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Carbon Markets, Public Interest and Landownership in Scotland

A discussion paper

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LAND LINES
A series of independent discussion papers on land reform issues

Background to the ‘Land Lines’ discussion papers

The Scottish Land Commission has commissioned a series of independent discussion papers on key land reform issues. These papers are intended to stimulate public debate and to inform the Commission’s longer term programme of work.

The opinions expressed, and any errors, in the papers are those of the author and do not necessarily reflect those of the Commission.

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Summary

Voluntary carbon markets enable businesses to offset the CO_2 emissions that they cannot avoid otherwise by buying 'carbon units' from other market participants. The Scottish Government considers carbon markets a key component of achieving the target of net zero emissions by 2045. The Woodland Carbon Code and Peatland Code are two existing standards through which verified carbon units can be created and sold. These codes aim to trigger widespread woodland creation and peatland restoration in order to sequester carbon or reduce emissions by providing additional income streams to landowners and developers.

The implementation of carbon markets in Scotland has led to a range of concerns. Many of these concerns are connected to the context that landownership is unequally distributed in Scotland and communities have been historically excluded from decision-making about land. This discussion paper examines three emerging issues of concern in relation to the operation of carbon markets. These issues are environmental impacts of carbon markets, inclusion in decision-making and distribution of benefits of carbon trading. In doing this, the discussion paper analyses the broader social and environmental effects of the operation of carbon markets against the complex policy framework regarding land in Scotland.

The final section of this discussion paper considers possible models of regulation and provides recommendations for the regulation of carbon markets in the public interest. These recommendations seek to ensure that carbon markets have positive environmental outcomes, that landowners and developers collaborate with local communities, and that partnerships are implemented which deliver community benefits. Such policy interventions are necessary to safeguard a just transition to a net zero society.

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1. Current Frameworks for Carbon Markets in Scotland

"Who exactly benefits, and how natural capital is controlled, is up in the air. The consequences of how society decides to govern its natural capital will be decisive, not only for the physical character of the countryside but for prospects of the people who make a living from it." [1]

Voluntary carbon markets enable businesses to offset the CO_2 emissions that they cannot avoid otherwise by buying 'carbon units' (worth 1 tonne of CO_2) from other market participants. Although there is no conclusive evidence that offsetting helps to reduce overall emissions released into the atmosphere, offsetting has become a core component of global efforts to combat climate change with a view of achieving 'net zero' targets. In Scotland, the Climate Change (Scotland) Act 2009 contains the goal of achieving net zero emissions by 2045 and the Scottish Government's updated Climate Change Plan considers carbon markets have a key role in achieving this target. In particular, the Scottish Government aims to increase the woodland carbon market by at least 50% by 2025.[2]

Indeed, participation in voluntary carbon markets has increased substantially in recent years, with more growth projected in the foreseeable future alongside increasing prices of carbon units.[3] The Woodland Carbon Code (WCC) and Peatland Code (PLC) are two existing standards through which verified carbon units can be created and sold.[4] The growth in carbon markets can at least be partially explained by a recent requirement in the UK for quoted and large companies to report on their greenhouse gas emissions. Nevertheless, there is a general policy trend towards expanding requirements for emissions reduction, and towards more mandatory emissions reporting. This leads to businesses participating in voluntary carbon markets more proactively, and to higher demand for new offsets.

However, carbon markets do not operate in isolation. In the case of woodlands, carbon markets function in addition to traditional forestry and timber markets. Further, carbon markets can also be supported by public subsidies such as grants for woodland creation or peatland restoration. Most importantly for the purposes of this study, carbon markets have direct impacts on existing land use, land markets, and the distribution of land more generally. Carbon markets aim to trigger large-scale land use change, which sequesters carbon or reduces emissions, by providing additional income streams to landowners and developers. This will bring immediate benefits to the parties of the transactions but risks crowding out the interests which local communities have in relation to the land and surrounding landscape. Landownership is a controversial topic in Scotland and the Scottish Government is implementing a complex policy agenda which aims to distribute the benefits of land in a fairer and more sustainable way. The broader social and environmental impacts of the operation of carbon markets raise important questions about how such markets should be regulated in the public interest. Therefore, this discussion paper will analyse carbon markets in the Scottish context and provide recommendations for their future regulation.

1.1 About this Discussion Paper

This discussion paper analyses the challenges and opportunities associated with the operation of carbon markets in connection with landownership in Scotland. Given the Scottish Government's policy objectives of land reform, and of ensuring a just transition to net zero, this paper will:

- Critically examine carbon markets against the broader policy objectives in relation to land;
- Learn from historical examples of managing natural resources in Scotland; and
- Provide recommendations for regulating carbon markets in the future.

The analysis in this discussion paper is structured in four sections. In the rest of this initial section, we briefly present the governance frameworks for voluntary carbon markets in Scotland, including outlining the core areas of potential regulation. In the second section, we analyse three emerging issues with the current frameworks which are crucial to the public interest: broader environmental impacts of carbon markets; inclusion in decision-making; and the distribution of benefits of carbon trading. In the third section, we discuss selected historical examples of natural resource exploitation in Scotland which contain lessons for carbon markets, these being minerals, water, and wind. In the final section, we propose ways forward for the regulation of carbon markets in Scotland, which aim to improve the implementation and public accountability of carbon projects.

In carrying out the research for this discussion paper, we examined the two main codes that currently enable the generation of verified carbon units in the UK, namely the WCC and PLC, as well as the publicly available information about projects on the UK Land Carbon Registry. We analysed these codes against the background of the broader policy and legal framework for land in Scotland. We also collected feedback on the initial findings of this discussion from several stakeholders involved in or interested in the functioning of carbon markets in Scotland.

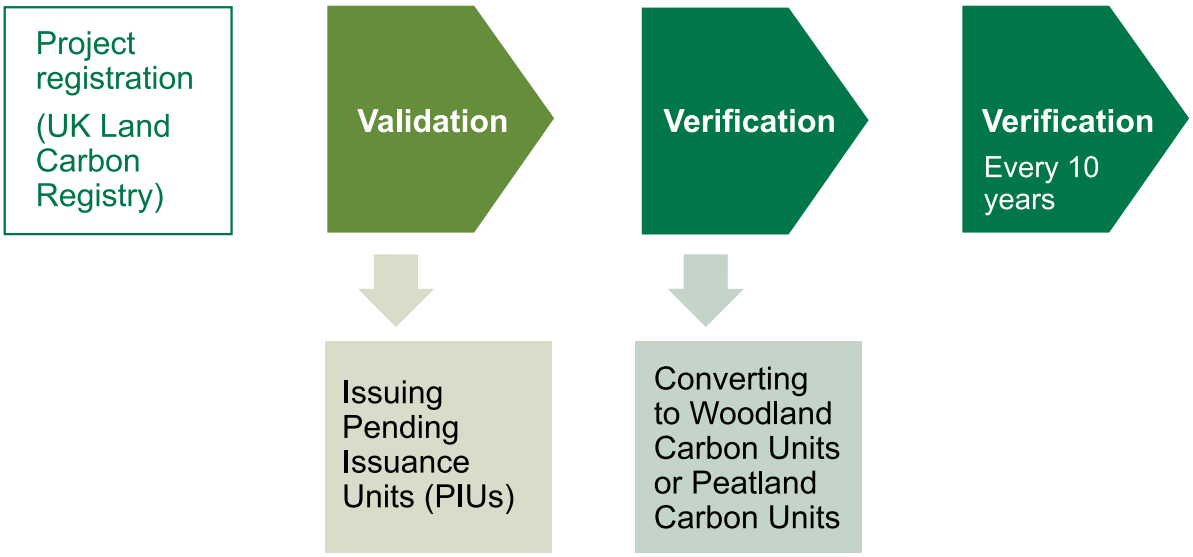
1.2 Current Frameworks

Currently there is no specialised legislation governing voluntary carbon trading in the UK. The WCC and the PLC, together with the UK Land Carbon Registry, provide the framework for the generation and sale of carbon units from woodland creation and peatland restoration. The registration, validation and verification processes create the carbon units and the UK Land Carbon Registry is the platform through which these units are sold. However, these codes have no independent legal authority. Carbon trading has been implemented through transactional practice based on contracts, and this relies on general laws regarding the ownership of land and natural resources. In terms of legal constraints, WCC and PLC projects must comply with general land use regulations such environmental law and they are facilitated through various frameworks that govern climate change and emissions reporting. Nonetheless, the WCC and PLC are directly supported by the Scottish Government through official endorsement, institutional support, and funding which enables new projects to take place. Two relevant grants schemes for

WCC and PLC projects are the Forestry Grant Scheme (FGS) and the Peatland Action Fund (PAF).[5] In practice, therefore, the process of generating carbon units under the two codes runs in conjunction with funding processes that are managed by the relevant authorities in Scotland.

The WCC and PLC share many similarities with each other in terms of the structure and process of creating carbon units. Throughout this discussion paper, more attention is given to the WCC as the vast majority of registered projects on the UK Land Carbon Registry are for woodland creation. However, there is an important difference between WCC and PLC projects as woodland creation sequesters carbon from the atmosphere whereas peatland restoration reduces emissions. Nevertheless, in essence, both codes enable landowners and/or developers (a) to register a new WCC or PLC project on the UK Land Carbon Registry; (b) to validate the project using an independent auditor and claim intended carbon units to attract potential buyers, called pending issuance units; and finally, (c) to verify the project by using an independent auditor, which approves successful implementation of the project, which in turn generates verified carbon units. (See Table 1 below). The carbon units generated through this process can be sold to buyers, with sales currently being implemented through a series of contracts between the landowner, developer (if applicable) and buyer, or between a carbon broker and buyer. Pending issuance units can be sold but such units are merely a promise to deliver future units. Registrations of projects have been increasing rapidly in Scotland. In relation to the WCC, a recent report notes that "registrations grew from 157 in March 2020 to 355 by March 2021, with a further 283 added by December."[6]

Table 1. The approval process of carbon projects under the two codes



The two codes aim to implement a core principle of climate finance, namely that carbon units generated through carbon projects are 'additional'.[7] In practice this means that if a landowner or developer was going to plant trees or restore peatland anyway – notwithstanding the potential income from carbon markets – then such project is not 'additional' and should not generate carbon units. Both codes contain explicit tests to identify the 'additionality' of proposed projects. The main requirement under the two codes is financial additionality. This means, simply put, that emissions reduction would not be possible to achieve without the income from carbon trading. This is a tricky test to implement, given the inherent flexibility of profitability forecasts, and the difficulty of identifying verifiable baselines and alternatives that these tests rely on. This additionality requirement is particularly relevant in understanding the interaction between carbon trading and commercial forestry. As has been shown in other studies, the line between the two activities can be difficult to draw.[8]

1.3 Areas of Regulation

We propose that there are at least five core areas of potential regulation of carbon markets:

A. *Quality of Carbon Units*, which concerns a need for accuracy regarding the amount of CO_2 sequestered or emissions reduced through registered projects and a publicly recognised hierarchy among projects in terms of the positive environmental and social outcomes that they produce.

B. *Environmental Impact.* The land use change involved in carbon projects can have significant environmental impacts not only in relation to climate change but also biodiversity, water, soil and air quality.

C. *Inclusion in Decision-making.* Carbon markets attract new, external actors to activities that were previously of no interest for investment. It is important who, and what, is involved in the decision-making of these new actors.

D. *Distribution of Benefits* is linked directly to the issue of decision-making. With the unequal distribution of land in Scotland, carbon markets come with a high risk of channelling funds towards those who already own a large amount of resources, while at the same time potentially blocking access to land and its benefits to others.

E. *Transactional Liabilities and Public-backed Guarantees.* Finally, most of the potential risks and responsibilities for carbon units are agreed by contract, between the parties to the carbon transaction. However, given the long duration of these contracts, including risks such as death, corporate insolvency, natural disasters, and many others, there are questions regarding a public guarantee for carbon units for the purposes of running and maintaining the projects.

While all these areas of regulation are undoubtedly important, in this discussion paper we focus on B-D as we consider these issues to be the most directly relevant to the issues of landownership and the public interest.

2. Emerging Issues with Current Frameworks

The rise of carbon markets in Scotland has been discussed significantly in the media, with the term 'green laird' being coined to denote people or bodies that are purchasing or investing in large areas of land for environmental purposes.[9] High profile cases include BrewDog buying 9,300 acres of the Kinrara estate to create the Lost Forest[10] and Shell spending £5 million to extend the Glengarry forest.[11] This has led to a range of concerns including rapid large-scale land use change, environmental projects being used as 'green-washing' for unsustainable business practices, rising rural land prices, and the exclusion of communities from significant land use decisions.

The creation of carbon markets is intended to trigger widespread land use change in order to sequester carbon or reduce emissions, and new actors are being incentivised to finance change through these market-based solutions. Recent research commissioned by the Scottish Land Commission has established that natural capital investment, such as buying land to engage in carbon markets, is currently having an important influence on land markets in Scotland.[12] However, the extent to which natural capital investment is driving acquisitions and sales is currently uncertain. Purchasers may be motivated by multiple factors such as taking part in carbon markets as well as engaging in commercial forestry, and many sales are occurring 'off-market'. Due to the level of uncertainty in relation to natural capital and land markets as well as the complex policy framework regarding land in Scotland, there is a need for a pre-emptive approach to policy design to attempt to address challenges before they arise.[13]

The Scottish Government's National Strategy for Economic Transformation contains a commitment to "establish a values-led, high-integrity market for responsible investment in natural capital".[14] Interim Principles for Responsible Investment in Natural Capital have also been released and these principles are investment should (a) deliver integrated land use; (b) deliver public, private and community benefit; (c) demonstrate engagement and collaboration; (d) be ethical and values-led; (e) be of high environmental integrity; and (f) support diverse and productive land ownership.[15] With these principles in mind, in the following paragraphs environmental impact, inclusion in decision-making and the distribution of the benefits of carbon markets will be analysed in turn upon the background of the general policy framework for land in Scotland.

2.1 Environmental Impact

The Scottish Government is committed to tackling the twin crises of climate change and biodiversity loss. The Scottish Government's Environment Strategy has the overall vision of restoring nature and ending Scotland's contribution to climate change by 2045.[16] However, the most recent State of Nature Report for Scotland shows that both the abundance and distribution of Scotland's species have continued to decline in recent decades.[17] At this key turning point in the transition to sustainability, it is crucial that large-scale land use change makes a positive contribution to environmental outcomes and adheres to the overall policy framework regarding land in Scotland. The operation of the WCC and PLC must therefore be carefully evaluated and monitored so that projects are both having the intended carbon mitigation effects as well as delivering broader environmental benefits.

Under the WCC, it is a Principle that projects "should be of a high environmental quality, including habitats, species, soil and water environments, as well as landscapes."[18] The Project Design Document (PDD) should consider the environmental aspects of sustainable forest management which are provided for in the UK Forestry Standard (UKFS). These standards should be maintained through the duration of the project. Online guidance for the WCC mentions that projects should "do no harm" and there should be safeguards in place in order to show that environmental impacts are likely to be positive.[19]

Certain afforestation projects will require an Environmental Impact Assessment under the Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017. The purpose of an Environmental Impact Assessment is to identify environmental effects, and avoid or reduce any negative impacts.[20] In relation to afforestation, where Scottish Forestry determines that a project is likely to have a significant effect on the environment then their consent for the work must be obtained. A formal application for consent must be prepared with an Environmental Impact Assessment Report.

Projects gain validation through the WCC by including an environmental quality statement in the PDD, including an Environmental Impact Assessment Report, if required. If no Environmental Impact Report is required, according to online guidance, the PDD should demonstrate, "i) any likely environmental benefits; ii) any rare or endangered species in the project area and how these are taken into account in the project design; iii) any statutory designations in the project area and how these are taken into account in the project design and iv) that the design has given due regard to the visual, cultural value and character of the local environment."[21] The Woodlands Benefits Tool has been developed in order to help developers understand and communicate the benefits provided by the woodland. For peatland, the PLC states that there should be a restoration management plan which provides a statement of environmental impact, including biodiversity.[22] If there were any legal requirements in relation to Environmental Impact Assessment, then these should have been considered in the process of preparing a restoration management plan.

However, it is important to note that despite the range of legal requirements regarding land use change and the environment, the registration, validation and verification processes, which are ultimately the processes that generate the value of carbon units, are not a legal compliance audit. In other words, they do not guarantee that the necessary legal requirements have been met. The validation or verification body will only "check that there is no evidence of non-compliance with relevant legal requirements, and that no issues of non-compliance area raised by regulatory authorities or other interested parties."[23] At the stage of verification, if the project monitors environmental benefits, these can be confirmed but there is no requirement to monitor the environmental benefits over time. Therefore, there is no investigation into whether environmental regulations have been complied with at the initial stages of the project and there will be no requirement of monitoring over the course of the projects.

At the moment, in practice, for woodland creation the compliance with the UKFS and other regulatory requirements takes place through FGS processes. However, it is not necessary to receive FGS funding to generate carbon units under the WCC. In the future, there may be less reliance on grant funding depending on the future prices of carbon, and the willingness of potential buyers and investors to fund new carbon projects without government support. Therefore, it cannot be assumed that all the projects registered under the WCC will be subject to a regulatory compliance audit.

In the past, forestry projects have been criticised for creating monoculture plantations, and as a result, the UKFS does have requirements for diversification. In adhering to the UKFS, a maximum of 75% can be allocated to a single species. Further, in all cases there must be a minimum of 10% open ground or ground managed for biodiversity, 10% must be other species and 5% must be native broadleaved trees or shrubs.[24] However, 75% is still a high percentage for one species and there is a clear risk that biodiversity and broader environmental impacts will be considered to the minimum extent possible in order to gain approval under the WCC.[25] This is not to say that all developers will design projects in this manner. Carbon units can be used to fund the restoration of native woodlands as well as creation and enhancement of woodland habitats.[26] However, the lack of certainty regarding the intentions of new investors in carbon markets means that sufficient oversight must be built into processes of creating value through carbon units.

Within the WCC, there is a required commitment to permanence, in that the landowner must commit to permanent land-use change to woodland cover.[27] However, the WCC is still applicable to primarily commercial woodlands which will be clearfelled for harvesting in 35 years, though these must be re-stocked. Indeed, up to December 2021, projects involving clearfell harvesting account for 54% of the land area covered by projects registered in Scotland.[28] In this way, the WCC can be used to provide extra support to a primarily commercial activity, with any broader environmental benefits being mostly incidental. Although there is a requirement of additionality under the WCC, at the moment carbon finance payments only need to equate to 15% of the project's planting and establishment costs up to year 10.[29] From 1 October 2022, changes to the additionality test mean that commercial forestry schemes are less likely to pass the additionality test. However, schemes will still be able to have a combination of carbon and timber income.[30]

Fears of greenwashing in relation to carbon markets can arise where carbon units are used to offset avoidable emissions. An example of this is where woodland carbon units are marketed by Shell to suggest that drivers can be "carbon neutral" by buying fuel from Shell.[31] Carbon projects should not be used merely as a way to offset emissions which are otherwise avoidable, and instead should only be used as a last resort for residual emissions.[32] This issue can be analysed as one regarding the integrity of carbon markets. However, it is also a question of the environmental impact of carbon markets – whether such markets will deliver the carbon mitigation effects which they promise.

In addition, and more broadly, the approach of natural capital accounting which places a value on a selected ecosystem service, such as carbon sequestration or reducing emissions, risks focusing too narrowly on that particular service. This leads to neglecting broader environmental elements, which may be impossible to value in monetary terms.[33] Ecosystems are complex systems with elements that interact in unpredictable ways and interventions which are based on simplistic formulas will not be able to predict potential negative consequences.[34] Taking an ecosystems approach, which is promoted by Scottish land and environmental policy, requires appreciating the interaction of various environmental elements and taking a holistic approach to their management at a landscape scale.[35] This is particularly important given the likely cumulative impacts of numerous carbon projects, which are implemented simultaneously and interact with each other over time. Currently these cumulative impacts are not subject to systematic monitoring or oversight.

The general Scottish policy framework recognises the crucial importance of environmental protection. Following the UK's exit from the European Union, the Scottish Parliament passed the UK Withdrawal from the European Union (Continuity) (Scotland) Act 2021 which contains guiding principles on the environment informed by EU Environmental Law.[36] These principles include that protecting the environment should be integrated into the making of policies, the precautionary principle as it relates to the environment, and the principle that preventative action should be taken to avert environmental damage. Both the current Land Use Strategy and the Land Rights and Responsibilities Statement recognise the importance of stewardship of Scotland's natural resources against the background of past and continuing environmental degradation.[37] However, as currently designed, the WCC and PLC are focused primarily on the incentivisation of woodland creation and peatland restoration for carbon sequestration or emissions reduction. Without adequate safeguards, this could lead to further environmental degradation. Action must therefore be taken to ensure that carbon projects adhere to regulatory requirements and have positive environmental outcomes.

2.2 Inclusion in Decision-making

Community engagement and empowerment are key priorities of the Scottish Government. Principle 6 of the Land Rights and Responsibilities Statement states that "there should be greater collaboration and community engagement in decisions about land."[38] The Scottish Government has also issued guidance on this topic.[39] This guidance specifies that "Scottish Ministers expect anyone who is making decisions about land to consider engaging communities about decisions that are likely to significantly impact on those communities, especially where such decisions impact on the human rights of community members at the local population level".[40] The guidance contains high level principles that engagement should be proportionate to the impact the decision may have on the community, collaborative and ongoing. Where decisions involve long-term or permanent changes, which are likely to have intergenerational impact, the guidance suggests formal methods of engagement such as carrying out engagement workshops or collaborating with the community to co-design the project.[41] Those involved in engagement should not just be other landowners, but should also include members of the local community who do not hold any property rights. This is of crucial importance due to the unequal distribution of landownership in rural Scotland which means property rights are held by a disproportionately small number of people.[42]

WCC and PLC projects involve long-term land use change so that the landowner and/or developer can sell carbon units. This locks in a particular type of land use and prevents changes in the future. The projects under the WCC last up to 100 years from the start date, but in all cases the landowner must commit to a permanent land-use change.[43] Where clearfelling is involved, the project duration is the shortest clearfell rotation.[44] The minimum project duration under the PLC is 30 years and for durations of more than 55 years, the project needs to show the duration does not exceed the extent of the peatland resources present.[45] It is clear, therefore, that these projects are likely to have significant and intergenerational impacts on local communities.

Under the WCC, it is a requirement that projects "provide an opportunity for, and take account of, inputs from stakeholders and feedback from local communities during both the project design phase and over the life-span of the project."[46] The Public Engagement in

Forestry Toolbox and Guidance[47] is referred to in the WCC in order to assist developers to plan public engagement. If an Environmental Impact Assessment needs to be carried out, Scottish Forestry recommends the developer holds a scoping meeting to consult with statutory consultees,[48] neighbours, Community Councils, and other interested parties. Scottish Forestry also undertakes consultation processes including publication of project details in a public register and local newspaper. If the developer applies under the FGS, Scottish Forestry also recommends early engagement with neighbours and the local community, and Scottish Forestry will place such applications on a public register.[49] Where there has been an application under the FGS or an Environmental Impact Assessment, it is sufficient for the WCC to provide details of the consultation undertaken through these processes.

The current PLC states that the project "shall identify, notify and consult relevant stakeholders or their representatives, where feasible."[50] The outcomes of consultation processes need to be recorded and action should be taken to mitigate any negative consequences or reasons should be given for lack of mitigation measures.[51] More detail on the expected scope and process of consultation is given in Version 1.2 of the Peatland Code, with an emphasis on proactive stakeholder engagement.[52] Landowners and developers also need to submit a prior notification to planning authorities for peatland restoration. As with environmental impact, it is important to ensure that consultation and engagement processes have been rigorously undertaken in accordance with the overall policy framework for land. However, much community engagement is merely recommended as good practice rather than being a legal requirement. Once again there is the risk that developers will carry out engagement to the minimum extent possible.

Sales of carbon units are currently implemented through a series of contracts between the landowner, developer (if applicable) and buyer, or between a carbon broker and buyer. The buyers of carbon units cannot use them to off-set emissions outside the UK or emissions for international aviation or shipping.[53] However, there is no restriction on the type of company or body which can buy carbon units, meaning that non-UK companies can purchase carbon credits, as long as they are used to off-set their UK emissions. Depending on the contractual arrangement, it is possible that a buyer of carbon units should be registered in the Register of Persons Holding a Controlled Interest in Land, which became operational on 1 April 2022.[54] This is because the owner may have entered into a contract which gives the buyer of carbon units the right to exercise significant influence or control over the owner's dealings with the land.

Although the current landowner may commit to the carbon sequestration project, there is a risk that the landowner transfers the property. In order to tackle this risk, the WCC and PLC require the landowner to inform future landowners of the commitment to the codes and any carbon contracts.[55] Merely informing future landowners, however, does not result in restrictions on land use which run with the land and bind future landowners. To ensure projects will be implemented as planned in the event of sale or transfer of the property, conservation burdens or climate change burdens can be registered against the land.[56]

It is clear that the projects designed through the WCC and PLC have long-term, intergenerational impacts on communities due to the commitments given by the landowner, the contractual structure between the landowner, buyer and potentially other parties, and any associated burdens registered over the land as a result of the projects. It is extremely challenging to factor in community impacts over such long timeframes because the

community which is consulted on the project before its start date, will not be the same community in 30 or 50 years' time. There may be community needs, such as requirements for extra housing capacity, additional community facilities, or other land use conflicts which arise in the future and which impact on the fulfilment of the human rights of the communities in question. This makes continuing engagement, as recommended by the Scottish policy framework, crucial in order to take into account intergenerational equity and ensure that there is an ongoing dialogue between the community and the landowner and/or developer of the project. However, even with ongoing engagement, due to the long-term commitments to land use change required by the WCC and PLC, there will be limited changes that the landowner and/or developer will be able to implement in the future due to the long-term locking in of land use.

2.3 Distribution of Benefits

In Scotland, large areas of rural land are highly concentrated in the hands of a small number of people.[57] The Scottish Government has a key policy objective to diversify landownership in Scotland. Principle 2 of the Land Rights and Responsibilities Statement states that there "should be a more diverse pattern of land ownership and tenure, with more opportunities for citizens to own, lease and have access to land."[58] Principle 3 states that more "local communities should have the opportunity to own, lease or use buildings and land which can contribute to their community's wellbeing and future development."[59] There are a range of community rights to buy which have been created through legislation in recent years in order to achieve this objective.[60] The Scottish Land Commission has also issued a Good Practice Protocol on diversification of ownership and tenure. This guidance outlines when landowners should consider selling or leasing land to communities, or forms of partnership working in relation to the land.[61] Further, the Scottish Government plans to introduce an additional land reform bill which will include a public interest test to apply to transfers of large scale landholdings.[62] Carbon markets must again be carefully evaluated and monitored to ensure that they do not operate against community ownership or lead to further concentration of landownership.

Under both the WCC and the PLC, ownership of the land or lease of the land needs to be demonstrated. In the event that the land is leased, and it is the tenant undertaking the project, the consent and commitment of the landowner must also be shown.[63] Implementing a project in this situation will inevitably involve negotiations regarding how the profits from selling carbon units will be split between landlord and tenant. For land subject to agricultural tenancies, there are limitations on the use of land which may prevent the implementation of a project and much depends on the specific details of the lease between landlord and tenant.[64] Similarly, for crofting, consent of the owner as well as the Crofting Commission may be required for implementation of a carbon project. This means that the landowner is the central figure whose consent is necessary in order to participate in carbon markets.

The creation of carbon markets, and the key role of the landowner, has important consequences in Scotland where land is unequally distributed. Atkinson and Ovando have shown that there are important distributional issues in relation to natural capital. By analysing the supply of air pollution removal and carbon sequestration services, they show that a significant proportion of these existing ecosystem services are delivered

by privately owned land in Scotland. Medium and large landholdings are particularly important for carbon sequestration.[65] Such landowners are not necessarily the owners of natural capital, but owners of the underlying asset, being the land, and therefore they have the ability to implement projects in order to profit from natural capital markets. Larger landowners can also use their power and position to influence natural capital policy, especially if there are payments for natural capital maintenance and enhancement.[66]

If large landowners are primarily the key figures who are currently entitled to consent to carbon projects and benefit from carbon markets, this risks providing an additional source of income to those who already own a significant amount of natural resources in Scotland. The Just Transition Commission noted this risk of implementing carbon markets in a Scottish context: "Part of ensuring a just transition must be about making sure the benefits of investment in carbon sequestration are felt as widely as possible. Without careful design and meaningful engagement there is a risk that benefits may flow mainly to large landowners and opportunities for community benefit will be missed."[67] This issue can be particularly problematic when landowners and developers are provided with grants as additional support for activities which can generate carbon units.[68] For peatland restoration, a recent report also raised the concern that landowners are being rewarded for rectifying damage caused by unsustainable land management practices.[69] Further, as carbon markets make land in Scotland an attractive investment, companies and other bodies are incentivised to purchase land which results in rising rural land prices. These factors can combine to make land even more expensive for local communities to purchase and create further concentration in landownership in Scotland.

However, carbon markets can also be a method through which community ownership projects can be viable by showing economic sustainability and creating an income stream. Economic sustainability can often be challenging for communities to demonstrate in order to exercise the community rights to buy.[70] Research by Community Land Scotland has shown that community owners are playing a leading role in tackling the climate emergency by taking a holistic approach to land management and benefiting from legitimacy in effecting behavioural change.[71] Communities, however, must be enabled to access land in order to participate in carbon markets as the level of their resources and expertise may be different to other private actors, and they may be excluded from opportunities where land transactions are taking place 'off market'.

2.4 Conclusion

This section has analysed the WCC and PLC in relation to environmental impact, inclusion in decision-making and distribution of benefits. The operation of these existing carbon markets has been evaluated in the context of the complex policy frameworks in relation to land in Scotland. Key pressure points have been highlighted such as the risk of further environmental degradation, permanent land use change to the detriment of intergenerational equity, and concentration of the benefits of carbon markets within the hands of large landowners. This section emphasised the importance of ongoing evaluation and monitoring of the operation of carbon markets to ensure the standards in the codes are maintained and that unintended consequences are minimised.

3. Lessons from History

There have been various periods through history in Scotland when existing natural resources have acquired a new use or value which makes them vulnerable to exploitation. The use of land and these resources has then been subject to regulation in the public interest in order to minimise negative social or environmental outcomes. Such regulation has taken different forms such as vesting land or rights in public bodies; designating land as protected due to special characteristics; or imposing a licensing regime for particular uses of land.[72] The type of regulation which is appropriate depends on the nature of the resource in question. In theory, a landowner owns the land from the heavens to the centre of the Earth, but this does not mean that she owns all the resources present on, above or under the land. Even if she does own the resource, there are often significant restrictions on the exploitation of that resource. This section outlines three examples which contain lessons for carbon markets and provides context for the final section on regulating carbon markets in the public interest.

3.1 Minerals

Mining for minerals is different to implementation of carbon projects in that minerals are a physical element of the land which is owned and which has value, though that value can fluctuate depending on demand for the particular mineral at any point in time. In contrast, for carbon projects, the landowner does not own the carbon in the atmosphere above her land. Carbon units are generated through the WCC and PLC processes. Nevertheless, the ownership and regulation of minerals has lessons for the implementation of carbon markets.

In Scots law, minerals beneath the surface can be owned separately from the surface of the land as 'separate tenements'. However, mining can have devastating environmental and social impacts and the owners of minerals cannot mine them indiscriminately. Owners of minerals owe a duty of support to the adjacent neighbours as well as the owners of the surface of the land. Mineral extraction also requires planning permission and adherence to a broad range of regulatory requirements. Coal is treated differently from other minerals and the industry was nationalised in 1946. This process involved substantial expenditure in compensating previous owners of coal. In the modern law, the Coal Authority owns unworked coal in Scotland and grants licenses for coal exploration and extraction.[73] The existence of separate tenements, such as minerals, in Scots law shows that the ownership of the surface of land does not necessarily mean the ownership of all resources on or under the land. Further, the nationalisation of coal provides an example of public authorities obtaining control over important natural resources together with a licensing regime for the exploitation of those resources.

3.2 Water

Water is more analogous to carbon than minerals. As with carbon, landowners also do not own the water running through their land, they merely have the ability to access and use this resource. This example again shows that landowners do not have unfettered rights to exploit the natural resources which may be present on their land.

There have always been restrictions on what landowners can do with the water running through their land, but it took some time to determine extent of these restrictions. The issue became controversial in the courts in the 18th and 19th centuries due to the use of water-powered mills. During the Industrial Revolution, further conflicts regarding water emerged as new large-scale industries developed which led to pollution of rivers and consumption of significant quantities of water. At this time, the courts recognised the need to prioritise water for domestic purposes and the resulting water rights system, entitled the doctrine of common interest, prevents any material interference with the quality, quantity, force or direction of the natural flow of a river except when water is used for domestic purposes.[74] In the modern law, further additional layers of regulation of water have been added and any interference with the water environment may require, in addition to other regulatory requirements, a Controlled Activities Regulations Licence, which is granted by the Scottish Environment Protection Agency.[75]

As can be seen, the courts developed a restrictive water rights system partly in response to the negative social impacts of the Industrial Revolution. This system was then overlaid with a modern licensing regime. However, the development of carbon markets in Scotland is happening too quickly, and having too many cross-cutting impacts, to leave it to the courts to develop a regulatory system. Instead, the functioning of carbon markets should be carefully evaluated, monitored and regulated in light of potential negative social and environmental impacts.

3.3 Wind

The exploitation of wind resources is the most analogous to implementing carbon projects. The frameworks for both harnessing wind power and encouraging carbon projects have been created to contribute to the transition to sustainability. Both wind and carbon are not objects which can be owned by a landowner. However, to establish a wind farm to generate renewable energy or implement a carbon project in order to sell carbon units, the consent of the landowner is crucial. When income streams are created to incentivise landowners and developers to implement wind power projects or carbon projects, the risk is that this provides additional benefits to large landowners instead of spreading the benefits amongst the communities where these projects are located.

In relation to onshore renewable energy projects, the Scottish Government has issued Good Practice Principles for Community Benefits.[76] This is voluntary guidance which suggests that project developers pay communities £5,000 per installed megawatt as well as consider wider benefit packages such as providing local jobs and creating paths for recreation. However, as this is merely voluntary guidance, there is no legal entitlement for communities to receive a benefits package from renewable projects.[77] Benefit funds also only represent a small percentage of the gross income of a project, which could be as low as 3%.[78] A recent report has suggested that if community benefit funds were implemented in relation to carbon markets, the funds raised would be very small and may shift the balance towards more commercial schemes which can absorb the cost of contributing to communities.[79] The Scottish Government, however, also supports communities to either invest in or lead renewable energy projects. The Scottish Government's Good Practice Principles for Shared Ownership of Onshore Renewable Energy Developments[80] provide a template which could be considered in the context of carbon markets.

3.4 Conclusion

When considering what type of regulation is appropriate for carbon markets, it is important to consider the nature of the resource in question. The carbon circulating in the atmosphere is not subject to ownership and landowners do not have any particular right to carbon which is inherent in their landownership. In order to generate carbon units to profit from carbon markets, landowners must adhere to the WCC and PLC processes. Further requirements and safeguards can be built into these processes or additional regulation can be imposed on carbon projects to ensure that they deliver environmental and social benefits, and that there is responsible investment in natural capital.

4. Regulating Carbon Markets in the Public Interest

This final section considers possible models of regulation and provides recommendations for the regulation of carbon markets in the public interest. Research reports are now emerging which analyse natural capital, carbon markets and green finance, and make policy recommendations. These reports show that there are several different factors influencing the operation and impacts of carbon markets, and a holistic approach to regulation is necessary.[81] Hollingdale notes that a "broad and systematic approach is needed: interventions that merely target new owners with green objectives will have a limited impact in the land market and would likely be counter-productive with respect to tackling the climate and biodiversity objectives. Measures must tackle the factors which drive up the price of land and discourage supply, and/or generate additional revenues and/or non-cash benefits for communities, whilst still facilitating a land-use transition to net zero."[82]

The Scottish Government's Interim Principles for Responsible Investment in Natural Capital show that the Government wants to ensure that carbon markets have positive environmental outcomes, that landowners and developers collaborate with local communities, and that partnerships are implemented which deliver community benefits.[83] The different options considered below have various advantages and disadvantages in relation to the achievement of that vision.

4.1 Possible Models of Regulation

Here we outline four possible models of regulation of carbon markets:

A. *Full Prohibition* of carbon unit trading. Market-led solutions aim to incentivise private investment for land use change. However, the ability of markets to deliver a range of private and public benefits, without exacerbating existing inequalities or causing further environmental damage is a highly disputed issue. Prohibiting carbon unit trading would stop the implementation of a market-led solution and instead land use change would be primarily funded by Government or philanthropic sources. This would have the advantage of preventing the production of any unintended consequences through the operation of carbon markets.

There are disadvantages of this model. Market-led solutions have been proposed because current Government and philanthropic funding is not sufficient to fund the scale of land use change necessary to transition to a net zero society. Further carbon markets are clearly being pursued at a UK level, and the Scottish Government is committed to supporting natural capital markets. This reflects a global trend towards creating and supporting carbon markets. Nevertheless, it is important to acknowledge the risks of market-led solutions and consider the ways in which private investment can be harnessed in a manner that minimises these risks.

B. *Public Carbon Planning.* This model involves the Scottish Government actively shaping carbon markets, including strategic planning and management of the carbon projects.[84] This active involvement of the Government at a policy and operational level could build on the existing planning frameworks. The draft Fourth National Planning Framework already anticipates a greater role for planning in restoring peatland and creating woodland.[85]

Under the planning framework, planning authorities could:

- Consider policy principles and criteria for woodland creation and peatland restoration in their respective Forestry and Woodland Strategies and Regional Spatial Strategies.
- Consider carbon markets explicitly in Local Development Plans and identify where using land for a carbon project on a permanent basis would be desirable. This would allow integration of carbon projects with future community needs such as land for housing or other community facilities.
- Identify the acceptable scale and nature of carbon projects in a given landscape, considering also broader environmental objectives, and reflect that in the relevant planning documents.
- Take advantage of Local Place Plans to support delivery of shared ownership of, or community-led, carbon projects. To facilitate this, the Scottish Government could provide guidance to communities about how to effectively incorporate carbon projects into their Local Place Plans, including what partnerships would help them to bring these plans to fruition.

These planning documents could then be taken into account when landowners and developers apply for registration of carbon projects under the WCC and PLC.

As well as using existing planning frameworks, the Government could introduce measures to better shape carbon markets including:

- Greater formalisation of the WCC and PLC, including legislative provisions. This would enhance the transparency and accountability of the governance of the WCC and PLC, specify grounds for challenging decisions and clarify responsibilities of all those involved.
- Introduce due diligence measures for the purchase of carbon units to ensure that buyers are only offsetting emissions which are genuinely unavoidable.
- Produce Good Practice Principles for Community Benefits from Carbon Projects. However, benefit funds would have to be carefully analysed to ensure that they did not discriminate against smaller or community-led projects. Community benefit funds could also have a greater impact on native woodland restoration projects because such projects generate more credits than primarily commercial forestry projects.
- Produce Good Practice Principles for Shared Ownership of Carbon Projects. These principles would encourage landowners and developers to explore including a community group as a financial partner for a carbon project in order to share the benefits of such projects more broadly.
- Integrate carbon project planning within the emerging Regional Land Use Partnerships.[86] This again would allow strategic coordination and overview of carbon projects as well as identify and facilitate partnerships between landowners, communities and other relevant stakeholders.

The main advantage of the planning approach is a possibility of integrating and coordinating climate objectives with broader community and environmental objectives. It could also provide a policy direction that is explicitly long-term, and that consciously anticipates the potential risks and benefits of carbon markets. Finally, this planning model would provide a greater level of certainty about a contribution that carbon markets could make to Scotland's emissions reduction targets, as more information would be available regarding existing and potential carbon units.

There are disadvantages to this model. Given that emission reduction targets are a strategic priority of Scottish Government, and with an ambitious aim to ensure that 21% of Scotland is covered in forests by 2032,[87] authorities generally have a permissive approach to new carbon projects. However, more explicit carbon planning, greater care in building partnerships and ensuring community engagement takes time. This model may limit the expansion of carbon markets to an extent, and slow down the development of new carbon projects. Finally, this model may be difficult to coordinate with the operation of voluntary carbon markets in the rest of the UK. The WCC and PLC are UK-wide initiatives and if the Scottish Government sought to provide greater formalisation for these codes, this would cause fragmentation between Scotland and the rest of the UK.

C. *Enhanced Oversight of Carbon Markets in the Public Interest.* This model involves additional safeguards and oversight to be built into the current operation of carbon markets to assess whether carbon projects are adhering to the broader policy framework regarding land in Scotland. There are various ways in which these safeguards could be implemented.

The Scottish Government could support the establishment of a Carbon Commissioner. A similar recommendation has been made by Green Alliance at a UK level.[88] Such a person could:

- Investigate the emerging issues in relation to carbon markets;
- Advise on the risks or benefits of supporting further codes intended to generate carbon units;
- Undertake ad hoc inspections of projects to ensure they are adhering to regulatory requirements and good practice standards;
- Investigate complaints raised by interested parties regarding carbon projects; and
- Issue guidance for participants in carbon markets.

In this way, the role of Carbon Commissioner is similar to the role of Tenant Farming Commissioner, which was established under the Land Reform (Scotland) Act 2016. A recent review of the functions of the Tenant Farming Commissioner provided positive feedback on the operation of the Commissioner and also suggested that the Commissioner should be given the authority to impose financial penalties for breaches of codes of practice.[89] It may also be appropriate to provide such powers to the Carbon Commissioner to ensure compliance with the guidance for participants in carbon markets.

There could also be enhanced scrutiny of environmental and social outcomes through the WCC and PLC processes. The registration, validation and verification processes are the way in which carbon units are generated and there could be more in-depth investigation into adherence with environmental regulations, the UKFS, and good practice standards of community consultation and engagement at these stages.

The advantage of this model is that it follows the current structure of carbon markets. This model would also reduce the risk of fragmentation between the operation of carbon markets in Scotland and the rest of the UK. It allows a fast pace of expansion of carbon markets, although it is likely that some additional delays could be created if the oversight of adherence with regulations and best practices is sufficiently rigorous.

The disadvantages of this model include that extra resources would be required to undertake a regulatory and best practice audit. Some may argue that it is not the role of the WCC or PLC to undertake this audit. Further, at the stage of registration of carbon projects, many of the decisions regarding design of the projects have been made. Therefore, there would be little scope for implementing broader community or environmental objectives after registration. Given the relatively limited control that the Government would exercise under this model, it would also be more difficult to ensure that carbon markets contribute to achieving other policy objectives especially at a landscape or regional scale.

D. *Facilitative Model.* This is the current model, where the Scottish Government supports and encourages a predominantly private sector-led market.[90] This has the risks, as analysed above, that the broader policy objectives in relation to land are not complied with, which produces negative social and environmental outcomes. This is a sub-optimal solution.

It should be highlighted that the four models identified here can be seen on a continuum, as they present a catalogue of policy and legal measures that could be pursued by the Scottish Government. In practice, elements from the different models could be combined. Nonetheless, the core of the regulatory approach taken likely falls under one of these four categories. It is therefore important to consider the advantages and disadvantages involved in each of these models.

4.2 Recommendations

Notwithstanding which model is adopted by the Scottish Government in the future here we summarise the general recommendations that flow from our analysis in earlier sections. We divide our recommendations into the three areas of emerging issues, which were the focus of our study.

Recommendations on Environmental Impacts

- Increase oversight and monitoring of environmental impacts of carbon markets.
- Implement an ecosystems approach by analysing the cumulative impacts of numerous carbon projects at a landscape level.

Recommendations on Inclusion in Decision-making

- Increase oversight and monitoring of adherence of carbon projects to good practice standards for community engagement.
- Explore possibilities to ensure intergenerational impacts on communities are considered at the design stage of the carbon projects.

Recommendations on Benefit Sharing

- Investigate policies around community benefit packages in the context of carbon projects.
- Create pathways for partnership with communities in relation to carbon projects or community ownership of such projects.
- Offer support and advice to communities regarding how to either implement a community-led carbon project or how to work in partnership with a landowner and/or developer.[91]

4.3 Conclusion

Tackling climate change through reducing emissions is one of the most important and urgent challenges facing humanity. Carbon markets have been celebrated as providing incentives for private actors to fund necessary land use change which results in carbon sequestration or reduced emissions, in light of the limited resources of Government. However, the broader environmental and social impacts of market-based solutions to the climate crisis must also be carefully analysed in order to ensure a just transition to net zero. Due to the unequal distribution of rural land in Scotland and the historic exclusion of local communities from decision-making in relation to land, there is a risk that carbon markets will exacerbate existing inequalities. Further, tackling one environmental challenge, namely climate change, should not create further damage to existing habitats and ecosystems.

This discussion paper has considered three emerging areas of concern in relation to the operation of carbon markets in Scotland and suggested recommendations for regulation of these carbon markets in the public interest. Land use will have to change in a rapid, large-scale and unprecedented way in order for Scotland to reach the net zero target by 2045. As was highlighted in beginning of this discussion paper, the decisions we make in relation to natural capital now will have long term consequences for the countryside and the people living there. Benton et al state that “achieving a complex, place specific outcome – ie carbon negative, nature positive, fairly distributed, food producing land – demands a complex decision making system.”[92] We cannot afford to allow a handful of private actors make the key decisions about natural capital which will affect everyone in Scotland for decades to come. Therefore, pre-emptive policy interventions are necessary to ensure that carbon markets make a positive contribution to the transition to sustainability.

Endnotes

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2 Scottish Government, Update to the Climate Change Plan 2018-2032: Securing a Green Recovery on a Path to Net Zero (Dec 2020) Ch 6.

3 The ‘voluntary’ carbon markets discussed in this paper operate separately from the markets for trading allowances derived from mandatory emissions reductions, imposed on the highest emitting industries, with their origins in the Kyoto Protocol and the EU Emissions Trading System. Mandatory carbon markets are bigger, and the allowances traded there are distinct from those traded in voluntary markets.

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7 WCC p8 and PLC p3.

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15 Scottish Government, Interim Principles for Responsible Investment in Natural Capital (Mar 2022).

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17 P Walton et al, State of Nature Scotland 2019 (2019) p2.

18 WCC p18.

19 WCC Online Guidance: Environmental Quality: www.woodlandcarboncode.org.uk/standard-and-guidance/4-environmental-quality.

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21 WCC Online Guidance: Environmental Quality: www.woodlandcarboncode.org.uk/standard-and-guidance/4-environmental-quality.

22 PLC p7.

23 WCC p7. See also PLC p7.

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