

FOREWORD

Climate change is recognised as one of the gravest threats ever faced by humankind. It needs to be addressed in an urgent manner.

Blackburn with Darwen Borough Council declared a climate emergency in 2019 and set a goal to be net carbon neutral by 2030.

Across the Borough, the Council, partners and residents have already taken steps and made progress to address climate change – installing energy efficiency measures, reducing waste and recycling more, moving to electric vehicles, supporting business to be greener, developing policy, cycling more, brining good, sustainable food to our communities, planting trees and much, much more.

However, tackling climate change requires everybody - local authorities, communities, government and businesses - to take action together. It also has to be seen, and implemented, within the context of the Borough's growth ambitions. Growth is seen as an essential means to attract investment in the Borough, and improving people's lives, which includes reducing and addressing the impacts of climate change,. The Council's four corporate missions are shown on the right.



This is the third edition of our Climate Emergency Action Plan, developed to steer action across Blackburn with Darwen and deliver on our Corporate

Plan objective to reduce our carbon footprint. Our Action Plan sets out what needs to be done in the local area to contribute address climate change through resource efficiency, emissions reductions and behavioural change to help reduce future climate change and to adapt to the climate change impacts that are already inevitable.

FOREWORD

The Council has outlined the following objectives:

- » Sound Decisions To use resources sustainably so as not to add to the burden of climate change emissions in Blackburn with Darwen or elsewhere
- » **Resilient & attractive borough** To align policy to climate change mitigation and adaptation objectives to create sustainable places where people want to live, work and visit and capture the benefits to health and the economy from the move to a climate-friendly borough
- » Lean and clean To use energy more efficiently and generate more locally from renewable sources; cut waste and improve recycling
- » Travelling lightly To make and facilitate the transition to cleaner, greener fuels and more active travel;
- » Capturing more carbon To store carbon naturally by increasing tree cover, protecting soils and enhancing natural habitats.

We cannot do this alone. We have held a People's Jury on the Climate Change Crisis to identify actions that individuals, communities, organisations and decision-makers could take and we are working with other bodies in the public, private and voluntary sector to learn what they are doing or plan to do to tackle climate change. We know too, that Blackburn with Darwen is just a small part of the problem and we need action at national and international level to help us reach our carbon neutral target. The Council will lobby Government for the support it needs. The plan will continue to evolve to reflect actions being taken across the Borough and we will report progress annually to full Council.

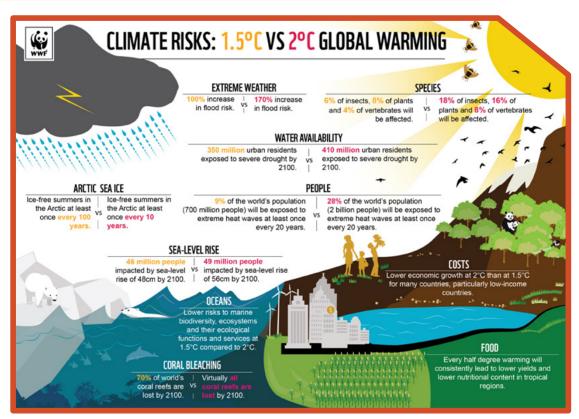


INTRODUCTION

The Earth is warming up fast – faster than any othertime in the planet's history. Carbon dioxide (CO₂) and other greenhouse gases released into the atmosphere from burning fossil fuels such as oil, gas and coal, have caused global temperatures to rise by 1.1°C above pre-industrial levels. This degree of difference is causing more extreme weather events and sea level rises worldwide, putting people and the environment at risk.

In 2015 world nations, including the UK, signed up to the <u>Paris Agreement</u> to keep global temperature rise to well below 2°C and make every effort to keep the rise to no more than 1.5°C. The Paris Agreement requires all Parties to put forward their best efforts through "nationally determined contributions".

In 2018¹ and 2023² the Intergovernmental Panel on Climate Change (IPCC) warned that global warming is on track to reach 1.5°C between 2030 and 2052 and 3-5°C by the end of the century, if it continues to increase at the current rate. Limiting it to 1.5°C to avoid catastrophic impacts on natural and human systems requires rapid and far-reaching action across all sectors NOW.



The difference in the impacts of just 0.5 °C are shown in the above infographic:

In response to the IPCC report the UK, in June 2019, passed <u>laws</u> to end its contribution to global warming, setting a target to be net carbon zero by 2050. This means any emissions would be balanced by schemes to offset an equivalent amount of greenhouse gases from the atmosphere, such as planting trees to capture and store carbon dioxide.

 $^{^{1}}$ Intergovernmental Panel on Climate Change, Special Report Global Warming of 1.5 $^{\circ}$ C (2018)

² Intergovernmental Panel on Climate Change, AR6 Synthesis Report: Climate Change 2023

CLIMATE EMERGENCY DECLARATION

The UK makes a relatively small contribution to global emissions of greenhouse gases – Just 1.1% of total emissions. In 2021³, each person in the UK was responsible for 5.15 tonnes of CO² being emitted into the atmosphere. The UK is also a net importer of emissions from other countries that produce food, goods and services on our behalf, increasing each person's emissions by at least 50%.

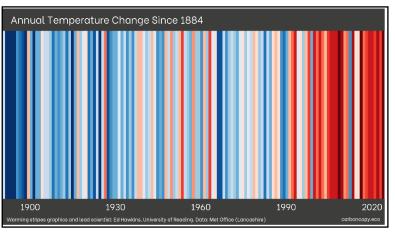
The Council has long been aware of climate change and taken steps to cut emissions and adapt to more extreme weather. But, the consequences of global temperature rising above 1.5 °C are so severe that preventing it from happening must be a global priority. The Council recognises it is part of the problem and needs to transform how it operates and change mind-sets if it is to redress the balance between climate-related considerations and other, often competing, priorities. "Ensuring we look after our environment is a top priority for all of us, especially young people" says Muhammed Bapu Council Youth MP 2023. The Council needs, with other local authorities, to show leadership in taking action. It remains, of course, the role of national Government to improve leadership and coordination over UK climate policy implementation.

In acknowledgement of the urgency of the situation the Council declared a Climate Emergency and committed to work with residents and partners in the public, private and voluntary sectors to make the borough carbon neutral by 2030.

The <u>Declaration</u> made by Blackburn with Darwen Borough Council in July 2019, in summary, notes that:

- Humans have already caused irreversible climate change, the impacts of which are being felt around the world;
- Blackburn with Darwen Borough Council has already made some positive progress, but this is not enough. More can and must be done;
- Action from all parts of society is necessary and local government has a responsibility to lead the way.





³ Our World in Data https://ourworldindata.org/grapher/co-emissions-per-capita

CLIMATE EMERGENCY DECLARATION

The Council believes that:

- All levels of government (national, regional and local) have a duty to limit the negative impacts of climate breakdown. Local councils that recognise this should not wait for their national governments to change their policies;
- The consequences of global temperature rising above 1.5 °C are so severe that preventing this from happening must be humanity's number one priority;
- Bold local climate action can deliver economic and social benefits in terms of new green jobs, economic savings and market opportunities, as well as much improved well-being for Blackburn with Darwen residents.

The Council decides to:

- Declare a Climate Emergency
- Commit to a target of making Blackburn with Darwen carbon neutral by 2030, taking into account both production and consumption emissions;
- Request an update report within six months setting out the immediate actions the Council has taken and will take to address this emergency and meet the 2030 target.
- Work with partners across our towns and across the region to deliver this new goal through all relevant strategies and plans and drawing on local and global best practice.
- Actively lobby the Government to provide the additional powers and resources needed to meet the 2030 target.

The Climate Emergency Action Plan sits alongside and informs the Council's key plans and strategies which, collectively, deliver our Corporate Plan missions for a more prosperous borough where no one is left behind, where every child and young person has the opportunity to fulfil their potential and communities are healthier, happier and safer.



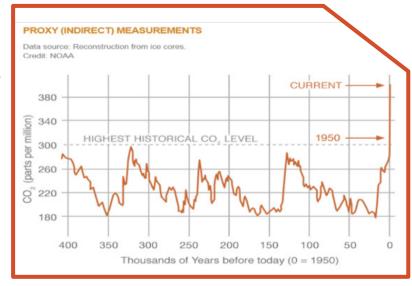


THE MAIN GREENHOUSE GASES AND THEIR SOURCES

Greenhouse gases are essential for life on Earth, but in too great quantities, they are responsible for the excess warming of the atmosphere. The main greenhouse gases in the Earth's atmosphere are water vapour, carbon dioxide, methane, nitrous oxide, and ozone. Carbon dioxide (CO_2) is the dominant driving force in global warming and accounts for about 80% of the UK's greenhouse gases. Atmospheric levels are higher than they have ever been and rising^{4,2}

Greenhouse gases are released when we burn fossil fuel to generate the energy needed to power and heat our homes, businesses, schools and hospitals, produce goods and services, supply and dispose of water and transport people and merchandise. Greenhouse gases are also released from ploughing the soil, from deforestation, waste disposal sites and belching livestock.

From production to consumption, food is responsible for 30% of global emissions and has many negative environmental impacts, such as dependence on fossil fuels, loss of biodiversity and depletion of natural resources.



The UK, in 2021⁵, emitted 427 million tonnes of greenhouse gases from within the UK from the domestic sector, business and transport. Emissions are down 48% on 1990 levels, mainly because the UK has swapped coal for gas and renewable energy from sun and wind to generate electricity. Provisional figures for 2022⁶ suggest the downward trend is continuing. Emissions from transport, however, continue to buck the trend, having risen 4% in the last three decades, as ever increasing mileage wipes out the benefit of more fuel-efficient vehicles.

These figures do not include imported goods, which are accounted for where they are made, or international shipping and aviation. Reducing emissions from shipping is possible, but cutting emissions from aviation is likely to happen only with a reduction in demand for flying⁷.

⁴ NASA The Causes of Climate Change https://climate.nasa.gov/causes/

⁵Final UK greenhouse gas emissions national statistics: 1990 to 2021 https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-to-2021

⁶ 2022 UK Greenhouse Gas Provisional Statistics https://www.gov.uk/government/statistics/provisional-uk-greenhouse-gas-emissions-national-statistics-2022

⁷ Bows-Larkin, A., Traut, M., Gilbert, P., Mander, S., Walsh, C., & Anderson, K. (2012). Aviation and shipping - privileged again? (Tyndall Centre Briefing note 47). Manchester: Manchester University

THE MAIN GREENHOUSE GASES AND THEIR SOURCES

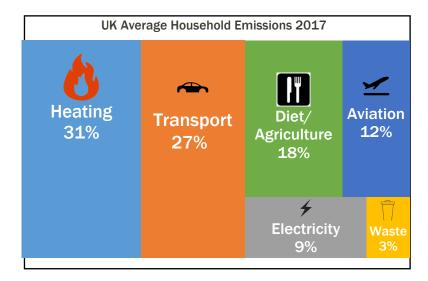
Emissions from Blackburn with Darwen have also fallen as a result of the changes in how electricity is generated and because electrical equipment, homes and cars have become more energy efficient. In 2020⁸, 668,000 tonnes of CO₂ were emitted from the Borough's homes, road transport and industry and commerce, about half of what was emitted in 2005.

The sector split in the borough is:

Sector	BwD	UK
Domestic	32%	27%
Transport	25%	36%
Industry & Commerce	43%	37%

Households were responsible for one-quarter of all greenhouse gas emissions in the UK in 2017, an average of around 9 tonnes per household. Increasing car ownership and number of flights taken are thought to be the reasons why emissions by household have not been falling in recent years.

Open green space in the town and countryside, forestry and agriculture all have a vital role to play in capturing and storing carbon, but needs to be in good condition. The land in Blackburn with Darwen that provides vital habitat for wildlife and services for people, such as food, recreation, shade and flood defence, *emitted* at least 5,000 tonnes of carbon dioxide in 2020





⁸ UK local authority and regional greenhouse gas emissions national statistics https://www.gov.uk/government/collections/uk-local-authority-and-regional-greenhouse-gas-emissions-national-statistics

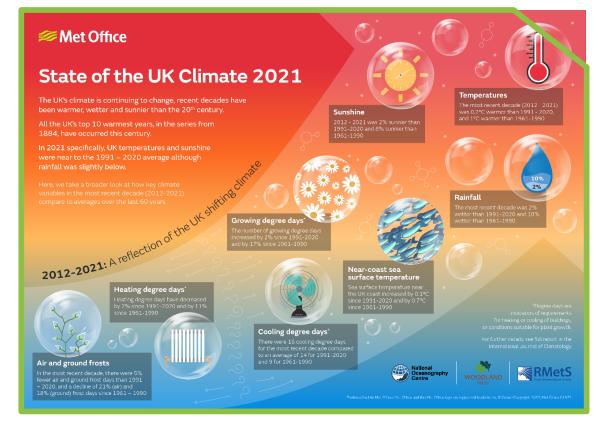
THE IMPACT OF CLIMATE CHANGE

Climate change is already affecting the UK and other countries around the world⁹ through rising sea levels and more frequent extreme weather events such as heat waves, drought, intense rainfall, and coastal flooding.

The main threats are:

- Flooding risks to communities, businesses and infrastructure;
- Risks to health, well-being and productivity from high temperatures;
- Risk of shortages in the water supply for people agriculture and industry;
- Risks to wildlife and habitats
- · Risks to food production

Vulnerable people, whether because of age, disability, ill health or low income, tend to be more badly affected by climate change. For example, the number of deaths increases when temperatures are higher than 20°C in the UK¹⁰. This could be because the most vulnerable people, such as those with pre-existing respiratory or cerebrovascular diseases are more susceptible to death during heatwaves.



⁹ www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-headline-findings-2.pdf

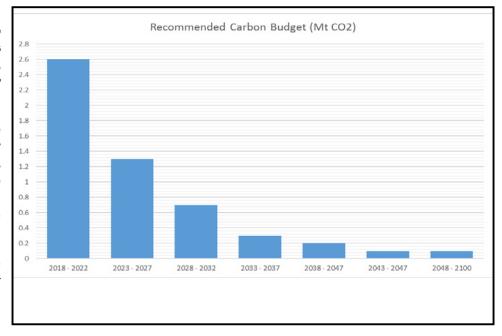
¹⁰ Office for National Statistics, Excess mortality during heat-periods https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/excessmortalityduringheatperiods/englandandwales1juneto31august2022

CARBON REDUCTION PATHWAY

The Tyndall Centre for Climate Change Research in Manchester¹¹ calculated carbon budgets for every local authority in England in 2019. For Blackburn with Darwen to make its fair contribution towards a global temperature rise celling of 1.5°C, the borough needs to stay within 4 million tonnes of CO₂ between 2020 and 2100. At current emission levels, the budget will be used up in 4 years meaning efforts have to be redoubled to reduce our impact on the climate.

Local authorities are well placed to drive and influence action on climate change through the services they deliver, their regulatory and strategic functions, and their roles as community leaders, major employers and large-scale procurers. However, it is not all in the Council's control or sphere of influence, nor does the authority have the resource or expertise to tackle everything. It is important to work in partnership with residents, particularly young people, business and other sectors to find solutions and to be prepared to lobby government on the big issues that need a national or even an international response.

Partner organisations include East Lancs Hospital Trust, Blackburn College, Blackburn Hive, the Environment Agency, East Lancs Chamber of Commerce, social landlords, Council for Voluntary Services, Transdev, faith groups, utility companies, the People's Jury, BwD Food Alliance, youth groups, and neighbouring councils.



Many of these organisations have their own plans and projects to address climate change, for example, the East Lancs Hospital Trust's <u>Green Plan</u>, Blackburn College's <u>Net Zero Plan</u>, Together Housing's <u>Go Green Together</u> initiatives and <u>Chamber Low Carbon</u>.

Partners are keen to work together to set targets, influence policy, develop projects and share ideas and best practice. A Climate Network for Blackburn with Darwen will be established this year.

Collaboration will help us see more clearly whether a carbon neutral borough by 2030 is feasible. The target year was selected to bring the climate emergency into sharp focus and accelerate action within the Council. So much, however, is reliant on action at national level – the decarbonisation of the electricity grid, of heat and of transport, for example – that it simply may not be possible. The objective to get there as quickly as possible nevertheless remains paramount.

¹¹ Dr Jaise Kuriakose, Dr Chris Jones, Prof Kevin Anderson, Dr John Broderick & Prof Carly McLachlan, Setting Climate Commitments for Blackburn with Darwen, Quantifying the implications of the United Nations Paris Agreement for Blackburn with Darwen, November 2019

ACTION PLAN

The Council will be pro-active in tackling climate change, taking what action it can, encouraging others to take action and lobbying government to provide the support needed to help the borough be carbon neutral by 2030.

This plan sets out the main proposals and actions that the Council intends to take, underpinned by the following objectives:

- Sound Decisions To use resources sustainably so as not to add to the burden of climate change emissions in Blackburn with Darwen or elsewhere.
- Resilient & attractive borough To align policy to climate change mitigation and adaptation objectives to create sustainable places where people want to live, work and visit and capture the benefits to health and the economy from the move to a climatefriendly borough.
- Lean and clean To use energy more efficiently and generate more locally from renewable sources; cut waste and improve recycling.
- Travelling lightly To make and facilitate the transition to cleaner, greener fuels and more active travel.
- Capturing more carbon To store carbon naturally by increasing tree cover, protecting soils and enhancing natural habitats.

To provide the basis for change we must aim for:

- Wider understanding of the climate emergency
- Stronger partnerships and networks
- Adequate resourcing of the investment needed to match the scale of the challenge
- Evidence informed action and sound governance

This edition provides an update on actions implemented to date.



ACTION PLAN

Our Action Plan was first published in February 2020 and updated in December 2021. This third edition sets out the progress made to date and captures additional objectives and actions that have been identified as necessary to contribute to the Council's ambition for a carbon neutral Borough. The Action Plan concentrates on activity that the Council can influence, although the intention is to incorporate partner action in future editions. Carbon neutral status will not be achieved without effective national action and other sectors and individuals taking responsibility for securing the change needed. The Climate Emergency Action Plan will continue to evolve as actions are implemented and new activity by the Council and its partners is identified. The Climate Emergency Working Group, chaired by the Strategic Director of Growth & Development, will report regularly to the Corporate Leadership Team and provide an annual progress report to the Executive Board.

The Action Plan will deliver on the Council's Corporate Plan ambition for a more prosperous borough where no one is left behind, where every child and young person has the opportunity to fulfil their potential and communities are healthier, happier and safer.

All of the actions have benefits other than cutting emissions of carbon dioxide, such as to health from better air quality, more active travel and healthier diets, reductions in fuel poverty, economic regeneration and creation of local jobs, and lower energy bills. Furthermore, increasing resilience to climate change risks can result in avoided costs from flood damage to buildings, infrastructure and services, enhanced green spaces and improved health. We recognise that there may be tensions between conflicting goals that we will have to resolve as we implement our plan. We may also be limited in our ambition if the national policy context is not strengthened and no additional resources are made available.



The Council has addressed the risks and pursued the opportunities presented by a changing climate, in line with local priorities, through its role as:

- Community leader helping local people to be smarter about their energy use and to prepare for climate impacts;
- Service provider delivering services that are resource efficient and that protect those who are most vulnerable to climate impacts;
- Estate manager ensuring that our own buildings and operations are energy efficient and climate resilient



The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a blueprint for peace and prosperity for people and the planet. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries. They recognize that ending poverty must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change. Our Action Plan notes which SDG is addressed by the activity.

The following outlines the progress made to date on actions set out in previous iterations of the Climate Emergency Action Plan by objective

Basis for Change

Held a People's Jury on the Climate Change Crisis

Climate change is an incredibly complex issue and residents must be at the heart of solutions. A People's Jury was both a meaningful and practical way of involving the public in identifying ideas, strategies and actions needed.

The Blackburn with Darwen People's Jury on the Climate Change Crisis brought together a group of 30 people, randomly selected to reflect the demographic make-up of Blackburn with Darwen. Meeting over 30 hours between September and December 2022, the Jury heard from commentators on the causes and consequences of climate change and elected to hear more on **education and communication**, **housing** and **transport**. Participants questioned the commentators, shared opinions, deliberated, challenged each other and ultimately reached a set of recommendations on how the borough can address climate change. The process was led by a team of independent facilitators from Shared future CIC ,and overseen by an Oversight Panel comprising representatives from other public, private and third sector organisations.

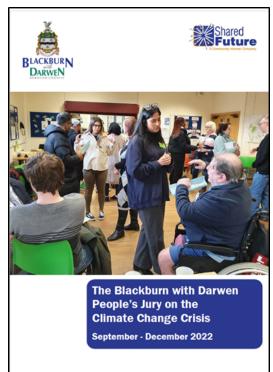
The Jury made 17 recommendations to answer the question: 'What do we need to do in our homes, in business and our local area to respond to the climate change crisis?' which have been incorporated into the Action Plan as far as it is within the Council's authority and capacity to do so. The full report of the Jury process and Recommendations can be found here and you read more about the whole process on the People's Jury pages of The Shuttle.

Shared Future CIC will work with the Jury for another 12 months to help members identify what opportunities they want to prioritise themselves and build confidence to speak 'on behalf of the climate' at meetings and events.

The Council will report progress on implementation of the recommendations to the Jury at 3 months, then 6-monthly intervals.

Prepared a communications plan, identifying communication channels and timetable for messages and interactions

Committed to disclosing our climate-related activity on the global **Corporate Disclosure Project** platform to increase transparency and help us track progress on the risks and opportunities of climate change



Governance

Identified the leads for the Climate Emergency and established a cross-departmental Working Group

Development and delivery of Blackburn with Darwen's Climate Emergency Action Plan is led by the Leader of the Council, supported by an elected Member and the Strategic Director of Growth & Development. The Strategic Director leads the cross-departmental **Climate Emergency Working Group** with the Director of Finance. Members of the Working Group are:

- Strategic Director of Growth & Development
- Director of Finance
- Environment & Sustainability Manager
- Head of Highways
- Business Compliance & Licensing Manager
- Service Lead, Construction & Facilities
- Head of Service Partnerships, Intensive Support, Policy & Performance
- Head of Service, Corporate Contracting & Procurement
- Corporate Strategy, Engagement & Partnerships Manager
- Communications Manager, Growth & Development
- Head of Neighbourhoods, Wellbeing & Prevention
- Head of Environment
- Strategic Planning & Transport Manager
- Head of Service, Growth & Development
- Head of Service, School System Support
- Service Lead, Adult Services

Corporate Plan: Identified the Climate Emergency Action Plan as one of the four Core Missions of the Council's Corporate Plan for 2023-2027.

Sound Decisions

Training: Delivered carbon literacy training to the CEAP Working Group and an e-learning module on the Climate Emergency to almost 1,100 members of staff

Procurement: Updated our Social Value Policy to require bidders:

- For contracts below £1m to consider how they can implement the contract in a way which contributes to the Council's target of being carbon neutral by 2030 and implement any financially reasonable measures to do so;
- For contracts above £1m to provide a contract specific Carbon Reduction Plan consistent with PPN 06/21 including detailed information on current emissions, reporting mechanisms involved, the environmental management measures in place, including certification schemes or specific carbon reduction measures they have adopted that will be applied when performing the contract

Resilient & Attractive Borough

Local Plan: Submission and public examination of the Council's proposed new planning policies in its new Local Plan (2021-2037). The Local Plan seeks to introduce some key climate related policy initiatives including:

- The Climate Impacts Framework a new assessment tool to help demonstrate how new developments seek to reduce carbon emissions, and to be used in the determination process of planning applications;
- Identification of Environmental Opportunity Areas highlighted for specific value in terms of habitats, biodiversity, carbon management and/or flood risk mitigation; and
- Identification of areas potentially suitable for Wind Energy Development a key requirement to grant planning permission for on-shore wind turbines in line with Government policy

Launched a **fuel poverty toolkit** to help target the Council's limited resources at households most in need and identify where additional assistance from Government is needed. This can be found at <u>Fuel Poverty Toolkit - Be Well BWD</u> The Toolkit provides a single source of information for both professionals and residents.

Delivered 819 energy efficiency measures to 429 low-income households, part of a Lancashire-wide programme managed by Cosy Homes in Lancashire (CHiL). Measures included loft and internal wall insulation, heating controls and thermostats, replacement windows and some installations of renewable technology such as solar PV and thermal systems. The value of the measures in the Borough is an estimated £4.2m

Established an Affordable Warmth Forum in December 2022. Its goal is to increase awareness of fuel poverty and fuel debt in the Borough and work with partners to support households to be energy efficient. The Council's Public Health



team provide leadership alongside Healthy Living.

Lean & Clean

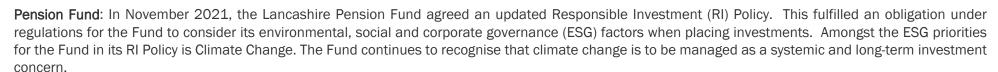
Energy Efficiency Measures: Installed LEDs in 5 buildings, solar PV arrays on 10 buildings, a heat pump for one building, an upgrade to the Uninterruptable Power Supply at the Data Centre and upgrades to the Building Management Systems at all 13 sites – funded by the Public Sector Decarbonisation Scheme and saving around 125 tonnes of CO_2 a year

Prepared a Heat Decarbonisation Plan for 13 of the highest energy consuming Council buildings

The proposed **Household Waste Recycling Centre** at Darwen is on hold pending a review of costs, given national market conditions and inflation pressures, with the aim of moving forward in the next 2-3 years;

Signed up all primary schools to the Recipe 4 Health award;

Deliver the Give Up Loving Pop' campaign, which includes plastic pollution awareness, to 20 Year 3 classes



Travelling Lightly

Ordered 11 electric vehicles to replace diesel vehicles on the Council's fleet

Commissioned the Energy Savings Trust to advise on the costs and benefits of replacing the Council's fleet vehicles with low carbon equivalents and the infrastructure needed to power the vehicles.

Produced a strategy for the rollout of on-street **electric vehicle charging infrastructure** in the Borough and secured finance for additional resource to implement a delivery programme.

Active Travel

- Delivered grants to business and schools to improve onsite facilities that encourage more walking and cycling, e.g. cycle parking, shower or locker facilities.
- Implemented an action plan of cycling and walking activities, which encouraged businesses, schools and hard to reach communities to engage in active travel





through adult and family cycle training, led walks and rides, bike hire and community-based cycling and walking activities. See list of achievements in separate table.

• Delivered actions set out in the Walking and Cycling Plan (2021-2024), including: completion of the Blackburn Stride and Ride Phase 2, and North Blackburn Stride and Ride schemes; community consultation; and development of Local Cycling and Walking Infrastructure Plans for the whole Borough

A proposal to introduce, from 2023, a policy of only issuing hackney and private hire vehicle licences to vehicles meeting less polluting Euro 4 and Euro 6 engine standard cars was objected to by the trade. The main concern expressed is the increased costs to purchase a compliant vehicle. The policy will not be pursued for the time being.

A campaign was launched to discourage engine idling in the Borough, particularly outside of schools.

The Clean Air toolkit has been shared with the PSHE (Personal, social, health and economic education) network, including schools, to help promote cleaner air initiatives and act on air pollution in the borough.

Capture More Carbon

Planted 17,000 trees over two seasons, 7,000 in 2021/22 and 10,000 in 2022/23, with the help of volunteers and the Ribble Rivers Trust, in schools, parks and various 'micro-woodlands' in and around the towns and villages of the Borough.

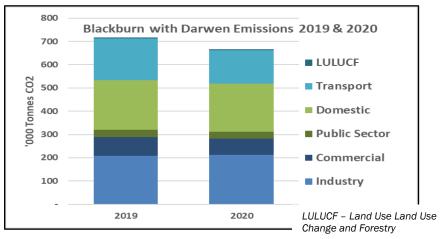


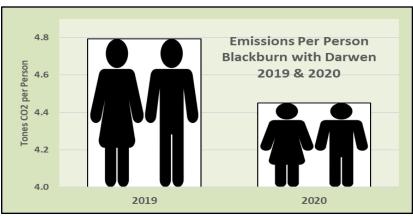


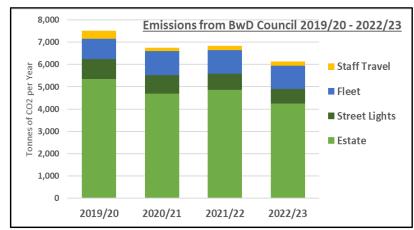


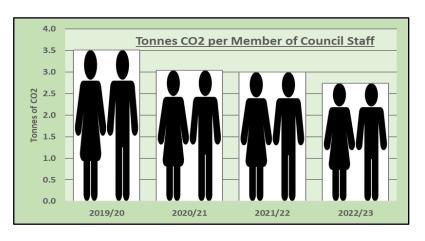
Emissions

The following show emissions from the Borough as a whole and from the Council since the Declaration of the Climate Emergency in 2019. The Covid-19 pandemic had a major impact on emissions and the true trajectory for the borough won't be known until the next set of figures (for 2021) is released mid-2023. Figures for the Council show a 12% reduction on emissions in 2022/23 compared with 2021/22. This is in large part the effect of the Public Sector Decarbonisation Programme measures, which cut emissions by 125 tonnes of CO₂.









Climate Emergency Action Plan 2023/24

The following sets out our ambitions for 2023/24 under each of our objectives:

- Sound Decisions
- * Resilient & attractive borough
- Lean and clean on energy and resources
- Travelling lightly to facilitate the transition to cleaner, greener fuels and more active travel;
- Capturing more carbon

Actions supported or proposed by the People's Jury on the Climate Change Crisis are denoted by *

Climate Emergency Action Plan 2023/24 Sound Decisions

Objective	Action	Proposal	Timescale	Lead	CO ₂ Impact
Sound Decisions	We will account for emissions in decision making: we recognise that decision-making processes currently don't achieve an adequate balance between climate change considerations and other priorities All UN SDGs	 Training and awareness raising Develop and deliver bite-size training on the Climate Emergency for elected members; Promote the councillor's workbook on the local pathway to net zero; Develop and deliver further training and awareness modules for staff and community groups; Establish a network of staff Champions to disseminate information and support teams with climate considerations in day to day business. 	2023 /24	Climate Change Project Officer Public Health Specialist	5-15% saving per person. Say 1 tonne per person pa or 2,200 tonnes for BwD staff and Members
		Decision Reports Test toolkits and guidance for accounting for carbon emissions in decision reports Planning Decisions The new Local Plan (2021-2037) is seeking to introduce a Climate Impacts Framework that will form part of the formal decision making process for planning applications. The Local Plan is still subject to an ongoing examination process and is expected to be adopted in early 2024	June 2024 2023/24	Climate Change Projects Officer Strategic Planning and Transport Manager	Contributes to all reduction trajectories
		 Highways Develop a Highways Decarbonisation Plan setting out our ambitions to reach net zero by 2030. Key milestones and targets are: Year 1: Establish Infrastructure, introduce toolkits to capture date and trial new methods and materials Year 2: Benchmarking and data collection, continuing trials, reviewing plans Year 3 and onwards quantifiable reduction whilst monitoring performance against targets and reviewing actions, plans and operations accordingly. 	2023 -2025	Head of Highways and Transport Highways Asset Manager	TBC – potentially high, if cost- effective

Objective	Action	Proposal	Timescale	Lead	CO ₂ Impact
	We will revise procurement requirements to ensure environmental impact is a major part of social value UN SDGs 12 - Responsible production and consumption	Procurement Refine and develop more detail on what we are asking in terms of Social Value and develop a proportionate approach based on the value and carbon impact of the contract.	2023/24	Head of Service Procurement	Assuming Scope 3 equals known Scope 1 & 2 emissions, a 10% reduction would save ~ 700 tonnes CO ₂

ACTION PLAN 2023/24 Resilient & Attractive Borough

Objective	Action	Proposal	Timescale	Lead	CO ₂ Impact
Resilient & Attractive Borough	We will align Council policy with our climate emergency objectives. As plans and strategies are prepared the Council will ensure that they address its climate change objectives. UN SDGs 11 - Sustainable cities and communities	Local Plan The new Local Plan (2021-37) has been submitted to the Government in August 2022) and the examination process is underway. The Inspector's report is expected later in 2023, with adoption early in 2024. There are a number of relevant policies set out in the new Local Plan. At the strategic level, Core Policy CP5 takes a pro-active approach to mitigating and adapting to climate change. It requires all developments to contribute to the transition to a low carbon future. To ensure that climate mitigation and adaptation forms a key part of the decision-making processes, the policy includes the introduction of a new 'Climate Impact Framework' against which development proposals will be assessed. In light of a recommendation from the People's Jury that policy should be strengthened to bring forward requirements for net zero homes, officers will investigate the evidence required to introduce future standards, including energy modelling and further viability work. Evidence may also include socio-economic data such as Climate Justice / Fuel Poverty levels. Local Transport Plan (LTP4) The Council is preparing a new Local Transport Plan (LTP4) jointly with Lancashire County Council and Blackpool Borough Council. Guidance is expected from the Government relating to quantifying carbon reductions through LTP policies – this will be subject to consultation	In line with timescales for plan preparation	Strategic Planning & Transport Manager	NQ

Objective	Action	Proposal	Timescale	Lead	CO ₂ Impact
		in 23/24. The Council is aiming to have an updated LTP4 by end of 2024. Incorporation of policy and action in other Council plans and strategies is dependent on greater understanding of the implications of service delivery on climate change and so on the training and reporting recommendations above.			
	The Council's Adaptation Strategy will be reviewed in the light of the latest UK climate projections and the associated implementation plan updated to ensure the Council is resilient to the changing climate UN SDGs: 13 – Climate Action	Climate Change Adaptation Strategy The Adaptation Strategy has been updated to reflect the latest UK Climate Impact Projections. The Implementation Plan is being updated before approval is sought from Executive Board.	Sept 2023	Climate Change Project Officer	NQ
		Natural Flood Management Study The study will focus on areas where there is potential to change land use and land management practices to deliver NFM and so protect communities at "Significant Risk" of flooding. NFM works can improve biodiversity and help to capture carbon through, for example, tree planting or peatland restoration, as well as reducing flood risk. The study will provide options for implementation.	March 2025	Ribble Rivers Trust Drainage Manager	NQ
		Home Energy Deliver the Home Upgrade Grant (HUG2) programme. (£41m secured by Cosy Homes in Lancashire – CHilL – for the whole of Lancashire). The scheme aims to raise the energy efficiency of low energy performance homes that do not have gas central heating by installing insulation measures, renewable technologies such as heat pumps and solar PV and	April 2023 - March 2025	Home Energy Advice Officer	

Objective	Action	Proposal	Timescale	Lead	CO ₂ Impact
		upgrading windows from single to double glazed. The scheme is open to low-income households and properties within specified postcodes.			
		*Energy Efficiency Information for Householders Support the People's Jury to find ways in which to convey impartial information to residents on how to make savings through energy efficiency measures	2023/24	People's Jury Climate Change Projects Officer Climate Network	
		Safe and Warm Homes Deliver the Safe and Warm Homes programme, ensuring the service reaches all parts of the community to support with home energy efficiency and reducing fuel poverty.	2023-2027	Care Network	
		Energy Efficient Buildings Ensure that Minimum Energy Efficiency Standards are met by private sector landlords, ensuring all rented properties have an EPC (Energy Performance Certificate) rating of E or above.	On-going	Service Lead for Public Protection & Environmental Health	
	The Council will work with partners and stakeholders to influence the progress of environmental products, processes and innovation. It will work with networks e.g. the Hive to identify champions who can help businesses cut emissions.	Low Carbon Economy Develop a skills and education campus in Blackburn town centre to generate low carbon jobs and support training and re-skilling; Use investment programmes and grant funding to support and development jobs and training in low carbon and green sectors such as building retro-fit, peatland restoration, and provision of active travel infrastructure	2030	Strategic Director for Growth & Development Chamber Low Carbon	A 10% reduction from the industrial & commercial sector would save 25,000 tonnes of CO ₂ a year
	UN SDGs 8 – Decent work and economic growth 17 – Partnerships for the Goals				

ACTION PLAN 2023/24 Lean & Clean

Objec	ctive	Action	Proposal	Timescale	Lead	CO ₂ Impact
Lean Clean		We will invest in clean energy and efficiency measures throughout the Council estate and support renewable energy generation in the borough. UN SDGs 7 - Affordable & clean energy 9 - Industry, innovation & infrastructure	Heat Decarbonisation Plan Develop the recommendations for energy conservation measures, heat pumps and heat networks and a programme for investment. Prepare bids for grant funding.	2030	Environment & Sustainability Manager	Potential to cut emissions by 750 tonnes of CO ₂ pa
		The Council will work with partners to identify opportunities for renewable energy generation in the borough and prepare an investment plan to 2030 for viable schemes. UN SDGs	Renewable Energy & Decarbonisation of Heat *Following collapse of negotiations with iChoosr for bulk buying and installation of solar PV arrays on a Lancashire footprint consider options for running a local scheme. Bulk purchase reduces costs for residents, but relies on there being sufficient interest to generate worthwhile discounts.	2023/24	Environment & Sustainability Manager Strategic Planning & Transport Manager	A domestic solar array saves about 1 tonne of CO2 a year per household.
		13 – Affordable and clean energy 17 – Partnerships for the goals	Local Area Energy Plan Re-open assessment of options for cost-effective production of a Local Area Energy Plan to determine scope for deployment of renewables and low carbon energy in the borough.			
			Community Energy Work with stakeholders and residents to promote and progress renewable energy generation across all sectors			
		We will reduce the waste generated in the borough, increase recycling and maximise the benefit from residual waste.	Waste & Recycling The Council has a contract with Suez until 2026 that stipulates a target of 70% diversion of waste away from landfill to waste to energy. Diversion to date has been	On-going	Contract Policy & Performance Manager	A tonne of waste sent to landfill emits 466 kg CO2e

Objective	Action	Proposal	Timescale	Lead	CO ₂ Impact
	The Council has an objective to increase its recycling rate from 30% to 65% by 2030 and send the residual waste to an energy-from-waste plant UN SDGs 12 - Responsible consumption and production	around 95%, which is set to continue, keeping emissions from household waste disposal down. The Environment Act 2021 proposes some major changes for waste management, which will influence emissions, including: * Food waste (weekly) collection from 2026 across BwD; * UK wide deposit return scheme for 'on the go' drinks containers (dates tbc) * UK wide kerbside recycling collection of a wide range of packaging films, from 2027 (tbc)	From 2026 onwards		A tonne of waste recycled or combusted emits 21kg CO2e
		Promoting recycling* Continue to communicate regularly with residents to encourage recycling and waste reduction. Channels used range from websites to social media, posters, leaflets, school education and surveys. Continue to deliver 'Give Up Loving Pop' campaign, which		Environmental Education Officer Public Health	
		includes plastic pollution awareness. Food Waste Continue to raise awareness of, and seek to reduce, food waste, which accounts for c.40% of residual household waste in the borough	2030	Environmental Education Officer	Cost: £750k pa to dispose of food waste
		Develop a pilot 'Natural Paths' environmental resilience programme focusing on reducing food waste and plastic pollution and increasing biodiversity.	2024/25	Food Resilience Alliance	
		Young people to undertake five litter picks in the local community	August 2023	Participation & Inclusion Manager	
		Install recycling bins at Kaleidoscope & Darwen Youth Centre	June 2023	Participation & Inclusion Manager	

Objective	Action	Proposal	Timescale	Lead	CO ₂ Impact
	Invest in a further street lighting LED replacement programme for the remainder of the street lights and connect the street lighting on our main arterial routes through construction of a Central Management System (CMS) connecting all the assets	 Street Lighting Develop a project scope and establish costs and possible funding sources to enable: A switch of the remaining 3,500 lighting assets to LED Investment in a Central Management System (CMS) for lighting assets to enable dimming and fault detection. Select and adopt a suitable carbon toolkit or carbon capture software to collate carbon usage data and help identify where future carbon savings can be made in the most efficient and targeted manner. 	2023 - 2025	Highway Operations Manager	Savings to be quantified as part of the project development process
	We will seek increased transparency from the Council's Pension Fund managers in relation to the coherence of Pension Fund Investment choices and alignment with its Climate Change strategy UN SDGs 12 – Responsible consumption and production	Pension Fund Monitor commitments made by Local Pensions Partnership Investments to ensure that the investment within the Pension Fund transitions to a low-carbon economy and a sustainable climate for the future.		Director of Finance	TBC
	The Authority aims to be a responsible investor and will consider environmental, social and governance (ESG) issues when investing.	Investment When investing in banks and funds, the Authority will prioritise banks that are signatories to the UN Principles for Responsible Banking and funds operated by managers that are signatories to the UN Principles for Responsible Investment, the Net Zero Asset Managers Alliance and/or the UK Stewardship Code		Director of Finance	TBC

ACTION PLAN 2023/24 Travelling Lightly

Objective	Action	Proposal	Timescale	Lead	CO ₂ Impact
Travelling Lightly	We will reduce emissions from transport and increase active travel.	Active and Low Carbon Travel Support policy, aims and objectives through emerging LTP4	2023/24	Senior Transport Planner	твс
	UN SDGs 11 - Sustainable cities and communities	Implement an extensive upgrade to the active travel network in South-east Blackburn using £5m Levelling Up Fund (LUF) grant. Initial feasibility work now underway.		People's Jury	
		Develop Leeds and Liverpool Canal Access and Connectivity priority schemes using Active Travel Fund 4 (ATF4) grant;			
		Continue to develop a Local Cycling and Walking Infrastructure Plan (LCWIP). Baseline reports and network planning complete, prioritisation work now underway, expected completion summer 2023, which will enable access to additional active travel funding.			
		Consult with the public on scheme designs (LUF, ATF4, LCWIP) during 2023.			
investment plan to mo fleet from fossil to clea		*Support the People's Jury to explore improvements to public transport with local providers such as Transdev and Network Rail			
		*Support the People's Jury in making the case to business for company car sharing schemes			
	The Council will develop an investment plan to move its fleet from fossil to clean fuel by	Council Fleet Take delivery of 11 electric vehicles to replace diesel vehcles in the Council's fleet	Oct 2023	Fleet Transport Manager	c. 20 tonnes CO2 pa
	2030.	Train MVSS staff to maintain EVs and offer their services to the public;	2023/24		

Objective	Action	Proposal	Timescale	Lead	CO ₂ Impact
	UN SDGs 11 – Sustainable cities and communities	 Keep under review the cost of decarbonising the larger vehicles, i.e. the 15% that are costly to switch to electric at present and/or may not currently be available on the market Monitor the market for availability of electric minibuses to replace vehicles at end of life 	On-going		
	We will investigate ways to reduce emissions from staff business travel and commuting and introduce cost-effective solutions as quickly as possible.	Staff Business Travel Introduce an electric pool vehicle for staff at Duke St for unavoidable travel and add the acquisition of the EV to the fleet investment plan.	2023/24	Fleet Transport Manager Environment & Sustainability Manager	2 tonnes CO2 pa for every 10,000 miles travelled
	UN SDGs 13 - Climate action	Benefits of Employment with BwD Assess the practicalities of the following: • Introduction of salary sacrifice to encourage staff to purchase an electric car;	2023/24	HR with Finance	NQ
		• Investigate whether salary sacrifice could be used for the purchase of bus or rail passes and if a 'pool' bus pass could be made available for business travel?			
		Register with Transdev's 'Commuter Club' where employees will be entitled to 10% off bus travel on all Transdev buses			
		*Demand Responsive Transport Blackburn with Darwen Borough Council revised and published its latest Bus Service Improvement Plan (BSIP) in October 2022, in partnership with Lancashire County Council. Demand Responsive Transport (DRT) is one option of the options being considered for hard-to-reach areas. DRT is an objective for the transport strategy for South East Blackburn. The issue will be explored further as the BSIP and transport strategy are implemented.	2025/26	Senior Transport Planner	TBC

Objective	Action	Proposal	Timescale	Lead	CO ₂ Impact
		Clean Air Develop and implement a Clean Air Trail for Clean Air Day to encourage people to use our green spaces, learn about air pollution and the actions they can take to mitigate it.	15 th June 2023	Public Health Environment Team Making Rooms	A car idling for one minute can produce 10- 30g CO ₂ and 0.05-0.07g NOx ¹²

¹² Estimates calculated by TRL Transport for Future https://idlingaction.london/live/wp-content/uploads/2021/02/TRL-Executive-Summary.pdf

ACTION PLAN 2023/24 Capture More Carbon

Objective	Action	Proposal	Timescale	Lead	CO ₂ Impact
Capture more carbon	We will work with landowners to plant more trees and protect and enhance natural carbon stores	Woodland Creation Work with Lancs County Council, Blackpool Council and a number of environmental organisations to expand woodland creation across Lancashire using the grant from the Woodland Creation Accelerator Fund.	2023/24 Sites for another 10,000 trees identified	Strategic Planning & Transport Team Environment Team	Tree planting 2.25 tonnes CO ₂ per ha
	UN SDGs 15 - Life on land 14 - Life below water	Develop a Tree & Woodland Strategy for Blackburn with Darwen.	Tree & Woodland Strategy prepared		
		*Talk to residents about the benefits of trees in towns and the role they play in capturing carbon, improving air quality and providing shade	2023/24	Climate Change Project Officer People's Jury Climate Network	
		*Explore the potential for improvements to green spaces in the Borough with the People's Jury and other stakeholders to encourage walking	2023/24	Climate Change Project Officer People's Jury Climate Network	TBC
		*Communicate the benefits of growing your own food - for health, enjoyment and reducing food miles - and the organisations already involved that can support residents and community groups who want to get involved.	2023/24	BwD Food Alliance People's Jury Climate Change Project Officer Climate Network	TBC

Objective	Action	Proposal	Timescale	Lead	CO ₂ Impact
		Submit a bid the Climate Action Fund for the establishment of a volunteer support resource to energise and enable residents to get involved with the improvement of their local green spaces for the benefit of people, place and planet.	June 2023	BwD Community CVS	TBC
		Prepare a business case for development of a Centre for Sustainable Living based at the greenhouses at Witton Park for discussion with relevant stakeholders.	2023/24	Lancs Wildlife Trust	TBC
		Work with the Lancashire Peat Partnership, Natural England and landowners to draw up and implement peatland restoration schemes for Darwen Moor and Aushaw Moss.	2023/24 Schemes for peatland restoration drawn up	Lancs Peat Partnership Natural England	TBC
		Continue to work with the Local Nature Partnership, the responsible body for the Lancashire Local Nature Recovery Strategy, and the likes of United Utilities and other stakeholders, to develop the concept of environmental opportunity areas (as identified in the Local Plan) and implement suitable projects for natural capital and carbon reduction schemes.	2023/24	Strategic Planning & Transport Team	TBC
		Work with Blackpool and Lancashire County Councils and other stakeholders, to investigate the viability of an insetting scheme for Lancashire to direct funding to local carbon reduction or avoidance schemes as an alternative to offsetting overseas.	2023/24	Environment & Sustainability Manager	TBC

ACTION PLAN 2023/24 Basis for Change

Objective	Action	Proposal	Timescale	Lead	CO ₂ Impact
Basis for change	We will work with residents and partners to raise awareness of and to tackle climate change. UN SDGs 13 - Climate action	People's Jury Continue to work with Shared Future and the Jury for another 12 months to help members identify what opportunities they want to prioritise themselves and build confidence to speak 'on behalf of the climate' at meetings and events.	2023/24	Environment & Sustainability Manager	TBC
		Report progress on implementation of the Jury's recommendations	June 2023 Nov 2023 6 monthly thereafter		
		Climate Action Network A network for Blackburn with Darwen, comprising members of the People's Jury on the Climate Change Crisis, representatives of the Jury Oversight Panel, Council officers and stakeholders from the public, private and third sectors will be established to progress Jury recommendations, report progress and share ideas for further action across all sectors of the borough.	September 2023	Environment & Sustainability Manager	TBC
		*Communications Deliver messages on climate change to staff, residents and other through a variety of media to raise awareness of climate change and involve people in making Blackburn with Darwen a better place to live, work and play. Themes for 2023/24 are food waste, green space and energy in a cost of living crisis.	On-going	Climate Change Project Officer People's Jury Climate Network	TBC
		常 Climate Action Award	2024/25	People's Jury Community CVS	TBC

Objective	Action	Proposal	Timescale	Lead	CO ₂ Impact
		Create a new category for climate action in the annual Community CVS volunteer awards			
		Young People's Climate Summit The BwD Youth MP's with support from the wider forum will facilitate a climate summit with support from key professionals on 5th June to approximately 100 young people from across BwD. Artwork created at the event will be displayed for the wider public to view.	June 2023	Participation & Inclusion Manager	TBC
		Social Media campaigns from Strategic Youth Alliance Youth Forum to promote selling pre-loved clothes or donations to charity	June 2023	Participation & Inclusion Manager	TBC
	We will report emissions via the Carbon Disclosure Project (CDP) platform UN SDGs 13 - Climate action	Carbon Disclosure Annual reporting requires submission of data through a questionnaire devised by CDP that covers governance, adaptation, emissions, opportunities, energy, transport, food, waste and water. Councils are expected to try to collaborate with other sectors and try to collect data for services outside of its control. CDP use the return to score the city or municipality from A to D.	2023/24 Minimum Grade C	Environment & Sustainability Manager	TBC
	We will actively lobby the Government to provide the additional powers and resources needed to meet the 2030 target UN SDGs 13 - Climate action	The Council will continue to promote the need for a Lancashire Combined Authority to progress climate change and other strategic prioritoes.	On-going	Strategic Director Growth & Development	TBC
	25 Offitate doubli	Climate and Health Needs Assessment Develop an action plan to address the outcomes of the Assessment.	2023/24	Public Health	TBC

While individuals alone may not be able to make drastic emissions cuts that limit climate change to acceptable levels, personal action is essential to tackle climate change and raise awareness of the importance of the issue. Using your voice and taking action as a consumer, a customer, a member of the electorate and an active citizen, will lead to changes on a much grander scale.

1.	Tell the government to act now	Time is running out to stop catastrophic climate change. The solutions are out there, and if we act quickly, we can make them a reality. Individuals need to exercise their rights both as citizens and as consumers, putting pressure on the government and on companies to make the system-wide changes are needed.
2.	Take action in your community	Right now, people just like you are coming together to develop practical, local solutions and make their towns and cities more climate-friendly. Find out what's happening near you.
3.	Power up on plants	After fossil fuels, the food industry is one of the most important contributors to climate change – meat and dairy production is responsible for 14% of global emissions. You don't have to go vegetarian or vegan to make a difference. By reducing your consumption of animal protein by half, you can cut your diet's carbon footprint by more than 40%.



www.imperial.ac.uk/news/190946/things-about-climate-change/

4. Top up your fitness	Petrol and diesel cars spew out lots of climate-changing emissions. They also increase air pollution, which poses a serious threat to public health.
	Top up your fitness and tackle climate change at the same time by cycling or walking.
	Too far? Hop on the bus or train.
	If driving is unavoidable Investigate trading in your diesel or petrol car for an electric or hybrid model. A fully electric vehicle could save 2 tonnes of CO ² per year. Or try car sharing.
	When behind the wheel, drive smoothly and switch off the engine when you park up.
5. Take the train, not the plane	Flying is one of the fastest-growing sources of greenhouse gas emissions. Consider taking your next holiday in the UK or hop on the train if you're heading to Europe.
	At work, try video-conferencing and when flying is unavoidable, choose a standard class seat as that will use the plane's capacity more efficiently than first or business class.



6. Save energy at home

Being energy efficient doesn't mean going without a warm and well-lit home or making big sacrifices. Many energy efficiency measures are low-cost and may even save you money.

Small changes at home will help you use less energy, cutting your carbon footprint and your energy bills:

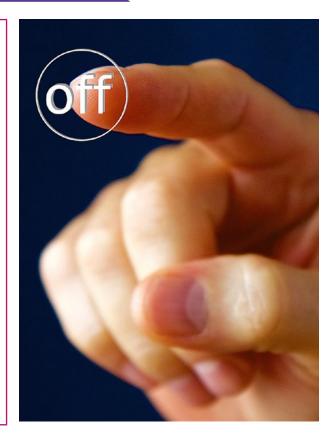
- Put on an extra layer and turn down the heating a degree or two;
- Turn off lights and appliances when you don't need them;
- · Replace light bulbs with LEDs;
- Make simple changes to how you use hot water, like buying a water-efficient showerhead.

Make sure your home is energy efficient. Check the building has proper insulation, and consider draught-proofing windows and doors. If you are in rented accommodation, lobby your landlord to make sure the property is energy efficient.

These measures could reduce an average household's emissions by 0.6 tonnes of CO₂ per year.

Switching energy supply to a green tariff is a great way to invest in renewable energy sources – and could save you money on bills too.

Generating energy from renewable sources is getting easier and cheaper to do and worth checking if it's appropriate for your home. Low-carbon generation could save 1.25 tonnes of CO_2 per year for the average home.



7. Cut consumption and waste	Reduce, reuse, repair, recycle
<u> </u>	Everything we use as consumers has a carbon footprint:
	Avoid single-use items and fast fashion, and try not to buy more than you need;
	Shop around for quality items that last a long time;
	 Put your purchasing power to good use by choosing brands that align with your new green aspirations;
	Give unwanted items a new life by donating them to charity;
	Avoid wasting food;
	Let brands know if you think they are using too much packaging
	Help the Council to recycle as much of your waste as possible. Reducing and sorting waste could reduce emissions from the average home by 0.25 tonnes of CO ₂ per year.
8. Invest your money wisely	Are your savings for the future being used to make that future worse? Find out where your money goes and choose a bank or pension provider that invests in the type of things you agree with.
9. What If I Just can't avoid that flight, or cut down on driving?	If you simply can't make every change that's needed, consider offsetting your emissions with a trusted green project to compensate for that unavoidable flight or car trip. A web search will help you find the right company. Off-setting is a far cry from a solution to climate change, but it helps.
10. Talk about the changes you make	Share your experience with your family, friends, customers and clients. Talk positively and honestly about the ups and downs. Social scientists have found that when one person makes a sustainability-oriented decision, other people do too, so you will make a difference, no matter how small it seems.





The Fifth Carbon Budget, How every household can help reduce the UK's carbon footprint, Committee on Climate Change (2016) www.theccc.org.uk/







