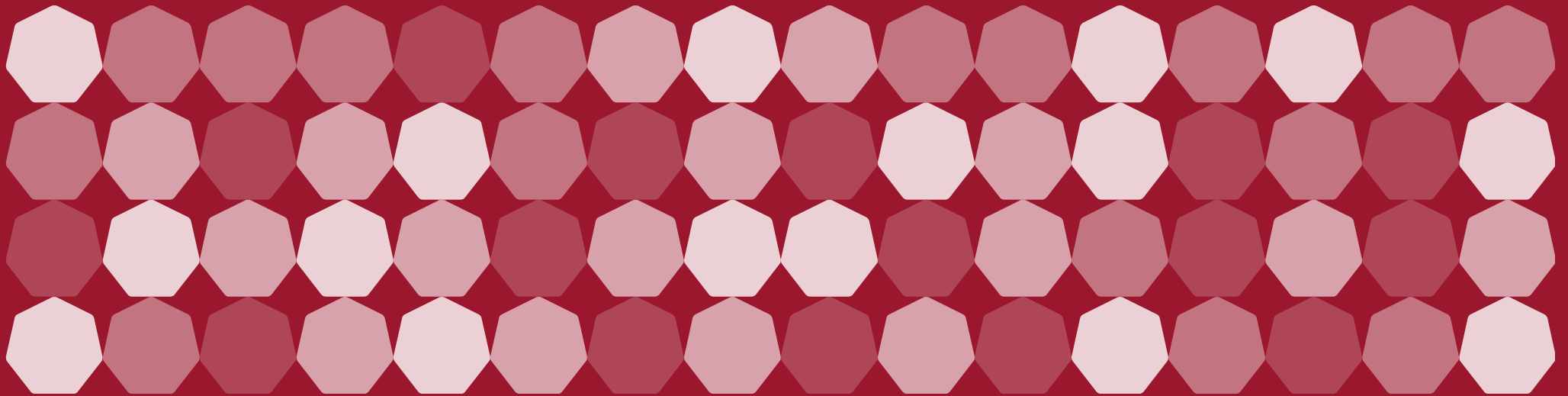


Growth and Prosperity through Decarbonisation

2021



Greater Manchester Strategy context

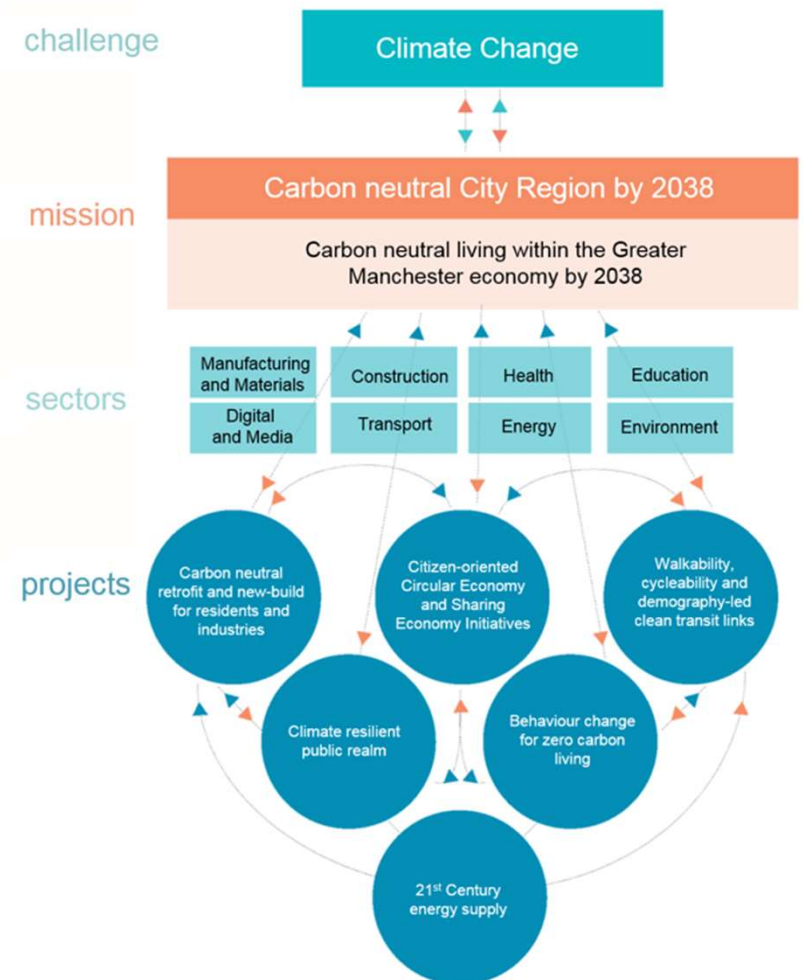
- *The Greater Manchester strategy sets out a number of priorities including –*
 - a) create a carbon neutral Greater Manchester by 2038, with better air quality and natural environment
 - b) realise the opportunities from our world-class growth and innovation assets, driven by our Local Growth Plans / Industrial Strategy to open up opportunities in all parts of the city-region
 - c) support the creation of better jobs and good employment that has a purpose beyond growing shareholder value, utilising the opportunity to positively impact on our communities.
- *The ambition is to maximise the opportunity of the transition needed to a net zero society by leading the green economy – being a place that pioneers and adopts the net zero technologies of today and tomorrow, and reskilling residents in to the resulting good jobs created through technological diversification*

Carbon Neutral 2038 Mission

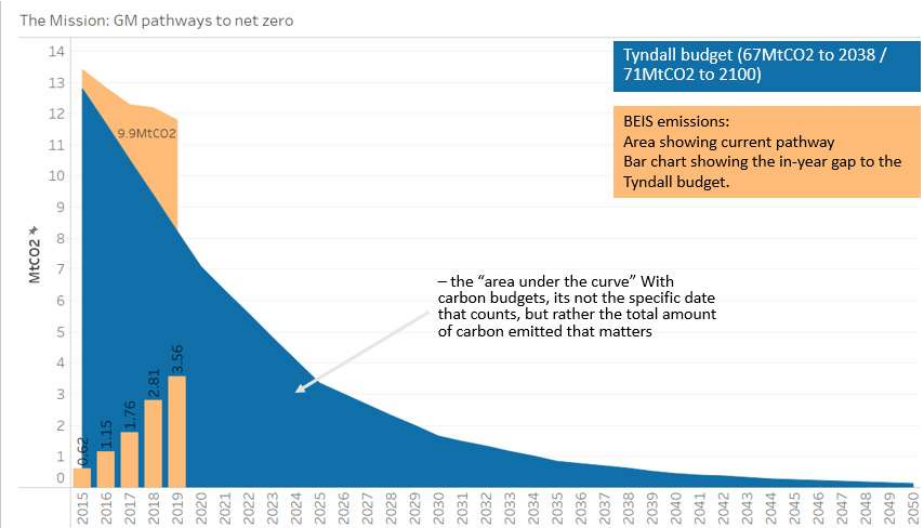


A once-in-a-generation opportunity to deliver

- environmental and health benefits for our people
- new green industries and jobs that capitalise on our outstanding research assets and large low carbon goods and services sector
- The mission approach is about getting cross sectoral (private, public, NGO and academia) challenge groups to focus on accelerating action and overcoming the identified barriers to progress

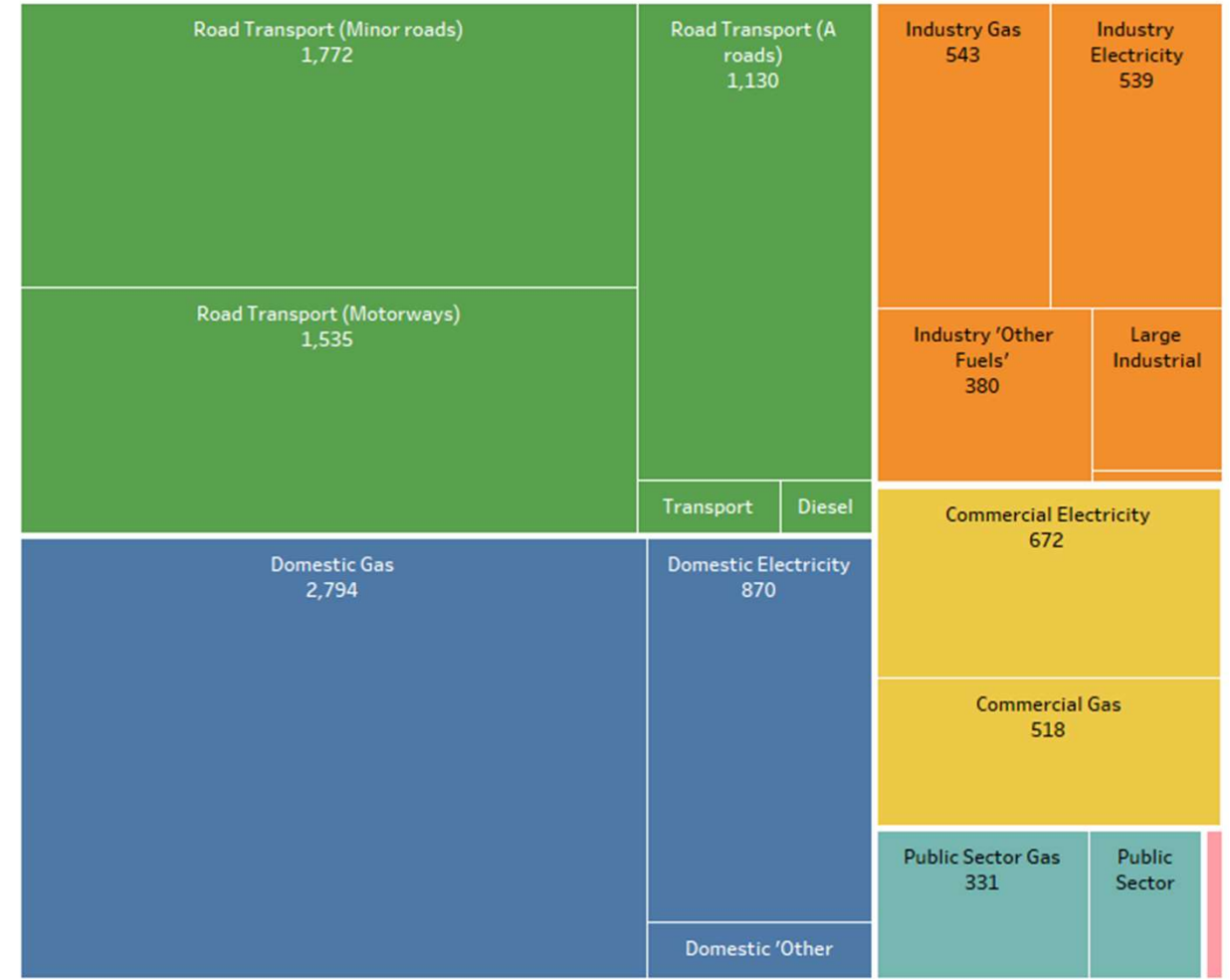


A science-based target



- Multiple pathways – the key is to stay within our total carbon emissions budget to 2038
- Our carbon budget will be used up in 6 years without immediate action
- the two largest emission sources are private transport (cars) and heat (from buildings)
- Electrification is one solution but we will need to generate and store more local renewable energy to make this happen
- Taking action - Local Area Energy Plans
- Enabled by - skills, business support and innovation

Emissions magnitude by sector (ktCO₂ / 2019)



...that is backed by Industry...

Local Enterprise Partnership (LEP) Industry Leads

- Steve Connor: Driving delivery of Greater Manchester's ambition of being carbon neutral by 2038 by ensuring that all GM businesses are on a journey to net zero
- Chris Oglesby: Driving Low Carbon innovation across our towns and cities and in all employers
- Richard Topliss: Supporting low carbon infrastructure including digital, ULEV and waste

LEP Net zero forward priorities

- Launch of **Bee Net Zero** to help make Greater Manchester the easiest place in the UK to become a net zero business, supporting the transition to a zero carbon economy.
- Establishing **Innovation Greater Manchester** to stimulate R&D investment and leverage innovation to lead the Green Industrial Revolution



But this time we must go further – to create a blueprint for the modern economy – a blueprint driven by business with an understanding that looking after people and the planet is good for productivity and profitability.

Taking action - examples

Growth Company Business Support to Green Tech Sector

Tailored one to one support delivered by a specialist advisor, focusing on raising the profile, competitiveness and market share

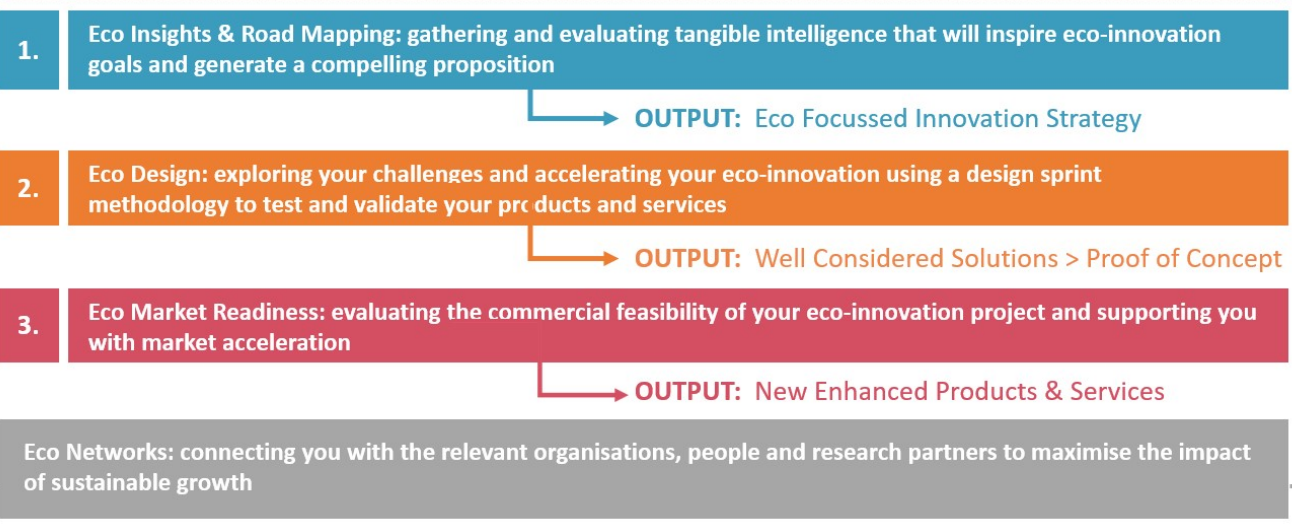


Wider services

- Low Carbon Network: over 500 members
- Events
- Switched On scale up programme
- Sector report
- Innovation Incubation Support
- Meet the Buyer

Growth Company SME Innovation Programme

Tailored eco-innovation advice service for GM SMEs



Including specialist innovation support such as IP advice and vouchers to work with universities



Energy Innovation Agency

The Greater Manchester Local Industrial Strategy launched the UK's first city-region Mission to Net Zero (2038). This was in response to the major recommendation of the Independent Prosperity Review to set up a challenge-led approach to realising net zero – a 21st century “moon-shot”.

The energy innovation agency is fulfilling a critical challenge in realising the Mission roadmap -

The Challenge

Currently there exists a 97m tonnes carbon emission ‘innovation gap’ between where existing technologies will take us and where we need to be

Energy Innovation Agency response

- Create a clear front door for industry to test, trial, and scale innovative products, services, and business model
- Bridge the disconnect between industry and academia “push” and customer “pull”
- Create a feedback loop to local policy and strategy ref regulatory and other challenges for the private sector
- A focus on major projects and building integrated systems & business models

Services

- SME energy innovator validation and scale-up service: impartial support focussed on rapid exploitation, scale-up and pipeline generation
- Buildings decarbonisation, retrofit and smart energy projects: Focusing on non-domestic buildings demonstrator and full-scale deployment
- Enabling Innovative Partnerships: support for consortia bids with innovation funding to bring investment to the region

Sustainable Materials Translational Research Centre (proposal subject to future funding)

- Greater Manchester has the opportunity to lead the world in materials innovation for durability, light-weighting, and sustainability & recycling – a £3000bn global market
- Building on our leadership position in research and application of materials innovation, University of Manchester and wider partners are leading a bids in to Government for a national Sustainable Materials Translational Research Centre
- Proposed to be located at the Rochdale-Bury Gateway North development site
 - as an asset for any UK company as well as for the growing Greater Manchester cluster of around 1000 materials innovation related companies

Example – Stronger, Greener, Cheaper Concretene



Developed through three years of intensive R&D with the (Manchester) Graphene Engineering Innovation Centre, Concretene is a fast-growing industry alternative to carbon-intensive concrete

By including just 0.01% of concrete in industry standard concrete mix has been proven to lead to

- 30% reduction in volume of concrete required
- No or much-much less steel reinforcement
- 46% increase in durability
- 20% in construction costs

Nationwide Engineering have since taken a base in Greater Manchester including new jobs, and are targeting their growth and scale-up operations locally

Retrofitting domestic, public, and commercial buildings



Retrofit Scale

- 1.2m homes in Greater Manchester
 - Approx. 250,000 social housing units
- Approx. 60,000 homes per year need retrofitting to hit 2038 carbon neutrality target
- Heating is the largest single source of Carbon emissions in the region



New Construction Pipeline

- All new construction pipeline in GM approx. £14.1bn over next 5 years (£6.9bn of which Housing)
- Pipeline 16% higher than last (2017) forecast – big investment in new projects
- Existing shortage of workers to meet this need – particularly electrical, surveyors, bricklayers, roofers



Existing Workforce

- Approx. 85,000 existing Construction workers in Greater Manchester
- Roles of both Tradespeople and to support staff will change with requirement
- Few specialist retrofit workers



Existing Provision

- Approx. 3,000 annual Construction FE learners
- Approx. 1,000 annual Construction apprentices
- Niche provision on specific technologies
- Updates to curriculum ongoing – future-proofing of delivery to account for retrofit skills needs

Taking action

- £78m secured for public sector retrofit this year
- Go Neutral (renewable energy on local authority land)
- Retrofit skills hub & bootcamps
- Local climate bonds
- Green homes grant (£27m secured)
- Retrofit GM – consumer-led model for the “able to pay” market



GM's role in delivering a carbon neutral transport system



Strategic Direction & Leadership

- Provide strategic direction for reducing transport's carbon emissions in GM
- GM Targets & Policy Framework
- Coordination & Engagement (Local & National)

Carbon Neutral GM Transport Pipeline

- Scheme selection
- Scheme design
- Scheme delivery
- Supported by appropriate behaviour change programmes

Decarbonise TfGM Activities & Assets

- Metrolink, Interchanges, stations and stops
- Office Accommodation
- Fleet
- Highway Infrastructure
- Staff travel
- Procurement



Approach to decarbonising transport in GM

Reducing Greenhouse Gases from Transport

AVOID

Organise services so that distances that people need to travel can be reduced

EXAMPLES:

- Integrated strategic planning – Places for Everyone/2040 Transport Strategy
- Densification of urban areas & 15-minute neighbourhoods
- Working with NHS on reducing carbon impacts of travel & transport
- Roll-out of Local Full Fibre Network & tackling digital exclusion
- Parcel lockers at PT hubs

SHIFT

Moving journeys onto the most efficient/lowest carbon forms of travel

EXAMPLES:

- Roll out of Bee Network: active travel infrastructure, quality bus transit and bus priority funded by £1.07bn City Regional Sustainable Transport Settlement (capital only)
- Metrolink network powered by renewable energy, more trams in delivery
- Integrated ticketing and affordable fares on public transport
- Mobility hubs and shared mobility (e.g. bike hire, scooters, car clubs)

IMPROVE

Making the emissions performance of vehicles low or zero carbon

EXAMPLES:

- Transition to zero emission vehicles
- EVCI strategy & roll-out of public charging network
- Speed limit enforcement (aligned with road danger reduction plan)
- GM-wide Clean Air Zone



What would net zero travel in GM look and feel like?

Fundamental change to why, where and how people and goods move around GM

- More working from home and digital access to services
- Increased use of **local** facilities and leisure activities
- Increase in public/shared transport (e-car clubs) and more active travel
- Lower levels of car ownership & use – households with more than one car become less common – resulting in reduced congestion and less road space required for motor vehicles
- All vehicles zero emission
- Local deliveries by zero emission vehicles/cargo bikes
- Safer, quieter streets/transport corridors with more trees/soft landscaping
- Multiple economic benefits of a zero carbon transport system, eg new employment opportunities around new technologies, and wider health and well being benefits



What sorts of actions are needed to achieve the scale of change?

National Government	GM Public Sector (inc GMCA)	Transport Authorities and Operators	GM Businesses/ Employers	GM Communities
<ul style="list-style-type: none"> - Agree clear targets and strategies for an inclusive transition to transport carbon neutrality and monitor rigorously. - Redirect some funding from national road investment to sustainable transport - Subsidise public transport to make fares more affordable and attractive - Publish local transport authority toolkit on decarbonising transport 	<ul style="list-style-type: none"> - Work closely with local communities and businesses to understand what's needed. - Upgrade public sector fleets to ZEVs - Consider 15 minute city/neighbourhood policy - Implement staff travel plans across wider public sector. - Reallocate roadspace to wards more sustainable modes. 	<ul style="list-style-type: none"> - Invest in active travel, public transport and shared transport (car clubs etc) <ul style="list-style-type: none"> • Develop new high frequency, integrated PT services • Zero emission fleets fuelled by zero emission energy sources. - Support EV Infrastructure rollout - Minimise embodied carbon in new infrastructure & vehicles. 	<ul style="list-style-type: none"> - Incentivise staff and customers to travel by sustainable modes and to work from home where possible. - Transition to zero emission fleets where relevant. 	<ul style="list-style-type: none"> - Targeted behaviour change programmes to different groups and communities within GM. - Use local facilities / services where possible or access online. - WfH where possible. - Travel by active travel, public transport and car share as much as possible - Reduce numbers of privately owned cars - Upgrade remaining private cars to ZEVs.

Slide 15

NK2 Re-draft this slide into some high level bullets.

Nicola Kane, 25/11/21

NK3 [@Rod Fawcett]

Nicola Kane, 25/11/21