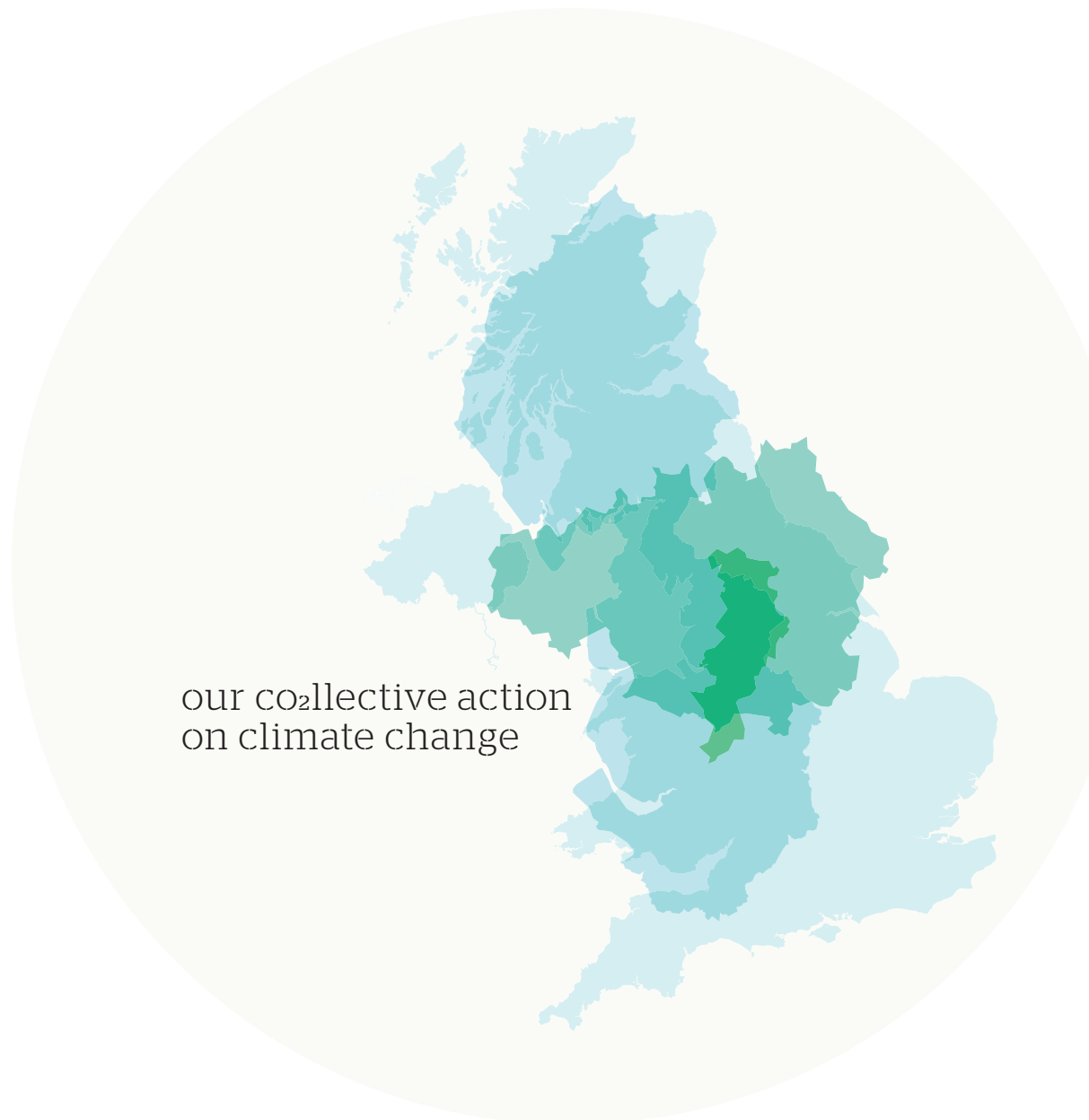


MANCHESTER. A CERTAIN FUTURE.



our collective action
on climate change

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FOREWORD

SIR RICHARD LEESE Leader of Manchester City Council

On the pages that follow, a picture is painted of our city's future. You may not recognise it at first glance. Some of the streets have changed. The buildings look different. Jobs and workplaces are not the same as they used to be. In our schools and in our homes we've learned new ways to live.

Movement and travel are strangely quiet and cleaner. The city is actually greener.

What you will recognise, however, are the people. Men and women like you. Mancunians. Innovative radicals with a conscience, who are resourceful, hard-working and confident. People who think "What next? And next?". These people will create this future city. It is a place where we have met the climate challenge head on and prevailed by working together.

This action plan will shape the future. It is for us all and builds on our strengths. It has been produced with the help of a large number of individuals and more than 100 organisations who have come together to help Manchester prepare a plan that really will make a difference and help us hit a big target – to cut more than a million tonnes of CO₂ from our annual emissions by 2020 and to lay the foundations to become a truly low carbon city by 2050.

What you will quickly discover in this plan is that urgent action is needed on every front to tackle climate change.

It is a plan about deeds, not words. Every home and every business will be affected. We will have to adapt and will all have to make radical cuts or changes to the energy we use. We have tough targets and a timeline that offers us no room for delays.

This action plan follows two earlier reports that were published by Manchester City Council. The first was a series of 'Climate Change Principles' in which we started to examine how the city would start out on its low carbon journey; the second was our 'Call to Action' with which we began the process of drawing up the plan you are reading now. It also contributes to Manchester's Community Strategy, 'The Manchester Way', which established the importance of working collectively as a city to achieve greater prosperity and longer, healthier and happier lives. These reports and the responses to them have helped shape this action plan.

The good news is that as we take up the climate challenge, our city will benefit significantly. In the years ahead, low carbon cities will have a clear market advantage over those that have not made the transition. We will benefit from new 'green collar' jobs and clean enterprises. We will be better adapted to a changed future and be healthier, greener and safer as a result.

To set Manchester on this future course sends out a strong signal to the rest of the world. If the definitive industrial city,

which made its name and its livelihood from coal and steam and the utilisation of natural resources, can create a low carbon future, there will be no city, anywhere in the world, that can claim that climate change is 'too difficult' to deal with.

The journey to sustainability must be taken. The price of carbon is set to challenge the price of oil as a primary economic barometer. Nations and cities that embrace a low carbon future will be more competitive and future-proofed. As participants in a globalised economy, we have to become a global leader once again in a new kind of economics and in a new internationalism that recognises our wider responsibility, not least for those less developed countries where climate change is already starting to have a dramatic and life-threatening impact – and where these impacts are set to become much more extreme in the decades to come.

The significant impact of humankind on the warming of the planet is a process that has been ongoing for more than two hundred years – and this city had a hand in starting that process. Now we have to provide a new kind of leadership; a new model for growth. We have to radically shift the way we think, the way we work and the way we live. We have to work together to create a safer future. We can, and we will.

CO₂ is a gas: the invisible image of expended carbon, and a spent natural resource.

CO₂ currently consists of more than 380 parts per million of the earth's atmosphere, and it is rising. 350 parts per million is the optimum level for life as we know it, probably the best level for people and all of nature to prosper.

It is the responsibility of all of us to reduce CO₂ emissions and spend our carbon more carefully. This document outlines the actions we need to take.

Pledge your support.

Signature

INTRODUCTION

MANCHESTER'S PLAN FOR THE FUTURE

“What Manchester does today, the rest of the world does tomorrow,” said Benjamin Disraeli, the former Prime Minister. It is that pioneering spirit and sense of responsibility that has helped shape this new Manchester plan for tackling climate change.

We are not the first city to face up to the climate challenge – far from it – but we want our approach to be bold, inspiring and a model for others.

This plan sets headline actions for just one decade – to 2020 – but its goal is to provide a strong starting point for a much longer journey, through to 2050 and a radically changed, low-carbon future where large-scale emissions of carbon dioxide (CO₂) have become a thing of the past.

This action plan for Manchester is a plan for the entire city, not just the City Council and statutory public agencies. Local communities, residents and the business community all have an integral part to play, and many of them, identified later in this document, have helped in the production of this plan. This is a plan for the city, for us all, and its successful delivery will rely on us all working together, whether that's homeowners, community groups, businesses or public agencies.

While the plan aims to reduce our contribution to global warming, it recognises that the climate in Manchester, like everywhere else, is going to change through the next century, whatever action we take to reduce carbon emissions. This is because large amounts of CO₂ and other greenhouse gases have already been released during the last century and the first few years of this one: by the middle of this century, it is likely that we could experience an increase in temperature of up to two degrees.

In fact, Manchester's climate will change to hotter drier summers, warmer wetter winters and more intense and frequent episodes of extreme weather such as storms and floods. In response, this plan aims to make the city more resilient in the face of the disruption rising from such changes.

This future forecast for our city should only serve to underline the urgent and immediate need for radical action. We should adapt for the future, even as we make major cuts in our carbon emissions.

OUR PLAN HAS TWO HEADLINE OBJECTIVES:

ONE. To reduce the city of Manchester's emissions of CO₂ by 41% by 2020, from 2005 levels. This equates to a reduction from current levels of 3.2 million tonnes per annum to less than two million; it also equates to a reduction in per capita emissions from 7.3 tonnes to 4.3 tonnes per head.

Manchester's emissions of CO₂ derive mostly from our use of fossil fuels and are directly related to the use of buildings, products, transport and industrial activities. We can lower these emissions by reducing our demand for and use of energy; altering the technologies used for energy generation; and changing the sources of the fuels we use from fossil fuels to renewables. Our plan sets out ways of adopting and applying these three approaches across different sectors and scales.

TWO. To engage all individuals, neighbourhoods and organisations in Manchester in a process of cultural change that embeds 'low-carbon thinking' into the lifestyles and operations of the city.

To create a 'low-carbon culture' we need to build a common understanding of the causes and implications of climate change, and to develop programmes of 'carbon literacy' and 'carbon accounting' so that new culture can become part of the daily lives of all individuals and organisations. Every one of the actions in our plan will contribute in some way to the development of 'carbon literacy' in the city. However, achieving a new low-carbon culture – where thinking about counting carbon is embedded and routine – can only be delivered as a result of all the actions together, in an overall co-ordinated manner. Enabling a low-carbon culture in the city will be particularly important if the challenge of meeting even more demanding carbon reduction targets between 2020 and 2050 is to be met.

Actions to meet these targets are set out under five chapter headings – Living, Working, Moving, Growing and Adapting. Each chapter makes it clear what Manchester is going to do to meet the challenges posed by climate change, along with the changes we need to make as individuals, communities and businesses.

Delivering this plan

Manchester City Council and the Manchester Board (our Local Strategic Partnership) have established roles in leading and co-ordinating plans or strategies across the city and linking them to other governance structures, particularly those for the Greater Manchester City Region. Manchester's Community Strategy and Local Area Agreement set out ways of working at the local, regional and national levels, through partnerships, which the delivery of this plan will follow; they also set city-wide targets which this plan will help to meet.

This plan has been produced by a network of writing groups and a conference of stakeholders. The process considered the headline issues and how the city needs to change in the future to develop and draft actions for this plan. This approach will be developed further for delivery: a Stakeholder Conference will be held every year to oversee the delivery of projects. A Steering Committee made up of representatives of the City Council, the Manchester Board and from the business and third sectors, will scrutinise the progress of the plan throughout each coming year.

This Committee will provide a link through to other stakeholders and will co-ordinate the work of wider groups or partnerships who are tackling specific actions in the plan. Its work will be serviced and co-ordinated by Manchester City Council, though the ongoing support of other stakeholders will be essential to its credibility and success.

A wider programme of engagement will be launched during the first year of the plan after which a consistent, longer term framework will be put in place to enable individuals, associations and organisations to demonstrate the ways in which they are contributing to a low-carbon future and to be able to examine our collective progress in meeting the climate challenge.

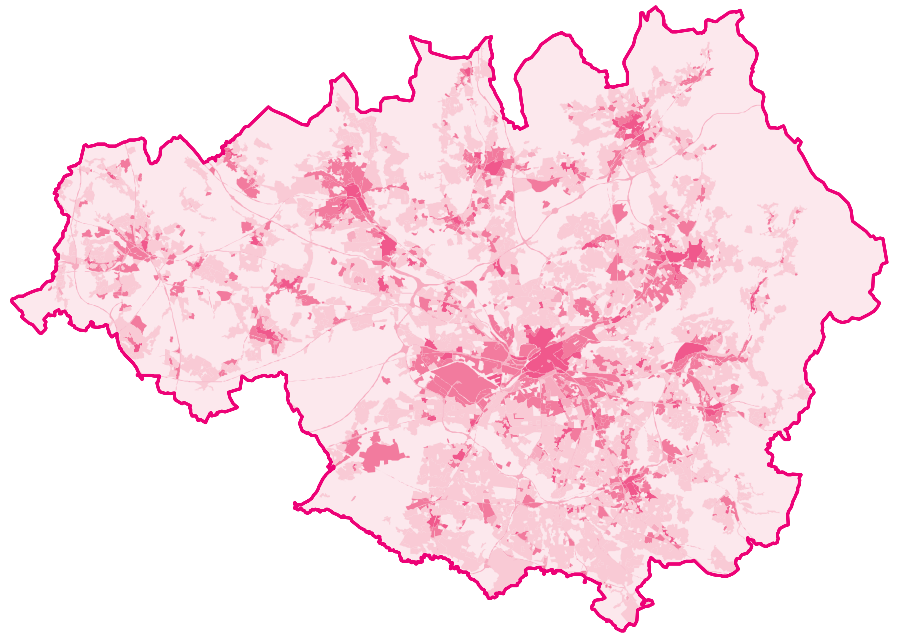
To help this process along, a common framework for carbon accounting will be adopted to enable all contributions to go towards reaching the city's target. We will measure and report on our progress, making sure we're on track, and will use the Stakeholder Conference to review and celebrate our success and agree our future priorities.

Reading and using this plan

On the pages that follow, all of the actions established as part of this plan are set out across five chapters – Living, Working, Moving, Growing and Adapting. There are also examples of how we are already making progress in each of these areas and sections to help highlight what this plan will mean for you, whether you read it as an individual, a business or another type of organisation or association.

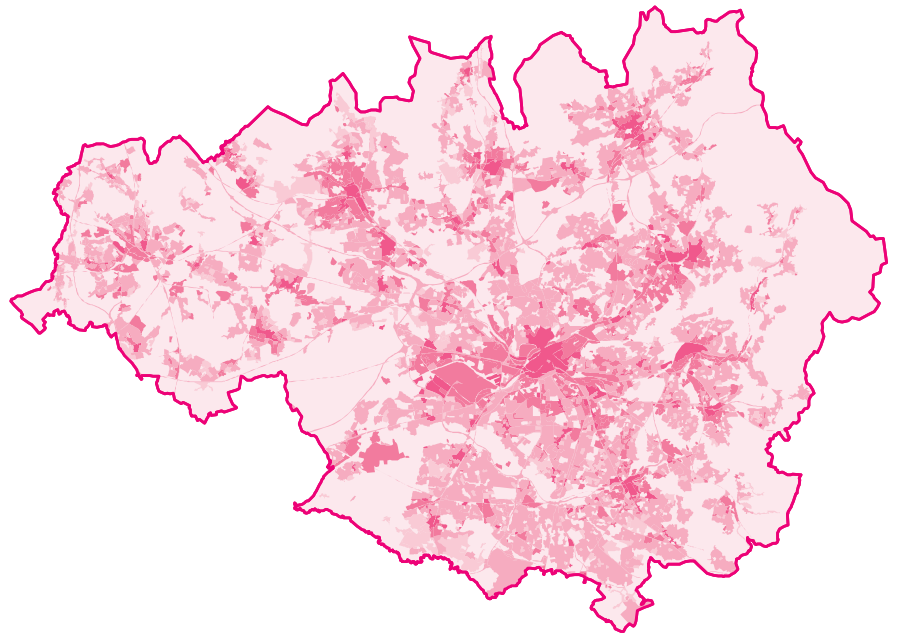
There is a website for this plan at www.manchesterclimate.com where you can find more details about how we're going to measure progress, how these actions and targets have been set, and links to other information and resources about climate change, from the very basic to the very complex. This website will continue to be developed in the future, in particular to record our progress and to allow all of us across the city to share ideas and experience.

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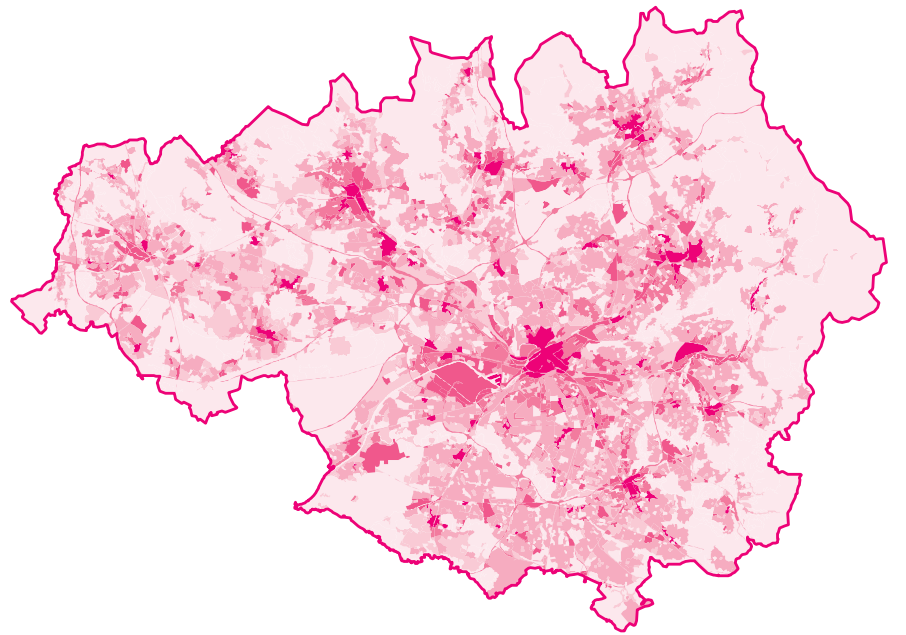


Maximum surface temperatures – Greater Manchester

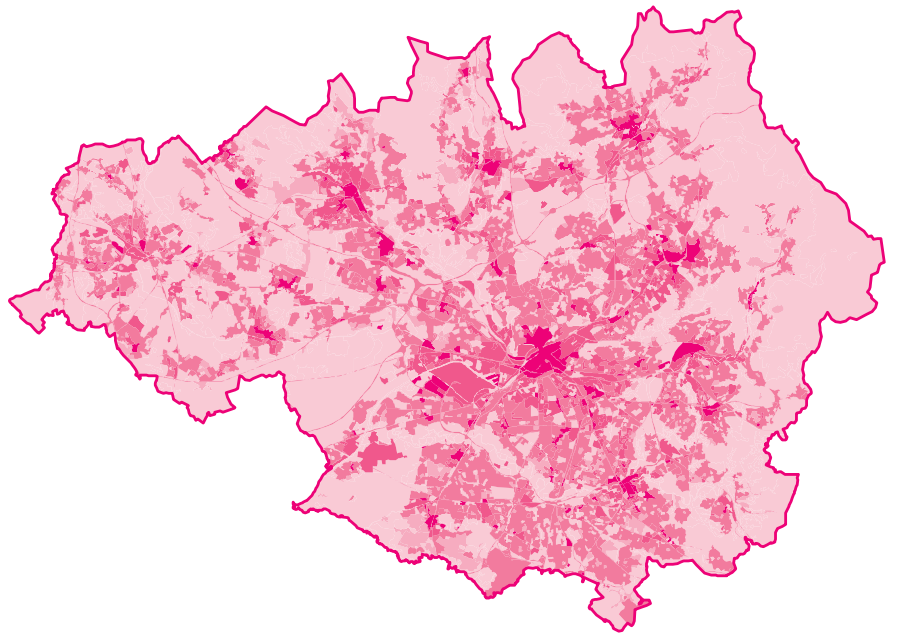
2020

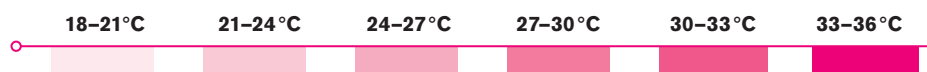


2050



2080





FUTURE SURFACE TEMPERATURES

Modelled maximum surface temperature highs in Greater Manchester on a day occurring on average twice per summer.

LIVING

OUR HOMES, OUR LIFESTYLES, OUR COMMUNITIES

The people of Manchester are the city's greatest asset: resourceful, proud of their city and ready to tackle the toughest of challenges. These people, the communities of Manchester, will deliver our most significant cuts in carbon emissions. Through the way we live our lives and run our homes we will all work together to make Manchester a low-carbon city.

We cannot pretend that things will remain the same in the future. We will have to adapt to shifts in climate regardless of how successful we are in cutting our carbon emissions. At the same time we will have to make major changes in the way we use things, how we heat our homes and the way we live our lives. If we make these changes now we will reap the rewards. We can enrich our lives today, create a better environment for our children and build a stronger city that is healthier, and ready for a different kind of future.

What does that future look like? When we build new homes they will be of the very highest standard, emitting little if any carbon. Using advanced technologies and innovative construction methods they will be warm, clean and comfortable, with smart meters to track the use of energy and water. Our homes will also become generators of energy through a greater use of new, renewable energy technologies such as solar cells and boilers that generate heat and electricity at the same time.

A similar and more widespread revolution will take place across the homes we already live in. The existing houses in our city will be transformed through a large-scale retrofit programme that will make them easier to run and more energy-efficient.

Over time, this revolution will happen everywhere, down every street and in every neighbourhood. It will impact on public and commercial buildings as well as individual houses. Social and private landlords will take the lead through a new 'Better than Decent' homes standard. Community groups will inspire all of us to use new technologies and find innovative ways to cut energy use and save money.

We will reuse and recycle as much as possible. We will grow more of our own food. We will repair things rather than throwing them away. We will enjoy increased self-sufficiency. Waste will be our common enemy.

Schools, places of worship, libraries and community centres will play a hugely important role. All across Manchester we will learn to live differently, be inspired to take action, to switch things off, not leave them on. The signs of our success will be all around us. We will see the new technologies at work. We will share our endeavours with our friends, our families, our co-workers.

Change is coming and it will impact on each and every one of us. Initially, some of the changes required may seem hard, impossible even, but there is a lot to look forward to as we strive towards life in a greener city and to create 'neighbourhoods of choice' which meet our needs and are attractive to live in. If we take deliberate and collective action to reduce the carbon emissions created by our way of life, the rewards will be a healthier, happier and more prosperous city.

THE STORY SO FAR

Manchester is not approaching climate change from a standing start. Across the city, individuals, communities and schools are starting to change the way they live. From educational programmes to micro-generation, we are already preparing for the impact of climate change on our everyday lives.

In Hulme, the local Carbon Co-op brings together people and communities, enabling them to purchase low-carbon technologies simply and cheaply. The more people who participate, the cheaper technologies become, including everything from energy meters to solar panels. Two pilot projects were carried out in March 2009, one with owner-occupiers in Hulme, the other in a block of city centre flats. The pilots featured carbon-budgeting workshops where local people examined their energy usage and looked at ways they could work together to reduce their carbon footprint. These workshops are the

first stage in establishing full-scale carbon co-op pilots, which will be up and running by the end of 2009. In Wythenshawe, Radio Regen, UHC, Wythenshawe FM97.2 and Manchester Environmental Resource Centre Initiative (MERCi) ran a climate change awareness project called Wythenshawe Forever. Making the workshops relevant to local people and their way of life brought the message home and created a real understanding among the people who attended – an understanding that can be passed on to the whole community.

In the property sector, Northwards Housing has been introducing energy-efficient measures to its 12,500 properties across north and east Manchester. Set up by Manchester City Council, Northwards Housing is working hard to go beyond the Government's Decent Housing Standards. Solar panels fitted in many housing units provide electricity for communal areas, with any excess exported to the national grid. All the cost savings from this are being reinvested in further improvements to benefit residents. Alongside this, new central heating boilers, insulation and windows have added to the energy efficiency of Northwards Housing for the benefit of residents.

Manchester Eco House is an invaluable way of demonstrating the different methods of insulation, energy efficiency and alternative energy production in our homes. Comprising two previously uninhabitable terraced properties, the Eco House is a good way to show people, both from the local area and further afield, what can

be achieved in an average home and it is hoped that this example will be repeated elsewhere in the city.

Projects like this have already been successful and will be more so in the future. Making people aware of the challenge of climate change but empowering them to take action will result in real changes in all aspects of our lifestyle.

HEADLINES FROM THE FUTURE

What will Manchester life be like in 2020? Here are some outcomes of the actions we have set for ourselves for the next ten years.

EFFICIENT. Our 'retrofitting' programme will have improved energy efficiency and reduced energy bills in at least 100,000 homes, saving more than 350,000 tonnes of carbon every year by the end of the decade.

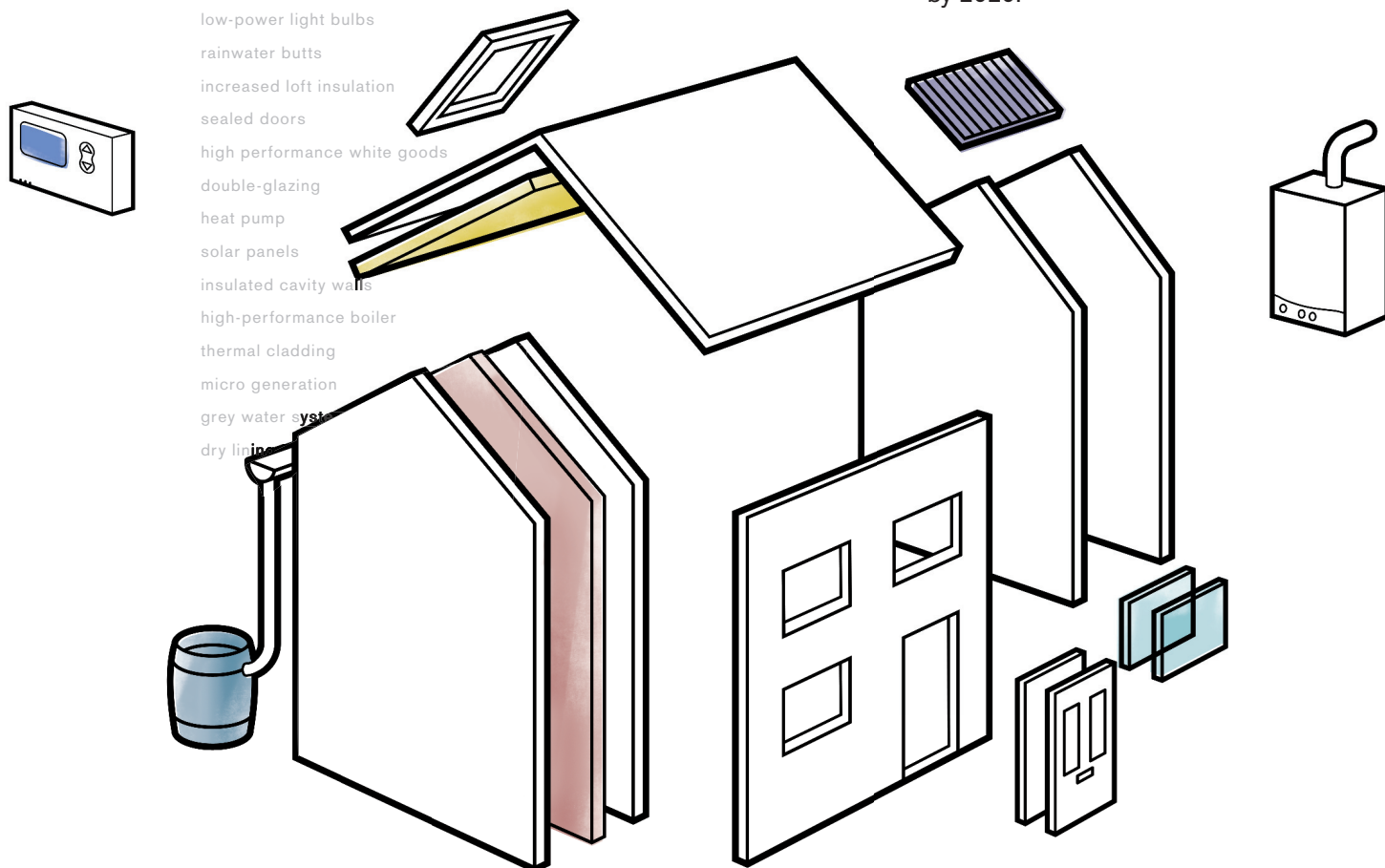
EDUCATED. Everybody in the city – every resident, pupil, student and employee – will have had at least one day's training in climate change by 2013, probably several days by 2020.

GREENER. There will be more green spaces, gardens and green roofs across the city.

GROWING. We will know how much of all the food we eat is locally grown and we'll be on the way to doubling it by 2020.

a home 'retrofitting' menu

- smart meter
- low-power light bulbs
- rainwater butts
- increased loft insulation
- sealed doors
- high performance white goods
- double-glazing
- heat pump
- solar panels
- insulated cavity walls
- high-performance boiler
- thermal cladding
- micro generation
- grey water system
- dry lining



ACTIONS

Homes, lifestyle, education and awareness: we have set out some clear and achievable actions that will help us meet the challenge of climate change head on. Many of them will take place at the level of individual households but others will involve neighbourhoods, community groups, even the entire city, working together.



Homes

Save over 350,000 tonnes of CO₂ a year by 2020 through a major programme of retrofitting domestic buildings with energy efficiency and home energy generation measures.

Become the UK's Low Carbon Economic Area for the Built Environment and help develop the city region as a centre of excellence for low carbon construction skills.

Support a programme of retrofitting with advice, incentives and investment models to help homeowners fund projects.

Provide regulation, advice, incentives and investment models for private landlords to retrofit domestic properties.

Establish 'Green Leases' as an incentive to retrofit and share the benefits between landlords and tenants; investigate the development of green clauses in the Manchester Landlords' Accreditation Scheme.

Launch a 'two-degree challenge' to encourage residents to turn thermostats up or down depending on the season.

Implement a 'Better than Decent' programme with the city's social landlords to take their stock beyond 'Decent Homes' retrofit.

Provide advice and support to universities, landlords and student groups to increase energy efficiency in student accommodation.

Ensure all new homes funded by Government or built by registered social landlords are in compliance with the escalating Code for Sustainable Homes requirements.

Implement the adoption and optimum use of smart meters and voltage optimisers and make this metering widely available through installation schemes and lending programmes at local centres, such as libraries.

Maximise the number of Supplier Obligation schemes available in Manchester and establish joint programmes with utility companies, including the provision of useable billing information.

ACTIONS

Lifestyle and leisure

Establish a range of community-based micro-generation projects where energy can be used by local users and/or fed back into national and local grids.

Support and extend existing community growing projects and encourage more people to grow food at home organically.

Continue to work with the Waste & Resources Action Plan (WRAP) and support the Recycle Now and Love Food Hate Waste campaigns.

Research and implement a loyalty card scheme to encourage people to support local sustainable business.

Promote sustainable tourism through the Green Event Guide and a sustainable event management system such as BS 8901.

Education and promotion

Develop programmes of 'carbon literacy' education and training in schools, colleges and universities; at all levels in public, private and third sector organisations; and make these available for community groups, neighbourhoods and households.

Develop a co-ordinated programme of advice and support on domestic energy efficiency for residents, landlords and building owners, including behavioural change, physical improvements and grant/loan information.

Conduct climate change awareness and engagement campaigns and ensure that they are relevant to local communities and neighbourhoods.

Influence, promote and support the embedding of environmental considerations in all areas of the education system.

Increase education, skills and awareness among residents about sustainable food through local activity, campaigns and national programmes.

Work with partners to assist in the creation of a toolkit to support schools in achieving sustainable procurement.

Use the media to provide information to enable people to make sustainable decisions regarding the consumption of goods and services.

Innovation

Reinforce the role of community buildings such as libraries, schools, surgeries and community centres – by making them low-carbon neighbourhood hubs promoting the benefits of low-carbon lifestyles, and demonstrating low-carbon technologies in action.

Develop digital connectivity in Manchester, maximising the sharing of ideas, information and develop the use of digital technology to share and promote common 'carbon accounting' data throughout the city.

Run a pilot programme of tradeable personal carbon quotas to help encourage changes in lifestyle and behaviour, and to ensure that the need to take action is distributed fairly across all sections of society.

SOLUTIONS AT EVERY SCALE

We all have a part to play in Manchester's low-carbon revolution in our homes, lives and local communities. The major implications for different groups are set out here.

collective action

Individuals

We will take major action to increase our understanding of how each of us can make a big difference to climate change: from using fewer resources, using less energy or travelling differently, to changing things like food or leisure choices. The focus will be on empowerment, engagement and working together.

Residents

There will be advice and support available to help retrofit your home to make it more energy-efficient, to have smart meters installed that help you control energy use, and to install small-scale renewable energy technologies. For people buying new homes, the building standard for these homes will make them highly energy-efficient, responsible for the release of little or no carbon.

Landlords and social landlords

The 'Better than Decent' programme will guide social landlords through a process of refurbishment and improvement, while there will be regulations and incentives for private landlords to retrofit domestic properties too. There will also be support and advice to help universities, landlords and student groups to increase energy efficiency in student accommodation.

Schools, libraries and faith groups

As well as being highly visible examples of energy efficiency and renewable energy in action, these public-facing institutions will be critical in building awareness and increasing levels of 'carbon literacy', helping their audiences understand what they can do to help Manchester tackle climate change.

Utility companies

There will be a push to increase what are known as 'supplier obligation' schemes where energy providers help to increase energy efficiency in their customers' homes. There will also be an initiative to deliver billing information that customers can use to make better choices about their supply and use of energy.

Community groups and associations

There will be opportunities for communities to work together to access low-carbon technologies and develop schemes for small scale renewable energy, community food growing, and encourage each other to change behaviour.

WORKING

OUR JOBS, OUR WORKPLACES, OUR PROSPERITY

During the lifetime of this plan, the actions needed are of such urgency that they will require major changes in our homes, streets, workplaces and cities. Some of these changes will come at a cost, but they will bring opportunities too, opportunities that Manchester must turn to its advantage.

Nationally, more than a million people will be in green jobs by 2020, and almost half of our energy could come from low-carbon sources. At least seven million homes will have had full, low-carbon makeovers.

Manchester will be at the centre of this new economy, combining its priorities of becoming a green city, increasing employment, and developing its position as a sustainable, world-class business city. We will invest, innovate, and nurture those looking to further our low-carbon ambitions. Dedicated low-carbon business districts will be developed, showcasing this commitment and acting as a model for the UK.

New legislation will have shifted the practices of building owners and managers. New property developments will have to meet the strictest carbon standards and there will be few commercial buildings across the city that haven't been 'retrofitted' to include the latest energy efficiency and smart metering technologies.

We will all be switching off at night to achieve zero energy use in empty buildings. Exemplar buildings will be rewarded with Green Plaques to show their commitment to carbon reduction. There will be competitions for low-carbon innovations and the supply chains of major organisations will come under pressure to reduce the environmental impact of their operations.

Across the city, businesses will be signed up to standards like the Environmental Business Pledge, the Buy Recycled Code and the highest Carbon Trust standards. 'Carbon Accounting' will be routine business. Those not committed to environmental responsibility will struggle, losing out to more resource efficient competitors and unable to take advantage of all the opportunities that exist.

Jobs will be created as we choose to value rather than dispose of resources, creating new recycling centres and investing in green collar skills and construction training. People will have participated in the development of new technologies and new applications of existing ones. They will have acquired a working knowledge of climate change issues and the range of skills necessary to support low-carbon living.

More opportunities will exist for research, innovation and new products and services. A cursory nod to the impact of climate change will be unacceptable; the businesses that thrive and prosper in the future will be those that embrace the changes and work to stay ahead of, rather than within the bounds of, new and stricter energy and carbon regulations.

For the city that gave the world free trade, co-operation and an industrial revolution, a world of zero carbon innovation will be one that we embrace, and shape to our own ends. Manchester will succeed, through enterprise and ambition, in this low-carbon future.

THE STORY SO FAR

Opportunity, innovation and change are defining factors in Manchester's success so far. From a forward thinking public sector to extensive knowledge in our leading universities, our city is already on its journey to a low-carbon future.

There are many buildings across the city that showcase renewable energy technologies and sustainable building practices. From BDP Architects' state-of-the-art offices and the Civil Justice Centre's unique design to North Manchester Sixth Form College and the MERCi headquarters, sustainability is being designed in. Photovoltaic (PV) panels, automated natural ventilation, concrete heat sinks, rainwater harvesting, light sensors and green roofs are just some of the active and passive energy efficiency measures to have been incorporated in buildings across the city. It can be done, it is being done and it will increase in the future.

Manchester is already home to the largest vertical solar array in Europe on the CIS Tower. This unique £5.5 million project was completed in 2005 and is a flagship development – an excellent example of how careful planning and partnership working can lead to success in the renewable energy sector and building refurbishment.

Manchester Metropolitan University has invested almost half a million pounds in the installation of 400 PV panels covering 524 square metres

on its Student Union, All Saint's building and Sir Kenneth Green Library – one of the largest solar arrays of any UK university. In addition to being pollution-free and requiring virtually no maintenance, the PV panels are set to massively reduce the University's carbon footprint – saving 22,000 kg of carbon emissions per year – and electricity bill. It is estimated that the project will have paid for itself within 12 years. Live meter reading displays in the All Saints' and Students' Union Buildings will also educate MMU students and staff about the power being generated and consumed on campus. In addition, all future students will receive a module on climate change as part of every course.

University Hospital South Manchester in Wythenshawe is aiming to be the first 'Green Hospital' in the country, and is working with the Carbon Trust to achieve this. It is the first hospital in the UK to have installed a biomass boiler, reducing CO₂ emissions by 3,400 tonnes a year, and has also included a ground source heat pump during the construction of the Cystic Fibrosis unit, enabling the heating and cooling of the building sustainably using natural resources. Their energy reduction programme has achieved savings equal to the CO₂ emissions associated with 534 domestic properties.

In Moss Side, Scottish & Newcastle's Royal Brewery has installed a combined heat and power (CHP) plant fuelled entirely by biomass. Spent grain, a by-product of the brewing process, is used as one of the primary fuel sources. The brewery has taken a waste product and

utilised it, making it a core part of its energy generation. This innovative approach to energy and recycling is something that many businesses could explore with the help of specialist support organisations.

There is already help available for businesses looking to get ahead of the game and implement environmental strategies. The Environmental Business Pledge is a free scheme that works in partnership with local businesses to identify and implement changes to reduce their environmental impact and improve business efficiency. Nearly 1,500 businesses of all sectors and sizes within Manchester have taken advantage of the on-site support offered to create raw material and energy savings.

Low-carbon innovation and research has a strong profile in the city with the Tyndall Centre Manchester, which is at the very forefront of national and international research into climate change. More broadly, our colleges, universities and science parks provide a highly skilled and adaptable workforce which will be critical in tackling climate change, as well as being possible incubators of emerging enterprises in the green economy.

HEADLINES FROM THE FUTURE

How will our work and workplaces in Manchester look in 2020? Here are some of the outcomes of the actions we have set for ourselves for the next ten years.

LOW-CARBON CONSTRUCTION.

Manchester will be internationally recognised as a leader in low-carbon construction, particularly in retrofitting – creating high environmental performance standards for our existing buildings. More than a third of the city's public, commercial and domestic buildings will have retrofitting plans – completed, under construction or in preparation.

CARBON ACCOUNTING. It will be routine in nearly all Manchester businesses and organisations for environmental performance to be monitored, reported and managed: the need and opportunity to reduce CO₂ emissions will be a standard consideration in all contracts, transactions and projects.

WORKPLACES. Work patterns will be more flexible. Technology enables many of us to work differently and the energy we use will be supplied by renewable sources, leading to cost savings.

JOBS. People working in low-carbon jobs will make up a significant proportion of the workforce. In 2020, major programmes of retrofitting homes, public and commercial buildings and creating new energy networks are likely to be supporting 15,000 jobs.



ACTIONS

Our future workplaces and practices will change dramatically in the years ahead. From the management of existing organisations to new jobs, new buildings and new ideas, the landscape of work and business will look very different and new competitive forces will be at work. The actions that follow will ensure that Manchester stays ahead.

Buildings

Create a portfolio of substantial commercial and public sector retrofit projects, such as the Town Hall, which pilot innovation, exemplify best practice and use these exemplars to develop a long-term programme for retrofitting public and commercial buildings across the city.

Lobby for the roll out of Display Energy Certificates (DECs) to commercial buildings and create a 'Green Plaque' scheme for exemplar buildings.

Work with utility companies to provide billing information that will enable customers to make decisions about low-carbon energy supply and use.

Launch a 'two-degree challenge' for building owners to turn thermostats up/down depending on the season and promote zero energy use in empty buildings overnight.

Help selected large organisations to achieve zero waste to landfill from their buildings by 2020.

Jobs, enterprise and training

Provide a centre of excellence for green collar skills and training for the construction industry.

Encourage low-carbon green business into the city and investigate incentive measures, such as reduced business rates.

Support the growth of repairs and servicing businesses as part of an effort to reduce waste and energy use.

Innovation and finance

Establish Manchester as a centre for low-carbon businesses, creating opportunities in the green collar economy for businesses and individuals and anticipate and influence the market for low-carbon technologies, stimulating innovation and investment.

Strengthen financial incentives for building owners and commercial occupiers and explore the potential for local business rates to be aligned to energy efficiency.

Raise the standards of criteria attached to spending on refurbished developments through grant conditions which go beyond minimum standards.

ACTIONS



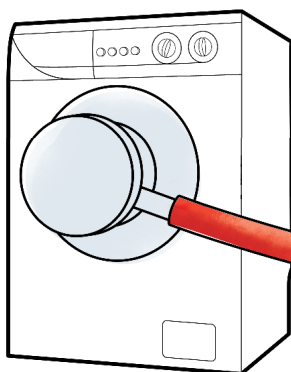
Investigate the potential development of performance-related incentives for businesses to divert commercial and industrial waste from landfills to alternative waste management processes, particularly re-use and recycling.

Roll out a pilot Smart Energy Business District to test the application of smart meters to an area of the city dominated by small and medium-sized enterprises (SMEs), with the potential to expand this city-wide.

Food

Support the development of a Northwest food plan ensuring it meets the needs of Manchester consumers and businesses, increases the capacity of regional growers and improves the supply chain to enable residents to buy more sustainable food.

Create and support social enterprises to develop the growth of urban agriculture and market gardening.



Develop and implement a food sustainability quality mark for the catering and restaurant industry and ensure that carbon reduction becomes a key driver.

Implement the Government's food packaging strategy for England, and support the creation of a national scheme to enable consumers to know the carbon footprint of products.

Business management

Establish a business emissions reduction strategy for the city. Increase the number of organisations in the city committed to the Environmental Business Pledge or signed up to an environmental standard from 5% to 50% of businesses and support SMEs in seizing the low-carbon business opportunities.

Support dialogue and engagement between businesses, property owners and occupiers, and promote low-carbon business practices through existing partnerships and alliances.

Engage with businesses to move towards closed-loop production and develop networks for sectors and companies to act together on sustainability and develop realistic and effective standards.

Encourage and support the uptake and development of easy-to-use Building Management Systems.

Work towards the highest Carbon Trust standards.

Promote the Buy Recycled Code to encourage the buying of recycled products as a vital part of the closed-loop process.

Develop the use of Life Cycle Assessments as a tool to assess the environmental impact of goods and services through all stages of procurement.

a long life health check for white goods

SOLUTIONS AT EVERY SCALE

Building a low-carbon future; decoupling economic growth and greenhouse gas emissions; securing green collar jobs: there are many challenges and opportunities ahead for a range of different groups and businesses.

Employees

There will be changing working patterns such as flexible working and video conferencing where these can help organisations to cut their carbon footprint. Employees will also have a vital part to play in delivering better business management programmes, taking energy-saving actions in all areas of their work.

Building owners, managers and developers

A major retrofit programme will change the energy use of our existing building stock while new developments will adopt new, zero-carbon standards. Metering – smart and visible – will help focus the minds of business owners and building managers alike on their energy use.

Utility companies

Billing information that can help companies make informed decisions about energy use and supply, in combination with technologies such as smart meters, will become the norm. More commercial buildings will have renewable energy technologies installed, feeding excess back into the national grid.

Building capacity

There will be schemes available for all to re-train or develop skills to take advantage of a new wave of green collar jobs, from those delivering energy efficiency advice to hands-on skills in installation, servicing or repairs.

Growing businesses and small and medium-sized enterprises (SMEs)

Manchester will attract low-carbon businesses into the area through investigating incentives such as lower business rates. There will be new financing and diversification opportunities across a number of sectors including manufacturing and food. Half the businesses across the city will have signed up to the Environmental Business Pledge or will have reached a recognised environmental management standard.



good business sense

MOVING

OUR TRANSPORT, OUR INFRASTRUCTURE, OUR CONNECTIVITY

The cities of the future will see public transport, walking and cycling as the main ways in which people move across the city, rather than individual car use. A progressive shift in transport modes will occur as quicker and cheaper alternatives are developed. As well as reducing transport's contribution to climate change (transport is the only sector of the UK in which carbon emissions were higher in 2004 than 1990), there will be a resulting benefit in air quality, in noise levels and in our physical health and wellbeing.

A sustainable transport city will be a healthier place to live and work. Cities that stay on the move without producing carbon will be wealthier too. An efficient transport system is essential for a prosperous economy, accessibility and greater mobility. As part of Manchester's offer for investors, commerce and attracting and keeping a skilled and talented workforce, having a low-carbon, modern and fully integrated public transport system will be a prerequisite.

Carbon-intensive modes of travel will become more expensive. By 2020, around 15% of emissions reductions will have been made by cleaning up the way we move around, including the way we transport our goods and services. These cuts will come through a combination of incentives and enforcement. It will cost you less to be clean and green while vehicles that emit high levels of carbon will come at a much higher price.

Smarter choices will be easier to make. Cycle and pedestrian routes will cross the city region, making it easy to get around without cars. Our workplaces will encourage cycling and walking to work with storage, changing facilities and bike rental schemes. We will share our cars and work from home to help reduce the number of vehicles on the road.

Public transport will be a convenient way to travel. Extended and improved Metrolink, train and bus services will connect us to key destinations – no matter where we want to go, public transport will take us there. And there will be no digging for loose change, as smart ticketing systems and a new travelcard for the city region will make hopping on and off all modes of transport easy and affordable.

If we do choose to drive, electric vehicles will be the vehicles of choice, with highly visible charging stations positioned right across the city. Manchester will be at the forefront of research into sustainable travel – from sustainably produced biofuels, to low-emission zones, LED traffic signalling and the revival of the region's waterways.

As Manchester moves into a low-carbon future, we will lead by example and show that cities can grow and prosper without more congestion, pollution and CO₂.

THE STORY SO FAR

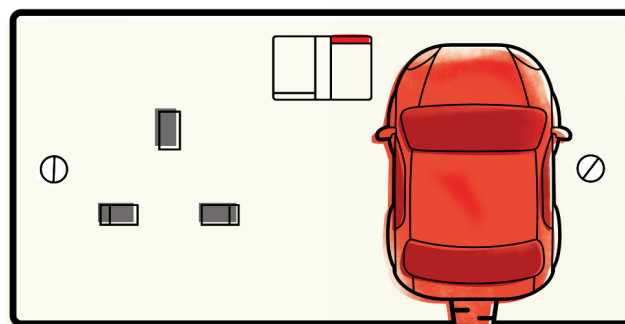
Manchester is no stranger to transport innovations, whether it is the first passenger train journey in 1832 or the hugely popular Metrolink light rail system which is currently being extended and expanded. A clean, sustainable and integrated transport system has been a long-held goal for the city and some significant progress has already been made.

In 2007 Metrolink became the first tram network in the UK to be supplied entirely by renewable energy. This has reduced emissions and improved the environmental performance of the system.

In 2006 Manchester Airport announced that it would become carbon neutral by 2015 for those operations within its direct control – areas such as ground transport, energy-efficiency, the airport supply chain, and its own low-carbon building standard. In 2009 Manchester became the first UK airport to be awarded the prestigious Carbon Trust Standard, recognising their work on carbon emissions reduction and carbon management. Over the past three years, the airport has reduced its direct CO₂ emissions by 6%, equating to 4,712 tonnes.

In the city centre, a fleet of low-emission cars are available for hire. Found at locations across the city, the City Car Club cars are a greener and more convenient alternative to car ownership, while reducing congestion, fuel consumption and emissions. Of all the cities City Car Club operates within, Manchester is the most successful. It has shown itself to be an environmentally sustainable service, reducing pollution and congestion by using cars that are chosen for their lower emissions, reducing the amount of time drivers spend behind the wheel, and exploring alternative low-carbon technologies.

Manchester City Council has launched its own staff travel plan – Get On Board. The aim is to encourage employees to make more efficient, healthy and environmentally friendly travel choices in their journeys to, from and while at work. From cycle loaning, parking and shower facilities and discounted public transport tickets to car sharing and flexible working, these travel plans have been a real success.



plug-in cars, yes!

HEADLINES FROM THE FUTURE

How will we move around Manchester in 2020? Here are some outcomes of the actions we have set for ourselves for the next ten years.

MOBILITY. Getting around will be easier but we'll be making fewer journeys by car. When we use our cars, they will usually be full, but we'll be more making more trips by public transport: where it is local, we'll walk and cycle.

PUBLIC TRANSPORT. An extended Metrolink and more fuel-efficient buses will share a common ticketing system and a new high-speed rail link to London and the rest of Europe will be under construction.

HEALTHY SOLUTIONS. Many more of us will be walking and cycling on local journeys and to work. Employers and event organisers will be helping us to plan our journeys so we can use the healthiest, safest and least congested times and routes.

NEW FUELS. Electric vehicles will be commonplace and charging points will be starting to plug into locally generated energy.

powered by nature

ACTIONS

Investment and integration is the key to improving our transport and identifying new ways to travel, alongside new areas of research and long-term planning. Much of this will be done by local and regional organisations, but there will also need to be stronger connections with national bodies such as the Highways Agency. But it is up to all of us to change the way we get around, think of the alternatives and make a real effort to travel sustainably. For that reason, behavioural change is a vital part of our plan to reduce travel-related carbon emissions. We will have to change the way we think, as well as the way we move.

Investment and infrastructure

Invest in active transport such as a city centre network of cycle centres; pedestrian and cycle routes; and interchange and storage facilities at public transport and cycling destinations.

Invest in bus services and infrastructure such as new cross-city bus infrastructure; more school buses; and a proposed city region Bus Quality Partnership.

Invest in rail and tram networks including the expansion of Metrolink and additional rail stock to support rail growth.

Invest in sustainable road transport including new initiatives to increase the take up of electric vehicles; investment in a future electric vehicle network and city-wide car clubs.

Begin the replacement of road traffic signalling and street lighting with low-energy, long-life LEDs.

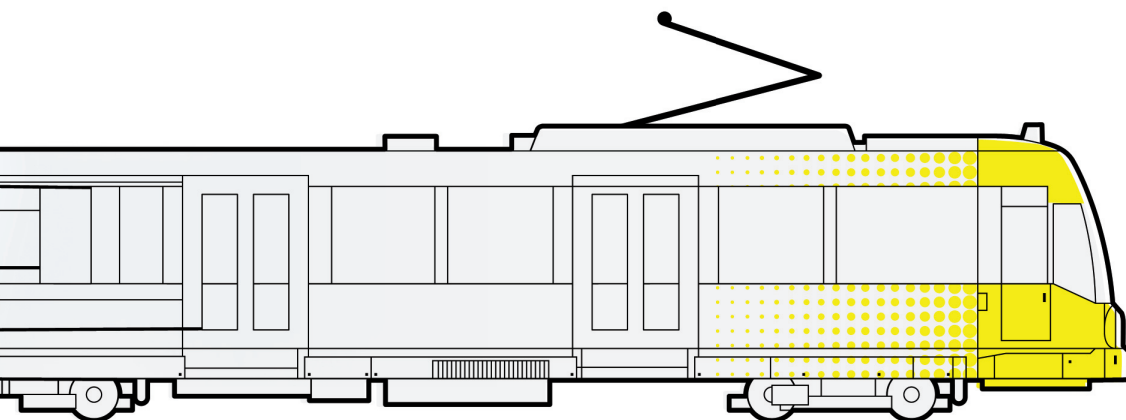
Deliver the targets in Manchester Airport's Ground Transport Plan and its commitment to becoming carbon neutral in site energy and vehicle fuel by 2015.

Improve the performance of vehicle fleets, stimulating and supporting cleaner-fuelled vehicles, including service points and incentives.

Green the bus fleet, developing a range of initiatives to encourage improved emissions standards, including contractual arrangements and, potentially, Low Emission Zones.

Make the case for sustainable transport links from Manchester to the rest of the UK, Europe and beyond, including a high-speed rail network, improved access to Manchester Airport and by more sustainable means.

Incorporate appropriate measures and targets for the city's impact on aviation and shipping in the new total carbon footprint approach to be adopted in 2013.



ACTIONS

Planning and research

Establish a Sustainable City Region Transport Plan for Greater Manchester.

Support businesses and other organisations in developing sustainable and low-carbon travel plans, including car sharing, car pools, public transport ticket schemes, workplace cycle facilities and flexible working.

Contribute to research into low emission and alternative fuels and invest in the development of a new generation of sustainable transport options for 2020 and beyond.

Identify options to support low emission/alternative fuels, such as locally produced biofuels.

Establish a co-ordinated approach to sustainable traffic management across the city region, through the co-operation of the Highways Agency and key partners.

Research and develop sustainable freight and waste transport options, including use of the region's waterways where appropriate.

Training and promotion

Promote active travel through campaigns linked to key travel destinations and supported by interactive journey-planning information systems.

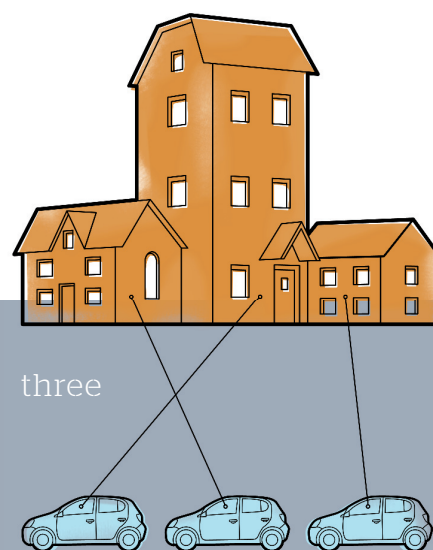
Develop services for individual smart travel planning and make these available direct to individuals and through organisations.

Develop mechanisms to encourage more people to cycle and walk as part of their own travel plan.

Promote driver awareness and training, including vehicle advice, fuel economy training, car sharing and safety promotion for cyclists and pedestrians.

Manchester City Council will create a Business Travel Policy for all types of business and personal travel undertaken by its employees, including aviation.

car sharing



SOLUTIONS AT EVERY SCALE

Sustainable travel is all about choices, but it's also about making those choices easier, more reliable and cheaper. Transport planners, operators and businesses will have as critical a part to play as individuals in a low-carbon transport future.

Individuals

Smart ticketing, real time information and an integrated network will make using public transport an easy option while cycling or walking will be an ever more popular option, leading to better levels of health and wellbeing.

Commuters

Many workplaces will go through transport-planning processes and will offer support schemes that encourage commuters to car share or swap the car for public transport or cycling and walking. There will be workplace facilities for cyclists, walkers and runners and advice available for those looking to travel more sustainably as well as adult cycle training to give people the confidence to travel by bicycle.

Employers

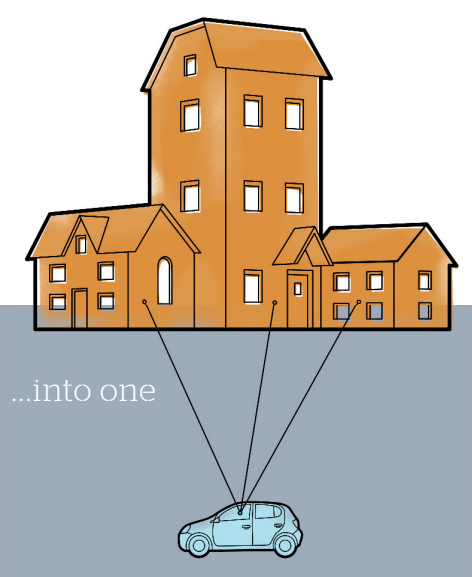
Businesses and organisations will prepare green transport plans and make sustainable transport choices more attractive for employees through better facilities, car share clubs and subsidised travel cards.

Transport planners

A major programme of development and investment will have extended the reach and integration of the city's public transport network and there will be a wider network of cycle paths available too. Consideration will have been given to dedicated low-emission zones, networks of electric vehicle charging stations, and major cycle centres offering parking, changing and servicing to cyclists.

Transport operators

Bus fleets will be greener, and operators will have entered into new partnerships to improve quality. There will be a city-wide 'Oyster-style' card to encourage public transport use and to bring consistency to ticket pricing. New fuels and new technologies will be entering the marketplace.



GROWING

OUR FUTURE, OUR CITY, OUR ECONOMY

Within a generation, two out of every three people on Earth – almost five billion men, women and children – will be living in cities. Right across the planet the critical question being asked is what shape will those cities take and how can they develop without increasing carbon emissions?

Manchester is a city that has split atoms, created political movements and exported trade models across the globe. We will not shy away from attempting to create a model for others to follow, particularly if they share a similar, post-industrial history. Manchester's vision of being an 'original modern' city is one of innovation and leadership, always striving to define what contemporary looks and feels like. It is a vision that we will share with others and which is increasingly shared across the city, from political leaders to business groups, the voluntary sector and our local communities.

Our future city will be greener, but it will also be a place of opportunity and enterprise. Manchester wants to chart a pioneering low-carbon course but aims to become a significant force in the new, global, low-carbon marketplace too. Here knowledge workers, and the creative and cultural environments that attract them, will be

pivotal, with the city's two pioneering universities playing a key role.

The way we source our energy and our heat will change. Energy will be more valued and many more organisations will be generating power and heat. We'll have ways of distributing energy effectively through district networks and a 'smart grid' for the city will connect us all, enabling us to manage demand and generation. Generation from biomass, wind, geothermal heat from the Cheshire Basin, small-scale hydro and solar power and utilisation of waste will all have helped reduced our reliance on traditional fossil fuels.

Adapting to the impacts and opportunities posed by climate change will be a priority for the city, even as we work hard to drive down our carbon emissions. Across the city, Manchester will be measuring its Total Carbon Footprint – finding out why, how and where carbon emissions originate and helping individuals and businesses to reduce them further. All new building and renovation will be carried out with sustainability at its core. Passive energy systems, smart metering, grey water harvesting and automatic lighting will be standard rather merely available as an option. And all these

requirements will be enforced with assistance of the highest standards of Planning and Building Control.

Manchester will be leading the way in sustainable design. A Manchester Design Prize will encourage innovation. We will also seek to be a host for trials on smart grid energy technologies, energy peak demand management and intelligent pricing.

There will be a low-carbon culture across the city, with every individual having the opportunity of 'carbon literacy' training. Schools and colleges will offer advice and courses in sustainability to both pupils and the local community. Campaigns on recycling, low-carbon living, sustainable buildings and renewable energy generation will encourage everyone living and working in Manchester to understand the environment and give them opportunities to act, building social and environmental capital and promoting wellbeing.

Manchester City Council will lead by example, striving towards being a council with sustainable development at its heart. Its Sustainable Procurement Strategy will show what can be achieved and act as an example to businesses and organisations across the city to help them do the same.

THE STORY SO FAR

Manchester has already begun to re-focus many of its strategies to take account of climate change, a process that has been influenced significantly by the publishing, in 2008, of the 'Mini-Stern' report for the city. The review was commissioned by Manchester's Commission for the New Economy and revealed that failure to adapt to future climate change legislation alone could cost the city region £21 billion over the next decade, with the cost to the whole Northwest region potentially totalling up to £70 billion.

There is a market advantage in tackling climate change and our low-carbon sector is already growing. Low-carbon industries in Greater Manchester already have a market value of £4,240 million, employing 32,600 people in 1,900 companies. Their annual growth rate is a healthy 4% despite the recession. The city region has a particular strength in building technologies and there is also growing capacity in alternative fuels, energy generation from biomass and wind, and in digital technologies. A drive to build on these strengths and our international success in regeneration, to develop the focus on construction and the built environment – both retrofitting and new build – is already underway. The city region is seeking to forward this by becoming a pilot 'Low Carbon Economic Area', specifically focused on the built environment.

The transformation of energy generation and distribution across the city is also of critical importance. Schemes for district heating and power networks in the city centre, the viability of biomass-fuelled power stations and how deep geothermal energy can contribute to the energy mix have all been the subject of a number of research studies.

Work is also underway to research and resource the critical task of renewing the local grid as a smart grid, so we can manage the use and efficiency of an increasingly decentralised energy network across Manchester and beyond.

Manchester City Council and partners in the Oxford Road Corridor and East Manchester, and organisations like Bruntwood and the Co-operative Group have all been engaged in this preliminary work and are discussing how existing buildings, new construction projects and a wider network of commercial, public and domestic properties could be linked through a new local, low-carbon energy system. Schemes such as the retrofit of the Manchester Town Hall Complex, new developments at Sportcity and the Co-operative Group's complex of buildings are all giving impetus to the creation of new heat and power networks that will transform the city.

Leadership is critical and while this plan is for all of Manchester, the actions of Manchester City Council offer an important signal that the local authority is leading by

example. The Council has already started work on its nine catalytic 'Call to Action' projects and launched the Manchester Carbon Innovation Fund in June this year, committed to developing and delivering new ways to take action on climate change. In supporting the city region's new Commissions and a new Greater Manchester Strategy, and in its membership of the national Core Cities Partnership, the Council continues to develop and promote its vision of a low-carbon future.

The Government wants all schools to be sustainable schools by 2020 and Manchester City Council is working on a school-by-school basis to meet this challenge. An excellent example of this is St Agnes Primary School in Longsight – the first British primary school to be built using an innovative timber panel system. This efficient process reduced build time and saved around £100,000 on construction costs and for every cubic metre of timber used as a substitute for brick or block, around 0.8 tonnes of CO₂ emissions was saved.

HEADLINES FROM THE FUTURE

How will Manchester have grown by 2020? Here are some of the outcomes of the actions we have set for ourselves for the next ten years.

ENERGY NETWORKS. There will be some local networks for sharing heat and power in parts of the city and we'll have piloted and developed the ways to create a city-wide smart grid. There'll be a plan to connect local networks together in the future with standard specifications agreed, and commitments in place to be sharing a 90% renewable-generated grid across the city region by 2050.

LOCAL GENERATION. There will be a major increase in the amount of energy generated within the city. There'll be several large scale power plants under construction or in operation, using biomass, CHP or geothermal energy. There'll be thousands of small-scale or community-based generators sourcing some of their own energy needs from solar: some will already be selling power back into the grid.

CARBON FOOTPRINTING. We'll all be measuring greenhouse gas emissions as part of our lives and this will include an understanding of the embedded carbon in goods and services. There will be highly visible measures and reminders of how we are doing, and indicators showing what the CO₂ impacts of the city are day by day.

SUSTAINABLE PROCUREMENT. Carbon efficient businesses will be in the majority. There will be guidance for organisations and business in sustainable sourcing, production and distribution of their goods and services. We will create a market for sustainable resources and demonstrate that consumers and business will save money and resources by doing more with less.

ACTIONS

The growth and development of our city touches every life, every home and every business but it will be born of strong leadership, insightful planning and greater levels of partnership working. This is a future we build together.

Planning and development

Produce a Manchester Energy Plan that provides the framework for establishing a city-wide decarbonised energy generation and distribution system and local energy plans supported by the Local Development Framework and Strategic Regeneration Frameworks.

Establish the partnerships and investments needed to develop and deliver the Energy Plan and the structures needed to integrate projects sharing heat, power and 'smart grid' information to manage them.

Develop and deliver substantial schemes for generating and distributing heat and power and establishing 'smart grids', which pilot technologies and build the infrastructure foundations of that system so it can be developed to full delivery by 2050.

Create a city-wide programme of neighbourhood low-carbon zones and establish carbon reduction targets in the Local Development Framework to require developers to install and/or contribute to low carbon, decentralised and renewable energy technologies.

Work with partners at the city, city-regional and national level to improve existing infrastructure, existing regulatory frameworks, and policy to help deliver a decarbonised generation and distribution system.

Develop and adopt an inclusive 'Total Carbon Footprint' framework for Manchester, and encourage take-up across the city region enabling organisations and individuals to accurately measure their emissions and their contribution to the city's reduction targets, while meeting their own needs and reporting requirements.

Develop and implement best practice in low-carbon building design and retrofit.

Develop measures and incentives to ensure all new developments are zero carbon in terms of both building design and appliances, and use planning agreements so new building development can catalyse retrofit.

Investigate and implement the highest standards possible for Planning and Building Control in relation to sustainability measures and increase enforcement capacity to ensure uptake of new regulations.

Identify national and international policy developments and prepare to deliver them in advance of national and international timetables.

Continue to implement the Manchester City Council waste and recycling service plan and Greater Manchester Waste Disposal Authority (GMWDA) waste and recycling service improvement plan and work with GMWDA to establish further stronger landfill and recycling targets for 2020 and beyond.

Work with partners in the Northwest to encourage sustainable procurement policies and procedures, and investigate the potential to develop a city-wide approach to sustainable procurement.

Promotion and education

Organise an annual climate change conference for young people so they can discuss future scenarios.

Encourage and support community groups to implement their own plans for reducing energy use towards zero/ low-carbon communities – including clear and simple advice on project development, obtaining funding, and a programme of incentives.

Make progress on CO₂ reductions visible through public local indicators, barometers and displays.

Make the reduction of CO₂ a key objective for all major events in the city, underpinning the reputation of Manchester as a low-carbon city.

Develop and promote a range of high-profile building exemplars at 2050 sustainability standards in all categories (domestic, public and commercial) and across all ages.

Promote learning, teaching, evidence and inspiration of 2050 standards of low-carbon generation and distribution.

Support the introduction of feed-in tariffs in 2010 to encourage local generation of renewable electricity.

ACTIONS

Encourage schools to promote sustainability with parents and communities.

Food

Create a baseline of sustainable food consumption and production and increase year on year to 2020 and beyond.

Develop the infrastructure to enable an increase in local food production, both commercially and within the community.

Major schemes

Install large-scale energy generation and distribution systems to serve large areas of the city.

Continue to explore the use of a mix of renewable energy sources – including biomass, waste, geothermal heat from the Cheshire Basin, wind and solar power.

Undertake a heat-mapping exercise to understand the potential to use waste heat within the city.

Establish community development interest initiatives and social enterprises to co-ordinate the take-up of low-energy appliances and low-carbon technologies for domestic and business use.

Establish and implement best measures for aggregated purchasing of energy-efficient equipment to make it widely available and encourage energy-efficient use.

Make Manchester a venue for energy management trials, including: smart grid technology; intelligent appliances; heat storage from excess generation; peak demand management; intelligent pricing; mixed generation; storage capacity.

Leadership and Co-ordination by Manchester City Council

Maintain and develop partnership working on policies and programmes across the Greater Manchester city region to progress all aspects of sustainability and low-carbon development. Develop joint work on energy planning, sustainable consumption and retrofitting buildings to levels of co-operation compatible with current work on transport and waste.

Maintain a leadership role in the development and delivery of this plan, including the co-ordination of major programmes and the partnership structures necessary to support collaborative work on key actions.

Establish the Council as one of the leading exemplar organisations in progressing the actions in this plan by drawing up, developing and monitoring a delivery plan which sets out the Council's role in delivery.

Support planning applications that include innovation and investment in sustainable construction.

Continue to implement community work through the CO₂mmunity Challenge and roll out across the whole of Manchester.

Research

Research and establish targets for the Manchester Energy Plan demonstrating how the overall carbon reduction target will be met through the actions.

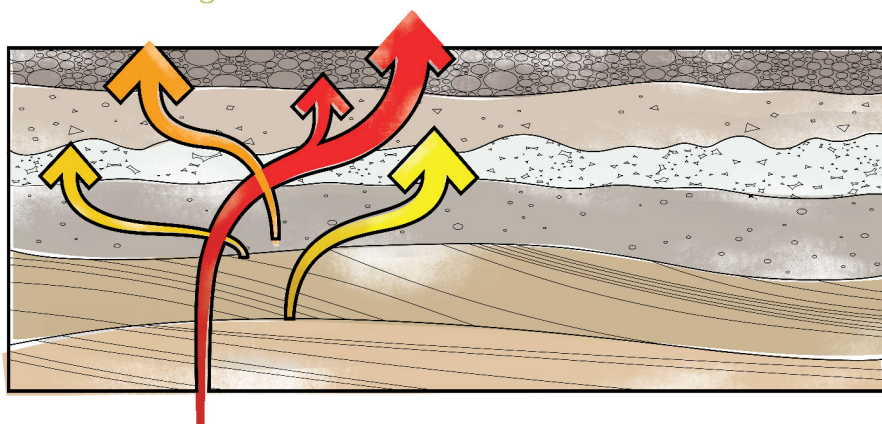
Research the flow of resources (including goods, waste etc.) throughout the city and beyond and assist in the development of opportunities towards a closed-loop system.

Conduct a research project to establish the energy use of different sectors.

SOLUTIONS AT EVERY SCALE

Manchester is a city built around partnerships and partnership working, so our future growth and development as a low-carbon economy will be built around a number of organisations and networks working together.

heat sourcing



Public sector agencies

Manchester City Council, public agencies and private sector businesses will benefit from a proposed Manchester Energy Plan for all elements of the energy system that the city has control or a strong influence over. This plan will describe the generation and distribution system through to 2050. The Local Development Framework contains policies and plans that will help to reduce emissions and it is proposed that there should be a city-wide network of low-carbon 'zones'.

Construction, architecture and the built environment

New policies and standards will have a direct impact on building design and retrofitting, with new measures and incentives proposed to ensure all new developments are zero carbon in terms of both building design and appliances. Planning

and Building Control Regulations will change to reflect the city's action on climate change more strongly, existing regulations will be more strictly enforced, and there will be a renewed examination of the city's critical infrastructure to deliver this scale of change.

Local communities and residents

The aspirations in this plan for a 'low-carbon culture' across the city will lead to extensive communication of progress on reducing CO₂, including access to at least one day's training in 'carbon literacy' by 2015. Community groups will be directly encouraged to implement their own plans for reducing energy use, to create specific zero or low-carbon communities across the city.

Private sector

Being proactive will pay off for the private sector as early adopters will benefit from opportunities created by regulations and supply chain pressures on the public sector. Working in partnership with the public sector, businesses will maximise opportunities for innovation and shorten the route for new technologies and services to reach the market.

ADAPTING

OUR GREEN SPACES, OUR URBAN REALM, OUR FUTURE HEALTH

However successful we may be in cutting carbon emissions, the release of greenhouse gases from the middle of the last century onwards will rapidly warm our world, even in these initial two decades of the 21st century. Greenhouse gases can last many decades in the atmosphere, so while our children will certainly benefit from our action on energy, we still need to prepare and adapt for a significant shift in climate in the short term.

The future forecast for Manchester will see hotter, drier summers combined with warmer, wetter winters. But our weather will be much more unstable: there may be droughts as well as stormier weather patterns. When rainfall comes, it will be more intense, making flooding more likely. In our urban areas there will be an increased 'heat island effect', where city centres see temperatures rise at a higher rate than across the country at large.

Green spaces – parks, gardens, woodlands – and waterways have a big part to play in adapting to these changes. These parts of the 'Green Infrastructure' (GI) of our city deliver a range of important benefits: they can cool the city down through

moisture evaporation and providing shade, improve the air quality by trapping particles that would otherwise remain airborne, and soak up rainwater by providing natural drainage. They also provide important habitats for wildlife – some of which, like bees, are critical to our health and food supply. Green space is also important as a place to grow food, for recreation and general health and wellbeing.

A sustainable, low-carbon Manchester will have more green infrastructure than at present. We will have a stronger network of blue and green spaces; connected places to play, relax and enjoy; places that provide natural functions that help the city to operate effectively; and quiet, attractive and safe transport corridors for cyclists and walkers. We will have a rich tapestry of trees and open spaces, innovative 'cool' pavements, tree-lined streets, green roofs and 'living walls' to combat the urban heat island effect. People will grow more of their own organic food in gardens and allotments.

From green roofs to greener, tree-lined streets, all the measures outlined in this section of our plan will create a Manchester that is a

pleasant place to live, and a genuine magnet for the talented and the innovative. The kind of Manchester we can promote to the world.

The other major indirect benefit will be the improved health of our communities and of our residents. Evidence shows that environmental pressures, such as climate change, can tend to hit the poorest communities hardest. A greener city will help reduce pollution and will create the spaces and places where people can walk or cycle, reducing the occurrence of ill health. Green space has also been proven to increase mental wellbeing, promoting greater levels of happiness.

The goal is achievable and worth striving for – an increase in green infrastructure and urban tree cover will help us hold temperatures in densely urban spaces in line with the rest of the city as the climate changes.

THE STORY SO FAR

Like many post-industrial cities, Manchester has a challenge ahead in adapting to climate change and has already started to explore this future through a project called Eco Cities, which is a joint initiative between the University of Manchester and the commercial property company Bruntwood. Eco Cities aims to provide a blueprint for the first climate change adaptation strategy for Greater Manchester by the end of 2011. The project will be based on leading scientific research, extensive stakeholder engagement and best practice examples of new programmes successfully piloted during a three-year period.

Manchester is also keeping a keen eye on the impact that climate change will have on biodiversity. Plants, animals and habitats enrich our everyday lives and provide us with all the necessary ingredients to survive – clean air, water, food. Manchester produced its first Biodiversity Strategy in 2005. Since then the city has increased the number of Local Nature Reserves from one to seven and they now cover around 306 hectares. The strategy continues to engage with local communities and raise awareness about the importance of the city's biodiversity.

Getting people involved and interested in biodiversity helps to safeguard it for the future. Wildabout Manchester is a key part of the Manchester Biodiversity Strategy. Anyone can take part and the promotion, education and awareness-raising are leading to a greater sense of ownership regarding the wildlife of the city. The project has been a huge success, with over 40,000 people having attended wildlife-related events and activities since 2005.

Trees are the lifeblood of the city – they are our natural air-conditioners, providing us with shelter from wind and rain and offering us shade during warmer months. We understand their importance, and to find out more about the city's assets, the Manchester Tree Audit was commissioned in 2007. Working with Red Rose Forest, every tree in the city has been mapped. That's every tree in every street, garden, park and woodland. Manchester has tree canopy coverage of 14.8% – nearly double the regional average of 7.9%.

Urban tree cover will also be the focus of the developing i-Trees project, which will help to increase urban tree cover in Manchester and also contribute to scientific research. The project uses monitored urban trees to better understand how GI can help by providing shade to reduce surface temperature, absorb water to reduce localised flooding and reduce air pollution.

New developments and renovations are a big part of any city. In Manchester, the number of green roofs is steadily rising. A green roof is any roof space that can be used to grow plants, crops, grasses, moss or any other vegetation. They are a great way to create more green space in urban areas, soak up rainwater to reduce flood risk, improve building insulation, create habitats for insects and birds, and grow food.

HEADLINES FROM THE FUTURE

How much will Manchester have adapted by 2020? Here are some of the outcomes of the actions we have set for ourselves for the next ten years.

A GREENER CITY CENTRE. The most built-up areas of the city will have started to sprout green roofs, more trees on the street and some living walls.

CHANGING NATURE. There'll be more space for biodiversity – nature reserves and wildlife corridors in the city will have increased and we'll be starting to see changes in trees and grasses planted in the city to species that can thrive in a warmer climate.

URBAN AGRICULTURE. More people will be growing food in gardens, allotments and community growing schemes, and areas focused on urban agriculture will be starting to appear.



ACTIONS

Well-planned adaptation measures can also lead to reductions in emissions. The activities set out in these action points will ensure that Manchester is resilient to any changes in the climate and they will underpin efforts to cut carbon, too.

Planning

Review and improve methods of green space master planning in development, including setting standards for the quality, accessibility and quantity of open space.

Develop guidance to ensure GI based adaptation measures are considered as part of any new development, and are supported by policies in the Local Development Framework where possible.

Increase tree coverage in Manchester – including street trees and woodland cover – and remediate derelict, underused and neglected land and brownfield spaces into maintained green space.

Create a framework of public support, awareness, education and engagement with the residents of Manchester around the need for and benefits of green infrastructure.

Work towards the completion and implementation of management plans for Council-owned woodland, parks and river valleys.

Install 'cool pavement' materials to increase surface reflectivity and rainfall permeability to combat the urban heat island effect and help to reduce the risk of localised flooding.

Increase installation of green roofs within the city, both on new developments and retrofitted to existing buildings.

Identify sustainable and innovative options to increase the coverage of public green infrastructure in the city, including supporting the Piccadilly and Oxford Road Corridor public realm developments.

Seek to retain and improve existing open spaces, sport and recreation facilities, and provide a network of diverse, multi-functional open spaces.

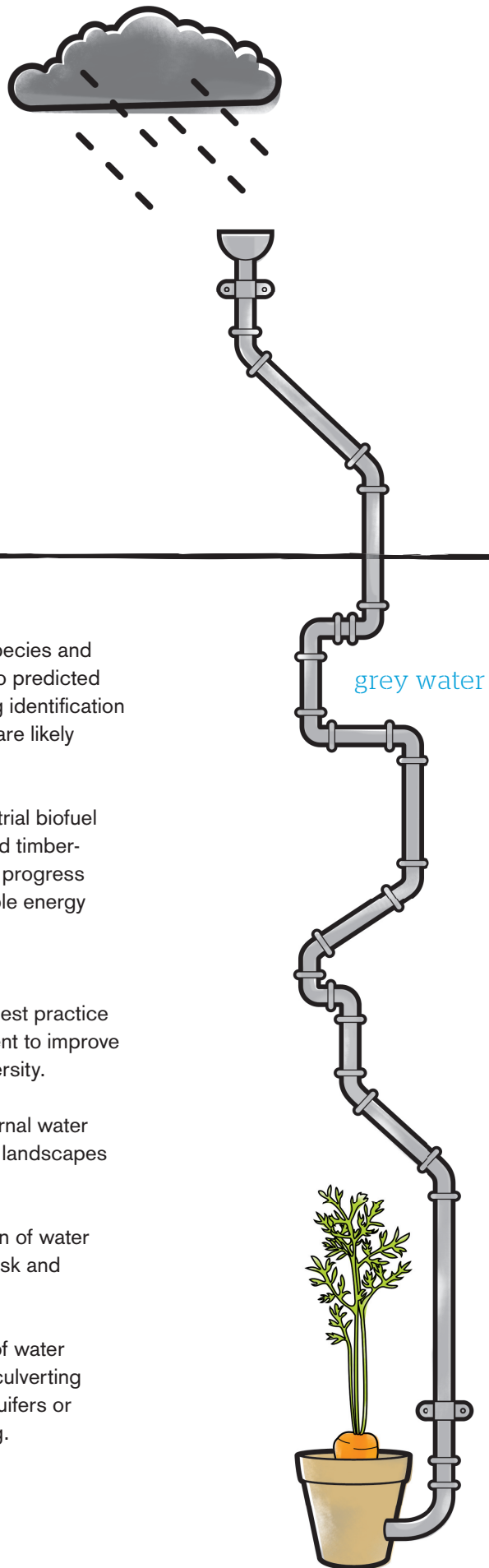
Identify and implement best practice in soil management.

Identify and develop good practice in resolving legislation for private gardens, including enforcement and regulation to assist in sustainable use of land by individual private owners.



increasing tree cover

ACTIONS



Lifestyle

Maximise the contribution of gardens and individual/household space to green infrastructure, including advice and training on sustainable garden management, domestic composting and grow-your-own schemes.

Encourage interim use of development sites for local food production.

Research

Carry out a co-ordinated Land Audit of the city region to assess current and potential future land use.

Co-ordinate and undertake research to develop an understanding of water flows across the city, including rivers and localised flooding caused by issues such as heavy rainfall.

Identify best practice in managing GI in response to climate change – using international research as well as local planning and ecology experts.

Support the Eco Cities project and other research into GI and spatial planning.

Research and identify species and habitats that are suited to predicted future climates, including identification of species/habitats that are likely to decline.

Explore development of trial biofuel and biomass planting and timber-waste fuel production to progress alternative and sustainable energy production.

Water

Identify and implement best practice in waterways management to improve water quality and biodiversity.

Encourage zero net external water requirements of external landscapes in new developments.

Maximise the contribution of water bodies to reduce flood risk and provide irrigation.

Support innovative use of water for cooling, such as de-culverting waterways and using aquifers or surface water for cooling.

SOLUTIONS AT EVERY SCALE

Adapting to climate change will require public agencies to establish a lead and to develop a strong knowledge base for others to utilise. The key groups that will have a part to play are set out below.

Planners

The planning community will have a critical role to play through protecting existing green space as well as promoting new urban features such as green roofs, living walls and more street trees, particularly in areas planned to undergo large scale regeneration or development (e.g. Piccadilly or the Oxford Road Corridor). This will be backed up by strong policies and clear guidance, particularly through the Local Development Framework.

Developers

New developments, and those who plan, design and construct them, will have to move forward with our future climate in mind, including methods to develop passive ventilation, cooling, shading and sustainable drainage systems.

Public agencies

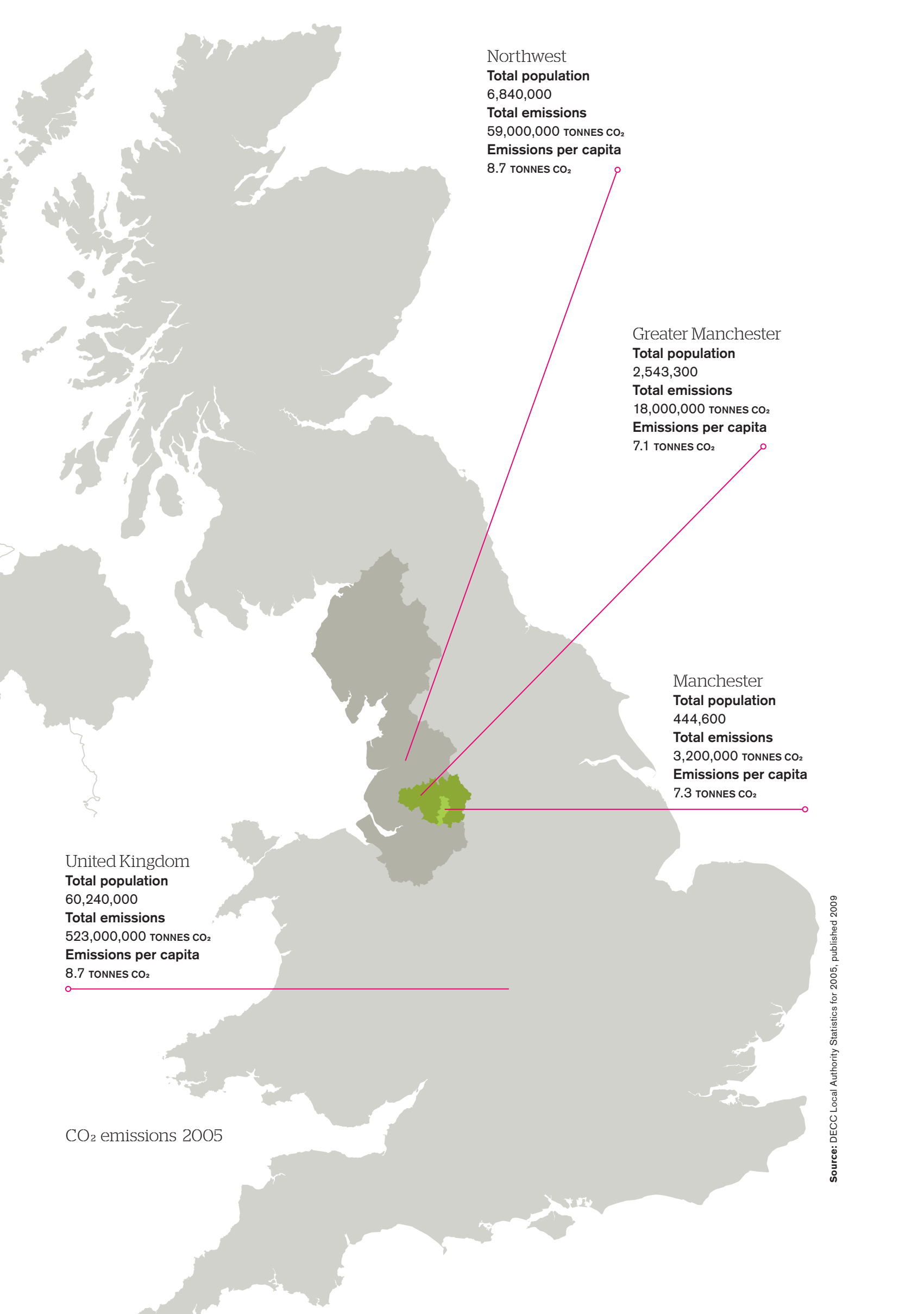
Organisations like the Environment Agency, often working in conjunction with local authorities and utility companies, will have to plan for, and develop responses to, the predicted effects of climate change, in particular with regard to flood risk.

Residents

Individual residents can help too, by creating more green environments, composting, planting trees in their gardens and by joining local grow-your-own or allotment schemes.

Education and research

There will be a vital need for intelligence on the projected impacts of climate change and for information on best practice to be shared across all sectors to help Greater Manchester to adapt. Leading scientific research will have a critical role to play in this.



Northwest
Total population
6,840,000
Total emissions
59,000,000 TONNES CO₂
Emissions per capita
8.7 TONNES CO₂

Greater Manchester
Total population
2,543,300
Total emissions
18,000,000 TONNES CO₂
Emissions per capita
7.1 TONNES CO₂

Manchester
Total population
444,600
Total emissions
3,200,000 TONNES CO₂
Emissions per capita
7.3 TONNES CO₂

United Kingdom
Total population
60,240,000
Total emissions
523,000,000 TONNES CO₂
Emissions per capita
8.7 TONNES CO₂

CO₂ emissions 2005

MEASURING OUR PROGRESS

The starting point for this plan was the idea that we should reduce Manchester's annual CO₂ emissions by at least one million tonnes. This has now been developed into a clearer target for 2020 – a 41% reduction in emissions – that reflects change and complexity in the emerging science of measuring greenhouse gases. Taken against a baseline of emissions for 2005, this amounts to 1.3 million tonnes of CO₂, or a per capita reduction from 7.3 tonnes per head to 4.3 tonnes per head.

According to figures supplied by Department for Energy and Climate Change for all local areas of the UK, these 2005 figures show that the city of Manchester, its residents, businesses and public bodies, were responsible for direct emissions of CO₂ totalling 3.2 million tonnes or 3,200 kilotonnes (kt). These emissions came from:

Industry and commercial – this includes all our offices, shops and public buildings, as well as factories – 1,528 kt CO₂

Domestic – this includes all the electricity and gas for all the city's residential buildings – 980 kt CO₂

Road Transport – this includes buses, taxis, commercial vehicles and private cars etc. – 716 kt CO₂

Agriculture and land use – the figures also show CO₂ released from the land but this is so small for Manchester, being a city, it barely registers.

These are the figures that have been used for the UK's Climate Change Act (2008) and that are currently used for national planning and monitoring purposes by the UK Climate Change Committee, so they are most appropriate for us as the first baseline for our plan. They provide some interesting comparisons with other areas – the city's emissions are slightly higher per head than the rest of the city region, but lower than the regional and national averages.

MEASURING OUR PROGRESS

HOW HAVE WE ARRIVED AT THE TARGET FOR MANCHESTER?

In December 2008, the UK Committee on Climate Change (CCC) recommended the first three legally binding carbon budgets for the whole of the UK, putting the country on a track to meeting a national reduction in emissions of 80% by 2050. To calculate targets for Manchester to correspond to these UK reduction projections, these carbon budgets were scaled, by sector, to the Manchester city level by the Tyndall Centre for Climate Change Research based on the make-up of Manchester's fuel. This gave us our target of 41%, based on a reduction pathway as shown below¹.

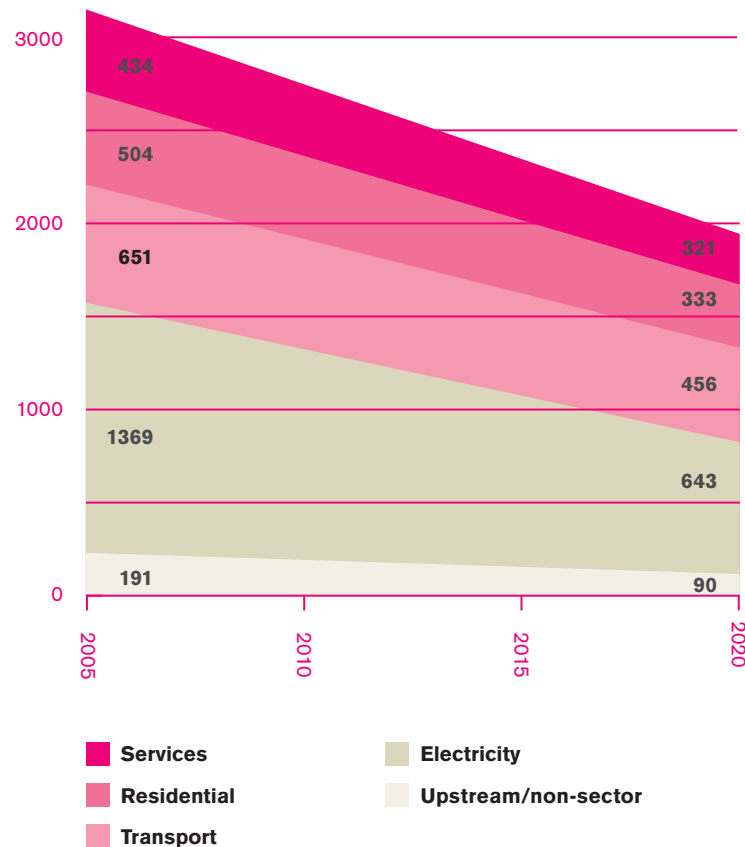
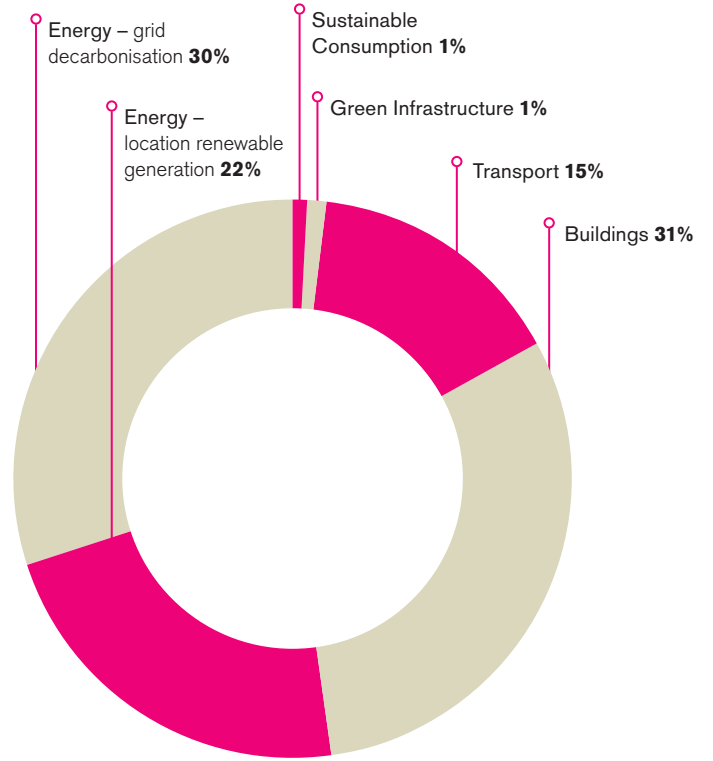


Figure 1. The target for Manchester, a 41% CO₂ emission reduction by 2020 on 2005 baseline and an illustrative pathway to assist the UK in delivering a 80% reduction by 2050 – not based on cumulative emissions.

¹ The scaling assumes that growth in fuel costs, economy and the success of policy implementation mirror the UK as a whole. It also assumes the technical ability of sectors to abate emissions is the same as the ability of the whole UK sector.

Figure 2. Indicative breakdown of emissions reduction target, by area of action.



This breakdown in our targets has been mapped to the key areas of action in our plan, in particular those concerned with energy consumption throughout our buildings, energy generation and all aspects of transport. This provides some indicative delivery targets for each of these areas of action. Within each area, we know that success will be achieved by a combination of actions – some taken by us here in the city, some taken by national government and some by a combination of the two. National legislation to decarbonise the grid and create ‘feed-in tariffs’ for local energy generation, for example, will play a significant part in reducing emissions from energy. In this area, we have begun to assess what proportion of our overall target needs to be delivered locally and nationally: work we intend to refine and develop as we begin to deliver the actions in our plan.

These indicative figures (Figure 2) show that actions that change our patterns of consumption – sustainable consumption – and improve green infrastructure will make only a very small impact on our 41% reduction target. These actions will have a major impact, however, on changing our lifestyle to a more low-carbon culture and their actual impact on emissions will be clearer when we further develop the ways in which carbon is measured.

Our target of 41% is ambitious and it reflects current measurement adopted by the UK Government, but the science of carbon measurement is still in development and this approach only covers operational CO₂ – direct emissions – and indirect emissions from electricity use; it doesn’t include the carbon that’s embedded in the manufacture of all our goods and services, and it doesn’t include the emissions related to bringing goods and services into the city through aviation and shipping. These gaps in our targeting and actions need to be filled and it’s the main reason why our plan contains an important action about measuring carbon – a commitment to create a Total Carbon Footprint framework by 2013.

Creating this framework will enable us to incorporate a way of capturing the important values of embedded carbon in our approach. We are confident that there will soon be national and international agreement on how emissions from aviation and shipping are to be captured and apportioned, enabling us to show a reduction in Manchester’s share of these emissions too. The framework will do something else as well: it will help us bring together different in measurement methodologies so that we can show easily how every individual’s and organisation’s targets contribute to the city’s effort overall.

We need to resolve this well before 2020. In this plan we are making a commitment to establish a total carbon footprint framework for all greenhouse gas emissions to include embedded, aviation, shipping etc. This framework will also enable us to make sense of a number of different regimes for carbon measurement so that everybody can easily see how their contribution to the city’s emissions targets has an impact.

POWER THROUGH PARTNERSHIP

This action plan for Manchester is a plan for the entire city. Local communities, residents, the business community, Manchester City Council and statutory public agencies all have a part to play. Those identified here have helped in the production of this plan.

Please join them.

Signature

100 Months Club, Ali Abbas, Pete Abel, Ade Aboaba, Arwa Aburawa, Action for Sustainable Living, Eugene Adams, AECOM, Karen Andrew, Cllr. Paul Andrews, Oli Aro, ARUP, Faith Ashworth, Joe Ashworth, Association of Greater Manchester Authorities, Association for Sustainable Change, Jonathan Atkinson, Peter Babb, Charlie Baker, Charlie Banks, Chris Barber, Simon Barber, Dave Barlow, Esther Barnes, Tim Barwood, Cllr. Jim Battle, Paul Beardmore, Corin Bell, Sarah Benjamin, Ruth Bergen, Sir Howard Bernstein, Caroline Berry, Lance Berry, Michelle Berry, Best Foot Forward, Beyond Green, Bike Right, Linda Bishop, Simon Blackmore, Tina Blake, Nick Blandford, Paul Bond, Jonathan Booth, Bovis Lend Lease, Alice Bows, Sallie Brigden, British Waterways, Broadway Malyan, Sue Brooks, Brother, Ian Brown, Bruntwood, Building Design Partnership, Chris Burrows, Mark Burton, Caesar, Call to Real Action, Dan Calverley, Carbon Co-op, The Carbon Trust, Dr. Sebastian Carney, Carpet Recycling UK, Jacqui Carroll, Dave Carter, Dr. Jeremy Carter, Stuart Carvel, Cedar Mount High School, Carolyn Chafer, Nicky Chambers, Phil Chan, Kate Chappell, City South Trust, Dan Clarke, Diana Clayton, Jennifer Cleary, Clicks and Links, Lucy Clifford, Revd. Raymond Cochrane, Dave Coleman, Coleman Consulting, Matt Collard, Margaret Collier, Rachel Combie, Community Network for Manchester, Steve Connor, Matthew Cooper, Russell Cormack, Corporate Social Responsibility, Corridor Manchester, Bryan Cosgrove, Countryside, Cllr. Richard Cowell, Cranfield University, Creative Concern, Gavin Crippin, Richard Critchley, Janet Cuff, Tracey Daley, Lucy Danger, Andrew Darron, Keith Davidson, Davis Langdon Construction, Linda Dawes, Debdale Eco Centre, Development Education Project, Jackie Dibley, Didsbury Park Properties, Mike Dinsdale, Diocese of Manchester, Nick Dodd, Walter Dooley, Caroline Downey, Drivers Jonas, Kate Dunn, Susan Edgar, Electricity North West, Debbie Ellen, Emerge, Energy Saving Trust, Enterprise Manchester, Envirolink Northwest, Environment Agency, Environment Network For Manchester, Enworks, Fairfield Composting, Faiths4Change, Abby Falla, Tom Fenton, Dan Fernbank, Carlos Figueiredo, Karen Findley, Hilary Fisher, Paul Fitzgerald (Polyp), Kevin Fletcher, Mark Foden, Simon Foy, Ruth Francis, Friends of the Earth, John Frubin, Lachlan Fulton, Barry Gillespie, Martin Gizzie, Stephen Glynn, GM Churches Together, Vincent Goodwin, Joanne Gorman, Government Office North West, Greater Manchester Chamber of Commerce, Greater Manchester Ecology Unit, Greater Manchester Environment Commission, Greater Manchester Waste Disposal Authority, Jen Green, Peter Green, Dan Griffiths, Groundwork, Prof. Simon Guy, David Haley, Alexander Hall, Ged Hamley, Sue Hare, Bill Harrop, Alison Hartley, Richard Hatton, Helen Hensel, Francis Hesketh, Elizabeth Hill, Paul Hilton, Dr. John Hindley, Dr. Mike Hodson, Katrina Holt, Tony Hothersall, Marc Hudson, Hulme Garden Centre, Ilyās Inayat, Intochange, Laura Jagota, Barry James, JM Business Energy Consultancy Ltd, Joint Health Unit, Annette Jones, Neil Jones, Phil Jones, Karen Jordan, Mike Kay, Aleksandra Kazmierczak, Gary Keane, Frazer Kearney, Robert Kelk, Sheehab Khater, Kindling Trust, Michael King, Phil Korbel, Catherine Lambert, David Lea, Sir Richard Leese, Richard Lewis, Paul Limbrick, Lisa Lingard, Mary Livingstone, Raichael Locke, Longsight Methodist Church, John Lorimer, Love your Bike, Jon Lovell, Jo Lynch, Simon Mabey, Mace Group, Fiona Maddocks, Paul Mahoney, Manchester Airport, Manchester City Council, Manchester Climate Fortnightly, Manchester Creative and Media Academy, Manchester Digital Development Agency, Manchester Eco House, Manchester Environmental Education Network, Manchester Green Pound, Manchester Housing, Manchester International Festival, Manchester is my Planet, Manchester Knowledge Capital, Manchester Metropolitan University, Marketing Manchester, Lynne Marland, George Martin, Prof. Simon Marvin, MCC Community Guardians, Phil McFarlane, Sean McGonigle, Tim McMahan, Anne Mellor, MERCi, Lydia Meryll, Martin Miller, Jonathan Mitchell, Rebecca Monk, Lydia Morrison, Mosscafe Housing, Dena Murphy, Neil Murphy, Paul Murphy, National Grid, National Housing Federation, Paul Needham, Jenny Nelson, NEPHRA Residents Association, New Economy Manchester, NHS, Rebecca Nicholl, Fiona Nicholls, Samantha Nicholson, Martin Nolan, Patrick Nolan, North West Community Waste Network, North West Development Agency, North West Landlords Association, Northwards Housing, David Nugent, NW Planning Aid, Michael O'Doherty, Olusola Omole, Margaret O'Neill, OpenSpace Co-operative, Organise This, Andy O'Shanughnessy, Oxfam, Pannone LLP, Paton Brown, Larry Patrick, Carole Pattison, Nicola Percival, Julie Perry, Sam Pickles, Alex Pitman, Chris Pope, Jonathan Porter, Positive Impact Events, Jackie Potter, Joel Prittie, Cllr. Bernard Priest, Christine Raiswell, Ramblers Association, Val Rawlinson, Mike Reardon, Red Rose Forest, REELmcr, Kelly Reynolds, Les Richards, Derek Richardson, Gordon Richardson, David Ritter, Simon Robinson, David Roscoe, Nigel Rose, Vicky Rosin, Matthew Rowe, Royal Exchange Theatre, Helene Rudlin, Julie Rushton, Natasha Rutherford, Jonathan Sadler, Salford University, Ian Scott, Helen Seagrave, Richard Sharland, Sophie Sharp, Graeme Sheriff, Andrew Short, Eddie Smith, Emma Smith, Ian Smith, Janice Smith, Luke Smith, Nick Smith, Peter Smith, Tom Solomon, St. Vincent's Housing Association, St. Peter's RC High School Longsight, Stefan Stainsby, Paul Stanlon, Imanuel Steele, Victoria Stonebridge, Paul Stowers, Pete Stringer, Julie Stubbs, Vin Sumner, Phillipa Superville-Blackford, Sustainable Neighbourhoods Action Group, Sustrans, Connor Sweeney, Melanie Tapodi, Beverley Taylor, Cath Taylor, Mike Taylor, TEP, The Co-operative, The Co-operative College, The Manchester College, Callum Thomas, Shona Thomas, Sara Todd, Sara Tomkins, Mark Turner, Steve Turner, Matthew Turpin, John Twigg, Tyndall Centre, Paula Ufolo, Sarah Urquart, United Utilities, University of Manchester, Urban Splash, Urbed, Chris Wainwright, Jonathan Walker, Tim Walmsley, Chris Walsh, Simon Warburton, Water Power Enterprises, Steve Welsh, Tom Whitehead, Michael Whitehurst, Tim Whitley, Gordon Whitaker, Rev. Stuart Wild, Matthew Wilkinson, Sarah Williams, Laura Williams, Willmott Dixon, Michael Wilton, Andre Witter, Martin Wood, Dr. Ruth Wood, Sean Wood, Chris Worrall, WRAP, Chris Wright and Pam Zuntz.

THE BIGGER PICTURE

As a new global and comprehensive agreement is developed at the UN Climate Change Conference in Copenhagen in December 2009, closer to home, national and European targets mean that the actions in this plan will have to be delivered whatever the outcome in Copenhagen.

Through the 'Climate Action and Renewable Energy Package', the European Union has committed to reducing overall emissions to at least 20% below 1990 levels by 2020 while nationally, the Climate Change Act commits the UK to meeting 80% greenhouse gas reduction targets by 2050. An ambitious target, it is one that this Manchester plan sets out to reach.

Here in the Northwest, the Regional Spatial Strategy, which provides policy guidance for planning new housing, industrial, commercial, leisure developments and green space, identifies reducing emissions and adapting to climate change as an urgent priority. The Regional Economic Strategy sets out a low-carbon economy as a fundamental aim, an aim which will be sustained and strengthened in the new, Integrated Regional Strategy currently being prepared.

The Greater Manchester Strategy (GMS) sets out the agreed priorities for Greater Manchester over the next 10 years. Its clear priority is sustainable economic growth, and it recognises that for us to have a successful economy we must reduce our environmental impact and prepare for possible changes that are beyond our control. The aspiration in the GMS is that in the future, we will be known for our good quality of life, our low-carbon economy and our commitment to sustainable development. The delivery of this strategy is down to seven new commissions – one of which is the Environment Commission, which has set up a new Climate Change Agency to develop a climate change strategy for the city region.

Manchester's economic recovery has been predicted to start earlier than most other UK cities, in part due to the agglomeration benefits which support our city-regional economy. These benefits occur when a diversity of individuals and firms are able to

capitalise from being near to others, using their proximity for sharing and transferring knowledge, ideas, goods and services. These characteristics also have environmental benefits, reducing the need for travel for example, and providing opportunities for sharing resources.

In the meantime we have an opportunity to take advantage of our current reflectiveness, and the openness to cultural change this recession has forced. There is an opportunity to create the conditions for a low-carbon economy, which will be a driver for employment creation, innovation and skills, and to ensure new and expanding businesses build low-carbon practices into their business plans.

Employment growth is expected to be significant in the 'knowledge economy' sectors – where production and services are based on knowledge-intensive activities that have a greater reliance on intellectual capabilities than on physical inputs or natural resources. These are intrinsically less carbon intensive in operational terms than manufacturing for example, although it will be important to consider the embedded carbon consumption of these areas of growth. The key resource for knowledge industries is their employees, and they in turn will be attracted to Manchester for the culture and quality of life offer our vision provides.

MAKING IT HAPPEN — RESOURCES

This plan is about taking firm and immediate action. We will need resources to make this happen. The most important resources are the commitment, time and ideas of people across the city; the will and the enthusiasm to make low-carbon living a priority for us all. But finance is also vitally important, particularly to effect changes to our buildings, transport and energy infrastructure.

The plan brings these two resources together because it is a plan for the future prosperity of the city, its people – residents, employees, visitors – and for the businesses and organisations upon which the life of the city depends. All organisations are going to need to find ways of building up knowledge and expertise in climate change and committing people's time to the potential of a low-carbon economy. We know that establishing this is key to continuing to develop Manchester as a thriving centre of commerce, ideas and innovation. And we know that the technologies of energy efficiency and generation, low-carbon construction, digital connectivity and sustainable land management will provide the platform for future jobs and businesses.

The 2008 Mini-Stern report for Manchester put a value of £21 billion to the city region in making this transformation by 2020. Successful implementation of this plan will effect a critical contribution to ensuring that this value will be secured, but we will need to invest significant resources to make the plan happen.

In the first two years of the plan, we will be developing Delivery Plans for some of the major actions where significant collaborative programmes need to be put in place. These Delivery Plans will identify more detailed goals, partners and the projects, resources and finance necessary for implementation. Some of the necessary finance will be secured from investors and government, some will be found from organisations within the city, applying existing resources to projects and programmes that deliver the actions as part of the delivery of public and commercial services. Implementation of some actions will also create efficiencies and financial savings, providing opportunities for reinvestment.

Two of these Delivery Plans will focus on buildings – one on housing and one on commercial and public buildings. These plans will develop the city region's skills and capacity as a leader in retrofitting construction, further developing our international reputation for regeneration

into the low-carbon economy. Initial work on one of these – retrofitting aspects of more than 100,000 existing homes in the city with a combination of energy efficiency and micro-generation measures – indicates that we can save over 350,000 tonnes CO₂ per year, nearly a third of our 41% target. Overall, this programme could provide 15,000 new jobs, and it would entail total costs of £2,200m over ten years.

This a major investment, but some of these costs will be met by savings from measures and schemes already in place and these savings are likely to rise as energy costs increase over the decade to come. The plan includes references to developing a number of 'financial instruments' – mechanisms that will provide opportunities for residents and businesses to invest more effectively in their own low-carbon future. Some of these are already under discussion nationally, others may need to be developed in the city. It is an early priority for us to secure the resources to ensure that the actions in the plan are put into place. A large part of this is creating opportunities for everybody – residents, businesses, public bodies and investors – to invest, confident that there will be a financial as well as an environmental return, making the prosperity of a low-carbon city a reality.

TURNING WORDS INTO DEEDS – KEY EARLY ACTIONS 2010

	ACTIVITY	MILESTONE 2011	LEADERS AND PARTNERS
Early Actions for Individuals	<p>Save energy around your home.</p> <p>Reduce your car journeys, walk or cycle more.</p> <p>Complete the first of an annual home energy/carbon check that will help monitor progress against this plan.</p> <p>Take part in a city-wide programme to support consumers in choosing low-carbon goods and services.</p> <p>Support your family, friends, neighbours and workplace to do the same.</p>	<p>Make a start. If you've already started, find out more, set yourself some targets and make saving carbon so routine it is automatic.</p>	<p>Everybody in the city.</p>
Early Actions for Organisations	<p>Endorse the approach of this plan, identifying actions appropriate to your organisation.</p> <p>Develop an organisation's delivery plan and set short and long-term targets – ensuring it is consistent with the approach/template all Manchester's organisations will be using so we can monitor progress against the plan.</p> <p>Start saving energy on your buildings and transport.</p> <p>Consider the carbon impacts of goods and services your organisation uses.</p> <p>Assist your employees, members, suppliers or consumers to do the same.</p>	<p>1,000 organisations in Manchester endorsing the plan and actively their reducing carbon impacts.</p>	<p>Organisations in all sectors throughout the city.</p>
Developing Delivery Plans for Concerted Action	<p>Retrofitting programme – domestic housing.</p>	<p>Delivery groups established.</p> <p>Initial work plans drawn up.</p> <p>Baselines established.</p> <p>First phase resources identified.</p> <p>Links to website in place.</p>	<p>RSLs, landlords, construction industry, colleges MCC, AGMA.</p>
	<p>Retrofitting programme – public and commercial buildings.</p>	<p>Delivery groups established.</p> <p>Initial work plans drawn up.</p> <p>Baselines established.</p> <p>First phase resources identified.</p> <p>Links to website in place.</p>	<p>Developers; chamber of commerce; property partnerships; construction industry, MCC, AGMA.</p>
	<p>Decentralised Energy Programme.</p>	<p>Delivery groups established.</p> <p>Initial work plans drawn up.</p> <p>Baselines established.</p> <p>First phase resources identified.</p> <p>Links to website in place.</p>	<p>Corridor partners, businesses, MCC, utilities, universities.</p>

ACTIVITY	MILESTONE 2011	LEADERS AND PARTNERS
Adaptation programme, including Eco-Cities.	<p>Delivery groups established.</p> <p>Initial work plans drawn up.</p> <p>Baselines established.</p> <p>First phase resources identified.</p> <p>Links to website in place.</p>	Universities, business, MCC, AGMA.
Local Transport Plan (LTP3).	<p>Delivery groups established.</p> <p>Initial work plans drawn up.</p> <p>Baselines established.</p> <p>First phase resources identified.</p> <p>Links to website in place.</p>	GMTU, GMITA, MCC.
Work on land and food.	<p>Delivery groups established.</p> <p>Initial work plans drawn up.</p> <p>Baselines established.</p> <p>First phase resources identified.</p> <p>Links to website in place.</p>	Food Futures partners, businesses, landowners, MCC.
Education and training.	<p>Delivery groups established.</p> <p>Initial work plans drawn up.</p> <p>Baselines established.</p> <p>First phase resources identified.</p> <p>Links to website in place.</p>	Universities and colleges, training organisations, MCC, Chamber of Commerce, employers.
Developing Knowledge, and Measurement	<p>Develop financial measures that release resources.</p> <p>Start work on Total Carbon Footprint (TCF) framework.</p> <p>Create CO₂ reduction targets for all key actions.</p> <p>Identify and develop key research projects.</p>	<p>Identify key financial issues, develop a programme to progress.</p> <p>Establish a plan identifying and prioritising research.</p> <p>Start work on TCF and complete action-specific targets.</p> <p>MCC, AGMA, universities, delivery plan partners.</p>
Communications, Engagement and Learning	<p>Identify and develop alignment with other plans and strategies.</p> <p>Develop plan website to maximise shared good practice, ideas and contributions.</p> <p>Develop communication plans for stakeholder groups and annual events programme.</p> <p>Create templates for individuals and organisations to show how their plans contribute to this plan.</p> <p>Create visible public promotions so people can follow progress on carbon reduction.</p>	<p>Communications group set-up.</p> <p>Communications plan and website in operation.</p> <p>Templates in place and in use.</p> <p>MCC, press and media groups, universities, Chamber of Commerce, AGMA.</p>
Management of the Plan	<p>Establish Steering Group.</p> <p>Develop Plan Co-ordination and Support Team.</p> <p>Hold 2010 Stakeholder conference to review and develop plan.</p>	<p>In place.</p> <p>In place.</p> <p>Completed.</p> <p>MCC, Manchester Board, partners.</p>

MAKING IT HAPPEN — NEXT STEPS

Over the coming years, we are going to continue to develop our plan to keep pace with local, national and international developments: as our experience of tackling climate change grows, our plan will grow with it.

We are going to set up an annual Stakeholder Conference to review progress, consider changes and improvements and agree targets for the coming year – this will be an important way of celebrating achievement and maintaining partners' ownership of the plan across the city. The Council will provide for the co-ordination of the plan and will set up a small group of stakeholders to steer the process.

One of the priorities for 2010 will be to encourage organisations in the city to endorse the principles of the plan and to discuss and agree what their contributions to delivering it can be. Having endorsed the plan on behalf of the city at its launch, in 2010 the City Council will develop their own delivery plan to outline what the Council's own contribution to delivery of the actions will be. A common template will be developed to enable organisations and individuals to identify what actions they intend to take and how they contribute to the overall actions for the city.

All the actions in the plan will require further development. Where we need to work together, we will start by building on existing partnerships, where relationships and understanding are already established.

Some actions lend themselves to action by individuals and neighbourhoods and organisations, without city-wide co-ordination: as different organisations and residents take them up, it is expected that they will make their own plans – and we will develop the overall plan as a tool to help make this happen.

This plan sets out our priorities for the future: a set of shared priorities for individuals, business and public agencies right across the city. If we invest together in collective action on climate change, our city can emerge stronger. The lives we lead, the way we work, our travel, the shape of our city: all this will change but if we are prepared and work together, we can ensure that we play our part and ensure that our city is ready for change.

**We can secure a certain future.
And we will.**

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