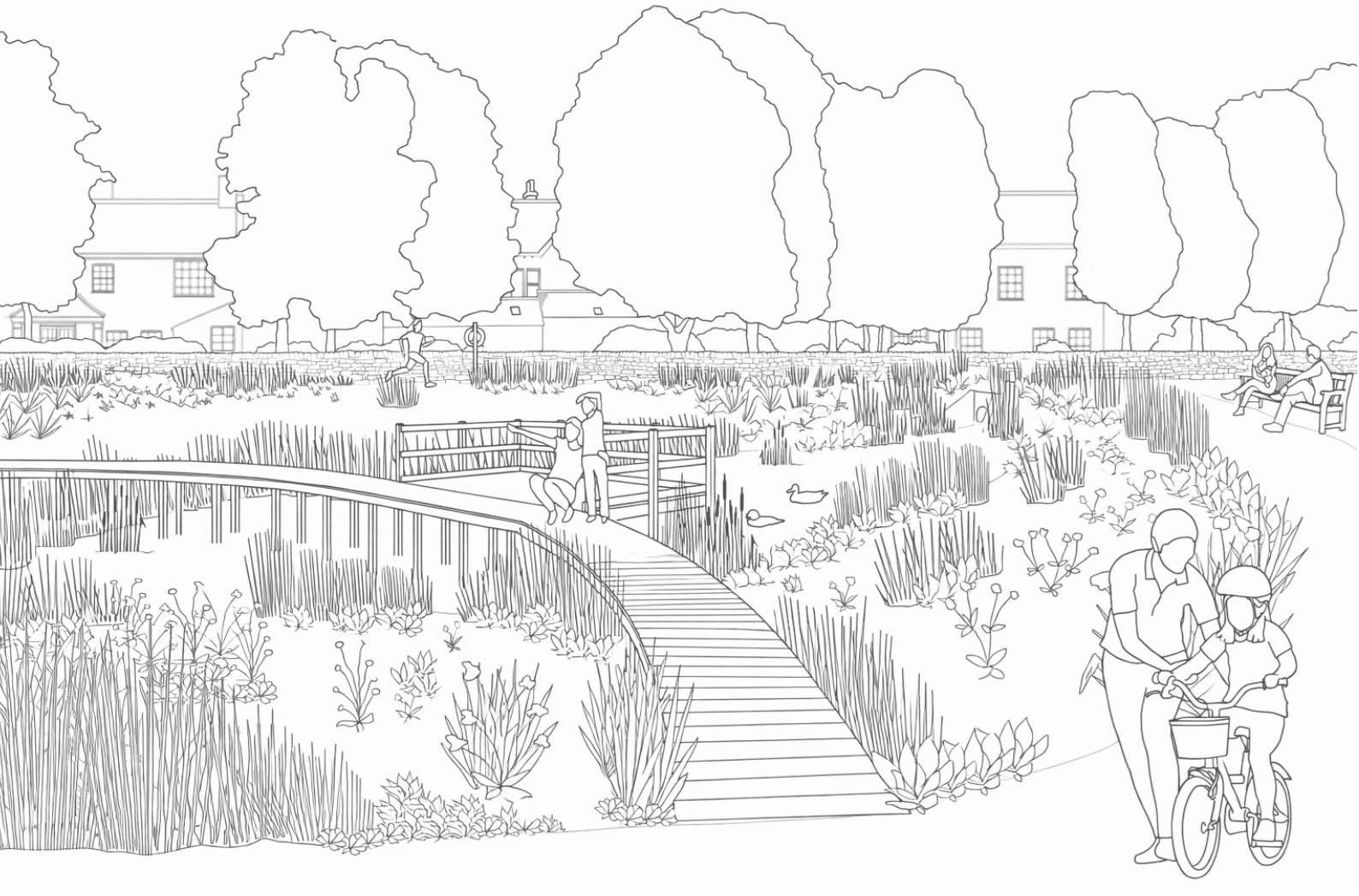
Cairngorms
National Park Authority
Ùghdarras Pàirc Nàiseanta a'
Mhonaidh Ruaidh

## Sustainable places

# Schedule 4: Climate change

Cairngorms National Park Local Development Plan: Evidence Report

March 2026



# Schedule 4: Climate change

March 2026

## Schedule contents

# Requirements addressed in this schedule

Table 1 Information required by the Town and Country Planning (Scotland) Act 1997, as amended (CNPA003), regarding the issue addressed in this schedule.

| Section | Requirement |
|---|---|
| Section 15(5)(a) | The principal [physical], cultural, economic, social, built heritage and [environmental] characteristics of the district. |
| Section 15(5)(f) | Any change which the planning authority think may occur in relation to any of the matters mentioned in paragraphs (a) to (eb). |
| Section 16(2)(a) | To take into account—<br>i. The National Planning Framework and<br>ii. Any local outcomes improvement plan (within the meaning of section 6 of the Community Empowerment (Scotland) Act 2015) for the part of their district to which the local development plan relates,<br>iii. Any registered local place plan (see schedule 19) that is for the part of their district to which the local development plan relates. |
| Section 16(2)(b) | Are to have regard to such information and considerations as may be prescribed. |
| Section 16(2)(c) | May have regard to such other information and considerations as appear to them to be relevant. |
| Section 16B(3)(a) | The evidence report is to set out the planning authority's view on the matters listed in section 15(5) for land in the part of the authority's district to which the local development plan will relate, |
| Section 16B(3)(e) | Include such other matters as are prescribed. |
| Section 16B(4)(c) | The evidence report is also to include a statement on the extent to which the views expressed under paragraphs (a) and (b) have been taken into account in the report. |
| Section 264A | In the exercise, with respect to any land in a National Park, of any power under the planning Acts, special attention shall be paid to the desirability of exercising the power consistently with the National Park Plan as adopted under section 12(7)(a) of the National Parks (Scotland) Act 2000 (asp 10). |

# Links to evidence

## International documents

- CNPA002 - UN Sustainable Development Goals

## Legislation

- CNPA003 - Town and Country Planning (Scotland) Act 1997
- CNPA004 - National Parks (Scotland) Act 2000
- CNPA005 - Planning (Scotland) Act 2019
- CNPA344 - The Paris Agreement
- CNPA346 - Flood Risk Management (Scotland) Act 2009
- CNPA347 - Climate Change (Scotland) Act 2009
- CNPA348 - Climate Change (Emissions Reduction Targets) (Scotland) Act 2019
- CNPA402 - Circular Economy Bill 2024
- CNPA634 - Natural Environment (Scotland) Bill as passed
- CNPA1269 - Wildlife Management and Muirburn (Scotland) Act 2024
- CNPA1270 - Climate Change (Duties of Public Bodies: Reporting Requirements) (Scotland) Order 2015
- CNPA1271 - UK Withdrawal from the European Union (Continuity) (Scotland) Act 2021
- CNPA1272 - Climate Change Act 2008

## National documents

- CNPA007 - National Performance Framework
- CNPA008 - National Planning Framework 4
- CNPA060 - Securing a green recovery on a path to net zero: climate change plan 2018 – 2032 –update
- CNPA084 - Scottish Biodiversity Strategy to 2045: Tackling the Nature Emergency in Scotland
- CNPA085 - Scottish Biodiversity Delivery Plan 2024 – 2030
- CNPA107 - A National Mission with Local Impact: Infrastructure Investment Plan for Scotland 2021 – 2022 to 2025 – 2026
- CNPA245 - Climate change: Scottish National Adaptation Plan 2024 – 2029
- CNPA349 - The Environment Strategy for Scotland: Vision and outcomes
- CNPA350 - The Environment Strategy for Scotland: Progress report on Environment Strategy March 2024
- CNPA351 - UK Climate Change Risk Assessment

- CNPA352 - Heat in Buildings Strategy – Achieving Net Zero Emissions in Scotland's Buildings
- CNPA373 - Fairer Scotland Action Plan
- CNPA379 - Provision of Analyses of Scottish Fire and Rescue Service (SFRS) Incident Reporting System (IRS) Data in Relation to Wildfire Incidents
- CNPA385 - National Flood Resilience Strategy
- CNPA387 - National Planning Framework 4 planning guidance: policy 2 – climate mitigation and adaptation
- CNPA400 - Making Things Last: A circular Economy Strategy for Scotland
- CNPA478 - A Culture Strategy for Scotland: Action Plan
- CNPA505 - Scotland's National Strategy for Economic Transformation: Delivering Economic Prosperity (2022)
- CNPA698 - Cleaner Air for Scotland 2 – Towards a Better Place for Everyone
- CNPA796 - 2019 State of Nature Report for Scotland
- CNPA1273 - Draft Environment Strategy
- CNPA1260 - Food waste reduction: action plan
- CNPA1275 - Scotland's green recovery
- CNPA1276 - Fire and rescue framework 2022
- CNPA1277 - Scottish Fire and Rescue Service Strategic Asset Management Plan
- CNPA1278 - Adaptation Scotland
- CNPA1279 - Scottish Government: Fire and Rescue Service Wildfire Operational Guidance (2013)
- CNPA1442 – Climate Ready Scotland: Second Scottish Climate Change Adaptation Programme 2019 - 2024

## Key agency documents

- CNPA200 - Scottish Outdoor Access Code
- CNPA353 - Scottish Water Climate Change Adaptation Plan 2024
- CNPA777 - Scottish Environment Protection Agency Guidance and advice notes
- CNPA778 - SEPA Planning Advice Note for Planning Authorities – LDP Evidence Gathering: Water Scarcity
- CNPA779 - Recommended Riparian Corridor Layer for use in Land Use Planning (SEPA)
- CNPA780 - Climate change allowances for flood risk assessment in land use planning (SEPA)
- CNPA838 - National Transport Strategy (NTS2)
- CNPA867 - TACTRAN Regional Transport Strategy 2024 – 2034
- CNPA1280 - Historic Environment Policy for Scotland

- CNPA1281 - Historic Environment Scotland – A Guide to Climate Change Impacts on the Scotland's Historic Environment
- CNPA1282 - Historic Environment Scotland Climate Change Risk Assessment
- CNPA1443 - Historic Environment Scotland – Pointing the Way to the Future

## National Park Authority documents

- CNPA010 - Cairngorms National Park Partnership Plan 2022
- CNPA026 - Local Development Plan interactive map engagement report 2024
- CNPA027 - Cairngorms Youth Action Team Place Standard Tool Engagement 2024
- CNPA028 - Cairngorms National Park Gypsy and Traveller 2024
- CNPA058 - Grantown Grammar School Place Standard Tool Engagement 2024
- CNPA097 - Cairngorms National Park Local Development Plan 3: Strategic flood risk assessment 2024
- CNPA345 - James Hutton Institute – Climate Change Projections for the Cairngorms: A report for the Cairngorms National Park Authority
- CNPA528 - Cairngorms 2030
- CNPA598 - Badenoch and Strathspey Access Panel 2025
- CNPA681 - Kingussie High School Higher Criminology Students Place Standard Tool Engagement 2024
- CNPA682 - Kingussie High School S1 Geography Students Place Standard Tool Engagement 2024
- CNPA683 - Kingussie High School S3 Geography Students Place Standard Tool Engagement 2024
- CNPA833 - Cairngorms Local development plan place standard tool engagement with Kingussie High School Youth Forum 2025
- CNPA834 - Local development plan place standard tool engagement with the Cairngorms National Park Junior Rangers 2025
- CNPA835 - Cairngorms Local Development Plan place standard tool engagement with Aviemore Neurodiversity Support Youth Group 2025
- CNPA1104 - Cairngorms National Park Local Development Plan engagement - gamification approach 2025
- CNPA1105 - Local Development Plan engagement – Planning Power with Cairngorms 2030
- CNPA1318 - Cairngorms National Park Authority Fire management consultation document
- CNPA1344 - Topic: Climate change – engagement version

## Local authority documents

- CNPA237 - Badenoch and Strathspey Area Committee Item 6: Badenoch and Strathspey Area Plan
- CNPA354 - Moray Council Climate Change Strategy 2020 – 2030
- CNPA355 - Moray Council Local Heat and Energy Efficiency Strategy
- CNPA356 - Moray Council Local Heat and Energy Efficiency Strategy Delivery Plan 2023 – 2028
- CNPA357 - Moray Council Route Map to Net Zero
- CNPA358 - Climate Change Plan and Routemap to Net Zero 2024 update
- CNPA359 - Highland Council Net Zero Strategy
- CNPA360 - Highland Council Local Heat and Energy Efficiency Strategy
- CNPA361 - Highland Council Local Heat and Energy Efficiency Strategy Delivery Plan 2023 – 2028
- CNPA362 - Aberdeenshire Council Local Heat and Energy Efficiency Strategy
- CNPA363 - Aberdeenshire Council Local Heat and Energy Efficiency story map
- CNPA364 - Climate Ready Aberdeenshire – A Regional Strategy for Climate Change Adaptation and Mitigation
- CNPA365 - Perth and Kinross Council Local Heat and Energy Efficiency Strategy and Delivery Plan
- CNPA366 - Perth and Kinross Council Local Area Energy Plan 2024 – 2029
- CNPA367 - Perth and Kinross Council Climate Change Strategy and Action Plan
- CNPA368 - Angus Council Transition to Net Zero Action Plan: 2022 to 2030
- CNPA369 - Angus Council Sustainable Energy and Climate Action Plan (SECAP)
- CNPA370 - Angus Council Angus Local Heat and Energy Efficiency Strategy
- CNPA371 - Angus Council Angus Local Heat and Energy Efficiency Delivery Plan
- CNPA372 - Environment and Climate Change action in Angus – Interactive Map
- CNPA636 - Aberdeenshire Local Outcomes Improvement Plan 2017 – 2027
- CNPA637 - Angus Community Plan 2022 – 2030
- CNPA638 - Highland Outcome Improvement Plan 2024 – 2027
- CNPA639 - Moray Local Outcome Improvement Plan v2
- CNPA640 - Perth and Kinross Community Plan 2022 – 2032
- CNPA803 - Perth and Kinross Council (ARUP): Climate Change Risk and Opportunity Assessment
- CNPA1091 - 2024 – 2027 HOIP Delivery Plan
- CNPA1283 - Perth and Kinross Corporate Plan 2022 / 2023 to 2027 / 2028
- CNPA1314 - Aberdeenshire Council Local Heat and Energy Efficiency Strategy Delivery Plan

## Community action plans

- CNPA063 - Aviemore, Rothiemurchus and Glenmore Community Action Plan: Looking to 2030
- CNPA064 - Blair Atholl Community Action Plan: Looking to 2030
- CNPA065 - Grantown-on-Spey Action Plan 2025
- CNPA066 - Kingussie Community Action Plan Consultation Results: Looking to 2030
- CNPA119 - Ballater and Crathie Community Action Plan 2023
- CNPA121 - Braemar Community Action Plan (2017)
- CNPA122 - Carrbridge Community Action Plan: Looking to 2030
- CNPA123 - Cromdale and Advie Community Action Plan – Big conservation
- CNPA125 - Dalwhinnie Community Action Plan: Looking to 2030
- CNPA127 - Kincraig and locality Community Action Plan: Looking to 2030
- CNPA129 - Laggan Community Action Plan Consultation Results: Looking to 2030
- CNPA130 - Mount Blair and Glenshee Community Action Plan
- CNPA131 - Nethy Bridge Community Action Plan: Looking to 2030
- CNPA132 - Newtonmore Community Action Plan: Looking to 2030
- CNPA133 - Strathdon Community Action Plan: Looking to 2030
- CNPA331 - Dulnain Bridge Community Action Plan: Looking to 2030
- CNPA374 - Boat of Garten Community Action Plan: Looking to 2030

## Data sources

- CNPA375 - National Atmospheric Emissions Inventory
- CNPA376 - A greenhouse gas emissions assessment and target scenario for the Cairngorms National Park – A report by Small World Consulting Ltd. October 2022
- CNPA377 - UK Government: UK local authority and regional greenhouse gas emissions statistics, 2005 to 2022
- CNPA380 - European Forest Fire Information System (EFFIS)
- CNPA439 - Scotland Census 2022
- CNPA776 - EFFIS Wildfire Risk Viewer
- CNPA801 - Chapter 14, Agriculture in the United Kingdom, Department for Environment, Food and Rural Affairs
- CNPA802 - UK Government: Food statistics in your pocket. Department for Environment, Food and Rural Affairs
- CNPA1285 - Scottish Wildfire Forum

## Other relevant documents

- CNPA378 - Summary of the Climate Trends, Future Projections and Extremes in Scotland
- CNPA381 - Snow Cover and Climate Change on Cairngorm Mountain – A report for the Cairngorms National Park Authority
- CNPA383 - Assessment of Natural Capital asset exposure to current and future meteorological drought
- CNPA384 - Snow Cover and Climate Change in the Cairngorms National Park: Summary Assessment
- CNPA386 - The Intergovernmental Panel on Climate Change (IPCC) 6th assessment report
- CNPA774 - Climate Trends and Future Projections in Scotland
- CNPA775 - Climate Extremes in Scotland
- CNPA781 - Highland Adapts – Economic Assessment of Climate Change Impacts on the Highland Region
- CNPA782 - CREW – Climate Crisis: Informing Scotland's actionable mitigation and adaptation response to water scarcity
- CNPA783 - CREW – Future predictions of water scarcity in Scotland: impact on distilleries and agricultural abstractors
- CNPA784 - CREW – Private Water Supplies and Climate Change
- CNPA785 - Highland Climate Risk and Opportunity Assessment Economic Analysis
- CNPA788 - The Scotch Whisky Association: Facts and figures
- CNPA789 - Scotch Whisky Water Stewardship Framework
- CNPA790 - 1 Kovats, S. and Brisley, R. (2021). Health, communities and the built environment. In: The Third UK Climate Change Risk Assessment Technical Report [Betts, R.A., Haward, A.B., Pearson, K.V. (eds.)]. Prepared for the Climate Change Committee. [online] UK Climate Risk.
- CNPA792 - Arnell, N.W., Freeman, A., Gazzard, R., 2021a. The effect of climate change on indicators of fire danger in the UK. Environ. Res. Lett. Intelligence, Elsevier, Pages 55-76
- CNPA793 - Watts, G., Battarbee, R. W., Bloomfield, J. P., Crossman, J., Daccache, A., Durance, I., Elliott, J. A., Garner, G., Hannaford, J., Hannah, D. M., Hess, T., Jackson, C. R., Kay, A. L., Kernan, M., Knox, J., Mackay, J., Monteith, D. T., Ormerod, S. J., Rance, J., Wilby, R. L. (2015). Climate change and water in the UK – past changes and future prospects. Progress in Physical Geography, 39(1), 6-28
- CNPA794 - Sukanya S, Sabu Joseph, (2023) Chapter 4 - Climate change impacts on water resources: An overview, Editor(s): Arun Srivastav, Ashutosh Dubey, Abhishek

Kumar, Sushil Kumar Narang, Moonis Ali Khan, Visualization Techniques for Climate Change with Machine Learning and Artificial
- CNPA797 - The Sixth Carbon Budget (2020), 'Manufacturing and construction' section, pages 6 – 11.
- CNPA798 - IUCN National Committee United Kingdom (2021) "About Peatlands"
- CNPA799 - Carbon storage and sequestration by habitat: a review of the evidence (second edition)." Natural England Research Report NERR094.
- CNPA800 - Timber Development UK: Consumption
- CNPA804 - Holistic Network Design
- CNPA1284 - Highland Adapts: Sector Report: Energy

### Consultation material

- CNPA791 - SEPA Response to CNPA Draft Strategic Flood Risk Assessment
- CNPA1340 - Evidence report engagement responses
- CNPA1372 - Scottish Environment Protection Agency response to draft climate change topic paper
- CNPA1421 - Scottish Forestry response to consultation 24 Sept 2025

## Summary of evidence

### Policy context

#### National Planning Framework 4

The National Planning Framework 4 (CNPA008) focuses on the three main policy themes of sustainable, liveable and productive places and aligns with Scotland's aim of delivering on the United Nations Sustainable Goals.

National Planning Framework 4 is required by law to contribute to six outcomes, including 'meeting any targets relating to the reduction of emissions of greenhouse gases' and 'securing positive effects for biodiversity'. As such, the global climate emergency and the nature crisis form the foundations for the Planning Framework's spatial strategy as a whole.

The Proposed Plan should support the delivery of the National Spatial Strategy which states:
'Scotland's future places will be net zero, nature positive places that are designed to reduce emissions and adapt to the impacts of climate change, whilst protecting, recovering and restoring our environment.'

National Planning Framework 4 recognises that this 'will require a rapid transformation across all sectors of our economy and society' and 'means ensuring the right development happens in the right place'.

The National Spatial Strategy explains that National Planning Framework 4 encourages low and zero carbon design and energy efficiency, development that is accessible by sustainable travel, and expansion of renewable energy generation. It also states that it is crucial that we build resilience to the future impacts of climate change including water resources and assets (and development on Scotland's coasts – not applicable in the National Park).

The core policies are policies 1 and 2 which, in summary, advises that:

- Policy 1 gives significant weight to the global climate emergency in order to ensure that it is recognised as a priority in all plans and decisions.
- Policy 2 ensures that emissions from new development are minimised as far as possible.

Policy 1 states that:

- 'The local development plan Must address the global climate emergency and nature crisis by ensuring the spatial strategy will reduce emissions and adapt to current and future risks of climate change by promoting nature recovery and restoration in the area'.

Policy 2 states that

- 'The local development plan's spatial strategy should be designed to reduce, minimise or avoid greenhouse gas emissions. The six spatial principles should form the basis of the spatial strategy, helping to guide development to, and create sustainable locations. The Strategy should be informed by an understanding of the impacts of the proposals on greenhouse gas emissions'.
- 'Local development plans should support adaptation to the current and future impacts by taking into account climate risks, guiding development away from vulnerable areas, and enabling places to adapt to those risks'.

'Reducing greenhouse gas emissions' is one of six cross cutting outcome and policy links. Under this outcome, National Planning Framework 4 explains that the strategy and policies support development that helps to meet greenhouse gas emissions targets and shows how many policies in the plan are linked.

It advises that a healthy natural environment is key to reducing emissions which a number of National Planning Framework 4 policies support:

- Policies 3 and 4 protect biodiversity and natural assets, which in turn play a crucial role in carbon reduction.
- Policy 5 provides significant protection for peatland and carbon rich soils.
- Policy 6 aims to protect and expand forests, woodland and trees.
- Policy 7 protects the embodied carbon in the historic built environment.
- Policy 9 makes better use of previously used land and buildings, helping to lock in carbon. By supporting the transition of key emissions generating activities,
- Policy 20 supports blue and green infrastructure.

The following policies support the transition of key emissions generating activities:

- Policy 11 supports renewable energy development.
- Policy 19 helps to decarbonise heat, alongside Policy 18 and its encouragement of an infrastructure first approach.
- Policy 12 encourages sustainable waste management.
- Policy 13 facilitates a transition towards more sustainable, lower emissions travel including active travel and public transport.

Several policies support more local living and limit the use of additional land for developments:

- Policy 15 promotes local living, including where feasible 20 minute neighbourhoods.
- Policy 16 which focuses on delivering new homes that are designed to a high standard and located in sustainable places.
- Policy 14 explains that minimising and reducing emissions is integral to the six qualities of successful places.
- Policies 17 and 29 support rural development which is compatible with climate change targets.
- Policy 24 facilitates the roll out of digital infrastructure, helping to reduce the need to travel.
- Policy 27 promotes a town centre first approach to development and Policy 28 restricts additional out of town retail development.

Finally, Policy 33 is clear that fossil fuel exploration, development and production (excluding unconventional oil and gas) will not be supported other than in exceptional circumstances, and that the Scottish Government does not support the development of unconventional oil and gas in Scotland.

### National Planning Framework 4 planning guidance: Policy 2 climate mitigation and adaptation

Planning guidance (CNPA387), published by Scottish Government in 2025 supports the application in practice of National Planning Framework 4 Policy 2 mitigation and adaptation (CNPA008). The guidance has been prepared to aid applicants, planning authorities, decision makers and others with an interest in contributing to positive climate outcomes from development in Scotland. In relation to this schedule section (3) of the guidance is particularly relevant because it sets out the outline evidence requirement. The Proposed Plan will reflect the guidance (Section 3.4).

The guidance sets out the following requirements for the Local Development Plan:

- Policy 1 – Local development plans have a strategic role in locating and shaping developments in a way that can support emissions reductions and help improve the climate resilience of Scotland's places through adaptation.
- Policy 2 – The role of local development plans includes coordinating climate measures most relevant to the plan area. It will be important that plans identify and support delivery of solutions that tackle both climate mitigation and adaptation and help deliver multiple benefits for communities and nature. Taking a place based approach is central to realising these benefits. This approach can help secure climate mitigation outcomes, help avoid non adapted and mal adapted development and can help create places that are flexible and suitable for future adaptations. In line with the Place Principle, a place based approach will also help ensure plans are prepared in collaboration with a wide range of stakeholders, and are based on the most relevant and robust evidence.

The guidance sets out a range of potential data sources that can support the evidence report. The National Park has commissioned specific climate data and reports by the James Hutton Institute covering these topics for the Cairngorms National Park as most of the publicly available data is not available at the National Park geography.

## International documents

### The Paris Agreement

There is a legally binding international treaty on climate change in place, adopted by 196 Parties (including the United Kingdom) at the United Nations's Climate Change Conference, COP21, in Paris in 2015. Known as The Paris Agreement (CNPA344) it came into force in November 2016. Its goal is to keep the rise in the global average temperature to well below 2°C above preindustrial levels; and to pursue efforts to limit the increase to 1.5°C.

### United Nations Sustainable Development Goals

The United Nations has set a series of global Sustainable Development Goals (CNPA002) that are part of an internationally agreed performance framework. All countries are aiming to achieve these goals by 2030. They address the significant global challenges of poverty, inequality, climate, environmental degradation, prosperity, peace and justice. The Proposed Plan should strive to adhere to the delivery of these goals at a local level.

## Legislation and national documents

### National Parks (Scotland) Act 2000

The National Park has four distinct aims as set out in The National Parks (Scotland) Act 2000 (CNPA004). As outlined in Schedule 1: Plan outcomes, the four aims will be amended by the Natural Environment Scotland (Scotland) Bill (CNPA634) once enacted. The aims, once amended through the Natural Environment (Scotland) Bill, will be:

- To conserve and enhance the area's natural and cultural heritage.
- To promote sustainable management and use of the area's natural resources.
- To promote public understanding and enjoyment of the area's natural and cultural heritage.
- To promote sustainable economic, social and cultural development of the area's communities.

All of the aims are relevant to the matters discussed in this schedule. The aims are all to be pursued collectively. However, if there is conflict between the first aim and any of the others, greater weight is given to the first aim (as set out in Section 9(6) of the 2000 Act).

### Climate Change (Emissions Reduction Targets) (Scotland) Act 2019

In 2019, the Scottish Government declared a climate emergency. The Scottish Government's commitment to energy reduction and responding to climate change is established in the Planning (Scotland) Act 2019 (CNPA005) and the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 (CNPA348).

The Climate Change Act aims to ensure that Scotland's contribution to climate change will end within a generation, being fully net zero by 2045 with emissions reducing by 75% by 2030 (compared to a 1990 baseline). An update to the Scottish Government Climate Change Plan 2018 – 2032 (CNPA060) followed on from this, which sets the pathway for the targets set within the Climate Change Act.

Under the Act, the Park Authority has three main duties:

- Mitigation: To contribute to reducing greenhouse gas emissions.
- Adaptation: To help the National Park adapt to the changing climate.
- Sustainability: To act in a sustainable manner.

The Park Authority must report on compliance with these duties annually in accordance with the Climate Change (Duties of Public Bodies: Reporting Requirements) (Scotland) Order 2015 and subsequent amendments (CNPA1270).

**National Performance Framework**

The Scottish Government has 15 National Outcomes set out in the National Performance Framework (CNPA007) that the public sector must collectively deliver. The National Outcome for the Environment in relation to climate sets out the following vision:

- To live in a clean and unpolluted environment.
- To be at the forefront of carbon reduction efforts, renewable energy, sustainable technologies.

To achieve this outcome there are implications for transport, biodiversity and addressing the nature crisis, sustainable development and efficient use of resources.

The following United Nations Sustainable Goals (CNPA002) are important considerations in addressing the climate crisis and climate mitigation and adaptation:

- 7 Affordable and clean energy.
- 12 Responsible consumption and production.
- 13 Climate action.

In 2024, the Scottish Government proposed that building Scotland's resilience to climate change becomes a national outcome in Scotland's National Performance Framework. Subject to Parliamentary approval, this change is proposed to drive climate action across Scottish society that aligns with the United Nations Sustainable Development Goals and addresses the urgency and scale of the climate crisis.

The Proposed Plan should aim to support the National Outcomes. In particular the Outcome for the Environment and the United Nations Sustainable Goals.

**The Environment Strategy for Scotland: Vision and Outcomes**

The Environment Strategy creates an overarching framework for Scotland's existing environmental strategies and plans, including the Climate Change Plan (CNPA060).

These will be reviewed over time, to reflect international targets and other policy developments. The vision and outcomes (CNPA349) set out in this document are intended to help to guide the future development and delivery of these strategies and plans by establishing Scotland's long term direction and shared goals. The vison states that:

'By 2045: By restoring nature and ending Scotland's contribution to climate change, our country is transformed for the better – helping to secure the wellbeing of our people and planet for generations to come.'

The Environment Strategy sits alongside other key Scottish Government policy, such as Scotland's Economic Strategy (CNPA505), the Fairer Scotland Action Plan (CNPA373), the National Transport Strategy (CNPA838), and the National Planning Framework 4 (CNPA008). It highlights the vital role of the natural environment in contributing to Scotland's National Outcomes (CNPA007). The strategy sets a clear path toward leveraging opportunities, improving decision making for Scotland's future, and utilising new powers to enhance the wellbeing of its people.


Figure 1 Contribution of the Scottish Environment Strategy vision and outcomes (CNPA349) to National Outcomes (CNPA007) and United Nations Sustainable Development Goals (CNPA002).

To achieve the vision, the Scottish Government and its partners will focus on delivering six shared outcomes (Figure 1). Three outcomes describe Scotland's ambitions for the environment, focusing on nature, climate change and resource use. The other three outcomes describe the relationship between the environment and wider ambitions for Scotland's economy, society and international impact.

Outcome 1: Scotland's nature is protected and restored with flourishing biodiversity and clean and healthy air, water, seas and soils

Scotland's natural environment is vital for health, wellbeing, and prosperity, but it faces significant challenges, including a biodiversity crisis highlighted in the 2019 State of Nature Report (CNPA796). Efforts to reverse this decline include improving air, water, seas, and soils to ensure resilience for the future. Policies such as the Biodiversity Strategy (CNPA084) and the Cleaner Air for Scotland Strategy (CNPA698) aim to achieve the 2050 vision of living in harmony with nature, with collaboration across government and sectors to enhance biodiversity.

Scotland is committed to addressing the global climate emergency as a moral duty, focusing on justice for vulnerable communities disproportionately affected by climate change. With biodiversity also at risk, the goal is to achieve net zero greenhouse gas emissions by 2045, reduce the carbon footprint, and enhance resilience through adaptation measures. The strategy notes that nature based solutions like tree planting and peatland restoration are crucial for locking in carbon and mitigating global warming effects. Also, that sustainable land management aims to lower agricultural emissions while preserving nature and producing high quality food. Actions to meet these goals are outlined in the Climate Change Plan (CNPA060) and the Scottish Climate Change Adaptation Programme (CNPA245), including initiatives such as regional land use partnerships and agricultural transformation programs.

Outcome 2: We play our full role in tackling the global climate emergency and limiting temperature rise to 1.5°C

The strategy acknowledges that the global demand for natural resources has more than tripled since 1970, highlighting the urgent need for sustainable resource use to address climate and nature crises. Scotland is leading efforts to transition to a circular economy, where waste from one process becomes a resource for another, mimicking natural systems. This approach involves harvesting natural resources at a sustainable rate and designing products for repair, reuse, and recycling. Key strategies, like 'Making Things Last' (CNPA400) and the Food Waste Reduction Action Plan (CNPA1260), aim to embed circular economy practices across society, supported by initiatives such as the Circular Economy Bill (CNPA402).

Outcome 3: We use and re-use resources wisely and have ended the throw away culture

Scotland aims to create a net zero, circular economy that values nature, recognizing the dependence of its economy on natural resources. Overuse and waste generation threaten natural capital, which is vital for sustainability. By advancing carbon neutral

and circular solutions, Scotland aims to leverage its resources, expertise, and innovation to lead global efforts, generate economic growth, and create high quality jobs. The Just Transition Commission will ensure these benefits are distributed equitably, addressing poverty and inequalities.

Outcome 4: Our thriving, sustainable economy conserves and grows our natural assets
Scotland's Economic Strategy (CNPA505) guides efforts to transform the economy to protect nature and achieve net zero. Opportunities will be explored through initiatives like the Green New Deal for Scotland (CNPA1275), introduced in the 2019 / 2020 Programme for Government, focusing on finance and investment. Alignment between the Environment Strategy (CNPA1273) and the Infrastructure Investment Plan (CNPA107) is key, with the Infrastructure Commission for Scotland recommending the inclusion of natural infrastructure in the government's definition of infrastructure.

Outcome 5: Our healthy environment supports a fairer, healthier, more inclusive society
To live within the planet's sustainable limits, Scotland must transform social policies, public services, and lifestyles to consume less, waste less, and improve quality of life. Efforts to create a fairer, healthier, and more resilient society include enhancing air quality, access to greenspace, and tackling inequalities. Existing policies across sectors like transport, energy, waste, health, education, and culture contribute to these goals, with opportunities being explored to further improve sustainability while boosting the wellbeing of Scotland's people.

Outcome 6: We are responsible global citizens with a sustainable international footprint
Scotland's carbon footprint includes both domestic emissions and those tied to imported goods. As a result, Scotland's environmental impact extends far beyond its own country. The aim is to live within the planet's sustainable limits and take actions to ensure Scotland's consumption and production are sustainable globally. The first step is gathering evidence on Scotland's international environmental impact.

**The Environment Strategy for Scotland: Progress report on Environment Strategy 2024**
This report (CNPA350) provides an update for the Parliament on the progress in developing the strategy including the developing evidence base. The report presents the results of the research that will inform a major part of the evidence base for the strategy. The development of the strategy is seeking the transformative changes needed to meet Scotland's targets to restore nature and tackle climate change; while harnessing the opportunities this creates for its economy and wellbeing.

The recommendations presented in the report address opportunities for reducing food waste, strengthening local food production, supporting agricultural innovation, promoting sustainable, healthy diets and establishing more circular supply chains for the textile industry.

The report indicated that the aim is to launch a public consultation in 2025, building on the open and participative approach taken throughout the development of the Environment Strategy. After taking account of consultation feedback, the full strategy will be laid before the Parliament and designated as the 'environmental policy strategy' required under the Continuity Act (CNPA1271).

The Proposed Plan should reflect and support the Environment Strategy for Scotland: Vision and Outcomes and final Environment Strategy when published.

**Securing a green recovery on a path to net zero: climate change plan 2018 – 2032 – update**

The document (CNPA060) provides an update to the 2018 Climate Change Plan. Since that plan, Scottish Government has set new ambitious targets to end its contribution to climate change by 2045. Scottish Government has committed to reduce emissions by 75% by 2030 (compared with 1990) and to net zero by 2045. As Scotland emerged from the Covid 19 pandemic, the Government identified an opportunity to rebuild the economy in a way that delivers a greener, fairer and more equal society. This plan sets out the Government's approach to delivering a green recovery and sets out a pathway to deliver its climate change targets. In line with the 2018 plan, the focus is on the period up to 2032.

The plan update sets out Scottish Government's commitment to deploying nature based solutions at scale and in a sustainable and managed way. Further information on the document in relation to nature based solutions is available in Schedule 4: Natural heritage section.

The policies and actions in this update to the 2018 Climate Change Plan are set out on a sector by sector basis. However, achieving Scotland's climate change targets will require alignment and delivery of the policies in a joined up way. These are organised according to the chapters of the update. As they are also relating to other topic areas, the information relating to these are covered under the relevant policy areas of the Evidence Report:

- Electricity – covered in Schedule 9: Energy.

- Buildings – to be covered in various other sections of the Evidence Report, including Schedule 7: Historic and cultural heritage, Schedule 8: Land use, soil and resources, and Schedule 14: Education.
- Transport – covered in Schedule 11: Sustainable transport.
- Industry – covered in Schedule 21: Economic development.
- Waste and the circular economy – covered in Schedule 10: Zero waste.
- Land use, land use change and forestry – covered in Schedule 8: Land use, soil and resources.
- Agriculture – covered in Schedule 8: Land use, soil and resources.
- Biodiversity – covered in Schedule 4: Natural heritage and Schedule 16: Blue and green infrastructure.

Negative emissions technologies

The document sets out the need to support the use of negative emissions technologies to remove carbon from the atmosphere. This can include sequestration and capture. This document is primarily concerned with promoting biomass and direct (technological) capture of carbon from the atmosphere. Negative emissions technologies pathways set out in the Plan with the potential to contribute to net zero and should be supported in the Proposed Plan include:

- Bioenergy with carbon capture and storage for electricity.
- Biomass / waste gasification and carbon capture and storage for hydrogen.
- Bioenergy with carbon capture and storage in industry.
- Biofuel production with carbon capture and storage.
- Direct air carbon capture and storage.

**Climate change: Scottish National Adaptation Plan 2024 – 2029**

This Scottish National Adaptation Plan (CNPA245) sets out actions to build Scotland's resilience to climate change. It does this through support for Scotland's communities, businesses, public services and nature to adapt to the changing climate in a way that is fair and inclusive. The Adaptation Plan sets out a long term vision and defines Scotland's priorities for action from 2024 to 2029.

The Climate Change (Scotland) Act 2009 (CNPA347) contains a legal duty across the public sector to help deliver the objectives, and the Adaptation Plan describes how Scottish Government will support Scotland's residents to adapt and continue to live well in Scotland's changing climate. This Adaptation Plan has been in development since the third United Kingdom Climate Change Risk Assessment (CNPA351) was formally adopted in January 2022, setting out 61 risks and opportunities faced by all four United Kingdom nations. Ongoing activities are highlighted throughout the document,

underlining the Scottish Government's commitment to mitigate the impacts of climate change.

Over the next five years, the Adaptation Plan commits to delivering over 200 policies and actions, including:

- Ensuring all parts of Scotland are building climate resilience though regional partnerships, local action and climate resilient economies.
- Strengthening Scotland's new national network of climate action hubs and ensuring that the hubs are supporting vulnerable communities to adapt.
- Shifting half of all agricultural funding to be conditional on delivering for climate and nature, including climate adaptation.
- Delivering comprehensive climate resilience actions across NHS Scotland, including greening the NHS estate.
- Protecting Scotland's cultural and historic heritage through improved adaptation actions for historic buildings.

The Adaptation Plan is structured in five chapters, covering five outcomes to deliver a climate resilient Scotland. Under each outcome are objectives where key policy actions are set out. The five adaptation outcomes are as follows:

1. Nature Connects
2. Communities
3. Public Services and Infrastructure
4. Economy, Business and Industry
5. International Action.

This schedule with regard to the preparation of the Proposed Plan is primarily concerned with the first four outcomes, which the Proposed Plan should support.

Nature Connects

'Nature based solutions are actions to protect, sustainably manage, and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human wellbeing and biodiversity benefits' (International Union for Conservation of Nature). More information on the Nature Connects Outcome and in particular nature networks is contained in Schedule 4: Natural Heritage.

Communities

This Outcome covers how Scotland is building community resilience to flooding, coastal change, wildfire and other extreme events. The aim is to ensure all parts of Scotland are building climate resilience though regional adaptation partnerships and support for

locally led action focused on communities vulnerable to climate impacts. This involves building climate resilient places and realising the power of Scotland's culture, heritage and creativity.

C1: Regional and place based collaborations

This objective aims to improve how Scotland agrees its priorities regionally, designs adaptation locally, and takes priority actions at a greater pace and scale.

C2: Locally led adaptation

This objective aims to enable all communities to build resilience and prepare for climate change and, at the same time, make places healthier, equitable, and more comfortable to live in. This includes improving digital connectivity – an economic enabler, a key part of plans for resilient economic growth that can help build resilient communities. More information on digital infrastructure and planned improvements is available in Schedule 20: Digital infrastructure.

C3: Community resilience

Community resilience is defined by the Scottish Government as: 'communities and individuals harnessing resources and expertise to help themselves prepare for, respond to and recover from emergencies, in a way that complements the work of the emergency responders.' On of the key areas of community resilience required in the National Park is against flooding. More information on Flood Risk in the Cairngorms National Park is available in the Cairngorms National Park Local Development Plan 3: Strategic Flood Risk Assessment (CNPA097).

Another key area of community resilience is managing wildfire risk. There are a number of policies aimed at reducing the risk of wildfires across Scotland which include:

- Wildfire risk and land management – the Wildlife Management and Muirburn (Scotland) Act 2024 will ensure that muirburn is undertaken in an environmentally sustainable manner and the legislation includes provision for muirburn licenses to be issued to help prevent and lower the risk of wildfires.
- Wildfire risk and forests – Scotland's national forests and land managed by Forestry and Land Scotland is subdivided into five regional management units, each having a local incident response plan, which include potential wildfires incidents
- Public information on wildfire risk – the Scottish Outdoor Access Code sets out the rights and responsibilities of people exercising outdoor access rights.
- Fire danger information and the Scottish Wildfire Forum (CNPA1285) – the Scottish Fire and Rescue Service will support the Scottish Wildfire Forum in its objectives to provide information and education on the wildfire risk in Scotland to all audiences.

C4: New and existing buildings

In preparing their local development plans, planning authorities must take into account National Planning Framework 4 which supports adaptation to the current and future impacts of climate change, setting out the framework for taking into account climate risks, guiding development away from vulnerable areas, and enabling places to adapt to those risks. National Planning Framework 4 Policy 2 supports development proposals that are sited and designed to adapt to current and future risks from climate change (for further detail on land use policies, including adaptation to extreme temperatures, see Objective NC2).

C5: Culture and historic environment

This objective aims to address the threats from climate change to Scotland's historic environment and realise the power of culture and creativity to support the transformations and transitions in society needed to live well in a different climate.

Climate resilience across Scotland's historic environment is supported by Historic Environment Scotland and the whole heritage sector by ensuring that the sector's knowledge, expertise and experience will support the transformational change that will be necessary if the historic environment sector – and Scotland's society as a whole – is to adapt to and mitigate the causes of climate change. Action here includes:

- Historic Environment Policy for Scotland – Historic Environment Scotland will continue promoting the Historic Environment Policy for Scotland (HEPS) as a policy statement for decision making for the whole of the historic environment for use at all levels from national to local.
- Climate Vulnerability Index – Historic Environment Scotland and the wider sector will roll out the Climate Vulnerability Index to all Scottish World Heritage Sites.

To help build climate resilience of the culture sector and harness the transformational power of culture and creativity to support Scotland's climate adaptation journey, the Scottish Government will continue to work towards Scotland's ongoing commitment in the Culture Strategy Action Plan to advocate for, and make best use of, opportunities to utilise culture's potential to support delivery on climate change priorities, including adaptation.

C6: Coastal communities (C6)

This objective aims at reducing coastal, estuaries or rivers with a tidal influence, which are not present in the Cairngorms National Park. Therefore, this objective has no bearing on the Proposed Plan for the National Park.

Public Services and Infrastructure

This outcome focuses on building the capacity of all Scotland's public services and infrastructure networks to understand climate risks, adapt as organisations and act collaboratively with others in a place. The outcome applies to all public services and infrastructure networks, with specific objectives for two key devolved infrastructure networks – water and transport – which support people's health and connectivity.

PS1: Public body duties and capacity

This objective aims to support effective leadership and governance arrangements for adaptation, alongside inclusive planning approaches and working beyond organisation and sectoral silos through:

- Public Bodies Climate Change Duties – the Public Bodies Climate Change Duties contained within the Climate Change (Scotland) Act 2009 require listed public sector organisations to act in the way best calculated to help deliver the statutory Adaptation Programme and to report progress annually.
- Guidance on climate adaptation duties – the Scottish Government will work across the public sector to develop and consult on updated statutory guidance on public bodies climate change duties in the wake of proposed revised climate change legislation in Parliament.
- Public Bodies Climate Change Duties reporting and analysis – all relevant public bodies will continue to report annually on the Public Bodies Climate Change Duties, including adaptation action and contributions (where relevant) to delivery of this Adaptation Plan.

PS2: Public service and infrastructure resilience

This objective aims to embed climate adaptation into public service design and operational resilience. It covers adaptation policies in key public services, but adaptation action and collaboration are needed across all sectors. This will be supported by new statutory guidance for all relevant public bodies in 2026.

In terms of energy, responsibility for all of which sits with the United Kingdom Government, the Great Britain regulator Ofgem and the National Energy System Operator. More information on the energy network providers and responsibilities is available in Schedule 9: Energy.

The emergency services respond to emergency incidents, including those caused by severe weather. To continue to deliver this vital public service, Scotland's blue light services need to build their resilience to climate change and contribute to wider community resilience. This will be achieved through:

- Fire and Rescue Framework – the 'Fire and Rescue Framework for Scotland 2022' sets out Scottish Ministers' expectations of the Scottish Fire and Rescue Service. Strategic Priority 4, 'Climate Change', sets out an expectation that the Scottish Fire and Rescue Service should continue working with other public sector partners and communities to support action to address the climate emergency, including the challenges of more extreme weather events such as wildfires and flooding in particular
- Scottish Fire and Rescue Service – the Scottish Fire and Rescue Service Strategic Asset Management Plan for property across 2023 – 2028, outlines how the Scottish Fire and Rescue Service aim to achieve a modern and fit for purpose estate that supports the effective delivery of services across the whole organisation.
- Police Scotland – Police Scotland is committed to safeguarding its operations and contributing to a more sustainable future. The Police Scotland Adaptation Strategy for 2024 – 2034 sets strategic outcomes and includes an action plan and Estates Adaptation Framework and Assessment Tool. Actions include upgrading and maintaining its estates to meet resilience standards, withstand climate impacts, and improve energy efficiency.
- Scottish Ambulance Service – the Scottish Ambulance Service has a clear climate emergency and sustainability organisational and governance structure.

PS3: Scotland's water resources

This objective acknowledges the need to adapt the way in which Scotland plans, delivers and uses essential water, sewerage and drainage services to cope with climate related changes. This needs to be done alongside building community resilience to flood events, informed and supported by public sector action. This will ensure that water resources and drinking water is secured, the environment is protected, and rainwater is managed in a way that reduces the impact on society, for future generations. More information on water management in the Cairngorms National Park is available in Schedule 19: Flood risk and water management.

PS4: Transport system

This objective aims to ensure the transport system is prepared for current and future impacts of climate change and is safe for all users, reliable for everyday journeys and resilient to weather related disruption. By increasing the climate resilience and ability of transport infrastructure to adapt to climate change, Scotland will have a significant influence on Scotland's overall ability to increase resilience and adapt. More information on the transport infrastructure in the Cairngorms National Park is available in Schedule 11: Sustainable transport.

Economy, Business and Industry

Climate change poses profound risks to Scotland's economy. The costs to the Scottish economy, resulting from climate change, are no longer hypothetical. The Climate Change Committee has estimated the impacts of climate change already cost the Scottish economy billions of pounds per year (Climate Change Commission). More Information on the Economy, Business and Industry Outcome objectives is contained in Schedule 21: Economic development.

The Proposed Plan should support the objectives set out above from the Scottish National Adaptation Plan 2024 – 2029.

**Scottish Biodiversity Strategy to 2045: Tackling the Nature Emergency in Scotland**

The strategy (CNPA084) acknowledges that the role biodiversity plays in addressing and mitigating the impact of climate change is vital. The strategy sets out a nature positive vision for Scotland – one where biodiversity is regenerating and underpinning a healthy and thriving economy and society and playing a key role in addressing climate change. It sets out a clear ambition: for Scotland to be Nature Positive by 2030, and to have restored and regenerated biodiversity across the country by 2045. The vision set out in the strategy is:

- By 2045, Scotland will have restored and regenerated biodiversity across Scotland's land, freshwater and seas.
- Scotland's natural environment, habitats, ecosystems and species, will be diverse, thriving, resilient and adapting to climate change.
- Regenerated biodiversity will drive a sustainable economy and support thriving communities, and people will play their part in the stewardship of nature for future generations

Priority Actions for 2030

The strategy states that areas under agriculture and forestry must be managed more sustainably, in particular through the conservation and sustainable use of biodiversity, increasing the productivity and resilience of these production systems. By 2030 the strategy aims to:

- Design and introduce an agricultural future support framework which delivers for nature restoration and biodiversity as well as high quality food production, climate mitigation and adaptation.
- Ensure that productive forests and woodlands are designed and managed in ways that deliver increased biodiversity and habitat connectivity whilst sustaining timber production and carbon sequestration to meet the climate crisis and reduce their vulnerability to climate risks.

**Scottish Biodiversity Delivery Plan 2024 – 2030**

Five year delivery plans will set out in detail the actions needed to deliver the Scottish Biodiversity Strategy's 2045 vision and outcomes. The first delivery plan (CNPA085)) was published in conjunction with the Scottish Biodiversity Strategy (CNPA084). Priority actions are described under the six objectives of the strategy.

The delivery plan acknowledges that halting biodiversity loss by 2030 and adapting to climate change requires a step change in action to protect and restore habitats for the long term and ensure they are well connected. One significant action set out to strengthen Objective 2 is to strengthen the role of National Parks and ensure they act as exemplars of biodiversity protection and recovery whilst continuing to support local communities[1].

Significant priority actions to realise Objective 3 include:

- Ensuring increased uptake of high diversity, nature rich, high soil carbon, low intensity farming methods while sustaining high quality food production. Actions will help to ensure healthy soils that regulate key biogeochemical cycles, including nitrogen and carbon cycles and so can limit both the causes and impacts of climate change (for example, by capturing greenhouse gases and reducing flooding and vulnerability to drought).

**United Kingdom Climate Change Risk Assessment 2022**

Presented to Parliament pursuant to Section 56 of the Climate Change Act 2008.

As required by the Climate Change Act 2008, the United Kingdom Government has undertaken the third five year assessment (CNPA351) of the risks of climate change on the United Kingdom, working closely with the Climate Change Committee. This has presented strong evidence that even under low warming scenarios, the United Kingdom will be subject to a range of significant and costly impacts unless significant further action is taken now.

[1] This is being achieved through the Natural Environment (Scotland) Bill (CNPA634) which was passed by Scottish Government on 29 January 2026. The Bill aims to support the protection and restoration of Scotland's natural environment, and to assist the delivery of the Scottish Government's net zero and biodiversity objectives. Part 3 of the Bill introduces a number of amendments to the National Parks (Scotland) Act 2000 (CNPA004), with those relevant to the preparation of the local development plan outlined in Schedule 1: Plan outcomes.

The technical report for the third Climate Change Risk Assessment identifies 61 climate risks cutting across multiple sectors of the United Kingdom's society. It identifies a wide range of potential costly impacts of climate change including on health and productivity, affecting many of the United Kingdom's households, businesses and public services. Impacts range from a deterioration in soil health and agricultural productivity to impacts on water availability and thereby the United Kingdom's alternative energy supply.

The risk of flooding to people, communities and buildings remains among the most severe risk for Scotland and is the costliest hazard to businesses. Flooding remains a key risk to infrastructure, and water scarcity in summer is an issue, particularly for private water supplies. More information on flooding and flood risk management implications in the Cairngorms National Park is available in the Strategic Flood Risk Assessment and Schedule 19: Flood risk and water management.

The Scottish Government accepts in full the assessment of climate risks and opportunities set out by the Climate Change Commission as the evidence base for this third Climate Change Risk Assessment. Scotland's devolved statutory framework on climate change, established through the Climate Change (Scotland) Act 2009, includes strategic planning for climate change adaptation.

The evidence for Scotland from the Climate Change Commission's Independent Assessment helped shape the development of Scotland's Adaptation Plan 2024 – 2029 (CNPA245).

**Heat in Buildings Strategy – Achieving Net Zero Emissions in Scotland's Buildings**

The Heat in Building Strategy (CNPA352) sets out Scotland's vision for the future of heat in buildings. It sets out the actions being taken in the buildings sector to deliver Scotland's climate change commitments, maximise economic opportunities, and ensure a just transition. Further information on the strategy is contained in Schedule 15: Heating and cooling.

**Flood Risk Management (Scotland) Act 2009**

The Flood Risk Management (Scotland) Act 2009 (CNPA346) promotes a risk based, plan led approach to managing flood risk. It requires the Scottish Environment Protection Agency and other designated responsible authorities to develop and implement Flood Risk Management Plans and Local Flood Risk Management Plans.

More information on the flood risk implications in the National Park is available in Schedule 19: Flood risk and water management.

**Scottish Water Climate Change Adaptation Plan 2024**

The plan (CNPA353) outlines the efforts it will take to make services and infrastructure more resilient to extreme weather. With growing impacts on assets and services from more extreme weather events locally and nationally, the plan highlights the steps that must be taken to go further and faster in adapting assets and services to ensure they remain reliable, resilient and sustainable. The plan focuses on areas which are likely to face further disruption unless action is undertaken. It describes the consequences on water supplies, water quality, sewer systems, infrastructure and the environment without adaptation. The Climate Change Adaptation Plan outlines several issues, including:

- Drought.
- Deteriorating water quality.
- Customer flooding and environmental pollution.
- Waste water and environmental quality.

The plan also outlines a range of scenarios as to how services for customers can be protected through adaptation and working with others and outlines projections for impacts on water and wastewater services to 2050 and 2080.

More information on water management in the Cairngorms National Park and its implications is available in Schedule 19: Flood risk and water management.

**National Flood Resilience Strategy**

This strategy (CNPA385) is part of The Scottish National Adaptation Plan 2024 – 2029 (CNPA245), Actions today, for a climate resilient future. The Strategy supports a flood resilient places approach, with a focus on building community flood resilience and resilient placemaking.

The strategy sets out the following vision for a flood resilient Scotland through to 2045 and beyond:

- 'Our people and places are prepared for increased flooding and we are adapting to a changing climate and creating sustainable resilient places in ways that are inclusive and fair'.

The strategy is structured around the themes of People, Places and Processes and sets out Scotland's Outcomes, the Guiding Principles and Priority Actions.

People Outcome
Creating flood resilient places involves Scotland's people and communities – Scottish Government will work with partners to explore how people and communities can be sufficiently informed and supported to be involved in flood resilience decision making and so contribute to their own flood resilience.

Places Outcome
Land management and placemaking decisions follow good practice for flood resilience. Scottish Government will work with partners to explore how Scotland's places can contribute to Scotland's flood resilience.

Process Outcome
Flood resilience is blended into Scotland's places at all scales, a broader range of actions are being delivered by a broader range of delivery partners – Scottish Government will work with partners to develop processes to improve Scotland's flood resilience.

The document sets out in the guiding principles that the focus of action will shift from 'fixing flooding problems' to creating flood resilient places. Flood resilience is part of community resilience and part of adapting to climate change.

The Proposed Plan should seek to support the 'avoid' component of flood resilience. This is about how the Local Development Plan can minimise exposure in areas that flood. This includes avoiding, as a first principle, development in areas that flood, areas which have an erosion risk, and ensuring that the impact of flooding on infrastructure is minimised. This also includes changing activities in areas that frequently flood. For example, if a community is exposed to frequent flooding, one option to improve its flood resilience in the long term may be too slowly withdraw from the flooded area over time.

More information on flood risk in the Cairngorms National Park and its implications for the Proposed Plan can be found in Schedule 19: Flood risk and water management.

## Key agency documents

### Scottish Environment Protection Agency – Guidance and advice notes

The Scottish Environment Protection Agency has a duty to co-operate with planning authorities in the preparation of local development plans. To support this role, they have published a suite of guidance (CNPA777). The Proposed Plan should reflect the guidance as set out by the Scottish Environment Protection Agency.

Documents of particular relevance to this schedule include:

Scottish Environment Protection Agency Planning Advice Note for Planning Authorities: Local Development Plan Evidence Gathering: Water Scarcity
This advice note (CNPA778) collates the latest evidence available for Scotland on water availability and the potential for increased water scarcity caused by climate change.

Recommended Riparian Corridor Layer for use in Land Use Planning
Functioning riparian (riverbank) corridors can help increase the resilience of a place to the impacts of climate change and help address the nature crisis, providing environmental benefits, and a wide range of public services. These areas are also an important element of blue green infrastructure and nature networks. The advice note (CNPA779) highlights the Scottish Environment Protection Agency Geographical Information System layer which indicates the minimum space needed along rivers (for example riparian corridor width scaled to river width) to give rivers space to adapt to changes in flood frequency and magnitude and to provide a wide range of benefits.

Climate change allowances for flood risk assessment in land use planning
This guidance (CNPA780) sets out required allowances for climate change to be used for flood risk assessment for proposed development sites. It helps ensure that planning decisions on sites being considered for development are informed by the best evidence available relating to the impacts of climate change on flood risk.

Matters relating to flooding are covered in the Strategic Flood Risk Assessment (CNPA097) and Schedule 19: Flood risk and water management.

**Historic Environment Scotland - A Guide to Climate Change Impacts on the Scotland's Historic Environment**
The guide (CNPA1281) identifies many of the risks and hazards of climate change that are facing Scotland's historic environment and offers owners, local communities and carers of historic sites routes to take action, to implement adaptation measures and enhance resilience to climate change. Divided into seven distinct elements, the guide provides a tool for assessing the different hazards and levels of risk that threaten different types of sites in Scotland's historic environment.

### Historic Environment Scotland – Pointing the Way to the Future

This position statement (CNPA1443) refers to Historic Environment Scotland's role in the planning system and other decision making processes for land management. It explains how stakeholders undertake these regulatory functions in a way that responds to Scotland's wider environmental responsibilities

### Historic Environment Scotland Climate Change Risk Assessment

This study (CNPA1282) represents the first step in a comprehensive and ongoing exercise to understand, monitor and manage environmental risk to Scotland's estate. The study is part of ongoing work to develop best practice and integrate climate change actions into Historic Environment Scotland's operations, in line with the Public Bodies Duties under the Climate Change (Scotland) Act 2009 (CNPA347) and Climate Ready Scotland: Scottish Climate Change Adaptation Programme (CNPA1442).

The Scottish Climate Change Adaptation Programme specifically tasks Historic Environment Scotland with quantifying heritage assets affected by climate change using Geographic information Systems and creating a climate change risk register for the properties in care. The climate change risk assessment report represents the most in depth study to date of the historic sites in the care of Historic Environment Scotland. The results of this initial risk assessment will provide the strategic basis for existing maintenance work programmes, as well as the allocation of funds for future works.

More information on the historic environment in the Cairngorms National Park is available in Schedule 7: Historic and cultural heritage.

## National Park Authority documents

### Cairngorms National Park Partnership Plan 2022 – 2027

The National Park Partnership Plan (CNPA010)) sets out how all those with a responsibility for the National Park will coordinate their work to tackle the most important issues. In particular, this plan:

- Sets out the vision and overarching strategy for managing the National Park.
- Guides the work of all public bodies and other partners to deliver the aims of the National Park.
- Provides the strategic context for the local development plan.
- Is the Strategic Regional Land Use Framework, and Regional Spatial Strategy for the National Park.
- Is the Economic and Sustainable Tourism Strategy for the National Park.

The Plan is arranged in three sections: Nature, People and Place. Each section sets out an overall outcome to be achieved by 2045 (in line with The Scottish Government's net zero targets), plus a series of long term objectives and key targets or indicators of progress. Each of these targets is supported by a set of actions and policies for the next five years.

There are a number of objectives that support climate change mitigation and adaptation in the National Park, that the Proposed Plan should consider, including:

A1. Net zero

The climate and nature crisis are the single biggest challenge that we face, and it is critical that the Cairngorms National Park – as the largest protected area in the UK – is an exemplar in achieving net zero, developing nature based solutions and helping Scotland as a whole meet its targets as part of a just transition. The objective aims to ensure the Cairngorms National Park reaches net zero as soon as possible and contributes all it can to helping Scotland meet its net zero commitments.

A2. Woodland expansion

Woodland expansion to join up the existing woodlands is crucial to deliver biodiversity and landscape benefits, capture and store carbon dioxide, provide a sustainable source of timber, improve water quality and help reduce the risk of flooding. The plan sets out the objective to increase the amount of woodland in the National Park.

A3. Peatland restoration

Degraded peatland produces 10% of Scotland's carbon emissions and preventing these emissions is a vital part of the national drive to reach net zero by 2045. Within the Cairngorms National Park, it is estimated that there are around 90,000 hectares of impacted peatland and 57,000 hectares of this has experienced some form of erosion. Peatland restoration also helps store carbon: restoring one hectare of actively eroding peat saves up to 19 tonnes of $CO_2$ equivalent each year. The objective aims restore and manage peatland within the National Park to reduce carbon emissions and improve biodiversity.

A5. Moorland management

The plan aims to work with moorland managers to adapt to and mitigate against the twin nature and climate emergencies, while working to maintain estate incomes through market adjustment and other income sources, for example carbon markets.

A7. Fire management

The plan acknowledges that the changing climate heightens the risk of wildfire across the National Park. Wildfires release carbon, can damage or destroy sensitive and rare habitats, can kill species and pose a significant risk to people and property. The objective aims to ensure that all managed burning (muirburn) follows best practice as defined by the muirburn licensing scheme, supporting habitat restoration and recovery.

A8. Farming

Farming is an important land use in the National Park and will continue to be so in the future. A significant area of the National Park is farmed and, to achieve the National Park's net zero and biodiversity targets, there is a need to prioritise activity that reduces farming's carbon footprint, enhances species diversity, helps local food production and builds resilience through joining up habitats and ecosystems. The transition to a low carbon future, delivering a sustainable, productive and profitable agricultural sector, is a key part of the future of the National Park and is part of a just transition.

The objective aims to work with farms in the National Park to reduce their carbon footprint, conserve soil carbon, encourage sustainable production and deliver increased biodiversity on in-bye land.

A9. Freshwater systems

Restoring these systems to their natural state and reconnecting them with their floodplains will increase the National Park's resilience to climate change, improve water quality, create larger flood buffer zones and help store excess water. The management of the National Park's water, the impacts that both droughts and flood events are having on the National Park, and the likely impacts of climate change around the world make this is a key area of focus over the next 25 years. The objective aims to restore and connect rivers to thriving wetlands and floodplains as part of a wider restoration of the National Park's freshwater systems, helping mitigate the impacts of climate change.

A10. Ecological network

Establishing an ecological network across the National Park will ensure that habitats and species are more resilient to climate change and human pressures – increasing connectivity and functionality – and will reduce conflicts between land uses as the Park Authority seek to make optimum use of land in the National Park.

A11. Ecological restoration

Restoring ecosystems in the National Park will improve its resilience to flood events, to drought and to disease. The objective aims to improve ecosystem functionality and

resilience across the National Park by increasing the area of land managed principally for ecological restoration.

C7. Transport to and around the (National) Park

Transport is a key issue for the Cairngorms National Park and one which the Authority needs to focus on to achieve its net zero and visitor management objectives. The objective aims to promote a modal shift towards sustainable and active travel in the way visitors and commuters get to, and everyone moves around, the National Park.

**Cairngorms 2030**

The Cairngorms 2030 programme (CNPA528) is funded by the National Heritage Lottery Fund. It encompasses 20 long term projects designed to bring about transformational change in the Cairngorms, benefitting people's health and wellbeing, delivering on climate change and enhancing nature across the National Park.

In relation to climate change mitigation and adaptation projects that either mitigate or help communities, nature or businesses adapt to the effects of climate change are of relevance. These are designed to deliver a number of Partnership Plan Outcomes, which include:

- Expanding woodland.
- Restoring peatland.
- Exploring net zero farming.
- Reducing flooding risk in the most at risk communities.
- Securing additional green private finance for the benefit of nature and communities.

The projects are as follows.

Climate resilient catchments

This project aims to increase climate change resilience to reduce flood risk and ensure that rivers continue to deliver for the people and wildlife that depend upon them.

Relevant Partnership Plan Objectives: A1, A2, A3, A8, A9, A11 and A14.

Cairngorms future farming

This project helps farmers in the Cairngorms National Park achieve lower carbon emissions and greater biodiversity on their farms without impacting their financial 'bottom line'. The project builds on work being undertaken around Scotland on reducing carbon emissions in farming but applies them to the specific circumstances of the Cairngorms. This is important to ensure that farms here can achieve carbon neutrality,

improve their profitability and climate change resilience, while protecting and restoring the natural environment.

Relevant Partnership Plan Objectives: A1, A8, A10 and B4.

Nature recovery

This project works with specific communities of land managers and landowners, to co-develop strategies for land management that increases the biodiversity and ecological health of their land while also considering Highland cultural heritage, traditions, and employment.

Green investment plan

The Cairngorms National Park has significant potential for peatland restoration, woodland expansion, flood management, low carbon farming, biodiversity offsetting and many other potential nature based solutions. Working with the Palladium Group, National Parks Partnership, public bodies and local land managers, this project looks to pilot an approach that blends sources of public and private finance to deliver the National Park's net zero and biodiversity targets, whilst also providing long term benefits (and income) for land managers, investors and local communities.

Relevant Partnership Plan Objectives: A1, A2, A3, A5, A8, A13, A11 and A14

Landscape and communities

The Park Authority knows the landscape of the Cairngorms will change over time, particularly due to the climate emergency and the National Park's collective effort to achieve net zero by 2045. There are, however, many different options for landscape change to achieve net zero, and the Park Authority needs to ensure that communities are engaged with the selection of those options which protect and enhance the special landscape qualities which they most value. This project explores how communities perceive, experience and value the landscape of the National Park, identify special landscape qualities and their relative importance, and establish community preferences for different options for landscape change[2].

Relevant Partnership Plan Objectives: A1, A10, A12, B2, B5, B7, B11, C9 and C10.

[2] Further information on this project and its implications for the Proposed Plan is covered in Schedule 6: Landscape.

Peatland restoration

The National Park's deep peatlands can be described as the great carbon stores of the National Park – currently release thousands of tonnes of carbon into the atmosphere and the National Park's water courses each year as around 90% are in poor condition. This project seeks to repair around 3,500 hectares of these damaged areas and deliver significant ecological benefits through restoration. That's over two and a half football pitches of restored peatland per day over a five year period[3].

Relevant Partnership Plan Objectives: A1, A3, A5, A10, A11, A13 and A14.

Woodland expansion

Woodland expansion is recognised as one of the best methods of sequestering carbon from the atmosphere. The woodland expansion programme will be a major carbon sink in the Cairngorms landscape, helping absorb and store large amounts of $CO_2$ and contributing to the National Park's net zero targets. Through this project the National Park aims to add 1,000 hectares of new or expanded woodland, or around five football pitches of new woodland per week over a five year period.

Relevant Partnership Plan Objectives: A1, A2, A10, A11, A13 and A14

Climate conscious communities

The project aims to increase awareness and deepen understanding of the climate emergency and its relevance to residents, communities, landowners and businesses in the National Park.

Relevant Partnership Plan Objectives: A1.

Community managed grant scheme

The project aims to support the realisation of the National Park's net zero and wellbeing economy targets by giving communities the power to define, design, fund and deliver projects that matter most to them.

Relevant Partnership Plan Objectives: A14, B2, B5, B6, B7, B10, C3, C4 and C10.

Active communities

[3] Further information on this project and its implications for the Proposed Plan is covered in Schedule 8: Land use, soil and resources.

The project's goal is to develop active travel infrastructure to make it easy, safe and enjoyable for residents and visitors to walk, cycle or get around using a wheelchair. This is split into four projects focused on Aviemore, Badenoch and Strathspey, Ballater and Braemar, and Blair Atholl and Killiecrankie.

Relevant Partnership Plan Objectives: A1, B7, B9, B10, C4, C5, C6, C7 and C9.

Cairngorms Active Travel Plan
The project aims to develop a Cairngorms wide active travel network that integrates with public transport, helping to reduce private car use and encourage residents and visitors to travel more actively in the National Park. More information on active travel in the National Park and its implications for the Proposed Plan is contained within Schedule 11: Sustainable transport.

Relevant Partnership Plan Objectives: A1, B7, B9, B10, C4, C5, C6, C7 and C9.

Electric bike (ebike) network
The project aims to reduce personal car use by visitors and residents through an accessible network of ebikes and engaging and inspiring people to use ebikes as a regular mode of transport. More information on transport related matters in the National Park and its implications for the Proposed Plan is contained within Schedule 11: Sustainable transport.

Relevant partnership plan objectives: A1, B7, B9, B10, C4, C5, C6, C7, C8 and C9.

Glenmore transport plan
The project is focussed on developing a new sustainable model of transport in the Cairngorms' busiest visitor hotspot to reduce reliance on private vehicles, in turn reducing carbon emissions from transport in the National Park. More information on transport related matters and its implications for the Proposed Plan is contained within Schedule 11: Sustainable transport.

Relevant Partnership Plan Objectives: A1, B7, B9, B10, C4, C5, C6, C7, C8 and C9.

Sustainable transport in the National Park
Focusing on Deeside, Angus and Highland Perthshire, the Park Authority will make it easy to get around without a private car by improving sustainable transport options in the National Park.

Relevant Partnership Plan Objectives: A1, B7, B9, B10, C4, C5, C6, C7 and C9.

## Local authority documents

### Climate Ready Aberdeenshire – A Regional Strategy for Climate Change Adaptation and Mitigation

This document (CNPA364) sets out the vision, objectives, and strategy of Climate Ready Aberdeenshire. Climate Ready Aberdeenshire is a voluntary cross sector network to create and coordinate a strategy for Aberdeenshire to mitigate climate change, adapt and build resilience to its impacts, to protect and enhance biodiversity, and contribute to a sustainable economy and communities across the region.

Climate Ready Aberdeenshire formed a shared vision and objectives while producing this strategy. These detail how Climate Ready Aberdeenshire aims to mitigate climate change, adapt and build resilience to its impacts, and to protect and enhance biodiversity across the region. Climate Ready Aberdeenshire's shared vision is that:

- 'All sectors, including public, private and the community, are increasingly engaged in shared dialogue, shared goals and shared action relating to climate, biodiversity, and sustainability in support of a flourishing Aberdeenshire.'

Through its network, Climate Ready Aberdeenshire's aims to encourage the use of a place based approach when engaging with communities on how to mitigate and adapt to climate change. They also aim to support decision makers to contribute to the delivery of local and national commitments to climate change that mutually benefit Aberdeenshire's environment, economy, and people.

This strategy outlines Adaptation Scotland's[4] 15 Consequences and identifies many of the challenges and opportunities that are likely to arise from climate change across Aberdeenshire.

In terms of adaptation and resilience, the strategy aims (Climate Priority Area) to support continued adaptation to present climate and weather while making changes based on future projections, in a way that increases the resilience of communities, infrastructure, and the natural and historic landscapes across Aberdeenshire.

[4] The Adaptation Scotland programme (CNPA1278) provides advice and support to help Scotland be prepared and resilient to the effects of climate change. They help public sector, businesses and communities to understand what climate change will mean across Scotland and identify the best way for them to plan for the impacts – taking the opportunities and preparing for the risks.

**Angus Council Transition to Net Zero Action Plan: 2022 to 2030**

The Transition to Net Zero Action Plan (CNPA368) identifies key areas to impact climate change mitigation, adaptation and sustainability to enable the transition to net zero by 2045. The plan highlights that the Council must reduce emissions by 5% each year to mee the 75% reduction target (2030 Scottish Government interim targets). Angus Council has adopted the Scottish Government's emissions target reductions set out in the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019.

**Angus Council Sustainable Energy and Climate Action Plan (SECAP)**

The plan (CNPA369) was produced by Urban Foresight for Angus Council. The plan builds on findings from a Baseline Emissions Inventory, which details the region's carbon emissions, as well as a Risk and Vulnerabilities Assessment, which identifies relevant climate threats alongside potentially vulnerable sectors in Angus. Using this information, the plan sets out a series of concrete, deliverable actions with clear timelines and responsibilities. The actions are arranged according to six key sectors including Buildings; Energy; Transport; Land Use and Forestry; Agriculture and Food and Waste, as well as Governance and Process actions.

The plan sets out a number of actions to deliver adaptation and improve resilience to climate change including:

- Proposing actions to improve Angus's resilience to flooding. One action to address this is to deploy drainage and flood management in new developments and enhance green networks across Angus, including sustainable drainage networks to store and manage surface water runoff. Promote natural flood management practices and the use of permeable paving.
- The need to develop policies to strengthen the resilience of Angus's transport network to the impacts of climate change, as part of the Tayside and Central Regional Transport Partnership Regional Transport Strategy (CNPA867).
- Actively managing woodlands to improve forest structure, diversify tree species, increase resilience to greater weather variability and extreme events and improve infrastructure so it can cope with wetter conditions.
- Help communities enhance their capacity to respond to and recover from resilience incidents.
- Deliver a maintenance and repair programme for historic buildings to ensure they are resilient to the impacts of climate change.
- Explore the potential for utilising adaptation benchmarking and monitoring tools.
- Promote and support local community food hubs food growing initiatives.

- Ensure new builds / developments incorporate climate adaptation measures, for example permeable paving.

**Environment and Climate Change action in Angus – Interactive Map**

The purpose of the map (CNPA372) is to showcase positive environmental work being undertaken on the ground in Angus. The Council also aim to encourage and support everyone to get involved, while celebrating the valuable work already being undertaken by communities on the ground in Angus.

There is one project that is on the map within the Cairngorms National Park which is the Glen Clova Contour Tree Planting Initiative. Rottal Estate are involved with a contour tree planting initiative in collaboration with the Esk Rivers and Fisheries Trust, the Esk Fishery Board, Angus Council, South Esk Catchment Partnership, Scottish Government, Scottish Forestry, The Woodland Trust and Forest Carbon. Approximately 200 acres have been planted along four miles of the eastern contour of Glen Clova. The trees will act as flood mitigation, carbon capture, amenity benefit, biomass and timber production, increased biodiversity and improved grazing for livestock.

**Highland Council Net Zero Strategy**

The Net Zero Strategy (CNPA359) sets out The Highland Council's approach to addressing the climate emergency by reducing emissions and preparing for the unavoidable impacts of climate change. The strategy includes a Route Map to Net Zero by 2045, with key interim targets to reduce emissions by at least 75% by 2030 and at least 90% by 2040.

The strategy focuses on council operations. It provides a framework for reducing corporate emissions and preparing for the unavoidable impacts of climate change. The Proposed Plan should support The Highland Council Net Zero Strategy to reduce emissions and improve resilience for council owned or run operations in the Highland area of the Cairngorms National Park. This includes:

- Improving energy efficiency across The Highland Council estate.
- Transitioning its property portfolio to net zero (social housing and non domestic).
- Identifying and developing opportunities arising from renewable energy generation
- Rationalising its fleet and replacing vehicles with low emission alternatives.
- Developing infrastructure to enable and encourage staff to choose active travel.
- Enhancing biodiversity and carbon sequestration across its estate.
- Reducing waste.
- Embedding a circular economy into the council's operations.
- Developing a Community Wealth Building Strategy and Action Plan.

- Developing a Strategy and Action Plan to safeguard the council against the effects of climate change and to ensure continuity of services.
- Embedding climate change into decision making processes.
- Delivering a Communications and Engagement Strategy to support the delivery of the Net Zero Strategy 2030.

**Moray Council Climate Change Strategy 2020 – 2030**

The strategy (CNPA354) and Action Plan follow the Climate Emergency declared in June 2019 and aims to make the council carbon neutral by 2030. This Climate Change Strategy identifies the key areas that the council will prioritise within available resources to not only help reduce its own impact on the environment, but how it will seek to influence and encourage the wider community.

Actions include improving energy efficiency across the council's estate to have all buildings operated and owned by the council – including schools – achieve a net zero carbon target by 2030. Increasing electric vehicle charging points, active travel and sustainability and recycling in schools also forms part of the aspirations.

The strategy highlights the Scotch Whisky Associations aims for the sector to become carbon neutral by 2024. There are a number of distilleries in the Moray area of the National Park that may be affected by this. Commitments in the Scotch Whisky industry's Sustainability Strategy include:

- A commitment to reach net zero emissions in its own operations by 2040, five years ahead of the Scottish Government's 2045 Net Zero target and 10 years ahead of the United Kingdom Government's target.
- By 2025, all new product packaging will be reusable, recyclable and compostable.
- A commitment to play an active role in the wider conservation and restoration of Scotland's peatland to deliver environmental benefits for the common good by 2035.
- Continue to use water efficiently – so that all producers are within a responsible water use range by 2025.

Breaking down the council's emissions into component parts highlights the majority of emissions (more than 90%) arise from waste buildings and transport. A key factor will be the decarbonisation of the electricity supply grid where energy from fossil fuels is replaced with renewables.

The accompanying action plan details the significant changes and challenges required to achieve a net zero carbon council by 2030. It demonstrates the scope and extent of the direction the council needs to take to realise its stated targets and deliver upon the

aspirations contained within this strategy. The action plan is intended to be a living evolving document which is able to account for climate change related legislative and societal changes expected over the coming years. As such it will be subject to annual reviews to ensure it remains fit for purpose and appropriate. The Proposed Plan will need to take account of the current and any future updates to the strategy and action plan.

**Moray Council Route Map to Net Zero**

The council's route map to net zero (CNPA357) supports Moray Council's Climate Change Strategy and Local Development Plan by creating a framework of actions aimed at reducing carbon emissions to net zero by 2030. This route map focusses on the council's own operations.

**Moray Council Climate Change Plan and Route map to net zero 2024 update**

This update (CNPA358) is an annual report on the progress of the Moray Council Climate Change Strategy 2020 – 2030. It provides a strategic outlook to ensure the greatest impact from the council's resources whilst addressing the climate and nature emergencies.

The document highlights actions such as improving public transport, active travel, and access to greenspace, facilitating resilience planning and green grants to support:

- Strong, well connected communities with enhanced job prospects.
- Increased community wealth – keeping money in Moray.
- Reduced health costs.
- Improved physical and mental health.
- Community led improvements.
- Public involvement in planning.
- Community income generation.
- Less waste.

The council's property portfolio comprises a range of buildings including offices, schools, libraries, sports facilities and depots. These buildings vary in age, size, energy efficiency and condition. Building electricity is drawn from the national grid operated by SSEN (Scottish and Southern Electricity Networks) Transmission and SSEN Distribution within the National Park. A small minority of buildings have been fitted with solar photovoltaic panels. Electricity use also includes street lighting and safety floodlighting. The Proposed Plan should support Moray Council's ongoing commitment to reduce emissions from council owned buildings in the Moray area of the Cairngorms National Park.

The Proposed Plan should also aim to support Moray Council's ambitions to reduce emissions from its transport and waste sectors operating in the National Park.

The council has a duty to further the conservation of biodiversity when carrying out its work. As enhancing biodiversity can also sequester carbon through well managed soil and vegetation, thereby reducing net emissions, the Proposed Plan should support Moray Council development, with respect to biodiversity, nature and carbon sequestration net gain in the National Park.

**Perth and Kinross Council Climate Change Strategy and Action Plan**

The Climate Change Strategy and Action Plan (CNPA367) links to the overall strategic direction of Perth and Kinross Council as set out within both the council's Community Plan (CNPA640) and Corporate Plan (CNPA1283).

Six overarching principles have been developed that will shape the council's long term approach to climate change. These are:

- Achieving net zero aligned with the Paris Agreement (CNPA344) and the Scottish Government targets (CNPA060), with the ambition of achieving them sooner.
- Building a more resilient Perth and Kinross.
- Ensuring climate action is fair and benefits all and Perth and Kinross deliver a green recovery after the Covid 19 pandemic.
- Enhancing biodiversity to help avoid an ecological emergency.
- Engaging and empowering children and young people to take action on climate change.
- Empowering communities and businesses to take climate action in line with the Perth and Kinross Offer.

Perth and Kinross Council are currently working to meet the Scottish Government's 2045 net zero target with the ambition to reach this target earlier.

The action plan has been developed to address the necessary action to make both the Perth and Kinross Council area and the Council itself net zero and climate resilient. Given the need for urgent action on climate change, the plan primarily focuses on the actions required in the near term future, until 2024. Key strategic longer term projects have been identified as well, to help provide clarity over future action required. The plan is not intended to be static but ever evolving as policy develops.

The Climate Action Plan has been divided into eight thematic areas:

Transport

The council has committed to decarbonising its transportation fleet on its journey to achieving Net Zero. It aims to decarbonise its public sector light fleet by 2025 and heavy fleet by 2030.

Buildings and Energy

The plan identifies Energy and Buildings as a key area where the council will have to make changes in order to tackle and adapt to climate change. The council aims to ensure all new build social housing is net zero by 2026. The strategy also sets out targets for private and social housing Energy Performance Certificate targets.

Business and Industry

The plan identifies business and industry as a key area where the council will have to make changes in order to tackle and adapt to climate change.

Waste and circular economy

The council aims to improve resource efficiency by helping to work towards a circular economy (where the council reuse materials, rather than taking the traditional approach of making items, using them and throwing them away). The council state that this ideology will be encouraged within its communities, schools, businesses and internally throughout Perth and Kinross Council's service areas.

Land use

The council aims to transform how the land is managed, and improving agricultural practices, tree planting regimes, and peatland restoration can all play a major and essential part in achieving net zero, whilst also contributing to improved biodiversity, a reduction in flood risk and a range of other benefits. They seek to work with landowners to ensure the economic sustainability of landward areas whilst maximising the potential to reduce emissions and sequestrate carbon.

Climate resilience

In recent years, the council has experienced increasing incidences of flash flooding in urban areas, as well as river flooding. Communities throughout Perth and Kinross have experienced landslips and closures of the rail line north and south of Perth due to flooding as well as increased scour on the council's bridges. Peth and Kinross Council aims to increase resilience to better anticipate, prepare for, and respond to climate induced events – both acute events and longer term trends.

Education and engagement

Perth and Kinross Council intend to deliver more engagement to drive behaviour change. Education has been highlighted as a theme in its own right as it is important to recognise that climate change will impact disproportionately on the younger members of society.

Governance

The plan acknowledges that governance and accountability for delivering climate change is improving within Perth and Kinross Council and climate change is now seen as a top corporate priority.

**Local Heat and Energy Efficiency Strategies and Delivery Plans**

The Proposed Plan will need to take account of the five local authorities' Local Heat and Energy Efficiency Strategies and Delivery Plans. The strategies set out priorities and actions to help mitigate the climate crisis across the five local authority areas. Links to these strategies and plans have been included in the links to evidence section of this paper and their priorities are summarised below. An overview of these plans is also included in Schedule 15: Heating and cooling.

**Aberdeenshire Council Local Heat and Energy Efficiency Strategy**

The strategy (CNPA362) has four primary priorities which will drive the delivery plan and be the initial areas of focus:

- Priority 1: Improve building energy efficiency.
- Priority 2: Increase uptake of low and zero carbon heating technologies across the area.
- Priority 3: drive reduction in fuel poverty across Aberdeenshire.
- Priority 4: increase awareness of available information relating to decarbonisation and energy efficiency.

The strategy aims to support community projects in the Marr Community Plan that seek to address climate change mitigation, adaptation and preparedness.

The Local Heat and Energy Efficiency Strategy Delivery Plan sets out how Aberdeenshire Council will implement its strategy over the next five years. It enables the council to work towards delivery of the changes identified in the strategy and clarifies the role and responsibilities of stakeholders.

**Angus Council Angus Local Heat and Energy Efficiency Strategy**

Climate change mitigation and adaptation have been part of the council's focus and activities for over 15 years. The council's Local Heat and Energy Efficiency Strategy (CNPA370) aims to support Angus area wide in transitioning to zero emissions heating as quickly, and as fairly, as possible to contribute towards Net Zero by 2045 to help mitigate the climate crisis, which is becoming more and more evident across Angus.

**Angus Council Angus Local Heat and Energy Efficiency Delivery Plan**

This Local Heat and Energy Efficiency Delivery Plan (CNPA371) accompanies the Local Heat and Energy Efficiency Strategy, and it sets out how the council proposes to support implementation of the strategy. The Local Heat and Energy Efficiency Strategy Delivery Plan will transform buildings and heating systems to those that are efficient, affordable, and zero emissions. It will also provide long term co benefits and opportunities within Angus, such as, contributing towards a healthier population due to warmer homes and unlock additional economic growth opportunities linked with energy efficiency and heat infrastructure. This initial delivery plan mainly focuses on raising awareness of Local Heat and Energy Efficiency Strategy, stakeholder and partner engagement, and laying the foundations of governance to enable the successful delivery of Local Heat and Energy Efficiency Strategy. There are no implications arising from this strategy with regard to the Proposed Plan, however updates or future Plans should be taken into consideration when preparing the Proposed Plan.

**Highland Council Local Heat and Energy Efficiency Strategy**

The scope of the Local Heat and Energy Efficiency Strategy (CNPA360) is broad and cuts across retrofit projects, new developments, electric vehicle charging infrastructure[5] and the whole energy system.

The strategy highlights that climate change is affecting the regions built and natural environment and The Highland Council area is experiencing extreme weather vents such as storms, higher temperatures, wildfires and excessive rainfall causing flooding and landslides. The strategy further acknowledges that resilience is at risk in the Highlands.

The strategy acknowledges that reducing energy use and greenhouse gas emissions in domestic buildings through heat decarbonisation and energy efficiency improvements will contribute toward net zero targets and a just transition. The Proposed Plan should

[5] Matters relating to electric vehicle charging infrastructure in the National Park are covered in Schedule 11: Sustainable transport.

support council operations that support this aim, with regard to development to improve or upgrade council owned assets in the Highland area of the Cairngorms National Park.

In terms of mitigation in non domestic buildings, the council has been working with the consultant Changeworks to fill the gaps in non domestic data. This will allow the Council to analyse non domestic data in terms of energy efficiency measure s and decarbonisation which will be included in the Local Heat and Energy Efficiency Strategy. The Proposed Plan should take into account any further updates with regard to council owned assets in the Cairngorms National Park.

**Highland Council Local Heat and Energy Efficiency Strategy Delivery Plan 2023 – 2028**

Accompanying the Highland Council Local Heat and Energy Efficiency Strategy is the Delivery Plan (CNPA361), enabling the council and partners to work towards delivering the changes identified in the Strategy. The Proposed Plan should support actions set out in the delivery plan to decarbonise council owned or run assets. In terms of adaptation the plan sets out the action to:

- Investigate and identify adaptation measures at building level with the outcome of deploying retrofit applications.
- Engage with Highland Adapts to increase awareness of climate risks and resilience and adaptation to increase knowledge and awareness amongst developers, suppliers and the local communities.

**Moray Local Heat and Energy Efficiency Strategy**

The strategy (CNPA355) sets the priority for 'Building sustainable and climate resilient communities' which includes an outcome for adaptation which aims to ensure the resilience of Moray's buildings, communities and economy is supported to adapt to the impacts of climate. It is acknowledged in the strategy that climate change poses the greatest threat to the natural environment and the ecosystem services that it provides. This threat will in turn negatively impact the Moray food and drink sector, tourism sector, and overall health and wellbeing. To address this the strategy states that the implementation of National Planning Framework 4 (CNPA008) will be crucial to delivering necessary climate change adaptation measures through the planning system. There are opportunities for communities across Moray to shape development in their areas through Local Place Plans, and for the Proposed Plan to integrate adaptation into future spatial planning.

**Moray Local Heat and Energy Efficiency Delivery Plan 2023 – 2028**

Within the Delivery Plan (CNPA356) are the following actions aimed at supporting mitigation and adaption to climate change in the Moray council area. The Delivery Plan sets out the following priorities:

Priority 1: Building sustainable and climate resilient communities

The action to encourage the formation of community energy cooperatives aims to enhance community resilience while generating clean energy and empowering communities economically and socially.

The action to support community led energy[6] and efficiency and adaptation projects aims to increase number of community led projects, supporting carbon emissions reductions. The council is also seeking to enhance community resilience within local strategic planning with the aim of delivering increased awareness and understanding of the climate risks and adaptation measures amongst local planners and developers.

Priority 2 – Maximising knowledge and awareness and ensuring certainty of success

The council has set an action to undertake education and awareness campaigns. This aims to raise awareness of climate change and build capacity for adaptation and mitigation actions.

**Aberdeenshire Council Local Heat and Energy Efficiency story map**

This StoryMap (CNPA363) provides a summary of the work completed by Aberdeenshire Council and Changeworks up to and including Local Heat and Energy Efficiency Strategy Stage 7. The Local Heat and Energy Efficiency Strategy has a two part structure, consisting of the strategy and the delivery plan.

Aberdeenshire Council's Local Heat and Energy Efficiency Strategy was developed with input from key stakeholders and the delivery plan, once developed in detail, will direct the changes required for the building stock across the area. It will identify various options for decarbonisation and inform where investment in infrastructure is needed to support mass change of heating across the area.

[6] Matters relating to community energy projects in the National Park are set out in Schedule 9: Energy.

**Perth and Kinross Council Local Heat and Energy Efficiency Strategy and Delivery Plan**

The strategic priorities set out in the Local Heat and Energy Efficiency Strategy (CNPA365) are:

- Improving building energy efficiency aiming for affordable warmth and regulatory compliance.
- Decarbonising heat within a transitioning energy system focusing on heat networks and heat pumps.

In terms of adaptation, the strategy sets out the number and cost of buildings requiring retro fit application to improve Energy Performance Certificate ratings in line with national targets. More information on heating and cooling requirements and its implications for the Cairngorms National Park's Proposed Plan is contained within Schedule 15: Heating and cooling.

The delivery plan set out the council's priorities for identifying projects and actions to include in the plan. The delivery priorities include:

- Potential Heat Networks
- Off-gas social housing suitable for heat pump retrofit
- Off-gas private homes suitable for heat pump retrofit
- Social housing that requires energy efficiency improvements to enable suitability for heat pump
- Housing that does not meet Energy Performance Certificate targets

**Perth and Kinross Council Local Area Energy Plan 2024 – 2029**

The Perth and Kinross Local Area Energy Plan (CNPA366) outlines a vision for a net zero carbon energy system and recommendations for achieving Perth and Kinross's 2045 targets. The Local Area Energy Plan provides an understanding of the nature, scale, rate, and timings of changes needed for the transition to a net zero energy system, taking a whole energy systems approach and considering the complex interdependencies of different energy vectors from generation through to demand.

**Local Outcome Improvement Plans**

Local outcome improvement plans outline key priorities for each community board area that have been identified through a range of engagement processes and are based on the needs of local communities. They set out an approach to working with and empowering our local communities, enabling them to contribute to, influence and shape locally identified actions around the priorities to achieve improved outcomes for their

areas. The five local authorities which overlap the Cairngorms National Park all have individual Local outcome improvement plans (in some cases referred to as community plans).

While the Cairngorms National Park Partnership Plan (CNPA010) is the source of the vision for the local development plan (as explained in Schedule 1: Plan outcomes) the local development plan may support the delivery of the vision and priorities of local outcome improvement plans. A summary of issues relating to this schedule for each local authority are set out below.

**Aberdeenshire Local Outcome Improvement Plan 2017 – 2027**

The Aberdeenshire Community Planning Partnership's Local outcomes improvement plan (CNPA636) sets a 10 year vision. One of two current priorities agreed in September 2024 is place based community planning. While there are no Local Place Plans registered covering any areas in the National Park, the proposed plan will have regard to the community action plans.

**Angus Community Plan 2022 – 2030**

The Angus Partnership's community plan (CNPA637) has a vision for 2030 that Angus is a great place to live, work and visit. 'Caring for our Place' is one of three priorities to achieve the vision. Under this priority, the plan states that addressing climate change is now a key priority for the partnership and they have recently agreed their Sustainable Energy and Climate Action Plan for Angus. This details the action they will take both in the short and longer term to help protect their places through clean growth and lower carbon emissions. The plan commits to the partners taking action to address climate change to ensure communities are sustainable.

**2024 – 2027 Highland Outcome Improvement Plan**

The Highland Community Planning Partnership's outcome improvement plan (CNPA638) vision is to maximise opportunities and tackle inequality to build a thriving Highlands for all. Three strategic priorities – people, place and prosperity – have been identified. One of three principles the partnership sets under the place priority is to ensure just transition and support to communities to adapt to climate change will be considered when promoting sustainability and resilience.

**2024 – 2027 Highland Outcome Improvement Plan Delivery Plan**

There are no references to climate change in the Highland outcome improvement plan delivery plan (CNPA1091).

**Moray Local Outcome Improvement Plan v2 (2016 – 2026)**
There are no references to climate change in the Moray local outcome improvement plan (CNPA639).

**Perth and Kinross Community Plan (Local Outcomes Improvement Plan) 2022 – 2032**
Perth and Kinross Community Planning Partnership's community plan (CNPA640) has an ambition to be the best place in Scotland for everyone to live life well, free from poverty and inequality. Five priorities are identified, all of which focus on inequalities. Climate change is identified as a crosscutting issue for which a partnership working group has been set up with a remit to address the specific inequalities which climate change brings and provide a forum for collaboration on climate related actions.

**Badenoch and Strathspey Area Place Plan**
The plan (CNPA237) is an overview of local priorities and opportunities expressed in existing plans, strategies and recent community engagement, it aims to provide a clear statement of identified priorities, strengths, challenges, opportunities and community aspirations within one consolidated 'Plan', which can be referred to by Council services, public services, groups and organisations operating in Badenoch and Strathspey. This will help to ensure service provision, funding and developments reflect collective community wants, needs and priorities.

The Plan is split between three headings: People, Place and Prosperity. In relation to this schedule, under the Place heading the plan addresses the following theme:
- Environment and Climate

The plan does not set out any specific actions arising from this theme. There are however a number of cross cuttings priorities that have a bearing on this schedule including:
- Waste reduction and the circular economy (Place)
- Community and public transport (Place)

The Area Place Plan will serve as a foundational framework from which more detailed and targeted actions can be developed. The intention is that this will be an evolving plan, and this is the first version of an area plan for the Badenoch and Strathspey region. In the first instance an action plan will be created to set out the route for delivery of the priorities within the Badenoch and Strathspey Area Place Plan. The action plan will seek to:

- Further understand and develop priorities, in discussion across all sectors
- Set out to identify the best mechanism for delivery and the range of partners to be involved
- Assess potential barriers
- Assess potential funding opportunities

The Proposed Plan will take into consideration the Action Plan once it has been published and this will inform the preparation of the Proposed Plan.

## Community action plans

Many communities within the National Park are involved in preparing community action plans. These are important documents that set out the aspirations of the local communities and will continue to be taken into account in the preparation of the Proposed Plan. The following action plans identified issues and / or priorities that may relate to climate change.

### Cromdale and Avie Community Action Plan

The action plan (CNPA123) highlights the community's ongoing efforts to improve the bus service linking the settlement to Elgin. This may reduce car dependence which in turn supports climate change mitigation. There are no other actions contained in the document relevant to this schedule.

### Aviemore, Rothiemurchus and Glenmore Community Action Plan: Looking to 2030

The action plan (CNPA063) sets out numerous actions in relation this this schedule. Under the theme of 'a climate conscious community', the plan sets out the following priorities:

- Improve public transport to reduce need for / use of cars (leisure and work).
- Local allotments for rent and community orchard.
- Promote active travel network (and signage).
- Maintain and improve local path network (and signage).

Actions set out to support improvements to public transport include:

- Commission buses (to potentially include electric) for regular access to Glenmore / Cairngorm Mountain.
- Provide allowance / space for bikes on buses.
- Ensure timetables are integrated and can be relied upon.

Actions to facilitate the delivery of local allotments and a community orchard include:

- Providing local, accessible place for personal food produce for example fruit and vegetables and place for a community orchard.

Actions set out to promote active travel and improve / maintain local paths include:

- Looking at all different ways and places to encourage residents and visitors to cycle / walk through the community rather than drive.
- Improve local paths as listed in the Plan.

Matters relating to transport, active travel and associated infrastructure are covered by Schedule 11: Sustainable transport. Provision of community growing facilities is covered in Schedule 18: Health and safety.

The priority (under the theme of 'an economically thriving community) to improve bus services for workers could also have benefits in terms of mitigating climate change.

Other changes the community would like to see, relating to climate change include:

- Better control over behaviours at Glenmore including wild camping, fire risk in woodland. Improved traffic management through the Glenmore corridor.
- Encourage more 'green' energy use in homes in the town through information and support.
- More electric vehicle charging availability.

**Ballater and Crathie Community Action Plan 2023**

Under focus area 4 (the environment), the action plan (CNPA119) focuses on improving the resilience of the community to cope, withstand and protect themselves from environmental threats of flood, drought, fire and storms, at the same time as promoting sustainable use of energy. It aims to develop workstreams on flooding and drought to:

- Better ensure preservation of life.
- Improve take up and installation of property level protection.
- Ensure that support for Option 3A of the flood risk management proposals by Aberdeenshire Council is withdrawn.
- Put in place short term local protection for Ballater against lower level more frequent flooding.
- Develop realistic alternatives for medium term local protection.
- Explore upstream storage options.

The plan aims to support medium term actions to ensure that the impact on the village of higher frequency high water events remains low. The community plans to consult and

engage with all stakeholders on all possible options including dredging and reprofiling the river; and on moving, improving and maintaining existing and new riverbanks and bunds, particularly in conjunction with proposals for a sustainable riverside path. These actions could also mitigate the impact of lower frequency high water events.

The community will also promote upstream initiatives for water management in the Dee catchment area. They will continue to co-ordinate, with other Community Councils and landowners, a multi community position for the Dee catchment area regarding flooding and drought and establish a list of the areas of concern and request support from the Scottish Government for a water management feasibility study to address the challenges of climate change.

The plan aims to promote property level protection including flood gates and non return valves, throughout the whole community, with the ongoing assistance of the Scottish Flood Forum and with reference to Scottish Environment Protection Agency flood data.

The plan also aims to support actions to ensure that the impact on the village of higher frequency high water events remains low. More information on flood risk in the National Park is contained within the Cairngorms National Park Authority Strategic flood risk assessment 2024 (CNPA097) and Schedule 19: Flood risk and water management.

In terms of wildfires, the plan sets out the goal to define a plan to reduce the use of barbecues and fires on the hills during dry seasons and improve the availability of prudent firefighting equipment.

In terms of the environment and energy, the plan sets out the following goals:

- To investigate the feasibility of providing local facilities for gardening, allotments and communal composting.
- To promote the insulation of properties and ways to assist reduction in the need for energy.
- To investigate the feasibility of providing the sharing and repairing of tools and other facilities.

Provision of community growing facilities is covered in Schedule 18: Health and safety.

**Blair Atholl Community Action Plan: Looking to 2030**

Within the action plan (CNPA064) under the theme of 'a socially connected community', there is a priority addressing sustainable public transport provision with an action to continue lobbying for better provision of bus and train services for the community.

Under the theme of 'a climate conscious community' there is a priority for active travel with the following actions:

- Improve the crossing bridge over the river Tilt for pedestrians and cyclists.
- Improve the path network.

There is also a request for more electric vehicle chargers in village and surrounding area. Matters relating to transport, active travel and associated infrastructure are covered by Schedule 11: Sustainable transport.

**Boat of Garten Community Action Plan: Looking to 2030**

Under the theme of 'a climate conscious community' the action plan (CNPA374) sets out the following suggestions:

- Continued improvements to active travel links to improve walking and cycling routes and uptake in and around the village and also connecting to other settlements and destinations.
- Improve the village's biodiversity including enhancements to support the local nature networks.

In terms of reducing transport related emissions, the suggestion to improve public transport through increased services and increasing the use of the small minibus services could reduce private vehicle use. Matters relating to transport infrastructure and active travel are covered in Schedule 11: Sustainable transport.

**Braemar Community Action Plan 2017**

Theme two (Active Braemar) of the action plan (CNPA121) addresses the need for quality improvements and link paths. Improving active travel routes in and around settlements could reduce private vehicle use and therefore aid mitigation of climate change. Matters relating to transport, active travel and associated infrastructure are covered by Schedule 11: Sustainable transport.

There are also actions to investigate district heating schemes, powered by, for example, local woodchips, wood pellets or ground source heat pumps. Matters relating to heating in buildings are covered by Schedule 15: Heating and cooling.

There is also an action to build a community hydro scheme on the Corriemulzie Burn on Mar Estate, with income generated made available for local projects. Matters relating to energy in the National Park are covered by Schedule 9: Energy.

Braemar Community Action Plan is currently under review, and an update is expected to be published in 2026.

**Carrbridge Community Action Plan: Looking to 2030**

Under the theme of 'a climate conscious community' the action plan (CNPA122) sets out the priority to make the most of its natural environment. Under this priority is the action to:

- Deliver the nonmotorised user route from Carrbridge to Aviemore. Improving active travel routes connecting Carrbridge to the larger settlement of Aviemore could reduce private vehicle use and therefore aid mitigation of climate change.

Matters relating to transport, active travel and associated infrastructure are covered by Schedule 11: Sustainable transport.

Under the priority to 'use our natural assets to develop enterprise, business and tourism opportunities' there are a number of actions that support climate mitigation and adaptation including:

- Exploring the option of harnessing renewable energy for local use (hydro / wind).
- Developing a community garden, orchard, allotments – which would include producing local food to sell in local shops.
- Community led development and use of sawmill area for commercial use – which could include utilising the site for solar panels for energy storage for whole village.

Under the priority to 'build up community resilience' the plan sets the following actions:

- Develop a Carrbridge resilience plan to cope with extreme weather conditions (flood, snow, storms, fire), pandemic, road / rail station closures. This would include the installation of electricity vehicle charging.
- Community projects to support carbon reduction in homes.

The plan also included the suggestions to make some improvements to the village hall to allow more efficient heating and energy usage. There was also a suggestion to improve public transport – linking locally and nationally including all trains to stop at Carrbridge.

**Dalwhinnie Community Action Plan: Looking to 2030**

Within the action plan (CNPA125), under the theme of 'a socially connected community', the priority for sustainable public transport, sets out the following actions:

- Continue lobbying for better provision of bus & train services for the community.
- Explore a community link minibus option, working with Laggan so Dalwhinnie can connect to Newtonmore and more frequent service.

Under the priority to improve village's facilities / amenities there is an action to provide more electric vehicle charging points in the settlement. Matters relating to transport, active travel and associated infrastructure are covered by Schedule 11: Sustainable transport.

Under the theme of 'a climate conscious community' there is the priority to reduce energy consumption as a village / for households, which included the following actions:

- Local green waste recycling plot for locals' garden waste.
- Advice on household fuel alternatives.

There is also the priority for active travel which included the following actions:

- Cycle track link to Laggan.
- Path out of Dalwhinnie leading to the Pitlochry cycle track / bus stop on A9. Create a cycle lane between garage and existing Route 7.

There are also suggestions included in the plan to provide electric vehicle charging points and turn of the streetlights to save energy and benefit dark sky initiatives.

**Dulnain Bridge Community Action Plan: Looking to 2030**

The action plan (CNPA331) priority to complete the path to Grantown-on-Spey as well as creating active travel routes to other settlements under the theme of 'a climate conscious community'. Matters relating to transport, active travel and associated infrastructure are covered by Schedule 11: Sustainable transport.

There is also a suggestion in the plan to improve the Laundry Path off Skye of Curr Road – currently there is lots of lying water.

**Mount Blair and Glenshee Community Action Plan 2013**

This is the most recent iteration of the Community Action Plan (CNPA130) for the area. At present there are no plans to update the plan. Given the age of the Plan, it is possible some of the actions and aspirations contained within the plan have already been realised but not reported as being done so.

The remoteness of the area makes it expensive to live in and to travel elsewhere. Residents and local businesses identify lack of access to high speed broadband and the high cost of fuel as two of the main problems. Many in the community would like to see

the community develop its own sources of fuel by making best use of the local forests for wood fuel. Main priorities include:

- Develop wood fuel / biomass community initiative.
- Establish collective buying scheme for oil.

Matter relating to energy in the National Park are covered by Schedule: 9 Energy.

The plan also sets out the priority to improve public transport and / or develop community transport and car sharing initiatives. This includes:

- Exploring options for community minibus and / or car sharing scheme.
- Lobbying bus providers and Perth and Kinross Council to create a public transport link to Pitlochry and improve services to Blairgowrie.

Matters relating to transport, active travel and associated infrastructure are covered by Schedule 11: Sustainable transport.

**Grantown-on-Spey Action Plan: Looking to 2030**

The action plan (CNPA065) includes a number of suggestions aimed at improvements to active travel opportunities which could potentially reduce private vehicle use and therefore transport related emissions. Actions under the suggestion to improve active travel opportunities, in the 'climate conscious community' theme include:

- Build cycle path from Dulnain to Grantown-on-Spey.
- Improve existing and provide more bike infrastructure, including bike hire facilities and repair café.
- Project to get more people cycling around the town.

Matters relating to transport, active travel and associated infrastructure are covered by Schedule 11: Sustainable transport.

Within the same theme there is a suggestion addressing the Conservation Area Management Plan which includes the following actions:

- Remove barriers for energy improvements for example solar panels / Unplasticised polyvinyl chloride (uPVC) windows keeping aesthetics suitable.
- Release the 1960 / 70s bungalows from the management plan restrictions – they are unfair and unjustifiable.

**Kincraig and locality Community Action Plan: Looking to 2030**

Under the theme of 'socially connected communities', the action plan (CNPA127) set the priority to improve public transport, this includes the following actions:

- Provide an electric bus service running between Aviemore / Kincraig / Kingussie to help people access jobs, services, recreation.
- Provide community transport for local older adults.

Under the 'climate conscious communities' theme, the plan sets out the priority to improve local path networks (active travel). This includes actions to improve a list of local nonmotorised user paths in and around area.

There are also suggestions to provide more recycling of food waste in the area and ban outdoor fires to reduce the risk of forest fires.

**Kingussie Community Action Plan Consultation Results: Looking to 2030**

The action plan (CNPA066) includes a number of suggestions aimed at improvements to active travel and public transport which could potentially reduce private vehicle use and therefore transport related emissions. Matters relating to transport, active travel and associated infrastructure are covered by Schedule 11: Sustainable transport.

Under the theme of 'an economically thriving community' there is the suggestion to explore community energy opportunities. There is also a suggestion to develop local, sustainability focussed services and enterprise, including a tool library, refill shop, remakery, supporting a circular economy.

Other suggestions in the plan include

- The need for a car sharing scheme.
- Improve biodiversity around both sides of Loch Gynack.
- More public electric vehicle chargers.

**Laggan Community Action Plan: Looking to 2030**

Under the 'a socially connected community' theme the action plan (CNPA129) includes the priority addressing sustainable community spaces. The actions include making more of community facilities for example the village hall, Wolftrax café, church for:

- Resilience for example Warm Spaces, power outages, delivered through a newly created Resilience Plan.

There is also a priority addressing sustainable public transport provision which sets out the following actions:

- To connect to longer distance provision for example buses and trains.
- To get around the Laggan area without a car: on demand type service.

Under the 'a climate conscious community' theme are the following priorities aimed at climate change mitigation and adaptation:

- Active travel priority – improvements to walking and cycling paths in the area, and the provision of electric vehicle fast charging points.
- The energy efficient housing / community priority – to improve efficiency in tenanted and community owned properties including village hall, through inspection / advice / installation of energy cost reduction measures.

The plan also included the following suggestions:

- Programme of insulation and energy efficiency inspections undertaken in all tenanted properties and community owned properties to reduce energy use and costs.
- Community renewable energy scheme (Speyside dam).
- Reintroduction of annual dredging the Spey to stop flooding.

**Nethy Bridge Community Action Plan: Looking to 2030**

Under the 'a climate conscious community' theme the action plan (CNPA131) sets out the following priorities addressing climate change mitigation and adaptation:

- Improve path network in community.
- Improve river management.

There are several actions in the plan aimed at improving the path network, which would promote a possible increase in active travel and reduce car use. Matters relating to transport, active travel and associated infrastructure are covered by Schedule 11: Sustainable transport.

Under the priority to improve river management, the plan sets out the following actions:

- Update flood prevention audit, to reduce flood risk / blocked bridge.
- Enhance the riverbank.
- Repair riverside (small) wall opposite the community centre.
- Flood barrier in Station Road (opposite farm shop).

More information on flood risk in the National Park is contained within the Cairngorms National Park Authority Strategic flood risk assessment 2024 (CNPA097) and Schedule 19: Flood risk and water management.

Under the theme of 'an economically thriving community' is the priority to review possibility of a community owned renewable energy project. This includes the action to:

- Look into feasibility for wind turbines, hydro scheme or solar farm to help fund other community initiatives.

Further information on renewable energy in the National Park is available in Schedule 9: Energy.

Other suggestions from the plan include:
- Turning off the streetlights in the early morning to save energy (and promote dark skies).
- Providing more electric vehicle charging points.
- Maintain firebreaks around the village – plan to tackle a major fire in the forest.

**Newtonmore Community Action Plan: Looking to 2030**

Under the 'a climate conscious community' theme the action plan (CNPA132) sets out the following priorities:
- Priority one – 'make the most of our natural environment'.
- Priority two – 'use our natural assets to develop enterprise, business and tourism opportunities'.
- Priority three – 'build up our community resilience'.

Priority one sets out the action to improve active travel in the area as well as improving connections to Laggan. This could potentially lessen local vehicle use for travel between the settlements.

Priority two sets out an action to 'Develop allotments, community growing space, community orchard' which could allow locally grown produce to be sold to local people. Within priority two there is also the action to 'explore harnessing renewable energy for local income generation (hydro / wind)'. There are sub actions here that include exploring the possibility of a community hydro project and / or wind turbines[7]. The community have also expressed an interest in buying shares in a local windfarm or add an extra wind turbine generator to a development for example the Fintry ownership model, to provide income to village for further projects.

Priority three in this theme looks at building up community resilience through a number of actions which include:

[7] The priority under the economy theme to 'increase opportunities to attract tourism and business to the local area' also contains actions to explore the potential for a community owned energy company.

- Set up climate change group to support community action and support for households, this includes the introduction of an ecocar scheme and improvements to public transport to support a reduction in private vehicle use.
- More electric vehicle charging points including the installation of electric vehicle charging points at main car park.
- More recycling: bins on Main Street, food recycling at home.

**Strathdon Community Action Plan: Looking to 2030**

Under the theme of 'a climate conscious community' the action plan (CNPA133) sets out the following priorities that should be considered in the preparation of the Proposed Plan:

Develop community renewable energy projects

- Look into possibilities for wind, water, solar energy production in the community.
- Electric charging points – in accessible locations.
- Community transport scheme.
- Advice for insulating residential properties.

Further information on renewable energy in the National Park is available in Schedule 9: Energy.

Improved path network in community (foot / cycle)

- Continue to develop and maintain path network.

More detailed information on active travel is available in Schedule 11: Sustainable transport.

## Baseline of climate change matters

This section summarises a number of matters relating to climate change, mitigation and adaptation including: the current and projected climate in Scotland and in the Cairngorms National Park and the risks and impacts of climate change and greenhouse gas emissions.

Due to the overarching nature of the topic, there are links between this policy area and all other policy areas within the Evidence Report. Where relevant, these links are set out within the schedule.

## Scotland's climate

The climate crisis and the need to adapt to climate change and reach net zero are globally accepted policies. The James Hutton Institute, supported by Scottish Government's Strategic Research Programme, have produced a report on the climate change impacts on natural capital: 'Summary of the climate trends, future projections and extremes in Scotland' (CNPA378). This report updates and summarises two detailed connected reports[8] on how Scotland's climate has changed and what the future projections may mean for Scotland's Natural Capital.

The report highlights that Scotland's climate has experienced substantial change since the 1960 – 1989 baseline period. This has serious consequences for Scotland's Natural Capital, society and its economy.

In terms of precipitation, it is reported that at the national level, January, November and December's mean monthly precipitation totals have already increased since the 1960 – 1989 baseline period to amounts greater than those projected for the 2020 – 2049 period. Future projections indicate the summer, particularly August, September and the autumn are likely to become drier in the future, but the winter is likely to become wetter. Climate extremes have already changed and are projected to increase. In upland areas there is strong agreement that August to October is likely to experience a decrease in the number of heavy rain days[9], and good agreement on increases in January and February. There is good agreement that upland areas are likely to experience a decrease in very wet days[10] in the summer

In terms of temperature, the highest temperatures have increased by up to 2.0°C in places and by 1.3°C nationally. For the future period from 2020 to 2049, all months are estimated to experience an increase in highest temperature, in the order of 2 – 3°C. There is near complete agreement between all climate projections used that the highest maximum temperature would increase for all months. There has been an overall increase (warming) of the coldest temperature per month since 1960, a trend that is likely to continue in the future.

[8] Namely 'Climate trends and future projections in Scotland' (CNPA774) and 'Climate extremes in Scotland' (CNPA775).

[9] Defined as days when precipitation is equal to or exceeds 10mm per day.

[10] The threshold for a 'very wet day' is the locally defined 95th percentile of daily precipitation sums.

## Climate of the Cairngorms National Park

In 2024, the James Hutton Institute produced a report: 'Climate projections for the Cairngorms' (CNPA345) for the Park Authority providing climate projections for the National Park. The report presents observed changes in the climate in the Cairngorms National Park and what four future climate change projections look like. The aim of the report is to provide information about how the climate has already changed in the National Park and is likely to change further in the future, to aid planning for resilience building and adaptation. The following summary of key findings is supported by the data collated in the report (CNPA345):

### Precipitation

There has been an observed change in the mean monthly precipitation amount from the 1960 to 1989 baseline period. This change has been variable spatially and per month. The months of February, June, October and November have experienced an overall increase in precipitation. However, September has experienced a decrease in precipitation. The months of January, March, May, July, August and December have all experienced a mixed spatial pattern of both increases and decreases in precipitation. Decreases have mainly been in the east of the National Park.

### Temperature

There has been an increase in mean monthly maximum temperature in all months except June, and to a lesser spatial extent in October. February has experienced the largest increases, by more than 2°C in the eastern part of the National Park followed by March. Increases have been mostly in the range of 1 to 1.5°C. Analysis by the James Hutton Institute indicates an overall uniform increase across the National Park, but with some topographical variations in some months, with less or no increases at higher elevations.

In terms of minimum recorded temperatures there has been an increase in mean monthly minimum temperature in all months except October and December – but these months have also experienced an increase in some areas of the National Park. February has experienced the largest increase, by more than 1.5°C. Increases have been less than those for maximum temperature, being mostly 0.5 to 1.0°C. Increases show some topographical variation, with lower increases at higher elevation.

### Evapotranspiration

Land evapotranspiration is a vital component of the global water and energy cycles it returns land precipitation to the atmosphere and removes surface water from the land

by latent heat transfer (Lui et al, 2021(CNPA795)). The James Hutton Institute (CNPA345) reports[11] that in the Cairngorms National Park there has been a noticeable increase in evapotranspiration in March, April and May, and in June, July, August and September a decrease in lower elevation areas but an increase in high elevation locations. There have been only slight changes (increases and decreases) between October and February.

'Future changes in rainfall and evapotranspiration could lead to changed flow regimes and impacts on water quality, aquatic ecosystems and water availability.' (Watts et al, 2015 (CNPA793))

**Climatic water balance**

'Water resource management has an obvious impact on a wide range of policy sectors, including energy, health, food security, and environment. As a result, practitioners need to design appropriate adaptation and mitigation strategies across diverse water dependent sectors' (Sakanya, S and Joseph, S, 2023 (CNPA794))

In terms of climatic water balance, the James Hutton Institute (CNPA345) reports that the climatic water balance indicates that there have been spatial and temporal shifts in the balance between precipitation input of water and evapotranspiration return to the atmosphere.

There has been an increase in climatic water balance (more water input) for the majority of the National Park in February, June, July, October and November. In December, January and April, the National Park has experienced an increase in all areas except the eastern parts of the National Park. March has experienced both a decrease (less water input) in the eastern half of the National Park, and a slight increase in the west. August shows a mixed response with some negative decreases in higher elevated areas. May and September have experienced an overall decrease in water input, particularly in higher elevated areas. The National Park has remained in meteorological water surplus from September through to March.

Seasonally, spring and summer months show a spatially varied response in terms of meteorological water surplus or deficit: for May, June and July most of the National Park is in deficit, but with indications of some locations shifting from surplus to deficit, most noticeably in May, whilst other locations have shifted from deficit to surplus.

[11] In the climate change projections for the Cairngorms Report (CNPA345)

## Extreme climatic indicators in the Cairngorms National Park

This section summarises the results of the mapping of trends in the historical periods (1960 – 1989 to 1990 – 2019) and two future periods (2020 to 2049, 2050 to 2079) for the four climate projection changes from the 1960 to 1989 baseline produced by the James Hutton Institute (CNPA345). Further detail and datasets are contained in the report.

The report advises that the results use the United Kingdom Climate Projections 2018 (known as UKCP18) daily data for Representative Concentration Pathway 8.5[12]. The model is run twelve separate times with variations in the model parameters resulting in variations in the model estimates. This captures the range of uncertainty in the parameters and provides a probabilistic range of possible future climate conditions. For this report, the Institute used four of the 12 projections to represent a spread of possible futures which can be summarised as:

- Number 4:
  2020-2049 - no change in total annual precipitation, 2.5°C warmer
  2050-2079 - about 6% wetter and 4.5°C warmer.
- Number 10:
  2020-2049 - about 15% less total annual precipitation and 2°C warmer
  2050- 2079 - about 16% less total annual precipitation and 3.5°C warmer.
- Number 12:
  2020-2049 - about the same amount of mean annual precipitation and 4°C warmer
  2050-2079 - the same amount of mean annual precipitation and 5.5°C warmer. This represents the most extreme projection. It has been included as an illustration of extremes in some years.
- Number 15:
  2020-2049 - about 5% less mean annual precipitation and 1.2°C warmer
  2050- 2079 - about the same mean annual precipitation and 2.5°C warmer. but consist of a range of possible climate change from 1°C increase in temperature and an increase in precipitation total, to 3.7°C and a reduction in precipitation.

[12] Representative Concentration Pathways are climate change scenarios to project future global greenhouse gas concentrations and have been formally adopted by the International Panel on Climate Change (known as the IPCC). Representative Concentration Pathway 8.5 (known as RCP8.5) is generally taken as the basis for worst-case climate change scenarios. The greenhouse gas concentrations in this scenario increase considerably over time, leading to a radiative forcing of 8.5W/m$^2$ at the end of the century.

**Number of consecutive dry days**

The report (CNPA345) advises that February April, June, August and November have experienced an overall decrease in the number of consecutive dry days[13] in the National Park. February has decreased by three days, whilst in March and September it has increased by two days.

The four projections set out by the Institute for the period from 2020 to 2049 shows similar spatial and temporal patterns, with February estimated to see further decreases in the number of consecutive dry days, whilst May through to October have increases. The report states that there is agreement across the four projections that September is estimated to have a substantial increase in the number of consecutive dry days, by up to 10 days, increasing to 15 in the period from 2050 to 2079 period. For the period from 2050 to 2079, it is projected that the change of direction in is towards increases between May and October but decreases between December and February.

**Number of dry days**

In terms of the number of dry days[14] the mean monthly amount has increased in some months and decreased in others from the period from 1960 to 1989. It was reported that February has experienced the largest decrease, by an average of four days, mostly in the western half of the National Park. There has been an increase in April (for the western half of the National Park), June, July, October and November (but with some areas also seeing a decrease). March has experienced an increase, of two days, across the whole National Park. September has experienced the largest increase, covering the whole National Park area, of up to two more mean monthly number of dry days.

The four projections for the period from 2020 to 2049 show similar spatial and temporal patterns, continuing into the period from 2050 to 2079, with winter months seeing a decrease in the mean number of dry days.

**Heavy precipitation days[15]**

The report (CNPA345) states that that the mean number of has increased in January and February by up to three days, and April, June and October in most of the National Park area, but there has also been both increases and decreases in March, May, July, November and December. In August, September and the eastern half of the National Park in May have experienced a slight decrease, by one day.

[13] The maximum length of a dry spell in any one month when precipitation is less than 1mm per day.
[14] Defined as days when total precipitation is less than 1mm per day.
[15] Defined when precipitation is equal to or more than 10mm per day.

For the future climate, there is a mixed response between the four projections. February is projected to see an increase, whereas August will see a decrease. This pattern is further continued into the period from 2050 to 2079. Change direction maps illustrate the extent to which the changes in heavy precipitation days are highly spatially and temporally variable, and this continues into the period from 2050 to 2079. There is poor agreement between the four projections on the amount of land area experiencing increases, decreases or no change in the mean number of heavy precipitation days.

**James Hotton Institute Report conclusions for the Cairngorms National Park**

The report (CNPA345) confirms that the climate in the Cairngorms National Park changed since during the period from 1960 to 1989. These changes were spatially and temporally variable, with the winter months becoming both wetter and warmer, whilst summer months became warmer but with variable consequences on the amount of water available to enter into soils and aquatic systems. Evapotranspiration has had a variable response, potentially driven by cloud cover impacting the amount of solar radiation reaching ground surfaces.

Future projections indicate that the National Park will experience further warming over the coming decades, as well as seasonal and spatial shifts in precipitation distribution.

A key finding is that large sections of the National Park are likely to experience spring and summer seasons when there is a potential decrease in meteorological water (evapotranspiration greater than precipitation), meaning that areas that have previously had a meteorological water surplus could experience a deficit in the future. This will increase the risk of drier soils and vegetation, with consequences on ecological functions and fire danger.

## Climate projections for Cairngorms National Park

The report (CNPA345) sets out the key findings of the four projections.

**Precipitation**

All of the projections show similar spatial and temporal patterns of changes in mean monthly precipitation, but with differences in the amounts of changes.

- For the period from 2020 to 2049 the winter months are likely to see large increases (200 – 300%) in mean monthly precipitation, particularly February, but a decrease in August and September (c. 50 – 100%).

- For the period from 2050 to 2079: The pattern of wetter winters and drier summers continues.
- There is projected to be large variation in precipitation responses in spring months, with some areas of the National Park potentially seeing decreases in precipitation whilst other areas may experience increases.

**Temperature**

With respect to the maximum and minimum temperatures, the report finds that all areas of the National Park are projected to experience increases in mean monthly maximum and minimum temperature. This is, however, variable between the four climate projections in terms of the amount of temperature increase and when in the year these occur.

Note also that an ARUP report[16] (CNPA803) commissioned by Perth and Kinross Council highlights that, under Representative Concentration Pathway 8.5, the area of the council within the Cairngorms National Park, north of Blair Atholl, is likely to experience pronounced temperature change in terms of winter average minimum temperature rises without mitigation for the years 2030, 2050 and 2080. By 2080 the temperature of the northern areas of Perth and Kinross would increase by between 2.77 and 3.16°C under this scenario.

**Evapotranspiration**

All four of the climate projections used in the James Hutton Institute report (CNPA345) indicate an increase in evapotranspiration for March, April and May. Higher elevation areas may experience the most change from the 1960 to 1989 baseline period. There is a spatially varied response for the summer months, with higher elevation areas potentially experiencing increases in evapotranspiration.

**Climatic water balance**

All four projections indicate an increase in meteorological water input (positive climatic water balance) for March to May, but varied responses in the summer months and little change for October to January. From October to March, it is projected that the National Park will remain in meteorological water surplus state. All four projections indicate risks of large sections of the National Park shifting from meteorological water surplus to a deficit between April (large spatial variation) through to September.

[16] Climate Change Risk and Opportunity Assessment Technical Report (2023) (CNPA803).

## Risks and impacts of climate change

### Natural capital

The James Hutton Institute[17] has set out the likely impacts from climate change on the Natural Capital in Scotland, much of which will be evident in the Cairngorms National Park. Data from the 2018 United Kingdom Climate Projections (UKCP18) for two time periods, 2020 – 2049 and 2050 – 2079, were compared with the observed 1960 – 1989 baseline to identify potential future changes. The projections are based on the high emissions scenario (Representative Concentration Pathway 8.5) but consist of a range of possible climate change from 1°C increase in temperature and an increase in precipitation total, to 3.7°C and a reduction in precipitation.

Likely impacts highlighted by the Institute include:

- Increased water stress for multiple species and habitats, affecting ecosystem function and the provision of ecosystem services.
- Reduced water flow in streams, and higher soil and water temperatures. This can have negative effects on several invertebrate and fish species adapted to cold waters, including salmon. Salmon fishing is a key tourist activity in the National Park.
- There is a mixed range of impacts for peatlands. A longer growing season may increase primary production and a longer access and working conditions period (for example if less snow cover) would benefit efforts to restore as there are more workdays available to deliver restoration activities. A lack of available water in the summer and autumn will increase respiration, and if there is a severe drought period, decrease some of the primary production.
- All peatlands can currently have a summer and autumn water deficit, and a longer period of this will not immediately result in impediment to restore. However, a key future consideration is the frequency of prolonged droughts periods and whether these occur in back to back years and whether peatlands and their vegetation can recovery sufficiently.
- Spring droughts are far more damaging than autumn droughts, but near natural and rewetted systems are currently still recovering between drought years and functioning as net sinks for carbon dioxide.
- Drier and more flammable vegetation increasing fire danger, requiring investment in ignition prevention and mitigation measures. More peatland restoration can help prevent drier vegetation and drier surface peat reducing the risks of severe fire. Rewetted peat also makes a very good fire break.
- Changes to crop yields, with potential increases when there are favourable weather conditions (e.g., adequate precipitation in the spring), but with overall reductions,

[17] 'Climate trends, future projections' and 'Extremes in Scotland'. (CNPA774 and CNPA775)

especially where soils have lower water holding capacity and / or on degraded topsoil (e.g., due to erosion, compaction) with low Carbon and hence low water retention. o This may be mitigated with appropriate uptake of Enhanced Conditionality measures proposed within the Agricultural (Scotland) Bill, if these are used to enhance soil organic matter and applied appropriately to the conditions at each location.

- Increased species competition for water and nutrients, favouring those with broader tolerance ranges (for example pioneer and invasive species), and risking species loss and habitat alteration.
- Mismatches in the growth and development of species that rely on one another (e.g., pollinators and plant species) due to different responses to changed seasonal weather patterns.
- Flooding events increase the risk of the spread of invasive species, as well as increased erosion and concentrated diffuse pollution flushes.

The Climate Change Risk and Opportunity Assessment written by ARUP for Perth and Kinross Council (CNPA803) also found that terrestrial species inhabiting the highlands of Perth and Kinross have evolved to thrive under consistent snow cover and cool, mild summer conditions. Notably, plants like Arctic alpine flora and mountain willow shrubs depend on these stable environmental patterns for survival. However, as snow cover increases in variability and summer temperatures rise, these species face increasing stress. Furthermore, warmer and drier summers may create favourable conditions for the emergence of new diseases and the spread of invasive nonnative species, posing a significant threat to local ecosystems and biodiversity.

There may be a need for species to move northwards in a bid to find their 'climate envelope'. This can be supported by the provision and enhancement of nature networks in the National Park and connecting to other areas outwith the National Park. More information on Nature Networks and the pressures of climate change on species can be found in Schedule 5: Natural heritage.

**Peatland**

Peatland restoration is an emissions, flood risk and water quality improvement mitigation strategy, and a biodiversity net gain opportunity. Restoration is not about creating carbon sinks, but if peatlands degrade further risk increasing greenhouse gas emissions. Restoration is achieved through rewetting, hence relies on the availability of water. Peatland rewetting also supports wildfire mitigation and reducing the probability of fire being started.

Peatland also plays an important role in reducing the impacts of drought and water scarcity. The ability of well functioning peatlands to store water not only helps to reduce flood risk but can also reduce the impacts of dry periods on water availability due to their ability to store and gradually release water.

The Proposed Plan should seek to support development that enables and supports peatland restoration in the National Park. These matters are given further consideration in Schedule 8: Land use, soil and resources and Schedule 5: Natural heritage.

**Forestry**

The James Hutton Institute reports indicate the potential for reduced yield class attainment and risks of tree establishment failure due to water scarcity and changes in soil processes in some years and locations because of climate change. Existing values of future carbon sequestration potential through tree planting and growth (for example by Forest Research, Aberdeen University and the James Hutton Institute) may be overestimated if they have not appropriately factored in reduced growth. The Proposed Plan should protect woodlands and seek to support development that enables and supports woodland creation / expansion (both native and commercial projects) plans and future plans (which may be set out in the next National Park Partnership Plan) in the National Park. These matters are given further consideration in Schedule 5: Natural heritage.

**Wildfires**

Wildfires are commonly classified as semi natural hazards and, in Scotland, they are defined as 'any uncontrolled vegetation fire which requires a decision, or action, regarding suppression' (Scottish Government, 2013 (CNPA1279)).

Their occurrence is likely to be determined by a combination of environmental and climatic influences i.e., temperature and amount of rainfall, but are most often caused by deliberate or accidental human influences (Arnell et al, 2021a(CNPA792)). Longer dry periods increase the risk of peatland, woodland and other habitats wildfires in Scotland. Coupled with an increase in mean summer temperatures the risk of wildfires increases.

Wildfires can also cause peatland degradation, a reduction in carbon storage and release of toxic metals into the atmosphere (Scottish Government, 2022[18]). It is expected that increasing incidences of wildfires, especially on remote upland area and peatlands,

[18] Provision of Analyses of Scottish Fire and Rescue Service Incident Reporting System Data in Relation to Wildfire Incidents (CNPA379)

will be costly to fight, also cause damage to freshwater catchments and other ecosystem services and may require costly restoration (Scottish Government, 2022).

The project by Scottish Government: 'Provision of Analyses of Scottish Fire and Rescue Service Incident Reporting System Data in Relation to Wildfire Incidents' (CNPA379) aims to:

1. Improve the understanding of how upland wildfires start.
2. Investigate if wildfire occurrence differs between geographical areas.
3. Describe how wildfires exhibit seasonal and temporal trends.

The Incident Reporting System is a very well structured dataset and a valuable resource for keeping records of the characteristics of different types of fires occurring in Scotland.

Scottish Government's extensive investigation of patterns of wildfire occurrence identified three main types of wildfires occurring in Scotland:

1. Wildfires caused in very remote and remote rural areas affecting mainly heathlands / shrublands and bogs and peatlands that seem to be caused mainly by accidental ignitions.
2. Wildfires in accessible rural areas and smaller urban centres that affected grasslands and woodlands.
3. Small fires close to settlements and urban centres affecting mainly grasslands that seemed to be caused by deliberate ignitions.

Scottish Government concluded that wildfires in remote areas tended to be bigger and were mainly caused by bonfires or other intentional burns that got out of control, which might be associated with traditional land management practises or tourism /recreational activities. Small deliberate fires in or close to urban centres seemed to be driven mainly by antisocial behaviour or relatively trivial cases of negligence with fire, while the causes of fires in the more accessible rural areas could be a mixture of burns getting out of control or careless handling of equipment or other heat sources along with ignitions from antisocial behaviour.

**European Forest Fire Information System**

The European Forest Fire Information System (CNPA380) supports the services in charge of the protection of forests against fires in the European Union and neighbouring

countries. It also provides the European Commission services and the European Parliament with updated and reliable information on wildfires in Europe[19].

Since 1998, European Forest Fire Information System has been supported by a network of experts from the countries in what is called the Expert Group on Forest Fires, which is registered under the Secretariat General of the European Commission. Currently, this group consists of experts from 43 countries in European, Middle East and North African countries. In 2015, European Forest Fire Information System became one of the components of the Emergency Management Services in the European Union's Copernicus program.

Figure 2 and Figure 3 are extracts from the European Forest Fire Information System WildFire Risk Viewer (CNPA776). The pan European Wildfire Risk Assessment approach follows from a series of European Union regulations that require the European Commission to have a wide overview of the wildfire risk in the European region, to support the actions of its Member States and to ensure compliance in the implementation of European Union regulations related to wildfires. Two main groups of components are defined by considering the fire danger (or hazard) and the vulnerability on three categories: people, ecological, and economic values exposed in vulnerable areas.

Figure 2 shows the wildfire danger (or hazard) in the National Park. The areas where the risk is highest is in and around the key settlements of Aviemore and Grantown-on-Spey. The areas with the lowest risk are mainly located in the upland and mountainous areas of the National Park.

Figure 3 shows the vulnerability to wildfire risks on three categories: people, ecological, and economic values exposed in vulnerable areas. Given the abundance of natural capital in the National Park, in term of ecological vulnerability this is high across the whole area. In terms of population and economic vulnerability, this is highest in and around the key settlements in the National Park (Ballater, Kingussie, Aviemore, Grantown-on-Spey and Newtonmore).

[19] The fires mapped in the European Forest Fire Information System may include fires set intentionally for the purpose of vegetation management.

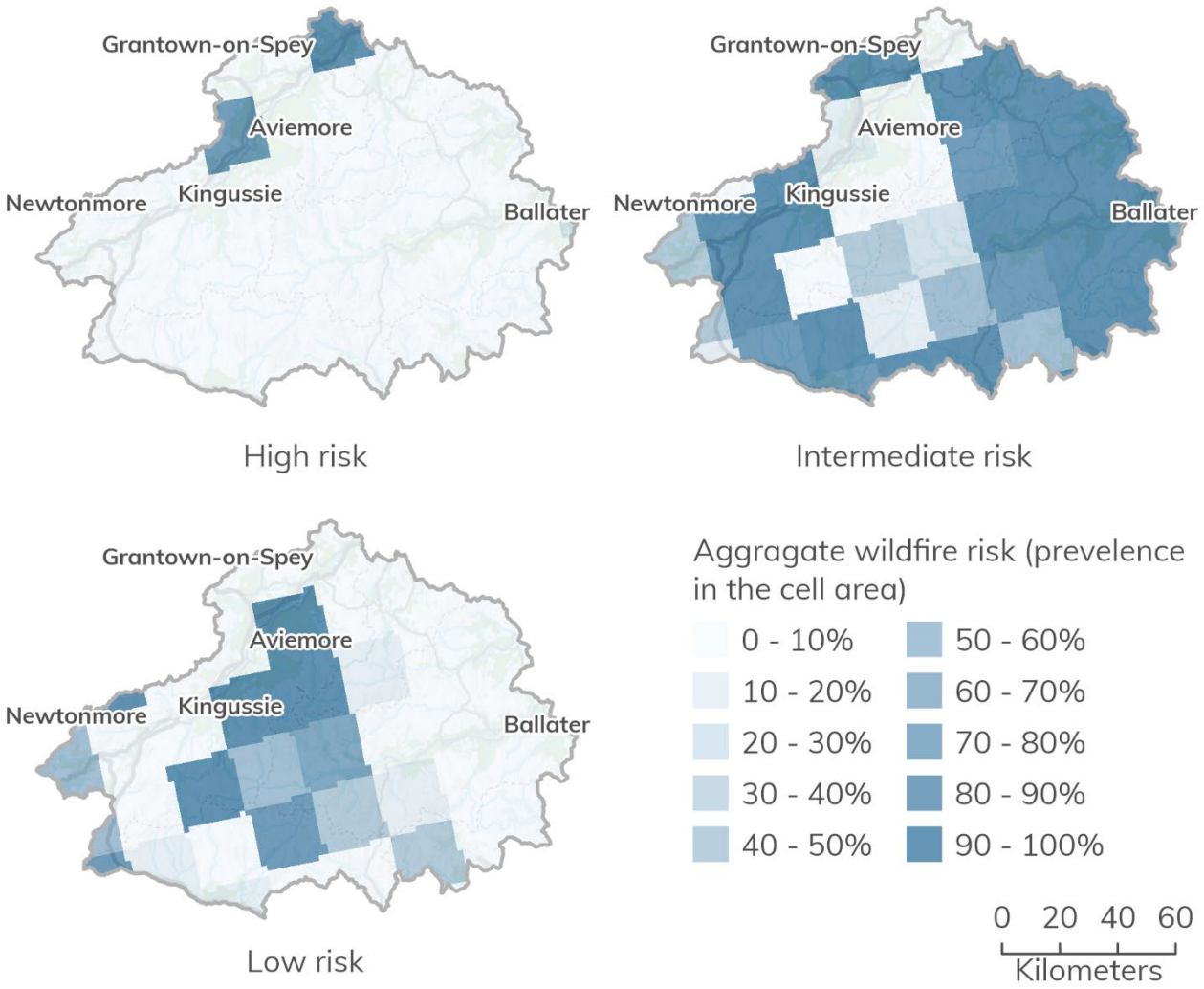



Figure 2 Wildfire risk in terms of danger or hazard scored as high risk, medium risk and low risk in the Cairngorms National Park. Cairngorms National Park Authority © Crown copyright and database rights 2026 Ordnance Survey AC0000821810. European Forest Fire Information System (EFFIS) WildFire Risk, 2026. Data extracted 2025 (CNPA776).

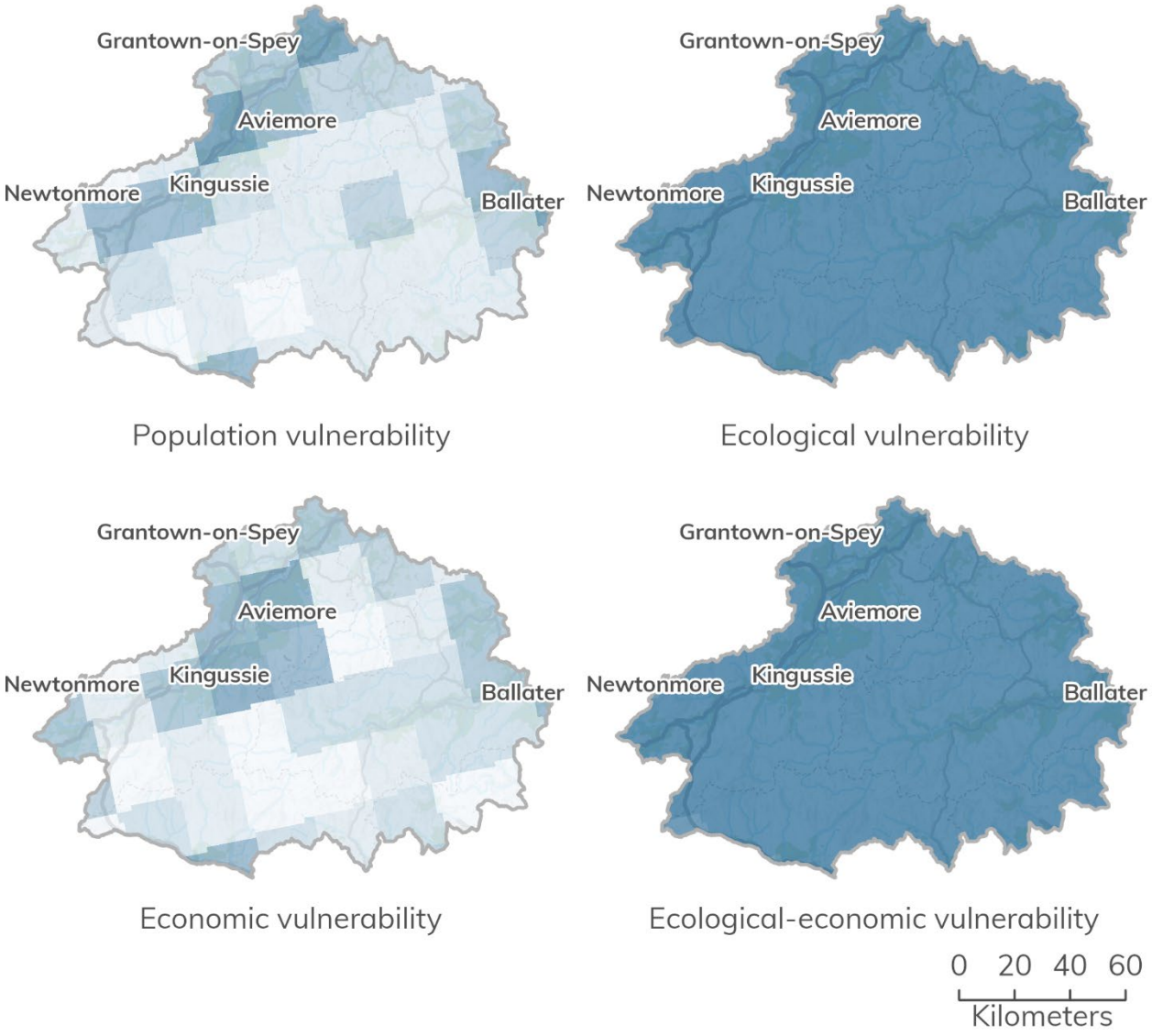



Figure 3 Aggregated index of wildfire risk in terms of population, ecological, economic and ecological economic vulnerability. Cairngorms National Park Authority © Crown copyright and database rights 2026 Ordnance Survey AC0000821810. European Forest Fire Information System (EFFIS) WildFire Risk, 2026. Data extracted 2025 (CNPA776).

The National Park Authority has already committed in the National Park Partnership Plan to establish an Integrated Wildfire Management Plan for the Cairngorms National Park. Preparation of this plan will be led by the National Park's land management team and work has already started. The purpose of the Management Plan is to increase the ability of land managers across the National Park to:

- Minimise the risk of wildfires starting.

- Respond effectively to wildfires that do start.
- Reduce the impact of any wildfires in a changing landscape.

Currently activity to manage the use of recreational fires in the National Park is undertaken jointly by landowners / managers, the Park Authority and public sector partners. Many land managers will do this through erection of site signage and face to face engagement with visitors using their own ranger services or other estate staff such as site wardens, ghillies or foresters.

The Park Authority ranger service complements this with additional patrols at popular sites, where rangers provide advice to visitors and, where necessary, extinguish fires considered to be unsafe. In addition to engagement focused patrols, rangers undertake patrols where they remove evidence of previous fires to try and reduce 'copycat' behaviour. To complement this direct engagement activity, the Park Authority also undertakes communications activity around fires both locally and with national partners. The Scottish Fire and Rescue Service records details of all fire incidents attended, including aspects such as the geographic location, type of property, where it took place, cause, whether the fire was accidental or deliberate and, for outdoor incidents, the level of damage (measured as area burned). However, it can be very difficult to ascertain precise details for all aspects – for example, identifying the genuine motive for an incident – so the details recorded are based on the professional judgement of the Scottish Fire and Rescue Service officer in charge.

The Scottish Fire and Rescue Service have provided to the Park Authority details of recorded outdoor incidents within the Cairngorms National Park for the period from 2010 until late 2023 (Figure 4) (CNPA1318). The Scottish Fire and Rescue Service class a wildfire as one resulting in over 1,000 sqm of burned area. For this purpose, outdoor incidents have been those recorded using the Scottish Fire and Rescue Service categories of 'grassland, woodland and crops', 'other outdoors (including land)' and 'refuse fires'. Figure 4 shows that although there have been fluctuations in the number of wildfires reported each year in the National Park the overall trend is of an increasing number between 2010 to 2023.

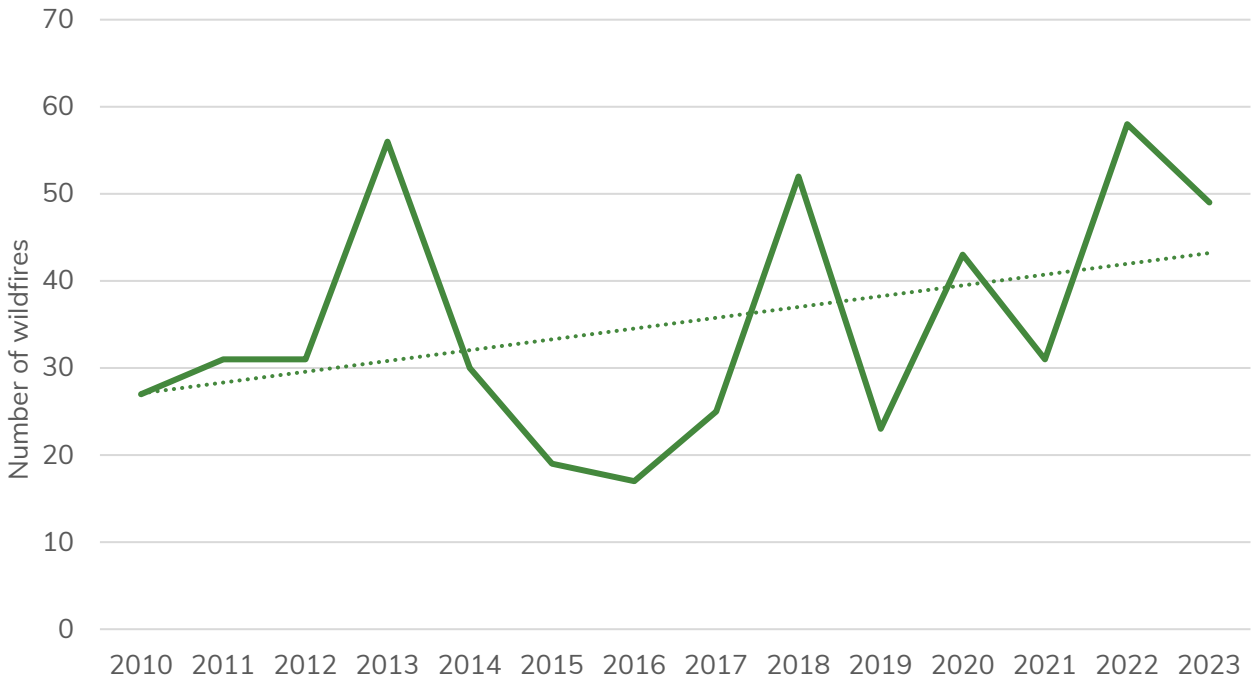



Figure 4 Annual distribution of fires in the Cairngorms National Park from 2010 to 2023. Scottish Fire and Rescue Service, 2025. Cairngorms National Park Authority Fire management consultation document (CNPA1318)

The total number of wildfires recorded in the National Park from 2010 to 2023 was 492. The majority of the wildfires in the National Park occur in the summer season (from June to August) accounting for 42% (208) of all fires from 2010 to 2023 (Figure 5). Spring saw the second largest number of recorded fires at 38% (186) from 2010 to 2023. For the period (2010 to 2023) there were also 66 (13%) fire in the autumn (September to November) and 32 (7%) recorded in winter (December to February). Looking at the monthly distributions for wildfires in the National Park (Figure 6), 92 fires were recorded in July and 89 in April from 2010 to 2023.

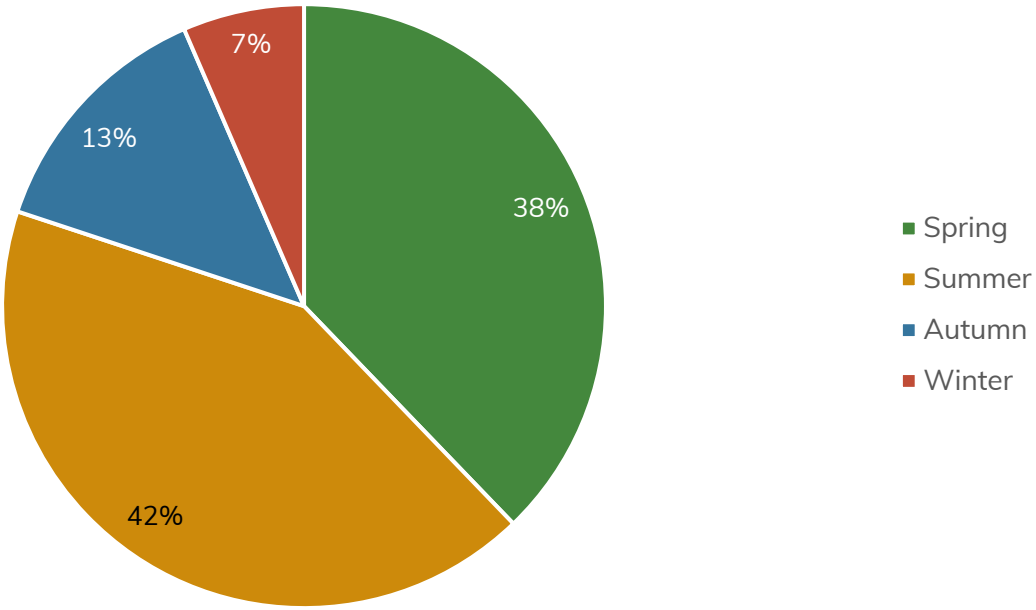



Figure 5 Seasonal distribution of fires in the Cairngorms National Park, from 2010 to 2023. Scottish Fire and Rescue Service, 2025. Cairngorms National Park Authority Fire management consultation document (CNPA1318)

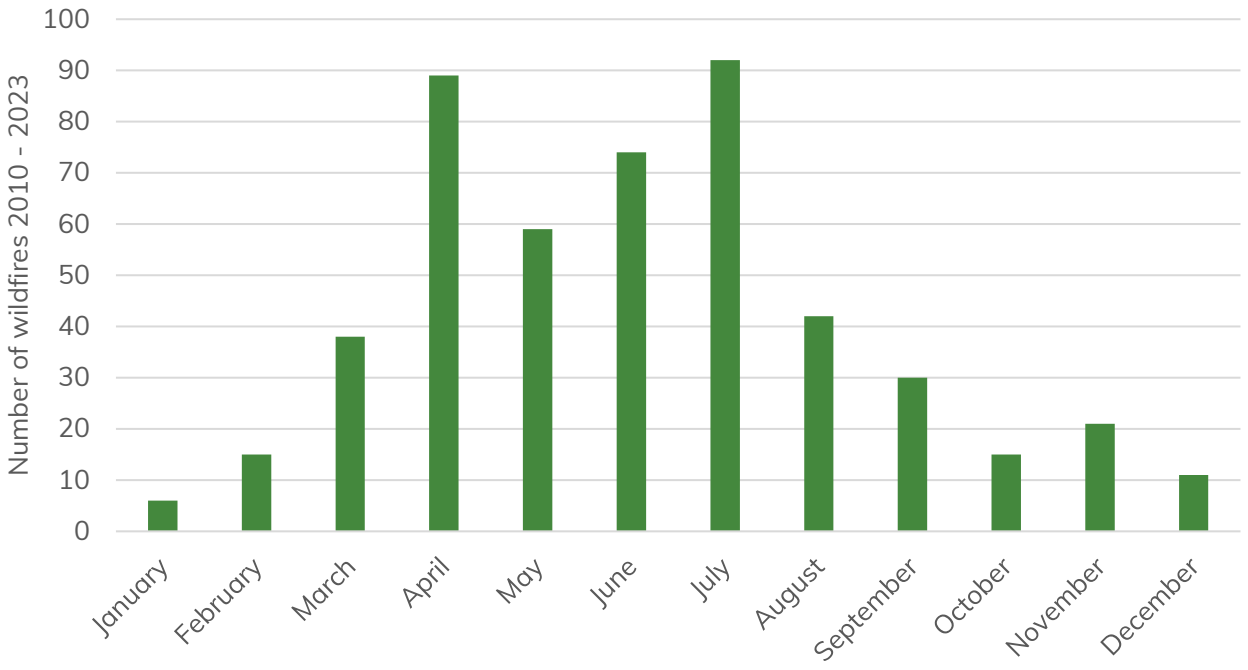



Figure 6 Monthly distribution of fires in the Cairngorms National Park from 2010 to 2023. Scottish Fire and Rescue Service, 2025. Cairngorms National Park Authority Fire management consultation document (CNPA1318)

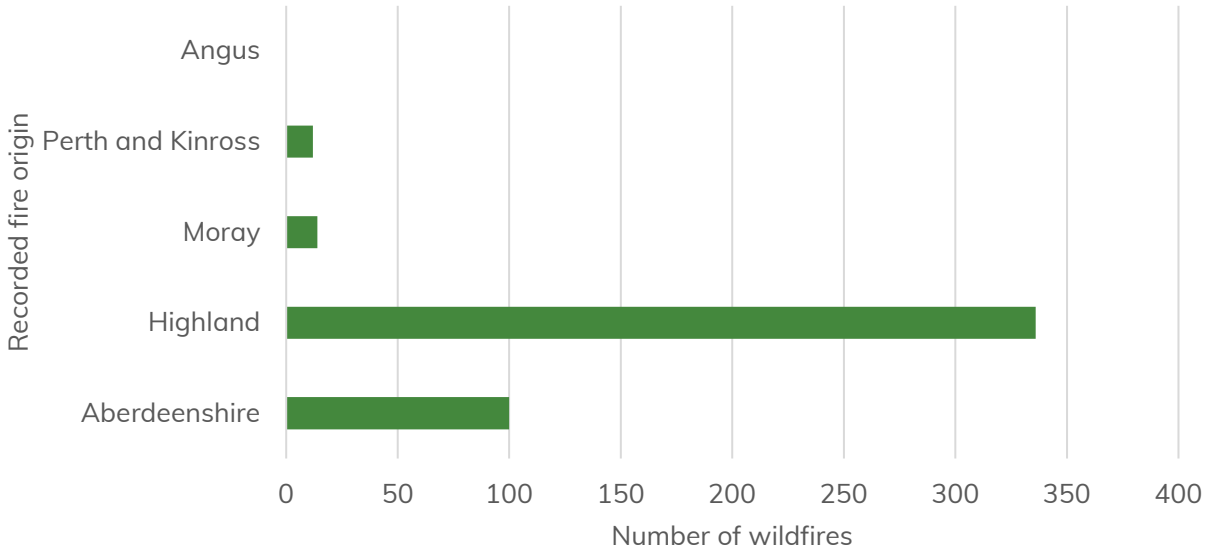



Figure 7 Geographical distribution of wildfires by local authority area from 2010 to 2023. Scottish Fire and Rescue Service, 2025. Cairngorms National Park Authority Fire management consultation document (CNPA1318)

74% of the recorded wildfires in the National Park from 2010 to 2023 occurred in The Highland Council area in the National Park (Figure 7) accounting for 366 fires. 20% (100) were in the Aberdeenshire Council area, 3% (14) in the Moray Council area, 2% (12) in the Perth and Kinross Council area and no fires were recorded in the Angus Council area within the National Park.

**National Park Authority Ranger Service**

Data on wildfires in the Cairngorms National Park is also collected by the National Park Authority ranger service (Figure 8, Figure 9 and Figure 10).

Currently activity to manage the use of recreational fires in the National Park is undertaken jointly by landowners / managers, the Park Authority and public sector partners. Many land managers will do this through erection of site signage and face to face engagement with visitors using their own ranger services or other estate staff such as site wardens, ghillies or foresters.

The Park Authority ranger service complements this with additional patrols at popular sites, where rangers provide advice to visitors and, where necessary, extinguish fires considered to be unsafe. In addition to engagement focused patrols, rangers undertake

patrols where they remove evidence of previous fires to try and reduce 'copycat' behaviour. The National Park Authority ranger service also collect patrol data on wildfires, both active fires and fire remains.

The peak months for active and recorded fire remains (June. July and August) coincide with the warmest months and the busiest visitor months (Figure 8). In terms of recorded active fires and fire remains , the highest incidences are recorded near Aviemore, in the Glenmore area, which is a visitor hotspot (Figure 9 and Figure 10).

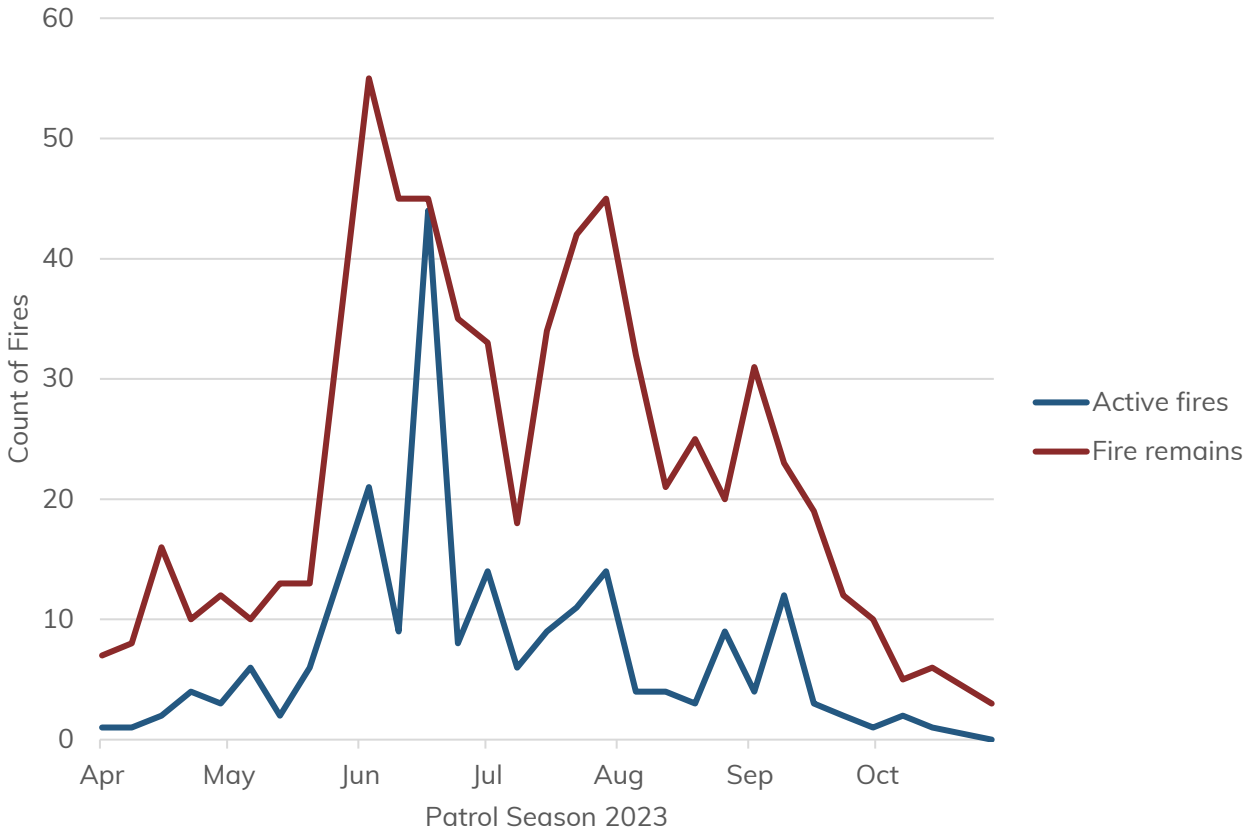



Figure 8 Number of active fires / fires remains recorded by month in the Cairngorms National Park in 2023 by the National Park Authority ranger service.

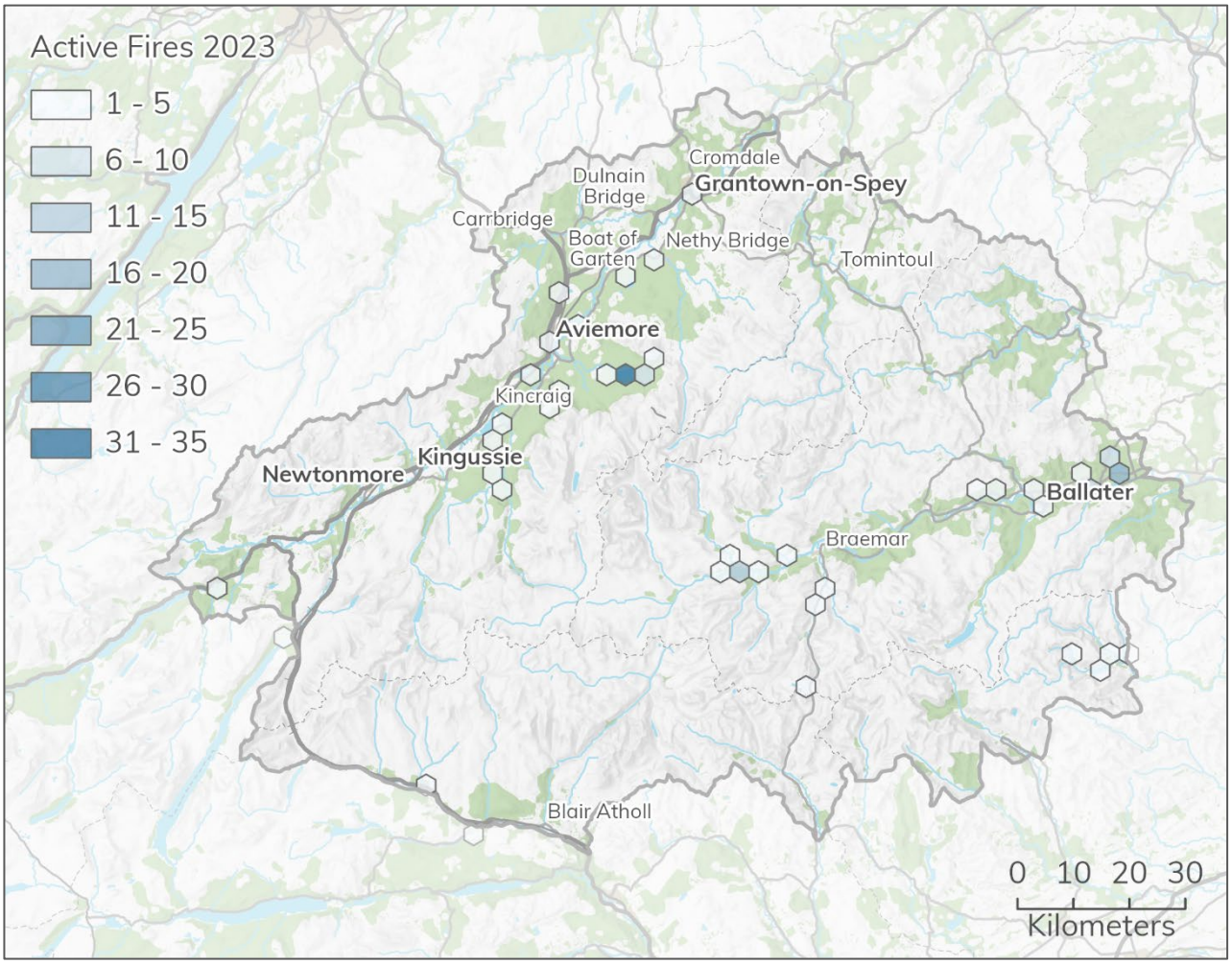



Figure 9 Map showing the active fires by density in 2023 in the Cairngorms National. Cairngorms National Park Authority © Crown copyright and database rights 2026 Ordnance Survey AC0000821810. Data collected by the Cairngorms National Park ranger service.

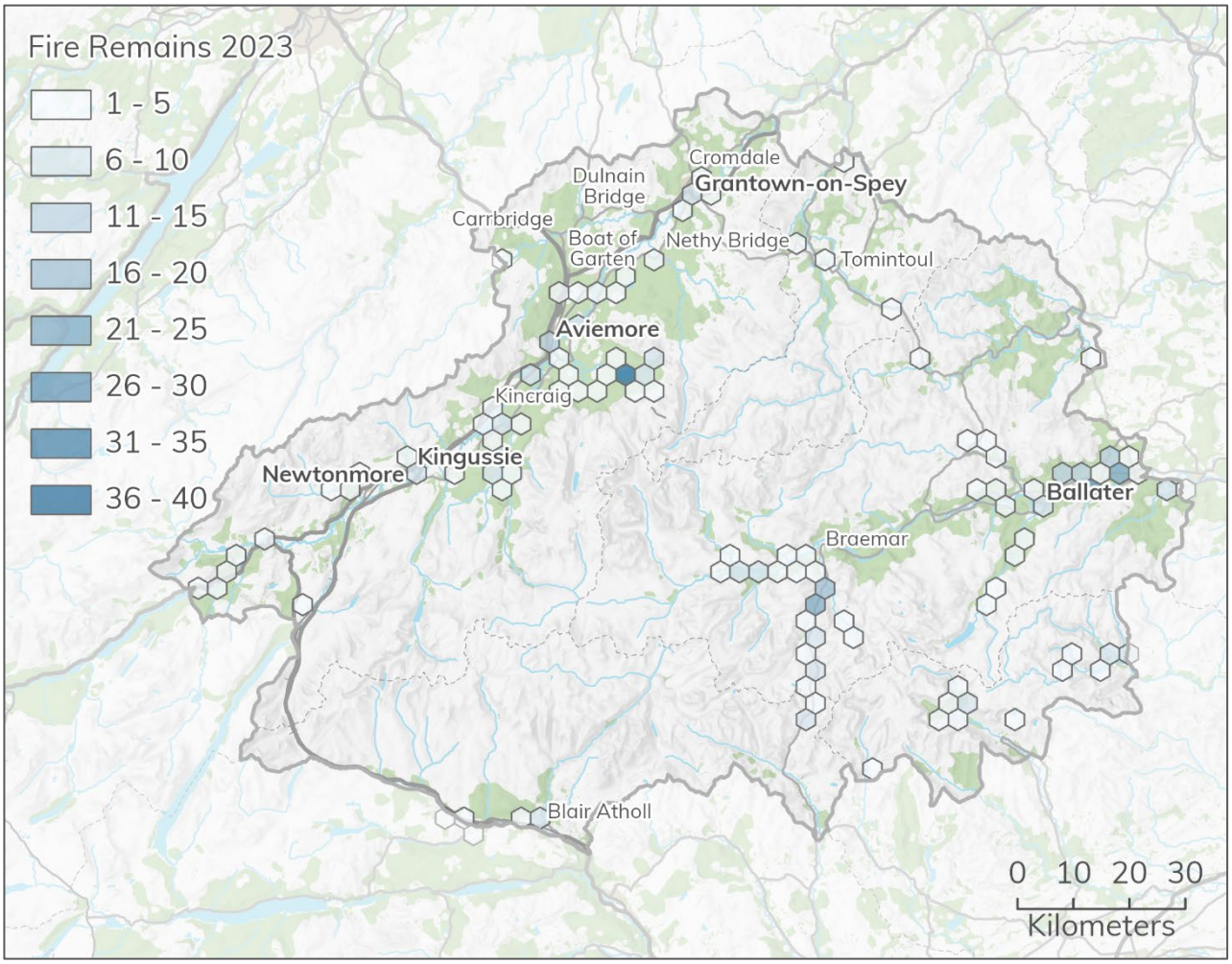



Figure 10 Map showing the fire remains recorded by density in 2023 in the Cairngorms National Park. Cairngorms National Park Authority © Crown copyright and database rights 2026 Ordnance Survey AC0000821810. Data collected by the Cairngorms National Park ranger service.

**Other impacts of wildfires**

There are also economic costs to the increasing prevalence of wildfires. A report by Paul Watkiss Associates for Highland Adapts[20] (CNPA781) states that the current costs of wildfires in Highland are estimated at £0.3 billion / year, driven by the high price of carbon emissions from forest and peatland wildfires. It goes on to note that the costs could potentially increase fourfold by the mid century due to the combination of increased risk from climate change and higher carbon costs.

[20] Highland Adapts brings communities, businesses, land managers, and the public sector together to facilitate action towards a prosperous, climate ready Highland. The Highland Adapts partnership is equally governed by nine partner organisations: The Highland Council, Highlands and Islands Enterprise, Zero Waste Scotland, Sniffer, NatureScot, Forestry and Land Scotland, The Highlands and Islands Climate Hub, Changeworks, and NHS Highland.

Wildfires also increase the release of carbon dioxide equivalent ($CO_2e$) emissions and PM 2.5 air pollution.

**Policy implications**

Wildfire risk and potential impact is increasing in Scotland, with climate modelling showing a predicted increase in drought periods and changes in land use also adding in some places to the amount of combustible material. Wildfire risk and potential impact has been increasing in the National Park and there is a need to consider all potential solutions to reducing risk and protect people, nature and property. The Proposed Plan will need to consider the risk from wildfire through the preparation of its spatial strategy and the site selection process.

**Snow cover**

Snow cover is a key aspect of what defines the character of the Cairngorms National Park. Snow cover in the National Park has two primary functions. It supports the winter sports industry and has important implications for nature. The importance of snow cover in regard to tourism is documented in Schedule 23: Tourism.

In terms of implications for nature, snow cover serves as an armour and insulator: it can protect exposed peat from heavy winter rainfall (kinetic energy) and effects of frost heave, helping to prevent erosion and further degradation. As climate change is likely to reduce snow cover it can increase the risks of erosion and changes to surface thermodynamics (black body albedo effect). Vegetation cover also serves to protect peat. Conversely, however, less snow cover permits more restoration working days.

In 2020, the James Hutton Institute produced a report on snow cover and climate change on Cairngorm Mountain (CNPA381). This report details research findings on the historical changes in snow depth and number of days of snow on Cairngorm Mountain and how snow may respond under climate change. It is an extension to the report 'Snow Cover and Climate Change in the Cairngorms National Park: Summary Assessment' produced by ClimateXChange in 2019 (CNPA384). The ClimateXChange report notes that the initial results show a reduction in snow cover as the observed warming trend continues and accelerates. Successful global efforts to reduce emissions may moderate this impact, whilst even higher emissions rates (e.g. due to ecosystem carbon releases) may further increase impacts.

Key findings from the James Hutton Institute Report (CNPA381) on the observed changes include:

- There has been a decrease in the observed maximum and average snow depth since the beginning of records (1983 – 1984 winter). Maximum snow depth has declined by approximately 10cm and the average by around 3cm.
- There has been an observed decrease in the number of days when snow depth exceeds specific amounts. The largest decreases have occurred for shallower depths (greater than 2cm but less than 5cm, greater than 5cm and less than 10cm cm) of around 10 days since 1983.
- The mean snow depth per month has decreased in January and February since 1983. Depth per month has been highly variable but the observed trend has been downwards. Other months have different trends: March has had a slight decrease whilst November has been consistent and December a slight increase.
- For all months there is a clear increasing warming trend in observed maximum and minimum temperature between 1960 and 2019. The largest increases have occurred in April. The main snowfall months of January and February have had a relatively small increase in temperature.
- There has been an increasing trend of mean monthly precipitation amount for November, December and January since 1960, whilst March's amount has decreased.
- There has been an increase in mean monthly solar radiation (MJ per $m^2$ per day) in February, March and April since 1994, implying greater heat energy input at the ground surface.

**Key findings: future projections**[21]

- Likely to be a decline in snow cover days per year from the 2030s for Aviemore, the Cairngorm Chairlift meteorological station and Ptarmigan Restaurant on Cairngorm Mountain. This trend will continue through to the 2080s:
  1. There will be large variation between years and there are likely to still be some years comparable with past amounts of snow cover, but these will be less frequent.
  2. These findings are in line with results from the United Kingdom Meteorological Office and the Intergovernmental Panel on Climate Change.
- Temperatures are projected to continue increasing, with a higher probability of having more days when the temperature is above a threshold of 2°C for snow formation.

[21] The future projections use the United Kingdom Climate Projections 2018 (UKCP18) daily data for Representative Concentration Pathway 8.5. The report advises that these are the only daily data released (the snow model used needs daily data), hence this is just one possible future scenario. Scenarios with lower greenhouse gas emissions may reduce the likelihood of snow cover loss but, the report advises, the world is locked into some global warming already in the next 30-40 years due to past emissions.

- There is an increasing probability of more heat energy input on ground surfaces with an increasing snow melting affect.

Snow is complex to model and project in the future, especially in temperate regions like Scotland with its strong maritime (Atlantic Ocean) climatic influence. Changes in seasonal variability will depend on how air flow over the United Kingdom (for example location of the jet stream) is affected by global scale ocean atmosphere circulation processes. The findings are a good indicator of future trends, but there remain substantial uncertainties at Cairngorm Mountain that need to be considered in making this a more detailed assessment of future snow cover.

The Climate Change Risk and Opportunity Assessment by ARUP for Perth and Kinross Council (CNPA803) also concludes that surface snow is projected to decrease across the entire region, but the areas of greatest decrease are in the northeast and northwest (upland) regions of Perth and Kinross. The expected reduction in snowfall may affect activities such as skiing at Glenshee and therefore the tourism economy in Perth and Kinross.

**Policy implications**

Warming will continue, meaning snow cover and depth is likely to decrease on Cairngorm Mountain from the 2030's. There are likely to be some years with snow comparable to the past but overall, there will likely be a decrease. In recent years many of the winter snow sports providers have begun to diversify their activities offerings, including activities not reliant on weather, and the Proposed Plan should support development that contributes to the sustainability of the winter sport providers tourism sector.

**Flooding**

As detailed earlier in this schedule and the supporting reports, climate change is forecasted to increase the frequency and extent of future flooding events in the Cairngorms National Park. The ClimateXChange, report on snow cover and climate change in the National Park (CNPA384) also notes that a more sudden thawing of heavy snow, due to climate change, may be positively related to the frequency of winter floods.

Flood resilience is about the ability to avoid flooding and, where it can't be avoided, being well prepared, responding well, and recovering quickly from damaging flood events.

Detailed information on flood risk is contained within the Strategic Flood Risk Assessment for the National Park and summarised in Schedule 19: Flood risk and water management. Scottish Environment Protection Agency have confirmed that the Strategic Flood Risk Assessment is sufficient (CNPA791).

Flood management involves a range of strategies aimed at reducing the risk and impact of flooding, encompassing both preventing floods and mitigating their effects. This includes:

- Flood defences
- Surface water management
- Natural flood management

Perth and Kinross Council's Change Risk and Opportunity Assessment by ARUP (CNPA803) examines the threats to local communities through the risks to road infrastructure, in particular bridges. One bridge within the Cairngorms National Park highlighted as a potential concern in the report was the Bridge of Tilt. Closure of this bridge could result in a possible diversion via Old Bridge of Tilt or a longer diversion via the A9 Pitagowan. The report concludes that risks to this bridge would not however pose a risk of completely stranding any local communities.

**Water scarcity and drought**

Meteorological drought is defined on the basis of the degree of dryness (in comparison to a baseline period) and the duration of the dry period and is considered to be region specific since the atmospheric conditions that result in deficiencies of precipitation can be highly variable. Hence, climatic water balance provides a measure of meteorological drought that is relevant to climatic conditions in Scotland.

According to a study by the Centre of Expertise for Waters (CNPA782), Scotland's supply of natural water resource is becoming increasingly variable and there is evidence that meteorological and hydrological droughts have become more frequent. There is evidence that water demand in the future may increase in areas, and at times of the year, where supply is projected to decrease. Behavioural responses to the extreme events associated with the climate crisis may serve to exacerbate this if not managed. Further research by the Centre of Expertise for Waters highlights the potential impact of water scarcity on distilleries and agricultural abstractors (CNPA783).

The James Hutton Institute produced a report (CNPA383) to assess exposure levels of Scotland's natural capital assets, to the threat of meteorological drought expressed by the climatic water balance (difference between precipitation and reference

evapotranspiration). The aim of the report is to provide assessments of the exposure of natural capital assets, expressed as mapped habitat types, to meteorological drought for observed (1990 to 2019) and future projected (2020 to 2049 and 2050 to 2079) climatic water balance.

The key messages published in the report include:

- Arable land and to a lesser extent improved grasslands and broadleaf woodlands are the most exposed habitat types to climatic water stress.
- Monthly climatic water balance[22] is overall wetter for seminatural grasslands, heather moorlands, and peatlands, and to a lesser extent conifers.

Water Scarcity will also impact the reliance of private water supplies in Scotland. The Scottish Environment Protection Agency commissioned a report by the James Hutton Institute (CNPA784) which concluded that the increased risk of meteorological drought leading to hydrological drought will impact on private water supplies with an increase in the number of drier years (low total annual precipitation) occurring more frequently with water shortages due to large water precipitation deficits.

The report states that while meteorological drought conditions will increase the vulnerability of private water supplies in the future, the actual impact will be a function of many factors include catchment storage capacity and type of private water supply. It is likely that for each individual private water supply and catchments, there will be other contributing factors such as water used for irrigation, land use change (for example additional tree planting to meet net zero carbon emissions targets) that will affect the amount of water available. The report goes on to suggest that to overcome this problem, rural properties in at risk areas, may be benefit from main water connections to alleviate risks.

Further information on increasing climate resilience to water scarcity and drought is set out in Schedule 19: Flood risk and water management.

**Human health**

Climate change, both locally and globally, will have far reaching consequences for public health and wellbeing. Many climate related effects are likely to contribute to poorer health outcomes and exacerbate existing health inequalities. Direct impacts include:

[22] Which, it should be noted, does exhibit large seasonal and spatial variation.

- High temperatures increasing the risk of acute mortality, especially among older adults and individuals with pre existing health conditions. They also pose risks such as pre term births and injuries, particularly among children.
- Extreme storms and floods can lead to fatalities and injuries. Additionally, floodwaters may carry biological or chemical contaminants, increasing the likelihood of illness.

Beyond direct effects, climate change also influences health and wellbeing indirectly, through changes in peoples social, economic, and environments, further shaping the risks communities face.

The regional report: 'Highland climate risk and opportunity assessment economic analysis' (CNPA785) by Paul Watkiss Associates for Highland Adapts assesses the potential risks of heat related mortality in Highland. The analysis indicates relatively small increases in heat related risks, with potentially only a handful of additional heat related mortality cases per year by 2050 and low to modest economic costs (noting that these are societal costs and do not reduce Gross Value Added (known as GVA) directly).

At the same time, Paul Watkiss Associates conclude there would be potential benefits from reduced winter mortality. This would lead to economic benefits in Highland. While these have not been quantified in the study, it is stressed that the potential economic benefits would be important and could be larger than the costs due to the increase in heat related mortality.

No comparative study has been carried out for the National Park geography, but this study has been referenced as a significant proportion of the residents in the National Park live in The Highland Council area. The projected population projections supporting an ageing population may indicate rising vulnerability, as the majority of heat related fatalities are people over 65 years old. However, the study does note that the projected additional fatalities due to higher temperature scenarios are concentrated in Inverness.

The Climate Change Risk and Opportunity Assessment by ARUP for Perth and Kinross Council (CNPA803) examines the risk to human health in terms of community assets and their vulnerability to heat exposure by community council areas. None of the community council areas with the Perth and Kinross Council area of the National Park were considered to be areas of potential high heat exposure.

**Social vulnerability**

Climate hazards and extreme weather events can affect everyone, but certain individuals and communities are more vulnerable than others. The severity of the impact depends not only on exposure to these events but also on social vulnerability. Those facing multiple causes of vulnerability are at greater risk.

Social vulnerability arises from a complex interaction of personal, environmental, and societal factors that shape how climate related dangers affect people's wellbeing. Characteristics such as age and health play a significant role in determining vulnerability to climate impacts. Older adults, young children, and individuals with poor health tend to be more susceptible to the effects of floods, heatwaves, and other climate related threats due to their increased physical fragility compared to the general population.

Deprivation is one important measure of social vulnerability. In Scotland, social deprivation is measured on an area base through factors representing income, employment, health and disability, education, barriers to services, crime and living environments. Climate change is a route through which deprivation can be worsened.

Data on deprivation in the National Park from the Scottish Index of Multiple Deprivation and its implications for the Proposed Plan is available in Schedule 18: Health and safety.

**The economy**

There is no data available on the specific impacts of climate change on the economy of the National Park, however the Highland Climate Risk and Opportunity Assessment by Paul Watkiss Associates (CNPA785) provides a good proxy for impacts which may affect the National Park.

The assessment notes that there is well established literature that considers heat humidity related climate change impacts on labour productivity. However, these impacts are sometimes reported under occupational health. To cope with heat, there is typically a reduction in work intensity or an increase in breaks. This reduces output, with the result of lower employee output and lower labour productivity (a measure of output per employee or unit of labour). In extreme heat, there are also risks of heat stress, heat exhaustion, heat stroke and even fatality. A siginificant proportion of National Park residents work in labour intensive occupations, in particular in the construction, motor trades and food and accommodation setcors. Although primarily a concern for those working outside, indoor workers who are not working in a temperature controlled environment would also be affected.

The assessment concludes that while the impacts of climate change for the Highland region are largely likely to result in significant costs, there may also be economic benefits, including from reduced heating demand. However, these benefits are likely to be small compared to the aggregate negative impacts. Since these negative impacts are large, and lower under lower levels of warming, they support the case for significant action to curb emissions. However, given the residual impacts, it is clear that there would be benefits in assessing the potential adaptation options to address these risks in the Highland area, considering the potential options, costs and benefits of adaptation to address the risks identified.

**Food and drink sector**

There is no data available on the specific impacts of climate change on the food and drink sector in the National Park, however the 'Sector Report: Food and Drink' by Paul Watkiss Associates (CNPA786) provides a good proxy for impacts which may affect the National Park.

In recent years, there has been a growing emphasis on advancing the circular economy in the food and drink sector. More specifically, there is a heightened recognition of the need to implement a systems thinking approach to fostering a circular industry. Zero Waste Scotland have identified the need for a shift toward localised food and drink production as a rural circular economy opportunity, with opportunities for localised food production, networks and waste composting.

The National Park is home to a diverse range of food and drink producers, including distilleries. The Scotch Whisky industry accounted for 74% of Scottish food and drink exports and 22% of all UK food and drink exports in 2024 (CNPA788). In 2024, Scotch Whisky exports were worth £5.4bn.

In 2023, the Scotch Whisky Association launched a Water Stewardship Framework. The framework focuses on three objectives of responsible consumption, engagement and collaboration, and advocacy for improved policy and regulation (CNPA789). The strategy encompasses a variety of measures, such as setting targets for average water usage and working with the Scottish Environment Protection Agency to pinpoint vulnerable catchments, develop site specific operational plans to mitigate impacts, and support catchment wide initiatives to address future climate risks. Additionally, it involves identifying and managing water risk hotspots within the supply chain.

**Energy sector**

There is no data available on the specific impacts of climate change on the energy sector in the National Park, however the Sector Report on Energy by Paul Watkiss Associates (CNPA1284) provides a good proxy for impacts which may affect the National Park

**Energy distribution**

As part of its Adaptation Reporting Power obligations, Scottish and Southern Electricity Networks (SSEN) Distribution and SSEN Transmission evaluate future climate related risks. This assessment identifies 15 critical threats to the transmission and distribution network, spanning various hazards such as heatwaves, drought, subsidence, lightning, rainfall, and different types of flooding including; pluvial, fluvial, and coastal, as well as wildfires. The three highest risks identified relate river flooding due to increased winter rainfall, pluvial (flash) flooding due to increased summer and winter rainstorms, and coastal flooding / storm surge.

Although climate change presents various potential impacts, its influence on energy demand is generally expected to be beneficial in winter, as it will likely lead to a reduction in overall energy consumption during colder months (Climate Change Committee (CNPA790)). Further information on energy infrastrucure is available in Schedule 9: Energy.

**Climatic heating and cooling**

The 2018 United Kingdom Climate Projections (UKCP18) indicate a general pattern of milder, wetter winters and hotter, drier summers, with more pronounced extremes. Energy consumption for buildings is commonly assessed using Heating Degree Days and Cooling Degree Days. Heating degree days measure the duration and degree to which the outdoor temperature falls below a set threshold, typically 15.5°C. In the United Kingdom, projected climatic shifts in winter and summer are expected to reduce heating degree days while increasing the number of cooling degree days due to rising summer temperatures and more frequent, intense heatwaves. Further information on energy infrastructure is available in Schedule 15: Heating and cooling.

**Forestry and timber sector**

There is no data available on the specific impacts of climate change on the forestry and timber sector in the National Park. Information on the effects of climate change on the forestry and timber sector in this section reflects the report from Paul Watkiss Associates: 'Sector Report: Forestry and Timber' (CNPA787).

Climate change will have potentially significant negative impacts on the forestry and timber sector in the Highlands and potentially the rest of the National Park. The Highland Adapts report on the forestry and timber sector highlights that the sector is a key industry for Scotland, worth approximately £1bn in gross value added (GVA) per year and employing over 25,000 people in forestry and timber processing, forest recreation, and tourism.

The Scottish Government is reliant on forestry expansion as a carbon sink to underpin policy targets in the draft Climate Change Plan and plans to increase woodland cover across Scotland to 21% by 2032.

Forestry can also provide wider ecosystem service benefits, such as flood management, recreation, and biodiversity. Climate change poses a number of risks for the forestry and timber sector such as high winds, drought and wildfires. Further information woodlands is available in Schedule 5: Natural heritage.

**High winds**

Scottish woodlands are at risk from high winds, with 8.7% of planted coniferous trees at medium to high risk of windthrow, varying between 4% and 10% in the Highlands (ClimateXChange, 2016 data (CNPA787)). The 2018 United Kingdom Climate Projections (UKCP18) suggest a modest rise in average windspeed and more frequent winter storms. There is some analysis that the return period for defined extreme events (relative to today) could potentially shorten by 30% to 50% - making what was a one in 20 year event more likely to occur every 10 years. Increased rainfall further weakens tree anchorage, heightening risks of windthrow, landslips, and windsnap. This underscores the need for improved planting, management, contingency planning, monitoring, and risk sharing mechanisms.

**Risk from drought, pests and disease**

In addition to changes in the incidences of dry spell and drought, climate change will also potentially affect the prevalence of pests and disease.

**Risks to forestry from wildfires**

The risk of wildfires is expected to increase due to climate change. While future modelling highlights the highest risk in southern and eastern England, the most significant shifts may occur in northern and western United Kingdom regions, where the current threat is lower. Although overall wildfire incidence has shown a slight upward

trend, this is less apparent for larger fires. However, projections for hotter and drier conditions indicate a potential rise in both wildfire frequency and severity.

## Greenhouse gas emissions

The Cairngorms National Park aims to have net zero emissions of all greenhouse gases by 2045 or sooner in line with the targets set out in the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 (CNPA348).

Figure 11 shows the total carbon dioxide ($CO_2$) emissions as carbon in the Cairngorms National Park in 2021. The data from the National Atmospheric Emissions Inventory (CNPA375), shows us that the areas with the highest $CO_2$ emissions are along the main road transport networks and concentrated around the settlements in the National Park.

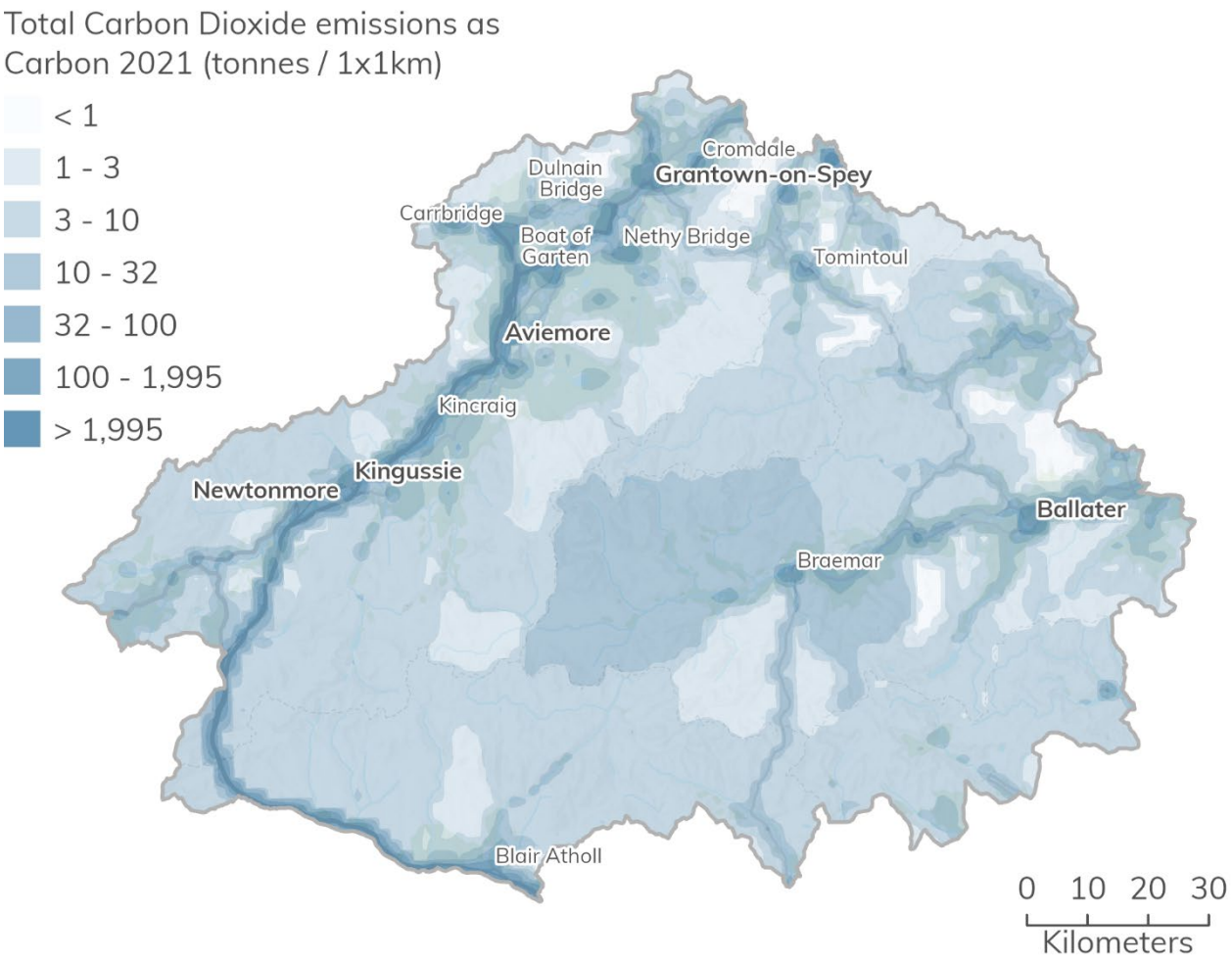



Figure 11 The total carbon dioxide ($CO_2$) emissions as carbon in the Cairngorms National Park in 2021. Cairngorms National Park Authority © Crown copyright and database rights 2026 Ordnance Survey AC0000821810. Contains data © National Atmospheric Emissions Inventor, 2025 (CNPA375).

In 2021, the Cairngorms National Park Authority commissioned Small World Consulting to undertake a greenhouse gas emissions and target scenario for the Cairngorms National Park (CNPA376). Most greenhouse gas emissions reporting is undertaken using a production based methodology that takes account of all emissions that are directly produced within a geographic area.

The Small World Consulting methodology is based on a consumption based emissions model to include as complete a picture as possible of the climate impact of people's lifestyles. This means that the indirect emissions that are embodied in goods and services consumed by resident and visitors within the Cairngorms National Park are also considered.

The estimates of industry related emissions are relatively crude at this point in time because of the way that sectors are reported in business data and the geography of business addresses. However, the data is sufficiently robust for comparison with other areas. Inevitably, there is some overlap in categories of emissions between different sectors, most obviously between land based businesses and land itself. As carbon monitoring and accounting systems become more accurate and consistent in future, models and assessments will become more precise.

The Small World Consulting Report provides a detailed assessment of greenhouse gas emissions and a potential pathway to net zero. The overall emissions footprint is explained in detail in chapter 5 while Figure 12 provides a simple summary. The emissions are reported as the equivalent tonnes of carbon dioxide ($tCO_2e$). Of the total emissions, 10% have been attributed to Industry, 13% from visitors inside the National Park, 35% from visitors to or from the Cairngorms National Park and 42% from existing residents.

Residents' emissions were estimated at 0.277 million $tCO_2e$ (Figure 12), and visitors' emissions – from time spent in the National Park and during travel to and from – were estimated at 0.322 million $tCO_2e$. At the time of the report, the resident population was estimated to be at 19,211, compared to around 2.1 million visitors per year (both single day and overnight). A full breakdown of these figures is provided Appendices 10.5 and 10.6 of the report (CNPA376). The data shows that the typical footprint resident of the Cairngorms resident is 16.8% higher than that of the average United Kingdom resident.

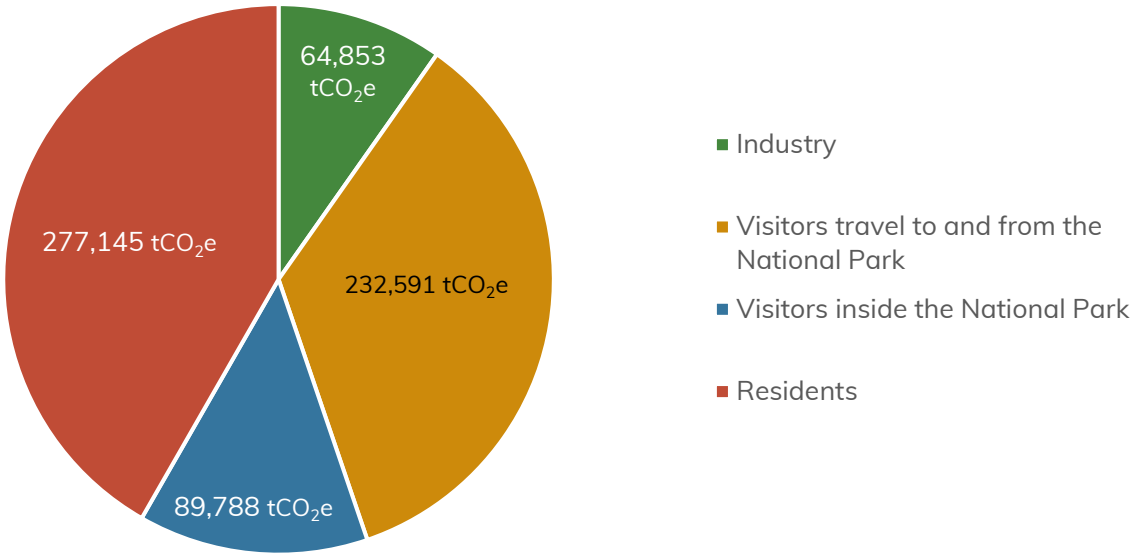



Figure 12 Estimated greenhouse gas emissions for the Cairngorms National Park ($tCO_2e$). Small World Consulting, 2022 (CNPA376).

The report highlights the need to prioritise greenhouse gas emissions reductions to limit global warming, rather than just mitigating emissions through carbon removal. The Proposed Plan should support the recommendation from Small World Consulting. Decarbonisation of industry and changing travel behaviours offer a practical option to emission reductions in the National Park.

Cairngorms National Park residents' emissions totalled 0.277 million $tCO_2e$ in 2019 (Figure 13), with the highest emissions arising from the food and drink (25%), vehicle fuel (15%) and household fuel (9%) categories (followed closely by health, education, other public services & administration). Greenhouse emissions produced by visitors to the Cairngorms totalled 0.322 million $tCO_2e$ in 2019, comprised of 232,591 $tCO_2e$ linked to travel to and from the National Park, and 89,788 $tCO_2e$ produced while in the National Park.

The data presented in the report on visitor travel to and from the National Park indicates that greenhouse gas emissions are dominated by vehicle fuel (55%) and personal flights (26%), with only 5% arising from the remainder of public transport. Of the footprint of visitors while in the National Park, 42% is linked to food and drink, while accommodation (away from home) – excluding food – accounts for 21%.

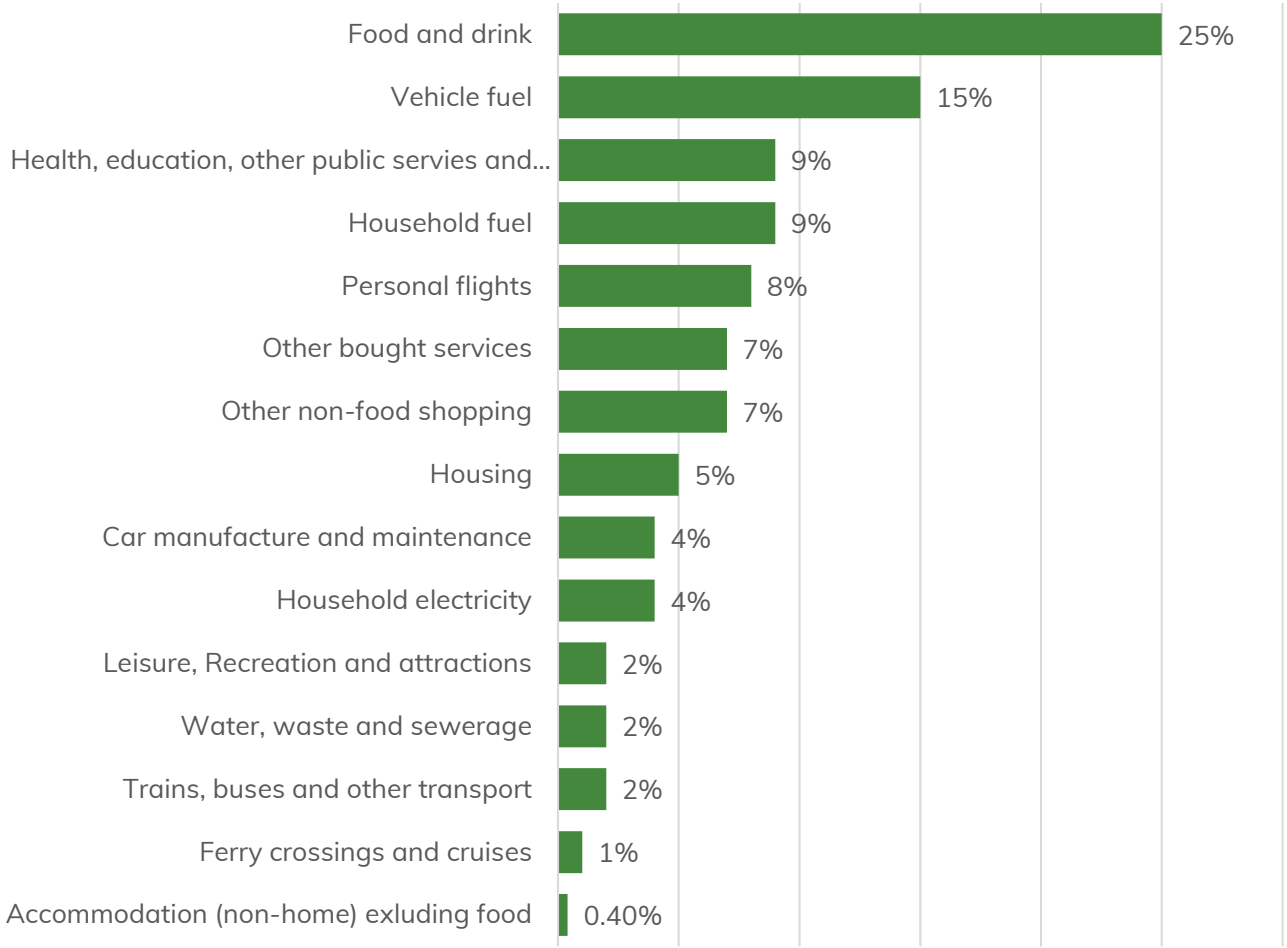



Figure 13 Proportional contribution of greenhouse gas emissions from residents in the Cairngorms National Park in 2019. Small World Consulting Report, 2022 (CNPA376).

Reporting shows carbon footprint from food and drink in the Cairngorms is considerable: for residents it is 68,360 $tCO_2e$ (25% of residents' total), and for visitors it is 37,920 $tCO_2e$ representing 42% of visitors' footprint[23] (Figure 14). 'Buy local, eat local' has become a common aspiration among the more environmentally aware, along with eating seasonal fruit and vegetables.

Several of the Community Action Plans, support actions to develop more locally grown food, which some communities set out plans to sell the locally produced food back to the communities. More detailed information on community growing in the National Park is available in Schedule 18: Health and safety.

[23] Please refer to Appendices 10.5 and 10.6 of the Small World Consulting Report (CNPA376) for further details.

The Proposed Plan should aim to support communities as much as possible through the allocation of suitable community allocated land to enable locally grown food to be consumed within the National Park.

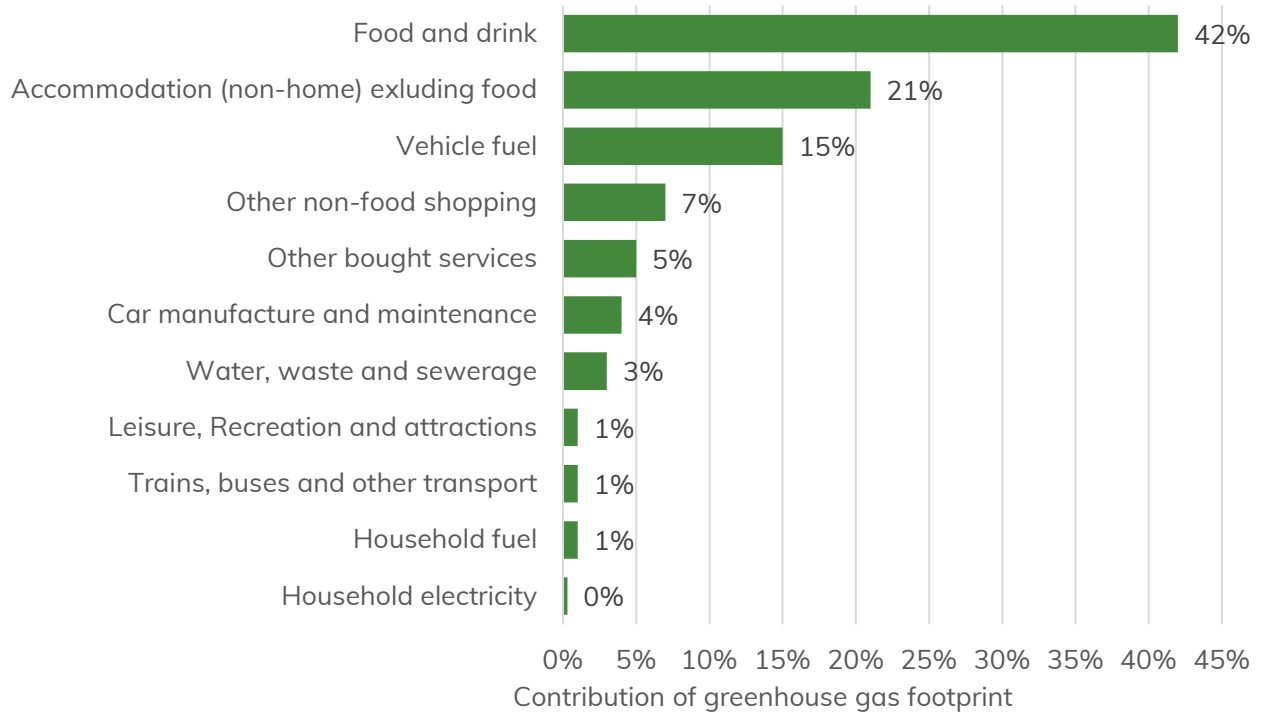



Figure 14 Proportional contribution of greenhouse gas footprint from visitors while in the Cairngorms National Park in 2019. Small World Consulting Report, 2022 (CNPA376).

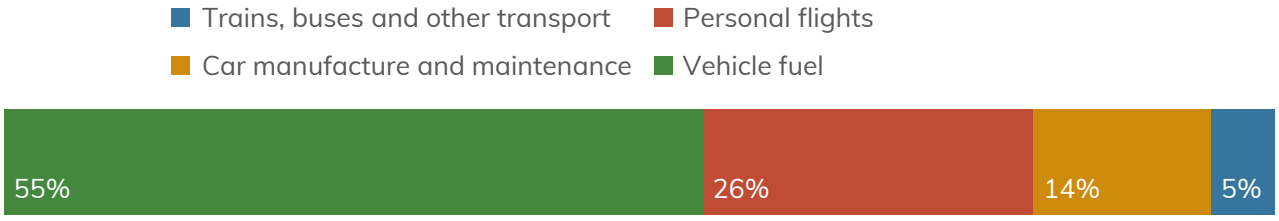



Figure 15 Proportional contribution of Greenhouse gas footprint from visitors while travelling to and from the area in the Cairngorms National Park in 2019. Small World Consulting Report, 2022 (CNPA376).

### Travel related emissions

The Small World Consulting Report (CNPA376) showed that travel produces the majority of the greenhouse gas footprint of Cairngorms visitors: 250,192 $tCO_2e$, including all emissions from travel to and from the National Park, and 20% of emissions while in the National Park (78% of the total footprint of the visitors). The majority of this travel footprint comes from fuel burned in private vehicles (140,480 $tCO_2e$; 44% of visitors' total); personal flights (61,732 $tCO_2e$; 19%); vehicle manufacture and maintenance, (11%); and a small amount from trains, buses and other transport (4%).

Travel accounts for 30% of the residents' greenhouse gas footprint (Figure 13). In considering residents' travel the report looked at vehicle fuel (40,769 $tCO_2e$; 15% of residents' footprint); personal flights (23,171 $tCO_2e$; 8%); vehicle manufacture and maintenance (9,974 $tCO_2e$; 4%); trains, buses and other transport (6,333 $tCO_2e$; 2%); and ferry crossings and cruises (3,438 $tCO_2e$; 1%)[24]. Car travel is the single largest contributor to the overall footprint of the Cairngorms National Park (38% of the combined footprint of the residents and visitors).

The Proposed Plan should aim to support local living and promote active and public transport to aid a reduction of travel related emissions. The Proposed Plan should also support the Cairngorms 2030 projects that relate to implementing and improving infrastructure for sustainable travel, for example:

- Improved public transport and associated infrastructure in Deeside.
- Better active travel connections in Badenoch and Strathspey to connect communities and potentially lessen car dependence / use.
- Promoting the use of ebikes with provision of associated infrastructure to support uptake.

Much of the stakeholder engagement carried out during the preparation of the Evidence Report, which garnered views from a wide range of residents and visitors to the National Park, cited poor provision and availability of public transport as a key barrier to its use.

The remainder of the residents' footprint reported by Small World Consulting consisted of:

- Public services including health and education (25,679 tCO2e; 9% of residents' footprint).
- Other bought services (18,286 tCO2e; 7%).
- Other non food shopping (18,317 tCO2e; 7%).
- Leisure, recreation and attractions (4,763 tCO2e; 2%).
- Waste, water and sewerage (4,173 tCO2e; 2%).

The remainder of the visitors' emissions arose from:

- Water, waste and sewerage (2,847 tCO2e; 3% of the footprint from within the National Park).
- Other non food shopping (5,749 tCO2e; 6%).
- Other bought services (4,471 tCO2e; 5%).

[24] Please refer to Appendices 10.5 of the Small World Consulting Report (CNPA376) for further details

- Leisure, recreation and attractions (1,184 tCO2e; 1%).

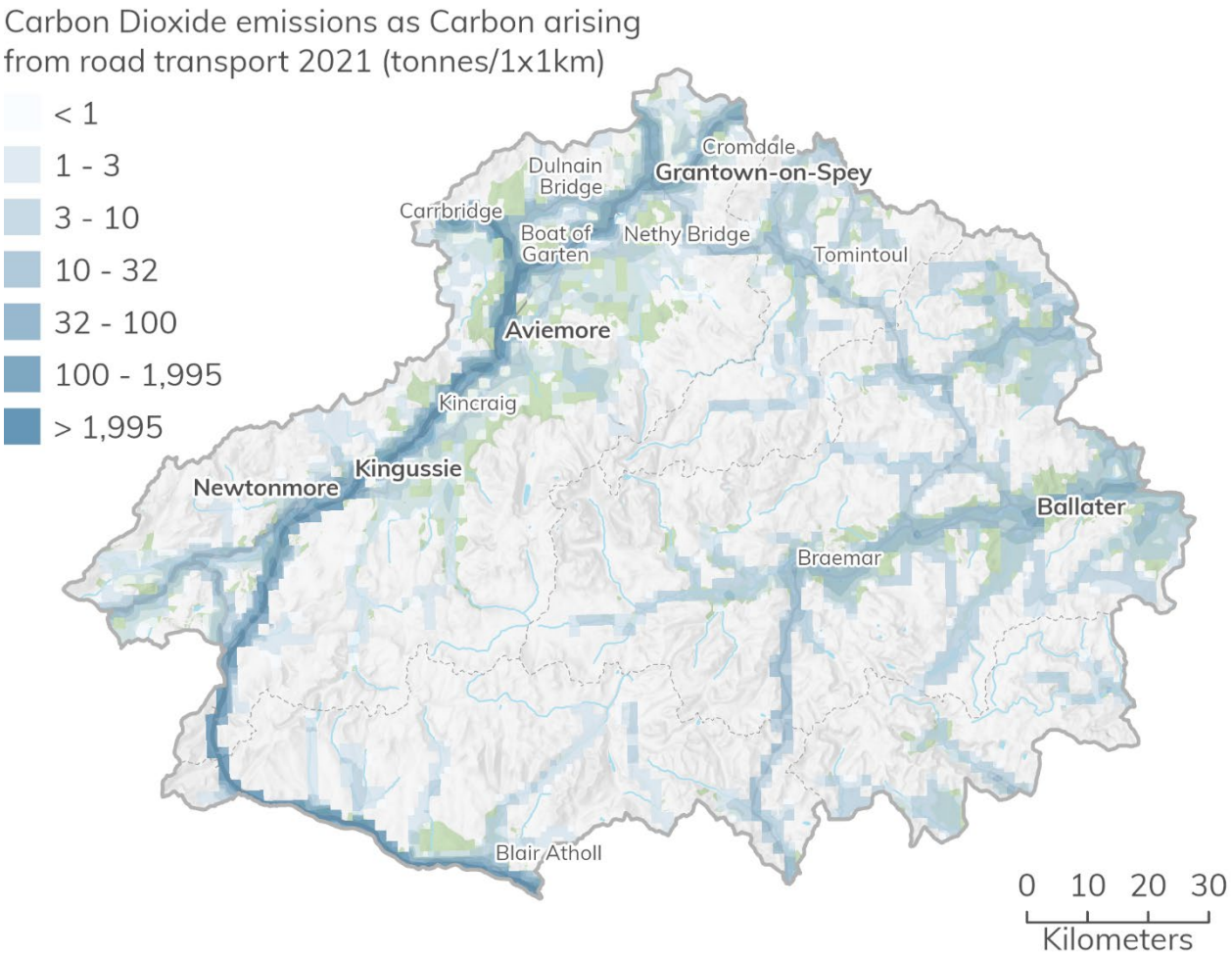



Figure 16 The total $CO_2$ emissions as carbon arising from transport in the Cairngorms National Park in 2021. Cairngorms National Park Authority © Crown copyright and database rights 2026 Ordnance Survey AC0000821810. Contains data © National Atmospheric Emissions Inventory, 2025 (CNPA375).

Figure 16 shows the total $CO_2$ emissions as carbon arising from transport in the Cairngorms National Park in 2021. The data from the National Atmospheric Emissions Inventory, shows us that the areas with the highest $CO_2$ emissions are along the main road transport route of the A9 that enters the National Park from the south near Blair Atholl and exists north of Carrbridge. The A9 is a major trunk route in the Highlands, connecting Perth with Inverness, and although a proportion of the use will be local and visitor use – a significant proportion will be vehicles passing through the National Park. The A95 from Aviemore to Cromdale is also high in terms of total $CO_2$ emissions as carbon arising from transport. The A95 is a key route used by residents year round connecting many of the settlements in the northeast part of the Highland area (the most populous area) of the National Park. Additionally, the A93, which connects Ballater to Dinnet, also has higher emissions. This is used by residents year round, but visitor use

also makes a significant contribution, given Ballater's significance in terms of tourism. More information on transport in and around the National Park is included in Schedule 11: Sustainable transport.

In terms of residents per capita greenhouse gas emissions for transport related categories, reported by Small World Consulting (CNPA376) (Figure 17), the residents in the National Park have higher per capita greenhouse gas emissions than the United Kingdom average. The most significant difference in the transport categories is within the transport fuel emissions which are 0.54 $tCO_2e$ higher on average for residents in the National Park (Figure 17).

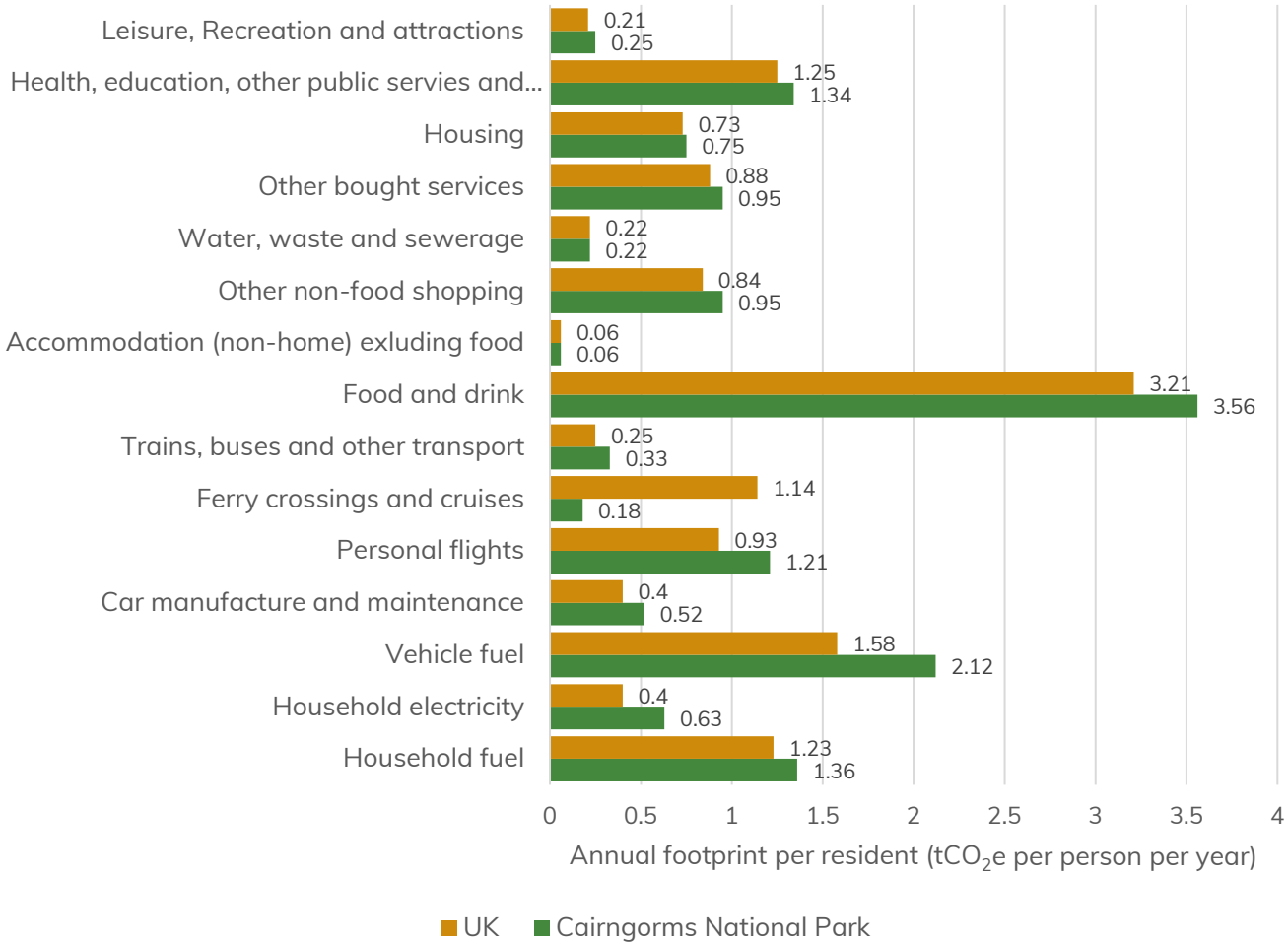



Figure 17 Residents per capita greenhouse gas footprints in the Cairngorms National Park compared to the UK average. Small World Consulting, 2022 (CNPA376).

In the Cairngorms National Park, estimated total through traffic emissions from cars, buses, motorbikes, vans and lorries was reported as 161,209 $tCO_2e$ (this data is not included in the residents', visitors' or industry footprints). Through traffic refers to

vehicles passing through the National Park without visiting, regardless of their origin and destination.

## Emissions from industry

The report (CNPA376) calculates the total industry related greenhouse gas emissions in the National Park to be 64,853 $tCO_2e$. Figure 18 highlights agriculture, forestry and fishing as the largest source of greenhouse gas emissions (19,356 $tCO_2e$; 30%), followed by accommodation and food services (10,305 $tCO_2e$; 16%) and construction (7,224 $tCO_2e$; 11%)[25]. Industry related flights are estimated to account for 9,754 $tCO_2e$ of the total footprint but are not separately categorised.

[25] Please refer to Appendices 10.7.2 of the Small World Consulting Report for further details.

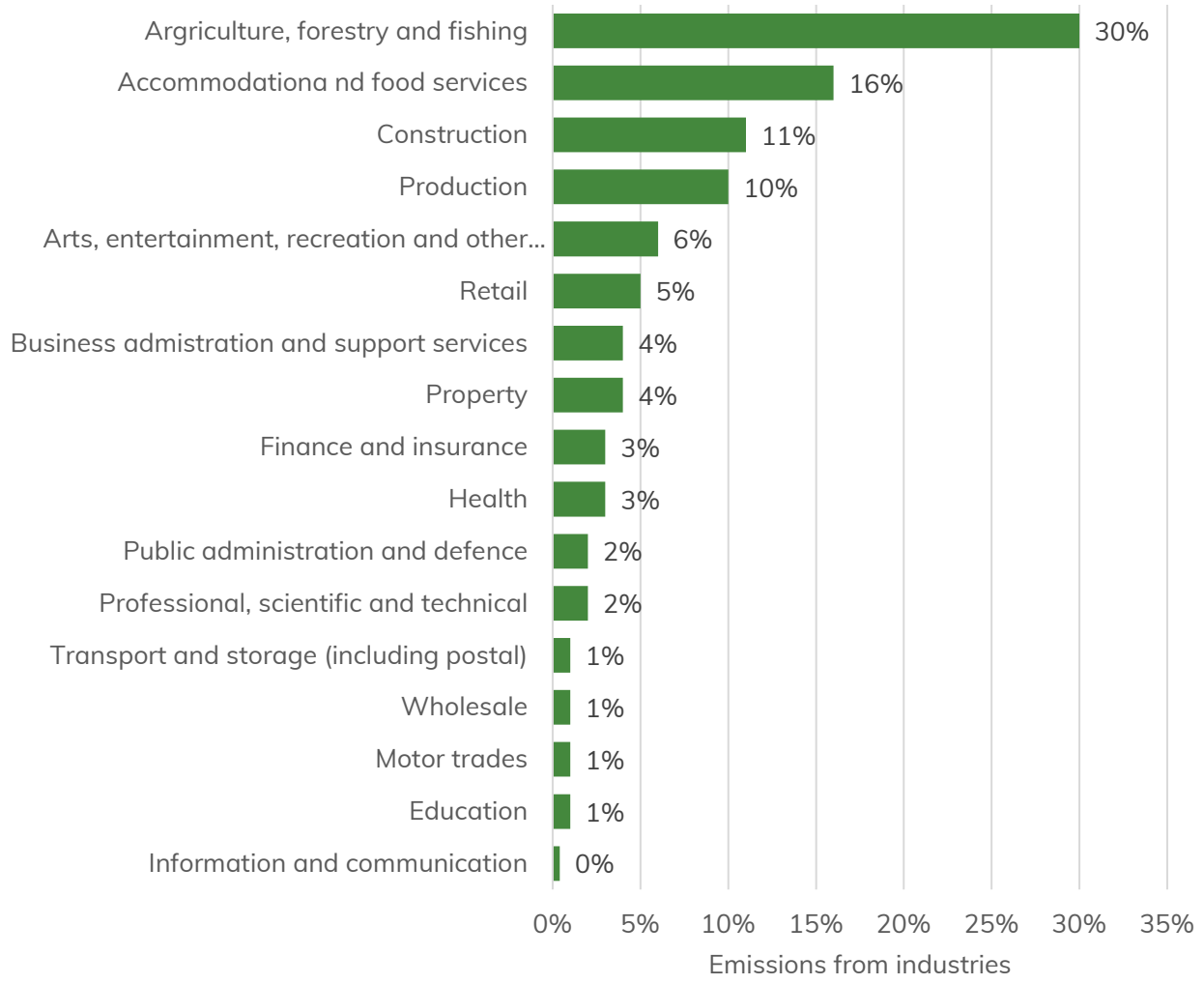



Figure 18 A proportional estimate of emissions from industries within the Cairngorms National Park and their supply chains (scopes 1, 2 and upstream scope 3), provided by Small World Consulting, 2022 (CNPA376).

### Agriculture

The largest industry for greenhouse gas emissions noted in the report (CNPA376) is agriculture accounting for 30% (19,356 $tCO_2e$) of all industry related emissions in the National Park. The report makes a number of recommendations reflecting the Sixth Carbon Budget (2020) which include transitioning to low carbon farming practices, and soil improvement strategies, changes to agriculture waste and manure management.

Other recommendations in the report include moving some production to greenhouses and vertical urban farms, collectively referred to as indoor horticulture, which the report states is likely going to be required to make the United Kingdom self sufficient in terms of food while enabling large scale nature recovery programmes.

More information on land used for agriculture is available in Schedule 8: Land use, soil and resources.

**Accommodation and food services**

The second largest industry for greenhouse gas emissions was reported (CNPA376) as being accommodation and food services accounting for 16% of all industry related emissions (10,304 $tCO_2e$), so there is a considerable opportunity for this sector to reduce its emissions. The largest opportunity for this sector to reduce its carbon footprint would be a reduction in energy use. Actions to achieve this could include:

- Switching to a renewable energy supplier and / or installing renewable electricity sources, such as solar and wind, onsite.
- Reducing gas and oil consumption by improving heating and insulation in buildings and by installing a renewable heat source such as heat pumps.
- Improving insulation.

Heating is likely to be a particularly large source of emissions in the Cairngorms National Park due to the cold winter climate, presenting local challenges. More information on heating and energy is provided in the Schedule 15: Heating and cooling and Schedule 9: Energy sections of the Evidence Report.

The second biggest potential positive impact for this sector would be to offer more sustainable food choices to consumers. This could include supporting more plant based options (reducing meat and dairy consumption), more availability and use of locally produced food. More information on community growing projects in the National Park is included in Schedule 18: Health and safety.

Finally, reducing emissions arising from travel to access accommodation and food services use by reducing flight emissions and using public transport options where possible, while simultaneously facilitating electrification of transport, would be the third most impactful action for this sector to reduce its emissions. The Proposed Plan should aim to support the actions set out by the Small World Consulting (CNPA376).

**Construction**

The report (CNPA376) estimates that construction is the third largest greenhouse gas emitting industry in the Cairngorms National Park with 11% (7,224 $tCO_2e$) of total industry emission. This aligns roughly with the United Kingdom as a whole, which in 2020 was reported at 12% of United Kingdom industry emissions.

The report highlights that the construction of new houses and maintenance of historic ones, will continue to increase emissions in this sector. To reduce construction related emissions the opportunities highlighted in the report include:

- Resource efficiency: reducing the flow of materials through the economy, as part of a shift towards a more circular economy.
- Material substitution: manufacturing emissions can be reduced by switching from high embodied carbon materials to low embodied carbon materials. Measures include using wood in construction.
- Energy efficiency: using energy more efficiently reduces operating costs while cutting emissions.
- Fuel switching in manufacturing: hydrogen, electricity and bioenergy can all be used to meet demands for heat, motion and electricity, thus removing the need for fossil fuels and reducing greenhouse gas emissions.
- Carbon Capture and Storage can be used to capture carbon dioxide emissions produced by larger industrial point sources and transport it to a carbon dioxide storage site, thereby reducing emissions to the atmosphere (CNPA797).

**Energy only industry analysis**

This section looks at a subset of the industry carbon footprint estimate provided by Small World Consulting. Energy is estimated to make up 48% of emissions from industry (31,334 $tCO_2e$) (CNPA376). Figure 19 shows the breakdown of industry emissions from electricity and fuels for the Cairngorms.

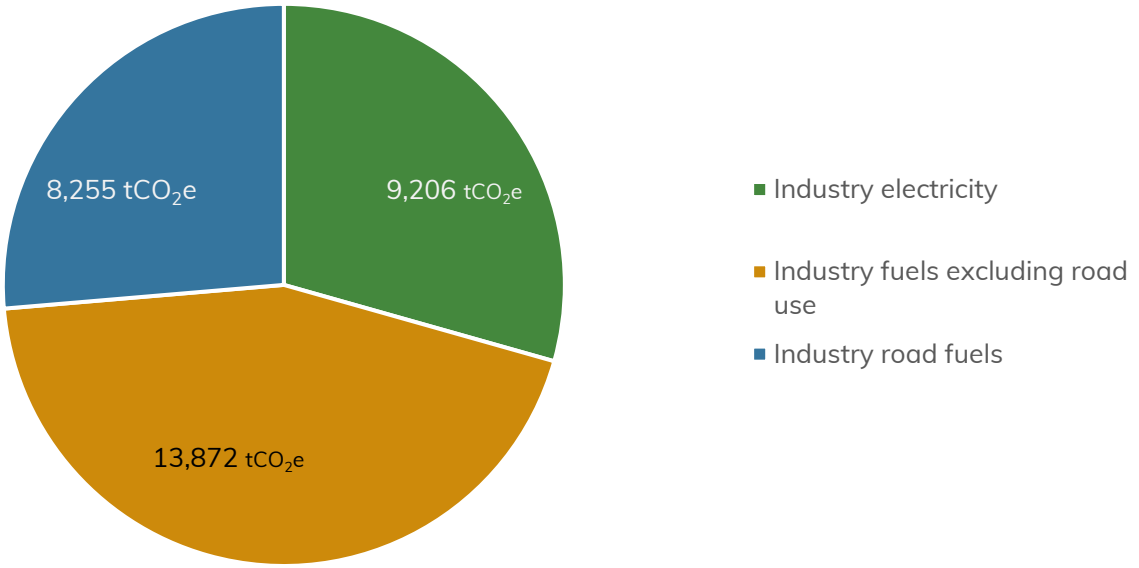



Figure 19 Breakdown of estimated industry emissions from electricity and fuels for the Cairngorms National Park. Small World Consulting, 2022 (CNPA376).

**Benchmarking annual industry footprint in the National Park with UK averages**

The report offers a comparison of the carbon footprint in the Cairngorms National Park and the United Kingdom as a whole. The results (Figure 20) show higher than national average figures for: agriculture, forestry and fishing, accommodation and food services, and arts, entertainment, recreation, and other services.

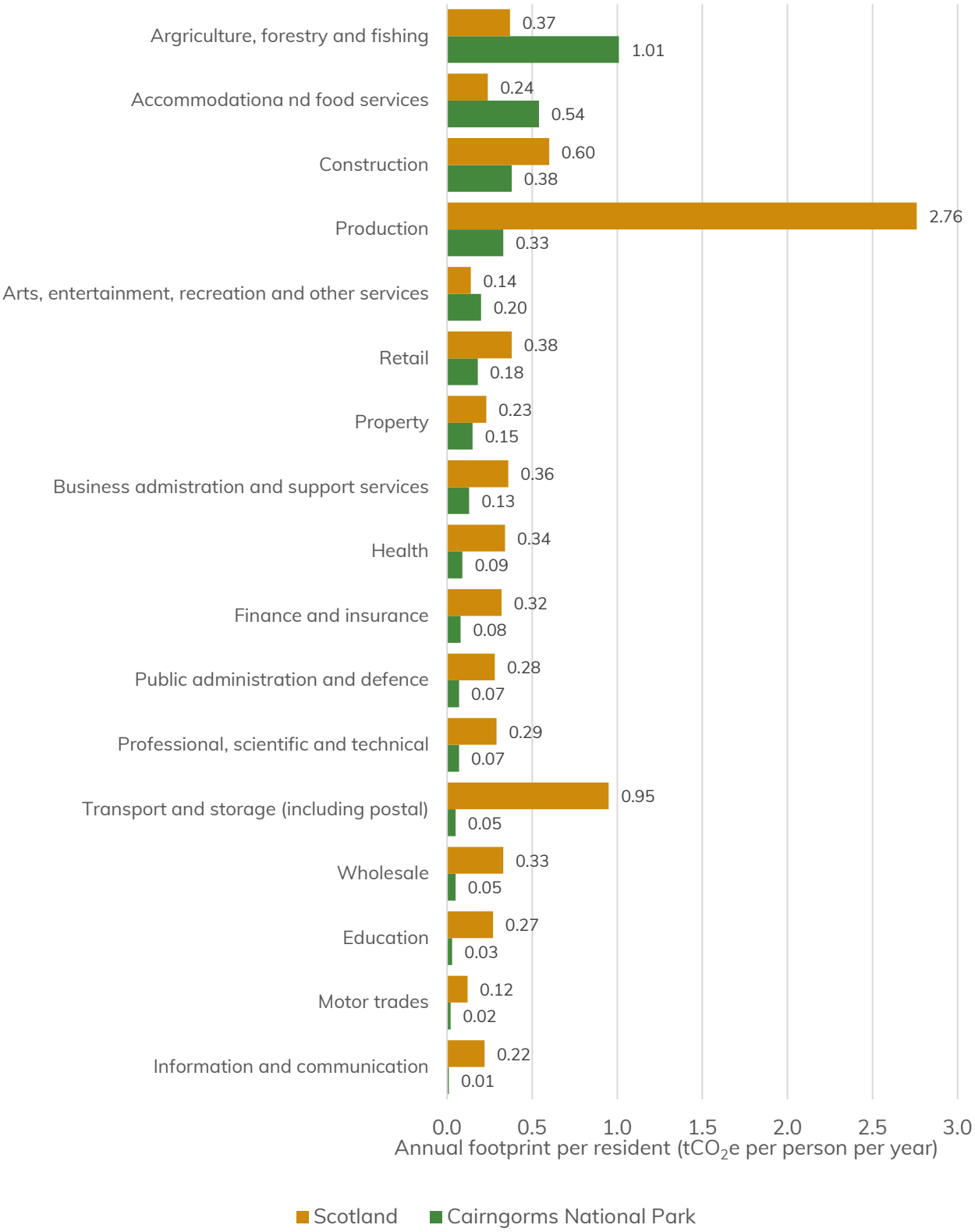



Figure 20 Estimated industry greenhouse gas emissions from industry in the Cairngorms National Park and in the UK, by sector. Small World Consulting, 2022 (CNPA376).

**Combined emissions from commercial, institutional, residential and agriculture**

Figure 21 shows the combined carbon dioxide emissions as carbon arising from commercial, institutional, residential and agriculture in the Cairngorms National Park. The data is from the National Atmospheric Emissions Inventory. The majority of the recorded emissions are located in and around settlements accounting for the residential and commercial contribution. Agriculture in the National Park is mainly confined to lowland valleys and straths, as seen by the areas of elevated emissions outwith settlements. More information on land use in the National Park is available in Schedule 8: Land use, soil and resources.

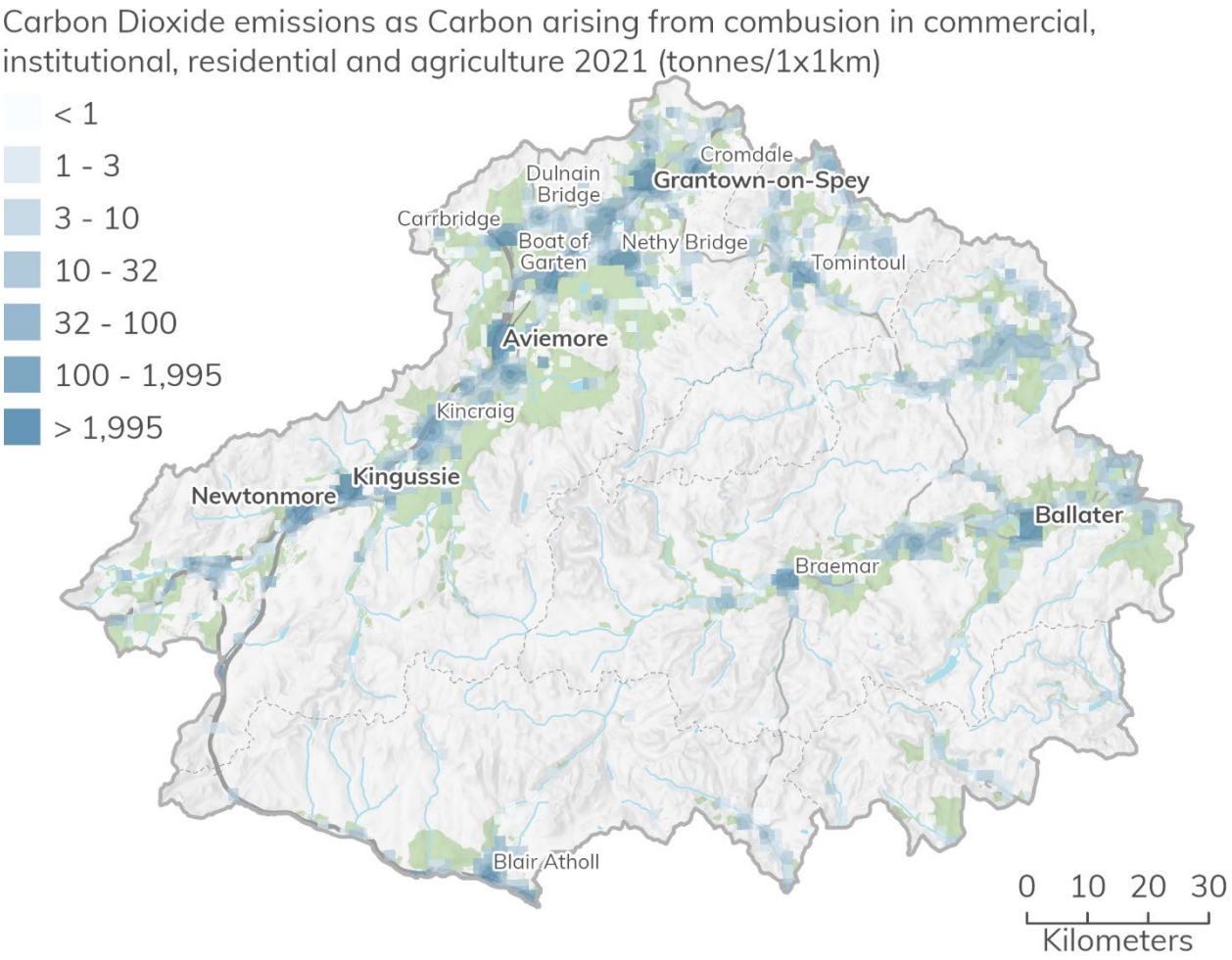



Figure 21 The total $CO_2$ emissions as carbon arising from commercial, institutional, residential and agriculture in the Cairngorms National Park in 2021. Cairngorms National Park Authority © Crown copyright and database rights 2026 Ordnance Survey AC0000821810. Contains data © National Atmospheric Emissions Inventory, 2026 (CNPA375).

## Decarbonising the national grid

The National Energy Systems Operators' publication (July 2022): 'Holistic Network Design' (CNPA804), outlines the need for energy network upgrades and changes required to support decarbonising the national grid. The Holistic Network Design is part of the Pathway to 2030 workstream and goes hand in hand with the Office of Gas and Electricity Market's (known as Ofgem) Minded to Decision on the delivery model for the offshore network. Although the document is primarily focused on the network requirements to facilitate the connection of 23GW of in scope offshore wind projects, it also outlines onshore works essential to facilitate each connection and the network needed to transport the electricity around Scotland.

The Holistic Network Design document contains recommendations on the potential location of infrastructure, including offshore cable route corridors and the locations of new substations, as well as technology choices for the offshore network. The Holistic Network Design is made up of a number of individual recommendations for the development of the onshore and offshore networks. These recommendations are expressed in terms of a need to be able to transmit power from one point to another, whether that is offshore, onshore or a combination of the two.

The document sets out proposals for upgrades to the existing network between Perth and Inverness (figure 28, page 119). This is explained in more detail in Schedule 9: Energy. The Proposed Plan will need to support network upgrades to support the delivery of the Holistic Design Review recommendations.

## UK Government – local authority and regional greenhouse gas emissions statistics

The report from Small World Consulting (CNPA376) is useful in terms of setting the baseline for projections and detailing the emission sectors composition. Its data provides a detailed and comprehensive summary of the greenhouse gas emissions in the National Park, which are benchmarked against the United Kingdom emissions. It is also useful to draw comparisons between the National Park and Scotland as a whole.

Another dataset that looks at greenhouse emissions in the National Park is the United Kingdom local authority and regional greenhouse gas emissions statistics (2005 – 2022) (CNPA377). While the Report from Small World Consulting is valuable in provided the detailed analysis and forecast emissions to net zero, the data from the United Kingdom Government provides trends in key areas of emissions for the United Kingdom's protected landscapes which can be benchmarked against Scottish averages. It should

however be noted that the Small World Consulting report figures provide a more comprehensive and detailed calculation of the greenhouse gas emissions in the National Park.

The United Kingdom Government provides data (CNPA376) on the total (Figure 22) greenhouse gas emissions estimates for the period 2005 to 2022 (kt $CO_2e$) for the Cairngorms National Park. This total is the sum of emissions from industry, commercial, public sector, domestic, transport, agriculture and land use, land use change and forestry net emissions. According to this data, the National Park achieved net zero in 2019. The lower value for 2020 takes into account reduced transport related emissions experienced during the Covid 19 pandemic, when travel was restricted (Figure 23).

Although the data suggests that transport emissions could have been reducing prior to the pandemic (as they fell from a peak of 160.4 kt $CO_2e$ in 2017 to 156.7 kt $CO_2e$ in 2019), they have increased post pandemic, and it is uncertain how much further they will increase. Overall, between 2005 and 2022 there has been an increase of 14.8% in transport related emissions in the National Park (Table 2). Transport is a key area that the Proposed Plan can seek to influence by supporting local living and the uptake of sustainable travel behaviour.

As previously mentioned, the National Park's ongoing focus and commitment to woodland creation (both commercial and native) and peatland restoration should reduce land use, land use change and forestry net emissions further. This may offset any further rises in transport related emissions during the current Partnership Plan's long term timescale (up to 2045).

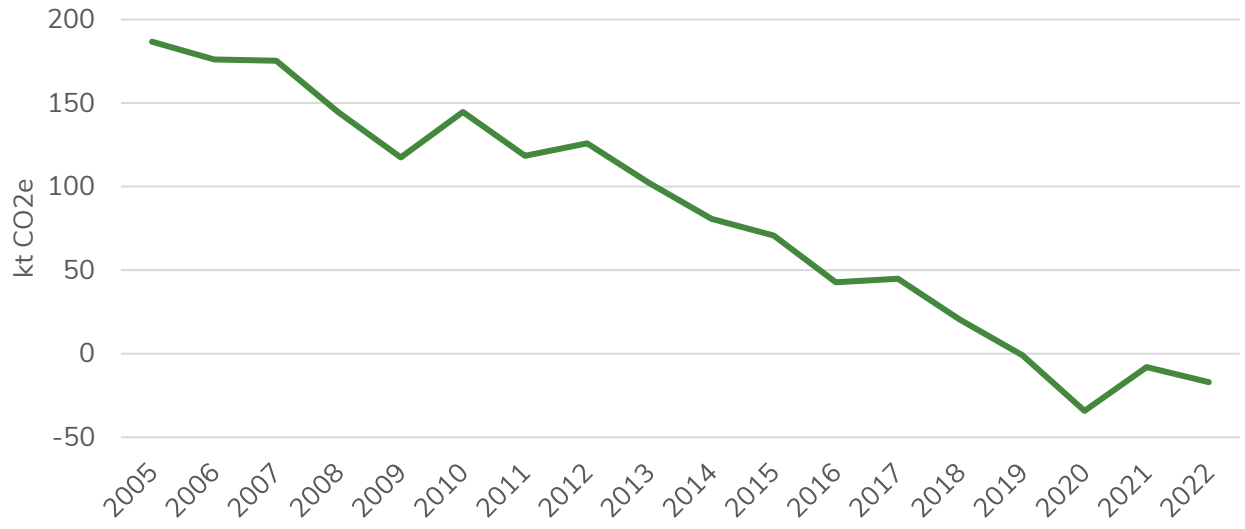



Figure 22 Total greenhouse gas emissions estimates 2005 – 2022 (kt $CO_2e$) in the Cairngorms National Park. UK Government, 2025 (CNPA377).

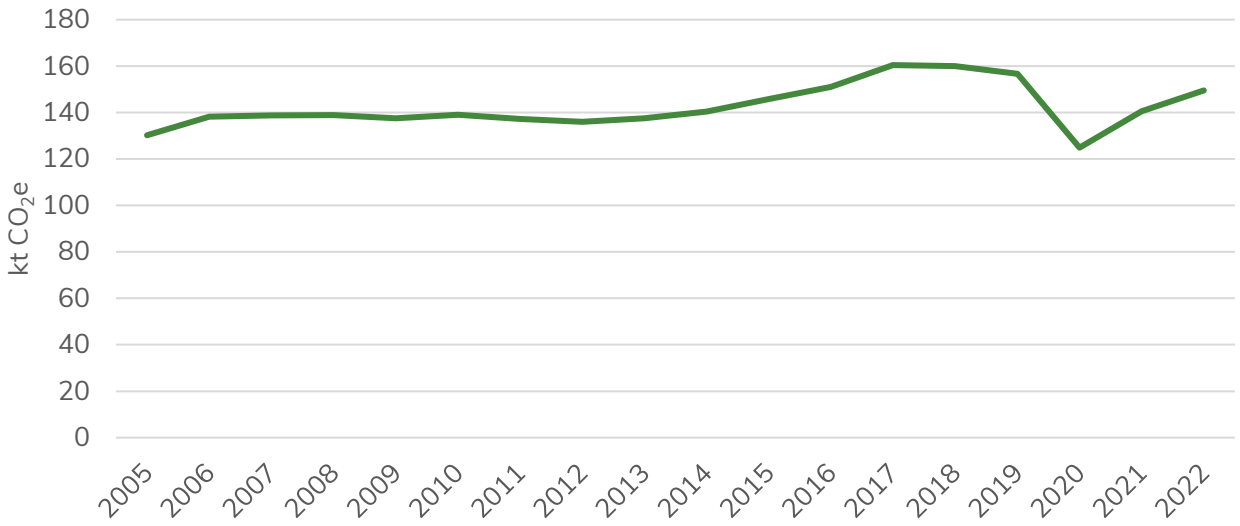



Figure 23 Transport greenhouse gas emissions estimates 2005 – 2022 (kt $CO_2e$) in the Cairngorms National Park. UK Government, 2025 (CNPA377).

Other notable changes in the emissions timeline for the National Park include the reduction of agriculture related emissions (Figure 24) from 90.5 kt $CO_2e$ in 2021 to 77.7 kt $CO_2e$ in 2022 representing a 17.8% decrease (Table 2). This is the lowest recorded from this sector since 2005. This supports the longer term (from 2005) downward trend which is important in meeting the assumptions set out by Small World Consulting (CNPA376) for a reduction of agriculture emissions to support the pathway to net zero under their forecast scenario.

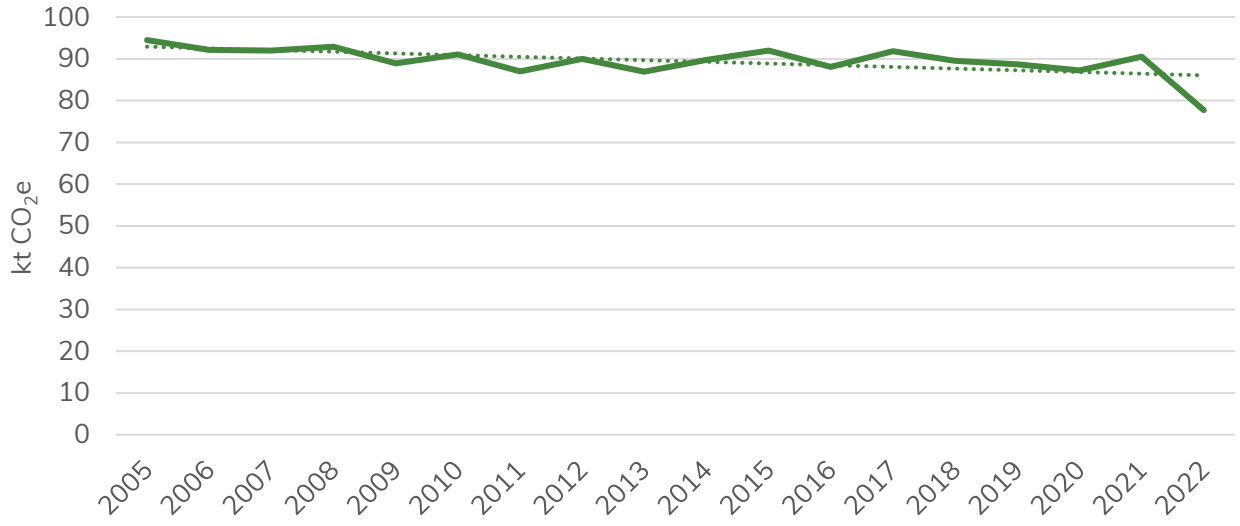



Figure 24 Agriculture greenhouse gas emissions estimates 2005 – 2022 (kt $CO_2e$) in the Cairngorms National Park. UK Government, 2025 (CNPA377).

Emissions from waste is another key area of Scottish Government Policy. It is discussed in Schedule 10: Zero waste.

Although emissions from waste (Figure 25) had been reducing to 2017 (6.7 kt $CO_2e$), they rose in 2018 (7.1 kt $CO_2e$) and have continued to rise to 2022 (9.9 kt $CO_2e$). Overall, between 2005 to 2022 emissions from waste have decreased by 27.7% (Table 2)

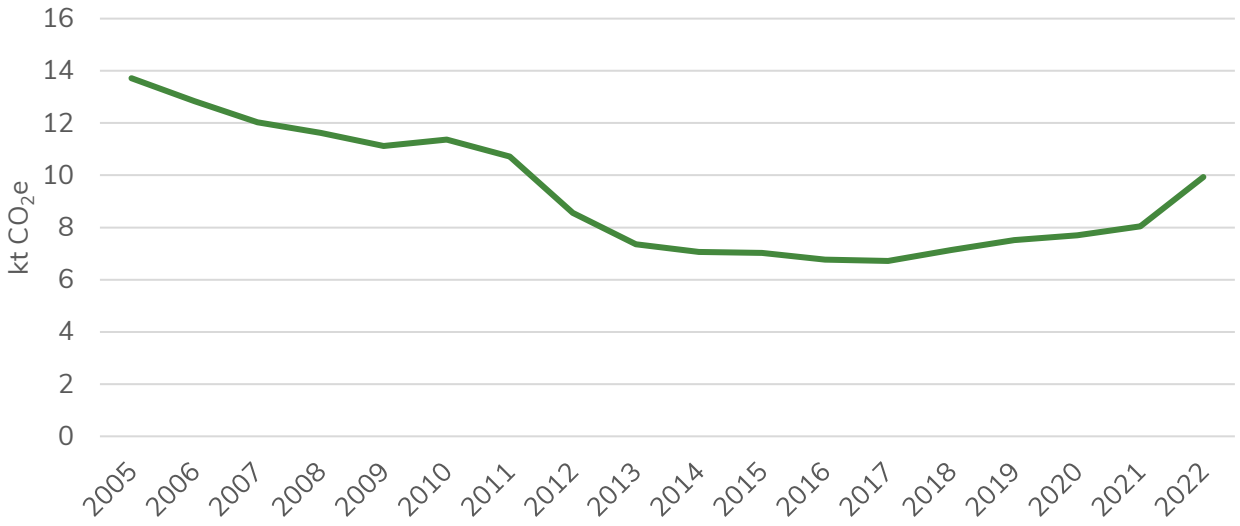



Figure 25 Waste greenhouse gas emissions estimates 2005 – 2022 (kt $CO_2e$) in the Cairngorms National Park. UK Government, 2025 (CNPA377).

In terms of emissions from Industry (Figure 26) there has been a significant reduction since 2005 from 56.4 kt $CO_2e$ to 17.0 ktCO2e in 2022, representing a 69.9% decrease (Table 2). Although there has been some fluctuation, the data reports a strong downward trend in industry related emissions in the National Park. Similarly commercial emissions (Figure 27) have reduced significantly from 32.4 kt $CO_2e$ in 2005 to 11.9 kt $CO_2e$ in 2022 (Table 2) representing a 63.3% decrease , presenting a strong trend of declining emissions over the period.

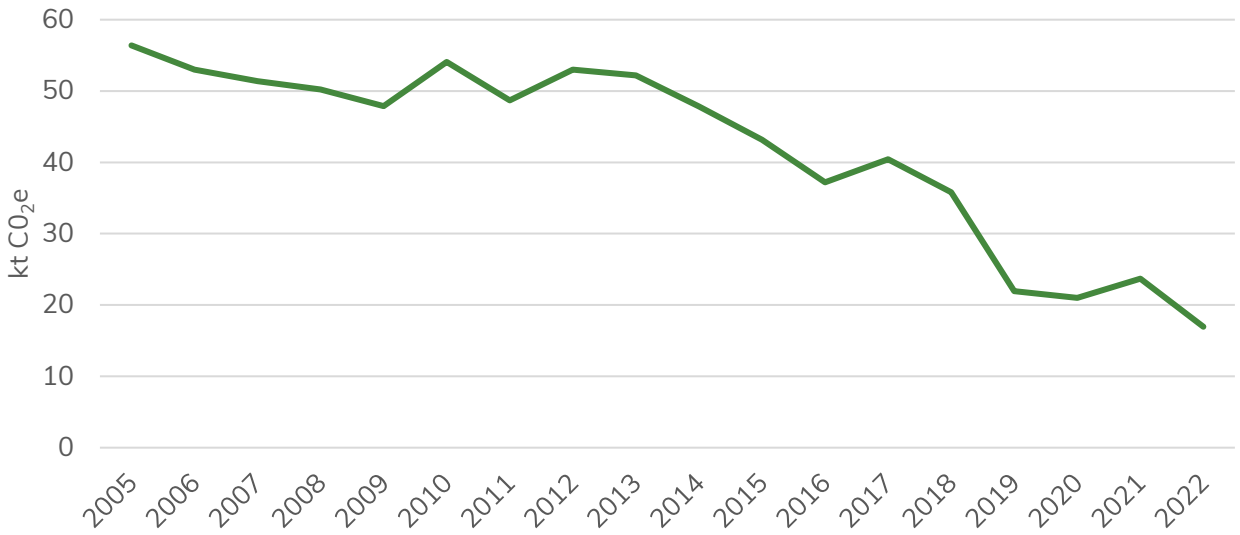



Figure 26 Industry greenhouse gas emissions estimates 2005 – 2022 (kt $CO_2e$) in the Cairngorms National Park. UK Government, 2025 (CNPA377).

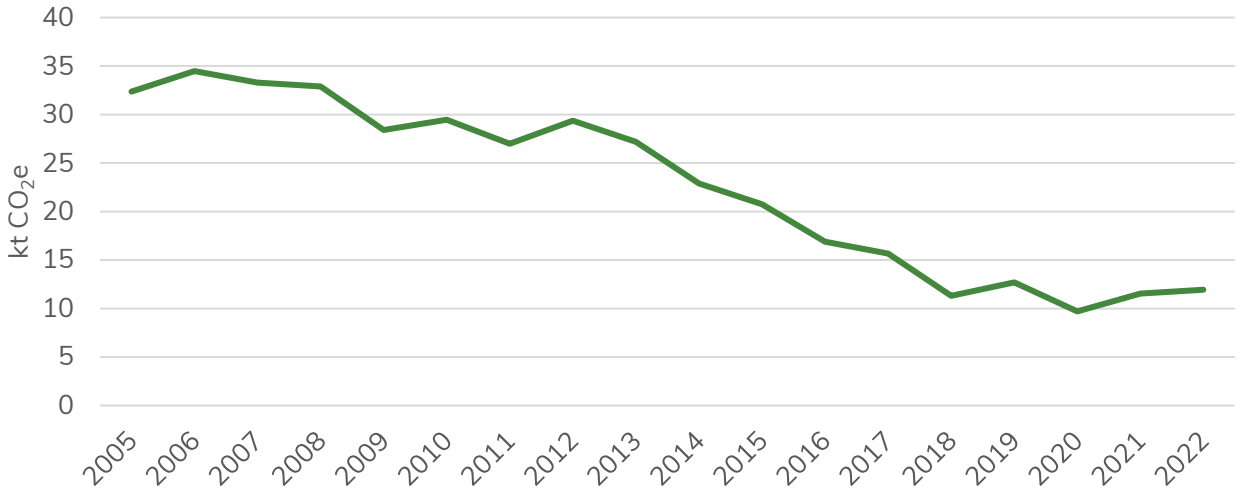



Figure 27 Commercial greenhouse gas emissions estimates 2005 – 2022 (kt $CO_2e$) in the Cairngorms National Park. UK Government, 2025 (CNPA377).

The estimated emissions from the public sector (Figure 28) have also reduced from 4.8 kt $CO_2$ in 2005 to 1.3 kt $CO_2$ in 2022, representing a decrease of 72.9% (Table 2) (with consistent reductions year on year since 2012).

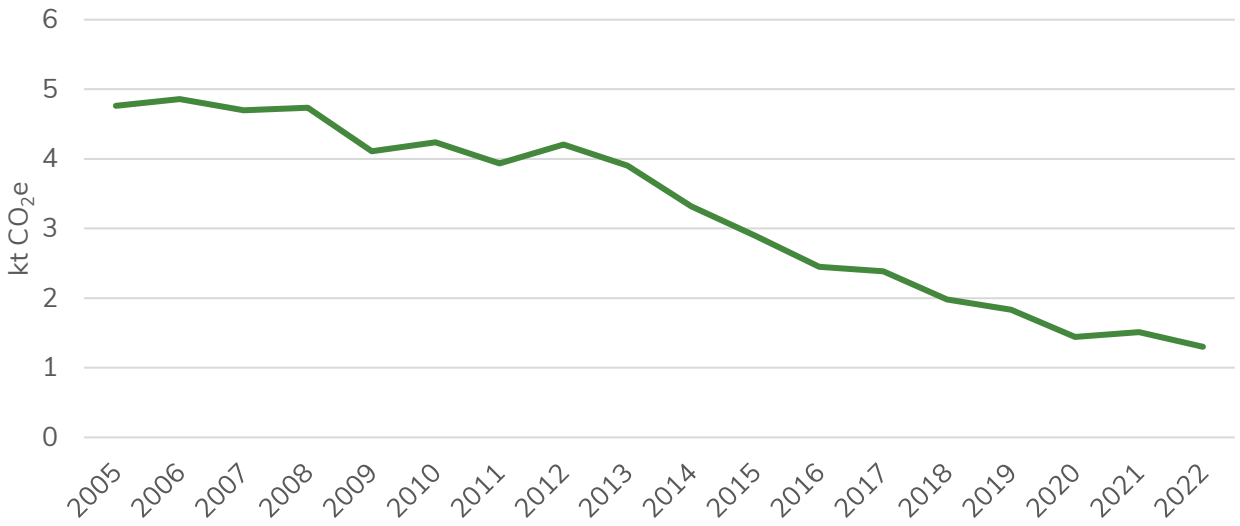



Figure 28 Public sector greenhouse gas emissions estimates 2005 – 2022 (kt $CO_2e$) in the Cairngorms National Park. UK Government, 2025 (CNPA377).

Domestic greenhouse gas emissions have reduced by 54% from 2005 from 80.0 kt $CO_2e$ to 36.8 kt $CO_2e$ (Table 2). For more information on domestic energy use and efficiency please refer to Schedule 9: Energy and Schedule 15: Heating and cooling.

The net emissions from land use, land use change and forestry have had a significant positive effect on reducing the overall greenhouse gas emissions in the Cairngorms National Park. The land use, land use change and forestry net emissions have reduced from -225.2 kt $CO_2e$ to -321.3 kt $CO_2e$ between 2005 to 2022, representing a 42.7% (Table 2) decrease, which has positively affected the overall reduction in greenhouse gas emissions in the National Park (Figure 22).

Table 2 Emissions by end user sector (kt $CO_2e$) for the Cairngorms National Park 2005 – 2022. UK local authority and regional greenhouse gas emissions national statistics 2005 – 2022 (CNPA377).

| kt $CO_2e$ | 2005 | 2022 | % change 2005 - 2022 |
|---|---|---|---|
| Industry | 56.4 | 17.0 | -69.9% |
| Commercial | 32.4 | 11.9 | -63.3% |
| Public sector | 4.8 | 1.3 | -72.9% |
| Domestic | 80.0 | 36.8 | -54% |
| Transport | 130.2 | 149.5 | +14.8% |
| Land use, land use change and forestry net emissions | -225.2 | -321.3 | -42.7% |
| Agriculture | 94.5 | 77.7 | -17.8% |

| kt $CO_2e$ | 2005 | 2022 | % change 2005 - 2022 |
|---|---|---|---|
| Waste management | 13.7 | 9.9 | -27.7% |

**Comparison with Scotland**

At this point it is useful to compare the estimated emissions in the National Park with the Scottish average. This can be done in two ways:

1. Per capita emissions ($tCO_2e$) – which has been calculated using the total estimated emissions for the National Park and Scotland dived by the reported (Census 2022[26]) population for each geography.
2. Emissions per $km^2$ (kt $CO_2e$).

Table 3 Greenhouse gas emissions in Scotland and the Cairngorms National Park. United Kingdom local authority and regional greenhouse gas emissions national statistics 2005-2022. (CNPA377) (CNPA439) United Kingdom Government – see footnotes.

| | Cairngorms National Park | | Scotland | |
|---|---|---|---|---|
| | 2005 | 2022 | 2005 | 2022 |
| Total emissions (kt $CO_2e$) | 186.7 | -17.1 | 62,984.8 | 37,706.7 |
| Per capita emissions ($tCO_2e$) | 11.8 | -1.0[27] | 12.3 | 6.9[28] |
| Emissions per $km^2$ (kt $CO_2e$) | 0 (0.041) | -0 (-0.004) | 0.8 | 0.5 |

The Cairngorms National Park total greenhouse gas emissions have decreased significantly more, proportionally, than Scotland's greenhouse gas emissions (109.2% decrease for the Cairngorms National Park between 2005 and 2022, against a 40.1% decrease for Scotland over the same period).

Similarly, when taken on a per capita basis the decrease for the National Park (-108.5% over this period is significantly higher than for Scotland as a whole (-43.9%). This reflects the significant influence that land use, land use change and forestry net emissions have on the total emissions values for the National Park.

[26] Note this gives a different value from that reported by United Kingdom Government, which for 2022 does not take into account the latest Census 2022 population values.
[27] Recalculated figure using Census 2022 population data.
[28] Recalculated figure using Census 2022 population data.

## Climate change mitigation

Climate change mitigation involves preventing and reducing the release of greenhouse gases into the atmosphere. A key aspect of this strategy is achieving net zero emissions, where all emissions generated by human activities are balanced by removing an equivalent amount of greenhouse gases from the air.

The process starts with minimising emissions through changes in actions and systems. However, some emissions are unavoidable. To reach net zero, these remaining emissions must be offset by initiatives that absorb an equal amount of greenhouse gases, such as reforestation, peatland restoration, or advanced technologies like carbon capture and storage.

### Land use emissions and storage of greenhouse gases

The Intergovernmental Panel on Climate Change (known as the IPCC) 6th assessment report (CNPA386) finds that the land use, land use change and forestry sector offers significant near term mitigation potential while providing food, wood and other renewable resources as well as biodiversity conservation.

The land use sector of the Small World Consulting Report (CNPA376) (Section 5.5) contains both sources and sinks of greenhouse gases. The sector overlaps with the land use, land use change and forestry sector for national greenhouse gas reporting so is consistent with international standards for reporting. The key difference is that the Small World Consulting land use sector includes emissions from livestock and fertilizer use, while the land use, land use change and forestry exclude those emissions which are then reported separately within the agriculture sector.

The methodology applied by Small World Consulting to land use greenhouse gas emissions and carbon sequestration is carefully explained in the report and while the science is developing every year, the report is based and the most up to date figures and estimates relating to different types of land use available at this point in time. The report assumes that the most appropriate choices of woodland establishment would be applied to any future changes and that peatland restoration is applied successfully to correspond with national targets and objectives.

The summary of the Small World Consulting estimate, based on 2019 data, is that the land use sector was a modest net carbon sink overall of 16,260 $tCO_2e$ per year (about 2.5% of the annual emissions footprint summarised in Figure 12).

**Regional land use partnerships**

The National Park Partnership Plan is the Regional Land Use Framework for the National Park. Five regions across Scotland, including the Cairngorms National Park, were involved in the Regional Land Use Partnership and Regional Land Use Framework pilot programme from 2021 – 2023.

It is still uncertain what, if any, powers Regional Land Use Partnerships will have in future to direct public funding, and this is pivotal in terms of how this approach will function. Within the Cairngorms National Park, the Park Authority has been tasked with creating the structures necessary to operate a partnership and framework and to trial how they might work in practice. However, during this pilot, the partnership and framework will not have powers to direct public funding.

More information on Regional Land Use Partnerships is available in Schedule 1: Plan outcomes.

**Peatlands**

Peatlands are globally important in tackling climate change; they cover only 3% of the global land surface yet hold nearly 30% of the world's soil carbon (CNPA798). Small World Consulting estimates that that peatland covers over 133,500 hectares in the Cairngorms National Park (29.5% of the Park's total land area)[29]. In terms of peatland management and restoration, the Cairngorms National Park Partnership Plan aims to have:

- A minimum of 38,000 hectares of peatland under restoration management by 2045.
- 80% of all drains restored by 2035.
- All erosion features restored by 2050.

According to NatureScot's Peatland ACTION data, around 3,180 hectares of completed and in-progress restoration projects have been led by the National Park Authority between 2021 and 2024.

Peat restoration involves raising the water table nearer to the surface and re-establishing peat forming fen or bog vegetation. Peatlands damaged by drainage and other human activities can rapidly lose their stored carbon, predominantly in the form of carbon dioxide release to the atmosphere. The report notes that peatlands are complex; they both emit and capture carbon dioxide and the balance between these processes

[29] The estimate was based on the NatureScot Carbon and Peatland Map, See Appendix 10.9.8 of the Small World Consulting Report for details (CNPA376).

depends on the peatland's condition. Peatlands may also be either sources or sinks of methane, and sources of nitrous oxide. However, the evidence suggests that, overall, peatland restoration delivers greenhouse gas benefits by protecting stored carbon and drastically reducing the amount of carbon dioxide emitted, even after factoring in the initial increase in methane emissions following rewetting (CNPA799).

More information on peaty soils in the National Park is available in Schedule 8: Land use, soil and resources.

**Trees, woodlands and forestry**

Native tree species comprise 79% of the National Park's woodlands, representing approximately a quarter of Scotland's entire native woodland resource. However, productive and native conifer species overlap in the Cairngorms, where the native Scots pine is grown as productive commercial woodland. This is particularly notable given the importance of Scotland to United Kingdom timber production.

**Timber production**

Scotland is by far the largest producer of timber in the United Kingdom. However, the United Kingdom as a whole is heavily reliant on imported timber. Approximately two thirds of the wood consumed in the United Kingdom is imported (CNPA800). This produces a risk to the security of supply for construction and manufacturing. However, this also provides an opportunity for Scotland to play a greater role in helping achieve a much greater self sufficiency in timber for the United Kingdom. Extending commercial woodland in the National Park and supporting development to enable expansion in this area could help increase the capacity of woodland as a carbon sink. Further information on woodlands is available in Schedule 4: Natural heritage.

**Agricultural landscape and food production**

In considering land use and land use change potential, it is also important to understand the nature of the land in the protected landscape and how it contributes to United Kingdom food security. The United Kingdom is a net importer of food. In 2023, the value of imports was greater than the value of exports in each of the broad categories of food, feed and drink except 'beverages' which had a trade surplus of £822 million, largely due to exports of Scotch Whisky. In 2023, 58% of domestic consumption came from United Kingdom production (based on unprocessed value at farmgate), 24% from the European Union and the remaining 18% from the rest of the world (CNPA801).

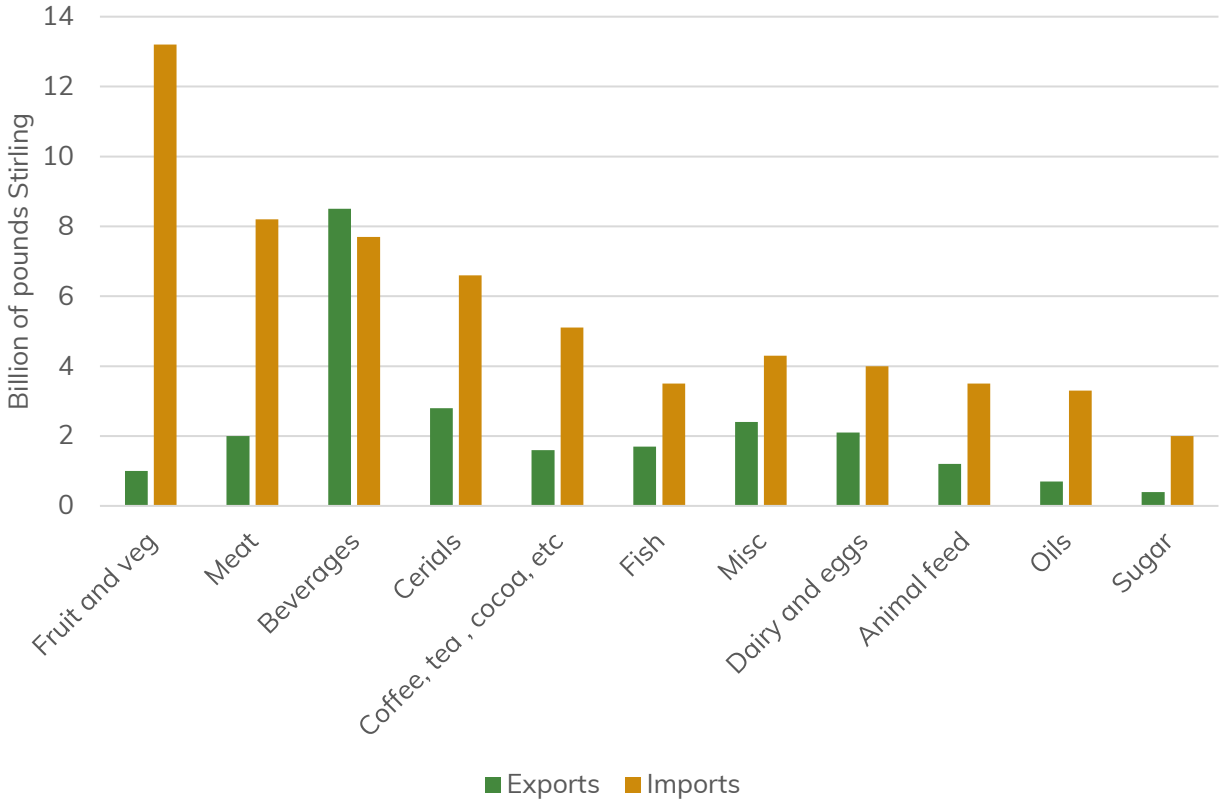



Figure 29 UK trade in different food groups in 2023. Department for Environment, Food and Rural Affairs, UK Government, 2025 (CNPA802).

The Land Capability Classification for agricultural use in Scotland ranks land on the basis of its potential productivity and cropping flexibility, determined by the extent to which its physical characteristics (soil, climate and relief) impose long term restrictions on its agricultural use.

The Report from Small World Consulting (CNPA376) suggests that Class 6 agricultural land (land capable only of use as rough grazing) and class 7 agricultural land (land of very limited agricultural value) may offer, in general terms, the greatest opportunities for land use change. Such change could be marginal or could raise possibilities for larger projects such as woodland creation, peatland restoration and grassland improvement. However, the report suggests that all opportunity mapping should be reviewed in the context of regional food production and security, given that the United Kingdom is a net importer of food; see Figure 29. Further information on agricultural land is available in Schedule 8: Land use, soil and resources.

### Achieving net zero in the National Park

The report by Small World Consulting (CNPA736) goes on to look at a consumption based carbon baseline for the Cairngorms National Park which is estimated at 423,718 $tCO_2e$ per year. Some components of the wider carbon footprint of the Cairngorms National Park presented in the previous sections have been excluded from the 2019 consumption based carbon baseline and the associated emissions reduction targets. These excluded components are:

- Residents' travel by air, ferries, trains, buses and other transport (excluding cars). Local public transport will be counted through the energy greenhouse gas emissions linked to local industry and travel outside of the National Park is beyond the scope of influence by local authorities.
- Residents' holiday accommodation outside the National Park.
- Residents' housing (construction and maintenance).
- Residents' health, education and other public services.
- Residents' and visitors' other bought services (e.g. financial, telecoms, travel agents, hairdressers).
- Residents' and visitors' art, sport and other leisure activities.
- Residents' and visitors' water, waste and sewerage.
- Industries' supply chains (both within and outside the National Park).

The 2022 – 2027 Cairngorms National Park Partnership Plan (CNPA010) includes woodland and peatland targets broken down into short term (to 2027) and long term (to 2045). These are summarised in Table 4.

Table 4 Woodland and peatland targets from the 2022 – 2027 Partnership Plan (CNPA010). The targets in bold are used for the alternative scenario explored in this section.

| | Target total 2027 (ha) | Annual rate to 2027 (ha / yr) | Target total 2045 (ha) | Annual rate to 2045 (ha / yr) |
|---|---|---|---|---|
| Woodland expansion | 7,000 | 1,400 | 35,000 | 1,521 |
| Peatland expansion | 6,500 | 1,300 | 38,000 | 1,652 |

The projections are based on all the other land based measures and decarbonisation efforts not involving land following the default assumptions made the apportioned Sixth Carbon Budget for land use change and the associated additions to annual carbon sequestration fluxes (Table 5). They are also based on the assumption of the short term targets from the National Park Partnership Plan persisting between the base year and 2050. Small World Consulting has used generic definitions of the land use options

adopted for all the landscapes on the programme, even though some of them are either less relevant (cover cropping) or need a more nuanced interpretation (native and productive conifers) in the Cairngorms National Park context

Table 5 Cairngorms National Park: Apportioned Sixth Carbon Budget targets for land use change and the associated additions to annual carbon sequestration fluxes. Small World Consulting, 2022 (CNPA736).

| Proposed land use targets | Value ha per year |
|---|---|
| Agroforestry (improved grassland and cropland) | 27.8 |
| New Hedgerows (improved grassland & cropland) | 1.6 |
| Legumes (improved grassland) | 215 |
| Cover Cropping (cropland) | 1.3 |

| Associated Carbon Sequestration | Value $tCO_2e$ per year per year |
|---|---|
| New Non Commercial Woodland | -18,456 |
| New Commercial Woodland | -22,117 |
| Restored Peatland | -10,368 |
| Agroforestry (improved grassland & cropland) | -65 |
| New Hedgerows (improved grassland & cropland) | -16.9 |
| Legumes (improved grassland) | -441 |
| Cover Cropping (cropland) | -1.5 |

In terms of translating the assumptions on woodland – the projections are based on the assumption that the National Park Partnership Plan woodland target is split equally between productive commercial woodland and permanent woodland for environmental benefits.

Small World Consulting, based on the National Park Partnership Plan short term targets (Table 4) and the Sixth Carbon Budget parameters (Table 5) forecast that the Cairngorms National Park could see a total cumulative reduction in the net annual greenhouse gas emissions of 1,490,220 $tCO_2e$ per year between the base year (2019) and 2050[30]. Percentage breakdown of the projected total cumulative reduction in the net annual greenhouse emissions by individual footprint categories and land based measures is provided in Figure 30.

[30] The net estimate includes both reductions in emissions and increases in carbon sequestration, depending on the contributing footprint category.

The adjusted land use targets imply that the Cairngorms National Park would reach Net Zero emissions in 2026 and would act as a net carbon sink in subsequent years (Figure 31). Small World Consulting's Report highlights that the actual net zero date is likely to be delayed by several years given the comparatively limited progress in reducing emissions and scaling up land based measures in the United Kingdom to date, which means it could take some time to reach the recommended levels of ambition.

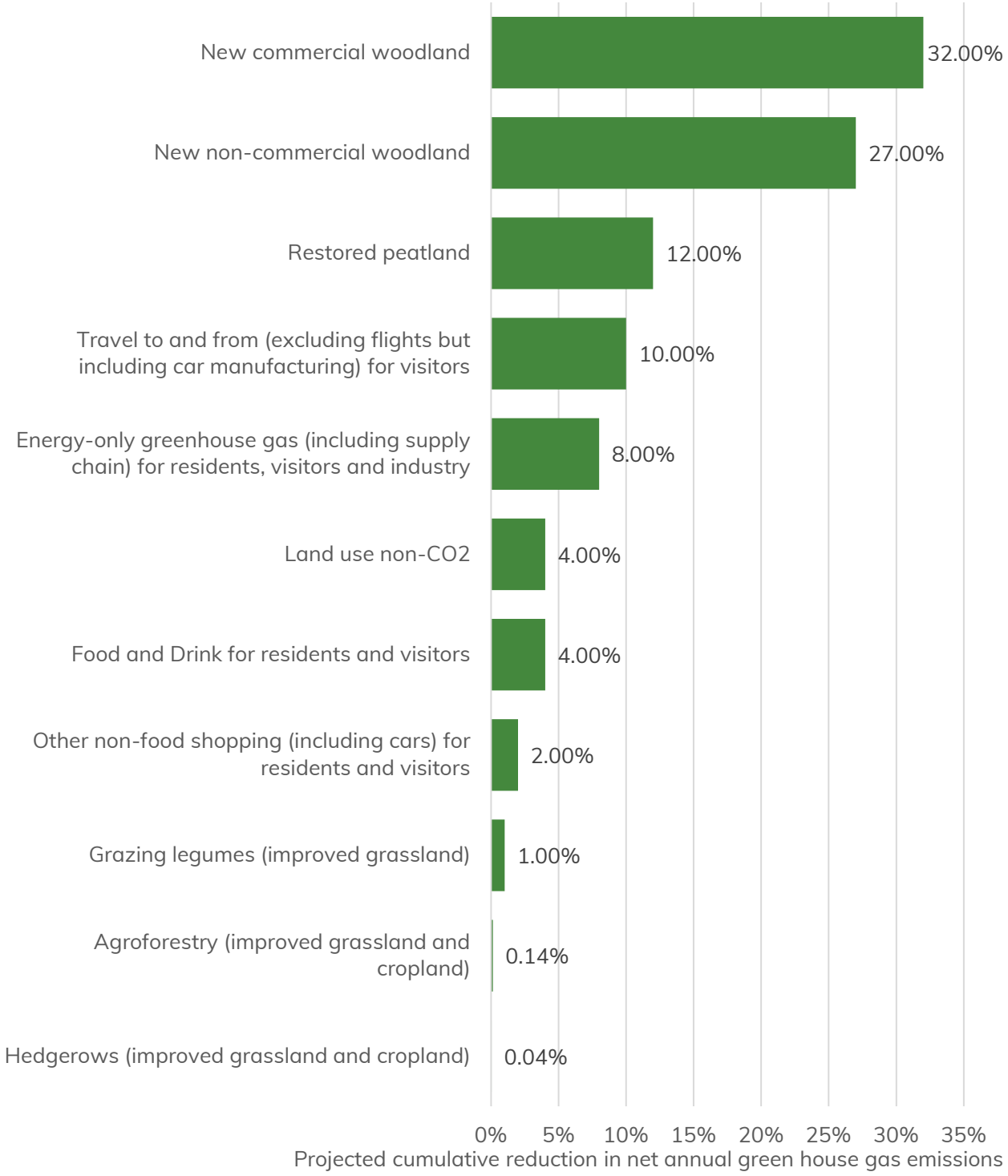



Figure 30 . Percentage breakdown of the projected cumulative reduction in net annual greenhouse gas emissions for the Cairngorms National Park between the base year (2019) and 2050 according to the individual emitting categories and carbon sequestration measures considered in the Small World Consulting Reports' assessment. The estimated are based on land use targets from the National Partnership Plan 2022 – 2027 (CNPA010). Small World Consulting, 2022 (CNPA736).

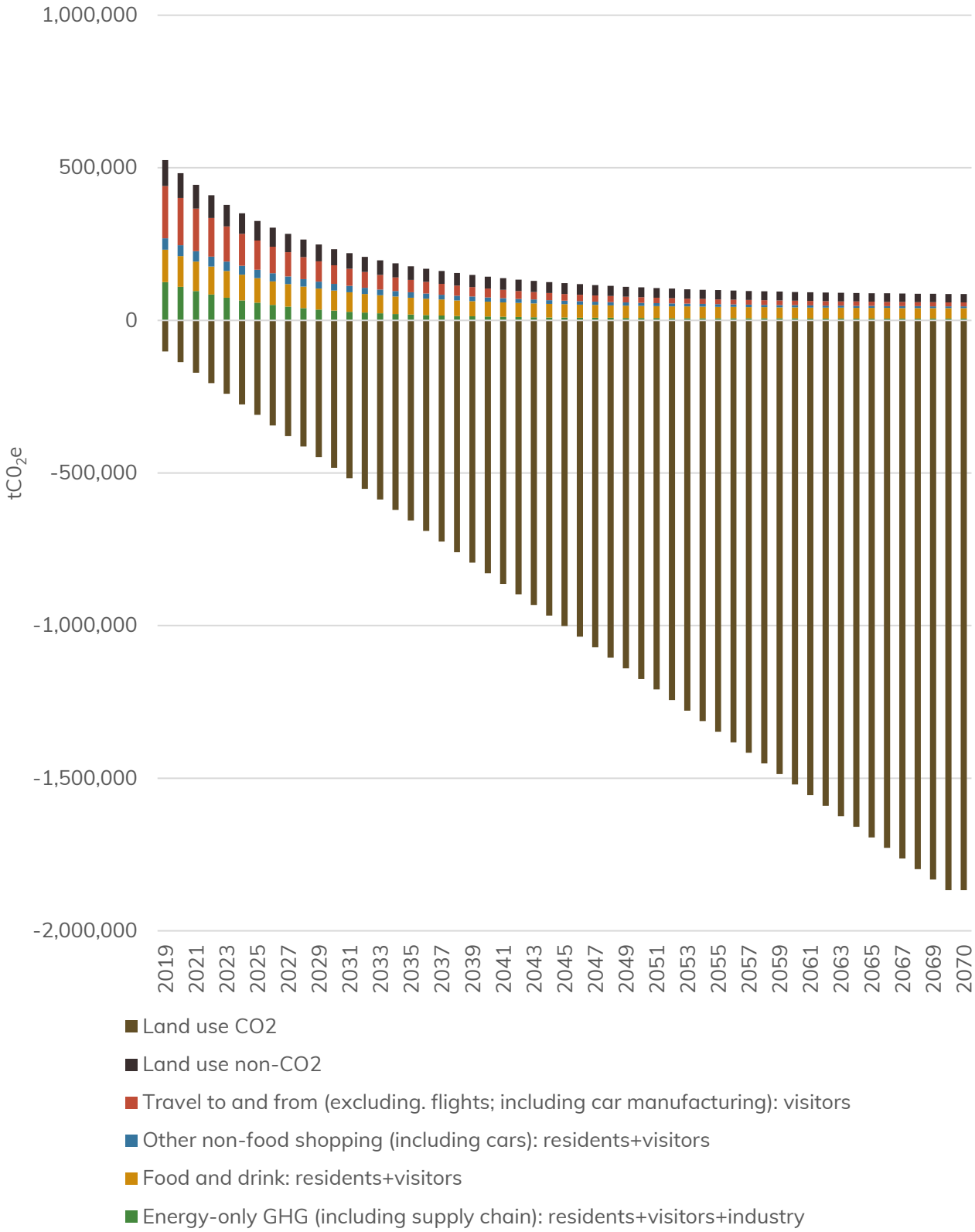



Figure 31 Forecasted pathway to net zero for the Cairngorms National Park, based on the woodland and peatland targets from the National Park Partnership Plan 2022 – 2027 (CNPA010). Small World Consulting, 2022 (CNPA736).

## Climate change adaptation

The Intergovernmental Panel on Climate Change (known as the IPCC) defines adaptation as 'the process of adjustment to actual or expected climate and its effects.' Climate change adaptation involves addressing the changes that have already occurred over recent decades while preparing for the ongoing and future challenges brought by a changing climate.

The Small World Consulting Report (CNPA736) highlights that transition to a low carbon future for the Cairngorms entails strong action in many areas: construction, home energy, food production and diets, travel and transport, business energy use, the nature of tourism and the visitor experience, the circularisation of the material economy (including repair, maintenance, renting and reselling of consumer goods), and significant changes in land management.

Many of these are outside the scope of the influence of the local development plan and will depend upon action by many other local, regional and national bodies to realise change. The report makes the following recommendations for local authorities, some of which may in part be supported through the Proposed Plan:

- Preparing the construction sector for zero carbon building (embodied greenhouse gas emissions), by supporting zero carbon building in policies and through supplementary design guidance.
- Supporting development of new buildings are energy efficient and supplied with low / zero-carbon energy (operational energy / greenhouse emissions).
- Encouraging and supporting low / zero carbon transport in new developments (cycling, electric vehicles, etc.).
- Implementing ecosystems services oriented policies and biodiversity net gain initiatives in new builds.

The Proposed Plan can support zero carbon building and improved energy efficiency upgrades (both in terms of renewable energy production and retrofit insulation applications) to existing properties and development, for example heat networks that could help lower building related emissions.

The report by Small World Consulting (CNPA736) highlights that the realisation of the forecasts and net zero targets (Figure 31) requires significant help from external partners, local authorities and Scottish Government. The areas that that the Proposed Plan may seek to influence, in terms of reducing the National Park's carbon footprint could include:

- Promoting living locally and supporting improvements to active travel networks, with an emphasis on sustainable placemaking.
- Supporting renewable energy development (with the exception of wind farms as directed by National Planning Framework 4).
- Supporting retrofit application and energy efficiency measures to existing buildings to lower building related emissions.
- Supporting energy efficient sustainable design in new builds.
- Supporting a circular economy and use of local materials in construction.
- Supporting locally grown food initiatives
- Supporting development that supports the decarbonisation of the existing transport networks, for example the rail and bus services in and connecting to the National Park.
- Supporting development that supports new woodland creation (including commercial woodland) and peatland restoration.
- Supporting development that supports changes to existing agricultural practices to make them more sustainable and efficient.
- Supporting development that enables regenerative farming.
- Supporting development that supports improvement to natural heritage assets – for example improving grasslands.
- Supporting development that supports positive changes in dietary options to help promote a plant based options for residents and reduce meat and dairy.

**Nature networks**

In addition to the climate emergency, Scotland is also facing an ecological crisis, both deeply interconnected and requiring a unified approach. Climate change has intensified habitat loss and the fragmentation of biodiversity at local and national levels.

Nature networks play a crucial role in supporting wildlife, recreation, and sustainable travel. Woodland creation helps absorb carbon dioxide while regulating water flow into burns and rivers, reducing the risk of flooding in urban areas. Additionally, trees and other green infrastructure can lower urban temperatures, offering multiple health and wellbeing benefits. More informational on nature networks is available in Schedule 5: Natural heritage.

**Blue and green infrastructure**

Blue and green infrastructure plays a crucial role in enhancing resilience and adaptability to climate change. Features like tree planting, street trees, green roofs, and permeable vegetated surfaces, such as parks and open spaces, contribute to sustainable drainage systems by improving water management.

Utilising sustainable drainage systems, especially nature based solutions, provides multiple benefits closely linked to climate change adaptation. These include flood risk mitigation, carbon reduction and sequestration, and support for biodiversity. Additionally, blue spaces like ponds, lakes, and rivers help cool urban environments, reducing temperatures and improving overall climate resilience.

Nature based solutions within blue and green infrastructure offer significant benefits in addressing climate change. These include:

- Cycling and walking networks integrated into green corridors promote active travel, reducing carbon dioxide emissions.
- Tree planting aids in carbon storage and flood management while also providing shade and evapotranspiration, which helps lower urban temperatures. Shaded buildings require less air conditioning, further cutting carbon emissions.
- Green infrastructure supports biodiversity and enhances soil health, contributing to overall ecosystem resilience.
- Renewable energy sources, such as ground source heat pumps, can be effectively integrated into green and blue spaces to promote sustainability.

Nature based solutions have co benefits for biodiversity and human health and wellbeing alongside climate benefits. The Proposed Plan should seek to support the use of nature based solutions within development to enhance climate resilience for the communities in the Cairngorms National Park.

Both blue green infrastructure and nature networks water can play a critical role in supporting and enhancing networks and nature based solutions. Matters relating to blue and green infrastructure are summarised in Schedule 16: Blue and green infrastructure.

**Flooding**

Both water flooding and fluvial flooding risk are predicted to worsen in the National Park due to the changing weather patterns resulting from the locked in effects of climate change. The response to the increased risk of flooding in the National Park is set out in Schedule 19: Flood risk and water management.

**Health and wellbeing**

The degree to which individuals and communities in climate vulnerable regions experience negative effects depends on their social vulnerability. Adaptation strategies can provide health and wellbeing benefits that extend beyond climate change itself (co-benefits). Co benefits are more likely to be realised when adaptation efforts focus on the

fundamental elements that support overall health. Further information on health and wellbeing is contained within Schedule 18: Health and safety.

**Zero waste and the circular economy**

National Planning Framework 4 supports the development of waste management facilities which support the circular economy. This prioritises the reduction and reuse of materials in construction. More detail is available in Schedule: 10: Zero waste.

**Local living**

Local living neighbourhoods can support the transformative social and economic change that will be needed to tackle some of the key challenges Scotland faces around climate, health, green recovery and the resilience of its communities. More information on local living and the implications for the Proposed Plan can be found in Schedule12: Living locally and 20 minute neighbourhoods.

### Evidence gaps

No outstanding evidence gaps have been identified.

## Summary of stakeholder engagement

Engagement with Gypsy and Traveller communities regarding climate change, elders in the community expressed the desire for an increase in inclusion when approaching conservation efforts (CNPA028).

Engagement with the Kingussie community roadshow in January 2025 provided an insight into local priorities of peatland restoration and nature restoration (CNPA026).

The Planning Power engagements held in Aviemore and through the Cairngorms 2030 initiative also highlighted concerns about the climate crisis, with participants calling for a more holistic approach to tackling climate change. Many emphasised the importance of protecting forests and peatlands, recognising these landscapes as vital to both environmental sustainability and community wellbeing (CNPA1105, CNPA1104).

Engagement with children and young people revealed concerns about climate change in the National Park, with reduced wildfire resilience identified as their primary issue. It was also identified that young persons felt that the efforts made to reduce the impact of the climate crisis within the National Park were offset by the lack of measures elsewhere

leading to feelings of anxiety (CNPA027, CNPA058, CNPA681, CNPA682, CNPA683, CNPA833, CNPA834, CNPA835).

Engagement with the Badenoch and Strathspey Access Panel in February 2025 highlighted concerns surrounding the increased flooding chance present throughout both national cycle network route 7 as well as some of the southern areas of the National Park (CNPA598).

Public engagement on the schedule (See CNPA1344 for engagement version) was carried out from 14 August – 26 September 2025. Nine completed responses were received (CNPA1340).

## Summary of implications for Proposed Plan

Based on the available evidence and engagement with key agencies and other interested parties, the Park Authority consider this schedule to provide a sufficient evidence base on which to prepare the Proposed Plan.

The Proposed Plan needs to be prepared in accordance with:

- The four aims of the National Park as set out in The National Parks (Scotland) Act 2000), in particular the first aim 'to conserve and enhance the area's natural and cultural heritage' and the second aim 'to promote sustainable management and use of the area's natural resources'.
- Section 9(6) of the 2000 Act, which states that while the aims are to be pursued collectively, if there is conflict between the first aim and any of the others, greater weight is given to the first aim.
- The spatial strategy and principles of National Planning Framework 4 (CNPA008).

The Proposed Plan should seek to:

- Recognise and reflect its important role in addressing climate change.
- Reduce, minimise and avoid greenhouse gas emissions, in line with the climate change mitigation hierarchy (in other words - to first avoid, then minimise, restore, and offset).
- Support development that delivers nature based solutions in terms of mitigation and adaptation to clime change.
- Support decarbonisation of the buildings sector through:
  1. Reducing embodied carbon in buildings.
  2. Supporting retrofit application and energy efficiency measures to existing buildings to lower building related emissions.

3. Improving / optimising building fabric efficiency.
4. Supporting energy efficient sustainable design in new builds. Including initiatives to encourage and seek the highest possible standards from developers in terms of net zero.
5. Supporting a circular economy and use of local materials in construction.

- Support decarbonisation of the transport sector through:
  1. Promoting living locally and supporting improvements to active travel networks, with an emphasis on sustainable placemaking.
  2. Supporting development that improves active travel infrastructure.
  3. Reducing car dependency, the need to travel by car.
  4. Supporting development that supports the decarbonisation of the existing transport networks, for example rail and bus services in and connecting to the National Park.
- Support decarbonisation of the energy sector, through:
  1. Supporting renewable energy generation.
  2. Support required upgrades to the national grid as outlined in the Holistic Design Review (National Energy System Operator) (CNPA804) and / or subsequent recommendations set out by National Energy System Operator that facilitate the decarbonisation of the national grid through increases in renewable energy generation and anticipated infrastructure requirements.
  3. Reflecting the spatial outcomes from the local heat and energy efficiency strategies of the five local authorities covering the National Park area and support the delivery of proposed heat networks.
  4. The decarbonisation of heating (both domestic and commercial).
- Consider a policy approach to implement National Planning Framework 4 and deliver carbon offsetting if required.
- Consider an integrated approach to land use planning and management to support the move to net zero and adaptation to climate impacts. This should include:
  1. Supporting development that delivers new woodland creation (including commercial woodland) and peatland restoration.
  2. Supporting development that delivers changes to existing agricultural practices to make them more sustainable and efficient.
  3. Supporting development that enables regenerative farming.
  4. Supporting development that supports improvement to natural heritage assets – for example improving grasslands.
- Mitigate the effects of urban heat and link this to related work on quality green spaces and nature networks.

- Manage and mitigate, where appropriate, the wider impacts of climate change, including infrastructure risks, community resilience, air quality and food availability, including:
  1. Support for locally grown food initiatives.
  2. Reflect the spatial outcomes from community led net zero projects.
- Support technological approaches to carbon sequestration, alongside sequestration through nature.
- Ensure the site selection promotes and supports allocations for development in sustainable locations where they can contribute to local living and reducing distances travelled by car.
- Promote living locally and supporting improvements to active travel networks, with an emphasis on sustainable placemaking.
- Support development that delivers positive changes in dietary options to help promote plant based options for residents and reduce meat and dairy consumption and production.
- Support development that helps tourist facilities and services that are dependent on winter sports, such as skiing, remain viable.
- Strengthen resilience to flood risk by promoting avoidance as a first principle and reducing the vulnerability of existing and future development to flooding to support flood resilient communities
- Support development that helps build reliance for natural heritage against the effects of climate change.
- Support development that avoids contributing to wildfire risk.
- Seek to protect and enhance peatlands.
- Seek to acknowledge the risks posed by water scarcity in particular to private water supplies and support development that delivers sustainable resilient use of water.

## Statements of agreement

The following people / organisations agree that the evidence presented is sufficient to inform the preparation of the Proposed Plan:

- Historic Environment Scotland (C002)
- NatureScot (C004)
- Scottish Environment Protection Agency (C010)
- Scottish Forestry (C011)
- Perth and Kinross Council (C024)
- SSEN Transmission (C058)
- The House of Bruar, Atholl Estates and Dalhousie Estates (C060)
- NDC Certification Bureau (C050)

## Historic Environment Scotland (C002)

Historic Environment Scotland agrees that the evidence presented in this report correctly identifies the characteristics of the Cairngorms National Park commenting that they welcome the references to a number of Historic Environment Scotland's research and guidance in relation to the impacts, challenges and opportunities in relation to climate change. As is reflected in the Scottish National Adaptation Plan, the historic environment has an important role to play in this subject area, and we welcome the recognition of this within the report.

They stated they did not know of any additional information that would help inform the preparation of the next Local Development Plan and agreed that the correct implications for the next Local Development Plan have been identified.

## NatureScot (C004)

NatureScot agrees that the evidence presented in this report correctly identifies the characteristics of the Cairngorms National Park, stating that they previously provided a response as part of the informal consultation on this topic paper and taking into consideration the additional comments, and are satisfied that the evidence correctly identifies the characteristics of the Cairngorms National Park. They agree that the evidence presented in this report is sufficient to inform the preparation of the next Local Development Plan. They suggested that reference should be made to the need for species to move northwards in a bid to find their climate envelope and how nature networks. Subject to this amendment, they agree that the correct implications have been identified.

**Park Authority response**

Information on the northward migration of species has been added to Schedule 5: Natural heritage.

## Scottish Environment Protection Agency (C010)

The Scottish Environment Protection Agency states they are happy with the content, having been engaged with prior to the topic paper being published for public engagement. They state that they have no further comment to make (CNPA1372).

## Scottish Forestry (C011)

Scottish Forestry believes the matters are adequately addressed (CNPA1421).

## Perth and Kinross Council (C024)

Perth and Kinross Council agrees that the evidence presented in this report correctly identifies the characteristics of the Cairngorms National Park commenting that they believe that 'the evidence presented in the topic paper appears to provide a comprehensive review of the relevant evidence for the specific topic related to the Cairngorms National Park area'. They suggested the addition of the Council's 'Climate Risk and Opportunity Assessment', undertaken by ARUP, as a useful source of information relating to the Perth and Kinross Council area within the National Park.

The Council agrees that the correct implications for the next Local Development Plan have been identified.

**Park Authority response**

A reference to the Opportunity Assessment undertaken by ARUP has been included where this directly relates to impacts on the Perth and Kinross areas within the National Park to support the existing assessments by the James Hutton Institute of climate change impacts.

## SSEN Transmission (C058)

SSEN Transmission agrees that the evidence presented in this report correctly identifies the characteristics of the Cairngorms National Park commenting 'the evidence collated appears comprehensive given the subject'. They also suggested including evidence from the National Energy System Operator's Holistic Network Design review (2022), regarding the need for electricity network upgrades and changes to decarbonise the grid, which ultimately will help to minimise climate change in the years ahead in order to meet 2045 and 2050 Scotland and United Kingdom net zero commitments.

They agree that the correct implications for the next Local Development Plan have been identified, commenting they feel 'the evidence topic paper appears to provide a comprehensive understanding of the climate change issues and how these could be addressed through policy'.

**Park Authority response**

A reference to the National Energy System Operator's publication: the Holistic Network Design review has been added to the schedule. Additionally, an implication supporting the need for the Proposed Plan to support essential network upgrades set out in the recommendations in the document has been inserted.

### The House of Bruar, Atholl Estates and Dalhousie Estates (C060)

Ristol Consulting Ltd responded to the public engagement on behalf of The House of Bruar, Atholl Estates and Dalhousie Estates. They agreed that the evidence presented in this report correctly identifies the characteristics of the Cairngorms National Park and did not know of any additional information that would help inform the preparation of the next Local Development Plan. They also agreed that the correct implications for the next Local Development Plan have been identified commenting that they would 'welcome the provision for mobility hubs within rural transport corridors to provide a range of active travel services and electric vehicle charging infrastructure including 'last mile' consolidation.'

**Park Authority response**
The Park Authority welcomes the engagement and a reference to mobility hubs can be found in Schedule 11: Sustainable Transport.

### Kay Caldwell (C090)

Kay Caldwell agreed that the evidence presented in this report correctly identifies the characteristics of the Cairngorms National Park. They did not know if the evidence presented in this report is sufficient to inform the preparation of the next Local Development Plan. They did feel however that the correct implications for the next Local Development Plan have been identified.

## Statements of dispute

### NDC Certification Bureau (C050)

Although the NDC Certification Bureau agrees that the evidence presented correctly identifies the characteristics of the Cairngorms National Park, they suggest outputs of relevant organisation Energy Savings Opportunity Schemes, Streamlined Energy and Carbon Reporting and carbon reduction plans should be included in the topic paper.

They state that they do not know if the correct implications for the next Local Development Plan have been identified because they felt there was insufficient data or

narrative in the report to demonstrate that organisational impacts (positive and negative) had been fully taken into account.

**Park Authority response**

The Park Authority is of the view that reporting on individual organisations in terms of Energy Savings Opportunity Scheme status, Streamlined Energy and Carbon Reporting and carbon reduction plans is not proportional to the scope of the Evidence Report.