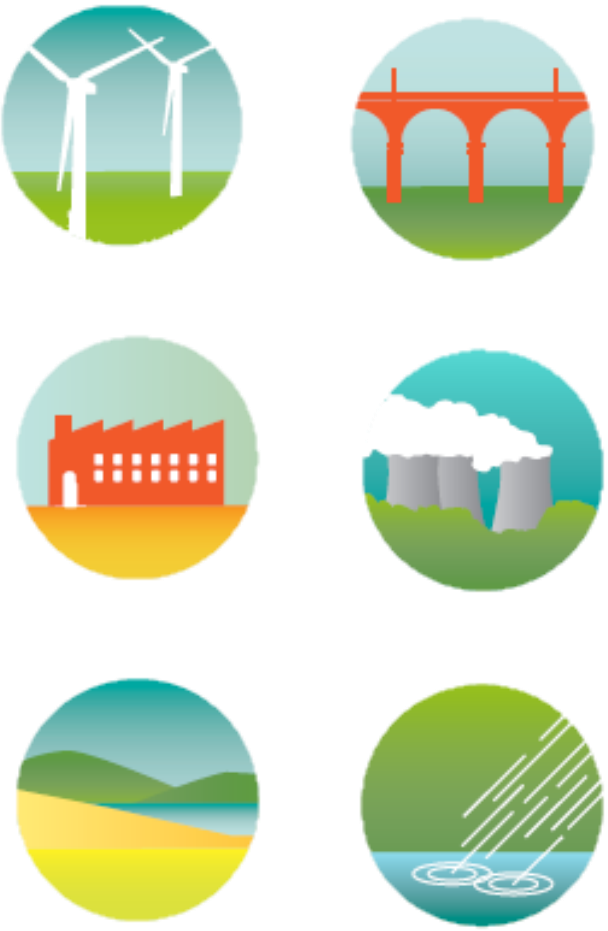
5 YEAR ENVIRONMENT PLAN FOR GREATER MANCHESTER

Cities A List



#GMGreencity

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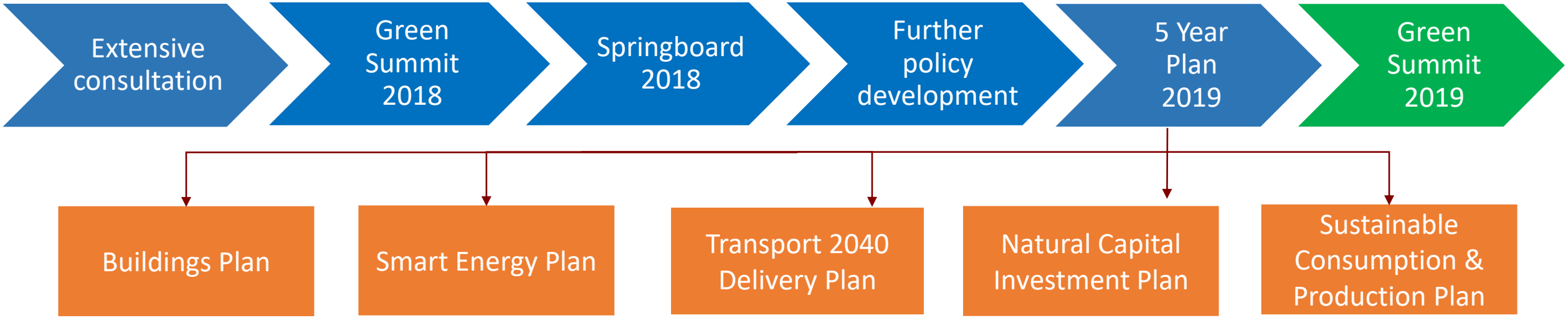
Timeline



Carbon budget and emissions reduction pathways

Before the Green Summit and Springboard report:

- Tyndall Centre work – a Paris compatible carbon budget for GM.
- SCATTER – GM carbon reduction scenarios.

After the Springboard report:

- Developing SCATTER further and working with the Energy Systems Catapult to apply their Energy System Modelling Environment (ESME) tool to give us more robust and comparable scenarios.

Crucial to delivering our ambitions for a green city region, but significantly less important than energy, buildings and transport for delivering direct CO_2 reductions.

We face environmental threats and challenges, but tackling them will present opportunities for Greater Manchester…

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5 environmental threats and challenges to Greater Manchester

Climate change – mitigation	Air Quality	Production and consumption of resources	Natural Environment	Climate change – resilience and adaptation
More radical local and national action to accelerate CO_2 emissions reductions	Health impacts of particulates and nitrogen dioxide – NO_2 levels in breach of legal limits	Throwaway society and particular issues with plastic and food waste	Multiple benefits still yet to be fully realised or accounted for – lack of other sources of investment	Increasing risk of extreme weather events – particularly flood risk but also heat stress

3 opportunities in tackling them

People	Places	Economy
Improve health and quality of life, increase productivity and reduce inequality	Create vibrant and sustainable places and good quality homes	First mover advantage – increase prosperity and productivity

Our 5 Year Plan for the Environment is part of a bold set of plans to create a city region fit for the future

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our people our place

The Greater Manchester Strategy

The Greater Manchester Population Health Plan 2017-2021

GREATER MANCHESTER TRANSPORT STRATEGY 2040
Draft Delivery Plan 2020-2025:

GREATER MANCHESTER'S PLAN FOR HOMES JOBS AND THE ENVIRONMENT

Greater Manchester Infrastructure Framework 2040

GREATER MANCHESTER AIR QUALITY ACTION PLAN 2016–2021

Clean Air Greater Manchester

A GREATER MANCHESTER VISION FOR HOUSING

100 RESILIENT CITIES

Greater Manchester Local Industrial Strategy

5 Year Environment Plan

Models are useful in informing the pathway….

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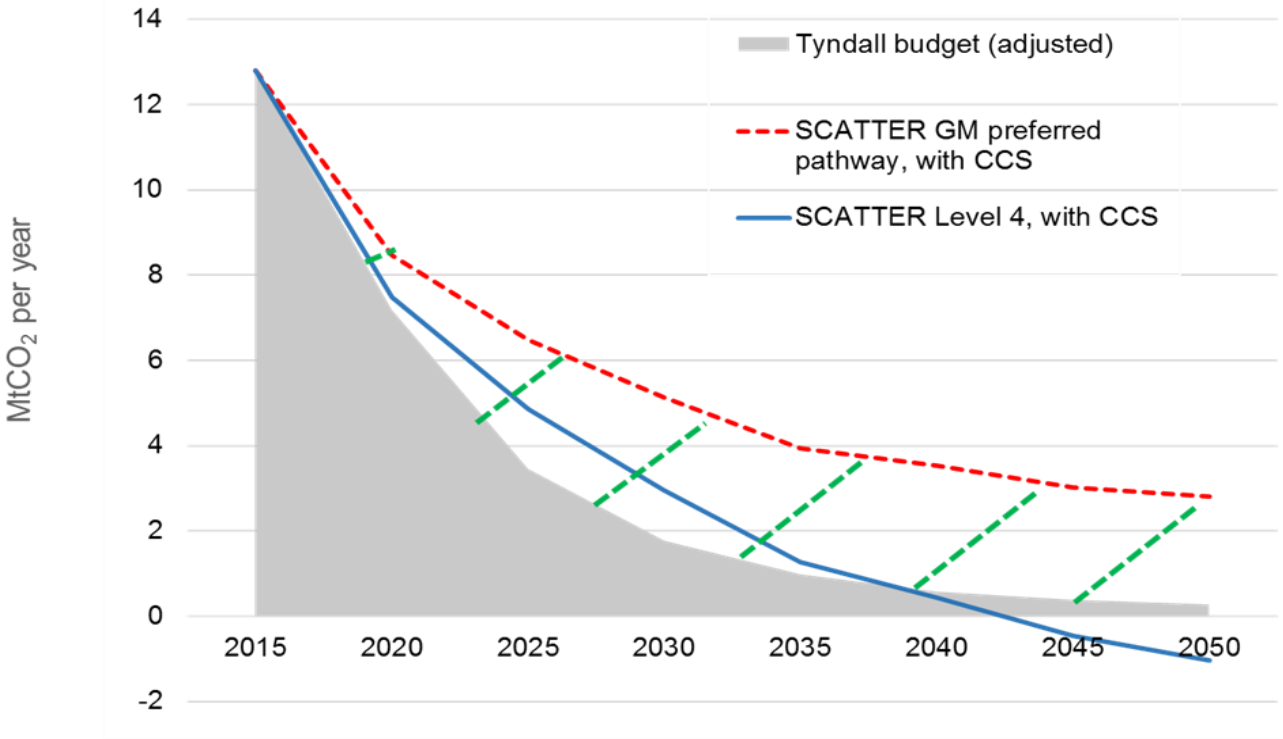
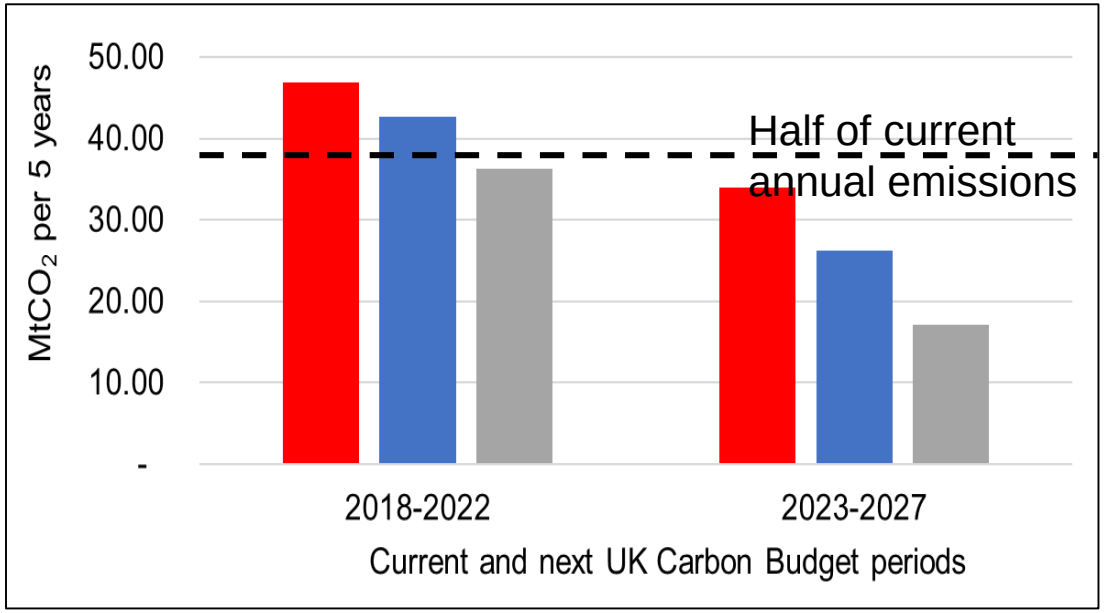


2016-2050 Total Emissions	SCATTER L4 111.9 $MtCO_2$
Tyndall 94.5 $MtCO_2$	SCATTER GM 191.8 $MtCO_2$

they show us that we all need to take action now…



…where emissions reductions come from…

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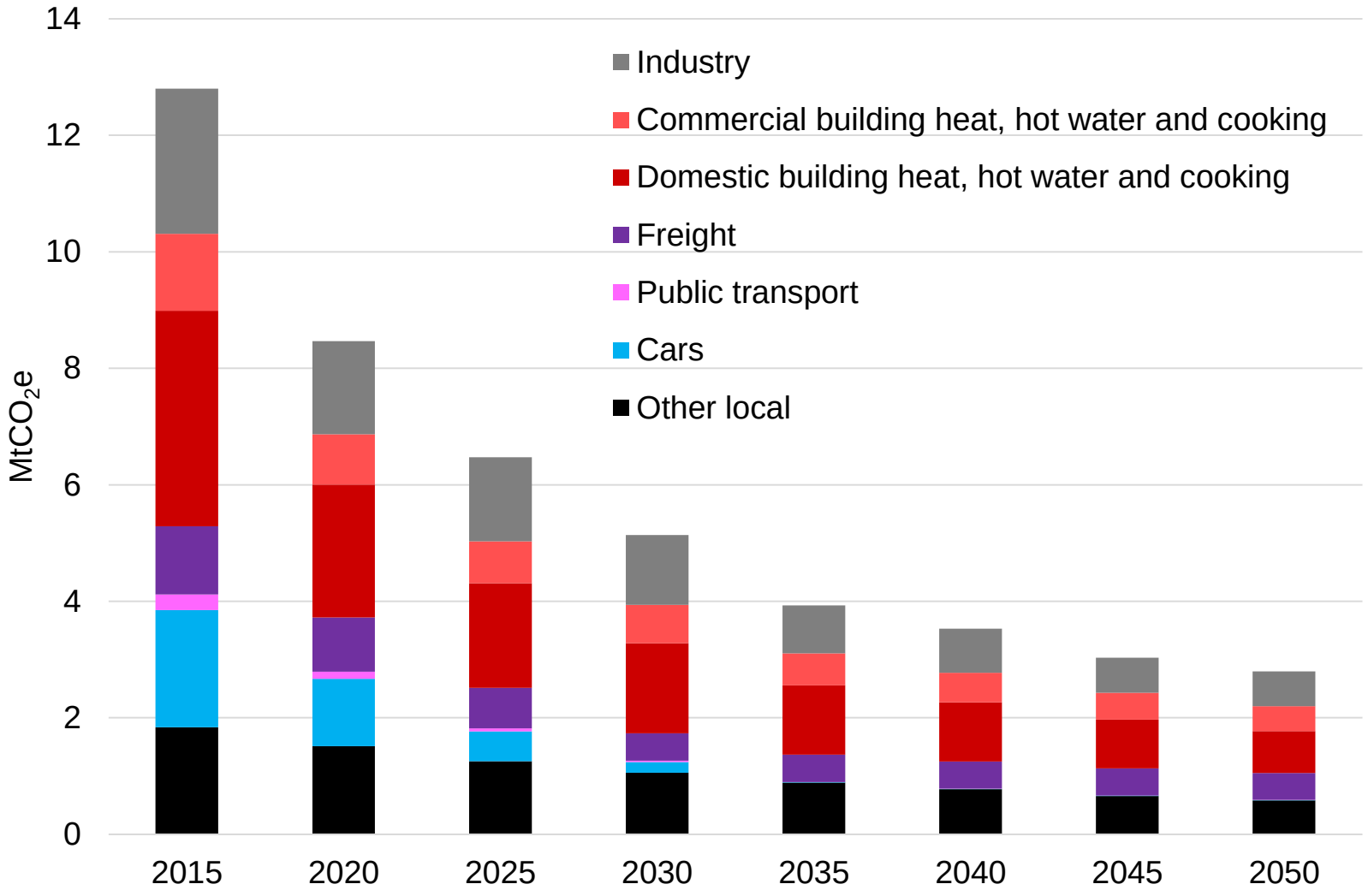
Most significant drivers:

- Buildings
- Cars, vans, taxis, motorcycles

Need decarbonisation of electricity supply to support this

Important local actions:

- More local renewable energy
- Energy efficiency of domestic properties
- Improved efficiency of commercial heating & cooling
- Biomass power generation
- Shift from fossil fuels to battery or fuel cells for transport
- Shifting domestic transport behaviour
- Waste reduction & reuse



…the scale of the challenge…

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Some examples of the assumptions about now to 2040 in the SCATTER GM model

Half of our homes have solar PV plus a further 5.5km^2 commercial/ground-mounted

Gas accounts for less than 35% of heating supply

61,000 homes a year are retrofitted

Commercial heating demand drops by over 20%

All cars on our roads are zero emissions (tailpipe) by 2035

Industrial emissions reduce by 50-75%

3m trees are planted by 2035

5 YEP Priorities

Key Inter-relationships

Our Production & Consumption of resources

- Produce goods & services more sustainably
- Become more responsible consumers
- Managing our waste sustainably
- Reducing unnecessary food waste

Our Home, Workplaces and public buildings

- Reduce heat demand from homes
- Reduce heat demand from commercial & public buildings
- Reducing the heat demand in new buildings

Our Energy Supply

- Increase local renewable energy generation
- Decarbonise how we heat our buildings
- Increase diversity & flexibility of supply

Our Transport and Travel

- Decarbonise Freight & shift to rail/water
- Tackle most polluting vehicles
- Phase out fossil fuel private vehicles
- Establish a zero emission bus fleet
- Increase use of public transport and active travel

Our Natural Environment

- Managing our land sustainably
- Managing our water & its environment sustainably
- Increasing investment in natural environment
- Increasing engagement in our natural environment
- Achieving a net gain in biodiversity for new builds

Our Resilience and Adaptation

- Embed climate adaptation in all policies
- Increase resilience of our critical infrastructure
- Implement nature base solutions
- Improve monitoring and reporting

Energy supply – what do we need to do over the next 5 years?

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Priority 1
Increasing local renewable electricity generation

Priority 2
Decarbonising how we heat our buildings

Priority 3
Increasing the diversity and flexibility of our electricity supply

Targets

45 MW renewable electricity

10.3TWh low carbon heat

45 MW flexible load

SCATTER GM:
50% of homes have solar PV, plus 5.5km^2 commercial/ground.
x4.5 increase in biomass capacity
550 on-shore wind turbines

SCATTER GM:
Phase out gas boilers – 35% of home heating and 60% of all heating supplied by low carbon heating by 2040.

Key partners making commitments

electricity north west

Energy supply – what do we need to do over the next 5 years?

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Residents
- Install renewable energy at home
- Switch to a renewable energy supplier
- Plan now for when you next need to replace your current heating system

Businesses and other organisations
- Install renewable energy and partner with community energy groups
- Switch to a renewable energy supplier
- Access support from the Growth Company.
- Plan now from when you are next due to replace your heating system.

Key actions for GMCA and others:

Investment vehicle – GMCA and LAs will develop proposals for an investment vehicle, potentially via an Energy Innovation Company, with a view to delivering the renewable energy generation on the public estate. This would provide benefits in the form of cost avoidance and revenue generation enabling the GMCA and LAs to reinvest in a range of wider activities.

Energy Transition Region – work with government to establish an Energy Transition Region (or Energy Innovation Zone) across the whole of Greater Manchester. This would allow us to test innovative approaches, policy and finance mechanisms to accelerate local renewable energy generation, storage and efficiency at scale, bringing together academia, industry, community energy and the public sector to do so.

Key partners making commitments

electricity north west

Bringing it together – our overall approach

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Supporting innovation in technology

Innovation ecosystem to support all firms to be innovative, supporting the creation of new products and services (e.g. Energy Transition Region proposals)

Taking new approaches to funding and financing

Long-term sustainable funding models for infrastructure.

Developing business models in unproven areas (whole house retrofit; natural environment)

Building on public and private sector partnerships

Continuing the engagement from 2018 Green Summit, with GMCA convening stakeholders around key challenges and through a mission-oriented approach

Showing leadership

A set of commitments from GMCA/LAs, plus health and social housing providers, showing we are leading by example.

Engaging & educating residents, communities and businesses

Make a programme of carbon literacy available to young people through the GM Careers Portal, in addition to our own commitments on carbon literacy for staff in procurement.

Upskilling our workforce

Engage the sector in BridgeGM, to better link business leaders into schools and colleges.

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…if we all take action together now

….a Mission Based Approach

Green City Region - Integrated Governance

Governance

Legend
- = Advisory – Non Decision making
- = Decision making
- = Elected Members in attendance
- = Mayoral Priority Focus

GMCA

GM Green City Region Board
Andrew Western
10 x District Portfolio Leads

Green City Region Partnership
Andrew Western

Wider Leadership Team
Eamonn Boylan

Programme Delivery Executive
- Policy (Energy, Waste, Buildings, Transport, LIS)
- Investment, Research, Skills, Communications
Simon Nokes

Mission Based Approach

Challenge Groups (Quarterly)
- Target driven, Outcome focused
- Topic based Task Leads

5 Year Environment Plan Forum
Carly Mclaughlan
Mark Atherton

Sustainable Consumption and Production Challenge
Richard Jenkins

Low Carbon Buildings Challenge
Robin Lawler

Energy Innovation Challenge
Peter Emery

Natural Capital Challenge
Anne Selby

Circular Economy models

Retrofit Finance

Local Energy Market

PV Uptake

Public Buildings Retrofit

Energy Transition region

SUDs

Energy Master Planning

Open Forum (Bi-Monthly?)
– Comms, Engagement, Cross working
- Task Leads & wider NGO, Public, Private

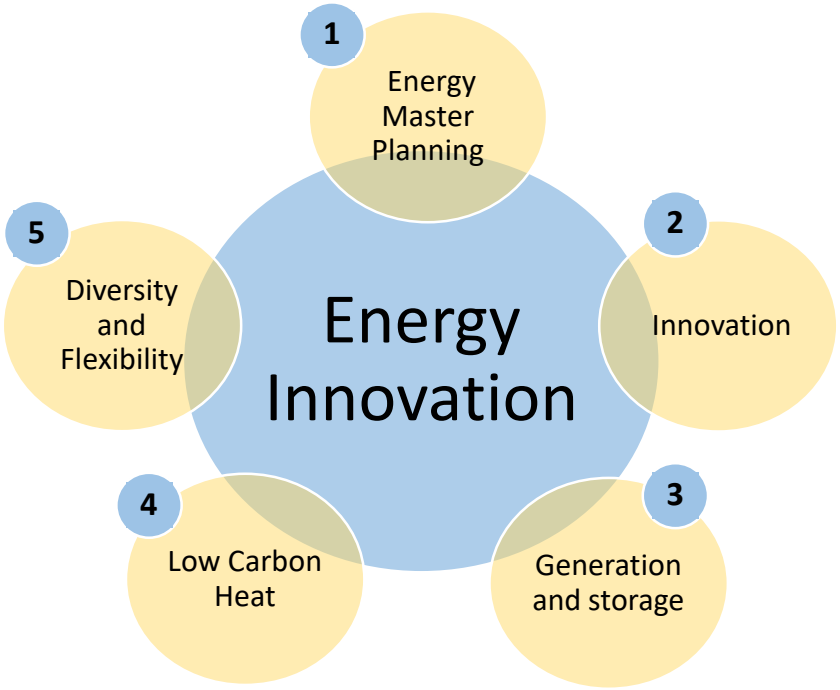
Task & Finish Groups (selected examples - as needed)
- Problem solving, task delivery

Communications Challenge
Louise Blythe

Key Influences

- Growth Board
- LEP
- Work and Skills Board
- GM Waste & Recycling Committee
- GM Transport Committee
- GM Strategic Infrastructure Board
- GM Planning and Housing Commission

Challenge Group – Energy Innovation Priorities and T&F Action Groups



Targets (by 2024) – Energy Innovation Challenge	
Generation and Storage	45 MW of additional generation
Decarbonistation of Heat	10.2 TWh of low carbon heat
Low carbon transport	Up to 200,000 low carbon vehicles
Diversity and Flexibility	45 MW of diverse/flexible energy load

Tasks	Description of Deliverable / Task	Lead	Delivery Method	Stage
1	Local Energy Market 2	GMCA	Steering Group	Research/Development
2	GM wide Solar PV offer	GMCA	Contract	Delivery
2	Energy Transistion Region	Universities	Task and Finish	Development
3	Go Neutral 2	NW Energy Hub	Contract	Research/Development
3	Schools Programme	GMCA	Steering Group	Development
3	ERDF Energy Projects	NW Energy Hub	External	Delivery
4	Review District Heating Propositions	AECOM	Contract	Development
4	GM Hydrogen Strategy	MMU	Task and Finish	Research/Development
4	Bid for Electrification of Heat Funds (HaaS)	EDF	Steering Group	Delivery
5	Scope Energy Innovation Company	GMCA	Contract	Research/Development
5	Establish GM Energy Innovation Company	GMCA	TBC	Delivery

Energy Innovation