



Moray Council Climate Change Strategy 2020-2030

Climate Change Plan and Routemap to Net Zero



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Foreword

Our climate is changing at a rate never before experienced.

Human activity has been the major source of all global warming in recent history and we must strive to deliver on our collective responsibility to be the main drivers of action.

At the launch of the AR6 Synthesis Report of the Intergovernmental Panel on Climate Change (IPCC) on 20 March 2023, UN Secretary-General António Guterres said:

“Humanity is on thin ice – and that ice is melting fast.

In short, our world needs climate action on all fronts -- everything, everywhere, all at once.

Specifically, leaders of developed countries must commit to reaching net zero as close as possible to 2040, the limit they should all aim to respect.

This can be done.

Every country must be part of the solution. Demanding others move first only ensures humanity comes last.”

It is therefore clear that the decisions we take today will prove pivotal for the generations to come.

There is a very limited opportunity remaining for us to take the necessary actions to ensure that future impacts are mitigated and that our communities are properly adapted. These form part of our statutory priorities.

Our **Climate Change Plan and Routemap to Net Zero** complements our Climate Change Strategy by providing the strategic approach necessary to achieve these priorities.

By setting an ambitious net zero target of 2030 for direct Council emissions, we have set our sights on taking all of the opportunities available for early adaptation and mitigation measures. In doing so, we will also be delivering

on the priorities of our Corporate Plan by unlocking a wealth of co-benefits for the people of Moray.

As set out in our **Climate Change Plan and Routemap to Net Zero**, this will not be easy. But nor is it beyond our grasp at this time.



Cllr Marc Macrae
**CHAIR, ECONOMIC DEVELOPMENT &
INFRASTRUCTURE SERVICES COMMITTEE**



Cllr Draeyk van der Hørn
CLIMATE CHANGE CHAMPION

1. Why we are taking climate change action

1.1 Introduction

All local authorities signed Scotland's Climate Change Declaration in 2007 and 28 have since declared or otherwise recognised the climate emergency.

Moray Council declared a climate emergency in June 2019 and agreed a Climate Change Strategy in 2020. The strategy has a commitment to net zero direct emissions from council activities by 2030. This Climate Change Plan and Routemap to Net Zero complements the strategy by providing an annual update on progress, actions and the way forward.

In addition, the council declared a nature emergency in February 2023, recognising the value of nature and its role in realising climate targets, maintaining a strong economy, and for protecting the health and wellbeing of future generations. The importance of using nature-based solutions to climate change are well recognised, with positive outcomes for both mitigation and adaptation¹.

The climate is changing faster than ever previously experienced. Globally scientists agree that greenhouse gas emissions from human activities are the main reason for global temperature increases over the past 150 years² (Figure 1).

Increased carbon dioxide in the atmosphere also has a profound impact on the health and wellbeing of the population. There is approximately 1 excess death per 4,500 tCO₂e emitted³ and the impacts of climate change will be felt disproportionately by people on low incomes who have contributed least to the increase in greenhouse gas emissions⁴.

The impact of global temperature increases has already been significant. Weather patterns are changing and sea levels are rising. These changes are

leading to severe events such as heatwaves, floods, droughts and wildfires, and increasingly so in the Moray region (Figure 2).

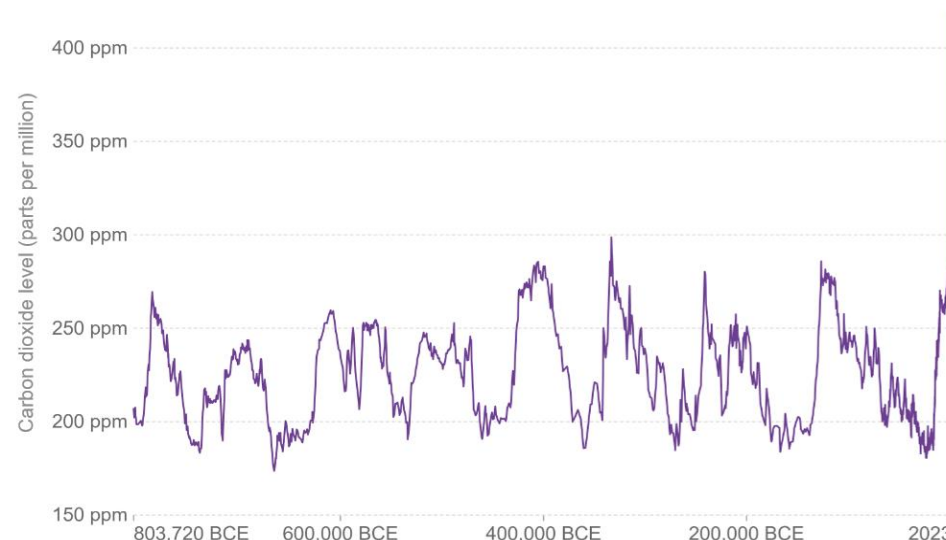


Figure 1. Global atmospheric carbon dioxide (CO₂) concentration from 803,720 BCE to present day. Data from National Oceanic and Atmospheric Administration (2023).

Coastal flooding is of particular concern and impact in Moray due to rising sea levels and storm surges leading to property damage, infrastructure disruption and loss of habitable land. The first 'climate refugees' in the British Isles are from a coastal community in Wales⁵.

Climate change also poses the greatest threat to the natural environment and the ecosystem services that it provides (Figure 3). This threat will in turn negatively impact the Moray food and drink sector, tourism sector, and overall health and wellbeing.

¹ Seddon *et al.* (2020) 'Global recognition of the importance of nature-based solutions to the impacts of climate change'.

² IPCC (2021) *Climate Change 2021: The Physical Science Basis*.

³ Bressler (2021) 'The mortality cost of carbon'.

⁴ UK Government (2019) *The Impacts of Climate Change*.

⁵ BBC News (2022) *The UK 'climate refugees' who won't leave*.

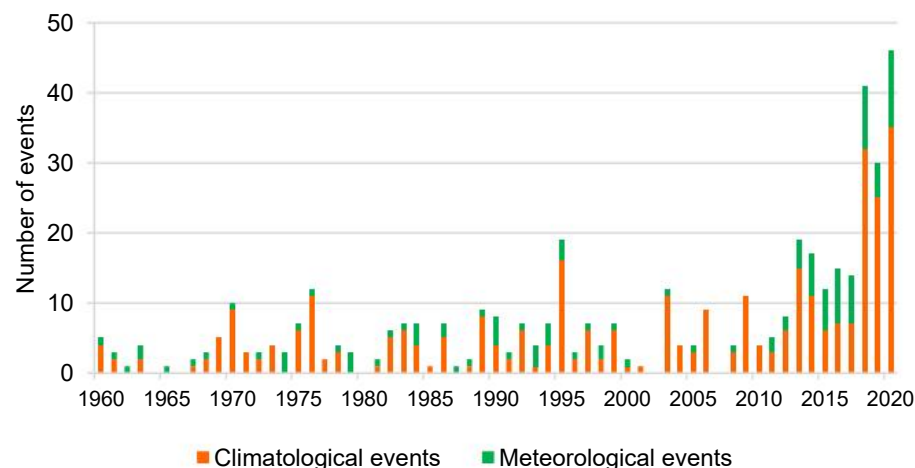


Figure 2. Frequency of extreme events occurring in Moray. Data from various Scottish public agencies.

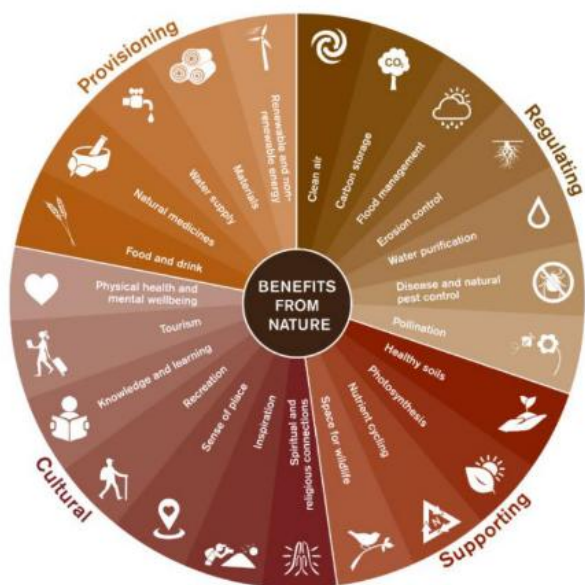


Figure 3. Ecosystem services gained from nature (NatureScot 2022)

1.2 Statutory obligations

Moray Council has a statutory responsibility to undertake climate change action.

Scotland aims to reduce greenhouse gas emissions by 75 per cent by 2030 and to reach net zero by 2045. The [Climate Change \(Scotland\) Act 2009](#) places a duty on all public bodies to act to deliver on the national climate change targets.

Under this legislation, Moray Council has three main duties:

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

The council 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](#).

This council is required to provide the following information in annual climate change reports:

- its target date for achieving zero direct emissions;
- its targets for reducing indirect emissions;
- how its targets will align spending plans and use of resources to contribute to reducing emissions;
- how it will publish progress to achieving emissions reduction targets; and
- what contribution it has made to helping deliver Scotland's Climate Change Adaptation Programme.

[National Planning Framework 4 \(NPF4\)](#) gives significant consideration to carbon, climate change and biodiversity by incorporating the national climate change targets into the local planning system to promote sustainable development.

The [Heat Networks \(Scotland\) Act 2021](#) aims to regulate and support the development of heat networks. Heat networks distribute heat from a central

source to multiple buildings, reducing the need for individual heating systems and promoting energy efficiency. The council is required to undertake assessments of the potential for heat networks in Moray and develop plans to promote their use.

The [Local Heat and Energy Efficiency Strategies \(Scotland\) Order 2022](#) requires the council to develop plans to improve energy efficiency and reduce carbon emissions in buildings across Moray, to support the transition to net zero.

The [Nature Conservation \(Scotland\) Act 2004](#) aims to protect and conserve biodiversity and natural habitats. It places a duty on the council to consider biodiversity in its decision-making processes and to promote the conservation of local habitats and species.

The [Transport \(Scotland\) Act 2019](#) aims to promote sustainable transport and reduce greenhouse gas emissions from the transport sector. It has provided the council with greater powers to implement Low Emission Zones and improve active travel infrastructure.

1.3 Co-benefits of taking climate change action

Local authorities and community planning partners play a vital leadership role in driving the ambition and local collaboration necessary to integrate net zero and the green recovery into planning and investment decisions⁵. In addition, taking action on climate change presents opportunities to promote co-benefits which support multiple demands from local communities and businesses. The co-benefits of climate action can include the creation of green jobs, improved public health from active travel and cleaner air, and enhanced biodiversity due to the expansion of green space.

Such co-benefits could also support the delivery of themes within the [Moray Council Corporate Plan 2024](#). Table 1 highlights a selection of potential co-benefits achievable which align with Corporate Plan priorities.

⁵ [Improvement Service \(2023\) Community Planning Improvement Board: Climate change and sustainability key messages](#).

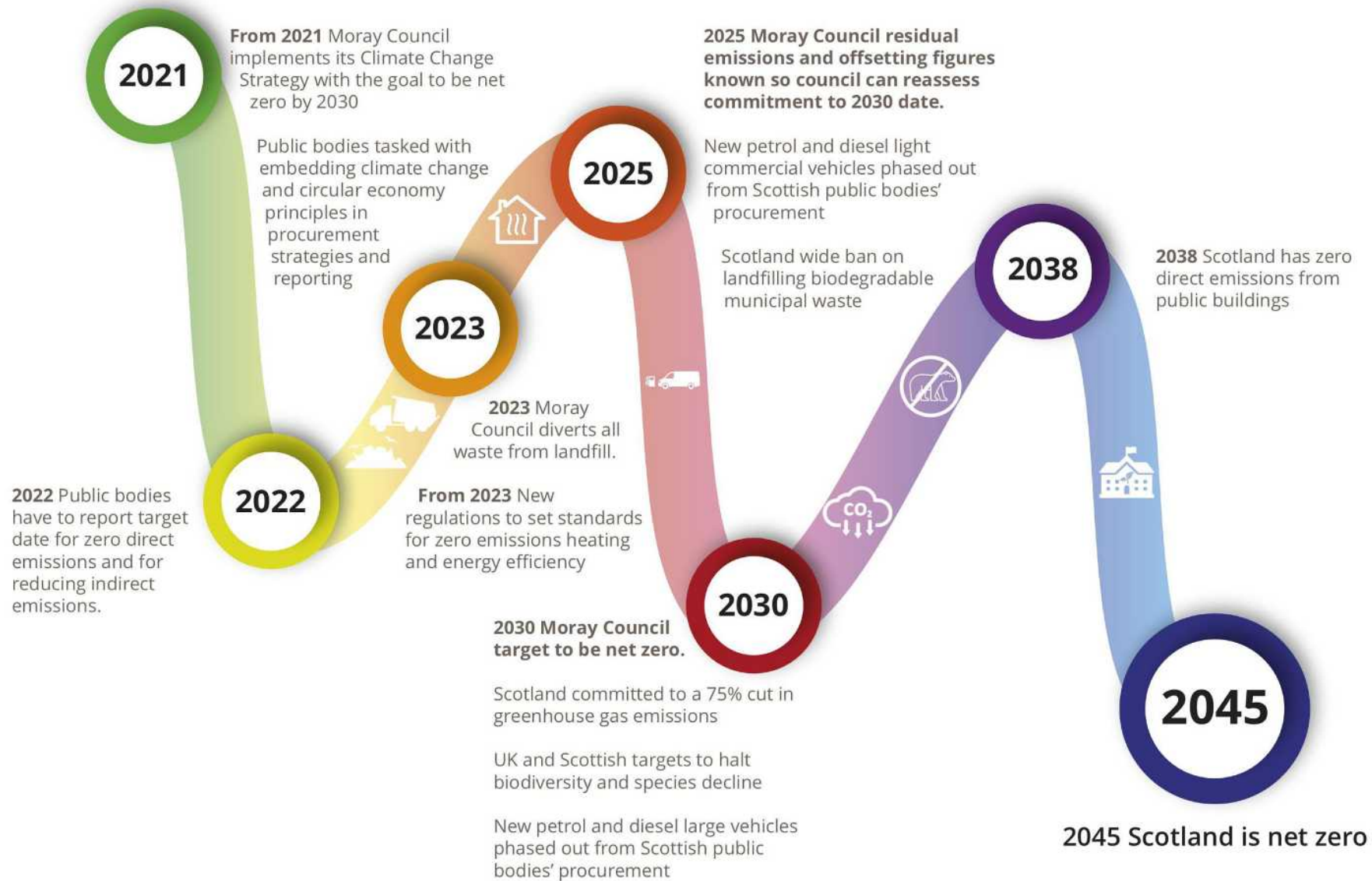
Table 1. Selection of potential co-benefits achievable through delivery of Climate Change actions.

| |
|---|
| Our people <ul style="list-style-type: none"> ✓ Improved health and wellbeing ✓ Reduced health and social care costs ✓ Protect the most vulnerable from climate impacts |
| Our place <ul style="list-style-type: none"> ✓ Strong, well-connected communities ✓ Community-led improvements ✓ Public involvement in planning ✓ Improved greenspaces and access to the natural environment |
| Our future <ul style="list-style-type: none"> ✓ Increased demand and opportunities for green jobs and skills ✓ Retaining young people in Moray ✓ Strong local economy and community wealth ✓ Improved standard of living ✓ Resilience to climate change impacts ✓ Reduced energy and maintenance bills ✓ Reduced costs from severe event damage ✓ Opportunities for council revenue generation |

Early investment in climate change adaptation delivers strong value for money, with most measures delivering £2 to £10 of net wider economic benefits locally for every £1 spent⁶. In addition, around £9 in property damages and wider impacts can be avoided.

⁶ [UK National Audit Office \(2022\) 'Climate change adaptation: the government's role and progress'](#).

The following milestones have been adopted by Moray Council in response to the wider commitments set by the Scottish Government for Scotland and the public sector.



2. Our approach to climate change action

2.1 Accounting for net zero

Net zero means cutting greenhouse gas emissions to as close to zero as possible, with any remaining emissions re-absorbed from the atmosphere – for example, by oceans and forests⁷.

Emissions originate from sources directly within the council's control (Scope 1), or where it is the direct user of a good or service (Scope 2), e.g. fleet vehicle emissions and grid electricity use. The Moray Council target for net zero is to reduce direct operating emissions of the council to net zero by 2030.

Other emissions originate from sources where the council has an interest but no direct control (Scope 3), e.g. procurement of food for school catering. Calculating the latter involves a greater level of uncertainty: both in the emissions themselves, and the level of responsibility for them.

The council has a duty to report on all Scope 1 and 2 emissions, all Scope 3 emissions from "relevant and significant areas of the organisation's indirect emissions" greater than 1% of total organisational emissions.

2.2 Approach to our targets

The council has previously agreed that its targets should be ambitious and achievable. They should provide a realistic but agile pathway towards the aim of net zero carbon emissions by 2030.

The targets should be measurable and recording mechanisms should be transparent and improved over time. Where there is uncertainty, assumptions backed by expertise will be made and stated clearly to avoid understating the council's climate impact.

The council's targets will include direct emissions, and estimate how these and indirect emissions may change in the future. They will:

- Be clear on what is included in the scope of the council's emissions;
- Cover all Scope 1 and 2 emissions and appropriate areas of Scope 3 emissions (e.g. municipal waste);

- Have interim reduction targets at set periods that align to the Scottish Government interim targets; and
- Reduce residual emissions to as low a level as possible and set out how natural carbon sequestration methods will be used to achieve net zero emissions.

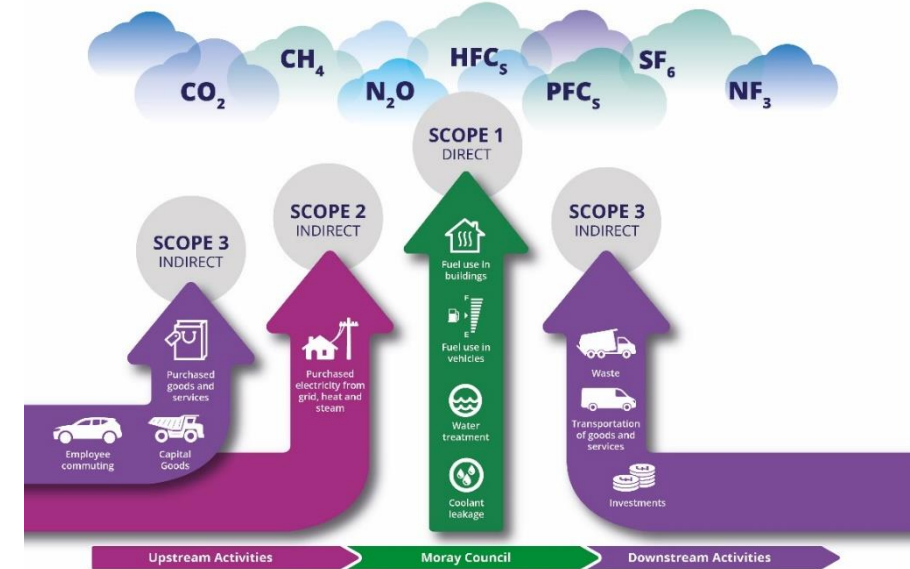


Figure 4. Emissions scope classification for Moray Council activities.

The council will use a carbon management hierarchy approach to prioritise its targets and necessary actions (Figure 5). This approach prioritises the avoidance of carbon emissions to deliver lasting change. Where avoidance of emissions is not possible then they should be reduced through service efficiencies or redesign. Removal of emissions is required where further reductions cannot be achieved.

Offsetting 'unavoidable' emissions through offsetting schemes should be considered as a last resort in target setting. Offsetting large amounts of carbon is discouraged as large scale offsets are not sustainable and guidance makes clear that public bodies are required to reduce emissions as much as possible before considering offsets.

⁷ United Nations (2023) *What is net zero?*

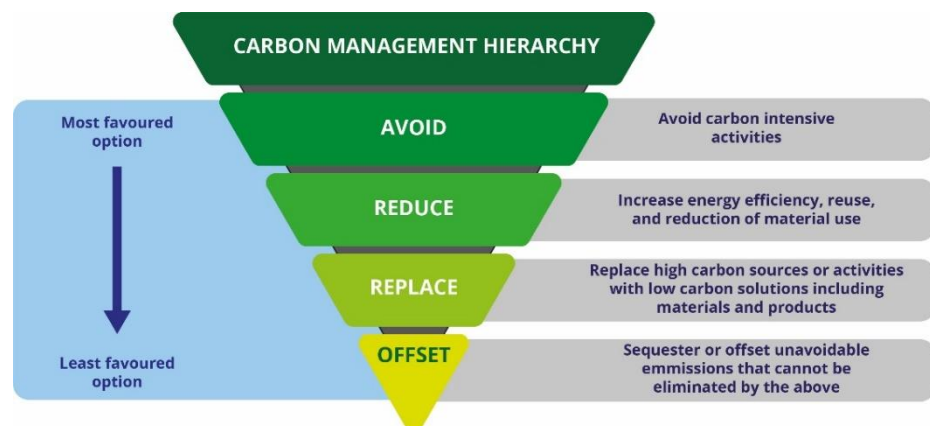


Figure 5. Moray Council carbon management hierarchy.

For example, actions might look like:

- **AVOID:** Redesign services to enable smarter working.
- **REDUCE:** Reduce energy through smart timing solutions.
- **REPLACE:** Decarbonisation of the council's fleet.
- **OFFSET:** Plant an area of woodland to offset unavoidable emissions.

2.3 Baselineing our emissions

Calculating baseline emissions helps to determine the level of intervention needed to achieve net zero carbon emissions, and to allow progress to be monitored.

The council's carbon emissions from 2017/18 are used as a baseline for emissions (Table 2). This year was chosen as it was the earliest year that had a comprehensive return of emissions to the Scottish Government.

It should be noted that as these data are from prior to the pandemic, operational emissions were minimal as most staff worked from an office base and home working emissions were not being recorded. The first time the council recorded homeworking emissions was during the pandemic.

Table 2. Moray Council 2017/18 baseline carbon emissions.

| Emission source by area and source | | Carbon emissions (tCO ₂ e) |
|------------------------------------|---|---------------------------------------|
| Building heat | Natural gas | 4,077.9 |
| | Gas oil | 1,034.1 |
| | Biomass | 34.7 |
| | Purchased heat and steam | 15.4 |
| Building electricity | Primary schools and nurseries | 1,122.0 |
| | Secondary schools | 1,177.3 |
| | Unmetered electricity | 1,685.5 |
| | Offices | 523.8 |
| | Community facilities | 358.5 |
| | Residential homes and day centres | 145.7 |
| | Sports facilities | 249.6 |
| | Industrial | 346.2 |
| | Other | 611.0 |
| Transport | Diesel | 3,591.5 |
| | Petrol | 27.5 |
| | Gas oil | 776.6 |
| | Electric vehicles | 0.0 |
| | Hybrid vehicles | 0.0 |
| | Marine fuel oil | 68.2 |
| Waste | Landfill gas | 0.0 |
| | Municipal refuse to landfill | 9,130.3 |
| | Commercial, industrial and clinical waste to landfill | 2,048.7 |
| | Recycling and composting | 387.2 |
| Operational emissions | Outdoor spaces | 72.1 |
| | Homeworking emissions | 0.0 |
| | Water supply and treatment | 125.8 |
| | Corporate travel | 394.8 |

3. What impact are we having on climate change?

The way the council conducts its work and manages its assets all has an impact on the climate. In this section, the extent of this impact is explored.

If progress is to be made on the council's targets, it must consider what it is doing and how it is doing it. Within that, the council should also reflect on the lessons it can learn from examples of good practice and how these can be applied to future action.

The actions in this section form part of the council's climate change action plan. There is an opportunity to develop these actions further as part of the Climate Change Strategy update in 2024.

3.1 Building heat and electricity



3.1.1 Overview

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.

Most of the council's buildings are heated by natural gas or gas oil. However, there are a few sites where biomass has been installed.

Building electricity is provided by the national grid, although some buildings have been fitted with solar PV panels. Electricity use also includes street lighting and safety floodlighting.

There are a series of national phased targets for all publicly-owned buildings to meet zero emission heating requirements, with a backstop of 2038.

To enable this, support is being provided by the Scottish Government via the:

- Scottish Public Sector Energy Efficiency Loan Scheme (Salix)

- Scottish Public Sector Non-Domestic Energy Efficiency (NDEE) Frameworks and Project Support Unit (PSU)
- Scottish Central Government Energy Efficiency Grant Scheme

3.1.2 Current emissions

Emissions from the council's buildings are split into two categories: building heat and building electricity.

Building electricity emissions currently represent 12% of our overall emissions. As shown in [Figure 6](#), building electricity emissions have decreased by 55% from our baseline. This is due to a greener national grid and reduced electricity consumption through efficiency programmes such as those in [Case Study 1](#).

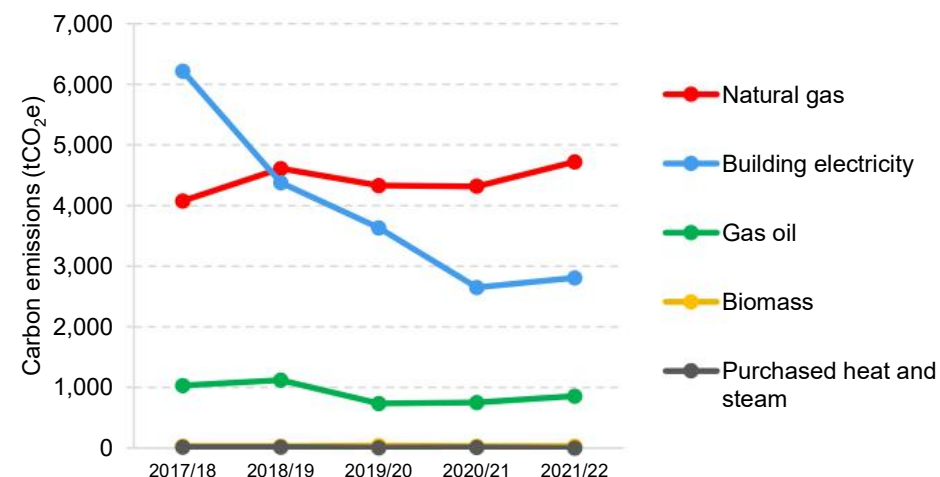


Figure 6. Building electricity and heat emissions from baseline date to present.

Building heat emissions currently represent 24% of the council's overall emissions.

Whilst use of gas oil and purchased heat and steam has decreased over the baseline period, [Figure 6](#) illustrates an increased reliance in the most recent reporting period on natural gas and gas oil for building heat. This is largely due to a return to 'business as usual' working practices following the marked decrease in these emissions during the Covid-19 pandemic working restrictions.

Case study 1: Elgin High School solar panels



The council installed a 47kWp solar PV panel system at Elgin High School in October 2017. Since its commissioning, the system has generated over 177,491kWh of electricity and brought in over £5,000 in Feed-In-Tariff payments.

The solar PV system produces around 3,500kWh every year, which has significantly reduced the school's carbon footprint and energy bills.

The UK energy price crisis has led to a major increase in energy prices, which has resulted in a shorter payback period for solar PV installations. As energy prices increase, the value of electricity generated by solar PV systems also increases. This means that the payback period for the initial investment in a solar PV system is reduced, as the system can generate more revenue in a shorter timeframe.

The council can access several funding opportunities to implement solar PV systems including via the Scottish Public Sector Energy Efficiency Loan Scheme (Salix).

3.1.3 Action areas

| Outcomes | Actions include: |
|---|--|
| Reduced heat and electricity consumption | <ul style="list-style-type: none"> Increasing building user awareness of ways to reduce energy use and save utility costs Reviewing building opening times Reducing the heat set point of buildings Progress a 'fabric first' approach to building design Identifying opportunities for heating and power refurbishment in the learning estate Promoting Smarter Working |
| More energy produced by renewables and low carbon sources | <ul style="list-style-type: none"> Feasibility studies to consider renewable energy potential across the Council's property portfolio Installing renewable energy technologies on council-owned buildings and land Replacement of carbon-based heating systems |
| Reduced building carbon output and increased energy efficiency | <ul style="list-style-type: none"> Aim to achieve zero carbon standards for all new buildings, including housing and schools Achieve Energy Efficiency Standard for Social Housing (EESH) for all council housing |

3.2 Transport



3.2.1 Overview

The council's fleet is used by employees to conduct council business and deliver services for the people of Moray. It comprises over 500 cars, vans, buses, trucks, specialist vehicles and vessels.

The majority of the fleet runs on diesel or gas oil fuel. Marine fuel oil is currently used in council vessels. Petrol is used for open spaces machinery.

There are a series of national targets in relation to public sector transport fleets:

- All fossil fuel cars to be replaced by zero emission alternatives by 2025
- No purchases of fossil fuel powered light commercial vehicles (under 3.5 tonnes) after 2025, with remaining vehicles phased out by 2030
- Phase out heavy duty vehicles by 2040

The Zero Emission Fleet Replacement Strategy details the council's plans to decarbonise the remainder of the fleet in line with the Scottish Government's net zero targets.

3.2.2 Current emissions

Emissions from the fleet are mostly from the use of diesel (Figure 7).

In the most recent reporting period, there has been a rise in emissions from diesel use (Figure 8). This is largely due to a return to 'business as usual' working practices following the marked decrease in these emissions during the Covid-19 pandemic working restrictions.

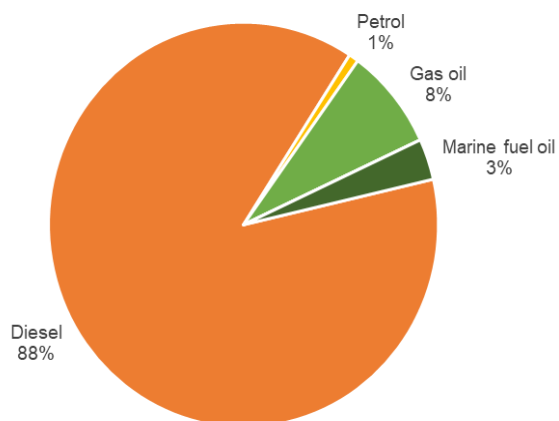


Figure 7. Breakdown of Moray Council transport emissions 2021-22.

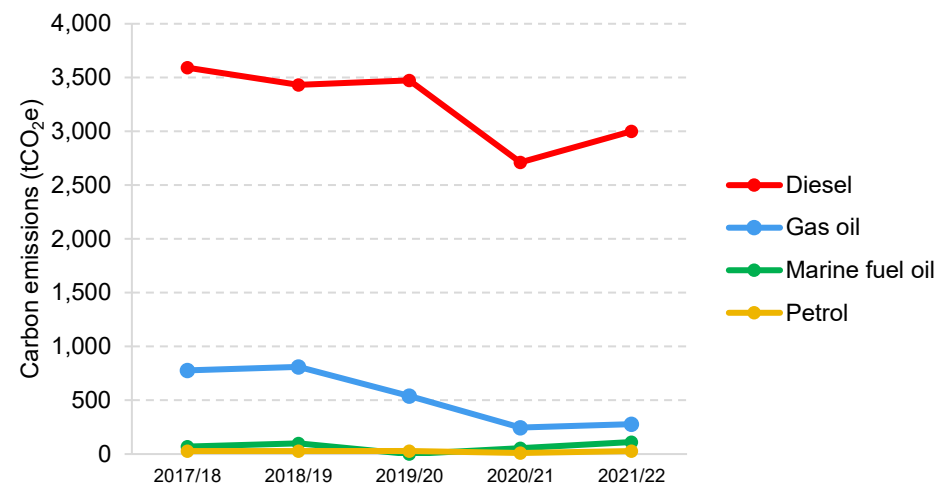


Figure 8. Transport emissions from baseline date to present.

3.2.3 Action areas

| Outcomes | Actions include: |
|---|--|
| Decarbonised council fleet | <ul style="list-style-type: none"> ▪ Displacing fossil fuel powered vehicles and plant with ULEV alternatives |
| Increased awareness of actions and opportunities to reduce emissions | <ul style="list-style-type: none"> ▪ Developing and promoting staff travel plans ▪ Delivering and promoting active travel to school campaigns ▪ Developing a calendar of sustainable events ▪ Conducting new staff travel survey in April 2023 |
| Facilitating emissions reduction | <ul style="list-style-type: none"> ▪ Developing strategy and guidance for provision of public EV charging facilities in Moray ▪ Organising bicycle maintenance sessions and led rides for staff ▪ Parking management around schools and supporting modal shift from vehicles to active travel |

3.3 Waste



3.3.1 Overview

Waste is collected across Moray from households and commercial organisations. The council currently operates a landfill site at Nether Dallachy which handles household, commercial, industrial and clinical waste.

Disposing of waste within landfill is the worst option for the environment and leads to significant carbon emissions. It should be the last resort for waste disposal (Figure 9).



Figure 9. Scotland's waste management hierarchy (Scottish Government 2015)

In 2023, the council will be diverting waste from landfill to a new energy from waste facility (Case Study 2).

There are several national targets in relation to waste management:

- Minimum recycling from all sources to be 70% by 2025
- Maximum of 5% of all waste sent to landfill by 2025
- 33% reduction in food waste by 2025

Case study 2: Recovering energy from waste



From mid-2023, the council's non-recyclable waste will be processed at the NESS energy from waste facility.

Aberdeen City Council, Aberdeenshire Council and Moray Council are working together to create the facility to process non-recyclable waste.

The facility is being built at the former gas holder site at East Tullos Industrial Estate in Aberdeen. It will take the remaining, non-recyclable waste from the three councils and combust it cleanly and completely.

The process will produce electricity which will then be sold to the National Grid and steam which will be used in a local district heat network to provide low cost heating to homes in the nearby Torry area.

Modern energy from waste plants are commonly used throughout northern Europe and are considered utility plants alongside other power stations. In Scotland there are currently two operational plants.

Despite the council's best efforts to reduce residual waste through minimisation campaigns, recycling, composting and use of other treatments, a substantial quantity of residual waste that is generated will still need to be collected and cannot be landfilled anymore.

Diverting this residual waste from landfill to this facility will reduce the council's waste emissions by around 95%.

3.3.2 Current emissions

The council's landfill accounts for 97% of all waste emissions. The remaining waste emissions result from the processes involved in recycling and composting waste.

The production of landfill gas at Nether Dallachy results in a negligible level of annual emissions.

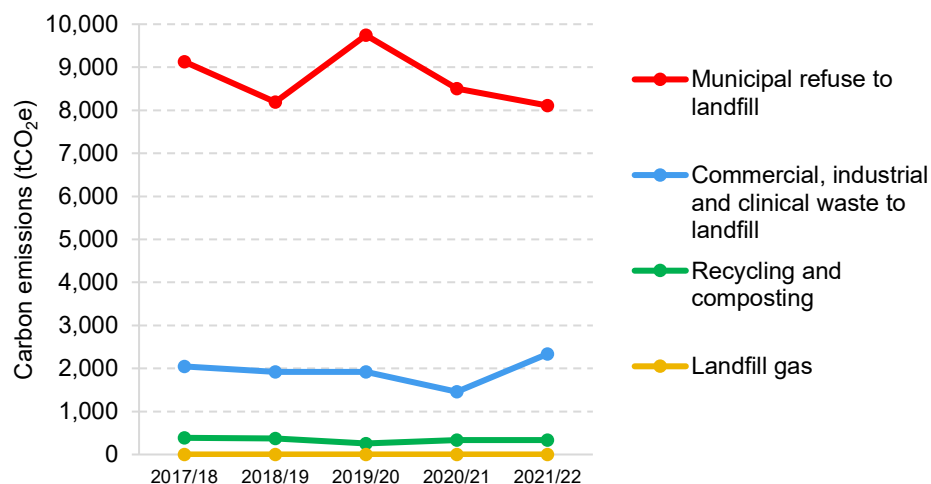


Figure 10. Waste emissions from baseline date to present.

3.3.3 Action areas

| Outcomes | Actions include: |
|--|--|
| Reduced emissions from non-recyclable waste | <ul style="list-style-type: none"> Diverting non-recyclable waste to NESS energy from waste facility in Aberdeen |
| Reduction in residual waste | <ul style="list-style-type: none"> Working with Zero Waste Scotland and third sector partners to progress projects to reduce waste through re-use and recycling |

- Carrying out education on recycling and waste reduction to improve sustainability awareness and recycling in schools and across council buildings
- Reducing the charge for garden waste (brown bin) permits
- Supporting creation and promotion of a Community Identified Benefits Portal, facilitating collaborative relationships between local construction firms/developers and circular economy initiatives
- Improving recycling and food composting facilities in schools

3.4 Operating Emissions



3.4.1 Overview

Operating emissions result from the day-to-day work of the council. These include an annually estimated carbon emissions impact for employees working from home, electricity use in outdoor spaces, the use and treatment of water and corporate travel.

3.4.2 Current emissions

The council's operating emissions have marginally increased over the past year (Figure 11).

Homeworking emissions, first recorded in 2020/21, have risen due to an increase in the overall size of the workforce during the reporting period. The methodology for calculating this is set externally but work to improve the reporting of this emission source has been undertaken by the council's climate change officers and will take effect from reporting year 2022/23 onwards.

Emissions from electricity use in outdoor spaces have followed a decreasing trend in recent years owing to ongoing decarbonisation programmes such as those in Case Study 3. In the past year, these emissions have increased due to higher use of EV charging points.

3.4.3 Action areas

| Outcomes | Actions include: |
|---|---|
| Reduced emissions from operational actions | <ul style="list-style-type: none"> Supporting homeworkers to reduce their emissions through relevant advice and practical assistance Introducing a ZEV salary sacrifice scheme for employees Promoting Smarter Working Increasing use of the cloud to reduce server network and electricity consumption Continue to make school meals more sustainable with a reduced carbon impact Developing and promoting more vegetarian and vegan food options |
| Increased awareness of actions and opportunities to reduce emissions | <ul style="list-style-type: none"> Developing and delivering Carbon Literacy training for employees and elected members Updating climate change awareness training as part of the employee induction process Increasing opportunities for 'Learning for Sustainability' within the school curriculum Applying zero and low carbon objectives as a factor in all investment decisions in relation to budgets and the Capital Plan Ensuring the Climate Change Strategy and Action Plan are living documents and remain fresh and valid until 2030 Assessing climate change and biodiversity impacts as part of all reports to committee Supporting the development of knowledge and skills to promote innovation and effective carbon management across departments Supporting opportunities for teachers and pupils to access and share knowledge/resources to progress climate change work |

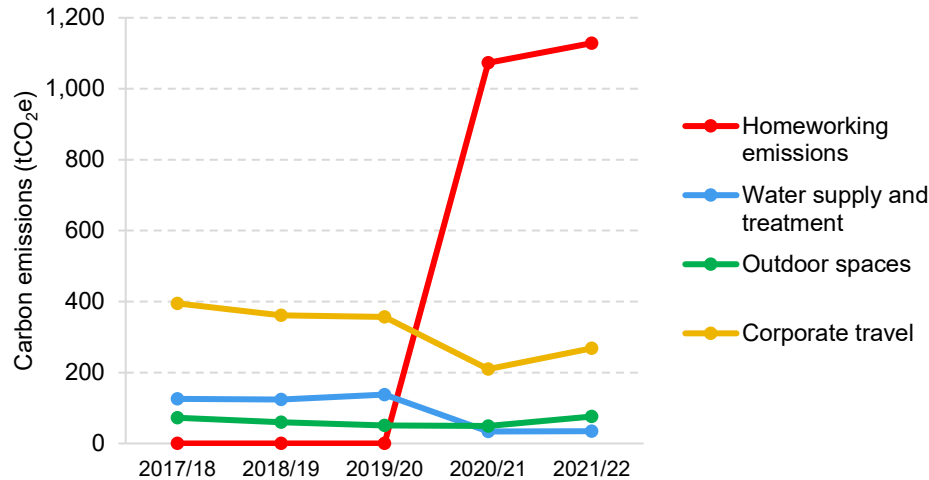


Figure 11. Operating emissions from baseline date to present.

Case study 3: LED street lighting programme

The council's street lighting spend-to-save programme saw the replacement of approximately 17,600 lamps across Moray with LED alternatives.

The typical lifespan of an LED street light is estimated to around 25 years.

By comparison, traditional lamps last 4-5 years, resulting in more costly maintenance regime requirements.

The programme has resulted in energy use reductions of almost 70%, as well as a reduction in light pollution across the Moray region.



3.5 Procurement and Investment



3.5.1 Overview

Around a third of the country's emissions are dependent on sectors that are directly shaped or influenced by local authority practices, policy or partnerships⁸. It is to this end that procurement performs such a key role in reducing national climate impact.

Case study 4: Food for Moray supplier engagement event

The Food for Moray event invited any business interested in supplying fresh meat, fruit and veg and bakery products to schools to learn more about the process and gain advice from the teams involved.



Suppliers spoke with relevant officers to find out about the criteria for supplying schools, how they can operate more sustainably and evidence this in their bids. The event was attended by officers from catering, climate change, procurement and community wealth building, as well as advisers from Business Gateway. Existing suppliers were on hand to share their experience of supplying the council.

Suppliers liked that they could come to talk with relevant officers and obtain information before deciding whether to proceed with the tender process. It was an excellent opportunity for officers to handle any concerns or misconceptions about the process at an early stage.

Feedback from attendees was very positive. Three local butchers went on to join the tender process, and one purchased an electric van.

Procurement of goods and services with the council amounts to some £140 million annually. The council therefore has a significant influence locally and regionally on climate change through procurement.

The [Procurement Reform \(Scotland\) Act 2014](#) introduced a sustainable procurement duty for local authorities. This requires that before the council buys anything, it must think about:

- how it can improve the social, environmental and economic wellbeing of Moray, with a particular focus on reducing inequality
- how its procurement processes can facilitate the involvement of SMEs, third sector bodies and supported business
- how public procurement can be used to promote innovation

Climate change and procurement officers have worked to develop a simple process for suppliers to evidence their carbon reduction actions when bidding for smaller contracts.

The council has also developed Sustainable Procurement Guidance and an associated training module and embedded this within the tender process to reflect the priorities and actions of the Climate Change Strategy.

3.5.2 Action areas

| Outcomes | Actions include: |
|--|---|
| Support suppliers to reduce their climate impact | <ul style="list-style-type: none">▪ Developing a simple process for suppliers to evidence their carbon reduction actions when bidding for smaller contracts▪ Developing an action plan for raising awareness to local business of new opportunities created through the Scottish Government's Just Transition approach, following approval of the Community Wealth Building Strategy |
| Maximise opportunities for climate action through procurement | <ul style="list-style-type: none">▪ Continuing to develop the non-cash benefits available through procurement▪ Implementing updates into the procurement process▪ Developing sustainable procurement guidance and updating modules as appropriate▪ Supporting and informing departmental lead officers through the sustainable procurement process |

⁸ UK Climate Change Committee (2020) 'Local authorities and the sixth carbon budget'.

3.6 Nature and carbon sequestration



3.6.1 Overview

The council has a duty to further the conservation of biodiversity when carrying out our responsibilities.

There are two broad national targets:

- Scotland will be nature positive by 2030 - halting and reversing nature loss by 2030, measured from a baseline of 2020
- Biodiversity will be restored and regenerated by 2045

This ambition is further supported by NPF4. NPF4 places the climate and nature crises at the centre of planning policy, in addition to rebalancing planning policy to ensure that positive effects for biodiversity are secured.

The council's Climate Change Strategy recognises the interrelationship between climate and nature, and that the council must take action to protect, restore and enhance biodiversity. A nature emergency was declared by the council in February 2023.

Many of the council's activities have the potential to drive biodiversity loss or nature recovery. These include discharging responsibility as a planning authority through planning policy, as a landowner by how the council manages its estate, and as an education authority through how well the council connects young people with nature. Enhancing biodiversity also has the opportunity to sequester carbon through well managed soil and vegetation, thereby reducing net emissions (Figure 12).

During 2023, the council's Woodland and Forestry Strategy is being updated. This alongside separate research into carbon sequestration potential of council owned land will provide evidence to aid development of a planting project which would work with community volunteers to plant trees and wildflowers.

Case study 5: Wards wildlife site - biodiversity enhancements



Direct grants totalling £225,000 for restoring nature from the Scottish Government have enabled a number of biodiversity enhancing projects over the past two years. A priority for this funding is the Wards wildlife site in Elgin as it is both a valuable space for people to enjoy nature, and for wildlife to thrive.

The wetland needs active management to keep it in a healthy condition, so a plan is now in place to guide this work. The overgrown pond has been partially cleared, restoring a large area of open water for birds, amphibians, insects to thrive in. Several new wader scrapes have been created, adding to the diversity of habitats.

Water levels are now being monitored as there are suggestions the site may be drying out. Careful management of the extensive ditch network will ensure that the unique and valuable urban wetland continues to provide unique homes for plants, animals and insects, as well as storing carbon in the peaty ground and helping address climate change.

Engagement with local schools and community groups is encouraging people to become involved in looking after and enjoying the Wards.

3.6.3 Action areas

| Outcomes | Actions include: |
|--|---|
| Maximise opportunities to sequester carbon within existing council assets | <ul style="list-style-type: none"> Commissioning research for baseline carbon sequestration potential of council land holdings, and opportunities to expand and manage these assets Developing a Carbon Offsetting Plan which ensures that management of council assets is planned to maximise carbon sequestration |
| [biodiversity outcomes – if agreed by Committee] | <i>[A report on biodiversity is being presented to ED&I committee in May 2023. Any agreed biodiversity actions will be added here.]</i> |



Figure 12. Nature based solutions to climate change (based on content from Improvement Service 2021).

3.7 External influence



3.7.1 Overview

Many of the council's statutory duties are related to helping reduce greenhouse gas emissions in the wider Moray area. This includes actions such as supporting energy efficiency improvements in homes, active travel and green training as part of a Just Transition away from fossil fuels.

While this will not reduce the council's direct carbon footprint, the Climate Change Strategy also seeks to reduce carbon emissions across Moray.

Engaging with the community is essential to understand local concerns and bring about necessary change. A collaborative approach can lead to more effective policies, behavioural changes, enhanced community resilience and a reduction in climate change impacts (Case Study 6).

The council has commenced work on its Local Heat and Energy Efficiency Strategy (LHEES). This strategy is crucial for communities as it aims to provide affordable and sustainable heating solutions, reduce energy consumption and alleviate fuel poverty. LHEES can help to create jobs in the green sector, improve health and wellbeing, and contribute to achieving net zero – thus ultimately benefitting the community and wider environment.

NPF4 will help to guide the location of new housing, transport links and infrastructure, ensuring that communities have access to the services they need whilst enhancing the environment and meeting net zero targets.

NPF4 introduces the concept of Local Place Plans (LPPs) which are community-led plans that provide a framework for shaping the future of local places. LPPs are an essential tool for engaging with communities and fostering local democracy, ensuring that Moray's towns and villages are designed with the people who live there in mind.

The council's Hydrogen Strategy seeks to create a local supply chain for hydrogen production and use, providing job opportunities and economic benefits for the region. Using green hydrogen as a fuel for transport, heating and industrial processes will be essential to cutting Moray's area emissions.

Case study 6: Scotland's Climate Week 2022



A week of engagement across Moray, led by the council's climate change officers in collaboration with tsiMORAY aimed to highlight positive climate action and bring people into the conversation.

Fortunate timing made the use of one of the council's new electric vehicles available, enabling a team of officers and partners to travel across Moray. The event engaged over 600 young people in two-way dialogue, and also involved libraries, social enterprises, businesses, and the public in sharing local, innovative, solutions to climate change.

A follow up [video](#) highlighted the week's activities and some of the areas where the council and other organisations across Moray are taking action on climate change. Dedicated [climate change information](#) for staff was launched on Interchange during the week, along with a news item with links to national events and quizzes.

Schools and libraries welcomed being involved and suggested ways to expand engagement in these areas. While the ability to hold such a wide reaching event was a unique opportunity and is unlikely to be repeated without additional resources, it was extremely valuable in terms of the positive impact on young people, raising the profile of climate action in Moray and demonstrating collaboration between different organisations and council departments.

3.7.2 Action areas

| Outcomes | Actions include: |
|---|--|
| Develop skills and the economy | <ul style="list-style-type: none"> Increasing provision of relevant skills and knowledge for a greener economy to support delivery of the Moray Apprenticeship Strategy Supporting the planning and delivery of awareness raising events for businesses to transition to a green economy Joining support networks to assist the progress of climate change action |
| Enabling the community to understand and take action on climate change | <ul style="list-style-type: none"> Consulting community groups and residents about climate change action and delivering the Moray Climate Change Engagement Strategy Supporting the work of the Moray Climate Assembly Engaging with communities to facilitate renewable energy projects Promoting Moray-specific climate emergency training for community groups and organisations Promoting the Active Travel Strategy Delivering the LHEES programme Continuing the Energy Efficiency Scotland: Area Based Scheme (EES: ABS) Delivering the Moray Hydrogen Strategy |
| Strategic planning which reflects the climate and nature emergency | <ul style="list-style-type: none"> Implementing NPF4 policies relating to the climate and nature crises. Developing a Regional Spatial Strategy Reviewing the Forest and Woodland Strategy, Food Growing Strategy and Open Space Strategy Developing 20-minute neighbourhood concepts for Moray's main towns and embedding within the next Local Development Plan Promoting and supporting brownfield over greenfield development Developing carbon guidance to support Moray Growth Deal projects Developing carbon and offsetting guidance for development applicants in line with NPF4 Monitoring and reporting of area-wide carbon emissions and actions |

4. What progress are we making?

4.1 Current pathway of recorded emissions

The current pathway of recorded emissions is a projection towards 2030 using the baseline and other known emissions data. It shows how recorded emissions may change over this time period when considering the council's pre-planned actions. Only activities which are highly likely are accounted for within this projection. Carbon sequestration is considered and accounted for within net zero projections separately in [sections 4.5 and 5.1](#).

This pathway highlights the increase in emissions as a result of the council's services returning towards a 'business as usual' approach following the pandemic. Notwithstanding that, the overall trend remains that emissions continue to reduce from the baseline value to a level where a carbon sequestration scheme may be used to offset any remaining emissions ([Figure 13](#)). In this figure, annual emissions are divided into five categories ([Table 2](#)).

Table 2. Explanation of emissions categories used in carbon emission reporting.

| Category | Description |
|----------------------|---|
| Operating emissions | Emissions generated by the council through its day-to-day work. These consist of emissions that the council can control and influence. These are recorded in the annual greenhouse gas emissions reporting. |
| Waste | Emissions from dealing with municipal and industrial-level waste. These are recorded in the annual greenhouse gas emissions reporting. |
| Building electricity | Emissions from electricity use in council buildings. These are recorded in the annual greenhouse gas emissions reporting. |
| Transport | Emissions from the operation of the council's fleet vehicles and vessels. These are recorded in the annual greenhouse gas emissions reporting. |
| Building heat | Emissions from heating of council buildings. These are recorded in the annual greenhouse gas emissions reporting. |

The current pathway aims to find a compromise between speed, technological limitations and funding. Whilst there are likely to be budgetary restrictions, this pathway avoids late adoption of technology and measures. This is to reduce carbon emissions and also because demand could impact on the cost of supply as the 2045 deadline approaches and public and private sectors are potentially legislated to take action.

A balanced approach to the implementation of measures is more likely to benefit from reducing costs of measures as the scaling up of production reduces costs. This could also allow planned solutions to align with national infrastructure investment. For example, vehicles could continue to transition to zero carbon using batteries, or hydrogen could become more dominant if electricity distribution networks are unable to cope with the electrification of both heat and transport.

The calculations for the current pathway account for:

- **Internal factors:** Known internal changes that will impact on emissions, e.g. confirmed waste management change.
- **External factors:** Known external changes that will impact on emissions, e.g. ongoing decarbonisation of the national grid.
- **Population change:** Annual changes in population, based on the 2018 Scottish Sub-National Populations Projections for Moray, which may impact future emissions.

4.2 Progress

Progress has been made by climate change officers in improving the council's homeworking emission estimates. From reporting year 2022/23 onwards, this emission source is forecast to reduce considerably as more information is available around homeworking employees.

A delay was experienced in implementing the planned shift from landfill to energy from waste. This will now occur partially in 2023 and fully from 2024, leading to a 95% reduction in waste emissions going forward.

Building electricity emissions continue to decrease primarily owing to ongoing decarbonisation of the national grid. Council electricity use reduction projects also contribute to this and currently have a target of 2% reduction annually.

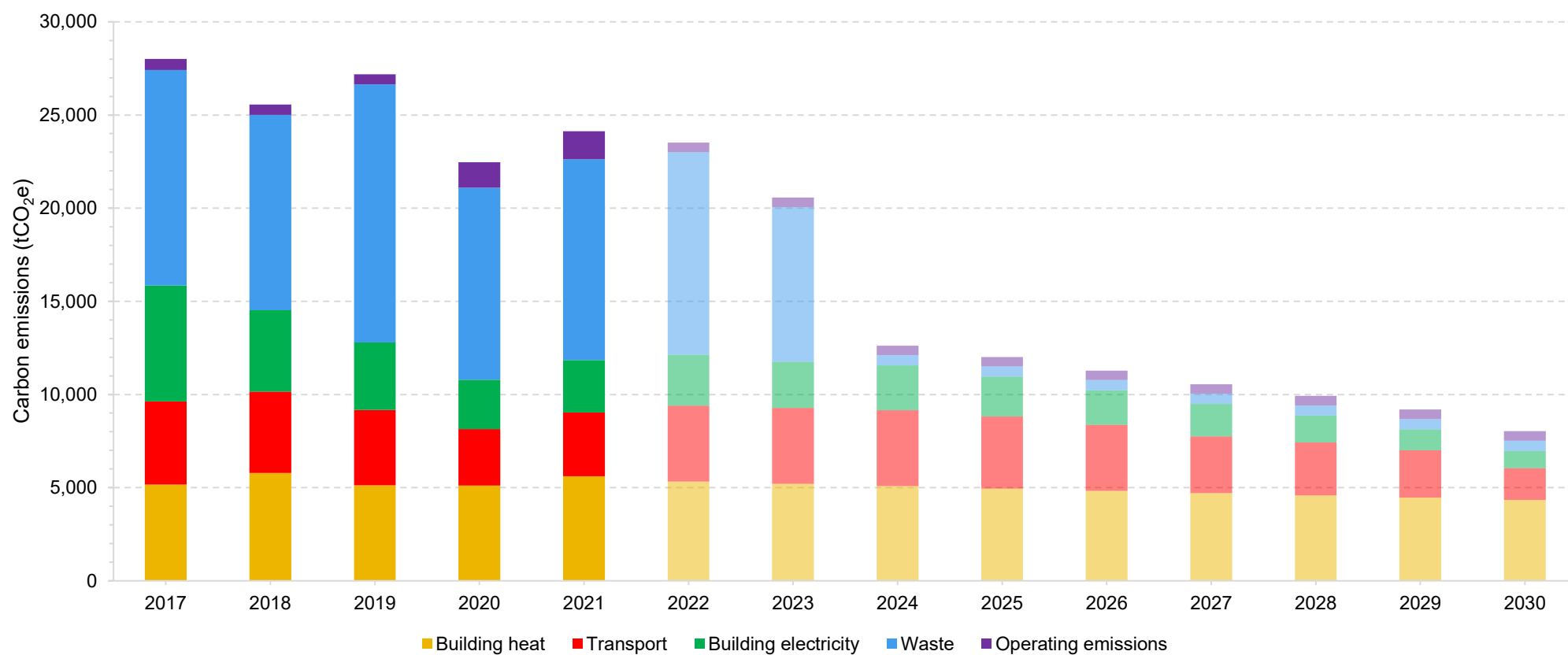


Figure 13. Current pathway of recorded carbon emissions from baseline date to 2030. Figures from 2022 onwards are forecast estimates and denoted by a lighter colour.

Difficulties in the global vehicle market has led to a slowdown in the availability of electric vehicles for the council's planned fleet replacement programme. This will lead to an increase in diesel emissions into the late 2020s.

Building heat emissions remain relatively stagnant with the exception of planned decarbonisation by 2030 of off-gas grid properties using gas oil. The upcoming 'Heat in Buildings Strategy' will present a course of decarbonisation action for the remaining building heat emissions. The actions agreed within this strategy can then be used to inform future updates to the Climate Change Plan and Routemap to Net Zero.

4.3 Concerns

Given the current rate of progress, it is difficult to be confident there will be sufficient progress in the decarbonisation of the building heat and electricity categories to ensure that the net zero target is met without excessive carbon sequestration offset. The current condition of some of the buildings is unknown. Therefore, the works required to bring them to net zero is also uncertain.

Net zero must be budgeted for and taken into consideration in the pace of decision making around the renovation and rationalisation of the council building stock. This will enable the production of accurate estimates of financial costs and emissions reductions which will assist future planning.

The council's smarter working, depot and store reviews must be completed promptly to give direction on which buildings to improve and which to rationalise. A completion timescale of 2023/24 is necessary to enable actions to progress at a pace which assists in reaching the 2030 net zero target. More efficient use of workspaces and technology could lead to a reduction in single use accommodation and an increase in the number of co-located partnership facilities.

The difficulties and expense of converting buildings to reach net zero means that if delays are experienced then emissions relating to buildings may not reduce sufficiently by 2030. Therefore, greater emphasis on other parts of council operations reaching net zero quicker (following the aspirational approach), and increased carbon sequestration, may have to be explored if

the pace of change continues to be insufficient and the target remains set at 2030.

If all information gathering and decisions on future change are made by 2025 then a more accurate assumption can be made for residual emissions and the need for carbon sequestration through carbon sequestration insetting and offsetting. This will provide a decision point milestone for the council to reassess the commitment to the 2030 net zero target knowing the full costs and carbon sequestration requirements.

4.4 Benefits and threats associated with current pathway

In summary, the benefits of threats of the current pathway are:

| Benefits | Threats |
|---|--|
| Reflects the path the council is currently pursuing. Does not commit the council to altering the timing or type of planned expenditure. | Carbon sequestration will be required to reach net zero by 2030 as decarbonisation of estate and fleet will not be complete. |
| Statutory deadlines are met. | Uncertainty around timescale for building improvement relating to carbon emissions. |
| | Many of the current commitments to reduce carbon emissions are currently unfunded by the council. The council requires to use its full breadth of powers to raise/attract funding, apply for government and other external funding, and lobby for further powers or financial assistance as may be required. |

4.5 Carbon sequestration

To continue delivering services, some residual emissions will be unavoidable. Carbon sequestration will be required to offset these emissions. Wherever possible this should take place on council owned land and include wider community benefits, in line with national guidance⁹.

Carbon is sequestered by vegetation and soil. The quantity of carbon that can be sequestered varies according to land cover type.

An analysis of the carbon sequestration potential of council land assets was conducted in early 2023. The analysis provided:

- An approximate, current baseline level of carbon sequestration
- An action plan to change existing land assets to sequester further carbon

The current approximate baseline carbon sequestration value of all Moray Council owned and operated land (an area of approximately 318 ha) is estimated as 2,121 tCO₂e per year.

Changing how the council manages its land to increase how much carbon is held in vegetation and soils is central to mitigating climate change impacts¹⁰. To this end, the types of land assets most suitable for change have been identified. This provides an approximate additional carbon sequestration value (above the baseline) of 2,277 tCO₂e per year (Figure 14).

There is potential for even more carbon sequestration from council owned land which is currently leased out. If some of this was developed into woodland there is an estimated additional carbon sequestration value of 1,200 tCO₂e per year. In addition to this there would be an opportunity to include innovative projects such as green walls. Whilst such schemes can deliver a wide range of co-benefits, the carbon sequestration potential is not as significant as fully nature-based solutions.

A decision on the council's approach to carbon sequestration will be the subject of a report to committee in late 2023. This is necessary for the

required resource to be made available to progress beyond the current baseline level of sequestration.

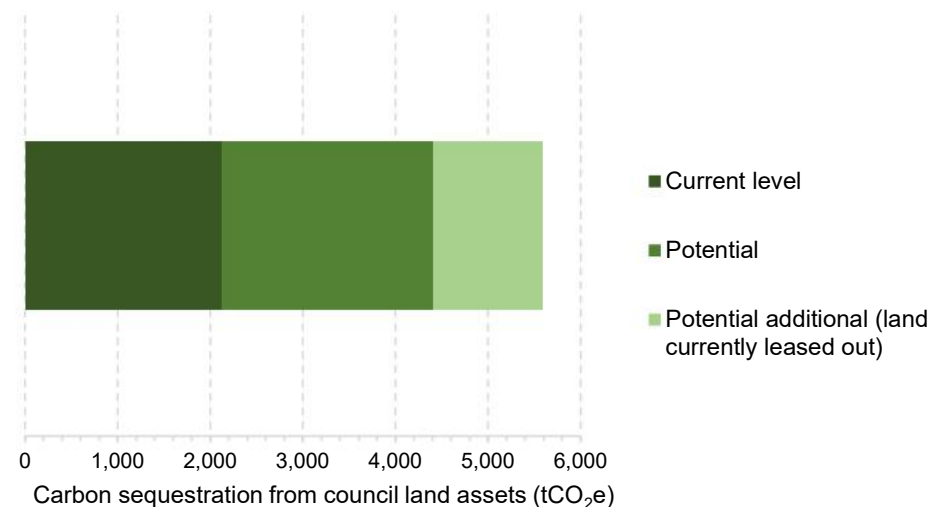


Figure 14. Carbon sequestration potential from council land assets.

⁹ Scottish Government (2023) *Guidance on nature-based carbon reduction projects*.

¹⁰ NatureScot (2023) *Managing nature for carbon capture*.

5. Where are we going?

5.1 Pathway to net zero

A net zero routemap provides options for the strategic decarbonisation of an organisation over a set timescale. This document has been developed by considering three possible approaches towards net zero emissions, involving different combinations of decarbonisation interventions. This will enable the council to engage strategically with the Scottish Government and other partners on its net zero journey as all the options will involve partnership working on actions and funding priorities.

The pathways being considered are:

- **Current pathway** - a realistic timescale built around the expected work programme of the council but, until otherwise informed, presumes a more restricted approach to aspects which are not yet agreed. This includes projects which have not yet sourced external funding, but set at a realistic, if challenging, timescale
- **Aspirational approach** – the quickest possible timescale to get works done to meet the council's net zero target. It is assumed that finances will be available to invest in projects which will reduce future costs. Timings take into account any technical issues which may prevent work completion over a shorter timescale
- **Restricted approach** – a slower timescale than the current pathway where, for whatever reason, additional resources are not prioritised for climate change. This would have the consequence of potentially missing the 2030 deadline and requiring substantially more resources invested in carbon offsetting every year post 2045 to meet national targets as a minimum

There is a lot of information currently unknown and so there are no firm projections for these aspects. Assumptions have had to be made around the aspirational and restricted approaches to heating decarbonisation, and to the extent of improvements to council green space with possible nature and

carbon sequestration improvements. The assumptions behind the different approaches are set out in [Table 3](#).

Table 3. Assumptions behind routemap pathways.

| Current pathway |
|--|
| <ul style="list-style-type: none">▪ It is not currently known if all statutory deadlines will be met. Achieving these deadlines will be challenging.▪ Projections for the future means that net zero carbon emissions by 2030 is possible although more accurate data is needed.▪ Requires quick roll out of building and fleet decarbonisation as soon as firm plans made.▪ Requires substantial additional investment which has not been budgeted for in a short period of time.▪ Medium to high level of carbon sequestration and associated costs.▪ Potential revenue generating opportunities through the development of commercial carbon offsetting schemes. |
| Aspirational approach |
| <ul style="list-style-type: none">▪ Achieves net zero carbon emissions by 2030 target and all current statutory deadlines.▪ Maximise potential for carbon offsetting and aspirational approach for heating decarbonisation.▪ Additional staffing resource across services would be required.▪ Potential revenue generating opportunities through the development of commercial carbon offsetting schemes. |
| Restricted approach |
| <ul style="list-style-type: none">▪ Some statutory deadlines will not be met.▪ Net zero by 2030 target will only be met with substantial levels of offset at significant cost to the Council.▪ Uncertainty if delaying improvements will cost more or save money.▪ Missed opportunity to generate revenue from emerging commercial carbon offsetting market. |

The current pathway represents the decisions which have been taken and, where no firm plans are in place, presumes that decarbonisation will take place at a rate to meet statutory deadlines. As shown in [Figure 15](#), this means the pathway is potentially closer to a restricted approach in 2030 but could shift if more aspirational approaches to decarbonisation can be funded and adopted.

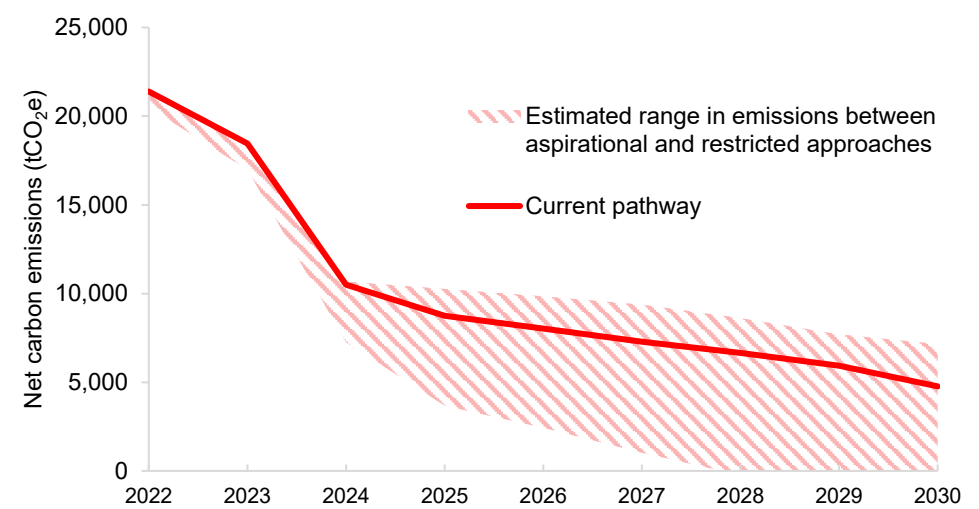


Figure 15. Possible range in net carbon emissions from present to 2030.

Going forward there is still a large range in the possible level of carbon emissions in 2030. We know that we will be somewhere between these and our exact pathway will be dependent on the actions the council takes in all areas of operations. While the 2030 target is possible, it will only be achieved if the decarbonisation of heat in buildings happens at pace. At present there is not firm costed plans or adequate levels of funding available to ensure this will happen.

5.2 Limitations and risks

There are technological, practical, and financial limitations which will impact on the route to net zero and have to be taken into account whether or not an aspirational or restricted approach is preferred.

These limitations include:

| Area | Limiting Factors |
|----------------------------------|---|
| Buildings | <p>Financial costs of energy efficient buildings are likely to be 10% more than standard buildings, although this should decline as technology is mainstreamed.</p> <p>There are practical limitations to the speed of decarbonising council building stock:</p> <ul style="list-style-type: none"> Reviews of the building stock and suitability of heating solutions have to be carried out before budgets decided. Fabric first approach means improved insulation measures are needed before new heating solutions. The heating solutions for some properties (e.g. hydrogen) have not reached market yet. |
| Transport | <p>Production restrictions and costs will influence when it is practical for different types of vehicles to transition to low carbon alternatives. Electric vans are more expensive and the transition of heavy plant is only likely to be technologically practical toward the end of the programme and may use different technologies such as hydrogen fuel cells.</p> <p>Improvements to infrastructure and training schemes for technicians and mechanics are needed to make a move to low carbon alternatives a success.</p> |
| Waste | <p>The council has contractual conditions associated with the energy recovery project.</p> |
| Operating Emissions | <p>Smarter Working changes to working methods and services provision will take time to be agreed.</p> <p>Departmental thinking required to ensure climate change is a priority and service change is agreed timeously.</p> |
| Nature & Biodiversity | <p>Principles around the council offsetting have to be developed, e.g. It should be local, and it should have co-benefits such as amenity or job creation.</p> |
| External Influence | <p>Opportunities to change these are limited because the council only has influence, not control, over many of these. Therefore encouraging behavioural change will be required.</p> |

Apart from access to capital resources, there are actions that can be taken to lower these risk factors:

| Area | Risk | Suggested possible action | Outcome | Co-benefits |
|----------------------------------|---|--|---|--|
| Building heat | Lack of capital resources and uncertainty of the suitability of different heating solutions prior to fabric first improvements. Currently planning is being undertaken by staff with significant existing workloads. | Dedicated staff resource to manage building decarbonisation. To initially focus on planning of appropriate interventions on a building by building basis and then lead on implementation. | More certainty on timing and which heating solutions are suitable to meet the 2038 net zero public buildings deadline. | Local businesses/employment know what work is coming up and rationale for staff training or business planning, heating costs reduced for council. |
| Transport | Delays in converting fleet to LEV options because of uncertainty around future technologies, infrastructure, workshop facilities, grid connections (electric), availability - storage facilities (hydrogen), staffing, technical training & available budget. | Dedicated project management resource within fleet to progress decarbonisation project and keep pace with the rapidly expanding LEV marketplace. | More certainty over emerging technology options and timetable for fleet decarbonisation. Reduced carbon emissions in line with the councils route map to net zero | Encourage wider local market to decarbonise, demonstrate leadership, driving hydrogen economy and EV provision so supporting other public and private sector fleet providers, health improvements through lower particulate emissions and anthropogenic heat. |
| Waste | Lack of progress on reuse and recycling to lower residual waste volumes. Lack of waste education resources. | Create dedicated waste education resource within council or support equivalent third sector project | Community buy-in for recycling and reuse initiatives. Lower residual waste emissions. | Increased third sector involvement, financial savings for community through re-use, reduction in waste costs. |
| Operating Emissions | Lack of priority given to climate change at a sectional level means opportunities to reduce emissions are missed. | Include appropriate reporting in service plans to ensure climate change is a sectional priority and service change is progressed. Expand our roll out of Carbon Literacy Training and require key individuals to participate. | Carbon budgets and Pls implemented within sections. Grey fleet governance improvement. Training of elected members, senior managers and officers with significant carbon responsibility. | Financial savings through reduction in resource use, waste, travel, energy, potential culture change and staff sense of involvement through ability to influence change Engagement and training would have the potential to increase the pace of getting to net zero. |
| Nature & Biodiversity | Council open space is not used to promote biodiversity and nature enhancement. | Create dedicated project management resource within Open Spaces to progress practical biodiversity and decarbonisation work. | Nature and biodiversity improvements on council open space. Enable access to nature funding sources for greenspace improvements. | Health improvements through better green space, nature and biodiversity, opportunities for community involvement in biodiversity projects. |
| External Influence | Lack of resource allocation means no opportunity to engage meaningfully with community. | Increase resources for climate change community engagement. | Support community and businesses and allow projects to progress across Moray. | Community involvement, a focal point for community and businesses to lead on climate action. |

While property, fleet and waste services are planning to decarbonise their activities, the co-benefits of investing in climate change action and reducing carbon emissions will be to assist local business and the third sector as well as showing leadership and a way forward through the crisis.

By May 2024 our Climate Change Strategy will be updated. This process will be an opportunity to include carbon reduction targets in individual service plans. This would give a focus on reducing carbon emissions through service delivery and not just through areas like fleet and property. Rolling out the Carbon Literacy Training will embed this knowledge throughout the council and enable staff in all sections to look over the plans of their sections to highlight carbon savings and how service delivery could adapt to a changing climate.

5.3 2025 decision point

If all relevant information is gathered and decisions on decarbonisation are made by 2025 then more accurate calculations can be made for the level of residual emissions in 2030 and the need for carbon sequestration through inset/offset. However, a commitment to resource an aspirational approach will need to be taken soon in order to guarantee the 2030 target will be met. At present there is not adequate levels of funding allocated to allow such an aspirational approach to happen.

The decision point milestone will enable the council to reassess the commitment to the 2030 net zero target knowing the full costs and carbon offsetting requirements. This will enable a more informed decision to be made regarding whether the target of being net zero by 2030 is achievable with resources and redesign or if it is advisable to push back the target and invest in other aspects to ensure an appropriate response to the climate and nature emergencies.

5.4 Adaptation and resilience

We have a statutory duty within the [Public Bodies Climate Change Duties](#) annual report to record how we are contributing to Scotland's [Adaptation Programme](#). There is also a statutory duty to carry out actions to adapt to the impacts of climate change.

Case study 7: Flood and coastal defences



In the last decade, over £170 million has been invested to alleviate the impacts of flooding in Moray. These flood alleviation schemes have protected homes and infrastructure from flood events to an estimated value of £86 million and counting.

An innovative pathway approach is now being used to develop new flood and coastal erosion plans. This will enable the council to plan for, and react to, different scenarios as they are triggered. Collaborative working across services will ensure the coastal plans links with wider adaptation plans and how services can be delivered while taking into account of possible climate change impacts.

The local impacts of climate change will include:

- damage to infrastructure such as buildings, roads and power supplies
- damage to ecosystems, water supplies and agricultural production
- disrupted food supply chains and increased costs
- disproportionate health and economic effects on vulnerable groups

Global carbon emission trajectories at present fall far short of restricting average temperature rises to a safe 1.5°C. If global targets continue to be missed then the quality of life we know in Moray today will no longer be

recognisable to our children by 2100, due to the extreme circumstances they will be living in.

Pressure on council services will increase as a result of climate change. Action taken now to reduce our emissions and to prepare for climate change impacts will minimise damage, reduce overall costs and protect the most vulnerable people in our communities.

6. Conclusion

It is feasible for Moray Council to achieve net zero by 2030, but only if key decisions on building decarbonisation and rationalisation of the estate are taken, and progress is made to consistently improve fleet vehicles, reduce waste, and improve insulation, heating, and hot water systems over the next seven years. This means the 2030 target will only be achieved if a more aspirational approach to decarbonisation is adopted. Present levels of funding and resources means a more restricted pathway is currently being adopted.

The expected level of capital spend means that securing external funding for measures such as decarbonising council buildings will be essential if the target of 2030 is to be met. Although increasingly all external funding has net zero as a condition of grant regardless of the main purpose, the level of work required to decarbonise public buildings will require specific additional funding just for that purpose.

If all relevant information is gathered and long term decisions on decarbonisation are made by 2025 then more accurate calculations can be made to determine the residual emissions in 2030 and the need for carbon sequestration through inset/offset. In addition it may be possible to better quantify and accelerate change in carbon reductions through embedding climate actions into service delivery plans.

This will provide the information for a decision point milestone to allow reassessment of the commitment to the 2030 net zero target knowing the full costs and carbon offset. A more informed decision can be made whether the target of being net zero by 2030 is achievable or if it is advisable to review the target and invest in other aspects of climate change to ensure an appropriate response to the climate and nature emergencies.

A proactive pathway as demonstrated by the aspirational approach could avoid a situation whereby we pay a premium for low-carbon solutions in the future because demand exceeds availability, and for commercial carbon offsetting schemes. However, caution should also be taken as buying carbon solutions too soon may involve a premium for new technology. Hence there is a need for an agile approach which can flex across planned approaches as the context demands, informed by expertise.

While the 2030 target is possible, it will only be achieved if there is a shift in focus onto a more aspirational route. At present there is not adequate levels of funding available to ensure the reduction in carbon emissions will happen at the required pace. Without deploying our existing resources, creating additional staff resources in key areas, a defined capital plan contribution, and more external funding secured, the restricted pathway is looking more and more likely to continue and so bring the prospect of pushing back the date when we will reach net zero.

As the energy price increases over the last six months has shown, assumptions on potential cost savings through energy interventions are difficult to predict. However, it is known that investing in energy saving early will save costs, and investment in energy schemes has the potential to provide income for the Council which could contribute to the decarbonisation programme.

Glossary

| Term | Definition |
|--|--|
| Active travel | Journeys made by modes of transport that are fully or partially people-powered, irrespective of the purpose of the journey. It includes walking, people using wheelchairs, cycling (including e-bikes) to name a few. |
| Adaptation | Adjustments in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. |
| Anthropogenic | Resulting from or produced by human activities. |
| AR6 Synthesis Report | A comprehensive summary of the latest scientific knowledge on climate change, including its impacts, risks, and potential solutions, compiled by the IPCC. |
| Baseline | Historical period specified for the purpose of comparing greenhouse gas emissions. |
| Biodiversity | The variability among living organisms from all sources, including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (UN 1992). |
| Carbon | In this context, an umbrella term used to describe all of the greenhouse gases. |
| Carbon dioxide (CO₂) | A naturally occurring gas, CO ₂ is also a by-product of burning fossil fuels (such as oil, gas and coal), of burning biomass, of land-use changes and of industrial processes (e.g., cement production). It is the principal anthropogenic greenhouse gas that affects the Earth's radiative balance. |
| Carbon Literacy Training | Certificated training which equips individuals with the knowledge, skills and motivation to reduce their carbon footprint and take practical action to mitigate climate change, based on a thorough understanding of the science and impact of carbon emissions. |
| Carbon sequestration | The process of removing carbon from the atmosphere and storing it in long-term carbon sinks. |
| Circular economy | A circular economy is one in which resources are kept in use for as long as possible. |
| Climate action | Efforts taken to mitigate and adapt to the impacts of climate change. |
| Climate change | The state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. |
| Climate emergency | A situation in which urgent action is required to reduce or halt climate change and avoid potentially irreversible environmental damage resulting from it. |
| Climate refugee | A person who has been forced to flee their home because climate change has made it impossible to stay. |
| Climatological event | Events reflecting changes in weather patterns over a long term (e.g. droughts, heatwaves), or events influenced by these changes (e.g. wildfires). |
| Co-benefits | The positive effects that a policy or measure aimed at one objective might have on other objectives, thereby increasing the total benefits for society or the environment. Co-benefits are often subject to uncertainty and depend on local circumstances and implementation practices, among other factors. |
| Direct emissions | Emissions directly under the organisation's control. |
| Drought | A prolonged period of abnormally dry weather that results in a water shortage, causing significant impacts on crops, ecosystems and human activities. |

| | |
|---------------------------------|--|
| Ecosystem services | Ecological processes or functions having monetary or non-monetary value to individuals or society at large. These are frequently classified as (1) supporting services such as productivity or biodiversity maintenance, (2) provisioning services such as food or fibre, (3) regulating services such as climate regulation or carbon sequestration, and (4) cultural services such as tourism or spiritual and aesthetic appreciation. |
| Excess deaths | The number of deaths that occur which exceed the expected number of deaths based on historical data or trends. |
| Flood | The overflowing of the normal confines of a stream or other body of water, or the accumulation of water over areas that are not normally submerged. Floods include river (fluvial) floods, flash floods, urban floods, pluvial floods, sewer floods and coastal floods. |
| Fuel poverty | A situation where households struggle to afford adequate heating and energy services, leading to poor living conditions and negative health and wellbeing outcomes. This is often considered to be where fuel costs exceed 10% of net income after housing costs. |
| Green jobs | Employment opportunities which contribute to environmental sustainability. |
| Green recovery | The transition to a more sustainable and resilient economy following a crisis, such as the Covid-19 pandemic, that prioritises investment in low carbon technologies, sustainable infrastructure and job creation in environmentally friendly sectors. |
| Greenhouse gas emissions | Any gas that contributes to the greenhouse effect by absorbing infrared radiation in the atmosphere. |
| Heatwave | A heatwave is an extended period of hot weather relative to the expected conditions of the area at that time of year. In Moray, a heatwave event is defined as at least three consecutive days with daily maximum air temperatures meeting or exceeding 25°C. |
| Indirect emissions | Emissions outside the organisation's control but over which it has an influence. |
| Insetting | The process of offsetting carbon emissions by sequestering carbon within the organisation's own landholdings. |
| IPCC | Intergovernmental Panel on Climate Change. A scientific body established by the United Nations to provide policymakers with regular assessments of the state of climate science and the potential impacts of climate change, as well as strategies for mitigation and adaptation. |
| Just Transition | The process of transitioning to a sustainable economy that is socially equitable, inclusive, and which provides fair opportunities for workers and communities affected by the shift. |
| Meteorological event | Short-term weather events occurring over a period of hours or days (e.g. convective storms). |
| Mitigation | A human intervention to reduce emissions or enhance the sinks of greenhouse gases. |
| Nature emergency | The rapidly worsening state of the natural world, including the loss of biodiversity, ecosystem degradation, and the threat of ecological collapse, caused by human activities such as habitat destruction, pollution and climate change. |
| Net zero | Net zero emissions are achieved when anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period. |
| Offsetting | The practice of compensating for carbon emissions by funding projects that reduce greenhouse gas emissions outside of the organisation's own landholdings. |
| Sustainability | A dynamic process that guarantees the persistence of natural and human systems in an equitable manner. |
| tCO₂e | Tonnes of carbon dioxide equivalent. A metric used to compare the emissions from various greenhouse gases on the basis of their global-warming potential, by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential. |
| Wildfire | Any uncontrolled vegetation fire which requires a decision, or action, regarding suppression. |