

Department for Environment, Food and Rural Affairs

Government Response to the 2nd report of the House of Lords Science and Technology Select Committee on the potential contribution of nature-based solutions to net zero in the UK “Nature-based solutions: rhetoric or reality?”

Introduction

The Government is grateful to the House of Lords Science and Technology Select Committee for its report ‘*Nature-based solutions: rhetoric or reality?*’.

The Government is pleased that the Committee has recognised our ambitious plans for nature-based solutions to contribute to tackling climate change and avert its impacts. The Government welcomes the challenges and risks raised by the Committee and is taking action to address these. The Government, alongside our delivery partners, is committed to ensuring that we continue to overcome any risks facing the delivery of our plans around nature-based solutions, so we can achieve the maximum benefit for climate mitigation, adaptation, biodiversity, and our wider environmental objectives.

The Government is taking the following action to address the key recommendations raised in the report and the risks to the delivery of these plans.

- **Investing in research, skills training, and delivery of nature-based solutions:** The Government recognises the importance of investing in research and skills training in the delivery of nature-based solutions. The Green Jobs Taskforce¹, launched in November 2020 to set the direction for the job market as we transition to a high-skill, low carbon economy, advised government, industry and the skills sector on how to realise the UK’s ambitions for green jobs. Their remit included the skills needed to reach net zero greenhouse gas emissions by 2050. Their recommendations², published in July 2021, helped to inform the development of the Net Zero Strategy. Embedding skills will be a part of the Government’s Environmental Improvement Plan review process. We will provide responsible authorities with materials, resources, and specialist advice from Defra public bodies, to ensure they are ready for the roll out of Local Nature Recovery Strategies, and to support the wider sector to deliver local nature-based solutions. We are also exploring the best ways to support farmers and land managers (including forestry and peat sectors) to develop their skills and build experience of delivering environmental outcomes through the Sustainable Farming Incentive. This is in addition to the new T Level³ (nationally recognised

¹ <https://www.gov.uk/government/groups/green-jobs-taskforce>

² <https://www.gov.uk/government/publications/green-jobs-taskforce-report>

³ [Introduction of T Levels - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/introduction-of-t-levels)

qualification) in Agriculture (available by September 2023), and Wave 3 Skills Bootcamps⁴ (free, flexible courses for adults, of up to 16 weeks). We are also investing in the skills needed to deliver nature-based solutions across England (£80 million Green Recovery Challenge Fund and the £10 million Natural Environment Investment Readiness Fund - NEIRF).

Providing certainty on how farmers and land managers will be paid for delivering

nature-based solutions: We agree that it is important to provide farmers and landowners with information they can use to plan for, and be clear about the role that environmental land management schemes can play in, achieving the Government’s environmental targets. In recent months the Government has published more detailed information on the environmental land management schemes (*Sustainable Farming Incentive(SFI)*⁵ and *Local Nature Recovery*⁶ and *Landscape Recovery*⁷). We will also be publishing more detailed information about Local Nature Recovery this year. We have a comprehensive programme of engagement in place, and we are designing our schemes in partnership with farmers and landowners, ensuring we maximise our reach and bring the voice of farmers into our work. As well as our environmental land management schemes, we are running a range of schemes to support farmers and their businesses through the agricultural transition. We have seen a 40% increase in applications for Countryside Stewardship in 2021 compared to 2020. This is very much a bridge into our new schemes, and we have increased payment rates by an average of 30%. We also received 938 applications for the Sustainable Farming Incentive pilot in the application window from July-September 2021.

- **Managing competing demands on land:** Meeting our climate targets will require careful consideration about the way we use our land, considering food production, tree planting, peatland restoration and biomass production. We are also exploring other demands that will be placed on land to meet government’s commitments on biodiversity and nature recovery, climate adaptation, food security and housing and infrastructure. Defra is currently conducting spatially explicit analysis bringing together social, physical, economic, and ecological evidence to assess the level and type of changes indicated by government commitments. This analysis will help to support multifunctional land uses and inform our approach to managing trade-offs. This approach and the need for a land use strategy will be kept under review as the work progresses this year.

⁴ <https://www.gov.uk/government/publications/find-a-skills-bootcamp/list-of-skills-bootcamps#green-skills>

⁵ <https://www.gov.uk/government/publications/sustainable-farming-incentive-how-the-scheme-will-work-in-2022/sustainable-farming-incentive-how-the-scheme-will-work-in-2022>

⁶ <https://www.gov.uk/government/publications/local-nature-recovery-more-information-on-how-the-scheme-will-work/local-nature-recovery-more-information-on-how-the-scheme-will-work>

⁷ <https://www.gov.uk/government/publications/landscape-recovery-more-information-on-how-the-scheme-will-work/landscape-recovery-more-information-on-how-the-scheme-will-work>

- **Facilitating private finance:** The Government recognises the importance of facilitating private investment in high-quality nature-based solutions and agrees that buyers and sellers should be able to aggregate projects and combine multiple revenue streams. The government plans to work with stakeholders to develop a more stable and comprehensive standards framework, for carbon and other investment services, later this year, and help ensure their use is beneficial for the climate, people, and nature.

It should be noted that Defra net zero sectors are mostly devolved and so the Natural Resources, Waste and F-gases chapter in the Net Zero Strategy⁸ largely outlines policies for England. We will continue to work closely with our counterparts in the Devolved Administrations to ensure we get to net zero by 2050.

The conclusions and recommendations of the Committee and the government's response to these are below.

Response to Committee conclusions and recommendations

Chapter 2: Nature-based solutions in the UK

Forests

1. **Faster growing trees sequester carbon more quickly, but surviving, old growth, mixed woodlands are large stores of carbon. The scale of the contribution that fast growing, commercial, forestry can make to net zero by 2050 is significant, but it depends on how harvested wood is used.**
2. ***We recommend that a life-cycle analysis be undertaken to calculate the carbon benefits of tree-planting. The fate of the carbon must be monitored beyond harvesting: it is not enough to plant a tree and consider that carbon “sequestered”. When deciding which trees to plant, the Forestry Commission must consider factors including resilience to climate change, disease, the risk of fire and potential release of carbon, carbon storage potential, including in the soils, and biodiversity benefits.***

The Science and Innovation Strategy for forestry in Great Britain⁹ sets the priorities for forestry research in Great Britain. This research includes impacts of forest operations on soils, soil carbon and the wider environment, and forest management of different types and scales, for carbon sequestration, flood management, climate adaptation and building resilience. It builds on

⁸https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1033990/net-zero-strategy-beis.pdf

⁹ <https://gov.wales/sites/default/files/publications/2020-10/science-and-innovation-strategy-for-forestry-in-great-britain.pdf>

more than 30 years of research into carbon accounting undertaken by Forest Research. Scottish Forestry, working with the Forestry Commission and forestry departments in Wales and Northern Ireland commissioned a report in 2021 entitled 'Quantifying the sustainable forestry carbon cycle' which will be published in early summer 2022. As well as exploring the carbon balance of woodland creation and forest management, the report will consider retention and loss of carbon in wood products, greenhouse gas emissions avoided by using wood products, and wood product cascading. This will inform tree planting and forest management decisions across the UK. Furthermore, our England Tree Action Plan makes clear that the right tree must be planted in the right place and that includes considering climate adaptation requirements.

3. We recommend that the Government sets a target for emissions reductions from the agriculture, forestry and other land use sector in line with the Committee on Climate Change's recommendations and interim targets.

The Net Zero Strategy sets out a range of policies and proposals across the economy, including for reducing emissions from agriculture, land use, land use change and forestry. It also sets out an indicative emissions pathway for each sector, presented as a range. For the agriculture, land use, land use change and forestry sector, these ranges ¹⁰are: 51-57 MtCO₂e per year by carbon budget 4, 44-52 MtCO₂e in 2030 (the year our Nationally Determined Contribution target must be met) and 38-48 MtCO₂e per year by carbon budget 6. Ranges are necessary to reflect uncertainty from macroeconomic trends and in underlying baseline emissions.

Our carbon budgets and our overall net zero target are in line with the Climate Change Committee's (CCC) advice. Taken together the transitions set out in the Net Zero Strategy for every sector of the UK economy keep us on track for carbon budgets 4, 5 and 6, our 2030 Nationally Determined Contribution, and ultimately for net zero by 2050. We will monitor progress to ensure we stay on track for our emissions targets and respond to developments affecting our long-term goals.

4. We recommend that, as part of the agricultural transition, research and development is conducted on farms to better understand carbon emissions from farms and the practices that can reduce them. The Department for Environment, Food, and Rural Affairs should fund on-farm research projects and it should monitor them to ensure research is conducted to an appropriate standard. This could be funded through tax credits and grants. The Department should investigate and address any regulatory barriers to conducting this research and development.

Defra recognises the importance of better understanding carbon emissions and farming practices that can reduce them, and the Government is committed to exploring the monitoring, reporting and verification (MRV) of emissions in the agriculture sector. This will enable us to understand where the greatest decarbonisation opportunities could be across the sector,

¹⁰https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1033990/net-zero-strategy-beis.pdf (publishing.service.gov.uk). (See Table 8, Technical Annex)

considering all options. Defra is currently carrying out research on carbon audit tools which are a potential means of gathering data to support MRV.

There are also numerous existing and planned initiatives that focus on research and development conducted on farms to better understand carbon emissions and a number of these are referred to below.

1. As part of the environmental land management schemes, Defra has been running tests and trials since 2018, in partnership with farmer groups, representative bodies and non-governmental organisations. For example, the Defra supported 'NFU Net Zero test and trial' will explore how a carbon calculator benchmarking tool will help farmers understand their current greenhouse gas performance, and how this may inform land management planning.
 2. Defra funds applied research on farm scale interventions to understand agricultural emissions of greenhouse gases and how to reduce these. In 2021/2022 this funding amounted to £4.9 million and included projects such as the Beef Feed Efficiency Programme; research to understand rotational "mob" grazing; and optimisation of diets in dairy systems to reduce emissions and waste. All of this research involved farm trials.
 3. Defra and UK Research and Innovation (UKRI) launched a new Defra-funded £14.5 million industry-led research and development (R&D) competition for agriculture and horticulture in March 2021, 'Farming Innovation Pathways'. Funded by Defra's Future Farming and Countryside Programme and delivered through the Transforming Food Production programme, this farmer-led research is aimed at developing new and existing farm-focused innovations to drive green growth in the sector, including on reducing carbon emissions.
 4. Building upon this, Defra launched the first competitions of the new Farming Innovation Programme (FIP) in October 2021. The FIP will bring together farmers, growers, and agribusinesses with researchers for a range of different types of industry-led R&D projects, supporting them to address the challenges of productivity, environmental sustainability and achieving net zero emissions whilst adapting to a changing climate. On 30 March 2022, as part of the FIP, Defra and UKRI launched a new 'Climate Smart Farming'¹¹ competition focussed on developing solutions to mitigate GHG emissions in farming practices and help the sector adapt to climate change.
- 5. We recommend that the Forestry Commission should keep its policy on tree-planting on peaty soils under review. The policy may need to be strengthened if evidence about the net carbon balance of planting shows that it is negative.**

The Forestry Commission, Forest Research and Natural England published an interim decision-making framework for woodland establishment and peat protection in 2021. A new working definition of 30 cm for 'deep peat' is included in the guidance for application in England (to

¹¹ <https://apply-for-innovation-funding.service.gov.uk/competition/1124/overview>

enable more effective restoration by protecting more of the carbon store in deep peat from disturbance by planting). However, more evidence is still required to fully understand the net carbon balance and impacts of planting trees on peaty soils. This is specifically being considered as part of our peat R&D pipeline planning for the next Spending Review (SR) period. It will build on Forest Research's ongoing programme of research to better understand the interactions between trees and peat, funded through the Science and Innovation Strategy for Forestry in Britain.

The England Trees Action Plan and England Peat Action Plan have been aligned to deliver a more joined up approach to land management and both Action Plans commit to: (a) developing new guidance for England that will help determine when afforested peat should be restored to bog, and to minimise impacts on peaty soils from tree planting; (b) developing metrics that allow decision-makers to assess the realistic costs of forest to bog restoration; and (c) improving land use decision-making through the new peatland map data, once it is complete in 2024. The treatment of peat and trees is also a consideration of the ongoing review of the UK Forestry Standard, and we are finalising new guidance for woodland creation and restocking to protect peatlands.

Marine environments

- 6. There are large gaps in the evidence pertaining to carbon sequestration and storage in marine habitats. Saltmarshes and seagrasses are better understood, but uncertainties remain. The understanding of other habitats for nature-based solutions, such as, kelp forests, shelf sediments and algae, is less mature.**
- 7. *We recommend that the Department for Environment, Food and Rural Affairs supports research that focuses on establishing the current and historical extent of marine habitats, their carbon sequestration rates, and their long-term potential for carbon storage.***
- 8. *We recommend that a blue carbon mapping exercise for the UK exclusive economic zone be undertaken, learning from the Scottish Blue Carbon Forum. This should involve collaboration between Natural England, the Crown Estate, the Marine Management Organisation, academics, and other relevant public bodies.***
- 9. *We recommend that the Marine Management Organisation establishes research programmes to investigate the cause of the decline of marine habitats, such as seagrasses, and the potential effects of eliminating bottom trawling on carbon sequestration in the marine environment.***

Joint response to recommendations 7, 8 and 9

We accept the importance of the recommended areas of research, and we are working hard with partners to progress the evidence base in these areas.

On Ocean Action Day at COP26, the UK announced its intention to establish a new cross-Administration UK Blue Carbon Evidence Partnership (UK BCEP) to progress the evidence base on blue carbon habitats in the UK. Through this partnership, UK Administrations will work together to address key research questions related to blue carbon policy, including the development and implementation of a roadmap to establish the mitigation potential of blue carbon, to enable the future inclusion of saltmarsh and seagrass in the UK greenhouse gas inventory. Recognised evidence gaps include current and historical extents, associated activity data and emission factors for habitats in scope. We are also engaging with the recently established UK Blue Carbon Forum, led by civil society, to ensure appropriate links are made with the UK Blue Carbon Evidence Partnership.

A wealth of evidence and reports in this area have already been produced across the Defra Group and the marine science community, including Defra commissioned evidence projects delivered by Natural England, the Joint Nature Conservation Committee (JNCC), and Centre for Environment, Fisheries and Aquaculture Science (Cefas).

A report delivered by Cefas was published last year which collated blue carbon measurements taken from coastal wetlands and the seabed, helping to improve our understanding of carbon sequestration rates, and their long-term potential for carbon storage, as well as highlighting where further scientific action should be focussed¹². Defra also recently published a report on 'Blue Carbon - Mapping Risks and Opportunities', delivered by Natural England¹³, which has mapped the extents of existing coastal blue carbon habitats in English waters, and the reasons for historic and recent declines of key marine habitats, such as seagrass and saltmarsh. The Environment Agency will also be publishing updated habitat maps for saltmarsh extent and working with Natural England to produce an English national seagrass extent map.

We accept there is more evidence to be gathered in all the areas recommended, and we continue work to build that evidence base. We will explore opportunities to work in collaboration with others to achieve this, in particular through the establishment of the UKBCEP and close working with the new UK Blue Carbon Forum.

Need for further research

- 10. While it is important that gaps in the evidence base are filled, the gaps should not act as a barrier to the large-scale adoption of nature-based solutions. The exact impact of nature-based solutions will be known only after they have been tried and monitored in the long-term, but evidence already indicates a positive impact. Given the urgency of the climate and biodiversity crises, there is no time to waste. The fact that it is not possible to quantify exactly the carbon loss due to marine shelf sediment disturbance, or to other activities, should not prevent the protection of these habitats.**

¹²[Defra, UK - Science Search](#)

¹³[Defra, UK - Science Search](#)

11. We recommend that, where there are gaps in the evidence, policy should adopt a precautionary approach, weighted in favour of nature.

We accept and agree that it is appropriate to, and do, incorporate the Precautionary Principle in various forms, in the development of domestic policy, legislation and regulation, and in domestic and international agreements and declarations. We would not automatically see gaps in data as a barrier to adopting a precautionary approach weighted in favour of nature. There are instances where more data is required and those where a more proactive approach is possible and appropriate.

An example of the adoption of a precautionary approach is the Soil Health Action Plan for England, which is being developed to deliver a strategic and coherent plan for multiple outcomes. This includes looking at how land management practices and planning can be adapted to help protect soil and make it more resilient to the impacts of climate change. The plan will also set out a healthy soil indicator, soil structure monitoring methodology and a soil health monitoring scheme to help land managers and farmers track the health of our soil over time and the impact of their management practices.

As a further example, helping the fishing industry develop and deploy less damaging gear will be a central thread in our work, for example, through support for evidence, innovation and adaptation through the UK Seafood Fund and Fisheries and Seafood Scheme (FaSS). We will establish a working group, as proposed in the UK Marine Strategy, that will work together to identify and implement measures that can reduce the main pressures affecting benthic habitats, in Spring 2022.

- 12. There is uncertainty about the long-term sequestration potential of nature-based solutions across habitats. Nature-based solutions that are not resilient to adverse weather, human activity, a changing climate, or pests and disease risk being ineffective and releasing any carbon they sequester. Monitoring will allow lessons to be learned from schemes that succeed, and from those that fail.**
- 13. Monitoring technologies such as Earth Observation are potentially important. However, they cannot substitute for direct measurements on the ground. Uncertainties have direct implications for policy. They are greater for ecosystems that are less well-understood than woodlands and peatlands. Emissions factors are useful for estimating the contribution of habitats to greenhouse gas emissions across the UK. But nature-based solutions are inherently local and must be understood on a local level.**
- 14. We recommend that long-term research and monitoring be supported and overseen by the relevant departments and their public bodies, including Natural England and UK Research and Innovation, to ensure schemes are resilient and deliver as promised. The research and monitoring programmes should support direct and indirect measurements of greenhouse gas fluxes on a range of representative sites for key habitats in the UK to**

address uncertainties concerning the timescale and duration of carbon storage and sequestration for all habitats.

The government recognises the importance of monitoring, and direct measurements on the ground, to understanding the sequestration potential of nature-based solutions. A number of research and monitoring projects, in both marine and terrestrial environments, are planned or already underway with relevant public bodies such as:

1. The multi-year, Natural Capital Ecosystem Assessment (NCEA) is delivered through external research contracts, Natural England, and the Environment Agency. Its purpose is to assess and describe the extent and condition of England's biodiversity, ecosystems, and natural capital assets. Through this programme Defra has begun to, and will continue to, generate the evidence base to assess the status of our natural environment and inform, amongst other areas, the environmental land management schemes, and net zero. It will provide reliable data on carbon stocks and biodiversity within England's soils, peatlands, trees, and marine habitats, showing where we need to make changes and how effective they are. It will provide a robust baseline and maps of the condition of England's natural capital assets on land and sea, enabling better informed, speedier decisions on trade-offs and synergies e.g., to boost soil health, or plan offshore wind development or land use change.
2. Regional evidence and indicator development are due to be commissioned this year to support the implementation of the Global Biodiversity Framework (GBF). This will include projects to identify opportunities and best practice for marine ecosystem restoration and nature-based solutions (particularly sequestration through blue carbon habitats), in support of the GBF targets to restore 20% of degraded ecosystems by 2030 and implement nature-based solutions to enhance climate resilience and mitigation. Natural England, JNCC, and Cefas are likely to be involved, with JNCC currently leading on a feeder project that will contribute towards this programme.
3. Defra is also funding Research and Development, to be delivered in partnership with UK Research and Innovation (UKRI) and Agritech Centres of Agricultural Innovation (and others), R&D exploring the potential of Agroecology and Regenerative Agriculture in helping to achieve net zero emissions. It will support decision-making on optimal land use options to achieve net zero, broader environmental and biodiversity benefits, and the future farming programme.
4. Defra's flooding and water policy teams are also exploring potential collaborations with UKRI in several areas involving nature-based solutions such as wetland/saltmarsh creation to mitigate emissions of GHG and in offshore wind operations. Specifically looking at innovative approaches to deployment, including options for nature-based and nature inclusive design, that help support Marine Net Gain work.

Other conclusions and recommendations

15. The Government's focus has been mostly on large-scale land sparing approaches, such as large-scale tree planting and peatland restoration, for which the evidence base is strongest, rather than land sharing approaches and improved management of ecosystems. Land sparing is likely to sequester more carbon than land sharing, but it may entail more trade-offs.

16. *We recommend that research programmes be established to fill uncertainty gaps in the impact of land sharing techniques, including hedgerow planting, silvopasture and agroforestry and the effect of these practices on soil carbon storage and sequestration.*

Defra recognises the importance of understanding the complexities and trade offs between land sharing and land sparing approaches to delivering government commitments on food security, resilience, climate change and the environment. Defra has a programme of relevant systems research planned, to explore the role of consumer demands, technological innovation, land management, nature-based solutions, and the potential expansion of the bioeconomy. The work will explore emerging mitigation technologies and refresh our understanding of soil carbon and the role of restoration agriculture in mitigation and adaptation strategies.

The government recognises that silvopasture and other systems of agroforestry can play an important role in addressing some of the key environmental and economic challenges of land management, by using land more efficiently for example by combining trees with animals or crops. Defra is undertaking research through environmental land management test and trials to test the feasibility of mechanisms to support and increase agroforestry uptake in England. This test will collate and review current information on barriers and incentives to uptake and we will utilise this information to explore further advice and guidance needs and payment incentives to include agroforestry into their land management planning.

17. Restoring nature is often more complex and costly than protecting it. Restored ecosystems may take a long time to recover biodiversity and carbon stores, if they ever do. Policy should not assume that it is possible to 'recreate' in another place the natural systems that are destroyed.

18. *We recommend that the Government makes it a priority to protect the natural ecosystems that remain wherever this is possible to ensure the significant stores of carbon in these habitats are not emitted.*

The government has world leading commitments to halt the decline in nature by 2030 and then turn the tide by placing it on the pathway to recovery through the new legally binding targets we are currently consulting on under the Environment Act 2021. We recognise that nature recovery and climate mitigation and adaptation are closely linked and amplified this at COP26. The Prime Minister has also committed to protecting 30% of land and sea by 2030, as part of the Leader's Pledge for Nature.

We have recently published our Nature Recovery Green Paper, setting out our proposed approach to delivering this commitment. Across the UK, 6.8 million hectares of land are currently protected in some form, either as protected sites or landscapes (27.8% of the land area in the UK; 26.4% in England). Within this area, 2.59m hectares are statutory sites such as Sites of Special Scientific Interest or European Protected Sites such as Special Protection Areas or Special Areas of Conservation (10.6% of the land areas of the UK to mean high water around 6.5% in England). In UK waters, there are 372 sites protecting 38% of our seas.

The government has a number of policies and initiatives aimed at protecting and restoring nature at land and sea including:

- Introducing Protected Site Strategies which are designed to protect and restore sites whilst maximising local economic benefits. They will identify pressures and threats sites face, potential remedial actions, and the individuals or organisations responsible.
- Delivering a Nature Recovery Network, an expanded network of sites that are wildlife rich and more resilient to climate change. The Network will involve the creation and restoration of over 500,000 hectares of habitat.
- Introducing conservation covenants in England, legally binding agreements between a landowner and a designated “responsible body” to conserve natural or heritage features on that land, helping to ensure that existing habitats are effectively maintained in the long term.
- Designating pilot Highly Protected Marine Areas (HPMAs) in England, including areas containing important habitats for long-term carbon storage.

In the Net Zero Strategy, we committed to restoring approximately 280,000 ha of peatland in England by 2050; and by implementing the England Peat Action Plan, we are ensuring that our peatlands are more resilient to climate change, preserving carbon stores and reducing their emissions.

Chapter 3: Supporting nature-based solutions at scale in the UK

Turning pledges for nature into plans

19. The Government’s pledges for nature restoration are welcome and are largely consistent with the recommendations of the Committee on Climate Change (CCC). But some of its pledges are not aligned with those from the CCC. The pledges are undermined by a lack of clarity on the meaning of terms such as “protected areas” or “engagement with low-carbon farming practices.”

20. We recommend that the Government follows the recommendations from the Committee on Climate Change in setting targets for nature-based solutions. Where it does not do so, it should provide an evidence-based explanation as to why not, and how it can still reach net zero. It should define terms in its pledges where definitions are contested; this applies particularly to the term “protected”.

The Government has driven forward ambitious policies to support the protection, enhancement and resilience of the natural environment and the mobilisation of nature-based solutions to tackle climate change. Mitigating climate change is one of the ten goals in the 25 Year Environment Plan (25 YEP), which, under the Environment Act, will be adopted as the first statutory Environmental Improvement Plan. As part of the first review of the 25 YEP (by January 2023) the Government will consider whether further or different steps are needed to improve the natural environment, as compared to those set out in the current plan.

We are introducing legally binding long-term environmental targets under the Environment Act, which will drive action by successive governments to protect and enhance our natural world. These targets will cover nature-based solutions, including creating or restoring in excess of 500,000 hectares of a range of wildlife-rich habitat outside protected sites by 2042, compared to 2022 levels and increasing woodland cover from 14.5% to 17.5% of total land area in England by 2050. They will support the delivery of many of the Government's priorities, including to reach net zero by 2050 and build resilience against the impacts of a changing climate. We have recently launched a consultation to seek views on new targets under the Environment Act.

As well as the Environment Act targets, the Net Zero Strategy also set out the Government's ambitious targets for nature-based solutions to support the delivery of our carbon budgets, including commitments to:

- Treble woodland creation rates by the end of this Parliament reflecting England's contribution to meeting the UK's overall target of increasing planting rates to 30,000 hectares per year by the end of this Parliament and maintain new planting at least at this level from 2025 onwards.
- Encourage and support increased agroforestry through our environmental land management schemes from the early 2020s.
- Restore at least 35,000 hectares of peatland in England by 2025, through the Nature for Climate Fund.
- Restore approximately 280,000 hectares of peat in England by 2050, including via funding from the new environmental land management schemes. Where it is not possible to restore peatlands, we will support new responsible management for lowland peatlands.

We have carefully considered the Climate Change Committee's recommendations across each of the sectors, stretching ambition across the board. It is vital that we have strong ambition which we know is achievable and realistic, as well as compatible with other government priorities. Therefore, in some cases there are differences compared with the CCC recommendations, but the overall carbon budget ambitions remain consistent.

The recently published Nature Recovery Green Paper¹⁴ also considers how we can help achieve nature recovery by improving how we protect our sites and species. UK protected sites,

¹⁴ <https://consult.defra.gov.uk/nature-recovery-green-paper/nature-recovery-green-paper/>

including Sites of Special Scientific Interest (SSSI) in England, Scotland and Wales, and European protected sites, are regularly monitored using UK 'common standards monitoring', a mechanism which meets the international Protected Area Management Effectiveness (PAME) evaluations. The Nature Recovery Green Paper sets out proposals to create a protected sites system which better reflects the latest science and the impending impacts of climate change, one which better reflects our domestic species and habitats, and our significant goals to recover nature.

With regard to the specific definition of 'protection', the UK's terrestrial protected areas have different definitions and applicable standards for protection. They are all identified areas as meeting the International Union for Conservation of Nature (IUCN) non-hierarchical sub-management categories (I) to (VI) and are appropriately differentiated by their primary management objectives and conservation areas for biodiversity. The inclusion of the IUCN's category (V) wider protected landscapes, Areas of Outstanding Natural Beauty (AONB) (England, Wales, and Northern Ireland), National Scenic Areas (NSA) (Scotland), and National Parks (England, Scotland, and Wales) have also been agreed by IUCN as qualifying protected areas as part of the C1 biodiversity indicator.

Public delivery bodies

- 21. Collaboration between the delivery bodies is welcome and should be encouraged. But the Government's targets for nature restoration demand a great deal of these bodies and their budgets are not adequate to meet the challenge.**

- 22. *We recommend that the budgets of the delivery bodies be increased to allow them to support the Government's ambitious targets. The delivery bodies should be encouraged to collaborate so that the multiple benefits of nature-based solutions are realised. The Department for Environment, Food, and Rural Affairs should provide clarity over which responsibilities are delegated to each public delivery body for regulating and delivering nature-based solutions, especially for marine nature-based solutions.***

The budgets and responsibilities of delivery bodies are reviewed each year during business planning rounds and shared with arms length bodies (ALBs). We also have a Defra group outcome delivery plan where the department and delivery bodies collaboratively work together to deliver our outcomes which provides clarity of responsibilities and enables joint delivery of cross-cutting priorities, including nature-based solutions. We regularly review our ways of working to ensure we collaborate effectively to deliver our nature recovery objectives, and encourage collaboration to realise multiple benefits

The recent three-year Spending Review settlement for Defra Group gives us the certainty with which to plan for the delivery of our ambitious outcomes. The settlement recognises the Government's strong commitment to the environment and the vital work that must continue on

the 25 Year Environment Plan¹⁵, the delivery of Net Zero and investment in our globally recognised science capabilities. Our settlement secured a £1.4 billion uplift by 2024/25. This reflects the increases in capital investment we have secured to support our Net Zero strategy, climate adaptation in particular flood defences, and increases in spending on science and digital. We have ambitious outcomes to deliver and certainty over the resources to support them. Over the coming months we will be taking forward important work across the Defra Group to optimise the use of all our resources, our technologies and ways of working, to deliver the best possible impact by 2025. As part of this we are exploring how our ALBs can be better equipped to deliver our substantial commitments. The recently published Nature Recovery Green Paper, sets out our ambitions to ensure that Defra Group's future institutional and delivery arrangements are optimised to support the Government's objectives for nature recovery.

Barriers to adoption of nature-based solutions: Transition to Environmental Land Management schemes

- 23. The transition from the Common Agricultural Policy to Environmental Land Management schemes will require long-term changes to land use, but funding is not yet guaranteed in the long term.**
- 24. We recommend that the Department for Environment, Food and Rural Affairs provides urgent clarity about the nature of Environmental Land Management schemes and which activities they will subsidise. Funding should be assured in return for a long-term commitment to good practice. The new schemes that are introduced should be based on proper and transparent evidence. They must have defined metrics to evaluate success or failure so that they can be adapted to evolving evidence. It must be clear how these schemes will interact with wider agricultural and environmental policies.***
- 25. The transition to Environmental Land Management schemes demands a lot from land managers and farmers. Some of them feel that they do not have sufficient support. Poor communication and a failure to convince land-managers of the benefits of the change will lead to a transition that fails. Maintaining flexibility in Environmental Land Management schemes to permit land sharing approaches could help to address the lack of engagement and reluctance from land managers.**
- 26. We recommend that the Government improves communication with land managers. Land sparing approaches will have to play a significant role in reaching net zero targets, but land-sharing approaches should be included in Environmental Land Management schemes where possible, and where evidence suggests they deliver carbon benefits. This will make the transition to providing “public money for public goods” easier and more acceptable for land managers.***

¹⁵ <https://www.gov.uk/government/publications/25-year-environment-plan>

Joint response to recommendations 24 & 26

We agree that it is important to provide farmers and landowners with information they can use to plan, and to be clear about the role environmental land management schemes can play in achieving the Government's targets. In recent months, the Government has published more detailed information on the environmental land management schemes. We have seen a 40% increase in applications for Countryside Stewardship in 2021 compared to 2020, and we have increased payment rates by an average of 30%. We see Countryside Stewardship as a bridge to Local Nature Recovery. We also received 938 applications for the Sustainable Farming Incentive pilot in the application window from July-September 2021, which was in line with our target uptake for the pilot.

In December 2021, we published details of how the Sustainable Farming Incentive will work¹⁶ in the first year of its rollout (2022), and how we intend to expand the scheme over the next three years. The Sustainable Farming Incentive focuses on making agricultural activities more sustainable and will pay for actions that all farmers can choose to take. This scheme will pay for actions that can be taken at scale, across the whole farmed landscape, in order to have the most impact. This includes reducing inorganic fertiliser and pesticide use, taking care of our soils, and improving farmland biodiversity, water quality and carbon sequestration. As stated in the publication, standards will be introduced incrementally. Our initial standards have been chosen because they apply to most farmers in England, have little overlap with existing agri-environmental schemes, and will bring significant benefits, including for carbon and biodiversity. For the Sustainable Farming Incentive to be comprehensive, we need to ensure that the vast majority of farmers can participate. We are using the pilot and other research, engagement, and co-design activities to ensure that the standards are straightforward, tested and deliverable.

In January 2022 we published further information on how Local Nature Recovery¹⁷ and Landscape Recovery will work¹⁸. Local Nature Recovery is the more ambitious successor to Countryside Stewardship, paying for the right things in the right places and supporting local collaboration to make space for nature in the farmed landscape. This scheme will particularly contribute to our targets for trees, peatland restoration, habitat creation and restoration, and natural flood management. It will enable land managers to make space for nature in less productive parts of their holdings, for example creating water features, ponds, woodland, species-rich grassland, or breeding areas for wildlife. We will publish more detailed information about Local Nature Recovery as soon as practicable this year. Landscape Recovery is now

¹⁶ <https://www.gov.uk/government/publications/sustainable-farming-incentive-how-the-scheme-will-work-in-2022/sustainable-farming-incentive-how-the-scheme-will-work-in-2022>

¹⁷ <https://www.gov.uk/government/publications/local-nature-recovery-more-information-on-how-the-scheme-will-work/local-nature-recovery-more-information-on-how-the-scheme-will-work>

¹⁸ <https://www.gov.uk/government/publications/landscape-recovery-more-information-on-how-the-scheme-will-work/landscape-recovery-more-information-on-how-the-scheme-will-work>

open for applications. While it won't be right for many, or indeed most, farms it will pay landowners or managers who want to take a more radical and large-scale approach to producing environmental and climate outcomes through land use change and habitat and ecosystem restoration. For Local Nature Recovery, we are working with farmers and other experts to design detailed options over the course of this year. In designing options for this scheme, we will take into account (amongst other factors) their viability for farmers and land managers.

We have a comprehensive programme of engagement in place, and we are designing our new schemes in partnership with farmers and land managers, ensuring we maximise our reach and bring the voice of farmers into our work. We are planning to increase our activities in this area in 2022, now that we have more details about schemes that we can share with farmers to help them plan. As we continue to develop the environmental management schemes, we will make further information available.

We will provide a smooth way for people to transition from existing schemes like Countryside Stewardship, into our new schemes from the end of 2024 onwards. As well as our environmental land management schemes, we are running a range of schemes to support farmers in getting their businesses ready for the agricultural transition. The Farming Investment Fund, Farming Innovation Programme and other farming offers will play a role in supporting investment in farm productivity whilst also decarbonising agricultural emissions in line with our targets set in January 2022.

The ongoing design of the schemes has been informed by existing and new evidence and data. This evidence base will be used to model expected contributions to government commitments. We are using established data collection techniques, including expert led farm/field surveys, as well as increased use of technology, including earth observation and remote sensing where appropriate, to establish baselines. This will enable us to monitor environmental change across a range of indicators in line with scheme objectives.

Indicators for the environmental land management schemes are aligned with the 25 Year Environment Plan indicators which monitor overall environmental delivery against the government's strategic goals for environmental improvement and our net zero targets are embedded within this. Indicators and metrics will be reported through the environmental land management monitoring and evaluation programme. Monitoring and evaluation of scheme processes and impacts begins with the Sustainable Farming Incentive pilot in 2022 and learning will be fed back into policy design.

Barriers to adoption of nature-based solutions: Knowledge and skills

27. We welcome that the Government recognises the existence of gaps in the skills and knowledge needed to carry out nature restoration, but we are concerned that plans to address the gaps lack urgency.

28. We recommend that the Government establishes ambitious skills and training programmes for land managers, authorities developing Local Nature Recovery Strategies and public delivery bodies. Training in surveying, monitoring and verifying, carbon accountancy, forestry, ecology, and planning and carrying out nature-based solutions needs to be expanded urgently. The Department for Education and the Department for Business Energy and Industrial Strategy must allocate some of their funding to this effort to make schemes accessible to land managers and provide sufficient skilled personnel to meet targets.

As set out in the Skills for Jobs White Paper, government is putting employers at the heart of the skills system, ensuring it is responsive to the needs of local economies. The Green Jobs Taskforce¹⁹, launched in November 2020, to set the direction for the job market as we transition to a high-skill, low carbon economy, advised government, industry and the skills sector on how to realise the UK's ambitions for green jobs. This included the skills needed to reach net zero greenhouse gas emissions by 2050. Their recommendations²⁰, published in July 2021, helped to inform the development of the Net Zero Strategy. Embedding skills will be a part of the government's Environmental Improvement Plan review process, ensuring we have a clear delivery pathway underpinning our environmental ambitions. This will inform the workplan of the new Green Jobs Delivery Group, which will be the central forum through which industry, government and other key stakeholders will work together to grasp the opportunities of a green industrial revolution and meet the challenges of supporting high carbon sectors.

Defra group is working on a range of actions to support green jobs including:

- To ensure that responsible authorities are ready for Local Nature Recovery Strategy rollout, we will provide materials, resources, and specialist advice from Defra ALBs.
- Natural England is scoping the potential to create an Environmental School of Excellence both to develop in-house capability, standards and professionalisation, and to support the wider sector to deliver local nature-based solutions.
- Through the Sustainable Farming Incentive, we are exploring the best ways to support land managers to develop their skills and experience of delivering environmental outcomes. The Institute for Agriculture and Horticulture is also considering ways to support knowledge exchange between farmers. BASIS²¹ (an independent organisation committed to raising professional standards across land management and food production) are developing training modules for commercial advisers to further develop the skills required to give environmental land management advice.
- We are working with the forestry sector to develop new education routes and career opportunities; and with the Department for Education to develop training routes into peat

¹⁹ <https://www.gov.uk/government/groups/green-jobs-taskforce>

²⁰ <https://www.gov.uk/government/publications/green-jobs-taskforce-report>

²¹ [BASIS \(basis-reg.co.uk\)](https://www.basis-reg.co.uk)

restoration. This is in addition to the new T Level (nationally recognised qualification) in Agriculture²², Land Management and Production that will be available by September 2023, and Wave 3 Skills Bootcamps where Nature Restoration and Woodland Management will be among the areas prioritised.

More broadly, we are also investing in the skills needed to deliver nature-based solutions across England. The £80 million Green Recovery Challenge Fund has helped the nature conservation sector retain and recruit skilled people throughout the pandemic by creating and retaining up to 2,500 jobs. The £10 million Natural Environment Investment Readiness Fund (NEIRF) is building capacity to deliver market-scale models for investment in nature-based solutions, with skills disseminated through a Community of Practice.

- 29. Land managers cannot assess the best actions to take without assistance. While the Committee welcomes the Government's commitment to making its schemes easier to access, and providing support to third-party advisors through the Future Farming Resilience Fund, it is difficult to see how widespread engagement with schemes will be achieved without a significant expansion in advisory services and support.**
- 30. *We recommend that the Government provides additional support as a matter of urgency for land managers, in the form of a dedicated advisory service, to help them engage with Environmental Land Management Schemes. The advisory service should be delivered in collaboration with public delivery bodies and should help land managers through the application process. It should help farms to identify the most appropriate actions to take, the support they need and can expect, and the likely environmental impact of their actions.***

We want the environmental land management schemes to be user friendly, and easy to access and engage with, so that advice can focus on where it will really add value. The Future Farming Resilience Fund has been developed to provide free business support to farmers and land managers during the agricultural transition. ALB advisers will also provide free support to encourage good engagement and ensure high quality agreements.

The intention is that the Sustainable Farming Incentive will be a simple, menu-based scheme which is largely self-service, supported by high quality, very accessible technical guidance – freely available to all farmers and land managers whether in schemes or not. We will test this during the pilot and early rollout and respond quickly to the feedback we receive. We expect the Local Nature Recovery and Landscape Recovery schemes to need a greater level of advisory support than the Sustainable Farming Incentive. We are exploring through our tests and trials and detailed policy design work the likely need for advice in these schemes, how best it could be delivered, and who is best placed to provide it.

²² [Introduction of T Levels - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

We have also been clear that we intend to support collaboration in both Local Nature Recovery and Landscape Recovery. We found in our tests and trials that local facilitators can really help people work together effectively. We plan to work with farmers and other experts to set up a new facilitation offer that builds on the successes and lessons to be learned from the Countryside Stewardship Facilitation Fund, which remains open to anyone eligible for agri-environment schemes.

Barriers to adoption of nature-based solutions: Tenancies

31. Tenancy contracts impede the implementation of nature-based solutions. More flexibility in these contracts is needed for the Government's schemes to be a success.

32. We recommend that the Government urgently addresses the barriers tenant farmers face to engage with the Environmental Land Management Schemes. This could include mechanisms for landlords and tenants to negotiate arrangements that allow them to share the costs and benefits of improvements.

Defra recognises that for reforms to agriculture to be successful, tenant farmers must be able to benefit from the new environmental land management schemes and contribute to a more sustainable agricultural sector. We have already designed new flexibilities into the Sustainable Farming Incentive, in close consultation with farming organisations including the Tenant Farmers Association (TFA), Country Land and Business Association (CLA) and National Farmers' Union (NFU), to ensure the scheme is accessible to tenant farmers. As part of Landscape Recovery round one applications, applicants are required to confirm that any tenants within the proposed project area have been engaged prior to application and are supportive of the project moving forward into the project development phase. We will continue to engage closely with farmers, landowners and tenants as we develop the three schemes.

The Environment Secretary has also recently announced an independent review, chaired by Baroness Rock, dedicated to looking at how tenant farmers and tenancies can be better supported as farming in England is reformed to be more sustainable. The Tenancy Working Group will provide tenant farmers and associated stakeholders a further opportunity to make sure the new environmental land management schemes work within agricultural tenancies.

This group enhances and complements our ongoing engagement with farmers, landowners and tenants and builds on the successful joint working around the design of the Sustainable Farming Incentive in particular. Objectives for the working group will be to provide independent advice including:

- How Defra can use scheme design to facilitate participation of and benefits to tenant farmers in new government environmental land management schemes and related schemes.
- Consideration of what policy initiatives will secure the long-term sustainability of tenant farming in England.
- How best to foster positive and long-term relationships between tenants and landlords.

- Providing advice on ways to minimise any potential loss of land from the tenanted sector to avoid damaging its resilience.
- Consideration of why it might be necessary to look for new legislative or regulatory powers in the future.

A report will be published by the working group later this year setting out the main conclusions and providing a set of recommendations to Defra.

Barriers to adoption of nature-based solutions: Supply chains

33. We recommend that the Department for Environment, Food and Rural Affairs supports the domestic industry for seeds and saplings and only imports bio-secure seeds and saplings where necessary, and with stringent phytosanitary safeguards.

In the England Trees Action Plan the government committed to provide funding to support UK public and private sector nurseries and seed suppliers. We have set up the Sector Capacity Project to support nurseries and seed suppliers in meeting the anticipated increase in demand and enhancing the quantity, quality, diversity, and biosecurity of domestic tree production. This will deliver resilient, healthy, and genetically diverse planting stock, which is ready for our future climate and grown in the UK.

Over £1 million has been made available through the Tree Production Innovation Fund to encourage the development and adoption of new technologies and ways of working, with a further £2.6 million available in capital grants to nurseries and seed suppliers. We will support activities to enhance production, processing and supply of UK tree seeds and develop ways to help nurseries better understand future demand.

The Government supports the industry-led Plant Healthy Certification Scheme launched in February 2020 and the underpinning Plant Health Management Standard. Defra has also invested in the 'UK and Ireland Sourced and Grown' nursery accreditation scheme developed by the Woodland Trust which guarantees that trees grown by participating nurseries are raised from seed sourced only from the UK and grown on in the UK for their entire lifespan.

Great Britain operates a risk-based imports inspection regime using the UK Plant Health Risk Register to target actions. The highest risk items (those assessed as presenting a significant risk of introducing harmful pests and diseases into GB) are subject to 100% documentary, identity and physical checks.

Private finance for nature-based solutions: Co-benefits and the codes

34. Monetising co-benefits would make nature-based solutions projects more financially attractive for landholders and investors. Some ecosystem restoration projects will not be viable unless their wider benefits for the environment and for society, including for biodiversity and flood risk mitigation, are valued. Financing projects based on multiple benefits will make more projects viable but requires central coordination to match buyers and sellers.

35. We recommend, although it will be complex, that the co-benefits of projects under the Woodland Carbon Code and the Peatland Code should be quantified, and that payments for other ecosystem services should be included within current and future carbon codes. This should be facilitated by the Government bodies that manage each carbon code.

The Government agrees that unlocking the value of co-benefits generated by woodland creation and peatland projects is critical to attracting finance into nature restoration at a scale that corresponds with our policy ambition. Some of these additional benefits may be eligible for public funding under the future environmental land management schemes, and we have been clear that we support the blending of public and private finance, but land managers will need to ensure they can still meet the additionality requirements for private schemes.

Increasingly, there will be opportunities for farmers and land managers to unlock investment from other voluntary market mechanisms and flexible regulatory mechanisms. For example, the introduction of mandatory Biodiversity Net Gain for new development will increase demand and therefore finance flows for nature recovery projects. We are also piloting nutrient trading in nutrient sensitive catchments, which has the potential for land managers to attract additional sources of private finance.

We also recognise that the end purchasers of carbon units or other ecosystem services are increasingly looking to go beyond net zero when setting their corporate environmental strategies and voluntary targets. Many firms are willing to invest in carbon units associated with projects with specific additional environmental and social benefits. We will explore with relevant expert bodies, standards bodies, and stakeholders the potential demand for developing additional standards, alongside the woodland and peatland codes, to provide farmers and project developers with the means to 'bundle' multiple benefits into a project opportunity in order to attract higher levels of investment.

We recognise that both 'stacking' and 'bundling' are currently complicated as many of the market mechanisms are still emerging, and the framework of recognised standards and rules for investment evolving. We are therefore following a two-pronged strategy. In advance of the scheduled update to Government's Green Finance Strategy later this year, we will develop plans to clarify and strengthen the current framework of standards and rules for investment in ecosystem services. These rules will help guard against double funding for the same outcome and ensure that payments are made for benefits that are genuinely additional. In parallel, we are testing a range of blended finance approaches through initiatives such as the environmental land management Tests and Trials and the Natural Environment Investment Readiness Fund. We will conduct ongoing monitoring and evaluation of these projects as well as innovative third party approaches in order to learn lessons and to further reinforce the policy framework.

The Green Finance Strategy, published in 2019 and due to be updated this year, makes clear that government has a role to play in supporting the development of green finance and new markets for carbon and other ecosystem services. Good market governance is essential to ensure that all participants including farmers and land managers as well as investors and

buyers of ecosystem services have confidence in the integrity of these investments. We believe that first and foremost government can support good governance by providing clear, long term policy frameworks. This includes the development of agreed principles and rules for ecosystem service investment and a more comprehensive suite of trusted standards for ecosystem projects, building on the strong foundations and experience developed through implementation of the UK Woodland Carbon Code and Peatland Code. Government and the regulators and other expert public bodies will have an important role to play in supporting market development as this policy framework takes shape, but we also expect the private sector to provide leadership through the development of new tools and services to enable farmers and land managers to bring projects to the table and to enable investors to structure and finance projects successfully and efficiently. It is important that we strike the right balance between providing further clarity and avoiding excessive intervention in the marketplace and we will set out further plans on how we intend to do that later this year.

Private finance for nature-based solutions: Practices funded by the codes

36. There is a lack of agreed standards for projects and ecosystems other than large-scale tree-planting and peatland restoration. Some beneficial land use practices, such as improved management of working forests or agricultural peatlands, that sequester carbon or prevent it from being emitted are excluded from the Woodland Carbon Code and the Peatland Code.

37. *We recommend that the Woodland Carbon Code, the Peatland Code, and greenhouse gas regulations, incentivise means of actively restoring ecosystems. These practices would prevent additional emissions from ecosystems that would otherwise degrade, even if they did not sequester carbon.*

The Woodland Carbon Code and Woodland Carbon Guarantee support the establishment of new woodland, both by planting and natural colonisation, to restore natural ecosystems. In the third and fourth auctions, the majority of the budget was ring-fenced for predominantly native woodland establishment. The England Trees Action Plan also highlighted the role of Biodiversity Net Gain and the Natural Environment Readiness Fund in the development of natural environment projects that can generate revenue from ecosystem services and attract private finance for ecosystem restoration. The Energy White Paper also committed to exploring the expansion of the UK Emissions Trading Scheme (ETS) to the two-thirds of uncovered emissions. As set out in the Net Zero Strategy, we are working with our Devolved Administration colleagues to launch a call for evidence on the role the UK ETS could have as a potential long-term market for engineered or nature-based Greenhouse Gas Removals (GGRs).

The Peatland Code is designed to incentivise the restoration of peatland ecosystems and prevent ongoing greenhouse gas emissions. Government is funding a package of reforms to the Code, including expanding it to cover more peatland habitats. The revised Peatland Code will be published by the UK IUCN Peatland Programme in 2022.

Private finance for nature-based solutions: Net zero and private finance

38. Offsets cannot be a substitute for reducing emissions. But the drive towards net zero emissions is an opportunity to direct significant private finance to nature recovery in the UK in the form of offsets. The role of carbon credits in net zero declarations remains unclear. Schemes like the Science-based Targets Initiative provide good standards but remain voluntary.

39. *We recommend that the Department for Business, Energy and Industrial Strategy must provide clarity about what companies must do to claim net zero emissions. Regulations should include a limited, defined role for high-quality offsets, such as the 10% limit in the Science Based Targets Initiative, alongside incentives to ensure emissions are reduced to the full extent possible at the same time.*

The UK is a strong supporter of carbon pricing and a pioneer on carbon markets, through both domestic action and our support for the uptake of carbon pricing schemes around the world. In the first instance, companies should focus on reducing their emissions to the fullest extent possible and align these efforts with what the science tells us is needed to achieve the Paris Agreement's aim for 'a balance between ... emissions by sources and removals by sinks'.

To achieve real climate, environmental and social benefits, the voluntary carbon market must be used in addition, and not as an alternative, to ambitious action to reduce direct emissions in line with science-based targets. The Government is supporting the Voluntary Carbon Market Integrity initiative to help develop clear guidance for businesses and other organisations to ensure that use of voluntary carbon markets helps to deliver the greatest benefits for the climate, for people and for nature. This guidance is due to be published in May 2022.

The Government also supports the Integrity Council for Voluntary Carbon Markets, which is developing 'Core Carbon Principles' for carbon credits, before it reviews existing methodologies and approves those which are up to the standard. Finally, the Government is using the Overseas Development Assistance budget to strengthen the international carbon market by supporting activity in developing countries that applies high environmental and social safeguards in land use and non-land use sectors.

Private finance for nature-based solutions: Other concerns

40. The market can incentivise investment in nature-based solutions. But the rush to develop new markets, with bottom-up initiatives, risks creating inconsistently regulated offsetting markets that do not deliver benefits to nature. Existing carbon markets are also complex.

41. *We recommend that the Government provides clear regulatory standards for emerging carbon markets to ensure that any offsets that are claimed are genuine. The Government should make carbon codes easier to use by acting as, or sponsoring, a central broker. Buyers and sellers should be able to aggregate multiple projects and combine public and private funding.*

The Government is examining how voluntary carbon markets interact with existing financial and non-financial regulatory structures and considering what forms of intervention could build trust in those markets, help them function more smoothly, and help ensure their use is good for the climate, people, and nature. We look forward to the forthcoming recommendations from The Integrity Council for the Voluntary Carbon Market on the Core Carbon Principles, the Voluntary Carbon Markets Integrity Initiative, and the Financing UK Nature Recovery coalition, which will help to inform this work.

To make it easier for land managers and investors to use the UK Woodland Carbon Code and Peatland Code, the UK and devolved administrations set up the UK Land Carbon Registry. This contains information about registered projects, carbon units issued to date, and the forward pipeline of units that are likely to be issued, subject to verification. As the market matures and grows in volume, we expect the financial services sector to develop additional tools and intermediary services, so that farmers and land managers can access project finance more easily and investors and businesses can source investment opportunities to match their investment strategies and obtain carbon units from suitable projects as and when they will be required.

We agree with the Committee that buyers and sellers should be able to aggregate projects and combine multiple revenue streams. This is subject to satisfying relevant rules and criteria for individual schemes to prevent double funding of the same 'units' of an ecosystem service and to ensure that the environmental benefits claimed are genuinely additional.

In December we announced that participants in the Sustainable Farming Incentive scheme will be able to combine funding from public and private sources for their work to deliver environmental benefits. In January we also announced further details on how we will design the Local Nature Recovery and Landscape Recovery schemes to combine public funds and private investment to deliver environmental outcomes. Rules for other public grant schemes and for ecosystem service markets are in development.

The government recognises that the rules are currently complex to navigate, both for investors and for farmers and land managers, and that greater clarity is needed. We will set out further detail on overarching principles and rules and plans to work with stakeholders to develop a more stable and comprehensive standards framework for carbon and other investment services, later this year.

Conclusions: An overall land-use strategy?

42. Reaching the net zero emissions target will require managing trade-offs in land use.

There is no guarantee that a voluntary or market-driven approach will create local schemes that will achieve the national climate and nature targets.

43. We recommend that the Government develops an overall land use strategy. This should outline how nature-based solutions will contribute to net zero emissions, how they will be integrated with other policies and how trade-offs in land use will be managed. The

Government needs to describe how the UK's land can deliver the multiple services demanded of it without offshoring emissions. The Government should work with large landowners, including land and marine managers such as the Ministry of Defence and the Crown Estate, to achieve its objectives.

Meeting our climate targets will require careful consideration about the way we use our land, considering tree planting, peatland restoration and biomass production. We are also exploring other demands on land to meet governments commitments on biodiversity and nature recovery, climate adaptation, housing and infrastructure, and food security. Defra is currently conducting spatially explicit analysis bringing together social, physical, economic, and ecological evidence to assess the level and type of changes indicated by government commitments. This analysis will help to support multifunctional land uses and inform our approach to managing trade-offs. This approach and the need for a land use strategy will be kept under review as the work progresses this year.

Defra's Marine Spatial Prioritisation Programme aims to enable the government to deliver on its commitments, including offshore wind targets to help achieve net zero, along with developing marine nature recovery and supporting sustainable fisheries. To deliver this work a cross-government Programme Board has been established, which includes representatives from the Crown Estate and the Ministry of Defence.