



COHERANCE BETWEEN NORTHERN IRELAND'S DRAFT ENVIRONMENTAL STRATEGY, FUTURE AGRICULTURAL POLICY PROPOSALS, PEATLAND STRATEGY, AND ENERGY STRATEGY

Report for: Office for Environmental Protection

Ref. INS228-01

Ricardo ref. ED19005

Issue: 2

19/02/2025

Customer:

Office for Environmental Protection

Customer reference:

INS228-01

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EXECUTIVE SUMMARY

Aim

The aim of this project was to provide a critical assessment of coherence between the draft Environment Strategy¹ for Northern Ireland and Northern Ireland's Future Agricultural Policy Proposals, Peatland Strategy and Energy Strategy.

Methodology

The Northern Ireland's draft Environment Strategy, Future Agricultural Policy Proposals, Peatland Strategy, and Energy Strategy were reviewed to extract statements about their key visions and/or objectives and policies and/or actions. Pairwise screening matrices were created to analyse the coherence of each of the statements extracted from each of the documents. The coherence analyses were undertaken using a proven method where the coherence of the visions or objectives (and, separately, the policies or actions) was rated on a seven-point scale from -2 ("Counteracting") to +2 ("Reinforcing"), including additional ratings for "Mixed effects" and "Uncertain".

The screening matrices were initially completed by the project team. Key stakeholders were given the opportunity to review and provide feedback on the matrices that considered coherence between the draft Environment Strategy and each of the other documents. Stakeholders were encouraged to focus on those matrices and areas of each matrix relevant to their interests and expertise. Resultant feedback from stakeholders was carefully considered and, where appropriate, the ratings of coherence were updated to finalise the analyses. Stakeholders' provision of differing perspectives proved valuable in refining and validating the coherence analyses and helped to inform identification of opportunities to enhance synergies, avoid trade-offs and increase cost effectiveness. Due to time and budget constraints, it was not possible for stakeholders to review the matrices that considered coherence between Northern Ireland's Future Agricultural Policy Proposals, Peatland Strategy and Energy Strategy. However, their completion was informed by feedback provided by the stakeholders on the other matrices.

Summary of coherence

Future Agriculture Policy Proposals - visions and objectives

Interactions between the Future Agricultural Policy Proposals and draft Environment Strategy were rated as mostly "Neutral" (80%) with 11% "Enabling" and 4% "Reinforcing". Only a very small number of negative interactions or mixed effects were identified. The majority of positive interactions with the draft Environment Strategy related to Strategic Environmental Outcome (SEO) 3 ("Thriving, Resilient & Connected Nature and Wildlife"), mainly regarding the visions and objectives related to the theme of "Protecting Nature on Land". However, SEO3 also had the most negative interactions and mixed effects. The Future Agricultural Policy Proposals' negative interactions with SEO3 related to the aim to increase productivity. For example, the latter has the potential to increase emissions, nutrient waste, and stocking rates, which would threaten the objectives of the draft Environment Strategy. Overall, the Future Agricultural Policy Proposals were found to be coherent with the draft Environment Strategy, and they are unlikely to impact negatively on each other.

In terms of interactions between the Future Agriculture Policy Proposals and the Peatland Strategy, 49% of interactions were positive (42% "Enabling" and 7% "Reinforcing"). However, 14% of interactions may have mixed effects and 3% were counteracting or constraining. Overall, a large majority of the Future Agricultural Policy Proposals' visions and objectives were found to be coherent with those of the Peatland Strategy. However, there are areas that need further consideration and/or monitoring to prevent or keep to a minimum the possible constraining and counteracting effects between policies. These include use of peat as a growing medium by the horticulture industry and any increases in agriculture productivity that result in increased emissions and nutrient loadings to peatland.

Interactions between the Future Agriculture Policy Proposals and the Energy Strategy were predominantly rated as neutral (90%) and 8% were "Enabling". There were no negative interactions identified between the Future Agricultural Policy Proposals and the Energy Strategy, however, 2% of interactions had "Mixed effects". Overall, the visions and objectives in the Future Agriculture Proposals are largely coherent with those of the

¹ The Draft Environment Strategy for NI which was assessed in this report later became the first NI's Environmental Improvement Plan (EIP), Available at: <https://www.daera-ni.gov.uk/publications/environmental-improvement-plan-northern-ireland>

Energy Strategy. One area that may need further consideration is that the infrastructure required to expand renewable energy may have a damaging effect on nature and habitats.

Future Agriculture Policy Proposals - policies and actions

Most interactions between the policies and actions of the Future Agricultural Policy Proposals and the draft Environment Strategy were neutral (89%) with a few positive interactions (7%). There were no negative interactions and less than 1% led to mixed effects and less than 4% were uncertain. The main positive interactions were found within SEO1, “Excellent Air, Water, Land and Neighbourhood Quality”, and SEO3 “Thriving, Resilient and Connected Nature and Wildlife”; specifically, the theme of “Protecting Nature on Land”. Uncertain interactions were mostly between the environment and “agri-food development programme for professionals interacting with farmers and growers” within the Future Agriculture Policy Proposals. Overall, very few direct interactions were identified between the Future Agricultural Policy Proposals and the draft Environment Strategy, and where they do interact this is likely to be positive. Hence, the Future Agricultural Policy Proposals and the draft Environment Strategy were found to be coherent, and their implementation should not be counteracting.

In terms of interactions between the policies and actions in the Future Agriculture Policy Proposals and the Peatland Strategy, the majority were “Neutral” (73%), with 17% positive interactions, 15% “Enabling” and 2% “Reinforcing”. There are few (1%) “Constraining” or “Counteracting” interactions and only 2% lead to “Mixed Effects”. Overall, there is some coherence between the Future Agriculture Policy Proposals and the Peatland Strategy. However, there are specific policy actions which have the potential to counteract and constrain one or other of the policies. These interactions may need further consideration and/or monitoring to prevent or minimise: any increases in agriculture productivity that result in increased emissions and nutrient loadings to peatlands; and any forestry or agroforestry actions that could be incompatible with peatland management and restoration.

Most interactions between the policies and actions of the Future Agricultural Policy Proposals and the Energy Strategy were neutral (97%). There were 22 (3%) positive interactions and no negative or mixed effects interactions identified between the Future Agricultural Policy Proposals and the Energy Strategy. Overall, there are fewer interactions between the Future Agricultural Policy Proposals and the Energy Strategy’s visions and objectives, and they are positive where they occur.

Peatland Strategy - visions and objectives

Many interactions between the visions and objectives in the Peatland Strategy and the draft Environment Strategy were rated “Neutral” (46%), although the remainder were mostly positive (“Enabling” 32%; “Reinforcing” 18%). The latter predominantly relate to interactions between the draft Environment Strategy’s visions and objectives targeting the protection and conservation of land and biodiversity with the majority of the Peatland Strategy’s visions and objectives. The analyses identified no constraining or counteracting interactions and only a minor number of mixed effects (4%). The latter were mostly regarding land use, e.g., to improve access or increase woodland cover. Overall, it is considered that the visions and objectives in the draft Environment Strategy and the Peatland Strategy are coherent with synergies identified between the two. The implementation of one is unlikely to constrain the implementation of the other.

Almost half (49%) of interactions between the Peatland Strategy and the Future Agriculture Policy were positive (42% “Enabling” and 7% “Reinforcing”). However, 14% of interactions may have mixed effects and 3% were counteracting or constraining. Overall, a large majority of the Future Agricultural Policy Proposals’ visions and objectives were found to be coherent with the Peatland Strategy’s visions and objectives.

Approximately half (54%) of the interactions between the Peatland Strategy and the Energy Strategy were “Neutral”, 18% were “Enabling”, and 28% had “Mixed effects”. There were no negative interactions identified between the Peatland Strategy and Energy Strategy. The mixed effects predominantly relate to the benefits that increasing renewable energy has on peatland through reduced demand for peat as fuel and the conflicts arising from peatland being needed to site renewable energy infrastructure. Overall, the visions and objectives in the Peatland Strategy and the Energy Strategy are largely coherent with each other. However, to prevent or minimise the possible negative effects between policies, decisions about the location of infrastructure required to expand renewable energy should take account of the potential damaging impacts on peatland.

Peatland Strategy - policies and actions

Most interactions between the policies and actions in the Peatland Strategy and the draft Environment Strategy were rated as “Neutral” (61%), although approximately one third were either rated as “Enabling” (26%) or

“Reinforcing” (7%). A significant proportion of the positive interactions relate to the Peatland Strategy’s policies of providing funding to facilitate restoration, implementing an ammonia strategy to address nitrogen deposition on peatland, and establishing a Peatlands Partnership. No counteracting interactions and only four constraining interactions were found. The latter relating to upgrading roads to increase recreational access and delivering the “Forests for our Future” programme. Similarly, only a minor number of mixed effects were found (4%), which largely relate to facilitating access to the environment while also protecting peatland. Overall, it is considered that the policies and actions in the draft Environment Strategy and the Peatland Strategy are coherent and their implementation is unlikely to be mutually constraining.

The majority of interactions between the policies and actions in the Peatland Strategy and the Future Agriculture Policy Proposals, were “Neutral” (73%), with 17% positive interactions, 15% “Enabling” (15%) and 2% “Reinforcing”. There are few (1%) “Constraining” or “Counteracting” interactions and “Mixed Effects” interactions make up 2%.

The interactions between the policies and actions in the Peatland Strategy and the Energy Strategy were predominantly “Neutral” (85%) with 12% “Enabling” and 3% with “Mixed effects”. There were no negative interactions between the strategies. The “Mixed effect” interactions were predominantly due to the increase in renewable infrastructure leading to peatland being required to locate new infrastructure, while also decreasing the demand for peat as fuel. Overall, there is some coherence between the Peatland Strategy and the Energy Strategy’s policies and actions. However, decisions regarding the location of new infrastructure required to expand renewable energy should take account of its potentially damaging impacts on peatlands.

Energy Strategy - visions and objectives

Most interactions between the visions and objectives in the Energy Strategy and the draft Environment Strategy were rated as “Neutral” (72%). A few were identified as enabling interactions (7%) and reinforcing interactions (5%). The positive interactions predominantly relate to achieving the climate change objectives and improving air, water, land and neighbourhood quality. No counteracting interactions were identified and only one constraining interaction was found relating the potential impact on households access to affordable energy of reducing emissions and the Emissions Trading Scheme’s cap. Additionally, a number of mixed effects were found (14%), which predominantly relate to growing the green economy and protecting the environment, as installation of renewable energy facilities can have environmental impacts while also reducing GHG and air pollutant emissions. Overall, it is considered that the visions and objectives in the draft Environment Strategy and the Energy Strategy have potential to be coherent with visions and objectives within the Energy Strategy. However, fewer visions and objectives have positive interactions (12%) than mixed effects (14%), so the latter need to be addressed to increase coherence.

Interactions between the Energy Strategy and the Future Agricultural Policy Proposals were predominantly rated as neutral (90%) and 8% were “Enabling”. There were no negative interactions identified between the Future Agricultural Policy Proposals and the Energy Strategy, however, 2% of interactions had “Mixed effects”.

Approximately half (54%) of interactions between the Energy Strategy and the Peatland Strategy were found to be “Neutral”, 18% were “Enabling” and 28% had “Mixed effects”. There were no negative interactions identified between the Peatland Strategy and Energy Strategy.

Energy Strategy - policies and actions

Most interactions between the policies and actions in the Energy Strategy and the draft Environment Strategy were rated as “Neutral” (82%). Few interactions were rated as “Enabling” (7%) or “Reinforcing” (2%). As with the visions and objectives, the positive interactions predominantly related to climate change and air quality objectives, specifically to the development and increased use of low-carbon technologies. Similarly, a few mixed effects were found (4%), which related to allocation of resources between the Energy Strategy’s “Do more with less” principle and some of the policies within the draft Environment Strategy. Only one constraining interaction was identified relating to the impacts of offshore wind on marine biodiversity. There were no counteracting interactions.

The majority of interactions between the Energy Strategy and Future Agricultural Policy Proposals were found to be “Neutral” (73%), with 17% positive interactions. 15% “Enabling” and 2% “Reinforcing”. There are few (1%) “Constraining” or “Counteracting” interactions and “Mixed Effects” interactions make up 2%.

Interactions between the Energy Strategy and the Peatland Strategy were rated as predominantly “Neutral” (85%) with 12% “Enabling” and 3% with “Mixed effects”. There were no negative interactions between the strategies.

Recommendations

Recommended ways of enhancing coherence between Northern Ireland's draft Environment Strategy, Future Agricultural Policy Proposals, Peatland Strategy, and Energy Strategy were identified that seek to enhance synergies, avoid trade-offs and increase cost effectiveness. These recommendations are listed below for each of the documents:

Future Agricultural Policy

- **R1:** Make the need for sustainability more explicit throughout the visions and objectives of the Future Agricultural Policy Proposals to ensure coherence with the environmental objectives.
- **R2:** Consider how to align the horticultural industry with the conservation objectives of the Peatland Strategy.
- **R3:** Consider how the increased output of horticulture can be balanced against minimising increased areas of land for cultivation and/or with environmental restoration measures.
- **R4:** Consider how incentivising increased agricultural production can be managed to ensure there is no environmental damage through increased agricultural land use and emissions.
- **R5:** Ensure sufficient support is in place to deliver environmental protection aims within the Future Agricultural Policy Proposals.
- **R6:** Make emissions reduction a central theme within the Future Agricultural Policy Proposals that concern improving productivity and profitability at farms.
- **R7:** Include consideration of planning permission requirements to address impacts on habitats and competition for space for habitats and agriculture when increasing low carbon and renewable energy solutions.
- **R8:** Make more explicit throughout the policies and actions of the Future Agricultural Policy Proposals consideration of how increasing productivity will be accomplished sustainably without negative environmental impacts to ensure coherence with environmental objectives.
- **R9:** Clarify actions with a broad scope to ensure that policy interactions currently classed as uncertain are either neutral or positive.
- **R10:** Encourage knowledge sharing, continue research into sustainable agricultural practices, and make provision for funding/investment available to farmers to implement these practices, thereby, ensuring sustainability is embedded.
- **R11:** Carefully manage and monitor biomethane and hydrogen production to ensure that there are no negative effects from emissions on peatlands and other sensitive habitats, including locating production at appropriate distances from sensitive habitats, and appropriately mitigating ammonia emissions.
- **R12:** Include consideration of peatlands in policies and actions to increase forestry and agroforestry, and establish a clear decision-making framework to avoid planting trees in locations incompatible with peatland management and restoration activities

Peatland Strategy

- **R13:** Integrate the underlying characteristics of peatland protection and conservation across the wider remits of the draft Environment Strategy and the Future Agriculture Policy Proposals to enhance existing synergies.
- **R14:** Share data gathered through the Soil Nutrient Health Scheme, and performance data from the Farming With Nature Scheme for use in monitoring the state, management and restoration of peatlands to enhance synergies between the Peatland Strategy and the Future Agriculture Policy Proposals.
- **R15:** Development of a woodland strategy seeks to avoid negative unintended consequences on other land uses, such as peatlands.
- **R16:** Introduce a system to perform comprehensive analyses of direct (emissions, waste, resource use) and indirect (supply chain effect, changes in land use) impacts.
- **R17:** Foster a stronger connection between people and nature by means that do no harm to the health, integrity and diversity of natural ecosystems.
- **R18:** Enhance clarity around how the conflicting differences in land-use priorities should be reconciled between the Peatland Strategy, and the draft Environment Strategy, the Future Agricultural Policy Proposals, and the Energy Strategy when expanding policy objectives and developing implementation plans.
- **R19:** Consider how to ensure that the overall cap on animal numbers does not unintentionally act as a ceiling to which they increase.

Energy Strategy

- **R20:** Take the opportunity to create cross-divisional campaigns tackling multiple issues at the same time and increasing awareness.
- **R21:** Take the opportunity to capitalise on the good alignment between the draft Environment Strategy's climate change visions and objectives and the Energy Strategy's objective "People are informed, empowered, supported and protected to enable them to transition to decarbonised solutions for all their energy needs".
- **R22:** Align local authority travel initiatives and local air quality plans to reinforce the Energy Strategy's objective to "reduce the distance people travel in private vehicles".
- **R23:** Carefully monitor planning permissions for new renewable energy sources, such as windfarms, solar farms, and new electricity grid farms as a whole, through a coordinated approach across local authorities to ensure a comprehensive overview of their impact and alignment.
- **R24:** Take account of the colour, style and size of installations of renewable energy installations.
- **R25:** Review and assess abatement technologies thoroughly, ensuring that, where possible, the abatement costs are not transferred to householders and businesses.
- **R26:** Consider whether national policies and funding could be put in place to ensure that costs are covered by the energy companies rather than consumers.
- **R27:** Undertake investigations into technologies that are more cost effective and can reduce emissions to enable future use of the most appropriate technologies.
- **R28:** Consider continued investment in green public transport (e.g., hydrogen-fuel-cell electric buses) to align with the draft Environment Strategy's sustainable settlements policies and actions to promote Greenway networks, while also managing alignment with other environmental policies and reducing counteracting and constraining effects.
- **R29:** Explore the considerable coherence between the draft Environment Strategy's climate change policies and the Energy Strategy to realise potential co-benefits.
- **R30:** Carefully monitor planning permission and engage with local communities and local authorities to identify sites where least impact will occur.
- **R31:** Consider the available infrastructure and resources in developing the draft Environment Strategy's policies to ensure that the policies and actions in the Energy Strategy can be implemented alongside those detailed in the draft Environment Strategy.

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Annexes

Annex 1: Lists of visions and objectives, and policies and actions

Annex 2: Coherence matrices

1. INTRODUCTION

1.1 PROJECT AIM

The overall aim of this project is to provide a critical assessment of the coherence of draft Environment Strategy Northern Ireland (NI), and relevant supporting strategies.. This assessment will inform ongoing monitoring and assessment by the Office for Environmental Protection (OEP) of the Government's progress with improving the environment in NI. The project's findings may be used by the OEP to advise on matters, such as changes to legislation and policy, and requests for advice that relate to environmental improvement in NI.

This report is accompanied by annexes, which can be accessed via separate links on the OEP website.

1.2 PROJECT BACKGROUND

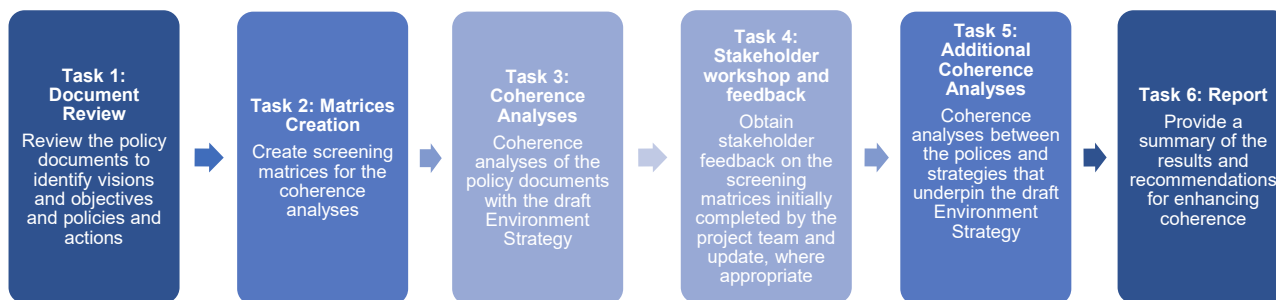
In accordance with Schedule 2 of the Environment Act 2021, the Department of Agriculture, Environment and Rural Affairs (DAERA) is required to prepare an Environment Improvement Plan setting out the steps that DAERA, and other NI Government departments, will take to improve the natural environment and detailing measures needed to meet its interim and long-term targets. DAERA published the draft Environment Strategy in 2021, which provides the foundations of the first Environment Improvement Plan². A number of policy documents have been published or are in draft that underpin the draft Environment Strategy, which include:

1. NI's Future Agricultural Policy Proposals Consultation Document, which was published on 21 December 2022 by DAERA
2. NI's Peatland Strategy, which was published in August 2022 following a consultation in June 2021
3. NI's Energy Strategy, "The Path to Net Zero", which was published in December 2021.

2. METHODOLOGY

The methodology is summarised in Figure 2-1.

Figure 2-1: Methodology



2.1 TASK 1: DOCUMENT REVIEW

2.1.1 Documents reviewed

Summary details of each of the documents reviewed are provided below.

2.1.1.1 Draft Environment Strategy

NI's draft Environment Strategy forms part of the NI Executive's wider Green Growth agenda. A number of broad key strategic drivers, such as sustainability and global climate and biodiversity action, underpin the draft Environment Strategy. It is focused on six Strategic Environmental Outcomes (SEOs):

- SEO1 Excellent air, water, land and neighbourhood quality
- SEO2 Healthy and accessible environment and landscapes everyone can connect with and enjoy

² NI's first Environment Improvement Plan was published during the course of this project. It is available at: <https://www.daera-ni.gov.uk/publications/environmental-improvement-plan-northern-ireland>

- SEO3 Thriving, resilient and connected nature and wildlife
- SEO4 Sustainable production and consumption on land and at sea
- SEO5 Zero waste and highly developed circular economy
- SEO6 Fair contribution to UK net zero GHG emissions and improved climate resilience and adaptability.

Each SEO is addressed by a number of interventions and proposals, which include information on the current position, actions, targets and vision/outcomes. The overarching focus is on environmental preservation, protection and improvement. The draft Environment Strategy also acknowledges the necessity of integrating a natural capital approach into high-level decision making.

2.1.1.2 Future Agriculture Policy Proposals

NI's Future Agricultural Policy Proposals were developed in response to the UK's exit from the EU. A consultation (open 21 December 2021 to 15 February 2022) on the proposals sought input from stakeholders on key areas, such as sustainable farming practices, environmental protection, support for rural communities, and innovation in agriculture. The proposals aim to shape a Future Agricultural Policy that addresses the challenges of climate change, biodiversity loss, and economic sustainability, while ensuring a fair and equitable system for farmers that achieves the following objectives for NI's agricultural industry:

- Increased productivity
- Environmental sustainability
- Improved resilience; and
- Effective functioning supply chains.

2.1.1.3 Peatland Strategy

NI's Peatland Strategy outlines a comprehensive plan to conserve, restore, and sustainably manage peatlands over the next two decades. The strategy aims to address challenges, such as climate change, biodiversity loss, and land degradation, by promoting peatland restoration, sustainable land management practices, and community engagement. The strategy emphasises the importance of peatlands for carbon sequestration, water quality, and biodiversity, highlighting the need for collaborative efforts between government, conservation groups, and local communities to achieve long-term protection and restoration goals.

The Peatland Strategy's six strategic objectives are:

1. Conserve peatlands and prevent degradation
2. Restoration of degraded areas to functioning peatland ecosystems (designated and non-designated sites)
3. Supporting sustainable peatland management
4. Knowledge sharing and research
5. Communication, education and access; and
6. Governance, implementation and funding.

Individual targets and actions are associated with each of these strategic objectives.

2.1.1.4 Energy Strategy

NI's Energy Strategy outlines a comprehensive plan to transition the energy sector towards carbon neutrality. The strategy focuses on reducing GHG emissions, increasing renewable energy generation, and promoting energy efficiency measures in order to achieve net zero GHG emissions by 2050, aligned with national and international climate objectives.

The strategy addresses five key principles:

- Placing people at the heart of their energy future
- Grow the green economy
- Do more with less (become more energy efficient)
- Replace fossil fuels with renewable energy; and
- Create a flexible, resilient and integrated energy system.

2.1.2 Identification of key components of each document

In order to focus the coherence analyses, each of the documents was reviewed to identify: a) visions and objectives and b) policies and actions. The following definitions of these terms were used:

- Visions: descriptions of desired, purpose-driven, future states
- Objective: targets or goals intended to be accomplished, often but not always, within a specified timeframe
- Policies: principles or rules established to guide decision-making and actions for implementing strategies and achieving objectives.
- Actions: specific tasks or activities undertaken to execute a policy, which are the tangible steps for achieving objectives.

Across most of the documents, these elements were clearly signposted. However, that was not the case with the Future Agricultural Policy Proposals Consultation Document, which required an in-depth reading of sections on the 'Need' and 'Specific outcomes being sought'.

The review identified a large number of visions and objectives, and policies and actions in the draft Environment Strategy and Future Agricultural Policy Proposals and a large number of policies and actions in the Peatland Strategy. OEP agreed that the numbers would lead to the creation of very large matrices (Task 2), which would be too challenging for the coherence analyses (Task 3) and could overwhelm stakeholders when requesting feedback (Task 4). Therefore, a second review of each of those documents took place in order to reduce the number of individual visions and objectives and policies and actions by grouping them together with related visions and objectives and related policies and actions. The grouping process was carried out to aggregate visions and objectives or policies and actions that focused on similar topics together. No wording was changed when combining the original text of the visions and objectives or policies and actions in order to avoid inadvertently changing their meaning or interpretation. An example of the grouping of elements from the Peatland Strategy is presented in Box 1 to show how similar topics were brought together to reduce the number of individual visions and objectives or policies and actions.

Box 1: Example of process to reduce the number of individual visions and objectives or policies and actions where similar topics could be grouped.

Peatland Strategy Strategic Objective 1

Action 3: Identify and declare new peatland ASSIs (Areas of Special Scientific Interest)

Action 7: Develop and implement Conservation Management Plans for peatland SACs (Special Areas of Conservation) and current and new ASSIs.

Combined 'policy and action' assessed in the matrices

1. Identify and declare new peatland ASSIs. Develop and implement Conservation Management Plans for peatland SACs and current and new ASSIs.

Table 2-1 presents the total numbers of visions and objectives and policies and actions per document and the revised totals following the second review. A summary of the visions and objectives and policies and actions that were identified and, where appropriate, combined for each of the documents reviewed is provided in Annex 1.

Table 2-1 Total numbers of visions and objectives and policies and actions

Document reviewed	Visions and objectives		Policies and actions	
	Total number	Revised total	Total number	Revised total
Draft Environment Strategy	91	81	216	66
Future Agricultural Policy Proposals	34	29	66	34
Peatland Strategy	7	7	41	25
Energy Strategy	13	13	26	26

2.2 TASK 2: MATRICES CREATION

Two screening matrices were created in Microsoft Excel to analyse the coherence of each of the three documents with the draft Environment Strategy, i.e., a total of six matrices. In each case, the visions and objectives (or the policies and actions) of each document were the column headers with the visions and objectives (or the policies and actions) of the draft Environment Strategy as row headers. An example excerpt of a section of a screening matrix between the visions and objectives of the Energy Strategy and the draft Environment Strategy is provided in Table 2-2 (below).

Table 2-2: Example excerpt from a screening matrix between the visions and objectives of the Energy Strategy and the draft Environment Strategy

Draft Environment Strategy SEO	Grouping	Visions and Objectives	Energy Strategy: Placing you at the heart of our energy future	
			People are informed, empowered, supported and protected to enable them to transition to decarbonised solutions for all their energy needs.	Households and businesses have access to essential and affordable energy to enable a decent standard of living, health and competitiveness.
1: Excellent Air, Water, Land & Neighbourhood Quality	Air quality	Cleaner air in Northern Ireland.		
		Fewer pollutants released by home heating systems.		
		Increased public awareness of health effects of poor air quality and sources of pollution.		
		Improved monitoring network.		
		Ammonia emissions reduced to a point where critical loads of nitrogen deposition and critical levels of ammonia are not being exceeded at any designated sites.		
	Water Resources: Quality and Quantity	An environment with high water environment standards which supports biodiversity and contributes to health and well-being and a living and productive landscape.		
		More sustainable nutrient management on farms - chemical and organic fertilisers are only applied based on soil requirements and intended land use.		
		Increased sustainable processing of livestock slurry to separate excess phosphorus and generate renewable energy.		
		Reduced levels of nitrates and phosphorus in NI waterbodies.		

2.3 TASK 3: COHERENCE ANALYSIS

The methodology for this task was inspired by the proven approach to policy coherence analysis developed by Blicharska et al³. Coherence was rated on a seven-point scale from -2 to +2, including ratings for mixed effects and uncertain interactions (see Table 2-3). A rating for mixed effects was required, as policy interactions may be dynamic, nuanced and interpreted differently dependent on the context. The “uncertain” category was included for cases where the interaction could not be clearly identified, either due to a lack of information or because the interaction was uncertain based on the information provided.

Coherence was rated and a reason for each rating was provided. Each of the coherence matrices was completed by an individual member of the project team to ensure consistency. Each of the matrices was then quality assured on a 10% sample basis by at least two senior expert members of the project team. Differences of opinion on ratings were discussed between team members, and OEP was consulted for input where needed. Once consensus was reached, matrices were reviewed and updated to ensure that the ratings and reasoning were consistent where any similar interactions were occurring.

Table 2-3: Coherence ratings

Coherence rating	Interaction	Explanation	Example
2	Reinforcing	Aids the achievement of another goal.	Providing access to electricity reinforces water-pumping and irrigation systems. Strengthening the capacity to adapt to climate-related hazards reduces losses caused by disasters.
1	Enabling	Creates conditions that further another goal.	Providing electricity access in rural homes enables education, because it makes it possible to do homework at night with electric lighting.
0	Consistent/Neutral	No significant positive or negative interactions.	Ensuring education for all does not interact significantly with infrastructure development or conservation of ocean ecosystems.
-1	Constraining	Limits options on another goal.	Improved water efficiency can constrain agricultural irrigation. Reducing climate change can constrain the options for energy access.
-2	Counteracting	Clashes with another goal.	Boosting consumption for growth can counteract waste reduction and climate mitigation.
1/-1	Mixed effects	Interactions that can be either positive or negative depending on the context.	A sustainable and environmentally friendly energy supply and developing sustainable forests could be conflicting or synergistic, depending on how the former is interpreted. For example, “sustainable and environmentally friendly” could be interpreted as good for the environment and, therefore, synergistic. However, if interpreted as increasing renewable energy, this could result in intensified forestry activities for extracting renewable sources, which could lead to conflict.
U	Uncertain	Interactions cannot clearly be identified	This may be due to lack of information contained within the documentation, or that it is uncertain what the interaction would be based on the information given.

³ Blicharska, M.; Smithers, R.J.; Kuchler, M.; Munaretto, S.; van den Heuvel, L.; Deutschbein, C. (2023) The water–energy–food–land–climate nexus: Policy coherence for sustainable resource management in Sweden. Environmental Policy and Governance, 1-14. DOI: 10.1002/eet.2072

2.4 TASK 4: STAKEHOLDER WORKSHOP AND FEEDBACK

An initial workshop with key stakeholders was held on 28 February 2024. The background to the project and information about the methodology were presented. The stakeholders were given an opportunity to ask questions.

Following the stakeholder workshop, the coherence matrices were provided to the key stakeholders on the 15 March 2024 for their feedback. All matrices were provided to all stakeholders to ensure that those who wished to review all the coherence analyses were able to do so. However, it was made clear that they only needed to review those matrices and cells that were specifically relevant to them.

A reviewing sheet was provided alongside the matrices where stakeholders could record their comments and suggested amendments. Stakeholders were requested to confirm which cells they had reviewed and to provide feedback where they disagreed with individual coherence ratings or reasonings. It was assumed that stakeholders agreed with any cells that they reviewed on which they did not provide feedback. Following the stakeholder feedback, the coherence ratings were reviewed and updated, where appropriate, to finalise the coherence analyses. The Excel matrices are provided in Annex 2.

2.5 TASK 5: ADDITIONAL COHERENCE ANALYSIS

Following the completion of the analyses of coherence of the Future Agricultural Policy Proposals, Peatland Strategy and Energy Strategy with the draft Environment Strategy, the next step was to assess the coherence between the Peatland Strategy, the Energy Strategy and the Future Agriculture Policy Proposals. The methodology for this second tranche of analyses was the same as detailed in Task 2 and Task 3. The stakeholder workshop and feedback undertaken for Task 4 did not include these additional coherence analyses, as they were commenced after completion of the first tranche of analyses. However, feedback provided by the stakeholders on the first round of coherence analyses was implemented during the completion of the additional analyses, which were quality assured in the same way as the first analyses (as detailed in Task 3).

2.6 TASK 6: REPORT

This report provides a summary of the synergies (i.e., reinforcing and enabling interactions) and trade-offs (i.e., counteracting and constraining interactions) found by the analyses of the coherence of NI's Future Agricultural Policy Proposals, Peatland Strategy, and Energy Strategy with the draft Environment Strategy. It also presents recommendations for enhancing or reducing these interactions, respectively.

2.7 LIMITATIONS OF METHODOLOGY

While the agreed methodology is considered robust, there are some limitations, which include:

1. The coherence analyses covered a broad range of topics, requiring extensive knowledge and expertise for their execution and review. Given the scale of the project, a distributed approach was adopted, with specific interactions reviewed by individuals whose expertise aligned with the relevant topics. This approach ensured that the analyses were informed by targeted and specialised knowledge, maximising the accuracy and reliability of the outcomes.
2. Interactions were more challenging to identify where visions and objectives were very broad, or policies and actions were very specific. As mentioned in Section 2.3, where interactions could not be clearly identified from the information provided in the relevant strategy and policy documents, the interaction was rated as "uncertain".
3. The matrices included 11,000 cells, each requiring a balance of rapid review and detailed consideration to ensure a robust analysis. Every effort was made to maintain accuracy through thorough quality assurance. The involvement of key stakeholders in reviewing the matrices and providing feedback further enhanced the credibility, legitimacy, and relevance of the final outputs.

3. SUMMARY OF COHERENCE OF THE FUTURE AGRICULTURAL POLICY PROPOSALS, PEATLAND STRATEGY AND ENERGY STRATEGY WITH THE DRAFT ENVIRONMENT STRATEGY

This section presents the results of the coherence analysis of interactions between the draft Environment Strategy and the following policy documents:

- Draft Future Agricultural Policy Proposals – visions and objectives
- Draft Future Agricultural Policy Proposals – policies and actions
- Peatland Strategy – visions and objectives
- Peatland Strategy – policies and actions
- Energy Strategy – visions and objectives
- Energy Strategy – policies and actions

The visions and objectives, and policies and actions from the above documents that were the focus of the coherence analyses can be found in Annex 1. A summary of the number and rating of interactions identified between the draft Environment Strategy and the other documents is provided in Table 3-1 below.

Table 3-1 Summary of the number and rating of interactions identified between the draft Environment Strategy and the draft Future Agricultural Policy Proposals, the Peatland Strategy, and the Energy Strategy

Classification	Interactions with the Future Agricultural Policy Proposals		Interactions with the Peatland Strategy		Interactions with the Energy Strategy	
	Visions and Objectives	Policies and Actions	Visions and Objectives	Policies and Actions	Visions and Objectives	Policies and Actions
+ 2 Reinforcing	101 (4%)	66 (3%)	101 (18%)	115 (7%)	54 (5%)	26 (2%)
+ 1 Enabling	256 (11%)	92 (4%)	182 (32%)	431 (26%)	71 (7%)	120 (7%)
0 Neutral	1,955 (80%)	1998 (89%)	260 (46%)	1,007 (61%)	758 (72%)	1,410 (82%)
- 1 Constraining	15 (1%)	0 (0%)	0 (0%)	4 (0%)	1 (0%)	1 (0%)
- 2 Counteracting	1 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
+/-1 Mixed effects	64 (2%)	3 (0%)	24 (4%)	73 (5%)	145 (14%)	62 (4%)
Uncertain	38 (3%)	88 (4%)	0 (0%)	17 (1%)	23 (2%)	97 (6%)
Total	2,430 (100%)	2,247 (100%)	567 (100%)	1,647 (100%)	1,053 (100%)	1,716 (100%)

The full coherence matrices comparing the documents can be found in Annex 2. Annex 1 and Annex 2 accompany this report as separate Microsoft Excel documents and can be accessed through the OEP website.

3.1 FUTURE AGRICULTURAL POLICY PROPOSALS – VISIONS AND OBJECTIVES

Table 3-2 provides a summary of the coherence of the visions and objectives identified from the Future Agricultural Policy Proposals with those identified from the draft Environment Strategy.

Table 3-2 Coherence of the visions and objectives identified from the Future Agricultural Policy Proposals with those identified from the draft Environment Strategy

Classification	Number of interactions	Percentage
+ 2 Reinforcing	101	4
+ 1 Enabling	256	11
0 Neutral	1,955	80
- 1 Constraining	15	1
- 2 Counteracting	1	0
+/-1 Mixed effects	64	2
Uncertain	38	3
Total	2,430	100

Most interactions between the visions and objectives identified from the Future Agriculture Policy Proposals and from the draft Environment Strategy were rated as neutral. There were a large number of positive interactions (15%) with very few uncertain interactions less than 3%. However, there were a small number of mixed effects (2%) and a few negative interactions (1%).

3.1.1 Synergies

The greatest number of synergies (i.e., reinforcing or enabling interactions) were between the visions and objectives identified from the Future Agricultural Policy Proposals and those identified from the draft Environment Strategy related to SEO3 “Thriving, Resilient & Connected Nature and Wildlife”. These mainly included the visions and objectives related to the theme of “Protecting Nature on Land”. However, this theme also had the most negative interactions and mixed effects (discussed in Section 3.1.2). The next greatest number of positive interactions with the visions and objectives of the draft Environment Strategy were with SEO1, “Excellent Air, Water, Land and Neighbourhood Quality”. The majority of the visions and objectives identified from the Future Agricultural Policy Proposals that interacted favourably with those identified from the draft Environment Strategy were:

- An industry that:
 - Pursues increased productivity in international terms as a means of sustained profitability, closing the productivity gap which has been opening up with other major suppliers
 - Is environmentally sustainable in terms of its impact on, and guardianship of, air and water quality, soil health and biodiversity, while making its fair contribution to achieving net zero carbon targets
 - Displays improved resilience to external shocks which are ever more frequent and to which the industry has become very exposed; and
 - Operates within an integrated, profitable, efficient, sustainable, competitive and responsive supply chain, with clear transmission of market signals and an overriding focus on high quality food and the end consumer
- Achieve the sustainable management and efficient use of natural resources including water and soils.
- Achieve 100% of waterbodies at Good Status by 2027
- Contribute to wider government ambitions including the move to a circular economy, achieving net zero, reversing biodiversity loss, and supporting the green recovery. Build on existing strategies and principles set out in the UK Environment Bill, in particular the precautionary and polluter pays principles.

3.1.2 Trade-offs

Key conflicts between the Future Agricultural Policy Proposals and the draft Environment Strategy occurred where the aim is to increase the agriculture sector's productivity and/or size. Trade-offs (i.e., “Constraining”, “Counteracting” or “Mixed effects”) mainly arose from three of the visions and objectives of the Future Agricultural Policy Proposals:

- Ensure the future viability of the beef sector, help the sector to keep pace with, or surpass, the productivity growth of its competitors, improve profitability, resilience and environmental sustainability
- Enable farmers to make informed management decisions to benefit productivity; and
- Seek to increase horticulture's contribution to Northern Ireland Agriculture Output from the current 5%, to 10% over the next 5-7 years.

3.1.3 Mixed effects

Overall, there were a number of mixed effects categorised between the Future Agricultural Policy Proposals and the draft Environment Strategy. These largely related to visions and objectives that reduce the use of manufactured inputs to agriculture and associated environmental impacts (e.g., ammonia emissions, phosphorous application, exposure to chemicals in the NI environment); lower the annual material use per person; protect the wider environment (e.g., sustainable management and efficient use of natural resources; reducing the pressures and threats originating from human activity; achieving net zero or a low carbon society; and the adoption of a circular model of consumption); restore and protect the natural environment (e.g., all visions under protecting nature on land, increasing woodland habitat, and enhancing biodiversity). The mixed effects were identified largely because a number of objectives in the Future Agricultural Policy Proposals emphasise increasing productivity which if unregulated could lead to expansion of the agricultural area and associated damage to the wider environment.

3.1.4 Uncertain

A total of 38 of the interactions between the Future Agricultural Policy Proposals and the draft Environment Strategy were identified as uncertain. These predominantly related to two of the visions and objectives in the draft Environment Strategy, specifically relating to circular economy and reducing carbon emissions. The uncertainties are a result of the lack of information about how the visions and objectives will aim to reduce carbon emissions and what a circular model will entail. Additionally, the vision and objective in the Future Agricultural Policy Proposal relating to monitoring the outcome of the programme also led to several uncertain interactions as it is not detailed what will be measured.

3.2 FUTURE AGRICULTURAL POLICY PROPOSALS - POLICIES AND ACTIONS

A list of the policies and actions for the Future Agricultural Policy Proposals that were reviewed and included for analysis can be found in Annex 1. The full coherence matrix comparing the Future Agricultural Policy and draft Environment Strategy policies and actions, including scoring can be found in Annex 2

Table 3-3 provides a summary of the coherence of the policies and actions identified from the Future Agricultural Policy Proposals with those identified from the draft Environment Strategy.

Table 3-3 Coherence of the policies and actions identified from the Future Agricultural Policy Proposals with those identified from the draft Environment Strategy

Classification	Number of interactions	Percentage
+ 2 Reinforcing	66	3
+ 1 Enabling	92	4
0 Neutral	1,998	89
- 1 Constraining	0	0
- 2 Counteracting	0	0
+/-1 Mixed effects	3	0
Uncertain	88	4
Total	2,247	100

The vast majority of interactions between the policies and actions of the Future Agriculture Policy Proposals and draft Environment Strategy were classified as “Neutral”, as many of the policies and actions in the Future Agriculture Policy Proposals were focused on economics and knowledge sharing within the agriculture sector (generational renewal, knowledge measures, supply chains). While these may have some interactions with the policies in the draft Environment Strategy, they are likely to be indirect and weak. Overall, 7% of interactions were found to be positive while there were no negative interactions and only three mixed interactions. Uncertain interactions were more prevalent than in most of the other coherence analyses but were still only 4% of those rated.

3.2.1 Synergies

The main positive interactions were found within SEO1, “Excellent Air, Water, Land and Neighbourhood Quality”, within SEO3 “Thriving, Resilient and Connected Nature and Wildlife” - specifically the theme of “Protecting Nature on Land”, followed by SEO2 “Healthy and Accessible Environments”. The policies and actions identified from the Future Agricultural Policy Proposals that interacted most positively with those from the draft Environment Strategy included:

- Address ammonia emissions through the forthcoming Ammonia Strategy. Integrate Farm Business Support Schemes with Ammonia Strategy
- Publish plans to support improving water quality - River Management Basin Management Plan, conservation management plans for freshwater SACs, and site nutrient action plans
- Complete a landscape policy/legislation review and subject to review publish a Landscape Strategy by 2027. Develop a rolling multi-year Landscape Action Plan
- Develop action plans to address specific pressures on nature including nutrient pollution, wildfires, invasive species, and climate change by 2025; and
- Aim to introduce new farm support schemes from 2024 to deliver the four key outcomes.

3.2.2 Trade-offs

There were no negative interactions and only three mixed effects.

3.2.3 Mixed effects

Two of the three “Mixed effects” resulted from interactions between the Future Agricultural Policy Proposals’ policies and actions for the agri-food development programme for professionals and the following two policies and actions from the draft Environment Strategy:

- Integrate marine and aquatic historic environment considerations into all decision-making processes and assessments of environmental impacts. Work with DAERA to ensure heritage assets are included within the NI Marine Plan and within the NI Fisheries Act
- Develop and implement a Cultural Arts and Heritage Strategy which embeds environmental outcomes. Continue to provide a focus on supporting owners and communities to identify sustainable uses and management.

The third interaction rated as “Mixed effects” was between the Investment Measure of the Future Agricultural Policy and the draft Environment Strategy action to “work across Departments in relation to future agricultural support in order to recognise the extent and importance of the historic environment which is situated on agricultural land.”

These mixed effects were envisaged because increases in production from the Future Agricultural Policy Proposals may conflict with the draft Environment Strategy’s environmental protection of historic sites.

3.2.4 Uncertain

Most interactions rated as “Uncertain” were associated with various policies and actions from the Future Agricultural Policy Proposals and the action from the draft Environment Strategy to launch a consultation on the Clean Air Strategy and to continue funding improvements in local air quality and explore further funding. The action from the draft Environment Strategy needs to be further developed before the interactions with the Future Agricultural Policy Proposals can be assigned other ratings.

Interactions were also rated as “Uncertain” between policies and actions from the draft Environment Strategy regarding net zero emissions and climate change and the following policies and actions from the Future Agricultural Policy Proposals:

- Farming with Nature Package for land managers with 3 ha or more with conditions of compliance with Farm Sustainability Standards and participation in Soil Nutrient Health Scheme
- Farming carbon as a Business Enterprise to be co-designed with stakeholders. Relies on detailed MRV systems for agricultural carbon emission reductions and sequestrations to be developed at national and business level through application of farm carbon calculators
- Design future capital support programme to facilitate other policy goals
- Replace the current Cross Compliance SMR/GAECs with a simplified system of Farm Sustainability Standards, with the current verifiable standards re-written as a set of underlying requirements to better meet local needs
- Implement Standards which complement and underpin the policy objectives across other parts of the Agricultural Policy Framework; and
- Develop seven indicators to support the four outcomes of the Programme.

Again, the main reason for uncertainty is related to the scale of the action and the need for further development of both policies before the nature of their interactions will become clear.

3.3 PEATLAND STRATEGY - VISIONS AND OBJECTIVES

A list of the visions and objectives from the Peatland Strategy that were reviewed and included for analysis can be found in Annex 1. The full coherence matrix comparing the Peatland Strategy and draft Environment Strategy visions and objectives, including scoring can be found in Annex 2

A summary of the coherence of the visions and objectives identified from the Peatland Strategy with those identified from the draft Environment Strategy is provided in Table 3-4.

Table 3-4 Coherence of the visions and objectives identified from the Peatland Strategy with those identified from the draft Environment Strategy

Classification	Number of interactions	Percentage
+ 2 Reinforcing	101	18
+ 1 Enabling	182	32
0 Neutral	260	46
- 1 Constraining	0	0
- 2 Counteracting	0	0
+/-1 Mixed effects	24	4
Uncertain	0	0
Total	567	100

3.3.1 Synergies

Approximately half of the interactions between the visions and objectives from the Peatland Strategy with those from across the draft Environment Strategy SEOs resulted in synergies, the majority of which were rated as “Enabling” (32%).

The visions and objectives of the Peatland Strategy were most coherent with those from the draft Environment Strategy SEO3 “Supporting Sustainable Peatland Management” that related to the protection and conservation of land and biodiversity. Furthermore, all interactions were rated as “Enabling” between the visions and objectives from the Peatland Strategy and those from the draft Environment Strategy relating to Connecting People to the Environment: Outdoor Recreation and Natural Space Provision.

The objectives from the Peatland Strategy specific to conserving peatlands and preventing degradation, and restoration of degraded areas were highly coherent with the draft Environment Strategy SEO 1 “Excellent air water and land quality”. The visions and objectives from the Peatland Strategy’s Strategic Objectives 3, 4, 5 and 6, which relate to human interaction with the landscape (specifically knowledge sharing and education, peatland management, and governance), were also highly coherent with the draft Environment Strategy SEO2 “Healthy and accessible environment and landscapes everyone can connect with and enjoy”.

3.3.2 Trade-offs

No interactions were deemed to be wholly negative.

3.3.3 Mixed effects

Across all interactions between visions and objectives from the Peatland Strategy and from the draft Environment Strategy, 4% were rated as having “Mixed effects”. Ten of these relate to the Peatland Strategy’s Strategic Objectives 1, 2, 3 and 4 regarding maintenance of the historic environment. While peatland surveying can highlight unrecorded historic sites that can then be conserved, there may be unknown impacts, depending on surveying method, on cultural artifacts and particularly cultural artifacts that have not yet been identified. Additionally, four of the mixed effects were associated with the Peatland Strategy’s Strategic Objectives 1, 2 and 3 and sustainable management of peatland. For example, if areas of peatland are deemed suitable for food production. The Future Agricultural Policy Proposals seek to increase the use of drainage and fertiliser, which could impact on peatlands. Mixed effects were also identified between restoring peatland and maintaining woodland cover dependent on the condition of the peatland.

There were seven sets of visions and objectives from the draft Environment Strategy where “Mixed effects” were identified with the visions and objectives from the Peatland Strategy. In increasing order of the number of “Mixed effect” interactions, these seven sets of visions and objectives were:

1. Improve quantity, quality & accessibility of existing natural spaces, parks, recreational routes, and marine and freshwaters
2. Better connected communities and city centres through greenway & cycleway networks
3. Increased woodland cover has improved our carbon sink, created new woodland habitat and enhanced biodiversity as part of a wider nature recovery network, helped with flood alleviation, improved water quality and is valued and protected as an integral part of the lives of all citizens living in NI. 12% woodland cover by 2050
4. An industry that: pursues increased productivity in international terms as a means of sustained profitability, closing the productivity gap which has been opening up with other major suppliers; is environmentally sustainable in terms of its impact on, and guardianship of, air and water quality, soil health and biodiversity, while making its fair contribution to achieving net zero carbon targets; displays improved resilience to external shocks which are ever more frequent and to which the industry has become very exposed; and which operates within an integrated, profitable, efficient, sustainable, competitive and responsive supply chain, with clear transmission of market signals and an overriding focus on high quality food and the end consumer
5. Increase NI woodland cover to 9% (124,000 hectares) by 2030
6. A well-maintained historic environment which supports our prosperity, strengthens our society and shapes our character. An historic environment which is protected for future generations. Resilient communities which gain physical, educational and well-being benefits from the historic environment. Increased understanding of the relationships between our natural and historic environment, culture and arts, enabling collaboration and leading to benefits for our local communities and economy
7. A historic environment which is sustainable connected and managed as a vital part of our diverse environment.

Half of the “Mixed effects” between the Peatland Strategy’s visions and objectives and those from the draft Environment Strategy were associated with the Peatland Strategy’s Strategic Objective 2 “Restoration of degraded areas to functioning peatland ecosystems (designated & non-designated sites)”. These relate to the visions and objectives from the draft Environment Strategy for greenways, increasing woodland cover, historic environment and Future Agricultural Policy Proposals (2-6 of the visions/objectives listed above). On the one hand, greenway networks between peatland sites could indirectly support wider peatland conservation and improved management, however, improving accessibility of natural spaces could lead to peatland degradation. On the other hand, fully implementing the visions and objectives of the Peatland Strategy’s Strategic Objective

could be to the detriment of increasing the connectivity of communities. The visions and objectives might also be considered “Constraining”, as the negative impacts from human disturbance may outweigh any indirect positive impacts from increasing greenway networks.

Further “Mixed effects” were identified between three of the visions and objectives of the Peatland Strategy (focused on improving peatlands for biodiversity and reducing degradation) and the vision of the draft Environment Strategy for “increased woodland cover has improved our carbon sink, created new woodland habitat and enhanced biodiversity as part of a wider nature recovery network, helped with flood alleviation, improved water quality and is valued and protected as an integral part of the lives of all citizens living in NI. 12% woodland cover by 2050”. Woodland expansion and conservation may conflict with peatland conservation. Woodland cover is often indicative of degraded peatland. Both peatland and woodland act as carbon sinks but increased woodland cover may not be desired on peatland areas that are to be conserved or restored.

A number of the visions and objectives (focused on improving peatlands for biodiversity and reducing degradation) from the Peatland Strategy were rated as having “mixed effects” with the draft Environment Strategy vision/objective relating to the Future Agricultural Policy Proposal (within SEO 4 Sustainable production and consumption on land and at sea), which is very broad and focuses on utilising the wider environment for agricultural production.

3.3.4 Uncertain

There were no uncertain interactions between the Peatland Strategy and draft Environment Strategy’s visions and objectives.

3.4 PEATLAND STRATEGY - POLICIES AND ACTIONS

A list of the policies and actions from the Peatland Strategy that were reviewed and included for analysis can be found in Annex 1. The full coherence matrix comparing the Peatland Strategy and draft Environment Strategy policies and actions, including scoring can be found in Annex 2.

A summary of the coherence of the policies and actions identified from the Peatland Strategy with those identified from the draft Environment Strategy is provided in Table 3-5.

Table 3-5 Coherence of the policies and actions identified from the Peatland Strategy with those identified from the draft Environment Strategy

Classification	Number of interactions	Percentage
+ 2 Reinforcing	115	7
+ 1 Enabling	431	26
0 Neutral	1,007	61
- 1 Constraining	4	0
- 2 Counteracting	0	0
+/-1 Mixed effects	73	4
Uncertain	17	1
Total	1,647	100

3.4.1 Synergies

Across all 1,647 interactions assessed, 33% were deemed positive, of which 26% were rated as “Enabling” and 7% as “Reinforcing”. The Peatland Strategy’s policy relating to the provision of funding to facilitate restoration and consider funded partnerships had the most “Reinforcing” interactions (14) with policies/actions from the draft Environment Strategy. The Peatland Strategy’s policy to develop, publish and implement an ammonia strategy to address nitrogen deposition on peatland may also be considered coherent with the draft Environment Strategy, as it had 12 “reinforcing” interactions with the policies and actions of the draft

Environment Strategy. Synergies were identified between policies for funding from the Peatland Strategy and policies from the draft Environment Strategy that aim to develop funding partnerships to work on co-benefits. Similarly, the Peatland Strategy's policy for the "establishment of a Peatlands Partnership by 2022" had the highest number of interactions with the policies and actions from the draft Environment Strategy rated as "Enabling" of cross-departmental partnerships and opportunities to support peatland conservation efforts across different sectors. The Peatland Strategy's policies and actions on implementing an ammonia strategy and addressing peatland nitrogen deposition were also rated as "Reinforcing" the draft Environment Strategy policies on water, marine and coastal quality, as they will reduce run-off of pollution.

The Peatland Strategy's strategic objective relating to research and knowledge sharing had many "Enabling" interactions identified with policies and actions within the draft Environment Strategy, particularly those regarding prospective management plans required. The identification and understanding of the specific needs for peatland restoration within the policies and actions of the Peatland Strategy enable the implementation of policies and actions in the draft Environment Strategy, such as those regarding climate change mitigation, carbon budgets, and nature-based solutions, with further cross-policy synergies possible once these interactions have been understood. Policies and actions from the Peatland Strategy relating to research into peatland management for biodiversity and farming had many "Enabling" interactions with policies and actions from the draft Environment Strategy regarding general improvement of biodiversity and nature.

3.4.2 Trade-offs

No interactions were deemed to be wholly negative

3.4.3 Mixed effects

Approximately 4% (73) of interactions were assessed to have mixed effects. Across both the Peatland Strategy and the draft Environment Strategy, policies relating to connecting people and the environment through increased access resulted in the most mixed effects. Policies aimed at facilitating access to the natural environment can have benefits in the form of increased appreciation, mental health, and fitness, but drawbacks come as a consequence of increased footfall and human presence that can hinder protection efforts. The Peatland Strategy policy and action relating to the creation of a list of peatland restoration sites had seven mixed effects with the draft Environment Strategy.

Specifically, the draft Environment Strategy policies and actions of implementing greenways and bicycle plans and improving environmental access could have mixed effects. On the one hand, increased public use and enjoyment of peatland sites could lead to greater support for their restoration and conservation. On the other hand, increased access to peatland could compound its degradation and disturb sensitive habitats and species. However, these mixed effects could be avoided by regulating access to protect sensitive habitats and species.

Other mixed effects related to the policies and actions from the Peatland Strategy for reducing afforested peatland and restoring it and for developing land management schemes for the appropriate management of peatland. Restoring afforested areas to peatland habitat involves the removal of trees, which in some ways counteracts the "Deliver the 'Forests for our Future' Programme". However, the policy specifically states that the Programme should be delivered by "including associated conservation and protection measures for long-established semi-natural woodland and habitats of conservation concern". Thus, the two strategies are aligned regarding protection of habitats of conservation concern in the delivery of the 'Forests for our Future' Programme, although greater clarity around the implementation and management of these policies will likely alleviate perceived contradictions.

3.4.4 Uncertain

A total of 17 interactions between the Peatland Strategy and the draft Environment Strategy were identified as uncertain. These covered a wide range of policy and actions, with nine of them falling into Strategic Objective 3: Supporting Sustainable Peatland Management and Strategic Objective 4: Knowledge Sharing & Research. The uncertain interactions within the Strategic Objective 3 are a result of the lack of information provided relating to what will be included within a plan/programme/scheme or a support scheme. Additionally, the uncertainties associated with Strategic Objective 4 relate to research, for which the outcomes will not be known until the research has been undertaken. Therefore, the effects of the research are uncertain.

3.5 ENERGY STRATEGY - VISIONS AND OBJECTIVES

A list of the visions and objectives for the Energy Strategy that were reviewed and included for analysis can be found within Annex 1. The full coherence matrix comparing the Energy Strategy and draft Environment Strategy visions and objectives, including scoring can be found in Annex 2

A summary of the coherence of the visions and objectives identified from the Energy Strategy with those identified from the draft Environment Strategy is provided in Table 3-6.

Table 3-6 Coherence of the visions and objectives identified from the Energy Strategy with those identified from the draft Environment Strategy

Classification	Number of Interactions	Percentage
+ 2 Reinforcing	54	5
+ 1 Enabling	71	7
0 Neutral	758	72
- 1 Constraining	1	0
- 2 Counteracting	0	0
+/-1 Mixed effects	145	14
Uncertain	23	2
Total	1,053	100

3.5.1 Synergies

Out of the 1,053 interactions assessed between the visions and objectives in the Energy Strategy and the draft Environment Strategy, approximately 12% were rated as either “Reinforcing” (5%) or “Enabling” (7%). Most of the reinforcing interactions related to delivering the climate change objectives under the draft Environment Strategy and to improving air quality and sustainable settlements. Similarly, enabling interactions were identified across all the strategic objectives in the draft Environment Strategy, with most relating to SEO1 “Excellent Air, Water, Land & Neighbourhood Quality”.

The two vision and objectives in the Energy Strategy that had the most enabling interactions with the draft Environment Strategy relate to informing people to transition to decarbonised solutions for all their energy needs and reducing the distances people travel in private vehicles. Similarly, the Energy Strategy had the most reinforcing and enabling interactions with the two visions and objectives in the draft Environment Strategy relating to “cleaner air quality in Northern Ireland” and “contributing to wider government ambitions including the move to a circular economy, achieving net zero, reversing biodiversity loss, and supporting the green recovery”. For the latter, this is predominantly a result of it including the support of green recovery and net zero.

3.5.2 Trade-offs

Only one interaction was identified as having negative implications. It related to reducing unnecessary emissions and reviewing the ETS cap constraining the objective of households having access to affordable energy. Reducing unnecessary emissions might need to be abated and the ETS cap might be reduced, with associated costs of compliance with the reduced cap. These activities could increase the costs of energy generation and, therefore, restrict access to affordable energy.

3.5.3 Mixed effects and uncertainties

Approximately 13.8% of the interactions were identified as having mixed effects, which predominantly relate to interactions between growing the green economy and protecting nature at land and sea, as renewable energy facilities can impact the environment when installed. However, increasing renewable energy consumption can also have a beneficial impact on protecting nature through reducing GHG and air pollutant emissions. GHG emissions are contributing to climate change, which is damaging terrestrial and marine

biodiversity.. Additionally, mixed effects were identified between ensuring households and businesses have access to affordable energy and implementing the Climate Change Act as energy prices could increase as a result of the Act.

3.5.4 Uncertain

The uncertainties identified predominantly related to the unknown impact of the visions and objectives or lack of detail about the policies and actions. For example, there were a number of uncertainties regarding public awareness campaigns, as their content was not known and their potential effectiveness was indeterminate. Additionally, there were several uncertainties identified relating regarding measures to adapt to the impacts of climate change, as both the measures and the impacts were not specified.

3.6 ENERGY STRATEGY - POLICIES AND ACTIONS

A list of the policies and actions for the Energy Strategy that were reviewed and included for analysis can be found within Appendix 1. The full coherence matrix comparing the Energy Strategy and draft Environment Strategy policies and actions, including scoring can be found in Annex 2

A summary of the coherence of the policies and actions identified from the Energy Strategy with those identified from the draft Environment Strategy is provided in Table 3-7.

Table 3-7 Coherence of the visions and objectives identified from the Energy Strategy with those identified from the draft Environment Strategy

Classification	Number of Interactions	Percentage
+ 2 Reinforcing	26	2
+ 1 Enabling	120	7
0 Neutral	1,410	82
- 1 Constraining	1	0
- 2 Counteracting	0	0
+/-1 Mixed effects	62	4
Uncertain	97	6
Total	1,716	100

A total of 82% of the 1,716 interactions between the Energy Strategy and the draft Environment Strategy were rated as “Neutral”. A lot of the policies in the Energy Strategy are focused on buildings and consumers, which have limited interactions with the draft Environment Strategy. Many of the policies about consumer protection, framework for energy affordability and domestic energy efficiency scheme will support the general climate change mitigation elements and air quality of the draft Environment Strategy but have more limited interaction with natural environment policies.

3.6.1 Synergies

Out of the 1,716 interactions assessed between the policies and actions in the Energy Strategy and the draft Environment Strategy, approximately 9% were rated as either “Reinforcing” (2%) or “Enabling” (7%).

Similar to the visions and objectives, the majority of the enabling interactions were associated with the climate change policies and actions, although a considerable number related to energy and air quality. Specifically, there were many enabling interactions between investing in green innovation and low carbon technology and the climate change and energy policies and actions. This is a result of the broad nature of green innovation and low carbon technologies, which covers a lot of aspects applicable to the draft Environment Strategy. The policy or action within the Energy Strategy that had the most enabling interactions was related to running information and awareness campaigns on energy decarbonisation, as this has potential to engage people in wider supporting issues to deliver the relevant policies. For example, this policy or action could increase

knowledge of public transport use and modal switch, which can subsequently support the policies of getting people into more active travel and using local community trails.

The reinforcing interactions were spread across all the SEOs in the draft Environment Strategy with most relating to the climate change target. The policy or action relating to ensuring that Northern Ireland's transition to net zero is fair for everyone was found to have the most reinforcing interactions. Additionally, the policies that encompass the principle of replacing fossil fuels with renewable energy in the Energy Strategy, have three reinforcing interactions with the action to launch a consultation on a clean air strategy in the draft Environment Strategy.

3.6.2 Trade-offs

There was only one constraining interaction between the policies and actions of the Energy Strategy and the draft Environment Strategy. This related to developing an action plan to deliver 1GW of offshore wind, which will likely conflict with the action in the draft Environment Strategy relating to evaluating climate change scenarios and impacts on coastal habitats.

3.6.3 Mixed effects

Approximately 4% of the interactions were identified as having mixed effects. Most were associated with the "Do More With Less" policies in the Energy Strategy regarding energy efficiency and buildings and with the following draft Environment Strategy policies:

- "New provisions to tackle low level dilapidation. Develop Dilapidation Bill, Engage with Councils through Local Development Plans process to prioritise dereliction in plan strategies & policies."
- "Integrate existing, and incorporate new, natural features into housing development to support quality of place, biodiversity and water management, and address climate change mitigation and resilience."
- "Ensure the planning system, including Local Development Plans, helps support the delivery of the appropriate supply of housing, reflecting the changing nature of need and demand with consideration to wider policy influences including adaptive reuse and climate change. Putting place-shaping at the heart of our actions by developing policies that will support delivery of housing led regeneration, encourage mixed tenure and promote shared housing. Develop and support sustainability and Green Growth by ensuring that CEEQUAL is applied to all major Urban Regeneration Capital Projects."
- "Progress research on the specific climate change challenges and opportunities for heritage assets, and use this as the basis for advice, guidance and action."

Mixed effects have the potential to arise between improving the energy efficiency of buildings whilst delivering housing requirements. The policies have potential to work alongside one-another, but there are potential conflicts regarding prioritisation of funding and resources.

Additionally, 8% of the interactions within the "Grow the Green Economy" principle in the Energy Strategy were identified as mixed effects, as they could result in negative or positive interactions depending on how the policies are introduced and resources are allocated.

3.6.4 Uncertain

97 of the interactions between the Energy Strategy and the draft Environment Strategy were identified as uncertain. These covered a wide range of policy and actions, for which five policy and actions within the Energy Strategy being identified as resulting in the most uncertain interactions. These five policy and actions cover "creating a hydrogen centre", "creating roadmap to a cleaner, green transport system", "review and monitoring the energy system" and "prepare Northern Ireland Smart Systems and Flexibility Plan". The uncertainties around "developing a hydrogen centre" relate to how successful the hydrogen centre will be and what will the hydrogen energy replace. The policy and actions relating to "creating a greener transport system" do not provide enough detail to determine what will be included within the transport strategies and what land may be impacted/avoided. Additionally, the uncertain interactions relating to the policy and actions covering the "energy system" are, again, a result of a lack of information relating to the contents of the strategies and plans.

4. SUMMARY OF COHERANCE BETWEEN THE FUTURE AGRICULTURE POLICY PROPOSALS, THE PEATLAND STRATEGY, AND THE ENERGY STRATEGY

This section presents the results of the following coherence analyses:

- Future Agricultural Policy Proposals versus Peatland Strategy (visions and objectives)
- Future Agricultural Policy Proposals versus Peatland Strategy (policies and actions)
- Peatland Strategy versus Energy Strategy (visions and objectives)
- Peatland Strategy versus Energy Strategy (policies and actions)
- Future Agricultural Policy Proposals versus Energy Strategy (visions and objectives)
- Future Agricultural Policy Proposals versus Energy Strategy (policies and actions)

The visions, objectives, policies and actions from these documents can be found in Annex 1. A summary of the number and rating of interactions identified between them is provided in Table 4-1 below.

Table 4-1 Summary of the number and rating of interactions identified between the draft Future Agricultural Policy Proposals, the Peatland Strategy, and the Energy Strategy

Classification	Interactions between the Future Agricultural Policy Proposals and the Peatlands Strategy		Interactions between the Future Agricultural Policy Proposals and the Energy Strategy		Interactions between the Peatland Strategy and the Energy Strategy	
	Visions and Objectives	Policies and Actions	Visions and Objectives	Policies and Actions	Visions and Objectives	Policies and Actions
+ 2 Reinforcing	15 (7%)	21 (2%)	0 (0%)	1 (0%)	15 (7%)	21 (2%)
+ 1 Enabling	85 (42%)	126 (15%)	30 (8%)	22 (3%)	85 (42%)	126 (15%)
0 Neutral	59 (29%)	620 (73%)	339 (90%)	859 (97%)	59 (29%)	620 (73%)
- 1 Constraining	2 (1%)	6 (1%)	0 (0%)	0 (0%)	2 (1%)	6 (1%)
- 2 Counteracting	5 (2%)	1 (0%)	0 (0%)	0 (0%)	5 (2%)	1 (0%)
+/-1 Mixed effects	28 (14%)	17 (2%)	8 (2%)	2 (0%)	28 (14%)	17 (2%)
Uncertain	9 (4%)	59 (7%)	0 (0%)	0 (0%)	9 (4%)	59 (7%)
Total	203 (100%)	850 (100%)	377 (100%)	884 (100%)	203 (100%)	850 (100%)

The full coherence matrices comparing these policy documents can be found in Annex 2. Annex 1 and Annex 2 accompany this report as separate Microsoft Excel documents and can be accessed through the OEP website.

4.1 FUTURE AGRICULTURAL POLICY PROPOSALS VS PEATLAND STRATEGY (VISIONS AND OBJECTIVES)

A list of the visions and objectives from the Peatland Strategy that were reviewed and included for analysis can be found in Annex 1. The full coherence matrix (including scoring) comparing the visions and objectives of the Future Agricultural Policy Proposals with those of the Peatland Strategy, can be found in Annex 2. A summary is provided in Table 4-2.

Table 4-2 Coherence of the visions and objectives identified from the Future Agricultural Policy Proposals with those identified from the Peatland Strategy

Classification	Number of interactions	Percentage
+ 2 Reinforcing	15	7
+ 1 Enabling	85	42
0 Neutral	59	29
- 1 Constraining	2	1
- 2 Counteracting	5	2
+/-1 Mixed effects	28	14
Uncertain	9	4
Total	203	100

4.1.1 Synergies

The majority (49%) of the interactions between the visions and objectives from the Future Agriculture Policy Proposal with those from across the Peatland Strategy were identified as synergies, the majority of which were rated as “Enabling” (42%).

The Future Agriculture Policy Proposal objective with the most (5) “Reinforcing” interactions with the Peatland Strategy was “Design targeted site-specific land management interventions which will contribute to improved biodiversity, air, water quality, soil health, carbon capture (sequestration) and/or GHG emissions reduction (mitigation); followed by an objective “to avoid risks of overgrazing sensitive areas” with four “Reinforcing” interactions.

The visions and objectives of the Future Agricultural Policy Proposals that had the most enabling interactions with the Peatland Strategy (with seven each) were:

- “Explore the opportunities of encouraging the farming of carbon”
- “Increase awareness of nutrient management planning and encourage meaningful nutrient management planning thus driving positive behavioural change amongst farmers”
- “Establish recurring baseline to allow DAERA to monitor important long-term trends in soil, carbon footprint and water quality”
- “An industry achieving Farm Sustainability Standards where there is no statutory baseline”.

The following visions and objectives of the Future Agriculture Policy Proposals’ also had a number of enabling interactions with the Peatland Strategy:

- “Improve resilience to external shocks”
- “Livestock Genetics and data policies”
- “Protect the integrity of the industry and encourage good practice behaviours that underpin the four key desired outcomes of the Programme (productivity, sustainability, resilience, and a responsive supply chain)”.

Notably, a greater level of coherence was identified between the visions and objectives than between the policies and actions (see Section 4.2) of the Peatland Strategy and the Future Agriculture Policy Proposal (49% of the interactions between the two sets of visions and objectives were rated as synergies, as compared to 15% across policies and actions).

4.1.2 Trade- offs

Five interactions between the visions and objectives identified from the Future Agricultural Policy Proposals and from the Peatland Strategy were rated as “Counteracting”. These were between the Future Agricultural Policy Proposals’ objective to “Seek to increase horticulture’s contribution to Northern Ireland Agriculture Output from the current 5% to 10% over the next 5-7 years” and the Peatland Strategy’s objectives:

- “By 2040, all peatlands supporting semi-natural vegetation are being managed for their peatland biodiversity and ecosystem function.”
- “By 2030, degraded peatland habitats are prioritised for restoration to favourable conservation status.”
- “By 2040, all high priority degraded peatlands will be under restoration management.”
- “By 2040 – High Priority degraded peatlands in Northern Ireland are under sustainable management.”
- “The necessary structures are in place to deliver on the Strategic Objectives and Actions contained within the Northern Ireland Peatland Strategy.”

The interactions were rated as counteracting because peat is used by horticulture as a growing medium, and this is not sustainable (see analyses in Sections 3.3, 3.4, and 4.2).

Additionally, there two constraining interactions were identified between the Future Agricultural Policy Proposals’ objective to “Seek to increase horticulture’s contribution to Northern Ireland Agriculture Output from the current 5% to 10% over the next 5-7 years” and the Peatland Strategy’s objectives:

- By 2025, stakeholders understand the need for peatland conservation and restoration and have the capacity to deliver the Strategic Objectives and Actions contained within the Northern Ireland Peatland Strategy.
- Peatlands are recognised for their unique biodiversity and ecosystem services provision.

No additional constraining or counteracting interactions were identified between the Future Agricultural Policy Proposals’ and the Peatland Strategy’s visions and objectives. This is largely because of the Future Agricultural Policy Proposals’ overarching themes of sustainability and improved environmental performance, which underpin visions and objectives relating to improved productivity, resilience, supply chain, knowledge, and monitoring/metrics.

4.1.3 Mixed effects

Across all interactions between visions and objectives from the Peatland Strategy and from the Future Agricultural Policy Proposal, 14% were rated as having “Mixed effects”.

These mixed effects were envisaged because increases in production from the Future Agricultural Policy Proposals may conflict with the Peatland Strategy’s objectives for conservation, restoration and sustainable management of peatlands. For example, the Future Agricultural Policy Proposals include an objective “A Headage Sustainability package would aim to ensure the future viability of the beef sector, help the sector to keep pace with, or surpass, the productivity growth of its competitors, improve profitability, resilience and environmental sustainability, in particular, it would seek to reduce emissions and the carbon footprint by calving cows more regularly, calving heifers at a younger age.” While the objective addresses sustainability, and emissions reductions, it could also lead to increases in production and in animal numbers, which could increase nutrient loadings and further degrade peatland.

Mixed effects were also envisaged regarding how the Future Agricultural Policy Proposals’ objective to “Enable farmers to make informed management decisions to benefit productivity” would interact with the Peatland Strategy’s strategic objectives (1 to 5). Helping farmers to make informed decisions that benefit productivity could increase emissions and further degrade peatland unless they already understand the need for its conservation and restoration and have the capacity to deliver it.

Two objectives within the horticulture section of the Future Agricultural Policy Proposals (“Collaborate and co-operate with each other and government to secure sustainable growth and development” and “Operate within an integrated, efficient, sustainable, competitive and an effective functioning supply chain”) were rated as potentially having mixed effects with the Peatland Strategy’s Strategic Objectives 1,2 and 3.

Similarly, mixed effects were also envisioned regarding the Future Agricultural Policy Proposals’ objective “Supporting businesses transition through knowledge and support for adoption of new technology”, as there could be positive or negative effects depending on the unspecified technology. For example, whilst some technologies can have an enabling effect on peatland management and restoration (e.g., remote sensing, which can be used to monitor peatland health), other emerging technologies may have negative effects on the achievement of the Peatland Strategy’s visions and objectives (e.g., biomethane production).

4.1.4 Uncertain

There were a small number of uncertain interactions (4%) regarding the between the Future Agricultural Policy Proposals and the Peatland Strategy. These were largely due to a lack of specificity within the scope of the strategies, or due to reliance on effects of policies which could not be guaranteed to succeed. For example, there were uncertainties over what would be included within the agricultural policies and how they would fit with Peatland Strategy Strategic Objectives 6 (Governance, Implementation and Funding). It was also thought possible that particular Future Agricultural Policy Proposal objectives might improve knowledge, understanding and recognition of peatlands, but this could not be guaranteed. The Future Agricultural Policy Proposal for a “Horticulture industry that is environmentally sustainable, reducing environmental impact and assisting the agri-food industry meet climate change obligations” could have a positive effect on peatlands, however, this was uncertain, as a reduction in the use of peat in horticulture was not specified.

4.2 FUTURE AGRICULTURAL POLICY PROPOSALS VS PEATLAND STRATEGY POLICIES AND ACTIONS

A list of the policies and actions from the Peatland Strategy that were reviewed and included for analysis can be found in Annex 1. The full coherence matrix, including scores, comparing the Future Agricultural Policy Proposals policies and actions with those of the Peatland Strategy can be found in Annex 2. A summary is provided in Table 4-3.

Table 4-3 Coherence of the policies and actions identified from the Future Agricultural Policy Proposals with those from the Peatland Strategy

Classification	Number of interactions	Percentage
+ 2 Reinforcing	21	2
+ 1 Enabling	126	15
0 Neutral	620	73
- 1 Constraining	6	1
- 2 Counteracting	1	0
+/-1 Mixed effects	17	2
Uncertain	59	7
Total	850	100

4.2.1 Synergies

Across all 850 interactions assessed, 17% were deemed positive, of which 15% were rated as “Enabling” and 2% as “Reinforcing”. The policies and actions from the Future Agricultural Policy Proposals had the most (5) “Reinforcing” interactions with the Peatland Strategy’s policy “Support and where necessary require, landowners to deliver land uses that are compatible with healthy peatland”. It also had 13 “enabling” interactions, and 2 “reinforcing” interactions with the Peatland Strategy’s policy to “Develop Land Management schemes through new, post Climate Action Plan, agricultural policies, which provide targeted support to underpin the appropriate management of all peatlands”, and 14 “enabling” and one “reinforcing” interactions. With the Peatland Strategy’s policy to “Develop, publish and implement an ammonia strategy to address nitrogen deposition on peatland”. Hence the two documents were identified as coherent in these regards.

Synergies between the Future Agricultural Policy’s action “Peatland rewetting as per Peatland Strategy” and the Peatland Strategy’s policy and actions were also identified and had the most (8) “Reinforcing” interactions. Other synergies across policies and actions in the Future Agricultural Policy Proposals related to the “Farming with Nature Package”, and with policies “Farming carbon as a Business Enterprise to be co-designed with stakeholders”. There were also some “reinforcing” and “enabling” synergies relating to the Soil Health Nutrient Scheme”, and “Ensure recipients of support packages have a nutrient management plan”.

Notably, there was a greater level of coherence between the Future Agriculture Policy Proposals' and the Peatland Strategy's visions and objectives (49% synergies) than between the policies and actions (17% synergies).

4.2.2 Trade- offs

There were only seven trade-offs (one "counteracting" and six "constraining") between the policies and actions, and these all related to the Future Agricultural Policy Proposals' Horticulture policy "Making an improved contribution to the Northern Ireland economy through a Production Horticulture Programme aiming to secure a two-fold increase in the output of the sector from £100m to £200m+ over the next 5-7 years". The "counteracting" Peatland Strategy policy was "Reduce the use of peat from statutory bodies and consider banning the extraction and importation of peat." The latter directly counteracts productivity in the Horticulture Industry, which currently utilises peat as a growing medium. Similarly, the reasons for classing interactions as "constraining" was that unless the use of peat in horticulture is reduced, increased horticulture production will likely have negative impacts on peatland conditions and on what can be achieved through sustainable peatland management and restoration.

4.2.3 Mixed effects

Approximately 2% (17) of interactions were assessed as having mixed effects. The Future Agricultural Policy Proposals' policy "Biomethane and hydrogen production from agricultural waste is developed through the Green Growth Strategy employing technologies to capture and recycle nutrients post digestion that would otherwise be land spread as farm animal slurries" had the most (6) mixed effects with the Peatland Strategy's policies and actions. This was because, although biomethane production could divert animal waste from being spread as slurries, biomethane production can produce ammonia emissions through anaerobic digestion. Additionally, increased biomethane production could result in increased bio-waste production for biogas, potentially competing with peatland areas for land use. Biomethane and hydrogen production should, therefore, be carefully managed to ensure that biomethane production plants minimise emissions (e.g., by N stripping) and are located at appropriate distances from peatlands and other sensitive habitats to avoid negative impacts. At a national scale, biomethane production should be carefully managed and monitored to ensure that biowaste is not increased simply in order to enable it. The Future Agricultural Policy Proposals' policy "Forestry, agroforestry, new and taller, wider hedgerows, soil carbon and removal of methane from the atmosphere over time through reductions in agricultural methane emissions" also had (5) mixed effects, with policies in the Peatland Strategy. This was because some forestry and agroforestry actions can be incompatible with peatland management and restoration, though soil carbon actions are likely to have a reinforcing/enabling effect on peatland management and restoration.

Mixed effects were also identified with the Future Agricultural Policy Proposals' "A limit of 352,000 animals is set at the Northern Ireland level to ensure the measure is compliant with WTO Blue Box requirements" this is dependent on whether it encourages an increase in animal numbers, and thereby emissions.

Two further "mixed effects" interactions were regarding horticulture and research into alternative growing media. While such research will benefit the horticulture industry's sustainability, it may not further production goals.

4.2.4 Uncertain

Approximately 7% (59) of interactions were assessed as uncertain. As with the visions and objectives of the policies, uncertainties were associated with possible effects that could not be guaranteed or unknown effects of interactions.

There were a number of areas of uncertainty that could be enabling or reinforcing if the policies and actions are aligned to support each other, for example:

- If the data collected by nutrient management plans, the Soil Nutrient Health Scheme, the Farming With Nature scheme (performance data), and the Indicators to support the four outcomes of the Programme could be used to monitor the state of peatlands, and inform management and restoration actions delivered by the Peatland Strategy.
- If peatlands are included in the scope of measures to improve knowledge and innovation related to environmental sustainability and resilience in the agri-food and horticulture industries.
- If the Crisis Framework included risks to biodiversity crises such as the current state of peatlands in Northern Ireland.

- If Future Agricultural Policy Proposals, such as the Farm Sustainability Standards and the Farming with Nature Scheme, could reinforce planning conditions related to peatland extractions.

4.3 FUTURE AGRICULTURAL POLICY PROPOSAL VS ENERGY STRATEGY VISIONS AND OBJECTIVES

A list of the visions and objectives from the Future Agricultural Policy Proposals and the Energy Strategy that were reviewed and included for analysis can be found in Annex 1. The full coherence matrix, including scores, comparing the Future Agriculture Policy Proposals and the Energy Strategy visions and objectives can be found in Annex 2. A summary is provided in Table 4-4.

Table 4-4 Coherence of the visions and objectives identified from the Future Agricultural Policy Proposals with those identified from the Energy Strategy

Classification	Number of interactions	Percentage
+ 2 Reinforcing	0	0
+ 1 Enabling	30	8
0 Neutral	339	90
- 1 Constraining	0	0
- 2 Counteracting	0	0
+/-1 Mixed effects	8	2
Uncertain	0	0
Total	377	100

4.3.1 Synergies

A minority (8%) of the interactions between the visions and objectives from the Future Agricultural Policy Proposals and the Energy Strategy resulted in synergies; all rated as “Enabling”. One of the Future Agricultural Policy Proposals’ visions and objectives relating to supporting farmers to contribute to environmental improvements had several (6) positive interactions with the Energy Strategy. It was assessed as interacting positively with the Energy Strategy’s visions and objectives that aim to increase the availability of renewable and affordable energy (“Placing you at the heart of our energy future”, “Grow the green economy” and “Replace Fossil Fuels with renewable energy” sections). Similarly, the Future Agricultural Policy Proposals include “The provision of appropriate, evidence-based capital investment support to the agriculture and horticulture sectors (e.g. through grants or loan incentives) will be targeted to contribute to the achievement of the four desired outcomes of the Framework Portfolio”, which was deemed to align with several Energy Strategy visions and objectives that aim to increase the availability of renewable and affordable energy and improve the energy efficiency of buildings. Additionally, the Future Agricultural Policy Proposals include a “Horticulture industry that is environmentally sustainable, reducing environmental impact and assisting the agri-food industry meet climate change obligations”, which was rated as being enabled by five visions and objectives in the Energy Strategy that aim to increase the availability of renewable energy. Further synergies identified related to farm businesses having increased resilience to external risks through the increased availability of affordable energy. Additionally, two of the visions and objectives in the Energy Strategy aim to reduce road traffic emissions, which will result in less nitrogen deposition on nature, aligning with the Farming for Nature Package in the Future Agricultural Policy Proposals.

4.3.2 Trade- offs

There were no negative interactions identified between the Energy Strategy and the Future Agricultural Policy Proposals, other than mixed effects interactions discussed below.

4.3.3 Mixed effects

Approximately 2% (8) of interactions were assessed as having mixed effects. These all result from four visions and objectives in the Energy Strategy:

- “Double the size of our low carbon and renewable energy economy to more than £2bn turnover”
- “Northern Ireland to become a leading low-carbon innovation hub”.
- “Meet at least 70% of electricity consumption from a diverse mix of renewable sources”; and
- “Develop markets and infrastructure that integrate low carbon sources and meet our energy needs in a secure and cost-effective way”.

Although renewable and low carbon energy typically emit less atmospheric pollutants than fossil-fuel technologies, the associated infrastructure may have a negative impact on habitats. Thus, there may be some mixed effects between the visions and objectives listed above with two of those in the Future Agricultural Policy Proposals relating to protecting nature and habitats:

- “By restoring wildlife rich habitats, corridors and stepping stones in the wider countryside and enabling wildlife populations to grow and travel between them we also aim to help safeguard those small, isolated extents of high nature value land and other areas of priority habitats”; and
- “Reversing the trends in nature decline through retaining, maintaining, restoring and creating habitats that are important for species diversity and improving connectivity between habitat areas”.

4.3.4 Uncertain

There were no uncertain interactions between the Future Agricultural Policy and Energy Strategy’s visions and objectives.

4.4 FUTURE AGRICULTURAL POLICY VS ENERGY STRATEGY POLICIES AND ACTIONS

A list of the policies and actions from the Future Agricultural Policy Proposals and the Energy Strategy that were reviewed and included for analysis can be found in Annex 1. The full coherence matrix, including scores, comparing the Future Agriculture Policy and the Energy Strategy policies and actions can be found in Annex 2. A summary is provided in Table 4-5.

Table 4-5 Coherence of the policies and actions identified from the Future Agriculture Policy Proposals with those identified from the Energy Strategy

Classification	Number of interactions	Percentage
+ 2 Reinforcing	1	0
+ 1 Enabling	22	3
0 Neutral	859	97
- 1 Constraining	0	0
- 2 Counteracting	0	0
+/-1 Mixed effects	2	0
Uncertain	0	0
Total	884	100

4.4.1 Synergies

Only 2% (22) of the interactions between the policies and actions from the Future Agricultural Policy Proposals and the Energy Strategy resulted in synergies. One of these synergies was assessed as a reinforcing interaction and relates to the Future Agricultural Policy Proposals aim “to develop biomethane production from agricultural waste employing technologies to capture and recycle nutrients post digestion that would otherwise

be land spread as farm animal slurries” and the Energy Strategy “establishing a cross departmental working group on biomethane production”.

The 21 remaining positive interactions were assessed as enabling interactions. The Future Agricultural Policy Proposals policy/action to “reverse the trends in nature decline by creating and restoring habitats that are important for species diversity” had the joint most (eight) enabling interactions with the Energy Strategy. These related to the Energy Strategy’s policies and actions for replacing fossil fuels with low carbon and renewable energy, as climate change is currently contributing to the decline in nature. Additionally, the Future Agricultural Policy Proposals policy and action to develop biomethane and hydrogen production had several enabling interactions identified with the Energy Strategy, as increased availability of biomethane and hydrogen will contribute to phasing out of fossil fuels and renewable energy generation. However, it is important to highlight that biomethane production could have adverse environmental impacts where fast-growing crops are cultivated for that purpose. Doing so could pose a threat to biodiversity and soil quality and compete for land use with areas identified for restoration. If fast-growing crops were cultivated on drained peat soils, they could lead to the release of much more carbon than the emission reductions achieved through use of the biomethane⁴. Further positive interactions were identified between the Energy Strategy’s policy/action for investing in green innovation and low carbon technologies, which was rated as enabling five policies/actions in the Future Agricultural Policy Proposals related to biomethane production from agriculture, farming for carbon, and reducing agricultural carbon emissions.

4.4.2 Trade- offs

There were no negative interactions identified between the Energy Strategy and the Peatland Strategy, other than mixed effects interactions discussed below.

4.4.3 Mixed effects

Mixed effects were identified between the Future Agricultural Policy Proposals and some of the Energy Strategy’s policies and actions. These are a result of increasing renewables potentially diversifying farmers’ incomes but causing farmers to divert from production of 'just food' and resulting in land-use conflicts.

4.4.4 Uncertain

There were no uncertainties between the Future Agricultural Policy and Energy Strategy’s policies and actions.

4.5 PEATLAND STRATEGY VS ENERGY STRATEGY VISIONS AND OBJECTIVES

A list of the visions and objectives from the Peatland Strategy and the Energy Strategy that were reviewed and included for analysis can be found in Annex 1. The full coherence matrix, including scores, comparing the Peatland Strategy and the Energy Strategy visions and objectives can be found in Annex 2. A summary is provided in Table 4-6 (below).

⁴ UK Centre for Ecology & Hydrology “Growing key biomethane crop on peat emits 3 times more CO₂ than using natural gas”. Available at: <https://www.ceh.ac.uk/press/growing-key-biomethane-crop-peat-emits-3-times-more-co2-using-natural-gas#:~:text=While%20the%20burning%20of%20any,additional%20CO2%20into%20the%20atmosphere>

Table 4-6 Coherence of the visions and objectives identified from the Peatland Strategy with those identified from the Energy Strategy

Classification	Number of interactions	Percentage
+ 2 Reinforcing	0	0
+ 1 Enabling	17	19
0 Neutral	49	54
- 1 Constraining	0	0
- 2 Counteracting	0	0
+/-1 Mixed effects	25	27
Uncertain	0	0
Total	90	100

4.5.1 Synergies

19% of interactions between the Peatland Strategy's and the Energy Strategy's visions and objectives were classed as synergies; all were rated as "Enabling". The enabling interactions with the Peatland Strategy were specific to three of the Energy Strategy's objectives:

- "People are informed, empowered, supported and protected to enable them to transition to decarbonised solutions for all their energy needs";
- "Reduce the distance people travel in private vehicles"; and
- "Develop markets and infrastructure that integrate low carbon sources and meet our energy needs in a secure and cost-effective way."

These objectives support the Peatland Strategy's achievement of its five strategic objectives relating to restoring and sustainably managing peatland through the decreased demand for peat as fuel.

4.5.2 Trade-offs

There were no negative interactions identified between the Energy Strategy and the Peatland Strategy, other than those contributing to mixed effects, discussed below.

4.5.3 Mixed effects

Approximately 27% (25) of interactions were assessed to have mixed effects. Across the Energy Strategy, two visions and objections related to increasing renewable energy generation were rated as having mixed effects with the Peatland Strategy's five visions and objectives regarding sustainable management and restoration. All relate to increasing the use of low-carbon innovations, including generation of renewable energy, and replacing heating sources and vehicles with low and zero carbon fuel alternatives. These objectives and visions may benefit peatland management and restoration by reducing demand for peat as fuel, however, they may also hinder if renewable energy infrastructure is developed on peatland. Additionally, some low and zero carbon technologies, such as biomethane production, can produce ammonia emissions, which would negatively impact on peatlands.

If peatland is sustainably managed in conjunction with regulated development of low carbon innovations and potential use of renewable energy sources to fund peatland restoration, negative impacts could be prevented.

4.5.4 Uncertain

There were no uncertain interactions between the Peatland Strategy and Energy Strategy's visions and objectives.

4.6 PEATLAND STRATEGY VS ENERGY STRATEGY POLICIES AND ACTIONS

A list of the policies and actions from the Peatland Strategy and the Energy Strategy that were reviewed and included for analysis can be found in Annex 1. The full coherence matrix, including scores, comparing the Peatland Strategy and the Energy Strategy policies and actions can be found in Annex 2. A summary is provided in Table 4-7.

Table 4-7 Coherence of the policies and actions identified from the Peatland Strategy with those identified from the Energy Strategy

Classification	Number of interactions	Percentage
+ 2 Reinforcing	0	0
+ 1 Enabling	75	12
0 Neutral	551	85
- 1 Constraining	2	0
- 2 Counteracting	1	0
+/-1 Mixed effects	21	3
Uncertain	0	0
Total	650	100

4.6.1 Synergies

A total of 12% (75) of the interactions between the policies and actions from the Peatland Strategy with the Energy Strategy resulted in synergies; all were rated as “Enabling”. The policies and actions of the Peatland Strategy were most coherent with those from the “Replace Fossil Fuels with Renewable Energy” section in the Energy Strategy. For the Peatland Strategy, the policies with the greatest number of synergies identified for the policies and actions were within Strategic Objective 1: Conserve peatlands & prevent degradation and Strategic Objective 2: Restoration of degraded areas to functioning peatland ecosystems (designated & non-designated sites). The synergies were associated with phasing out of fossil fuels, which will result in a lower demand for peat as fuel and will reduce nitrogen deposition on peatland, enabling the sustainable management and restoration of peatland. Similarly, the policy and action within the Energy Strategy relating to running awareness campaigns on energy decarbonisation had several positive interactions with the Peatland Strategy. Again, specifically, the decarbonisation of energy will result in less peat being used for fuel, which will enable the sustainable management and restoration of peatland.

Further synergies were identified with the Energy Strategy’s policy and action relating to developing and delivering a Local Transport Strategy, aimed at promoting public transport and the reduction of private vehicle use, which will reduce nitrogen deposition and, thereby, enable the Peatland Strategy’s policies and actions relating to the sustainable management and restoration of peatland.

4.6.2 Trade-offs

Three negative interactions were identified between the Energy Strategy and the Peatland Strategy: two “constraining” and one “counteracting”. Two of these interactions concerned the Energy Strategy’s policy “Phase out fossil fuel home heating oil”. It was considered to counteract the Peatland Strategy policy “Create a list of Peatland restoration sites, with a decision-making framework for investment and establish restoration plans for priority sites outside of designated networks”, and constrain the policy “Identify and prioritise areas of afforested peat on Forest Service land for restoration to peatland habitat, particularly where biodiversity and carbon gains would be maximised”. This is because phasing out fossil-fuel heating oil will be achieved in part by more investment in renewable electricity generation, and associated need for new infrastructure, which could have a negative impact on peatland areas. Unless the phase out of fossil-fuel home heating oil is accompanied by planning and development regulations aimed at avoiding or minimising impacts on peatlands, the risk to peatlands of loss or damage could be high. The interaction between the Energy Strategy’s policy “Establish cross departmental working group on biomethane production” and the Peatland Strategy’s policy

“Develop an agreed and co-ordinated strategic approach among relevant stakeholders to the issue of wildfires” was also considered to be constraining because of the need for land for biomethane production. This need could increase the number of drained peatlands, instead of encouraging rewetting and restoration of degraded peat, and thereby increase risk of wildfires.

4.6.3 Mixed effects

Approximately 3% (21) of interactions were assessed as having mixed effects. Across the Energy Strategy, two policies and actions (“Invest in green innovation and low carbon technologies” and “Implement a support scheme to bring forward investment in renewable electricity generation”) relating to increasing the generation of renewable energy resulted in mixed effects with seven sustainable management and restoration visions and objectives in the Peatland Strategy. Peatland management and restoration may benefit from reductions in demand for peat as fuel or may be hindered if renewable energy infrastructure is developed on peatland. Additionally, some low and zero carbon technologies, such as biomethane production, can produce ammonia emissions, which would negatively impact on peatlands. Biomethane and hydrogen production plants should, therefore, be carefully managed to minimise emissions (e.g. N stripping), and located at appropriate distances from peatlands and other sensitive habitats to ensure there are no negative impacts.

4.6.4 Uncertain

There were no uncertain interactions between the Peatland Strategy and Energy Strategies policies and action

5. RECOMMENDATIONS

This section summarises the key findings of the analysis and on their basis makes recommendations that could enhance the coherence of the documents that are the focus of this study.

5.1 FUTURE AGRICULTURAL POLICY PROPOSALS

5.1.1 Visions and objectives

5.1.1.1 Synergy enhancement recommendations

Sustainability is an objective of the Future Agricultural Policy Proposals, but it is recommended to:

- **R1:** Make the need for sustainability more explicit throughout the visions and objectives of the Future Agricultural Policy Proposals to ensure coherence with the environmental objectives.

5.1.1.2 Trade-off recommendations

There was only one counteracting interaction between the visions and objectives identified from the Future Agricultural Policy Proposals and the draft Environment Strategy, which was similarly identified in the interaction between the Future Agricultural Policy Proposals and the Peatland Strategy. This was between the Future Agricultural Policy Proposals’ objective to “Seek to increase horticulture’s contribution to Northern Ireland Agriculture Output from the current 5% to 10% over the next 5-7 years” and the draft Environment Strategy’s vision/objective that “All semi-natural peatlands are conserved or restored to healthy, functioning ecosystems by 2040”. This interaction is counteracting because peat is used by horticulture as a growing medium (see analysis in Section 3.3 and 3.4)) and its use is incompatible with sustainable management of peatlands and preventing their further degradation. It is, therefore, recommended that the Government needs to:

- **R2:** Consider how to align the horticultural industry with the conservation objectives of the Peatland Strategy.

A number of visions and objectives from the Future Agricultural Policy Proposals were identified as constraining delivery of particular draft Environment Strategy’s visions and objectives. These were all found within the area of the draft Environment Strategy about protecting nature on land. Expanding horticulture could lead to land-use change, which would compete with the draft Environment Strategy’s vision that by 2030 a total of 30% of land and freshwater will be protected, increasing Northern Ireland’s woodland cover by 3%, and creating or restoring 20,000 hectares of wildlife rich habitats outside of those currently protected. To alleviate these potentially constraining interactions, it is recommended that that policy leads should:

- **R3:** Consider how the increased output of horticulture can be balanced against minimising increased areas of land for cultivation and/or with environmental restoration measures.

The vision from the Future Agricultural Policy Proposals of “enabling farmers to make informed management decisions to benefit productivity” was identified as constraining the draft Environment Strategy visions “protecting nature on land so that by 2030 30% of land and freshwater is protected”, “semi-natural peatlands are conserved or restored to healthy functioning ecosystems by 2040” and “95% of the features underlying the designation of ASSIs are conserved”. Incentivising productivity could lead to environmental damage, as increasing the area of intensive agricultural production or peatland drainage could lead to habitat loss and hinder restoration efforts. Government could:

- **R4:** Consider how incentivising increased agricultural production can be managed to ensure there is no environmental damage through increased agricultural land use and emissions.

One area within the Future Agricultural Policy Proposals classified by the assessment as counteracting visions within the draft Environment Strategy is the beef sector. Objectives from the Future Agricultural Policy relating to the beef sector include “to ensure the future viability of the beef sector, help the sector to keep pace with, or surpass, the productivity growth of its competitors, to improve profitability, resilience and environmental sustainability”. One of the key statements within the Future Agricultural Policy Proposals is that profitability of the beef sector will be enhanced alongside environmental sustainability. Thus, there is potential that, if the right policies, subsidies, and knowledge sharing practices are implemented, the beef sector could coexist with environmental protection of the land. This is addressed by recommendations **R1**, **R6** and **R8**.

5.1.1.3 *Mixed effects enhancement recommendations*

The main mixed effects relate to protecting, conserving and restoring the environment, so it is recommended to:

- **R5:** Ensure sufficient support is in place to deliver environmental protection aims within the Future Agricultural Policy Proposals

There are potential mixed effects that could arise from the Future Agricultural Policy Proposals’ Beef Sustainability package, which focuses on improving productivity and profitability through calving heifers and slaughtering animals at an earlier age. Reducing the amount of time animals spend on-farm in an unproductive state will reduce ammonia emissions and will prevent further degradation to peatland. However, improving profitability at farm level could also have the unintentional consequence of increasing production and animal numbers. This could increase nutrient loadings and degradation to peatlands and other sensitive habitats, so it is recommended to:

- **R6:** Make emissions reduction a central theme within the Future Agricultural Policy Proposals that concern improving productivity and profitability at farms.

It is important that all emissions are accounted for when considering the emissions calculations including everything from increased food intake (generating potentially greater emissions) to reductions due to less unproductive time spent on the farm.

There are mixed effects between the Future Agricultural Policy Proposals’ and the Energy Strategy’s visions and objectives in relation to competition for space, so it is recommended to:

- **R7:** Include consideration of planning permission requirements to address impacts on habitats and competition for space for habitats and agriculture when increasing low carbon and renewable energy solutions.

5.1.2 **Policies and actions**

5.1.2.1 *Synergy enhancement recommendations*

There is a risk that some of the policies and actions in the Future Agricultural Policy Proposals may have constraining or counteracting interactions with the draft Environment Strategy and the Peatland Strategy, particularly where increasing productivity is an aim. It is likely, given the overall aims of the Future Agricultural Policy Proposals, that increasing productivity or supporting the economic viability of the sector will be accomplished sustainably and with at least a neutral environmental impact, if not a positive one. However, it is recommended to:

- **R8:** Make more explicit throughout the policies and actions of the Future Agricultural Policy Proposals consideration of how increasing productivity will be accomplished sustainably without negative environmental impacts to ensure coherence with environmental objectives.
- **R9:** Clarify actions with a broad scope to ensure that policy interactions currently classed as uncertain are either neutral or positive.

5.1.2.2 *Mixed effects enhancement recommendations*

Mixed effects are expected between the historic environment and “agri-food development programme for professionals interacting with farmers and growers” within the Future Agriculture Policy Proposals. The policies and actions under the draft Environment Strategy that relate to the historic environment are, to “Integrate marine and aquatic historic environment considerations into all decision-making processes and assessments of environmental impacts”, and to “work with DAERA to ensure heritage assets are included within Northern Ireland’s Marine Plan and within Northern Ireland’s Fisheries Act”.

Mixed effects will likely arise from environmental protection of the marine and aquatic historic environment, as it reduces the possibility of increasing agri-food development. As agri-food chains develop, it is likely that natural resources will be increasingly managed. This management may involve artificial, chemical inputs, removal of natural vegetation, and growing/rearing limited varieties of crops/livestock. All of these actions would counteract actions intended to protect, conserve, and enhance the natural environment and its resources. Hence, it is recommended to:

- **R10:** Encourage knowledge sharing, continue research into sustainable agricultural practices, and make provision for funding/investment available to farmers to implement these practices, thereby, ensuring sustainability is embedded.

This will then ensure the development programme not only does not harm the environment but can foster farmer’s greater awareness of the needs of environment.

The Future Agricultural Policy Proposals also have the potential to counteract the policies and actions in the draft Environment Strategy to “develop and implement a Cultural Arts and Heritage Strategy which embeds environmental outcomes” and “continues to provide a focus on supporting owners and communities to identify sustainable uses and management”. Similar to the point above, embedding sustainability in all aspects of the Future Agricultural Policy Proposals will likely circumvent any potential counteracting or constraining interactions, and could even allow the Future Agricultural Policy Proposals to enhance the implementation of the draft Environment Strategy. This is addressed by recommendation **R1**.

The Future Agricultural Policy Proposals policy that had the most mixed effects with the Peatland Strategy was regarding biomethane and hydrogen production from agricultural waste. This is because biomethane production not only diverts animal waste from being spread as slurries but can also produce ammonia emissions through anaerobic digestion. It is, therefore, recommended to:

- **R11:** Carefully manage and monitor biomethane and hydrogen production to ensure that there are no negative effects from emissions on peatlands and other sensitive habitats, including locating production at appropriate distances from sensitive habitats, and appropriately mitigating ammonia emissions.

Another mixed effects interaction identified between the Future Agricultural Policy Proposals and the Peatland Strategy was regarding increasing forestry and agroforestry actions that can sometimes be incompatible with peatland management and restoration. So, it is recommended to:

- **R12:** Include consideration of peatlands in policies and actions to increase forestry and agroforestry, and establish a clear decision-making framework to avoid planting trees in locations incompatible with peatland management and restoration activities.

5.2 PEATLAND STRATEGY

5.2.1 **Visions and objectives**

5.2.1.1 *Synergy enhancement recommendations*

The inherent aims of the draft Environment Strategy and Peatland Strategy are synergistic, as both set out ways of protecting and improving the environment (albeit the Peatland Strategy is focused on one habitat type).

Hence, interactions between a large proportion of their strategic objectives were rated as “Enabling” or “Reinforcing”. It is recommended to:

- **R13:** Integrate the underlying characteristics of peatland protection and conservation across the wider remits of the draft Environment Strategy and the Future Agriculture Policy Proposals to enhance existing synergies.

Some of the interactions between the Peatland Strategy and the Future Agriculture Policy Proposal that were enabling included objectives concerning nutrient management planning, monitoring of soil, carbon and water quality. Understanding nutrient flow between agricultural land and sensitive habitats, including peatland, is key to implementing meaningful nutrient management planning and delivering peatland management and restoration. It is, therefore, recommended to:

- **R14:** Share data gathered through the Soil Nutrient Health Scheme, and performance data from the Farming With Nature Scheme for use in monitoring the state, management and restoration of peatlands to enhance synergies between the Peatland Strategy and the Future Agriculture Policy Proposals.

5.2.1.2 *Trade-off recommendations*

Counteracting and constraining interactions were identified between the Future Agriculture Policy Proposals’ vision/objective to “Seek to increase horticulture’s contribution to Northern Ireland Agriculture Output from the current 5% to 10% over the next 5-7 years” and the Peatland Strategy’s objectives. This was because peat is used by horticulture as a growing medium, and its use is incompatible with sustainable management of peatlands and preventing their further degradation. This concern could be addressed by recommendations **R2** and **R3**.

5.2.1.3 *Mixed effects enhancement recommendations*

The mixed effects, discussed in Section 3.3.3, all focus on visions and objectives where multiple land uses may occur (connecting people with nature; increasing woodland areas). Established conservation actions within peatlands (nature wardens; funding for visitor amenities – education and awareness, litter prevention, carparking facilities; and setting up walking routes to minimise the overall disturbance of an area) can reduce these mixed effects and lead to enabling or reinforcing interactions. In particular, it is recommended that:

- **R15:** Development of a woodland strategy seeks to avoid negative unintended consequences on other land uses, such as peatlands.

There is also potential for positive interactions, as transition zones between peatland and woodland are good potential restoration areas and, in some circumstances, woodland cover can be beneficial for shallow peatlands and/or peatland on steeper gradients

The mixed effects discussed in section 4.1.3 result, in part, from the potential for increases in agriculture production from the Future Agricultural Policy Proposals, which may conflict with the Peatland Strategy’s objectives for conservation, restoration and sustainable management of peatlands. Recommendations **R6** and **R8** apply.

Similarly, mixed effects were also envisioned regarding the Future Agricultural Policy Proposals’ objective “Supporting businesses transition through knowledge and support for adoption of new technology”, as the technologies are not specified, and there could be positive and/or negative effects, depending on the technology. It is recommended to:

- **R16:** Introduce a system to perform comprehensive analyses of direct (emissions, waste, resource use) and indirect (supply chain effect, changes in land use) impacts.

5.2.2 **Policies and actions**

5.2.2.1 *Synergy enhancement recommendations*

There is good coherence between the draft Environment Strategy and the Peatland Strategy, as the overarching aims for greater environmental protection and conservation are aligned. It is recommended that key to the success of both strategies will be to:

- **R17:** Foster a stronger connection between people and nature by means that do no harm to the health, integrity and diversity of natural ecosystems.

Synergies between the Future Agricultural Policy Proposals and the Peatland Strategy could be strengthened, and uncertainties could be made clearer by implementing recommendation **R13**.

Synergies between the Peatland Strategy and the Energy Strategy which increase the use of renewable fuels and reduce the demand for peat for use as fuel can be supported by recommendation **R7**.

5.2.2.2 *Trade-off recommendations*

Regarding all the constraining interactions described in Section 3.4.2, it is recommended to:

- **R18:** Enhance clarity around how the conflicting differences in land-use priorities should be reconciled between the Peatland Strategy, and the draft Environment Strategy, the Future Agricultural Policy Proposals, and the Energy Strategy when expanding policy objectives and developing implementation plans.

There is a risk that peatland areas will be directly impacted by infrastructure for biomethane and hydrogen production, and infrastructure for renewable and other low-carbon technologies. They could also increase the number and extent of drained peatlands thereby indirectly leading to greater risks of wildfires. Key to addressing these potential trade-offs is the careful consideration of where required infrastructure is permitted to be located, as addressed by recommendation **R7**.

5.2.2.3 *Mixed effect enhancement recommendations*

Mixed effects were identified with the Future Agricultural Policy Proposals policies and actions concerning the Future Agricultural Policy “A limit of 352,000 animals is set at the Northern Ireland level to ensure the measure is compliant with WTO Blue Box requirements. This may also limit emissions, but it could unintentionally provide a ceiling to which animal numbers rise, thereby increasing emissions. So, it is recommended to:

- **R19:** Consider how to ensure that the overall cap on animal numbers does not unintentionally act as a ceiling to which they increase.

5.3 ENERGY STRATEGY

5.3.1 **Visions and objectives**

5.3.1.1 *Synergy enhancement recommendations*

There is good alignment between the Energy Strategy’s objective that “People are informed, empowered, supported and protected to enable them to transition to decarbonised solutions for all their energy needs” and the draft Environment Strategy. The awareness campaigns that are mentioned in the Energy Strategy to help change people’s behaviour will likely have positive impacts on air quality. Engagement with environmental issues in a variety of ways is likely to raise overall awareness and create larger positive impacts than single campaigns, so it is recommended to:

- **R20:** Take the opportunity to create cross-divisional campaigns tackling multiple issues at the same time and increasing awareness.
- **R21:** Take the opportunity to capitalise on the good alignment between the draft Environment Strategy’s climate change visions and objectives and the Energy Strategy’s objective “People are informed, empowered, supported and protected to enable them to transition to decarbonised solutions for all their energy needs”.

The Energy Strategy’s objective to “reduce the distance people travel in private vehicles” will have a positive effect on air quality and reduce energy use. This could be increased by joining up with local authorities that include improvements to travel initiatives within their local air quality management plans. There is an opportunity to work together to action the objectives set out in the Energy Strategy and to:

- **R22:** Align local authority travel initiatives and local air quality plans to reinforce the Energy Strategy’s objective to “reduce the distance people travel in private vehicles”.

5.3.1.2 *Trade-off recommendations*

The inclusion of renewable energy sources (such as windfarms, solar farms, and new electricity grid farms) to support the growth of renewable energy is necessary to support the ambition of net zero. However, these installations take up large amounts of space across landscapes and can be seen from long distances.

Therefore, reducing the impact on the natural beauty of the landscape is difficult to achieve. It is important to work with local communities and local authorities to identify sites where there will be the least impact. Hence, it is recommended to:

- **R23:** Carefully monitor planning permissions for new renewable energy sources, such as windfarms, solar farms, and new electricity grid farms as a whole, through a coordinated approach across local authorities to ensure a comprehensive overview of their impact and alignment.
- **R24:** Take account of the colour, style and size of installations of renewable energy installations.

The abatement costs of reducing “unnecessary emissions and reviewing the UK Emissions Trading Scheme (ETS) cap” is quite likely to increase the costs of economic activity. Thus, it is recommended to:

- **R25:** Review and assess abatement technologies thoroughly, ensuring that, where possible, the abatement costs are not transferred to householders and businesses.
- **R26:** Consider whether national policies and funding could be put in place to ensure that costs are covered by the energy companies rather than consumers.
- **R27:** Undertake investigations into technologies that are more cost effective and can reduce emissions to enable future use of the most appropriate technologies.

5.3.1.3 *Mixed effects enhancement recommendations*

Within the Energy Strategy, the strategic objective to grow the green economy has most mixed effects with the draft Environment Strategy. However, those interactions may be largely positive if the actions are carried out in a considered way that reduces the environmental impact on biodiversity when energy facilities are installed. The net positive impacts of reducing climate change and protecting natural habitats could have a greater impact on biodiversity if the installation projects are managed well and seek to reduce impacts where possible. Similarly, the Energy Strategy has mixed effects with the Future Agricultural Policy Proposals and the Peatland Strategy objectives in relation to competition for space, so recommendation **R7** applies.

5.3.2 **Policies and actions**

5.3.2.1 *Synergy enhancement recommendations*

There is good alignment between the Energy Strategy’s objective to “Create a roadmap to a cleaner, greener transport system, including EV infrastructure action plan” and the draft Environment Strategy. It is recommended to:

- **R28:** Consider continued investment in green public transport (e.g., hydrogen-fuel-cell electric buses) to align with the draft Environment Strategy’s sustainable settlements policies and actions to promote Greenway networks, while also managing alignment with other environmental policies and reducing counteracting and constraining effects.
- **R29:** Explore the considerable coherence between the draft Environment Strategy’s climate change policies and the Energy Strategy to realise potential co-benefits.

5.3.2.2 *Trade-off recommendations*

The inclusion of renewable energy sources, such as offshore windfarms, contributes significantly to the ambition of net zero. However, these installations can negatively impact on existing bird habitats or migration routes, so recommendation **R7** applies here.

The construction of offshore wind farms also generates a lot of noise that can impact on fish and marine mammals. Reducing the impact of renewable energy installations on the environment can be difficult to achieve but there are a number of options available. For example, considering habitat and migration patterns when planning construction and decommissioning activities. Alternatively, using the “soft start” technique where construction starts at a low intensity to give marine mammals and fish an opportunity to move away. Additionally, to reduce the impacts on birds, consideration should be given to developing offshore wind farms further out to sea in deeper waters and avoiding migration flyways of vulnerable bird species. In summary, it is recommended to:

- **R30:** Carefully monitor planning permission and engage with local communities and local authorities to identify sites where the least impact will occur.

5.3.2.3 *Mixed effects enhancement recommendations*

The Energy Strategy's "Do More With Less" principle resulted in the majority of the mixed effects with the draft Environment Strategy due to potential conflicts in resource allocation even though the objectives are aligned. Hence, it is recommended to:

R31: Consider the available infrastructure and resources in developing the draft Environment Strategy's policies to ensure that the policies and actions in the Energy Strategy can be implemented alongside those detailed in the draft Environment Strategy.

ANNEXES

Annex 1: Lists of visions and objectives, and policies and actions, that were the focus of the coherence analyses

Annex 2: Excel matrices



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