

Greater Manchester's Springboard to a Green City Region

**A carbon neutral, climate resilient
city-region with a thriving natural
environment and
circular, zero-waste economy**



I'm delighted to introduce the Report from the 2018 Green Summit, which acts as a springboard for our environmental ambitions.

Background

Greater Manchester was at the heart of the industrial revolution, a leading contributor of green-house gases. The city led the computer revolution which changed our lives. Now we are leading the carbon revolution which will form the next chapter of how we live, work and travel. We will be the first UK city to devise a science based pathway to becoming carbon neutral; reducing our carbon emissions to tackle climate change and make our fair contribution to keeping global average temperature change below 2°C.

Our vision will not only make us a global leader for smart energy innovation, but will transform Greater Manchester into a world-leading greener, cleaner, climate resilient city region, improving the health and quality of life for millions of people and protecting our green spaces and environment for future generations.

Greater Manchester's Most Inclusive, Biggest Environmental Event

Approximately 4,000 people directly contributed to the



biggest environmental conference we've seen in Greater Manchester. In the run up to the Green Summit, in March 2018, over 1,200 people participated in 42 'listening' events; more than 2,200 people completed an online survey and many more contributed ideas on social media. We listened to your ideas, stories, priorities and calls to action to prepare for the Summit.

Over 700 people attended the Green Summit in March, with hundreds more viewing live streaming. We received over 200 pledges from organisations, businesses and individuals to act on becoming a greener and carbon neutral city region, and these continue to come in.

The overwhelming feedback to questions asking whether Greater Manchester was doing enough on quality greenspace, pollution, clean air, recycling, green transport and green energy was "not really". But people do believe that a green future is good for jobs and local businesses. You want us to act.

Your views have informed the pathway we are now taking. We set out in this report the expert academic, engineering and technical input received, together with the ideas and priorities of citizens, activists, parents, young people, children, businesses, charities and community organisations.

I was humbled by the enthusiasm, commitment to act and deep understanding of environmental action by everyone who contributed. Thank you for your immense support for the Green Summit and the next steps. Together we really can rise to this challenge.

What's next?

We are using the feedback from the Summit process to:

- Carry out immediate actions to start delivering CO₂ reductions at an accelerated rate to meet the average 15% reductions needed year on year
- Initiate online workstreams to engage people on developing detailed delivery & investment proposals, particularly for buildings efficiency and energy generation, over the next year
- Develop an Environment Vision and a 5 year delivery plan to lead us towards a greener and carbon neutral city region, for agreement at the second Green Summit on March 25, 2019.

In this 'springboard' report you can discover more detail and how to stay involved.





Greater Manchester Green City Region

Proposed Environment Vision

A carbon neutral, climate resilient city-region with a thriving natural environment and circular, zero-waste economy where:

- All citizens will have access to: green space in every community, more trees in urban areas, active travel networks, environmental education and to healthy and locally-produced food.
- Our infrastructure will be smart and fit for the future. We will have an integrated, clean and affordable public transport system, resource efficient buildings, greater local community renewable energy, cleaner air, water and greenspace for all.
- Citizens and businesses will actively participate in decision-making and will be encouraged to adopt sustainable living and businesses practices, focusing on local solutions to deliver a prosperous economy.





We need to stop thinking of climate change as a peripheral environmental issue and bring it into mainstream thinking. It is as much about our future economic wellbeing, sector development, smart jobs, secure energy provision and people's health, as it is about avoiding the damage caused by flooding and extreme weather events

- Councillor Alex Ganotis, Leader Stockport MBC & GMCA Green City Region Lead



The Greater Manchester Strategy includes a priority to deliver a Green City Region. Greater Manchester has a good understanding of the benefits of a good quality, natural environment and a good foundation of action and expertise, particularly on carbon reduction. We currently aim to reduce our carbon emissions by 48% by 2020 and are well on the way to achieving this. But this is not enough or fast enough to hit our Carbon Neutrality target. A big change is needed to scale up and deliver deep carbon cuts and to protect and improve green space across the city region.

GMCA and local authorities can put in place carbon reduction plans and green policies and support initiatives, but this is a job for us all, business, community organisation, citizens old and young. We need to innovate, be ambitious, idealistic and plan how to make a greener, cleaner, climate resilient and carbon neutral Greater Manchester a reality that works for us all.

We need your support

The Green Summit was delivered and this report produced, through the combined efforts of many organisations and individuals. The work to date provides a good starting point, however there are challenges we need to solve to deliver the environmental aspirations that the people of Greater Manchester have told us they want. We all need to take action now, both individually and collectively, to deliver the aspirations set out in this report.

To realise our ambitions, we are committed to working in partnership with communities, organisations and businesses across Greater Manchester. To get involved before the next Green Summit and be part of creating our future, please contact us: LCH@greatermanchester-ca.gov.uk







Springboard to a Green City Region

Year 1 Springboard Actions for Completion by March 2019

1. The GMCA and Environment Agency will further explore how we could create a Greater Manchester Environment Fund to support our aims and, if so, how it could be sustainably funded
2. Greater Manchester will produce a Natural Capital Investment Plan by December 2018 which will promote investment and delivery of opportunities that protect and enhance Greater Manchester's natural capital to support a healthy population and economy
3. The UK Green Buildings Council will lead a workstream to assess how our current building stock can affordably be retrofit to cost efficient standards, producing a retrofit report. A significant deep retrofitting campaign has the potential to create 55,000 jobs, if an appropriate finance mechanism can be found
4. The Greater Manchester Spatial Framework will include a date by which all new homes and buildings built within Greater Manchester will be net zero carbon
5. Electricity Northwest will lead a workstream to assess how more future energy demand can be met from smart, local renewable sources
6. The GMCA will explore the creation of a Greater Manchester Energy Company that is able to invest in low carbon energy generation, storage and control technologies to generate revenue from 'grid balancing'
7. Greater Manchester will produce a Smart Energy Plan by September 2018, as part of an overall Greater Manchester Infrastructure Strategy which will also cover digital, electric vehicle and green & blue infrastructure



8. Greater Manchester will establish a new public sector-led commercial model for the Greater Manchester electric vehicle charging network with the long term aim to at least double the size of the present system
9. TfGM will look at whether our new bus powers can help us to achieve an emissions free bus fleet and by when
10. Greater Manchester will transform cycling and walking in the City Region by investing up to £50m per year for three years from 2019/20 through the Transforming Cities Fund
11. TfGM will ensure that the ongoing development and delivery of its 2040 Transport Strategy is aligned with our carbon neutral ambition
12. Greater Manchester will lead a #Plastic Free Greater

Manchester Campaign to be at the forefront of taking action to eliminate single use plastics

13. Good Food Greater Manchester, a strategic Food Board for Greater Manchester will be established to undertake a wide range of local action on food by the public, private and voluntary sectors
14. Greater Manchester will consult on a Resource Strategy which will begin to set out what the transition to a circular economy means for Greater Manchester businesses and consumers
15. Greater Manchester leaders will receive Carbon Literacy training and encourage employers across the region to join organisations like BBC North, Manchester City Council and our housing providers, in signing up as Carbon Literate organisations
16. Greater Manchester partners will explore how to build appropriate skills, training and environmental education through workstream development
17. Greater Manchester partners will collaborate to deliver an effective environmental communications campaign to increase public and business understanding of the need for change.



Science based targets

The plan is based on sound science-based evidence of the impact of different interventions.

A combination of top-down targets and bottom-up modelling has informed the approach.

The Tyndall Centre for Climate Research has concluded that, for Greater Manchester to make its 'fair' contribution towards the 2°C commitment enshrined in the Paris Agreement, we need to:

- Take prompt action to put Greater Manchester on a path to 'carbon neutrality' by 2038
- Hold cumulative carbon dioxide emissions at under 71 million tonnes
- Initiate an immediate programme of mitigation delivering an annual average of 15% cuts in emissions (range of 10-20%)
- Have greater engagement with other global carbon target setting cities to share knowledge.

Our priority actions to reduce carbon emissions across the city-region are ambitious and will be challenging to achieve at this scale. If we are to achieve our goals the big-impact actions we will have to take are:

Decarbonise Electricity and Gas

Local actions to decarbonise electricity supply:

- Increase solar PV installation - such that 12% of Greater Manchester energy demand is met from solar PV by 2050.
- Increase bioenergy for electricity generation - such that 17% of Greater Manchester energy demand is met from bioenergy by 2050. Bioenergy could include landfill gas, sewage, anaerobic digestion and wood or plant based fuels. We need to install 1.1 GW capacity to provide 8.8 TWh/year.
- Lobby Government – for national decarbonisation of the grid

Reduce Carbon from Heat Energy in Buildings (Domestic & Commercial)

- Reduce heat demand for domestic properties - approximately 60% of all Greater Manchester households (688,530) will be properly insulated by 2050, reducing the

average thermal leakiness by 75%.

- Increase low carbon heat sources - 80%-100% of households and non-domestic buildings will be electrically heated by 2050 using highly efficient technologies such as heat pumps, with the remaining energy provided by low carbon heat networks.
- Reduce heat demand for public & commercial buildings - By 2050, space heating demand needs to have dropped by 40%, hot water demand by 30% and cooling demand by 60%.

Enable low carbon mobility

- **Shift transport to zero emissions** – such that 100% of buses are zero emissions by 2035 and 66% of cars are zero emission by 2030 (100% by 2050).
- **Domestic transport behaviour** – a 25% reduction in passenger distance travelled by 2035.
- **Freight** – road modal share falls to 50%, greater hybridisation; rail freight is all electric.
- **Tyndall research** says we must act to ensure that Greater Manchester citizens' CO₂ emissions from flights should hold steady to 2030 and then reduce to zero by 2075 (this action is also required across the UK)

Improving Resource Management:

- Decreases the quantity of waste by 20 percent
- Increase the proportion of waste recycled to 65 percent by 2035 increasing to 85 percent by 2050
- Move from a linear, wasteful economy to a circular economy which adds value
- Reduce waste at source, recycle more waste and use some of our waste as a resource to generate bioenergy.

Alongside these carbon reduction actions, our Listening Events have demonstrated that people truly value a greener, cleaner environment. The report also focuses on how we can improve and maintain our natural environment and greenspace, how we can create sustainable food chains and how we can raise awareness of the changes required to achieve our vision through education, leadership and development of carbon reduction and green skills.



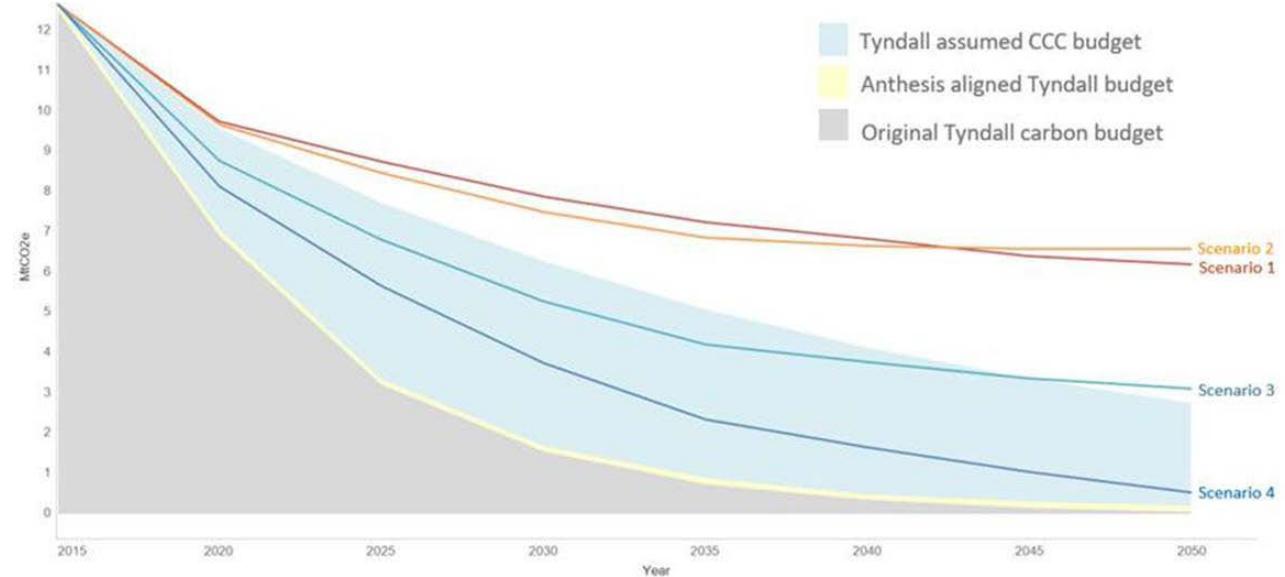


Managing and Measuring Radical Carbon Reduction

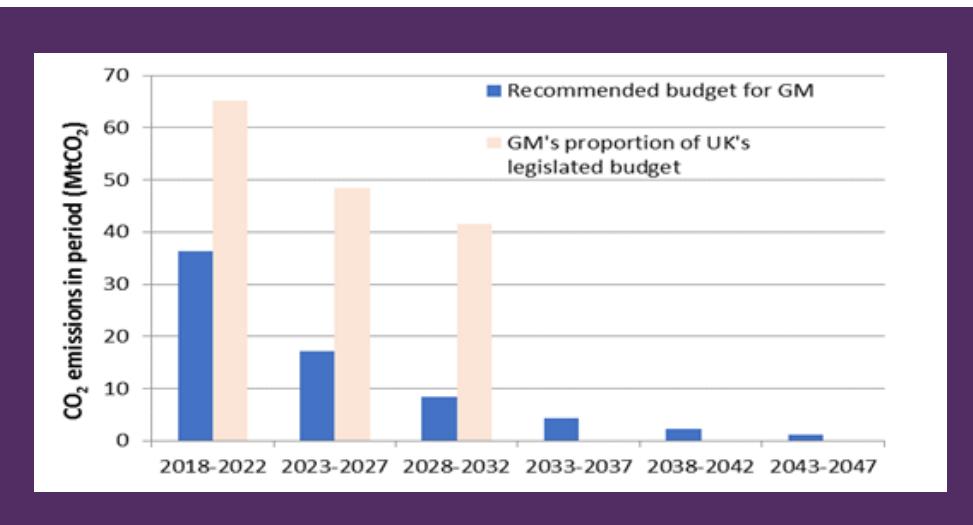
The BEIS funded 'Setting City Area Target and Trajectories for Emissions Reduction' (SCATTER) research provides a 'bottom up' approach of what feasible carbon pathways for Greater Manchester may look like. The model takes into account Greater Manchester's forecast economic growth ambitions and the impact of national policy. There are also linkages to the UN sustainable development goals.

The graph shows that, whilst it would be extremely challenging, it is possible to achieve Carbon Neutrality with Scenario 4, however it would be far more ambitious than UK targets. This is on the boundaries of the application of current technologies and will require unprecedented transformational change and extraordinary national financial investment.

The SCATTER graph below identifies Greater Manchester's fair share of global carbon reductions to stay within 2°C average global temperature rise and four scenarios towards achieving this.



What is clear from the results is that it is absolutely critical that we start now: we need to achieve annual carbon reductions of 15% so cannot wait for some future technology to come to our rescue in 10-20 years' time. The research also recommends 5-year carbon budgets and that the pathway is reviewed every 5 years to take account of emerging technology change and the latest science.



Recommended carbon budgets for Greater Manchester from 2018 - 2047





Natural Environment

The science says

The Environment Challenge: Alongside recognising the multiple roles that green space plays in improving air quality, reducing flood risk, conserving biodiversity and providing natural spaces for people to walk and cycle, play sports and relax, maintain and increase the ability of Greater Manchester's green infrastructure (trees, forests, peat, soils, greenspace) to take up and store the maximum amount of CO₂ possible.

Tyndall Centre research says we must:

- **Ensure that land use and forestry achieves net zero cumulative CO₂ emissions for the period 2018 to 2100**

This means:

- Land use and forestry achieves absolute zero CO₂ emissions, on an annual basis, by 2038 aligned with the year of carbon neutrality
- Increase the rate of carbon emission reductions and sequestration between 2030 and 2045 and provide a stable rate of sequestration after 2045
- Achieving net green gain (ie more green space, green roofs, green infrastructure and trees in Greater Manchester) in new developments
- Protecting, improving and maintaining existing green space and green assets including peat and soils.

What's stopping us?

The Delivery Challenge: to deliver the programmes needed at scale we need to address:

- Monitoring CO₂ emissions from land use, changes in land use and forestry alongside and consistently with Greater Manchester's five year carbon budgets
- Coordination & engagement: how we provide good quality, accessible, clean, safe, attractive, multi-functional and interlinked greenspaces equitably for all our residents
- How to finance the investment and recognise the value of green spaces for the city's liveability, economy, health and resilience
- The need for a fair and simple policy to integrate net green gain into the heart of the Greater Manchester Spatial Framework and planning process for new developments and infrastructure
- Workforce development & skills for land based and green infrastructure development and maintenance jobs that will be created.

Together there's lots of things we can do. Working with stakeholders across the city region to make sure people here have clean air to breath, quality green spaces to enjoy and also places where they can get out of their cars and onto their bikes.

– Andy Burnham

You told us

Listening events feedback called for Greater Manchester to:

- Establish a Nature & Greenspace plan; to include good quality, clean, safe, attractive, multi-functional and interlinked greenspaces
- Carry out sustainable tree planting, managed trees and hedges throughout the city, towns and parks e.g. school tree planting to reduce air pollution and buffer schools from road pollution
- Provide edible landscapes, designed for social cohesion and promoting local biodiversity
- Establish a Green Bank - require credits from developers where net green gain/renewables cannot be implemented on site; funds to be made available to finance greening projects (use Greater Manchester Spatial Framework to deliver)
- Promote and support community buy-in – support for communities who have pride in and are connected to local greenspaces - to increase the number of people engaged with nature
- Introduce Greater Manchester planning policy for net green gain and developer offsetting on constrained sites, safeguard greenbelt, introduce green links between home and work and provide high quality public realm.





Expert events proposals included:

- Use of Natural Capital Assessments as a strategic decision-making tool to allow targeting of funding to areas that meet ecological, social and financial priorities, that have been identified by stakeholders and identified by the local planning authority
- GMCA should identify priority areas for green infrastructure investment through a strategic analysis of Natural Capital across the city-region
- Greenspace quotas for developments; incentives for biodiverse green roofs on existing buildings; development to promote biodiversity with native species planting.
- Establish a Greater Manchester Green Bank to finance and incentivise green infrastructure developments with credits paid in for developments where on-site green gain cannot be delivered.

Examples of what's already happening

The Wildlife Trust will launch **My Wild City** in Manchester, a £225k campaign to support local action and natural environment awareness. www.lancswt.org.uk/MyWildCity

The new Greater Manchester Natural Capital Group Website **Nature Greater Manchester** went live on the day of the summit www.naturegreatermanchester.co.uk

City of Trees – Planting at least 3 million trees in a generation across Greater Manchester and supporting the Town Centre Challenge through planting at least 1,000 street trees within ten years. www.cityoftrees.org.uk/about-city-trees

Urban Pioneer - Identified As part of the Government's 25 Year Environment Plan to test new tools and methods for investing in and managing the natural environment so that we can have cleaner air and water, green roofs and walls, green paths and cycle networks and well managed public parks
www.naturegreatermanchester.co.uk/project/urban-pioneer

Natural Course – Greater Manchester is a partner in Natural Course, an EU LIFE Integrated Project to improve and protect the water quality of the North West www.naturalcourse.co.uk

RESIN - Partner in the £1.2m Horizon 2020 RESIN programme to improve climate change adaptation planning
www.resin-cities.eu/greatermanchester



Through Greater Manchester's Resilience Strategy, produced as part of our participation in the Rockefeller 100 Resilient Cities initiative, we will consider how a Green City Region can help us to manage current and future climate risks to enhance prosperity, health and wellbeing.

– Kathy Oldham, Chief Resilience Officer

This year we will

Springboard Actions to complete by March 2019:

1. The GMCA and Environment Agency will further explore how we could create a **Greater Manchester Environment Fund** to support our aims and, if so, how it could be sustainably funded
2. Greater Manchester will produce a **Natural Capital Investment Plan** by December 2018 which will promote investment and delivery of opportunities that protect and enhance Greater Manchester's natural capital to support a healthy population and economy.



Buildings

The science says

The Carbon Challenge: to achieve carbon-neutrality SCATTER research says we must:

- Reduce the energy demands of our homes and all other buildings through insulation, management of energy use and investment in energy efficient equipment
- Supply the remaining energy demand from zero carbon sources.

This means:

- **Reduce heat demand for domestic properties** - Approximately 60% of all Greater Manchester households (688,530) must benefit from enhanced insulation measures by 2050, reducing the average thermal leakiness by 75%.
- **Increase low carbon heat sources through electrification and heat networks** - 80%-100% of households and commercial buildings must be electrically heated by 2050, mainly by heat pumps with the remaining heat from low carbon heat networks.
- **Reduce heat demand for public & commercial buildings** - By 2050, space heating demand will need to have dropped by 40%, hot water demand by 30% and cooling demand by

Increasing the number of well insulated properties will give Greater Manchester residents more disposable income, raise families out of fuel poverty and improve health and wellbeing outcomes for some of our most vulnerable citizens.

What's stopping us?

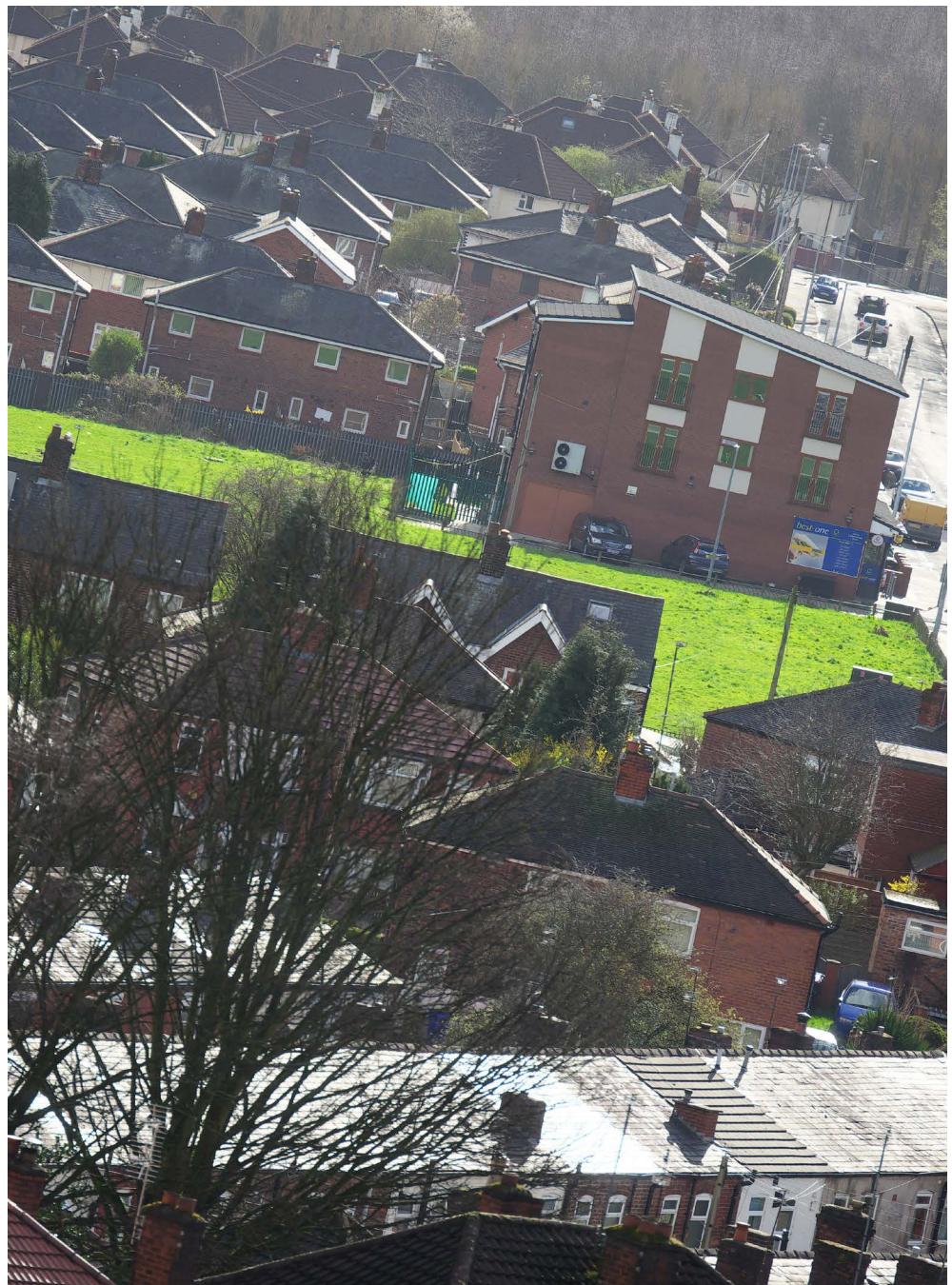
The Delivery Challenge: to deliver the programmes needed at scale we need to address:

- Finance & funding for large scale infrastructure and installations
- Coordination and communications by trusted intermediaries
- New ways of thinking: mass uptake of disruptive retrofit and new forms of heating
- Workforce & skills development for the 55,000 potential jobs
- Developer & investor acceptance of higher eco-standards for buildings and homes
- Planner training and capacity
- Quality control of installations

You told us

Listening events feedback called for Greater Manchester to:

- Adopt policy that all new buildings are net zero carbon to incentivise onsite energy generation. Incorporate Sustainable Urban Drainage for new buildings i.e. no increase in water to drainage or watercourses. Establish a zero carbon building standard, requiring solar panels on new builds to stimulate a low carbon supply chain & jobs in maintenance.
- Set a Greater Manchester wide design policy for public spaces around residential developments for quality multi-functional greenspace. This requires a planning policy that follows through to ensure that delivery of active communities is not lost at the viability stage.
- Set a Greater Manchester Retrofit standard and programme with delivery targets. Incentivise home owners and landlords to re-insulate / retrofit their homes (e.g. green rents)
- Encourage private finance options e.g. banks/building societies to offer green mortgages with preferential interest rates or loan-to-value, linked to Greater Manchester retrofit standard (offer more finance to enable retrofit to EPC A/B at lower interest rate: keeping cost of repayments the same)





We need to move to considering the whole life cost of our domestic and commercial buildings, including their construction and running costs, rather than just focusing on their construction costs. Around 50% of the energy used in our commercial and public buildings could be saved simply through better energy management.

- Andy Burnham

This year we will

Springboard Actions to complete by March 2019:

3. The UK Green Buildings Council will lead a workstream to assess how our current building stock can affordably be retrofit to cost efficient standards, **producing a retrofit report**. A significant deep retrofitting campaign has the potential to create 55,000 jobs, if an appropriate finance mechanism can be found

4. The Greater Manchester Spatial Framework will include a date by which all new homes and buildings built within Greater Manchester will be net zero carbon.

Examples of what's already happening

Retrofit Services & Support: Carbon Co-op www.carbon.coop

Retrofit Design & Delivery: Red Co-op www.red.coop

Registered Providers retrofit programmes across Greater Manchester

Warmhomes Oldham (NHS Oldham CCG, Oldham Council, Oldham Housing Investment Partnership)

Allied London's new XYZ building with annual CO₂/m² emissions of 17.2kg (estimate)

STEP IN: EU Horizon 2020 funded project in partnership with the University of Manchester working with existing Greater Manchester projects which assist residents in fuel poverty providing additional advice and monitoring equipment.

LEAP: The Local Energy Advice Programme, funded by utility companies. Offers residents in fuel poverty free energy advice and measures, income maximisation and help with energy switching via home visits and surveys. Since October 2017 1340 home visits, with average bill savings of £171 per annum per household.

Greater Manchester awarded £2M Cadent (formerly known as National Grid) Warm Homes Funds to install central heating in 'off gas' IMD areas, complementing the LEAP programme.

Expert event proposals included:

- Develop a public sector energy aggregator to finance energy efficiency projects at scale
- Setting an overarching ambition and coherent consistent programme with local delivery targets
- Supporting a private retrofit market; providing incentives; attracting social investment.

Energy

The science says

The Carbon Challenge: to achieve carbon-neutrality SCATTER research says we must:

- **Decarbonise electricity and gas** through both national and local action.

This means:

- **Increase solar PV installation** - such that 12% of Greater Manchester energy demand is met with solar PV by 2050.
- **Increase bioenergy for electricity generation** - such that 17% of Greater Manchester energy demand is met with bioenergy by 2050. Bioenergy may include landfill gas, sewage, anaerobic digestion and wood or plant derived fuels. We will need to install 1.1 GW capacity to provide 8.8 TWh/year.
- Lobby Government for national decarbonisation of the grid.

What's stopping us?

The Delivery Challenge: to deliver the programmes needed at scale we need to address:

- **An Energy Plan** to maximize opportunities to install de-carbonised generation, manage supply and demand across the whole system and map future supply and demand
- The role of **planning policies** to enable low carbon generation schemes
- **Finance mechanisms** to enable early investment in zero/low carbon generation and build confidence in these mechanisms among the investor community
- **Coordination** to match generation opportunity sites with potential energy developers & investors
- **Lobby and seek support from Government** to push forward with national decarbonisation measures and stimulate local carbon reduction through policy and regulation
- **Supporting community energy** initiatives to trial, innovate, deliver and own energy projects
- **Investment in the grid infrastructure** to deliver a smart network
- **Workforce skills & development** to supply, manage & maintain new energy technologies
- **Regulation** which enables innovation and uptake of carbon reduction opportunities.

Ultimately we will have a modern, smart, carbon neutral, independent, affordable and resilient energy system across Greater Manchester that keeps the profits from energy generation within the city-region, and benefits everyone.



You told us

Listening events feedback called for Greater Manchester to:

- Develop a Greater Manchester energy company which accelerates deployment of renewable energy generation, storage and aggregation, and reinvests profit back into the system. Develop with public, private and community sectors, with opportunities for community shares, ownership and involvement.
- Develop a Greater Manchester energy plan - whole system plan with decarbonised electricity & gas supply to manage and reduce future demand.
- Support community energy (citizen led) initiatives to trial, innovate, deliver and own new energy projects
- Scale up energy system planning and knowledge to create effective dialogue about future energy networks, support decision-making across networks and drive significant action at scale
- Demonstrate energy innovation at scale, e.g. via an innovation zone, to demonstrate models that reduce the cost of the electrification of heat.



Examples of what's already happening

Pioneering Projects

Power Paired, the Community Energy Asset Bank, set up by Oldham MBC to match community energy groups with asset owners interested in having their roofspace or land developed for renewable energy by a local community energy group.

email: r.lawson@forumforthefuture.org

Nobel Grid – Carbon Co-op project, provides advanced tools and ICT services to all actors in the Smart Grid and retail electricity market www.nobelgrid.eu

Greater Manchester Smart Communities Project - Heat pump and 'demand side response' trial in 550 homes, to support the shift from gas to electric heating
www.gmSMARTenergy.co.uk

Triangulum Project – Aim to decouple the link between a reduction in carbon emissions whilst at the same time increasing economic activity www.triangulum-project.eu/?page_id=2291

City Verve – Smart city project which aims to build and deliver a smarter, more connected Manchester, creating a city that uses technology to meet the complex needs of its people www.cityverve.org.uk/

GM Big Clean Switch - Launched October 2017, 250 GM residents switched to a clean energy tariff. Average savings per switch approx. £280.www.bigmaintain.org/gm

Expert events proposals included:

- New Homes, New Generation: recognising medium-term role of gas in heating and use of bio-gas and hydrogen within the gas supply network to zero-carbon homes
- Undertake a skills audit for energy related trades, establish apprenticeships, training programmes and quality standards
- Greater Manchester could agree a local Carbon budget with Government in return for devolution of carbon taxes/levies and/or regulatory flexibility
- Stronger local political support for renewable energy & a pan-Northern coordination role.

This year we will

Springboard Actions to complete by March 2019:

5. **Electricity Northwest** will lead a workstream to assess how more future energy demand can be met from smart, local renewable sources

6. The GMCA will explore the creation of a **Greater Manchester Energy Company** that is able to invest in low carbon energy generation, storage and control technologies to generate revenue from 'grid balancing'

7. Greater Manchester will produce a **Smart Energy Plan** by September 2018, as part of an overall Greater Manchester Infrastructure Strategy which will also cover digital, electric vehicle and green & blue infrastructure.



Transport

The science says

The Carbon and Air Quality Challenge: to achieve carbon-neutrality SCATTER research says we must:

- Reduce the use of fossil fuel powered vehicles through reducing travel, increasing electric vehicles, making public transport zero emissions and increasing the use of public transport and active travel; cycling and walking.
- Meet the increased electricity demand of electric buses and cars through low carbon and renewable energy generation.

This means:

- **Shift transport to zero emissions** – such that 100% of buses are zero emissions by 2035 and 66% of cars are zero emission by 2030 (100% by 2050).
- **Domestic transport behaviour** – 25% reduction in passenger distance travelled by 2035.
- **Freight** – road modal share falls to 50%, greater hybridisation; rail freight is all electric.
- **Tyndall research** says we must act to ensure that Greater Manchester citizens' CO₂ emissions from flights should hold steady to 2030 and then reduce to zero by 2075 (this action is also required across the UK)

What's stopping us?

The Delivery Challenge: to deliver the programmes needed at scale we need to address:

- Delivery of an integrated, affordable, accessible zero carbon public transport system for the whole city-region within such tight timescales
- Coordination with improved green space, high quality well-connected walking and cycling infrastructure and support for residents to increase their active travel
- Providing the infrastructure to enable residents and businesses to move to electric cars and freight vehicles – putting infrastructure in place and in time with mass EV uptake
- Managing the grid demands of EV charging at scale
- Providing the low carbon and renewable energy generation to meet the increased electricity demands
- Using spatial planning and digital infrastructure to reduce the need to travel by car and reduce freight vehicle trips.
- Establishing 'clean air' zones to reduce the impact of most polluting vehicles in some areas
- Changing traveller behaviour so the norm is walking, cycling and public transport use, car share/hire and cycle-carriage on trains/trams
- Rail electrification which is a national issue in which some northern routes are neglected
- Airport passenger growth, how we hold emissions flat and how we reconcile air transport with lowering carbon emissions
- Monitoring and reducing emissions from shipping and air travel which, given their nature, also require action and cooperation.

Reducing air pollution and the associated health and economic costs of it, is just one of the benefits of moving to cleaner, greener more efficient transport system. Transport was one of the biggest topics in the listening events; participants linked it very strongly to green space and civic pride

You told us

Listening events feedback called for Greater Manchester to:

- Make public transport, walking & cycling the easy choice for travel to work - through greater integration, sufficient capacity, greener routes, contactless card technologies and online planning tools (eg London's Oyster card call it the Bee Card)
- Boost cycling rates by supporting improved quality & quantity of cycling infrastructure in the right places, based on studies of traffic patterns and efficient routes. Invest in infrastructure based on usage; map walking & cycling potential across the city region.
- Adopt policy that links active travel to green infrastructure and connected networks; develop a set of active travel standards in Greater Manchester Spatial Framework
- Expand and increase frequency of bus/tram services in and between urban peripheries, public transport is inconvenient for users on fringes of urban core.





Examples of what's already happening

Pioneering Projects

Beelines - Chris Boardman recently launched GM's proposal to create the UK's largest joined-up walking and cycling network. The plans look at the next decade, where we aim to connect every neighbourhood in the city region, starting with 1,000 miles of walking and cycling routes as well as 1,400 new crossing points.

More than 2,000 registered users of the **GMEV electric vehicle charging point network**, with around 5,000 charging sessions per day.

TfGM is working with bus operators to develop a roadmap to achieve an **emissions free bus fleet**.

TfGM has recently signed a £72m contract that will see **27 new trams added to the Metrolink network**, increasing its capacity by 15%.

Expert events proposals included:

- Introducing strict emissions standards for buses and taxis and ban on all diesel by 2025
- Introducing a workplace parking levy for large and medium sized businesses in Greater Manchester, which is used towards funding the city's public transport system
- Introducing a cap on air transport emissions to and from Manchester Airport to remain at current levels despite planned doubling of passengers
- Incentivising fleet change
- Putting infrastructure in place for electric fleet with rapid charging and depot charging.
- Incentivising consolidation of loads – for example space needs to be provided for micro-consolidation so the final mile can be delivered on foot or in cargo bikes.

This year we will

Springboard Actions to complete by March 2019:

8. Greater Manchester will establish a new public sector-led commercial model for the Greater Manchester electric vehicle charging network with the long term aim to at least double the size of the present system
9. TfGM will look at whether our new bus powers can help us to achieve an emissions free bus fleet and by when
10. Greater Manchester will transform cycling and walking in the City Region by investing up to £50m per year for three years from 2019/20 through the Transforming Cities Fund
11. TfGM will ensure that the ongoing development and delivery of its 2040 Transport Strategy is aligned with our carbon neutral ambition.

Sustainable Consumption & Production

The science says

The raw materials challenge: to reduce waste and embedded carbon in goods and services and food.

To achieve more sustainable consumption and production we must:

- Increase resource and materials efficiency in production processes
- Design and manufacturing of resource efficient products for repair and reuse
- Significant increase in recycling rates and maximize their economic value
- Reduce the energy, water and fertiliser footprints of our diets, and eliminate edible food waste
- Sourcing a proportion of biomass energy (see energy section) from waste

This means:

- Decreasing the quantity of waste by 20 percent
- Increasing the proportion of waste recycled to 65 percent by 2035 increasing to 85 percent by 2050
- Moving from a linear, wasteful economy to a circular economy which adds value

What's stopping us?

The Delivery Challenge: to deliver the programmes needed at scale we need to address:

- **Increase material and energy productivity across Greater Manchester** – coordinating the move to a material and process-energy efficient city-region with innovation, skills and new business models
- **Finance & funding** to support greater energy and materials efficiency including material substitution and innovative low impact design in Greater Manchester businesses
- **New ways of thinking:** mass uptake of circular economic business models with low-waste, high re-use/sharing/recycling, move from ownership to access
- **Workforce & skills development** for the circular economy and low carbon/green jobs
- Establishing Greater Manchester as a **Zero Waste to Landfill** region by 2024: reducing waste, increasing local composting & energy generation and supporting organisations tackling food waste
- Support for local **low-carbon food and sustainable food enterprises** through Greater Manchester procurement and marketing activities
- Growing and supporting Greater Manchester's productive green spaces: encouraging more **locally grown** food, allotments, city farms, urban agriculture, community gardening courses



All companies, in particular construction, vehicle manufacturing, food & drink, electronics & appliances and clothing & textiles have the potential to save significant amounts of CO₂ with greater resource efficiency adding productivity to these sectors and contributing to Greater Manchester's jobs and economic success.

You told us

Listening events feedback called for Greater Manchester to:

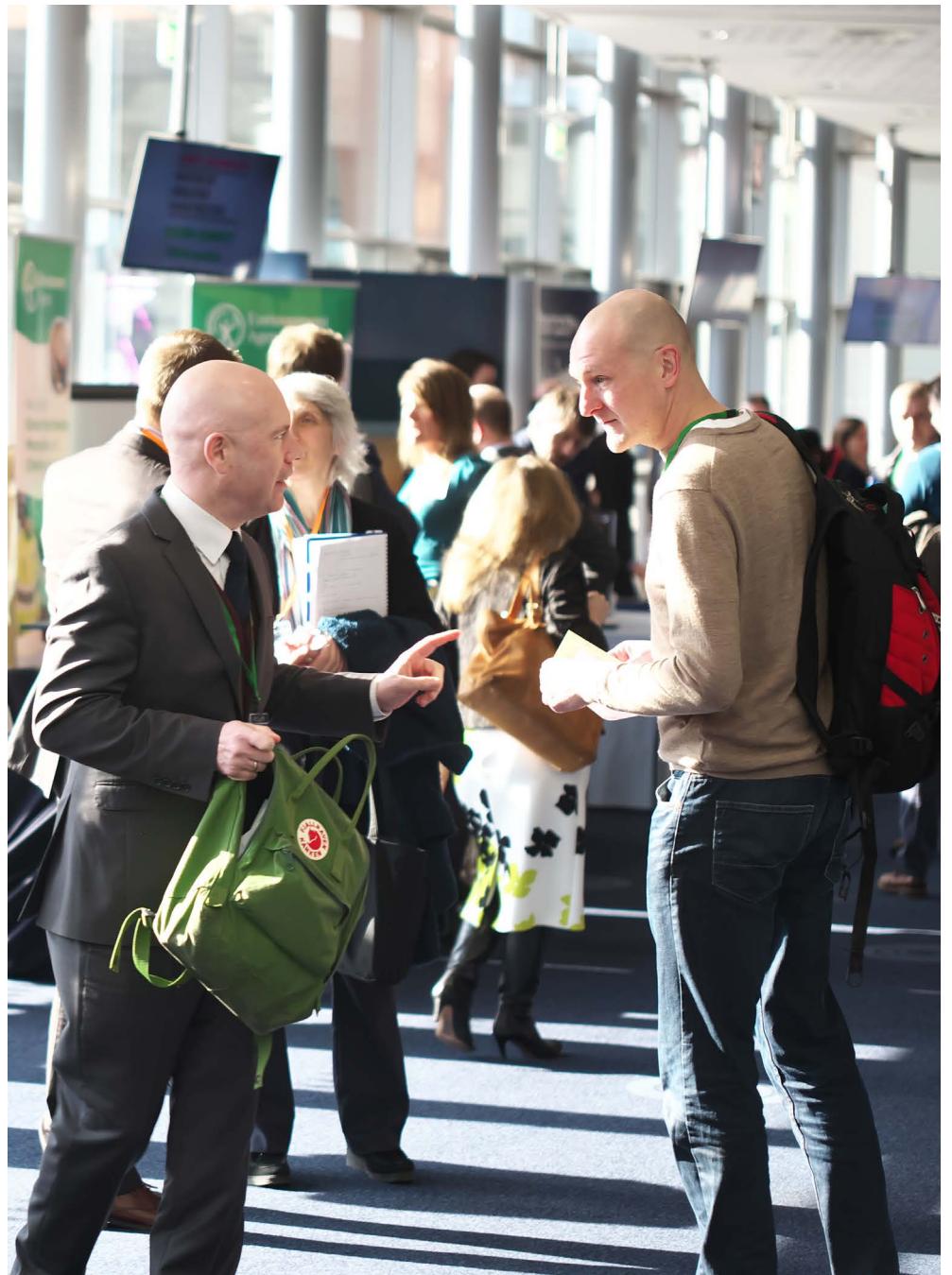
- Establish Greater Manchester as a Zero Waste to Landfill region: Reduce waste and recycle more; reduce single use plastic use, zero export of waste; local composting & recycling, Introduce more efficient recycling programmes; standardised colours of bins across the city
- Support more locally grown food, more allotments, urban agriculture, community gardening courses, have more city farms, more vegetable growing, local food outlets and hubs, fruit trees throughout the city, recognising the wider health and wellbeing benefits of activity
- Purchase goods (public procurement) that have low waste packaging, high environmental standards and support growth in the low carbon & environmental goods/services sector
- Encourage/enforce local businesses and producers to use less packaging, less single use plastic and generate less waste, lobby for higher tax on waste or penalties on businesses/organisations that don't comply



Expert proposals included:

- Cutting household food waste by 80% by volume
- Introducing public water fountains to cut out disposable plastic bottles
- Greater Manchester strategies need to better recognise the importance of the Green Technology sector and the role energy and material efficiency can play in increasing productivity and resilience
- Introducing take-back schemes for packaging
- Recognising that food is an important cross cutting agenda by signing the Milan Food Policy Pact and establish a Greater Manchester Food Board to support the development of a sustainable food ecosystem
- Strengthening Greater Manchester productive green spaces and sustainable agriculture enterprises
- Supporting businesses in designing out waste “less in – more out” through resource and materials efficiency. Designing goods for reuse and recycling and using products for longer
- Creating a Greater Manchester database of ‘waste’ materials for reuse and recycling

Our food system is a major contributor to climate change, through its production, processing and transport as well as the significant amount of waste generated. Our food needs to be sustainable, low carbon, affordable, healthy and nutritious.





Examples of what's already happening

Domestic recycling campaign: recycle4GM.com

Circular economy Club: www.old.circulareconomyclub.com/cec-manchester-amanda-reid/

Circular Office: www.environment.bitc.org.uk/smarter-resources/what-is-a-circular-office

#Plastic Free Greater Manchester A number of Greater Manchester's tourism and hospitality companies have signed a pledge to eradicate the use of single use plastics by 2020. Within the next 6 months, these businesses will set out a plan to achieve this and, as a first step, will have begun to replace plastic with recyclable straws. www.marketingmanchester.com/resources/sustainability/

Springboard Actions to complete by March 2019:

12. Greater Manchester will lead a **#Plastic Free Greater Manchester** Campaign to be at the forefront of taking action to eliminate single use plastics
13. **Good Food Greater Manchester**, a strategic Food Board for Greater Manchester will be established to undertake a wide range of local action on food by the public, private and voluntary sectors
14. Greater Manchester will consult on a Resource Strategy which will begin to set out what the transition to a circular economy means for Greater Manchester businesses and consumers

Engagement, Education & Skills

This challenge can only be delivered by businesses, developers, the public sector, residents, community groups and other organisations working together, supported by local and national government putting in place the right policies, an enabling environment and attracting investment.

We cannot achieve our ambitions without the commitment to change behaviour by all of us. We need to have genuine community engagement to achieve this change, with bottom up, grass roots action supported by top down policies and investment programmes.

The extent of engagement with the Green Summit revealed goodwill, high expectations and environmental knowledge and understanding from a wide cross-section of people and places in Greater Manchester. Many young people had not previously understood how climate change will directly affect us here in Greater Manchester and called for more relevant education on the environment and climate change and more opportunities to be part of the solution.





You told us

Listening events feedback called for Greater Manchester to establish:

- Adopt a whole-systems approach; coordination, connections and co-benefits e.g. ensure resilience of Greater Manchester economy, people, green infrastructure and the built environment, to get wider benefits such as improved water and air quality
- Action by citizens of all ages in cooperation with local government; ongoing engagement and ownership in communities (particularly in health, planning, energy and food)
- Post-summit forums for people to share information so no wheel-inventing required. GMCA to act as a facilitator; organising councils, partners and public to act in unison
- Environmental Justice: consider the impacts of climate change beyond Greater Manchester and focus on equality within Greater Manchester and beyond.
- Sustainability ahead of profit/unsustainable growth, social justice as a key driver. Ensure most vulnerable and least able to deal with climate change impacts are protected.
- Communication, branding, marketing: Greater Manchester to loudly champion the vision for a carbon neutral city region, regularly promoting the many steps individuals can take and the big impact that collective action can make
- Resourced and ring-fenced finance: introduce targeted financial incentives
- Promotion of business cases with whole lifecycle costs; claim health costs; embed active travel policy and low carbon policies in investment decisions
- Skills, knowledge and capacity to deliver a carbon neutral

You also told us you want:

a) Education & Awareness

- Environmental and climate change (including Greater Manchester impacts) should be taught to children and young people throughout Greater Manchester
- Support/require councillors and public employees, and businesses to do carbon literacy & environmental training; including capacity to embed climate change adaptation into all activities; active travel, green infrastructure & health linkages/benefits
- Create an environmental culture through youth leadership, empowerment and action

b) Leadership and Delivery

- Demonstrating leadership on energy efficiency and energy generation in buildings, particularly on the public estate, and decarbonisation of public sector transport fleets
- Working with businesses and communities towards a low carbon transition through incentives, Mayoral 'calls to action' and campaigns and through greater transparency of data
- Lobbying Government to deliver the commitments made in National Grid's 'Two Degrees Future' report and to attract greater national finance to Greater Manchester, potentially through agreeing local carbon budgets or devolution of taxes.

c) Co-ordination and Engagement

- Establishing workstreams to bring together the public, private, academic and voluntary sector.
- Setting up new organisations to accelerate deployment of low carbon infrastructure, trial and demonstration of new technologies, and local sector growth.
- Empowering others to stimulate local action by delegating functions and resources to them to support communities to act
- Working with schools, colleges and employers to develop the right skills for the future workforce and on the job training for existing employees.
- Carrying out a communications campaign on climate change and environment across Greater Manchester.

d) Policy and Planning Levers

- Greater Manchester Spatial Framework should set new policy into the planning process such as carbon standards for new build, environmental net gain, electric vehicle and public transport infrastructure or integrated development.
- Detailed Greater Manchester master-planning for energy and natural environment infrastructure to prioritise future investment.
- Local targets for energy generation and efficiency, training for Planners and strong support from LA Cabinets and Planning Committees.
- Cohesive policies which assess their individual and collective environmental impact.

e) Finance

- Establishing finance mechanisms to enable delivery of decarbonisation measures, through the public sector's access to very low interest loan funds or via higher credit ratings.
- Local carbon budgets as part of an energy devolution deal with Government that includes an element of devolved levies and environmental taxes.
- Direct investment in low carbon assets by Greater Manchester Pension Fund, as appropriate, to meet the Fund's long-term goal for 100% of assets to be compatible with the net zero emissions ambition by c2050.



This year we will

Springboard Actions to complete by March 2019:

15. Greater Manchester leaders will receive Carbon Literacy training and encourage employers across the region to join organisations like BBC North, Manchester City Council and our housing providers, in signing up as Carbon Literate organisations
16. Greater Manchester partners will explore how to build appropriate skills, training and environmental education through workstream development
17. Greater Manchester partners will collaborate to deliver an effective environmental communications campaign to increase public and business understanding of the need for change.

Springboard to 2038: How can you get involved?

Achieving our targets cannot be accomplished by Greater Manchester authorities working in isolation. Attaining our carbon, environment and air quality targets require significant action and commitment to reduce emissions from the private and voluntary sectors, wider public sector and the general public. The Low Carbon Hub approach is to encourage and, where possible, support such action by bringing together key stakeholders to work collectively on these goals, utilizing a mixture of existing funding mechanisms to deliver local projects.

Your commitment

For our aspirations to be realised, we need organisations, businesses and individuals to sign up to their delivery and take immediate action. Make your commitment here www.greatermanchester-ca.gov.uk/greensummit and confirm that:

I/We support the Greater Manchester Environmental Vision for a carbon neutral, climate resilient city-region with a thriving natural environment and circular, zero-waste economy by 2038

Your feedback

Let us know your views on this report: LCH@
greatermanchester-ca.gov.uk

- Is the proposed Environmental Vision right?
- Are our stated priorities correct?
- Can you assist in overcoming some of the identified challenges?
- What immediate and medium term actions can your organisation take to support Greater Manchester's Environmental Vision?



Get involved

During the Summer and Autumn of 2018, we will be hosting online working groups and workshops to try to resolve some of the challenges we have identified in this report and to keep people updated on the actions we have committed to take this year.

The Themes of the online working Groups will follow the format of this report:

- Natural Environment
- Buildings
- Energy
- Sustainable Consumption and Production
- Transport
- Engagement, Education and Skills

If you want to be involved in these working groups or be kept informed of this work, please let us know LCH@greatermanchester-ca.gov.uk

Support the next Greater Manchester Green Summit

The next Greater Manchester Green Summit will be held on 25th March 2019 at the Lowry Theatre, Salford.

If you want to be invited to the next Summit, be involved in its organisation or can offer sponsorship, please contact us LCH@greatermanchester-ca.gov.uk

Further information:

Find out more about Greater Manchester's Low Carbon Hub and how businesses, universities and the public sector are working together on carbon reduction and low carbon growth at:

www.gmlowcarbonhub.com and www.greatermanchester-ca.gov.uk/info/20005/low_carbon

Contact Email and to Sign up to the Low Carbon Hub e-bulletin: lch@greatermanchester-ca.gov.uk

Use our Twitter feed @GMlowcarbonhub

On the Platform also provides you with a podium to share your thoughts, ideas and views on a sustainable future for Greater Manchester. There is an opportunity to develop articles and commentary directly and via the Low Carbon Hub team see www.ontheplatform.org.uk

Links to Key Partners include:

Transport for Greater Manchester www.tfgm.com

Greater Manchester Waste Disposal Authority www.gmwda.gov.uk

Manchester is the first city to undertake to empower all its citizens with carbon literacy. Carbon literacy is the underpinning knowledge required to create a vital shift in how we live, work and study. Further information is available from www.carbonliteracy.com

SCATTER is a city-focused emissions model, built to create low carbon cities. This groundbreaking tool provides city regions with the opportunity to standardise their greenhouse gas reporting and align them with international standards.
<https://info.anthesisgroup.com/scatter-green-cities>

Useful resources for Businesses include:

The Low Carbon Network is a new and exciting opportunity to raise the profile of businesses in the low carbon and environmental goods and services sector and improve the visibility of local supply chains. The Network aims to enable companies to be better connected to new business opportunities and better informed about what is happening in their sector – from new tender opportunities to changes in government policy.

Green Intelligence – tailored e-bulletin with green business news and case studies: www.greenintelligence.org.uk

Green Growth Programme – support for Greater Manchester SME's: www.green-growth.org.uk

Pledge – commit to a range of actions to help reduce environmental impacts: www.green-growth.org.uk/pledge



