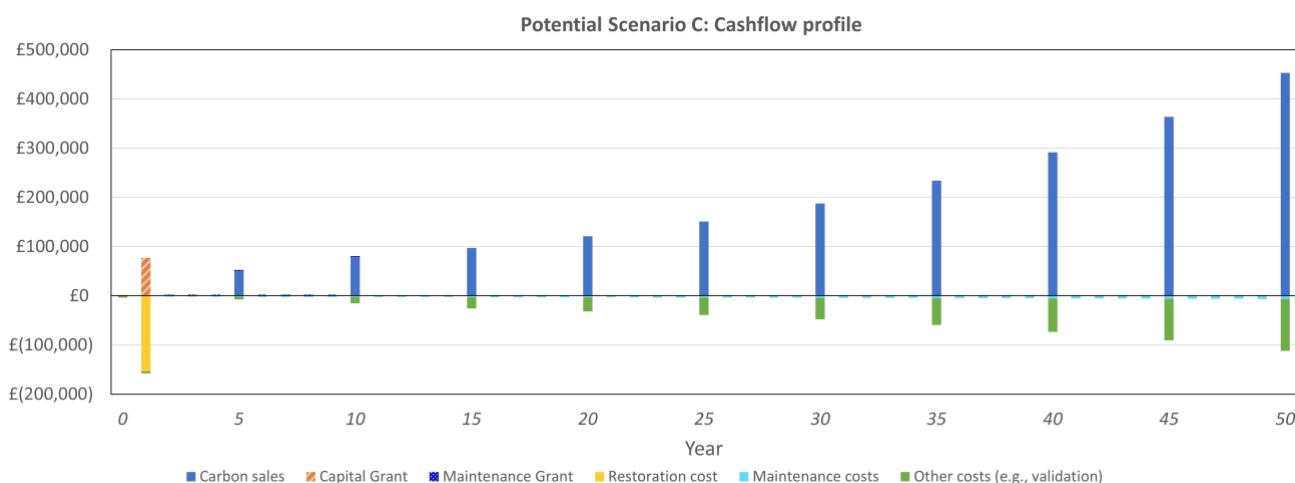
Under the base case assumptions, with a carbon price of £30 an investor that would pay annual inflation-linked lease payments of £50 per hectare would only achieve an IRR of 8% (versus 15% in current scenario B). Achieving a similar IRR of 15% with lease payment of £50 would require a starting carbon price of c. £60 (Table 7).

**Net operating cashflow** (6% discount rate): £145,000 (Figure 6).

**Key considerations for the project owner:** The provision of maintenance payments for the first 10 years of the project reduces delivery risk during this time, however, beyond this fixed term, the project owner remains exposed to changes in

carbon prices and maintenance costs. Given the upfront financing need created by the reduced Peatland ACTION grant (50%), some of the project risk could also be shared with an external investor. It is worth noting that an investor would require a financial return and the landowner would have to share the value generated by the project with the investor. The project owner is exposed to changes in carbon prices and project maintenance costs. Should carbon prices rise, there is an opportunity for the project developer to benefit from the upside because it is selling credits that are verified over time. However, should the price of carbon decrease, the project might not generate sufficient revenues to cover its costs or maintenance liabilities. **Key considerations for Scottish Government:** The NPV of the cost to Scottish Government is minus £68,000 (upfront restoration grant + maintenance payments, 6% discount rate applied).

The project is less risky than in current scenario A, because the carbon revenues can be used to fund maintenance costs and the Peatland Code agreement contains a contractual obligation to maintain. As a result, the project site condition is less at risk of degrading over time after the restoration is completed. Additionally, Scottish Government is contributing less grant money (than in current scenarios A and B) to the project and part of the project failure risk is transferred to a private investor, if the project owner decides to raise external private finance.



**Figure 6: Cash flow profile of potential scenario C, over a 50-year period.**

**Clarify of the scenario:** This scenario introduced participants to blended public-private finance for the first time. When asked about the clarity of the scenario, the median score was 75.5 (out of 100), indicating a high level of comprehension among the participants (n=28). The mode, or most frequently occurring score, was 100/100, which signifies that a notable portion of the respondents found the scenario extremely clear.

**Alignment with personal values:** When asked whether 'this scenario aligns with my personal values', 24% of respondents agreed, 30% disagreed and a notable 45% of respondents chose to remain neutral on this statement.

**Likelihood of adoption:** When asked if they would be keen to sign up to this scenario, 26% agreed, 54% disagreed, and only 19% remained neutral. This

indicates that some of the participants who remained neutral when it came to their values decided they would not want to become involved in a scenario like this in practice. Concerning the statement, 'In general, I think this scenario would be appealing to land owners/managers in Scotland', 28% agreed while 39% disagreed, reflecting the findings above. In addition, 33% were *neutral* on this statement, potentially not wanting to assume other people's stance on the role of private finance.

**Attractiveness:** When considering the attractiveness of the scenario, the median score was at the mid-point of 50/100 (n=28) reflecting a balanced view among the respondents, further emphasized by the mode (also 50/100). However, there was a broad range of 93, spanning from a minimum score of 1 to a maximum score of 94 (out of 100), showing that the individual scores are widely distributed around the mean. Regarding the statement, 'this scenario is a poor fit with my financial needs', a considerable 50% of respondents agreed (including 17% who *strongly agreed*, 23% who *agreed*, and 10% who *somewhat agreed*), with only 19% disagreeing. Notably, 30% of respondents expressed neutrality on this particular statement. Again, this indicates that in practice the participants did not think this was a practical scenario for them, perhaps due to the considerable upfront costs, assumed to be filled by the role of private finance.

The remainder of this section provides an analysis of qualitative feedback on the scenario, and how it might be enhanced, based on data from surveys, interviews and workshops.

### **Attitudes towards the role of private finance were mixed**

One of the biggest talking points during interviews and workshops was the role of private finance, with many mixed and differing personal opinions.

Many participants aired negative sentiments about investors in carbon offset markets. Smaller farming participants and NGOs explained how it did not fit with their ethos or "*ethical compliance*" (Participant 11) and suggested a power imbalance between investors and those delivering projects on the ground:

*"Farming is all about being independent. Bringing in investors is completely foreign to my farming ethos which is all about being self-contained and standing on your own two feet." (Participant 10)*

Participants explained how entering into a relationship with private investors did not suit their own morals, and were uneasy with helping large institutions claim to be carbon neutral:

*"I am very wary of private investors ... I don't want some big corporation to be thinking that they have dealt with the climate emergency because they have given money towards my peat being restored." (Participant 29)*

*"[I] only agree with private finance if this is coming from a reputable source with good green credentials." (Survey Response)*

A general concern was that the relationship could prove extractive with financiers and the wider investment community standing to gain most:

*“People with money are going to get more money and people with no money are not going to benefit” (Highlands Workshop)*

Relating to the power imbalance highlighted previously, participants were concerned and raised questions about how to justify or prove unanticipated events (*“deer numbers increase, [or] the land changes hands [or] say the peatland has not been restored properly (Participant 24)”*) to their private finance partners. Relatedly, participants viewed the complexity of such a relationship as being beyond their skills to navigate, and would need more guidance or training before feeling confident in committing to long-term changes in land management to comply with Peatland Code contracts:

*“I would not have confidence to try and put that kind of a funding model together personally. I would have to put that out to an agent to do that for me at which point I feel as though I would probably lose a large amount of control.” (Participant 11)*

In contrast, some participants (albeit fewer) had positive perceptions of bringing in blended private investment. Firstly, some participants thought that significant sums of public money should not be spent on schemes that provide private gain to individual (private) landowners, and instead this should be the role of private finance:

*“I understand this is the way it has to go, the government can’t spend all of this money on restoration just for landowners to get free money.” (Participant 22)*

Some participants perceived that there was a “shortfall in public money” (Highlands Workshop) and pointed out how bringing in private funding is likely to help the Peatland ACTION money to go further and cover more projects, especially if a site is facing high costs.

One interesting insight relating to the above, was that private finance could help to fund the “low hanging fruit” – the easy to restore sites which give good results (in terms of carbon capture) – which come with lower risk and lower overheads, making them more suitable for private finance. Harder to access or heavily degraded peat could be tackled later through public investment:

*“In the long term, the market is going to learn that difficult sites will have significantly worse outcomes ... so the market will hopefully stop doing those sites and will align itself with easier good outcomes, that is probably where government funding needs to come in.” (Participant 32)*

It was perceived that bringing in private finance will also introduce increased scrutiny in terms of monitoring and maintenance, resulting in overall higher quality projects:

*“A lower initial grant intervention rate could do a lot to bring in private finance earlier, which would have a knock-on effect where you have more [scope] to do really high-quality work.” (Participant 4)*

More than one survey respondent highlighted how this scenario was effectively forcing landowners to sell their credits, with fewer options to hold their credits for inssetting purposes:

*"An owner who did not wish to sell carbon units will be disadvantaged and meeting the 50% capex may be hard to justify in upland areas where earnings and return are typically low." (Survey Response)*

*"It is possible that livestock farmers will be taxed in the future for not being at net zero. ... Farmers should not be encouraged to sell PIU's to opportunists that they may need themselves." (Survey Response)*

Uncertainties over the role of private finance were also raised, particularly the uncertain relationship between Government and the banks, and/or, the landowner and the bank:

*"When it becomes faceless private finance, I think there is real risk because civil servants and hardcore commercial getting into negotiations, it is not often civil servants that come up on top." (Participant 15)*

Similarly, uncertainty was raised when dealing with a private company who may go bankrupt which would result in a landowner dealing with a new company who might not share the same ethos or alter the arrangement. Both quotes below suggest the Government is potentially a better third party to deal with:

*"What happens if the company ... all of a sudden goes bust, or gets taken over by another company who then starts trying to screw you down? I can imagine people being more comfortable about doing it through the Scottish Government who would then be seen as an honest broker." (Participant 31)*

*"One of the issues with doing it with a third party is counter party risk. Are they going to be there to maintain the maintenance obligations for the next 45 to 60 years? Or do they sell PIUs, cash out, and effectively leave us with all of that risk? Putting Scottish Government as the counter party [may] addresses those concerns" (Participant 36)*

Conversely, one survey respondent suggested that "the long-term involvement of private finance [would] legitimise the marketable value of a carbon unit, rather than relying predominantly on grant funding", helping to overcome the uncertainties of the immature carbon market.

### **Maintenance fees are (partially) overcome in this scenario**

Regarding maintenance costs (which were commonly raised as criticisms of the two current opportunity scenarios), some participants approved of the 10-year funding this scenario (hypothetically) provided for this ongoing task, firstly, to give the landowner the confidence/skills of how to do it, and secondly, to help with the overall quality of projects:

*"[This] would be a really good scenario to encourage or to make sure people keep on top of that annual maintenance so they are carrying out their annual monitoring and surveying because it is a condition of*

*the grant and, therefore, they will be more likely to do it” (Participant 25)*

Unknown maintenance costs beyond the first 10 years were however raised again as an issue. These would need to be known before getting into an agreement with private finance over a loan. One person favoured the current (funded) surveying work of Peatland ACTION, which provides an initial estimate of costs, area that requires restoration, and maintenance costs, and was unsure if that service would be available under this scenario.

### **Risks involved in this scenario**

In terms of perceiving the scenario as personally risky, 45% of respondents agreed (with 17% strongly agreeing, 14% agreeing, and 14% somewhat agreeing) and 24% disagreed (7% strongly disagreeing, 10% disagreeing, and 7% somewhat disagreeing). A substantial portion, 31%, remained neutral on the perceived risk of the scenario. These statistics were dramatized when asked about the risks to landowners in general, with an increased 54% agreeing (11% strongly agree; 26% agree; 17% somewhat agree) while 15% disagreed (3% strongly disagreed; 6% disagreed; 6% somewhat disagreed). A substantial 33% were still neutral on this statement.

Some of the risks provided during interviews, open-ended survey responses and workshops were also associated with previous scenarios, summarised as: length of commitments, uncertainty of future carbon markets/price and unknown maintenance fees which all introduced elements of risk. On maintenance fees, one participant thought this scenario would actually lower the risk of high maintenance costs appearing later in the project, due to effort put in upfront:

*“I think because you providing 10 years’ worth of maintenance contributions, that gets round the risk of the project failing, because you are pushed more into needing to do that maintenance work.”  
(Participant 25)*

Regarding specific risks that this scenario posed (as opposed to previous scenarios), firstly having to find 50% of the costs (or source private finance) introduced financial risk to them:

*“Currently it is less risky because [Peatland ACTION] pay for all the capital costs so [landowners] are willing to give it a go. I think if you suddenly just gave them 50% of the costs then that might be challenging.” (Participant 6)*

One participant indicated potential risks with broker involvement, stating, "*Brokers need to find clients to purchase PIUs. If they don't find takers the land owner/manager may not get the finance required. Who would pay then?*" (Survey Response)

### **Making the scenario more appealing**

Participants offered multiple suggestions on how the scenario could be improved. One participant suggested that the Government should be able to protect itself from paying maintenance costs if deliberate damage (or negligence) by the landowner occurred:

*“What if, for example, the owner indirectly does some damage to the work - knock over ditches and stuff - that shouldn’t be covered by maintenance, so there should be something in there that it protects the state’s investment.” (Participant 2)*

Another participant suggested removing the public money altogether, to “*get the joys of the free market as it were*” (Participant 4). Similarly, another suggested lowering the 50% initial payment down, to allow for more private finance and less government money in cases which appear straightforward and achieve a high level of carbon capture. Another minor improvement to the scenario was suggested as paying for maintenance up to the first verification (rather than 10 years) so the landowner has experienced all stages of the process before being left to fund the project going forwards.

Another clear theme was around Peatland ACTION (or another institution) providing further guidance and definitions to help landowners fully understand the blended finance partnership agreements/terms of the loan from private finance. Additionally, clearer guidance on the responsibilities around monitoring and penalties for ill-practice were seen to be improvements, again, important to understand when a third party is involved:

*“You need really robust ways of monitoring and very clear guidance because people will fight you in court as to say well you did the peatland restoration, you got all of this carbon money, it didn’t work.” (Participant 24)*

One participant suggested that a collective fund (through which all private finance was administered) could help reduce the perceived risk of blended finance to landowners. This could reduce the risk of entering into an agreement with an unknown counterparty, and the perception that contract terms could be enforced unfavourably in the event of wildfire or other unexpected event (Online Workshop). It was further suggested that this role could be undertaken by Scottish Government (Highlands Workshop).

An important condition was set by one respondent, who would only find the scenario attractive if it was evident that carbon credits had a minimum price (one of the conditions of potential scenario D, and discussed more in the next section).

Addressing the difficulties faced by smaller landowners or those with common grazing rights could also increase attractiveness. One survey respondent shared, “*Not possible for Common grazings shareholders to source that level of funding*”, indicating a need for additional support or alternative structures for these stakeholders.

## **5.4 Potential scenario D: Peatland Code with price floor guarantee and public support for maintenance costs**

**Overview:** In this scenario, the upfront costs associated with restoration are covered by private finance instead of being funded by Peatland ACTION. Additionally, a price floor guarantee provides the project with a pre-negotiated minimum carbon price that guarantees a minimum level of profitability. Private finance could be provided by a government-sponsored fund. This financing vehicle

is described in more details in the “Policy options” section of the report (see the Scenarios section under Methods Overview and Table 5 for more details on this scenario and its assumptions).

**Key scenario components:**

- Maintenance payments – fixed annual maintenance payments covering maintenance costs at the same level as potential scenario C, for a period of 10 years.
- Carbon revenue – carbon credits generated through the Peatland Code are sold upon verification, at a price guaranteed by the Government, to support the liability of long-term maintenance costs.
- Private finance – the removal of the Peatland ACTION upfront restoration grant results in an upfront financing gap which can be addressed using private finance.
- Price floor guarantee – a mechanism through which Scottish Government guarantees a minimum price paid for PCUs is introduced. This mechanism is described in more details in the “Policy options” section of the report.

The greater need for private finance (£175,000 to £200,000 initial capital injection needed for the project to cover its early costs) in potential scenario D (compared to current scenario B and potential scenario C) implies higher capital costs. Table 8 shows what IRR an investor could achieve based on a certain carbon price and inflation-linked lease payment made to the landowner.

Under the base case assumptions, with a carbon price of £30 an investor that would pay annual inflation-linked lease payments of £50 per hectare would only achieve an IRR of 6% (versus 15% in current opportunity B). Achieving a similar IRR of 15% with lease payment of £50 would require a starting carbon price of c. £80.

The higher carbon price required in this scenario has implications on the level of the price floor guarantee. Without Peatland ACTION funding for capital costs, a price floor guarantee might need to be set at a level higher than current market prices to enable projects to be economically attractive to investors and landowners. This would expose the Scottish Government to conditional liabilities if carbon market prices are not above the price floor by the time the first PCUs are generated by the project. Given current market prices for peatland carbon (£15 to £25 for PIUs as per published Peatland Code statistics), this suggests that some Peatland ACTION funding might still be required if a price floor guarantee is introduced (similar to the Woodland Carbon Guarantee that does not preclude projects to use the England Woodland Creation Offer). The capital grant of Peatland ACTION funding could then be phased down as the price paid for carbon in the voluntary market increases.

**Table 8: Scenario analysis illustrating how IRR for potential scenario D, varies depending on the market price of PCUs and inflation-linked lease payments made to the landowner**

		PCU price (2% real annual growth)							
		IRR	10	20	30	40	50	60	70
Inflation-linked lease payment per hectare p.a.	0	2%	6%	8%	10%	12%	13%	15%	16%
	50	<0%	3%	6%	8%	9%	11%	12%	14%
	100	<0%	<0%	3%	5%	7%	9%	10%	12%
	150	<0%	<0%	0%	3%	5%	7%	8%	10%
	200	<0%	<0%	<0%	1%	3%	5%	6%	8%

IRR <5%
5% <= IRR < 15%
15% <= IRR < 25%
IRR >= 25%

**Net operating cashflow** (6% discount rate): £83,000 (Figure 7).

**Key considerations for the project owner:** A guaranteed carbon price combined with grant funding to support the first 10 years of maintenance costs significantly reduces the level of project risk. Given the upfront financing need created by the absence of Peatland ACTION grant, some of the project risk could also be shared with an investor. It is worth noting that an investor would require a financial return, which would require the landowner to share the project value with the investor.

**Key considerations for Scottish Government:** Under this scenario, maintenance grants are fixed (NPV = minus £14,000, 6% discount rate applied), however, the introduction of the PFG mechanism creates a conditional liability to be managed by the Scottish Government. Table 9 presents an illustration of how costs to Scottish Government would vary, depending on the market price of carbon and the price set by the PFG. In summary:

- Where carbon market price = PFG, it may be easier for the project to sell PCUs to Scottish Government, hence incurring a cost to Scottish Government under this scenario.
- The Government in England established a PFG for woodland creation schemes – the Woodland Carbon Guarantee (WCG) – which provides a guaranteed price for verified Woodland Carbon Units up to 2055/56. Under the WCG, the price of the price floor is agreed through an auction. The first of these auctions took place in January 2020. Given it takes >5 years to generate and verify carbon credits from woodland creation projects, there is currently no evidence as to the extent to which projects have exercised the guarantee.
- By limiting the use of the WCG to carbon credits generated up to 2055/26, the Government in England is able to cap the costs incurred by the projects exercising the WCG. A similar cap could be applied to the PFG, limiting the use of the PFG to PCUs verified before 2050.

**Table 9: The cost impact of the price floor guarantee on Scottish Government under different carbon market price scenarios**

Scenario		Impact on cost to Scottish Government
Where market price > PFG		All PCUs sold on the market. No costs incurred by Scottish Government. Depending on Scottish Government's accounting practices for contingent liabilities, capital may need to be set aside for the duration of the contract.
Where market price < PFG	a. PCUs purchased by PFG are sold on the market	Scottish Government is able to resell purchased PCUs on the market, reducing the overall cost to Scottish Government. Cost to Scottish Government would equal the PFG level minus price of resale (e.g. if the PFG was set at £30, and the market price of a PCU was £20, the cost to Scottish Government would be £10/PCU)
	b. PCUs purchase by PFG are retired by Scottish Government	Full costs incurred by Scottish Government (e.g. if the PFG was set at £30, and the market price of a PCU was £20, the cost to Scottish Government would be £30/PCU). Compared to a., this option maximises net environmental gain as the PCUs are not used to offset emissions generated elsewhere.

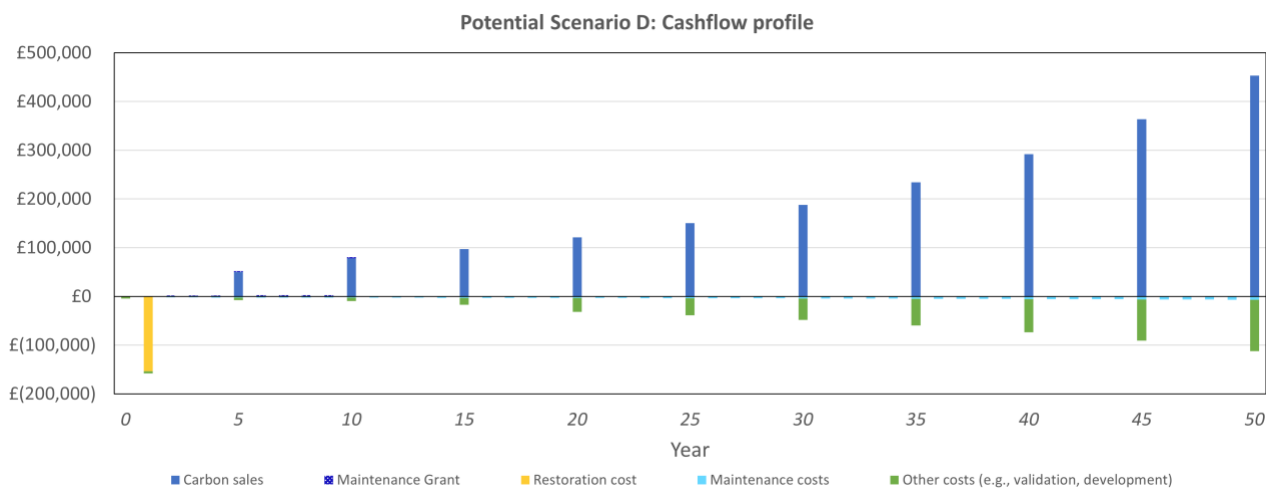
Table 10 provides a depiction of the NPV associated with the cost of providing a price floor guarantee for Scottish Government across various market prices for PCUs and corresponding price floors. In instances where the market price for PCUs exceeds the floor price, the cost incurred by Scottish Government is zero. Conversely, if the market price is below the agreed-upon floor, the PFG is activated, compelling the government to acquire PCUs from the project at the pre-determined floor price. The sensitivity analysis assumes a 50-year project lifespan with the price floor safeguarding all credits issued throughout this period. However, in practical scenarios, the price floor might only secure PCUs verified during the initial 10, 20, or 30 years of the project, which would reduce the cost to Scottish Government.

**Table 10: Sensitivity table showing a range of scenarios for carbon price vs price floor as value for money will chiefly depend on whether the price floor guarantee is exercised or not.**

		Starting PCU market price (2% real annual growth)							
		£10	£20	£30	£40	£50	£60	£70	£80
Starting price floor guarantee (inflation linked)	£20	113,953	0	0	0	0	0	0	0
	£30	202,555	118,599	0	0	0	0	0	0
	£40	270,073	227,906	87,769	0	0	0	0	0
	£50	337,591	322,875	231,731	109,711	0	0	0	0
	£60	405,109	405,109	341,859	237,197	64,008	0	0	0

The risk of project failure is lower than in the previous three scenarios, because minimum carbon revenues are guaranteed and the Peatland Code agreement

contains a contractual obligation to maintain. As a result, long-term maintenance obligations are funded and the project is less at risk of degrading over time after the restoration is completed. Additionally, Scottish Government is contributing less grant money and part of the project failure risk is transferred to a private investor, if the project owner decides to raise external private finance. However, from a financial liability perspective, Scottish Government is exposed to peatland carbon prices if these remain below the price floor.



**Figure 7: Cash flow profile of potential scenario D over a 50-year period.**

**Clarity of scenario:** The survey asked participants to assess the clarity of the financial scenario, with an average (mean) clarity score of 70.22/100, denoting a moderate-to-high level of understanding among respondents. This inference is further supported by the median value of 74. There was however a broad spectrum of perceptions, with the standard deviation (which measures the dispersion of the values from the mean) coming in at 23.6 (out of 100), indicating substantial variability in responses.

**Alignment with personal values:** Regarding the statement, ‘this scenario aligns with my personal values’, 41% of the respondents agreed with this statement (specifically, 6% *strongly agreed*, 22% *agreed*, and 13% *somewhat agreed*), with 22% disagreeing (0% *somewhat disagreeing*, 9% *disagreeing* and 13% *strongly disagreeing*) signalling that this scenario was one of the stronger fits with people’s values. However, there were also a significant proportion of *neutral* respondents (38%).

**Likelihood of adoption:** When considering whether they would sign up to this kind of scenario, 53% of respondents agreed (3% *strongly agree*, 20% *agree*, 30% *somewhat agree*), while 27% disagreed (17% *strongly disagree*, 10% *disagree*, 0% *somewhat disagree*). 20% of the respondents chose *Neutral*. This data reflects a majority interest in the proposed scenario, yet a significant portion of the respondents remain hesitant or strongly opposed. When considering landowners in Scotland more widely, results were largely the same, with a slight increase in neutral responses and lower disagreement (53% agreed, 20% disagreed, 28% remained *neutral*) – indicating respondents were hesitant to project their negative sentiments on to other landowners.

**Attractiveness:** When considering attractiveness of the scenario, the mean score was 62.06/100, indicating a generally moderate level of attractiveness for the scenario. The median score was 70 out of 100, suggesting that the central point of responses leaned more towards the scenario being attractive.

The remainder of this section provides an analysis of qualitative feedback on the scenario, and how it might be enhanced, based on data from surveys, interviews and workshops.

**Fit with financial needs:** 37% of respondents agreed (11% strongly agree, 19% agree, 7% somewhat agree) that the scenario fitted their financial needs. Meanwhile, 30% disagreed (0% strongly disagree, 19% disagree, 11% somewhat disagree) with this statement. A considerable proportion of respondents, 33%, remained neutral. These findings indicate a divided sentiment amongst respondents regarding the financial suitability of this scenario, with a large group neither agreeing nor disagreeing.

### **The price floor was perceived as an attractive benefit**

Participants considered this price floor mechanism would reduce downside risk but also allowed potential to benefit from upside, and “*would allow for greater transparency and a minimum price certainty*” (Survey Response). The price floor was also described as “*guaranteed funding*” (Participant 19) and that it provided an “*insurance policy - you can work it out and worst-case scenario you are going to get that for your carbon*” (Participant 34). The participants thought it would provide stabilisation to the market in the long term.

The price floor was deemed to be most attractive to larger landowners and outside investment. One agent/advisor described potential Scenario D as “pro-business” (Participant 32) and attractive to investment funds looking to enter the market, enabling “*the financial world to deploy cash at the scale necessary*” (Participant 9). Parallels were drawn between the price floor and the feed-in tariff scheme to support the development of renewable energy schemes. Participants suggested that the industry is already familiar with this feed-in tariff model, and suggested that if revenues are known (or revenue uncertainty reduced) then landowners are better able to raise finance and reduce the cost of borrowing:

*“[Valuing carbon] with a degree of confidence is one of the major risks and certainly for mobilising capital and the cost of that capital, the government underpinning [the price of carbon] would be an attractive option ... and could actually create an environment where a lot more of these projects are happening.” (Participant 36)*

One participant suggested that a price floor may also be attractive to smaller landowners and help to reduce the intangibility of carbon, especially for farmers who are currently hesitant or reluctant to enter these schemes:

*“Farmers are used to an element of risk. You spend £30 producing a lamb every year and you know roughly what you are going to get. But if you started [carbon credits], somebody going into this blind, it would be difficult for them - it is not a lamb.” (Participant 35)*

Some participants speculated on the upside potential of the scenario, rather than merely seeing the price floor as a safety net, which is easier to do when you are always guaranteed a certain price:

*“The closer you get to 2045, companies are going to get desperate and you would imagine it is going to go pretty crazy ... So, we are expecting the market to rise like that so in [potential scenario D] ... you can benefit from the higher [price].” (Participant 27)*

### **Practicalities of the price floor**

A reliable price floor was seen to be key to the success of this model. However, one participant questioned whether sufficient data was available for the government to determine the appropriate price floor. The price floor became a focus for discussion during the South of Scotland Workshop, where it was suggested that a price floor could be set through reverse auction, as had been employed during the implementation of the Woodland Carbon Code Guarantee. Concerns were also raised around the duration of the price floor; whether the Scottish Government could credibly commit to maintain such a facility through policy and political changes, and how it would be funded (South of Scotland Workshop).

There was also concern about the long-term viability of the guaranteed price floor for carbon, with questions raised such as *“is this price guaranteed for 100 years?”* (Survey Response) which may indicate that the respondent is unsure whether the government will provide guarantees over such a long period of time.

NGO land managers highlighted the important co-benefits of peatland carbon investments and questioned whether a single price floor would provide sufficient incentive to develop schemes that provided environmental and social net benefits:

*“I think a floor price might accidentally make all units seem the same.”*  
(Participant 4)

### **Issues for smaller landowners**

There was a perception amongst smaller landowners that it would require a lot of work for little gain, with sentiments such as *“[I’m] not sure the cost makes it worthwhile”* (Survey Response) being commonplace. This sentiment was expressed across different type of landowners/managers, including an NGO:

*“It sounds like a lot of work. As a land manager, I don’t have the capacity - I manage 14 [sites]. ... I like the option of Peatland ACTION doing all the work (current scenario A) because it means I can carry on with my job.” (Participant 24)*

A crofting common grazing committee member suggested the scenario would be *“a lot of stress in the work [with] nothing to show at the end of it”* (Participant 27). Similarly, a farmer suggested they would be *“made to do all the hard work [with] no upside”* (Participant 28).

As before, some participants considered that they lacked sufficient knowledge or experience to be comfortable engaging in carbon finance, with the suggestion that the private finance company would have to take the lead on this, which creates a

power imbalance and the owners having to share credits with the investor, as well as pay transaction costs:

*"You are looking for a very sophisticated investor who understands finance in great detail and is prepared to take risk. That is not traditionally an upland farmer ... so I think you have got a total mismatch."* (Participant 28)

*"[Landowners] would be forced to bring in partners which is going to increase administration costs and essentially have more companies taking part of the pie. It will be good for middlemen in terms of contracts and lawyers [etc]."* (Participant 32)

### **Reputations of those involved in financing are crucial to gain trust**

Similarly to the previous scenario, several respondents voiced concern about the potential pitfalls of private finance, particularly around the ethical credentials of potential investors. One person stated, *"we would only want to sign up for this if we could guarantee the source of private finance had exceptional green credentials, themselves"* (Survey Response).

This scenario introduces a degree of governmental support (compared to potential mechanism A, which was strictly private finance), with grants and the price floor guarantee being provided as support. There were mixed opinions amongst participants over this blended option. As expressed by one survey response, *"It's better than the previous scenario as government is involved - less risk"*. Further, another survey respondent underscored the potential benefit of private-public partnerships: *"private - public partnerships can be an added good."* This indicates recognition of the value of shared investment and risk in this scenario.

However, another respondent had reservations about government involvement, stating, *"I personally don't feel Government demand-side involvement is the way to go - there is huge demand and interest in controlling carbon units"* (Survey Response). This viewpoint may suggest that some individuals value market-driven approaches. Yet, another individual found the prospect of public funding supporting private investors unsettling, saying, *"Restores peatland, but it feels odd that public funding (for maintenance) is being used to support private investors"* (Survey Response). This sentiment suggests the belief that public funds should not be used to support private profit and further emphasises the divergence of opinions on this subject.

### **Sale of credits a contended issue**

The issue of (forced) selling of carbon credits was again raised in this scenario. The emphasis on sale of credits (to help cover initial costs and maintenance) was not attractive to farmers and crofters, who wished to retain credits against future requirements to inset carbon within their businesses:

*"[Farmers] are wanting to generate their own carbon credits to inset ... they don't want an investor or a finance vehicle to get involved"*  
(Participant 7)

Negative aspects centred on the lack of grant funding to cover capital cost of restoration and the emphasis this would place upon selling carbon credits early or

bringing in private finance. Participants perceived that the requirement to finance capital cost could create cash flow problems and prove a barrier to those who are not cash-rich:

*“We are absolutely paranoid about making sure we go down the right route with that. If there is no upfront funding available, then that would still be quite a massive barrier.” (Participant 30)*

More generally, participants perceived that forward selling carbon left landowners open to additional financial risks:

*“The danger is if you sell your credits and then you have to re-buy some because of some disaster and the value has gone up, the carbon market has made you poorer rather than richer.” (Participant 15)*

Opposingly, however, some people wanted to forward sell their carbon credits, and that this scenario could in fact “*make the forward selling of carbon units quick and easy*” (Survey Response) as there will be an intermediary ready to buy these from the landowner.

### **Risks involved in the scenario**

In response to the statement, 'This scenario is too risky for me', 21% of respondents agreed (9% *strongly agree*, 9% *agree*, 3% *somewhat agree*). Conversely, 45% of respondents disagreed (6% *strongly disagree*, 24% *disagree*, 15% *somewhat disagree*) which was one of the highest scores across all scenarios. Meanwhile, 33%, chose *neutral*, indicating uncertainty or a need for more information to form a solid judgement on the perceived risk level. Responses were similar when asked to access if the scenario was too risky for landowners in general, with 24% agreeing, 41% disagreeing and 35% remaining neutral.

Several participants highlighted that the price floor and guaranteed buyer could help to reduce the risk of engaging in peatland restoration as an investment and give them “*some sense of what the revenues will be*” (Participant 16). Contrastingly, another participant did not consider that a price floor on its own would be strongly effective in reducing risk because, while it would provide more assurance on revenues, it would not reduce wider unknowns of peatland restoration or the Peatland Code:

*“[The price floor] doesn't provide enough confidence and risk and mitigation to get somebody to go from not looking at a peatland project to being looking at a peatland project. I think as an initial tool within a combination, it would be powerful, and I think as a stand-alone isolated thing it is neutral” (Participant 5)*

One participant considered that cutting out Peatland ACTION would increase risk because part of their function is to assess the risk and viability of proposed restoration designs:

*“If you don't have that (Peatland ACTION advice) in place, then you could be looking at quite poor, quite rushed designs that haven't been properly assessed by people with technical expertise. ... I would be very, very cautious about not having any grant with any rigorous assessment process with it.” (Participant 6)*

Participants also highlighted a number of more generalised risks highlighted in the analysis of potential scenario A, earlier. Key amongst these were the long-term nature of the contract, alongside a potential lack of knowledge/experience among market participants to sufficiently evaluate the risks. One participant also perceived that there could be an early-mover disadvantage, if more attractive options became available in future *“precluding yourself from something else further down the line”* (Participant 4).

### **Making the finance scenario more appealing**

In terms of financial certainty, respondents highlight the need for increased clarity around the process and conditions of private financing. One participant said they would find the scenario more attractive with an *“understanding of the private finance facility and condition of its use, including any payback”* (Survey Participant).

Concerns were raised that the current scenario might push landowners towards less risky, and potentially less beneficial, restoration works. One respondent noted that *“I don’t find this attractive at this stage as it would push landowners into only doing the least risky restoration works that fit the quite limited Peatland Code eligibility/economics”* (Survey Response).

## 6 Findings – Costs and revenues to government

In this final results section, more detail is given on the costs of each scenario to Scottish Government. In addition, perspectives on the introduction of a new tax on degraded peatlands are presented.

### 6.1 Costs to Scottish Government

In making policy decisions, Scottish Government will have to assess the cost implication of each mechanism. Table 10 summarises the NPV of the costs to Scottish Government for each scenario.

### 6.2 Taxes on degraded peatland

After each scenario was discussed, participants were asked their opinions on introducing a tax on degraded peatland. This would act as a disincentive to encourage people to restore their peatlands or to pay for their lack of action. This was the first time interviewees had an opportunity to discuss a disincentive rather than an incentive.

#### 6.2.1 Attitudes towards tax

A portion of the participants approved of the proposal, with the main reason being it would “*motivate landowners to get going*”, “*get it done quicker*” (Survey Responses) and to act with less hesitancy. There did appear to be a pattern to the participants who were in favour of a tax. Firstly, those who have a duty or ethos to restore environments and habitats such as NGOs and charities. In many cases, these participants had already restored or were planning to. As an NGO, one participant thought it would damage their reputation and “*would be embarrassed*” (Participant 24) if they were to be charged. Secondly, participants who did not have heavily degraded peat were more inclined to support the notion of a tax. Their restoration projects may have been more straightforward, less expensive, and more likely to have been accepted into the Peatland Code than heavily degraded or inaccessible peatland. They would also not be as affected by the tax, so it is of less concern to them.

However, other participants were against the idea of a new land tax. The main theme identified was that it would be unfair on some landowners, especially if their individual circumstances were restricting their abilities to restore peatlands. This view was particularly strong amongst landowners, with one estate owner stating: “*incentivisation is a far better mechanism than punishment*” (Participant 5).

A commonly cited example as to why it might be considered unfair was that the Common Agricultural Policy in the 1970s incentivised landowners to drain peatlands (actively contributing to their degradation) and that it would be unfair to then penalise these people retrospectively. Another more recent example of the Government “*subsidising things in the past and then putting a tax on it later*” (Participant 16) was hydroelectric schemes.

**Table 10: Summary of the cost of each scenario to the Scottish Government**

Scenario	Description	Private finance required?	Cost to Scottish Government (NPV)			
			Restoration funding	Maintenance funding	Revenue guarantee	Total
Current scenario A	Peatland ACTION only	No	-£137,000	£0	£0	-£137,000
Current scenario B	Peatland ACTION and Peatland Code	Yes, but limited ( $\geq 15\%$ lifetime costs)	-£137,000	£0	£0	-£137,000
Potential scenario C	Peatland ACTION and Peatland Code with public support for maintenance costs	Yes	-£54,000	-£14,000	£0	-£68,000
Potential scenario D	Peatland Code with price floor guarantee and public support for maintenance costs	Yes	£0	-£14,000	Variable, dependent on market price of carbon	Variable, dependent on market price of carbon

In some circumstances, the degradation of peatland may not have been the landowner's fault (e.g., a wildfire), was beyond their control (e.g. deer migration from a neighbour's plot), or was degraded before it came into their management – all of which were deemed “*profoundly unfair*” (Participant 28) to retrospectively penalise.

Some participants have a desire to restore peatlands but are restricted by individual circumstances (e.g., remote locations or a lack of capital). Having a tax in place wouldn't change their desire to restore peatland, but it would punish them for something that might be out of their control. Two examples below demonstrate some of these restrictions.

Lastly, some participants were concerned that a tax would not be suitable to crofting and it would be disproportionately unfair to common grazings, especially considering there are many unresolved issues that continue to hold back restoration on common land.

### 6.2.2 Implementing the tax

Even within those who support the notion of a land tax on degraded peatland, there was still scepticism over how the Government would implement this, with participants citing how it was “*way too political*”. Another supporter of the tax still contemplated the difficulties in implementing such a measure:

*“[But] not all peatlands are equal ... If a landowner has a degraded peatland but is absolutely inaccessible surely it can't be restored - there should not be a penalty on that. So, then would you start having a case-by-case basis? ... You create a problem for yourself where what was meant to be a standardised tax, you are breaking it down, and then someone hears that his neighbour got a tax break!”*  
(Participant 4)

Suggestions were made of how the land tax could work in practice:

*“Ring-fence the tax for people who aren't restoring the peatlands to pay for those who are, rather than it going back into the public purse”*  
(Participant 13)

Some participants thought the tax might be applied to the sale of carbon credits and was against this idea as people were already wary of the uncertainty on taxes:

*“There isn't even clear guidance on tax treatment of carbon sales at the moment, which already served to dampen expectation. ... A rumour that any revenue would be treated putatively then that would definitely serve to create a negative impact”* (Participant 5)

## 7 Conclusions and proposed policy options

Based on feedback from surveys, interviews and workshops, it is possible to propose two mechanisms that increase supply-side engagement and provide inclusive access to funding for peatland restoration, whilst responsibly scaling peatland carbon markets:

1. The **retention of current Peatland ACTION funding**, with or without accreditation to the Peatland Code. It is important to consider retaining this route for those who do not wish to engage with private finance, given the strength of opposition to market engagement expressed by many participants in this research, so they still have access to restoration funding.
2. The introduction of a new, **blended finance option for Peatland Code projects within Peatland ACTION**, repurposing public funding to create a price floor guarantee, funding for maintenance costs and ongoing advice based on site assessments from Peatland ACTION officers.

A number of adaptations were proposed by respondents to the design of the new blended finance option in Peatland ACTION, which have been integrated into the design of the proposed mechanism in the next section. The introduction of a new mechanism is not mutually exclusive with the retention of the current Peatland ACTION funding model, with or without the Peatland Code. The two mechanisms could coexist, which would accommodate for the preferences of the market participants who engaged with this research.

### 7.1 The proposed blended finance mechanism

In order to build an efficient and coherent funding and financing ecosystem for peatland carbon projects, it is proposed that existing public funding (Peatland ACTION) is repurposed and/or new public funding is used to:

1. Establish a price floor guarantee for Peatland Carbon Units (PCUs);
2. Provide annual maintenance grants to support the medium to long-term maintenance costs of peatland restoration projects; and
3. Provide subordinated capital to a proposed Scotland Carbon Fund, in the form of a first-loss guarantee.

These aligned mechanisms would help set strong governance standards for the peatland carbon market, build market integrity and support the scale-up of private investment in peatland restoration in Scotland. These measures build upon those first proposed in the April 2023 report for Scottish Government, 'Mobilising private investment in natural capital.'

#### 7.1.1 Price floor guarantee

A price floor guarantee (PFG) is a risk reduction or risk transfer mechanism. The mechanism offers confidence in project revenues over a fixed period, which significantly reduces the downside risk profile for both investors and project developers (see Box 1 for examples of PFGs in the UK). As evidenced in Figure 8, if market price is below the floor price, the project can sell verified carbon units at the level of the price floor guarantee. If market price is above the floor price, the project can capture the upside by accessing market prices. The design of the

mechanism could require sales to the market where the market price is above the price floor, reducing risks to public funds.

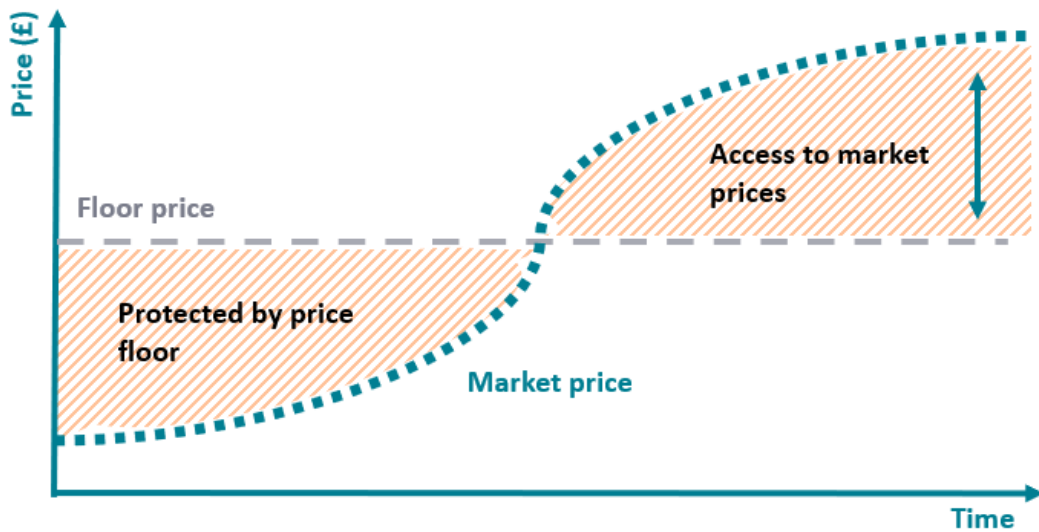


Figure 8: Price floor guarantee mechanism payoff diagram.

### Box 3: Examples of existing floor price mechanisms

#### UK Feed-in Tariff (FIT)

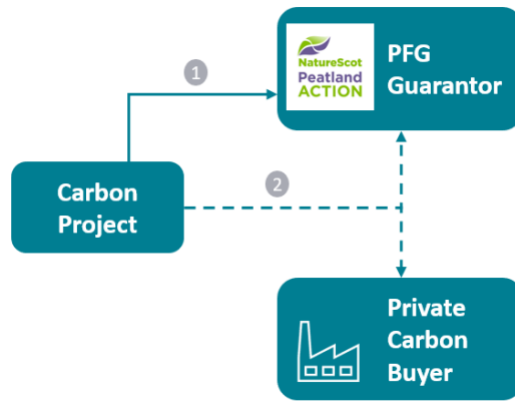
The Feed in Tariff is a UK government programme introduced in 2010 designed to promote uptake and financing of renewable energy generation technologies through providing price certainty for energy generated alongside subsidy payments.

#### Woodland Carbon Guarantee

The Woodland Carbon Guarantee was a £50 million government scheme designed to stimulate woodland creation in England through providing a guaranteed carbon price for verified Woodland Carbon Units issued under the Woodland Carbon Code.

The proposed structure of the PFG is outlined in Figure 9:

1. The project submits a bid to secure a price floor agreement for the future sale of their PCUs to the PFG Guarantor (e.g., Scottish Government). Typically, a reverse auction would be organised and projects would aim to bid above their cost base, in order to ensure profitability or at least break-even; and
2. Income is generated by the project from the sale of PCUs and/or PIUs to corporates or brokers. If market prices fall below the price floor, PCUs can be sold to the guarantor at the pre-agreed price threshold. If market prices are higher than the price floor, PCUs would typically be sold on the market, not triggering the guarantee (this could be made a requirement of the scheme).



**Figure 9: Illustrative structure of a price floor guarantee.**

### 7.2.2 Implications of a price floor guarantee for the Guarantor

The guarantee reduces downside risk to participants (i.e., the risk of low carbon prices negatively impacting the financial viability of a project). Where designed effectively, and if carbon prices are increasing over the period during which the guarantee operates, this is achieved with minimal government pay out to participants.

If the guarantee is exercised, the guarantor can choose to resell the credits in the market at a lower price (incurring a loss per credit that is the difference between the price floor and the market price) or retire the credits (incurring a loss per credit equivalent to the price floor). Additionally, should carbon prices remain low, Scottish Government could decide not to launch new auction rounds. More details regarding the modelling of the costs of a price floor guarantee for the Scottish Government is available in the previous chapter.

### 7.2.3 Maintenance grants

A proportion of exiting Peatland ACTION funding could be repurposed to an annualised maintenance grant to support the medium to long-term maintenance costs of peatland restoration projects. Further work is required to determine adequate grant rates that can cover project maintenance costs and be flexible enough to adapt to potential variability in projects' maintenance costs (e.g. peat baseline condition, project remoteness, etc).

These maintenance grants could be provided for the first 5-20 years of a project on a conditional or outcomes-linked basis. Linking maintenance grants to the delivery of specified outcomes reduces the risk to Scottish Government of non-delivery, especially in the case of landowner / manager negligence. However this outcomes-based approach should be weighed up against additional complexity and costs to monitor and verify outcomes.

### 7.2.4 Scotland Carbon Fund

The restructuring of the Peatland ACTION grant for capital works would result in an upfront financing gap which could be addressed through the use of private finance. A Scotland Carbon Fund (SCF) could facilitate the flow of private capital to peatland restoration projects to address this upfront financing gap.

The purpose of a Scotland Carbon Fund would be to act as an investment vehicle to aggregate private capital to invest in high-quality peatland restoration projects in exchange for financial returns generated from the sale of PCUs, as illustrated in Figure 10.

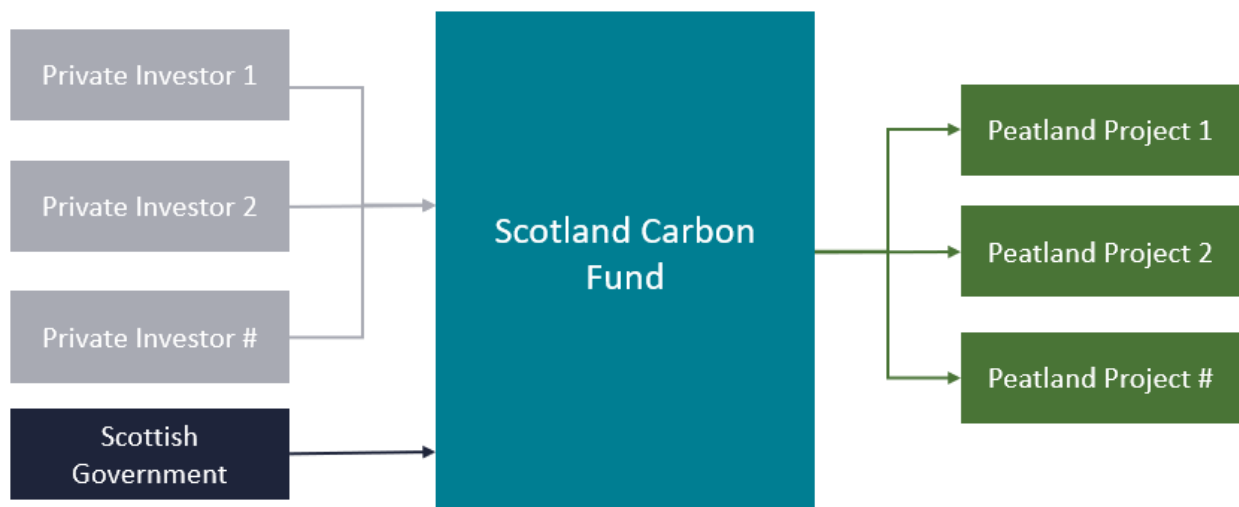


Figure 10: Illustrative structure of a Scotland Carbon Fund.

The SCF, structured as a project finance vehicle, would enable the scaling of peatland restoration in Scotland by leveraging public capital provided by the Scottish Government to crowd in private investors.

A potential financial contribution from the Scottish Government to the SCF was perceived as a crucial stamp of approval and display of commitment to the peatland carbon market by the investors consulted as part of the *Mobilising Private Investment in Natural Capital* project. The report recommended that the contribution be structured as first-loss capital. The introduction of first-loss capital would constitute a compelling investment proposition to investors, reducing risk whilst also providing confidence in the market.

### 7.3 Enabling factors

Taken together the new blended finance mechanism, in combination with a publicly funded mechanism similar to the current system, have the potential to address many of the barriers to supply-side engagement in peatland carbon markets. However, to be successful the research suggests that a number of additional mechanisms may be necessary to achieve widespread adoption of the new mechanism:

- Many landowners were concerned about the complexity of the new mechanisms and this, combined with the perceived administrative burden, could limit adoption. To circumvent this, a number of design features and adaptations could be considered:
  - Ensuring the relative advantages and disadvantages of new mechanisms are clear and easy to understand, by providing comparisons with previous and alternative options (e.g., the publicly funded route that is retained via Peatland ACTION, as proposed above);
  - Providing illustrations of potential advantages and disadvantages of adopting the new mechanism for different types of landholding (see communication options below);
  - Ensuring the application process for any new mechanism is aligned with the existing schemes' application processes, actions, conditions and requirements. This is particularly important for smaller landowners and crofters with limited capacity for engagement and/or limited technical understanding of the various schemes;
  - Working with already trusted advisors and intermediaries within the sector to support landowners' applications, while keeping the decision-making and application process as straightforward as possible. To do this, it would be necessary to build capacity via training and support for Peatland ACTION officers, advisors, land agents and other intermediaries to help landowners develop projects that are eligible for the new blended finance mechanism; and
  - Reducing friction for landowners and their advisors by creating standard contract templates that could facilitate benefit sharing with tenants and crofters and their landlords and adequately cover the new blended finance mechanism.<sup>9</sup>
- Concerns were raised about the implications the new mechanism could have with regards to affecting eligibility for future agri-environment schemes and the implications for Inheritance Tax (IHT) and Agricultural Property Relief on land taken out of production. Therefore:
  - It may be necessary to work with Treasury to introduce a new type of "conservation property relief" or to reclassify "agriculture" to also include peatland restored under high-integrity market schemes; and
  - Clarity is also required on whether crofters (who have peat cutting rights) or landlords (who have mineral rights) have the rights to peatland carbon in Scotland.
- Many of the greatest concerns around engaging with peatland carbon markets focused on the potential for greenwashing, where credits are purchased by companies that have not done everything possible to reduce

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<sup>9</sup> See new guidance, Jenkins, E, Helmcke, C and Cole, L (2023) Peatland Restoration: A Guide for Crofting Communities. Accessed 1 December 2023. <[https://risweb.st-andrews.ac.uk/ws/portalfiles/portal/296322845/Executive\\_Summary\\_final.pdf](https://risweb.st-andrews.ac.uk/ws/portalfiles/portal/296322845/Executive_Summary_final.pdf)>

emissions at source level (e.g., fossil fuel, industrial or, aviation companies etc). Further consideration should be given to operationalising the Voluntary Carbon Market Initiative's (VCMI) Claims Code of Practice as this would address concerns expressed over the potential for greenwashing in carbon markets. This could be done, for example:

- As part of the (currently interim) Principles for Responsible Investment in Natural Capital on a voluntary basis, signposting landowners to intermediaries or platforms that will vet buyers to avoid greenwashing;
  - Via the British Standards Institute (BSI) Nature Investment Standards Programme, which is considering the development of a BSI standard to contextualise and implement the VCMI Claims Code in the UK, versus the integration of buyer checks in line with VCMI across the standards they are developing (which would require the Peatland Code to conduct these checks on all buyers); and / or
  - Via collaboration with UK government colleagues to adapt the Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013, to make an amendment requiring reporting to align with the VCMI's Claims Code. This would be similar to the Companies (Strategic Report) (Climate-related Financial Disclosure) Regulations 2021, which require disclosures to align with guidelines from the Taskforce on Climate Related Disclosures.
- The research highlighted a long-standing and common complaint with the current approach of natural capital markets from those that have retained their land in good condition only to see those who have degraded their land benefiting from carbon markets. Further strategic thinking is required to explore the opportunities for good stewardship maintenance payments. This could, for example include a new agri-environment scheme option for maintaining peatlands in good condition. Condition could be defined in relation to 'comparable' sites (e.g., defined by soil sampling from the National Test Programme). This would help increase the permanence of Peatland Code projects, where completed projects then qualify for ongoing payments for maintaining sites in good condition (not however that such payments might fall into "Amber Box" of the World Trade Organization).

## 7.4 Integrating tax

In addition to the enabling factors above, a tax on degraded peatlands may also be considered acting as a disincentive on engagement:

- Opinions on a tax were mixed and the introduction of any new tax would be controversial. If it were introduced in combination with more attractive terms for funding restoration, it may be possible to limit the negative impact of the tax as landowners that restore their peatland would not only avoid the tax but they would profit from selling units via the Peatland Carbon Code.
- Within the research environmental NGOs and those whose peat was not heavily degraded were most likely to be in favour of tax instruments linked to

emissions from land. These owners of better quality peatland argued that such a tax might motivate more landowners to engage with restoration, especially those currently waiting in expectation of carbon market prices increasing or other incentives to emerge (a major bottleneck to restoration). The new blended finance mechanisms proposed in this report may act to sufficiently de-risk and reward landowners that decide to act, but it is unlikely this alone will materially increase adoption whereas the combination of a degraded peatland tax might. However, it is not clear what the unintended consequences or implications of such a tax might be such as the effect on land prices. If tax was levied on a landowner with poor quality peatland, this might lead to the land being sold. Hypothetically a buyer could be offshore registered which would limit the tax receipt from the degraded peat. Further research and consideration is required to the potential implications on land ownership of the introduction of a degraded peat tax.

- Many participants also noted that taxation was not the correct approach based on the elements of fairness, equal opportunity and the fact that there has been contradictions in the nature of successive government policies (e.g. see Reed et al., 2020). One example cited was peatland drainage under the 1970s Common Agricultural Policy. The respondent's main argument against taxation was fairness as degradation may be due to causes beyond the current owner's control (e.g., deer from a neighbour, previous government schemes or management by previous owners) and due to site accessibility / terrain it may not be possible to restore the land. It may be necessary to allow exemptions to the tax on the basis of accessibility or unique circumstances to ensure any new tax does not unfairly penalize a landowner. Further research and consideration is required to assess the implication that exemptions might create (financial burden from the requirement for more officers, delays to projects etc).
- Issues would also need to be resolved around how such a tax would affect crofters, who may not find it cost effective to restore small parcels of land and those on common grazings, where it may be difficult to identify who is liable for the tax.
- To operationalize such a tax, clear criteria would need to be established to identify degraded sites and one option would be to adopt the Peatland Code condition categories which are linked to emissions factors. This may also provide the groundwork for future applications for projects under the Code.
- If a degraded peat tax was introduced, funds raised via tax receipts could be used to pay for projects that are restoring peatland, protecting the public purse. This would help meet the increased demand for restoration funding likely to be stimulated by the tax but could only have a limited life expectancy where receipts are less than mechanism payments.

## 7.5 Communicating the new mechanism

A communication strategy may need to be developed to support the launch of a new blended finance mechanism (and any accompanying tax). If done well, such a strategy has the potential to reduce perceptions of risk, given that a number of the main perceived risks were based on a misunderstanding of the mechanism:

- Messaging should be tailored to the different values for nature held by different types of supply-side actors. For example, messages about new blended finance mechanisms could be framed in terms of self-regarding (e.g. financial, risk, etc.), broader personal (e.g. place identity), collective values (e.g. fairness, environmental protection) and social benefits (e.g. collaboration opportunities and benefits to local communities) as much as the benefits for climate change and biodiversity.
- Messages may also be framed in ways that are consistent with the identity of land managers (e.g. land stewards or adaptive innovators diversifying their businesses to meet public demand and custodians protecting existing benefits), rather than reframing them in roles they do not identify with (e.g. park rangers or carbon farmers, delivering an agenda for a Government they may not trust).
- Where possible, these messages should be delivered via trusted intermediaries or peer-to-peer networks, including other supply-side actors or their advisors (see the point above about training for advisors).
- Respondents found it difficult to evaluate the likely benefits or drawbacks of adopting the proposed mechanism in the context of their own landholding. For this reason, it may be beneficial to communicate outcome scenarios for different types of farm and estate businesses, that are operating at different scales and have peatlands exhibiting different states of degradation. This may be based on the financial modelling conducted in this project, which led to the illustrations summarized below or be based on a more detailed financial analysis to be undertaken. This could include different farming enterprises and production systems, estate activities, and how to integrate peatland restoration into each, i.e., what stocking densities, deer densities, or game animal practices may be permissible post-restoration.

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The data collected for this <statistical bulletin / social research publication>:

- are available in more detail through Scottish Neighbourhood Statistics
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- may be made available on request, subject to consideration of legal and ethical factors. Please contact [mark.reed@sruc.ac.uk](mailto:mark.reed@sruc.ac.uk) for further information.
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