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GREATER MANCHESTER PEER REVIEW
1ST -5TH July 2013

www.regions4greengrowth.eu



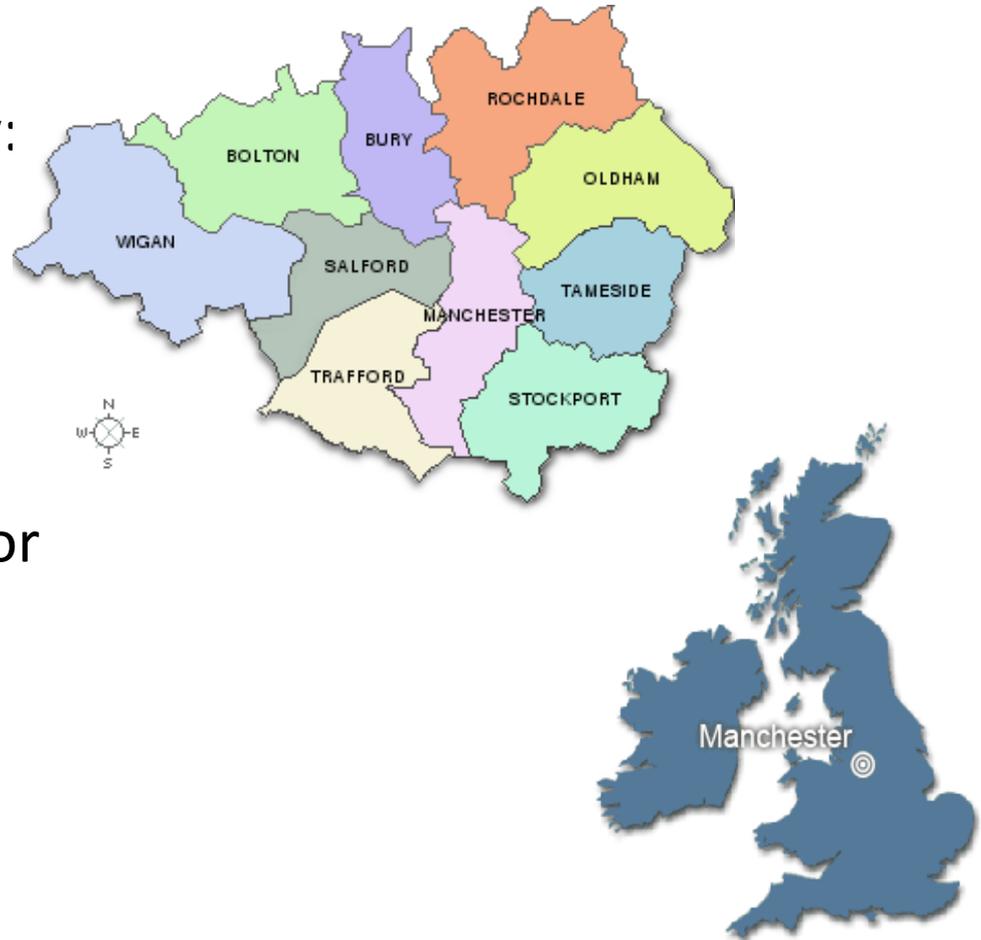
Overview

Greater Manchester Low Carbon Hub Governance and Strategy

Mark Atherton
GM Director of Environment

Greater Manchester

- ❖ UK's largest & fastest growing regional economy: GVA cc **£46bn**
- ❖ A workforce of 7.2 million within 50 miles
- ❖ Low carbon and environmental goods sector worth **£5.5 billion**, which supports 37,000 jobs
- ❖ Projected to grow at more than 4% pa



Governance in Greater Manchester

Senior Private Sector Groups

BLC
Business
Leadership Council

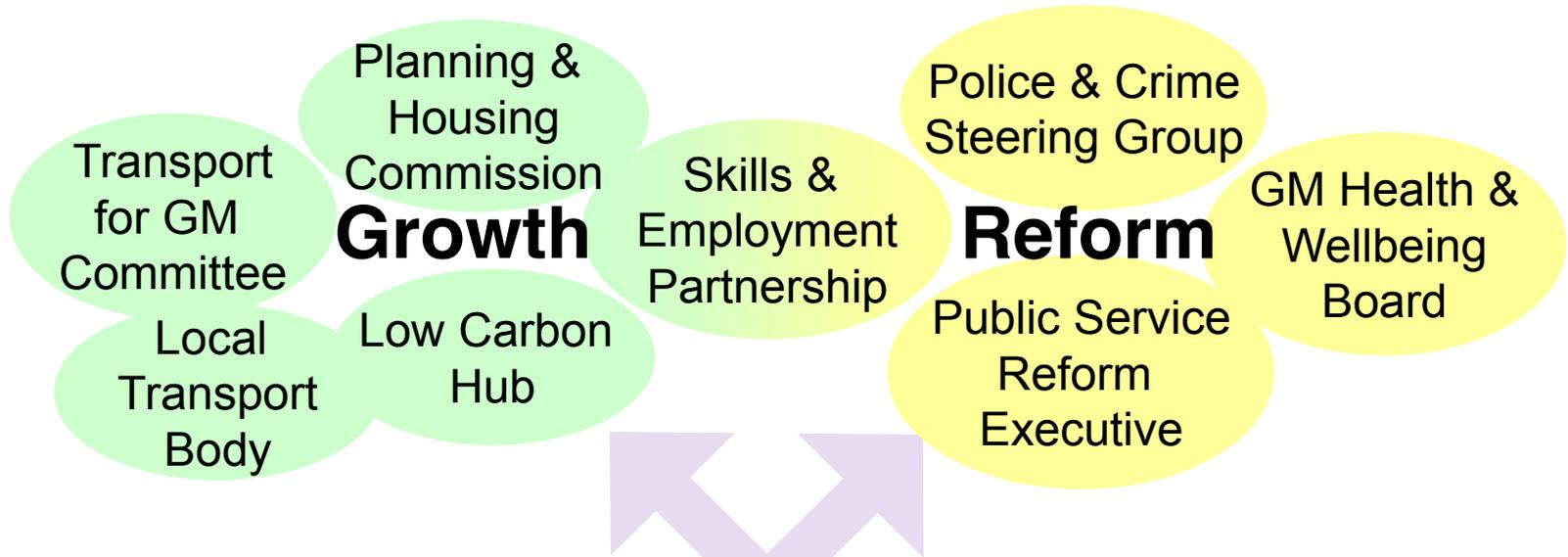
LEP
Local Enterprise
Partnership

Senior Elected Member Groups

GM
Combined
Authority

AGMA Exec
Board

**Police &
Crime
Panel**



Wider Leadership Team
Chief Execs of 10 local authorities, Transport for GM, New Economy & GM Growth Company; GM Police & Fire, Health

Key GM Agencies Supporting Delivery
GM Growth Company New Economy
Marketing Manchester MIDAS

GMIST Team offers policy & democratic services support for these groups

How is Greater Manchester Pioneering?

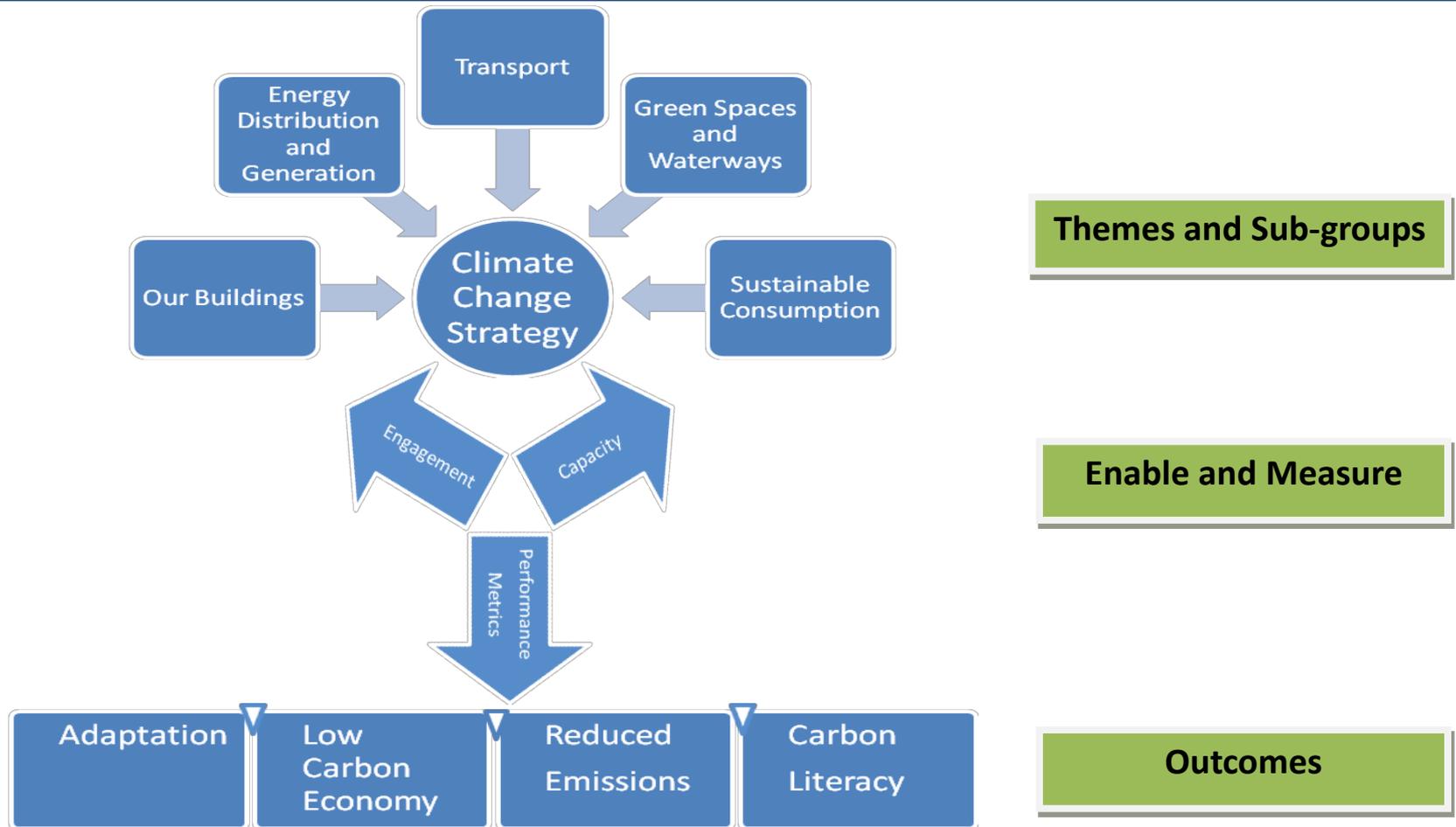
As part of City Deal signed with Government, GM has developed :-

- ❖ Joint Climate Change Strategy and Implementation Plan
- ❖ Low Carbon Hub as a centre of excellence
- ❖ A mechanism for Low Carbon work across government
 - ❖ Pathfinder Memorandum of Understanding (MoU) with DECC
 - ❖ developing MoU's with Defra, BIS and other
- ❖ 50 : 50 Joint Venture with Green Investment Band to :-
 - develop a pipeline of investable projects
 - design a vehicle to develop and deliver projects

Greater Manchester's Climate Change Implementation Plan 2012-2015

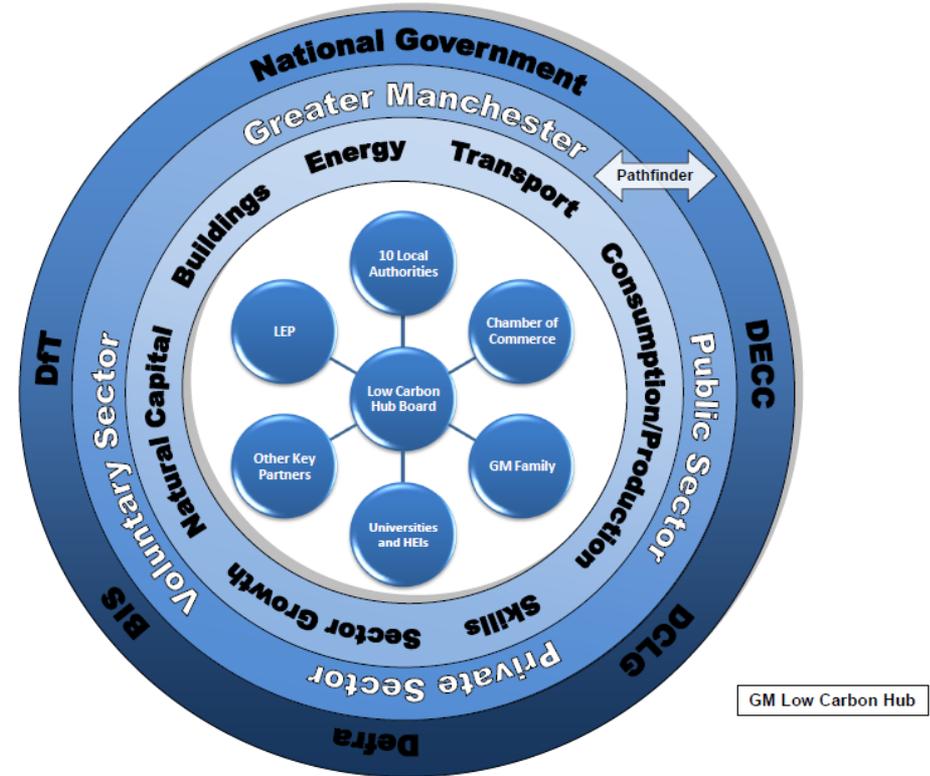
- ❖ High level framework to steer GM to a low carbon future by 2020
- ❖ 4 headline objectives
 - CO2 emissions reduction – 48% on 1990 levels
 - Transition to low carbon economy
 - Adaptation to a changed climate
 - Culture change that embeds low carbon thinking in behaviour

Strategic Delivery Approach



Greater Manchester Low Carbon Hub

- ❖ A centre of excellence for achieving economic gain through the integrated delivery of carbon reduction.
- ❖ Harnesses the knowledge of our universities with the innovation of our businesses and strong public governance.



Key

Inner Hub – Environment Commission, Hub Board and Core Team

Radial – Existing partnerships and resources

Inner Ring – Existing and proposed thematic delivery groups

Mid Ring – Wider Greater Manchester Public, Private and Voluntary Sector

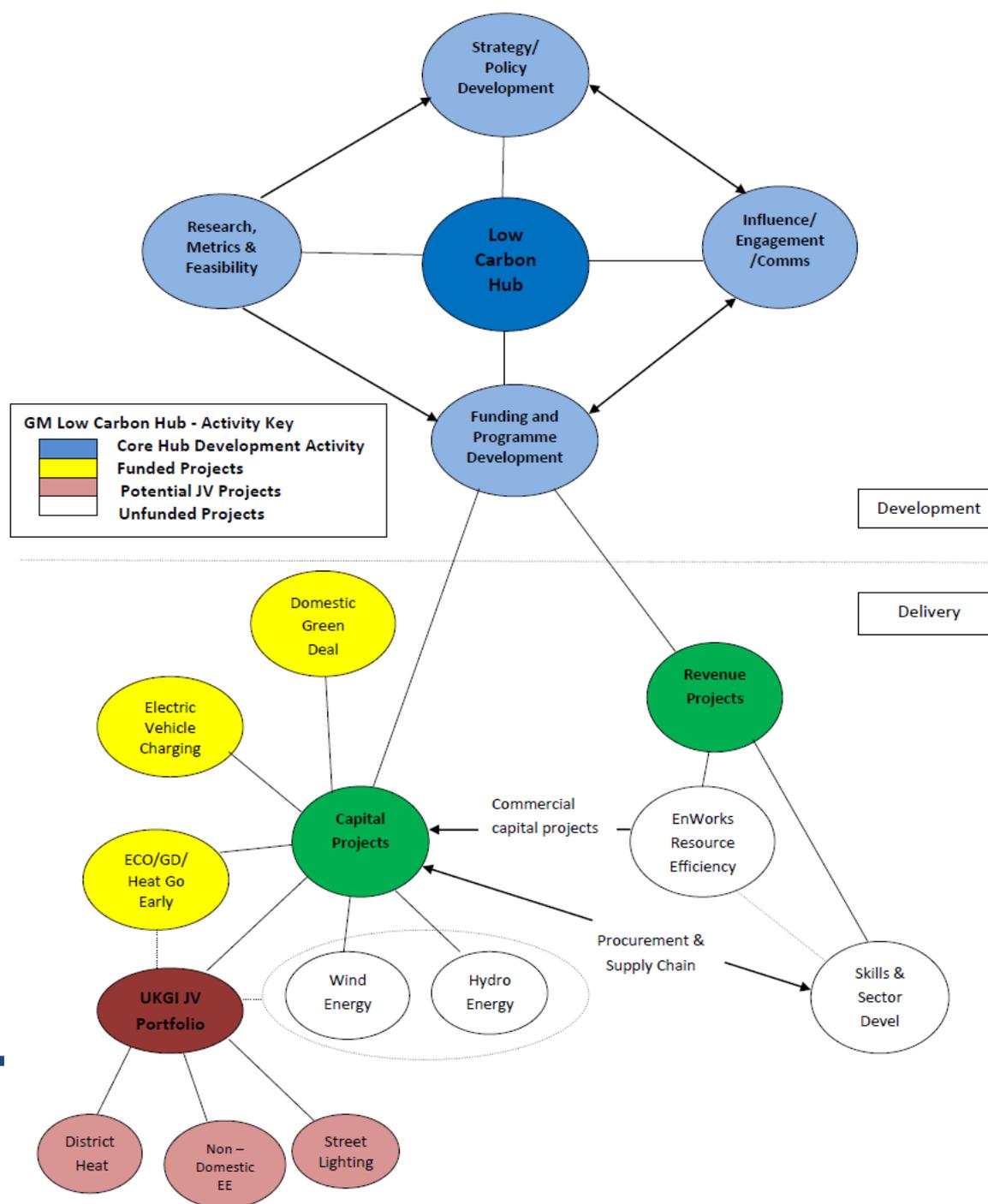
Outer Ring – Government Departments

Low Carbon Hub Board

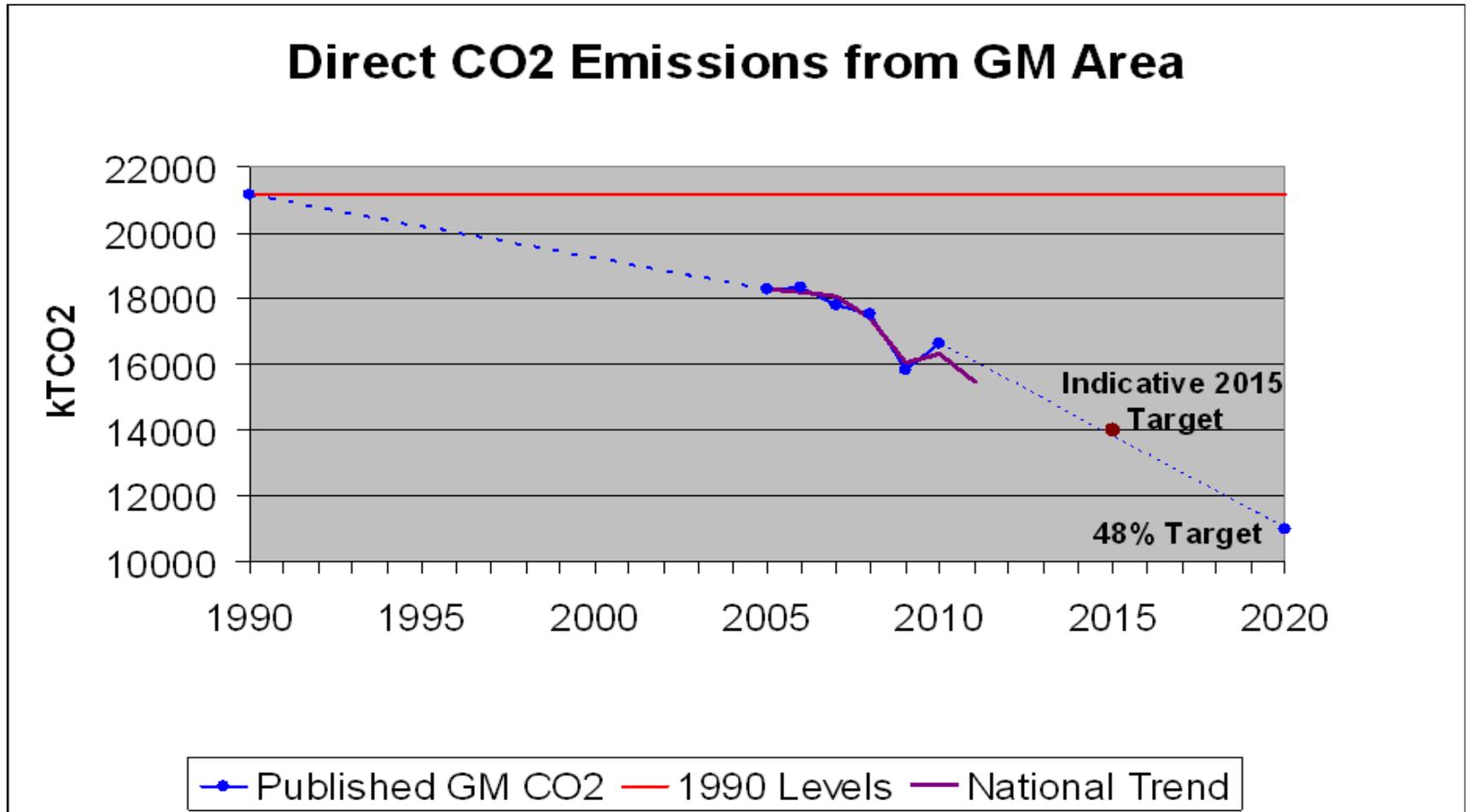


Memorandum of Understanding with DECC

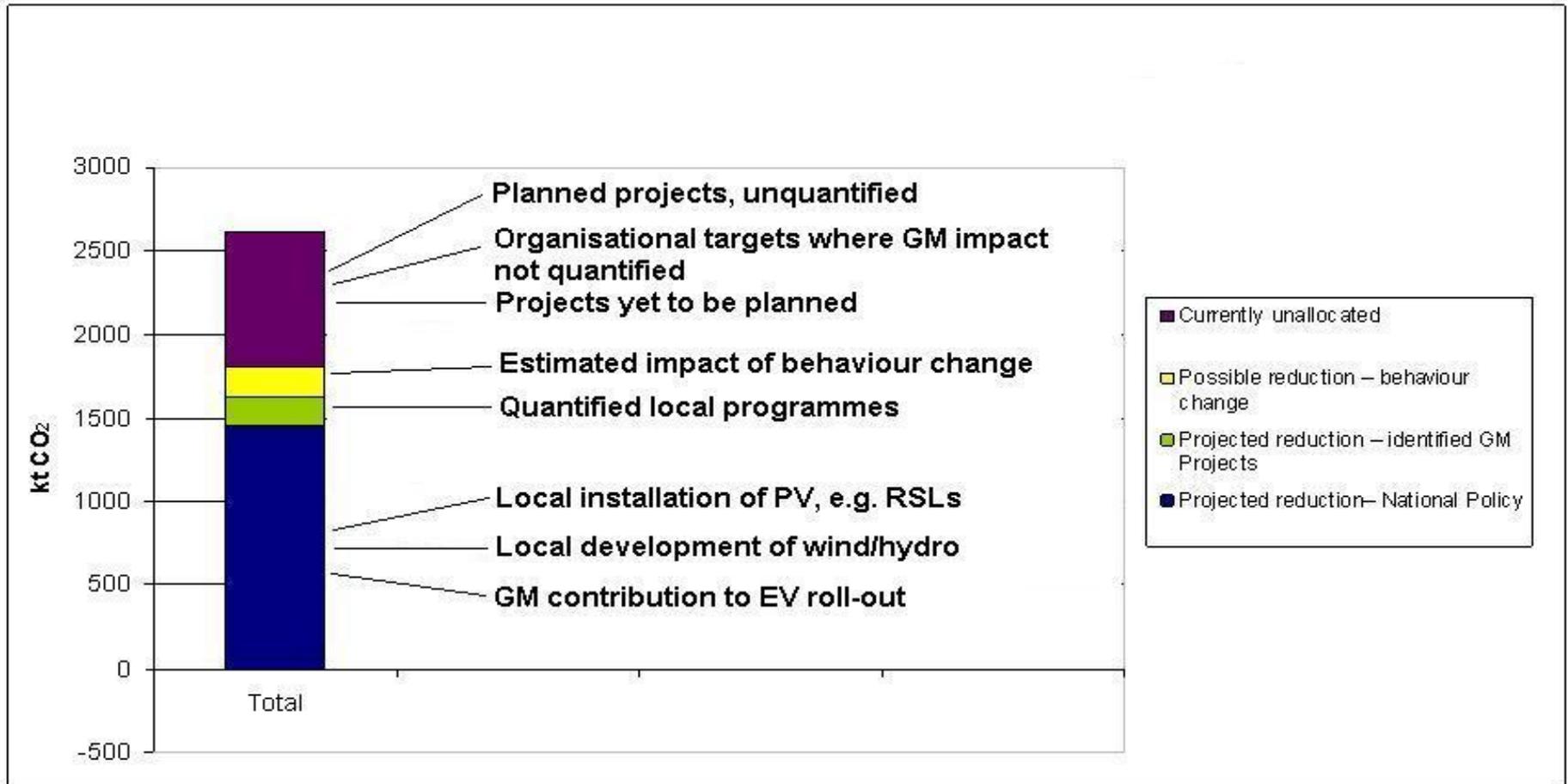
PLAN	1.1	To jointly prepare a GM Climate Change Implementation Plan to 2015, including local actions and national contributions.
	1.2	Explore translating the UK 2050 emissions reduction trajectories to GM level, producing a robust GM level pathway to meet 2050 targets and a methodology to enable other areas to do the same.
	1.3	Work with other pioneer cities to increase key data access and develop a metrics system which provides a consistent insight into low carbon performance at different spatial and institutional scales.
ENABLE	2.1	Share experiences and identify mutual opportunities to progress carbon literacy and behavioural insight work.
	2.2	Review approaches to improving business energy efficiency, in partnership with ENWORKS including: analysis of the ENWORKS dataset; links with the Green Deal; a review of the business support tools available and considering a proposal for piloting Enworks across the pioneer cities.
	2.3	Jointly improve the quality of GM's European energy bids with the aim of increasing their success rate
	2.4	Jointly develop a proposal for accelerating and overcoming barriers to heat network expansion to i) cultivate planned project(s) beyond the feasibility stage, and ii) establish and develop options to enable fast-track delivery of heat network projects
DELIVER	3.1	Develop an initial proposal and deliver a portfolio of Green Deal and ECO 'go early' schemes in housing and public sector stock.
	3.2	Develop and deliver a portfolio of demonstrator schemes for building-scale renewable heat which promotes beneficial training and supply chain outcomes.



Key Issue



GM Contributions to Emissions Savings



Low Carbon Hub Priorities 2013/14

Buildings

Deliver Green Deal and ECO
Public sector retrofit projects for
Joint Venture with GIB

SCP

Business and sector support,
Engagement and investment tools

Transport

Establish emissions baselines and
explore interventions to deliver
carbon reduction

Natural Capital

Develop quality of and access to
natural environment
Map ecosystem services activity

All

Exploring
potential of
public sector
procurement

Developing
cross theme
work on
adaptation and
resilience

Developing GM
Energy
Enterprise

Communication
with wider
stakeholders

Energy

GM Energy Enterprise
NEDO Heat trials and feasibility
Energy procurement

Sector growth

Stimulate market by supporting
Joint Venture, Green Deal and
NEDO procurement

Skills

Analysis of the skills
requirement
Developing courses to match
market need

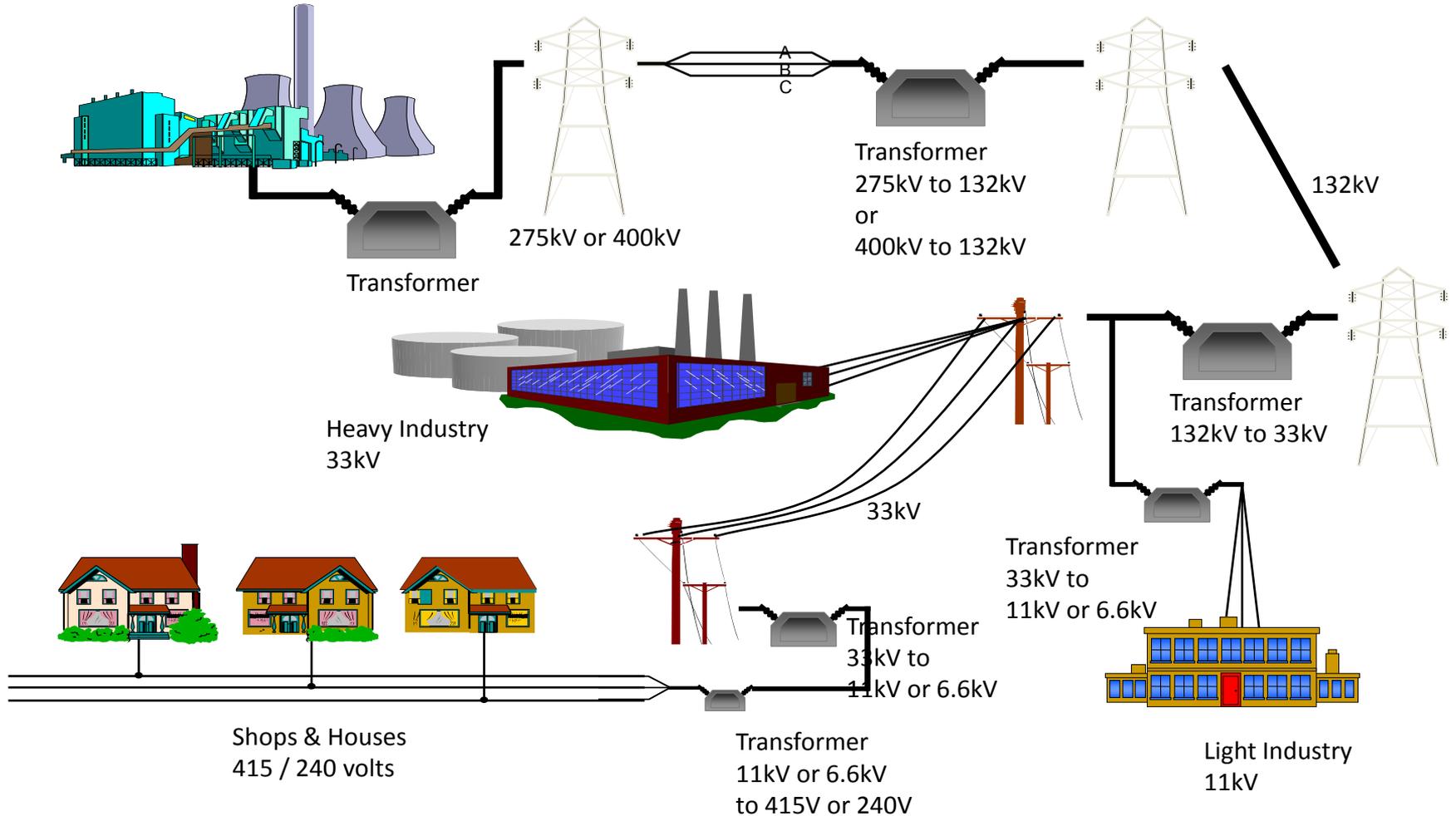


Energy

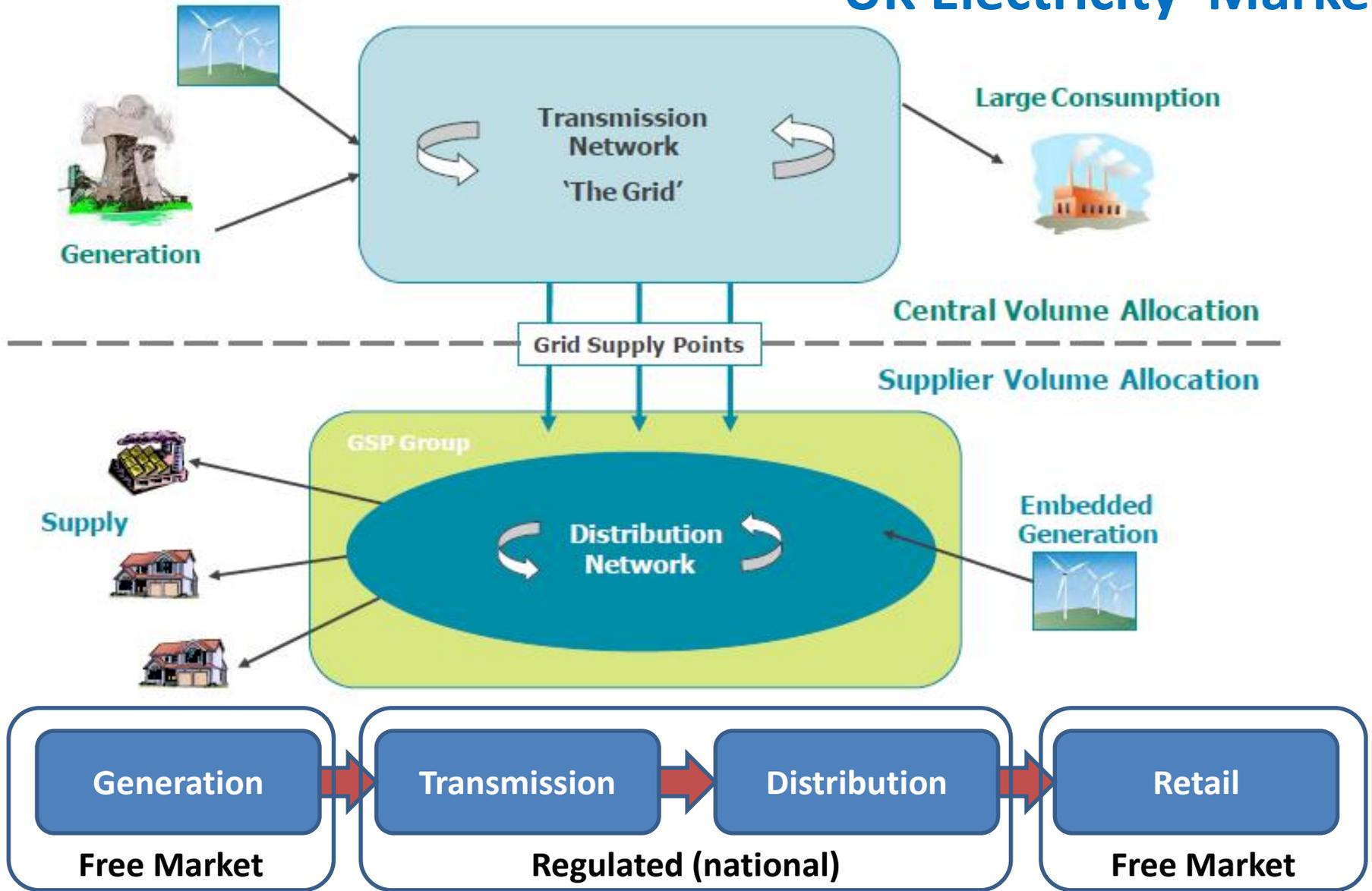
Greater Manchester Energy Group Energy Policy and Planning

Sarah Davies
Head of Strategy and Programmes

UK Industry Structure



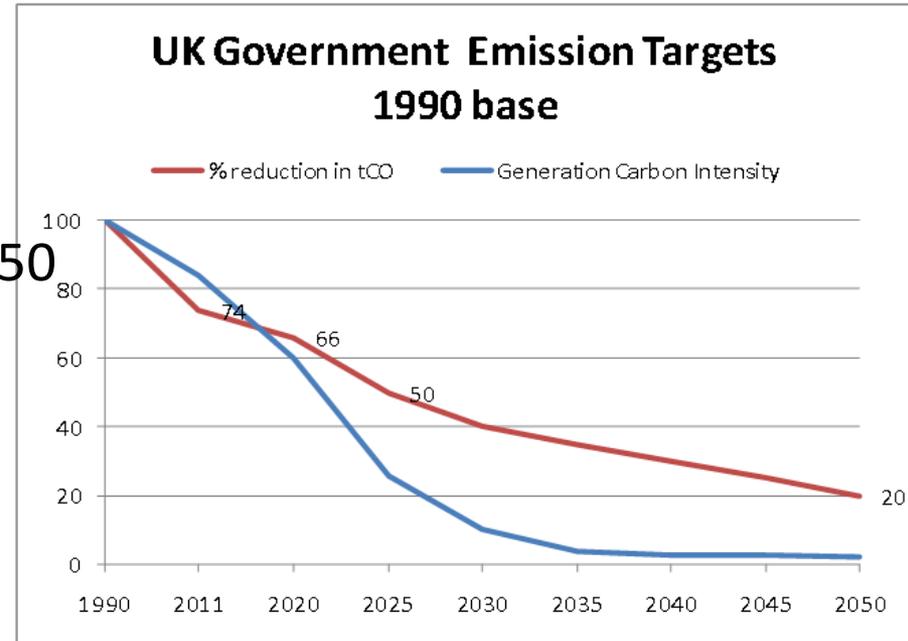
UK Electricity Market



UK Policy



- Climate Change Act 2008 made carbon reduction legally binding
- First 4 'carbon budgets' proposed by Committee on Climate Change to 2023 set in law
- UK emissions targets
 - UK now @ -26% (v. 1990 levels)
 - Require -34% by 2020, -80% by 2050
- EU requires 15% of UK energy from renewables in 2020
- Low Carbon Transition Plan Jul:2010
Carbon Plan Dec:2012
 - 30% electricity from low carbon sources
- EMR: Contracts for difference, a capacity market, conflicts of interest and contingency arrangements, investment contracts, emissions performance standard (EPS).





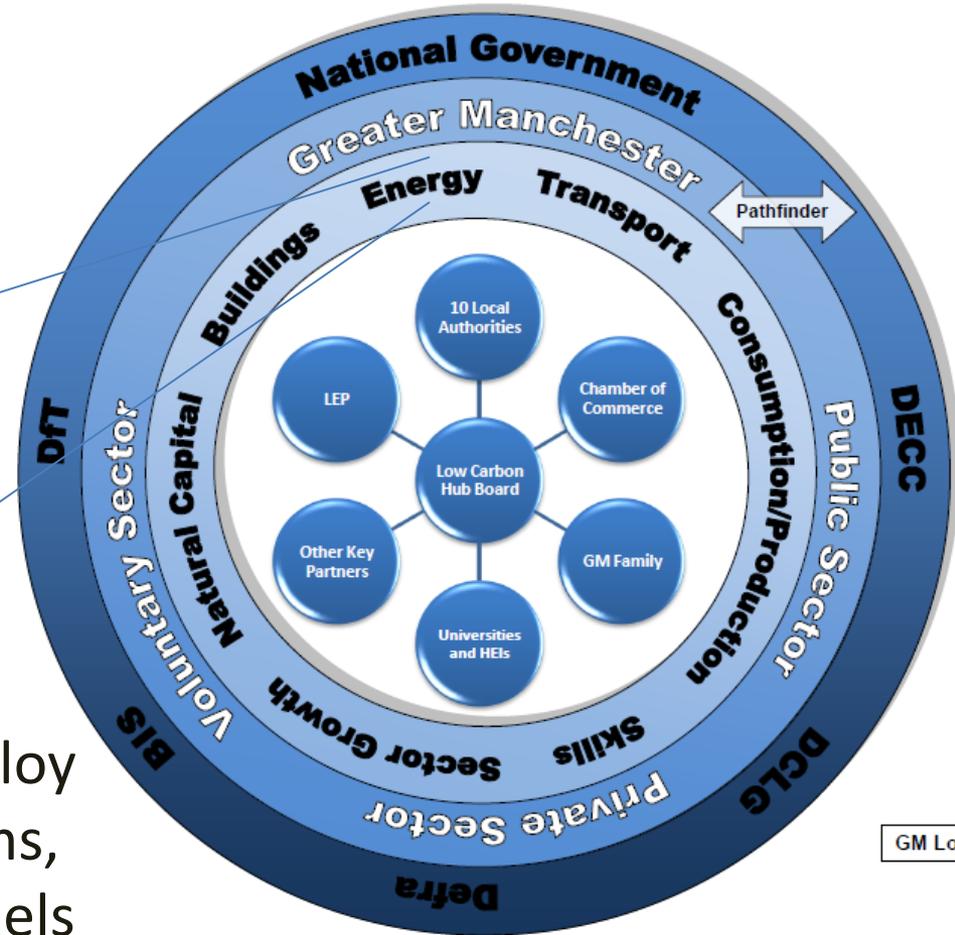
UK Challenges

- 2013 Position 1/3rd Electricity, 1/3rd Gas, 1/3rd Oil
- Electricity mix: 41% natural gas, 29% coal, 19% nuclear energy, 9% renewable energy, 2% 'other'
 - Most coal gone by 2018
 - Most existing nuclear gone by 2023
- 2020 **34%** Reduction in CO₂
 - 40% from Wind / PV & new Nuclear
 - 5% Transport 120,000 EV / Hybrid
 - 26M Smart Meters fitted
- 2050 **80%** Reduction in CO₂
 - 200% increase in electricity energy demand

GM Energy



GM Energy Group:
Cllr Neil Swannick (GMWDA)
Steve Johnson (ENW)
15 private, public and third
sector members



GM Low Carbon Hub

Purpose:
To develop, test, trial and deploy
future energy policies, systems,
technologies and market models



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Energy

GM Energy Enterprise
NEDO/Eti Heat trials & feasibility
Energy procurement

Sector growth

Stimulate market by supporting
Joint Venture, Green Deal and
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Skills

Analysis of the skills requirement
Developing courses to match
market need

Themes : GM Energy



- GM use of electricity, gas and other fuels accounts for 72% of direct emissions
- In 2010 GM spent over £5 billion on its energy
- To meet GM's CO₂ emissions reduction target by 2020, we need
 - 3TWh of low carbon heat generation
 - 1TWh of low carbon electricity generation
- 2010 study identified potential for 6,871MW of renewable energy installed capacity across GM



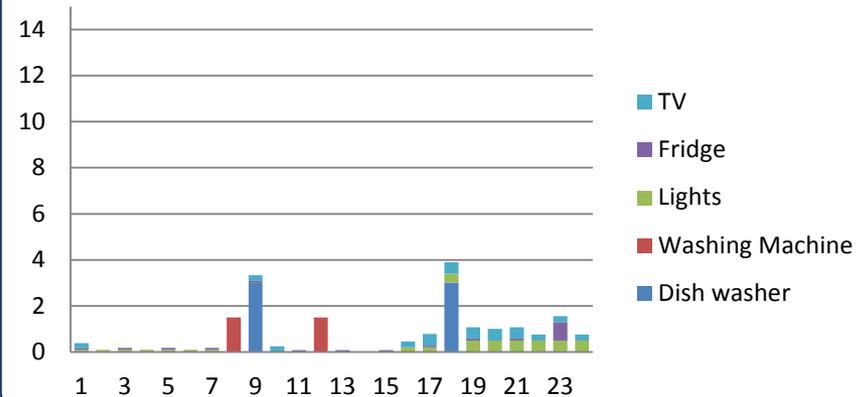
How GM uses Energy



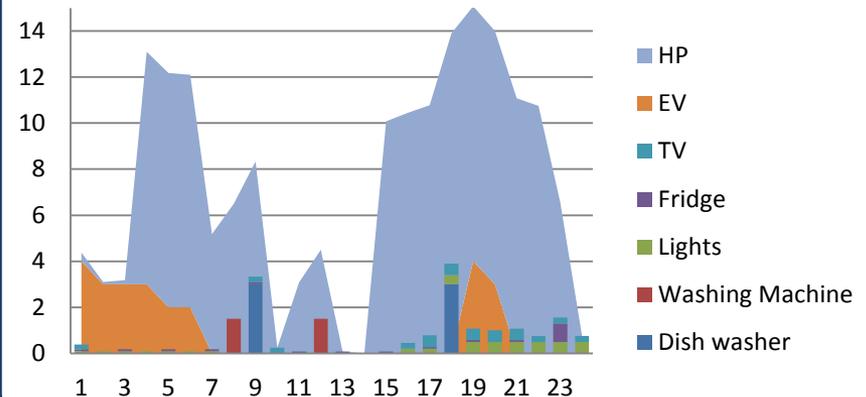
GM Situation

	By 2035
Domestic demand	<ul style="list-style-type: none"> ➤ 6GW even with optimal scheduling ➤ Domestic ADMD 2kW – 14kW
Heating	Domestic heat pumps 350 000 fitted 8-10kW for 8 hours Additional >2 GW
Transport	31% UK12M vehicles will be EV/hybrid 720 000 domestic EVs 80 000 E-Vans 3-8kW for 8+ hours. 50kW fast chargers. Additional >2 GW Manchester >400MW
Generation	93% from renewable / carbon neutral sources (800 MW connected in last 18 months)

Domestic demand profile 2012



Domestic demand profile 2030



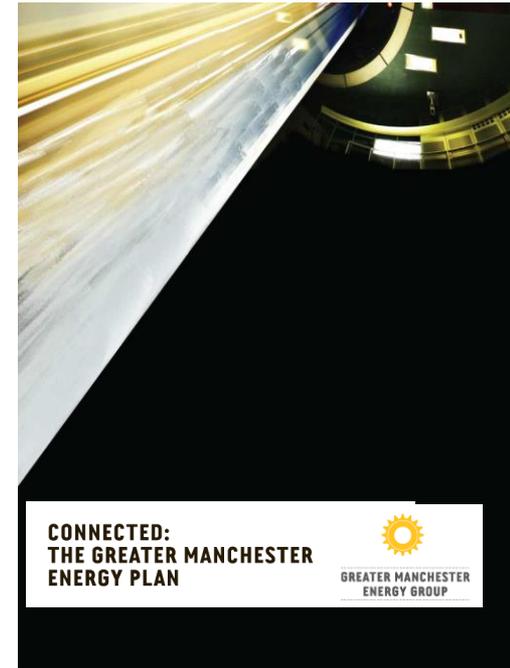
GM Energy Plan



Multi sector plan: 2012

By 2015, we will have:-

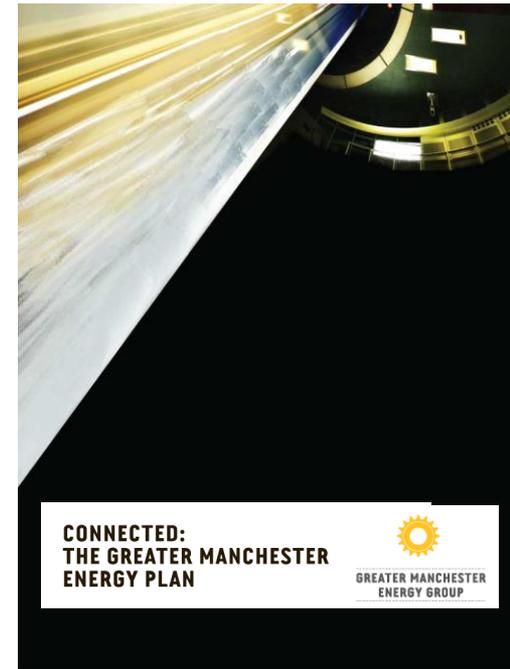
- Established effective mechanisms for delivering robust energy generation projects and infrastructure.
- Deployed smart networks trials that incorporate metering, local energy storage, demand management and price signals.
- Developed specific proposals for heat networks, energy generation from renewables and building-scale renewable heat models, which, by 2020, would result in the local / locally owned low carbon generation of 3TWh of heat and 1TWh of electricity per annum.



GM Energy Plan



- Increased the amount of electricity procured from renewable resources to 20% of GM's commercial requirements and started to offer energy tariffs to customers that retain economic benefits within GM.
- Released £100 million per annum that would otherwise be spent on energy generated outside Greater Manchester.
- Drafted an energy system balancing plan for GM and, through Electricity North West, completed a £500 million programme
- Increased the energy research presence of GM's academic institutions from £100 million to £150 million per year and substantially increased collaboration on GM challenges





Thank you

Sarah Davies
Head of Strategy and Programmes
sarah.davies@agma.gov.uk

Electricity North West Low Carbon Project

Capacity to Customers presentation to Greater Manchester Combined Authority (GMCA)

Tuesday 02 July 2013

Craig McNicol

Electricity North West - Future Networks Programme Delivery Manager

www.enwl.co.uk/c2c

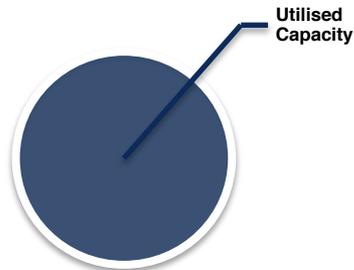


- ▶ Video
- ▶ Summary
- ▶ Timeline



Capacity to Customers

Total available network capacity



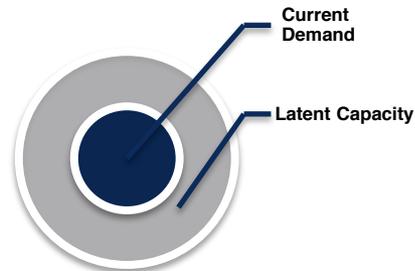
Combining proven technology and new commercial contracts

Allows us to release significant network capacity back to customers

Facilitating connection of new demand and generation without reinforcement

Technical innovation

Total available network capacity



Apply remote control equipment to the HV circuit and close the normal open point

Enhance network management software

This effectively doubles the available capacity of the circuit negating the need for traditional reinforcement

New commercial contracts



To retain customers' security of supply we will utilise innovative demand side response contracts

These contracts will allow us to control the consumption of customers on a circuit at the time of fault

Innovative, low risk and facilitates delivery of low carbon targets

Design and build

- Customer engagement plan and surveys ✓
- Commercial templates and processes ✓
- Aggregator tender process ✓
- Circuit selection ✓
- P2/6 derogation and consultation ✓
- Enhanced network management software ✓
- Equipment installation and commissioning ✓

Live trials

- Trial 'go live' ✓
- Recruit trial participants
- Power quality and losses modelling
- Carbon and economic impact assessments
- Continuously engage stakeholders
- Continuously engage with customers

Closedown

- Closedown report
- Project closedowns



**We aim to create a template for implementation
that other DNOs can learn from and use**

Low Carbon Development in Greater Manchester

Alina Gheorghiu-Currie

2 July 2013

1

**Introduction to GIB and the
Energy Efficiency Sector**

The Green Investment Bank ('GIB') is a for-profit bank set up and funded by the UK Government to accelerate the UK's transition towards a greener economy

Mission

- Accelerate the UK's transition to a green economy
- Create an enduring institution operating independently of Government

Capital

- £3 billion funding, to be committed by April 2015
 - GIB looks to stimulate co-investment from other institutions
- Ability to structure products across the capital structure
 - From senior debt to equity
 - On commercial terms
 - GIB does not provide grants, "soft capital", regional assistance or development capital

**Sectors and
Products**

- 80% of GIB capital to be invested in priority sectors
 - Energy Efficiency (Non-Domestic and support for the Green Deal)
 - Offshore Wind
 - Waste Recycling and Energy from Waste
 - Plus up to 20% in 'non-priority' sectors, including bioenergy, wave & tidal, biofuels and carbon capture & storage

ENERGY EFFICIENCY SECTORS AND DRIVERS

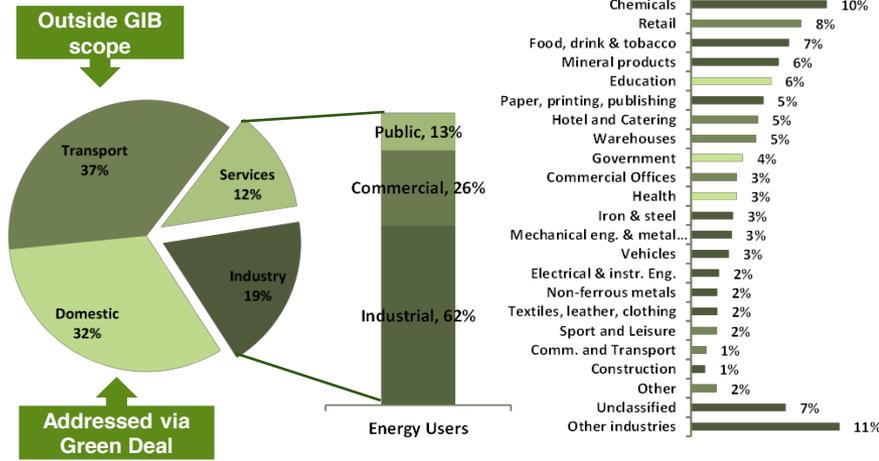
GIB identified key drivers of the Energy Efficiency market and will focus on services and industrial sectors in addition to the domestic market via the Green Deal

Energy consumption

- UK energy consumption is equally split between Transport, Domestic and Services & Industrials
 - GIB tackle all these markets except Transport
 - GIB identified priority sub-sectors within Services & Industrials based on a segmentation between Public, Commercial and Industrial players

100% = 1,740 TWh

100% = 523 TWh



Drivers

Regulation

UK EE target 20% reduction by 2020

Energy Prices

Increasing energy prices & volatility

Technology Development

Technology improvement leading to significant cost reductions & improved payback profiles

Industrial Competitiveness

Companies can see cost reductions versus competitors due to reduced energy usage

Sustainability

Companies differentiating their brand through focus and proven delivery of sustainability

GIB has identified 5 key barriers to mass deployment of Energy Efficiency projects in the UK and developed strategic approach to overcome

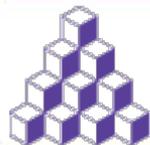
Barriers	Examples
Capital	– “There are lots of opportunities, but it’s about priority of capex.” – Electricity Intensive User
Information	– “It’s bewildering what’s on offer” – Electricity Intensive User
Costs & Risks	– “Retrofitting takes 6 months of auditing, followed by a year of disruption” – Utility company
Skill Mix	– “The EE industry in the UK isn’t sufficiently developed in terms of quality and depth. ESCOs have to bring in people from outside” – Green Finance Provider
Senior Executive Attention	– “No board member of a major corporation wakes up & thinks: what am I going to do about Energy Efficiency today.” – Major ESCO

GIB has been identified working with the Public Sector as top priority

	Public sector
Technology Clusters	<ul style="list-style-type: none"> ▪ CHP/District Heating ▪ Building Retrofit ▪ Renewable Heat ▪ Outdoor Lighting
Primary Partners	<ul style="list-style-type: none"> ▪ Local Authorities ▪ NHS ▪ Universities ▪ Central Government ▪ Local Authority Procured ESCOs
GIB Views	<ul style="list-style-type: none"> ▪ Strong policy drivers ▪ Lack of development capacity ▪ Huge replication potential ▪ Building scale is key

3

GIB and AGMA



GIB has partnered with the Associate of Greater Manchester Authorities (AGMA) with the objective of creating a development and delivery approach for the execution of low carbon infrastructure and related low carbon technologies in the Greater Manchester.

Opportunity

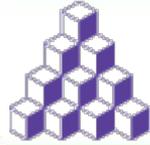
- Exciting but underdeveloped Energy Efficiency opportunity in Great Manchester
- How to package and shape the opportunity identified to accelerate investment in low carbon projects
- To deliver a wider programme of investment across the public and private sector

**Development &
Delivery
Approach**

- Focus on target sectors
- Fully incentivised to deliver
- Specialist technical and commercial expertise
- Scale - increase the size of the project pipeline
- Aggregation of opportunities
- Standardisation
- Engage private sector development expertise

Key to Success

- Access to public and private sector expert skills
- Support from AGMA and GIB
- Work closely with public and private developers
- Creative solutions



Establishing an accelerated and solid pipeline of investment is critical for AGMA and GIB

Opportunity

- Overall opportunity £350m (risk adjusted)
- Initial focus on business cased for early projects in
 - Street Lighting
 - Building retrofit
 - Heat Networks
- Consider funding options for future development and delivery

Street Lighting

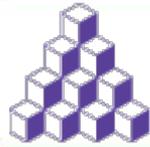
- Economies of scale from a comprehensive programme roll out

Building Retrofit

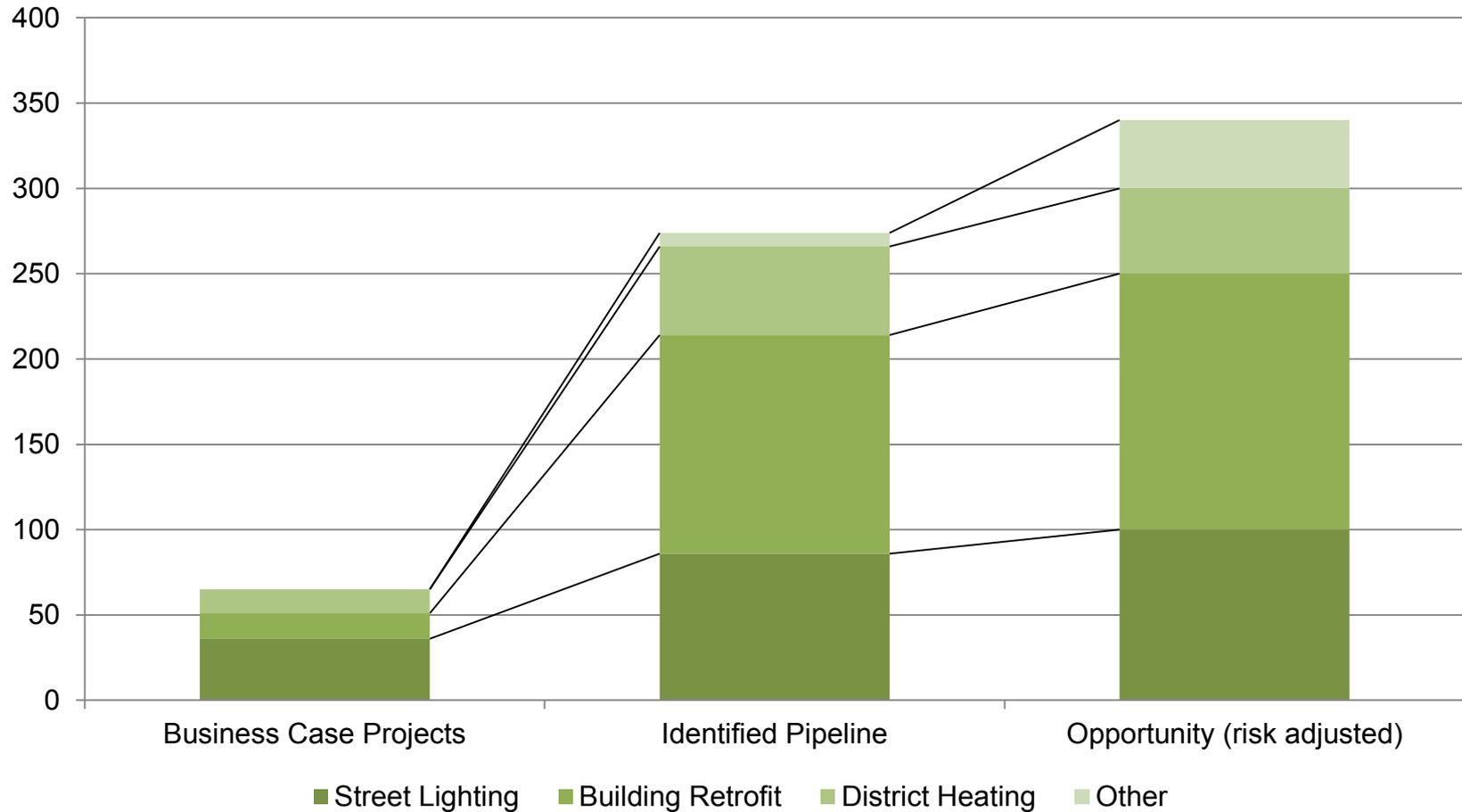
- Aggregation of opportunities across AMGA to offer an unique opportunity to the market

Heat Networks

- City region long term strategy and vision to position the emerging networks



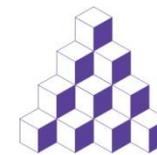
Focusing on quick win opportunities to provide confidence and demonstrator projects



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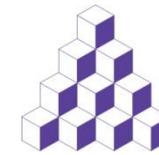
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GREATER MANCHESTER
AUTHORITIES

Greater Manchester Heat Network Programme

Jonathan Sadler
Manchester City Council

Regions 4 Green Growth
2nd July 2013

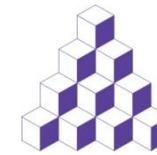
Overview



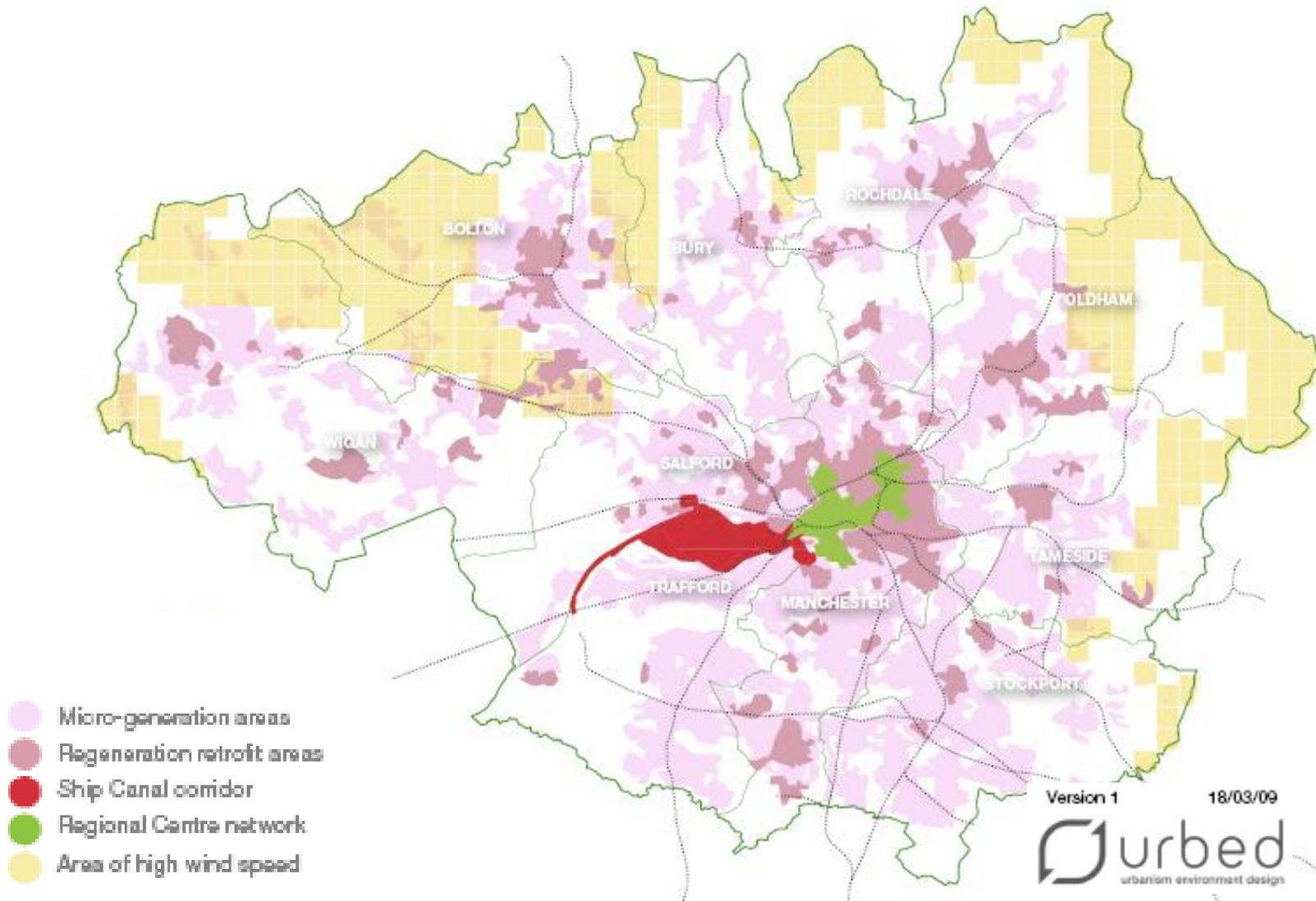
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ASSOCIATION OF
GREATER MANCHESTER
AUTHORITIES

- Background & Introduction
 - GM Heat Network Programme: overview
 - Projects & Work To Date
 - Key Risks and Mitigation
 - Next Steps
-

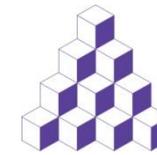
Background & Introduction (1)



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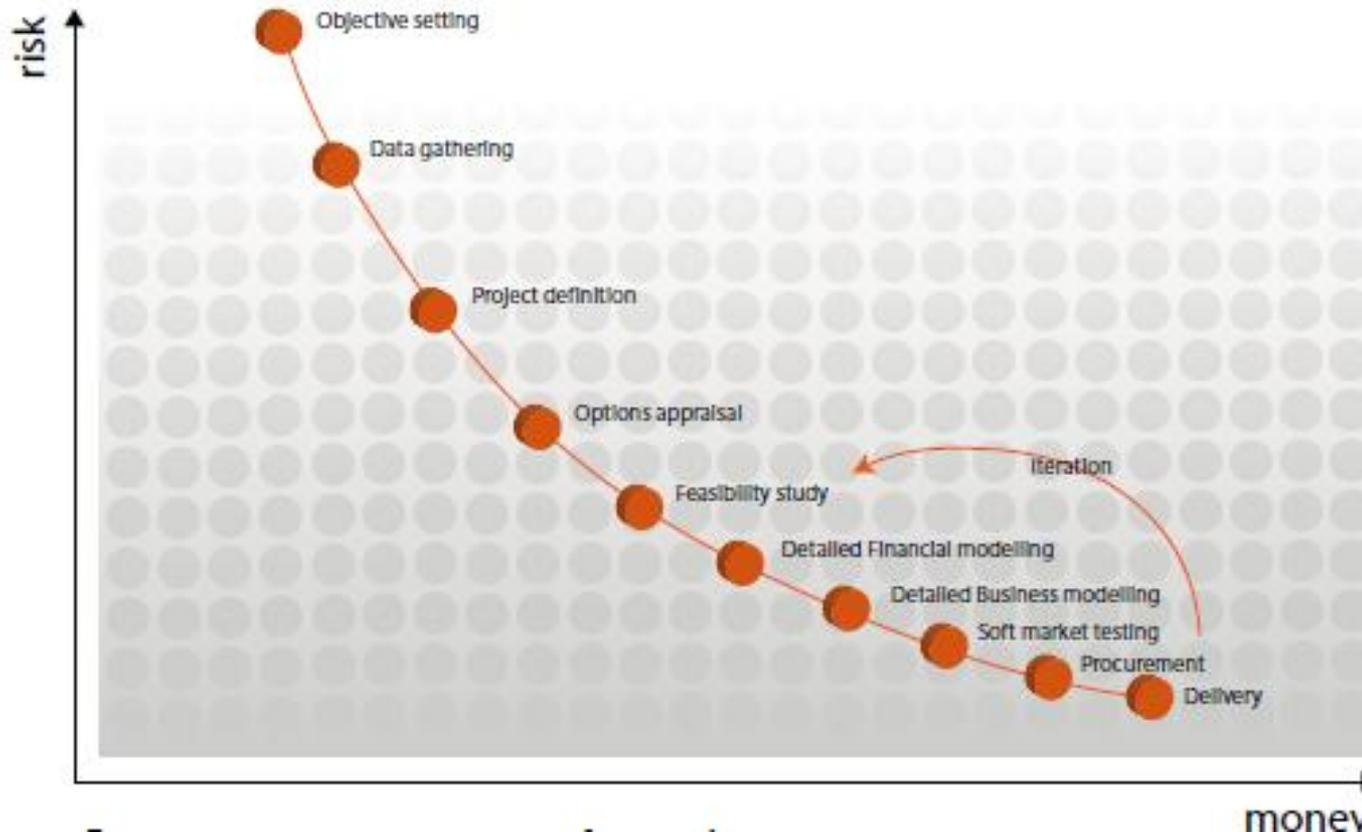
Background & Introduction (2)



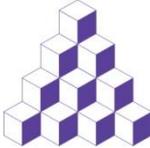
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**COMMUNITY
ENERGY:**
PLANNING, DEVELOPMENT
AND DELIVERY

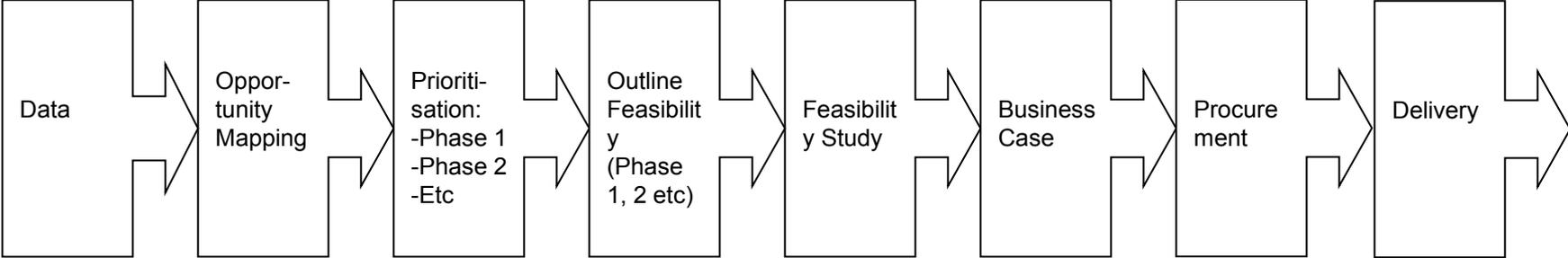
Area-wide energy mapping by local authorities



GM Heat Network Programme



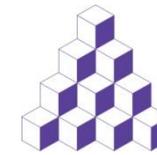
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← Pipeline →

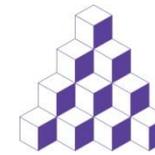
← Project Development →

GM Heat Network Programme



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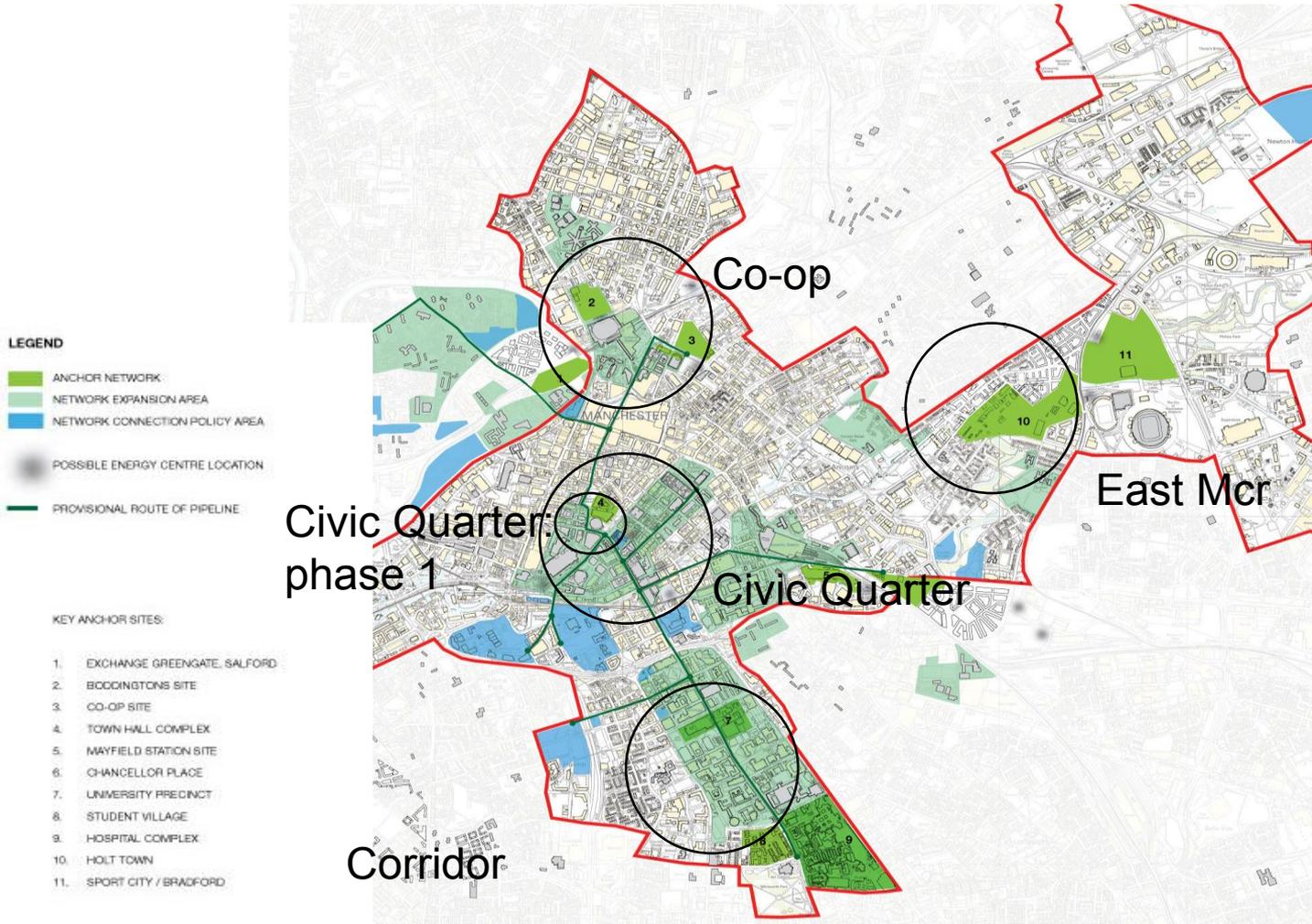
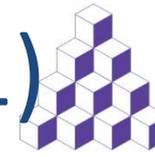
Phase 1 – identifying opportunity			Phase 2 – project development				Phase 3 – detailed design				Phase 4 - delivery
Opportunity mapping	Political support	Objective setting	Data gathering	Project definition	Options appraisal	Feasibility study	Detailed financial modelling	Detailed business modelling	Soft market testing	Procurement	Delivery
Tameside	Trafford – Carrington	Rochdale Salford		Bolton	Trafford – Stretford Rd Bury Wigan	Mcr - Town Hall Oldham Stockport					



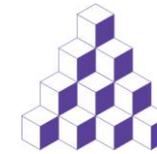
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GREATER MANCHESTER
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Projects

Manchester – Civic Quarter (1)



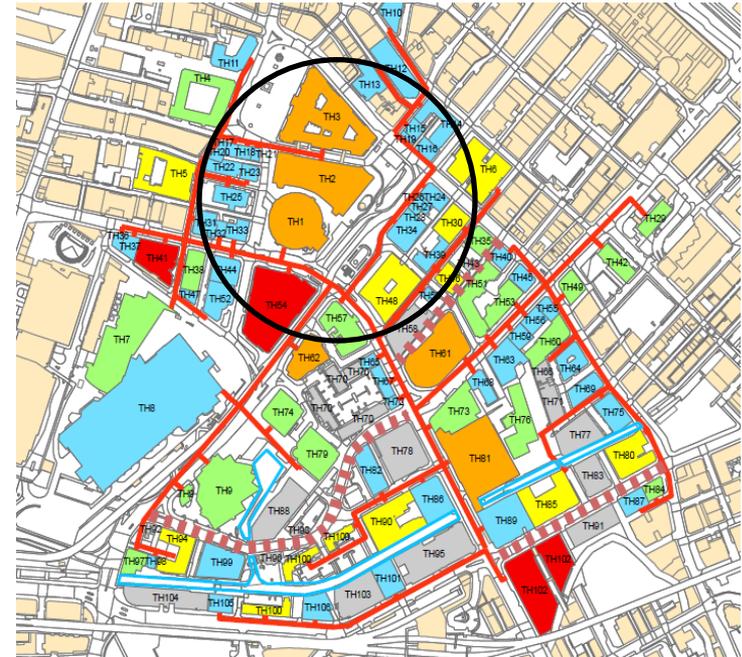
Manchester – Civic Quarter (2)



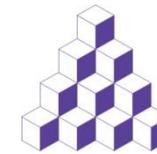
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Phase 1

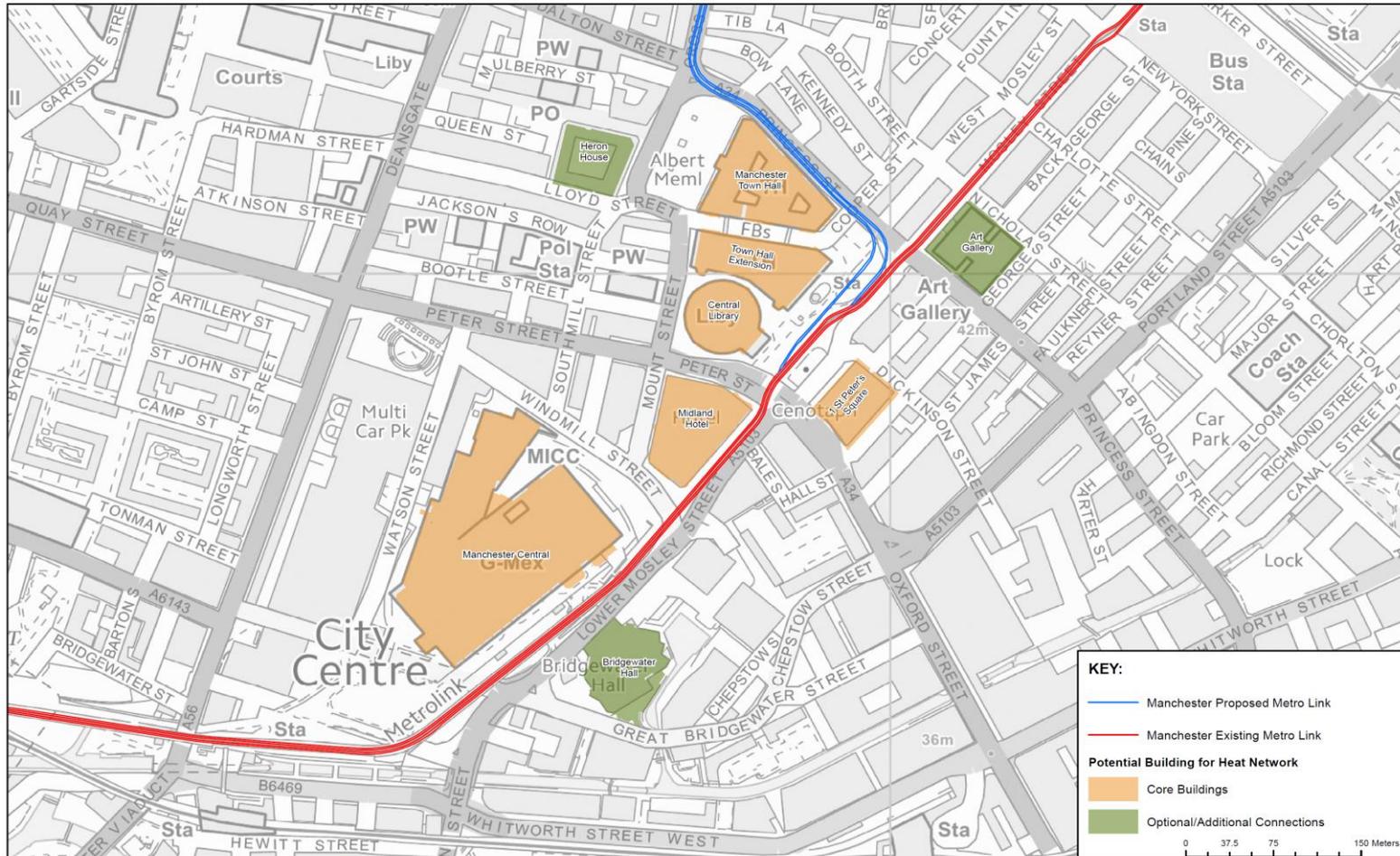
- 1 of 4(+) city centre clusters
- ~6 buildings:
 - Town Hall (Grade 1 Listed)
 - Town Hall Extension (Grade 2* Listed)
 - Central Library (Grade 2* Listed)
 - Midland Hotel
 - 1 St Peter's Square (new build office)
 - Manchester Central



Manchester – Civic Quarter (3)



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KEY:

- Manchester Proposed Metro Link
- Manchester Existing Metro Link

Potential Building for Heat Network

- Core Buildings
- Optional/Additional Connections

0 37.5 75 150 Meters

Client: **MANCHESTER CITY COUNCIL**

Project: **Greater Manchester Heat Network Program**

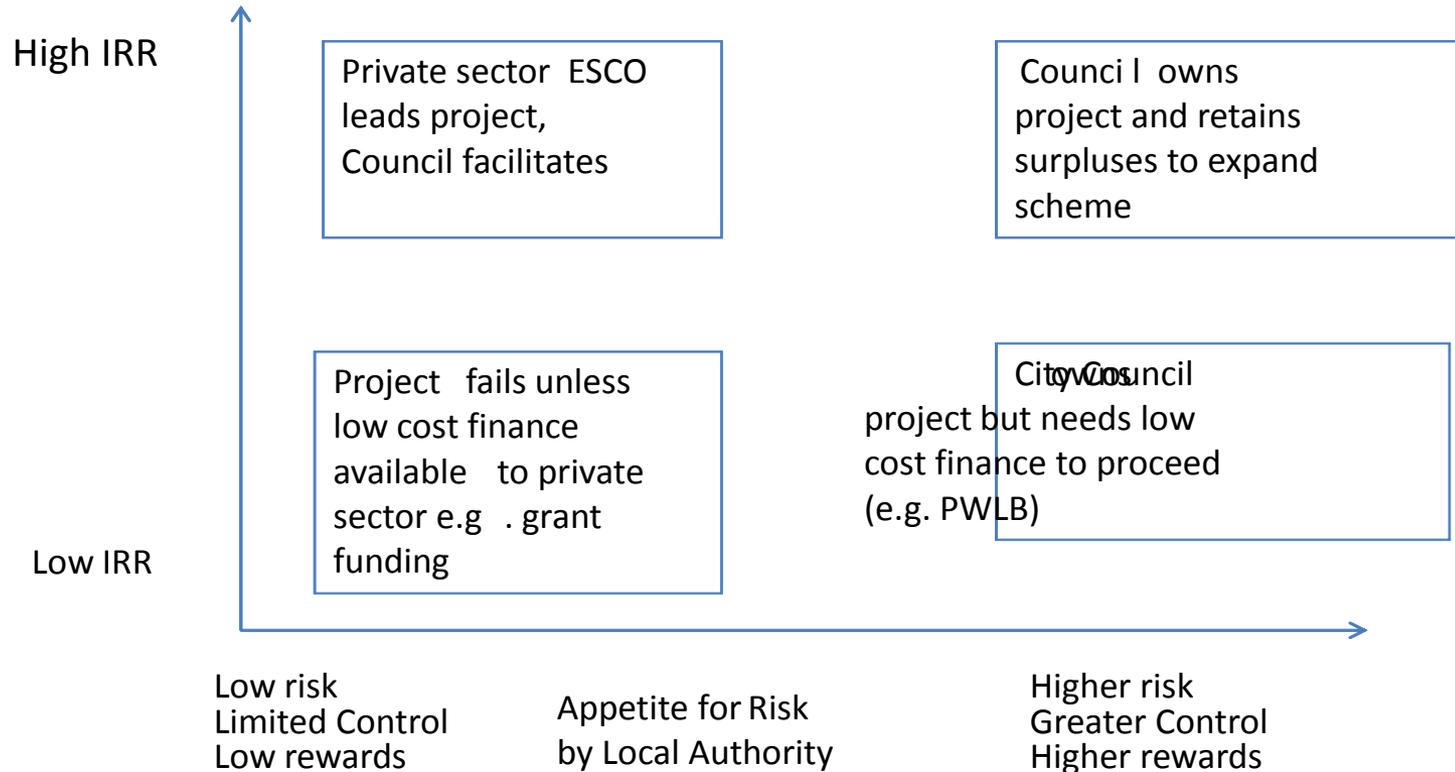
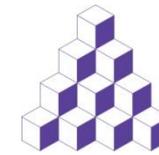
Title: **Potential Heat Network Buildings and Proposed Metro Link**

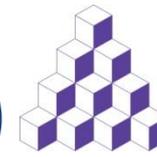
1 Tanfield
Edinburgh
SCOTLAND, EH3 5DA

AECOM
Tel +44 (0) 131 301 8600
Fax +44 (0) 131 301 8699
www.aecom.com

Design: SM	Drawn: SM
Chk'd: KM	App'd: AT
Date: MARCH 2013	Scale at A3: 1:3,000
Drawing Number:	A3

Project Delivery Vehicles



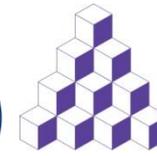


Key Risks: Project Business Cases (1)

Risk: Establishing Viable Project Business Cases

Characteristics

- (Relatively) low IRR for Phase 1
 - Over-sizing pipework; over-sizing CHP; untested
- Mitigation 1: Optimising 'Traditional' Business Case
 - Electricity sales
 - Minimising capital cost etc
- Mitigation 2: Optimising 'Non-traditional' Business Case
 - Isolate separate elements: pipe network; energy generation
 - (Government) grant/ patient capital mechanism
- Mitigation 3: Establishing Business Case for Phase 2+
 - i.e. potential for expansion
 - Local planning policy



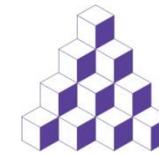
Key Risks: Project Business Cases (2)

Risk: LA Appetite for Risk

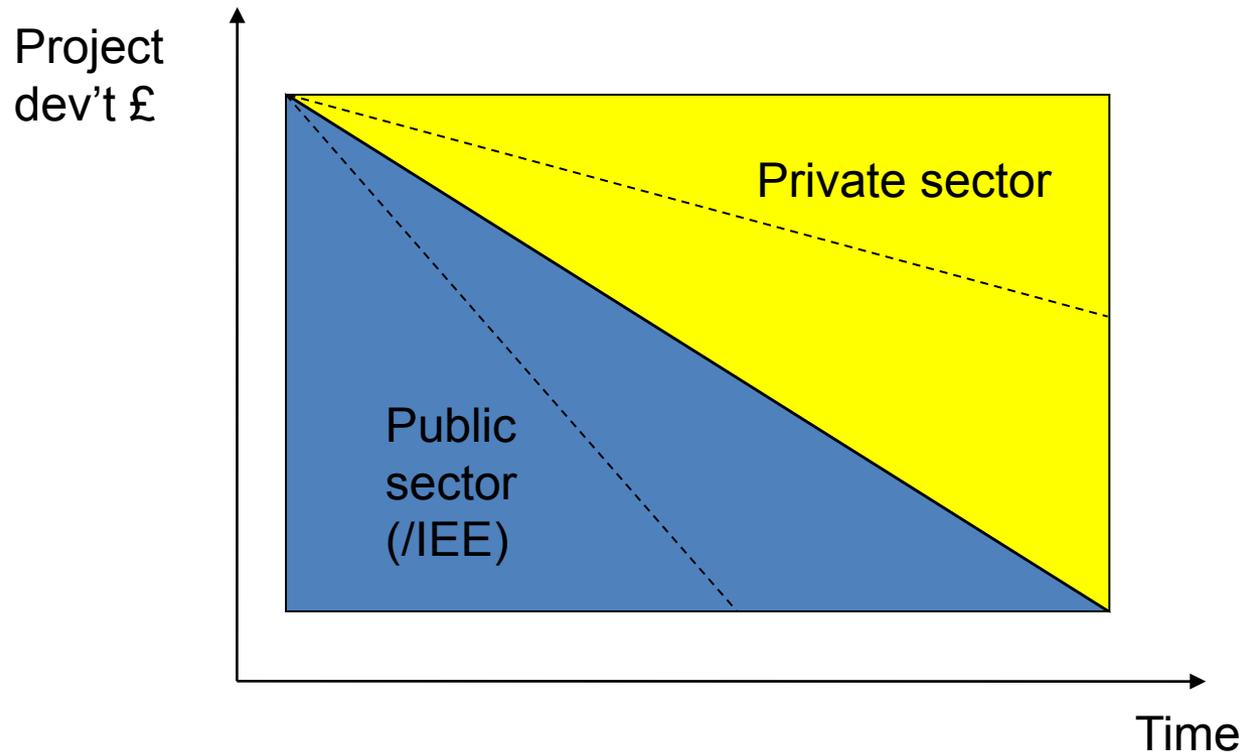
Characteristics

- LA capacity and resources are decreasing
 - Low/no experience of heat networks
 - Mitigation 1: Establish GM Programme
 - Allows piloting
 - Builds confidence
 - Mitigation 2: Use Existing (Tested) Procurement Mechanisms
 - Mitigation 3: Create Bespoke GM Procurement Mechanism
-

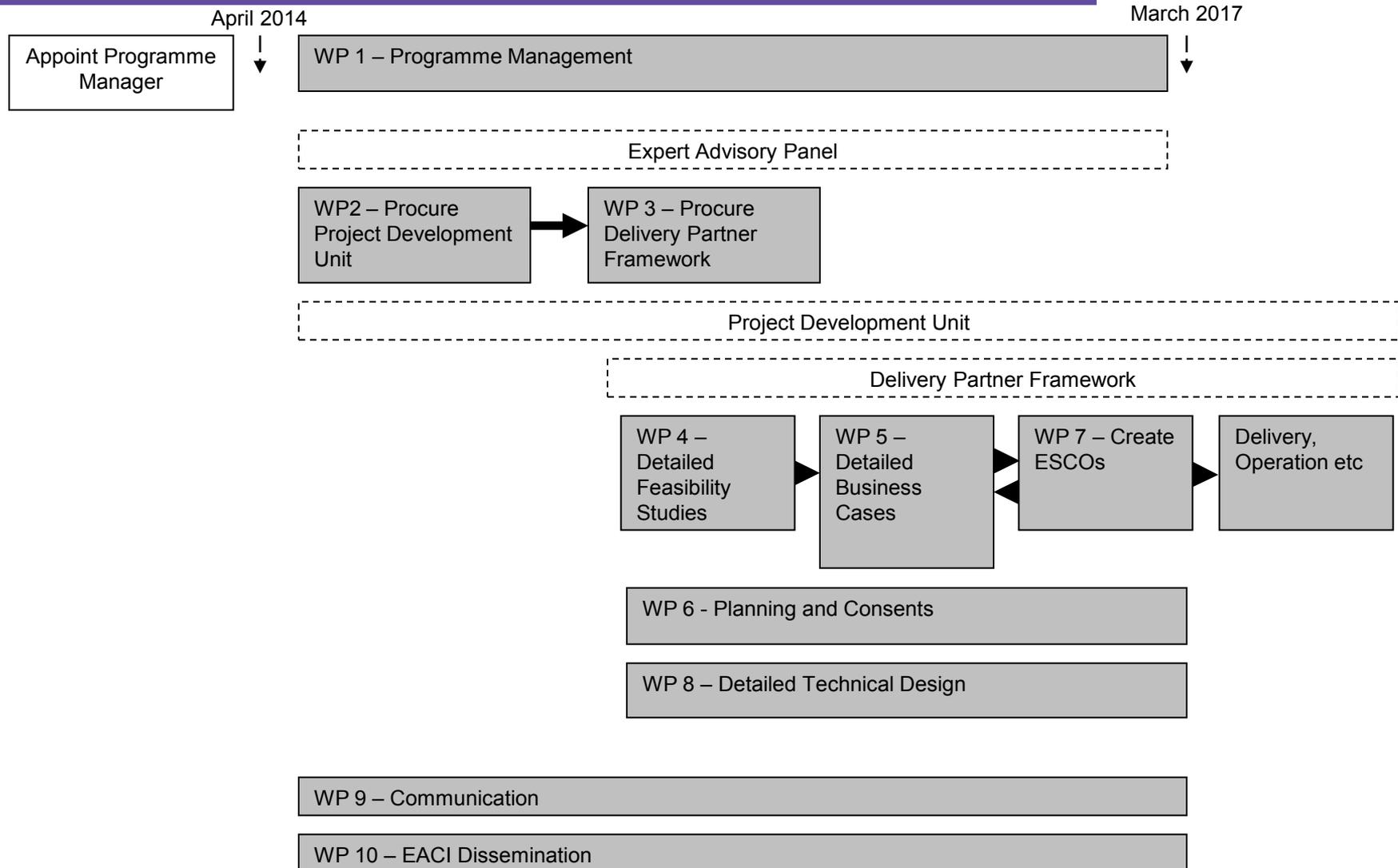
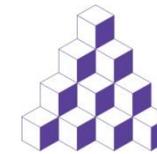
Key Risks: Programme Resources



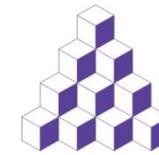
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Next Steps



Further Information



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Community Energy: design, development and delivery

http://www.tcpa.org.uk/data/files/comm_energy_plan_devdel.pdf



Planning for Growth and Implications for Energy

Presentation by David Hodcroft
Greater Manchester Planning and Housing Team

Manchester – 2 July 2013

Facts and Stats....

- Manchester is a single functional economy and single effective travel to work area and 2.6m residents and 7m within 1 hour drive of the city centre.
- Economy of £46bn GVA per annum (New Economy, 2012)
- Population grew by **6.6% (+166,000)** between 2001 and 2011
- Household growth (net new homes) projected at **169,700 – 185,340** over the next 20 years
- Integrated road, rail, tram and motorway network
- Two cities Manchester and Salford but one 'shared' centre
- 2 premierships football teams and 1 Lancashire cricket club in the regional centre
- **10 Local Planning Strategies** (on different timetables)
- 2 Joint Plans on Waste and **Minerals** (including **minerals used in the generation of energy**, and shallow and deep-mined coal, oil and gas (including unconventional hydrocarbons such as shale gas))

How we plan for growth

- Purpose: Planning authorities should plan for **sustainable** (= ensuring that better lives for ourselves don't mean worse lives for future generations) **development** (= growth)
- **Plan led** system of development management – Permission for new development
- Projects of **national significance** determined by the Major Infrastructure Planning Unit with approval by the Minister
- Local Projects determined by the Local Planning Authority in accordance with the Local Plan and national framework
- **National Planning Policy Framework** – Series of prescriptions on what a Local Plan should consider and address e.g. housing need, land for growth, infrastructure, protection of natural environment etc
- Individual districts have a **'duty to co-operate'** with each other to agree how to manage strategic planning and infrastructure issues.
- If the Local Planning Authority fails to meet targets (i.e. speed and quality of decisions) then it is placed in special measures. Having a **5 year supply of developable land** for housing also essential.

Changes in Strategic Planning Structures

1986

Abolition of Greater Manchester Council and formal sub regional planning

1990

10 Unitary Development Plans – Informal regional planning

2004

Formal regional planning Regional Strategy and Local Core Strategies

2008

Regional Spatial Strategy – Regional targets and policies to repopulation the urban centres and conurbation core

2010

Abolition of Regional Planning (formally revoked on 20 May 2013)

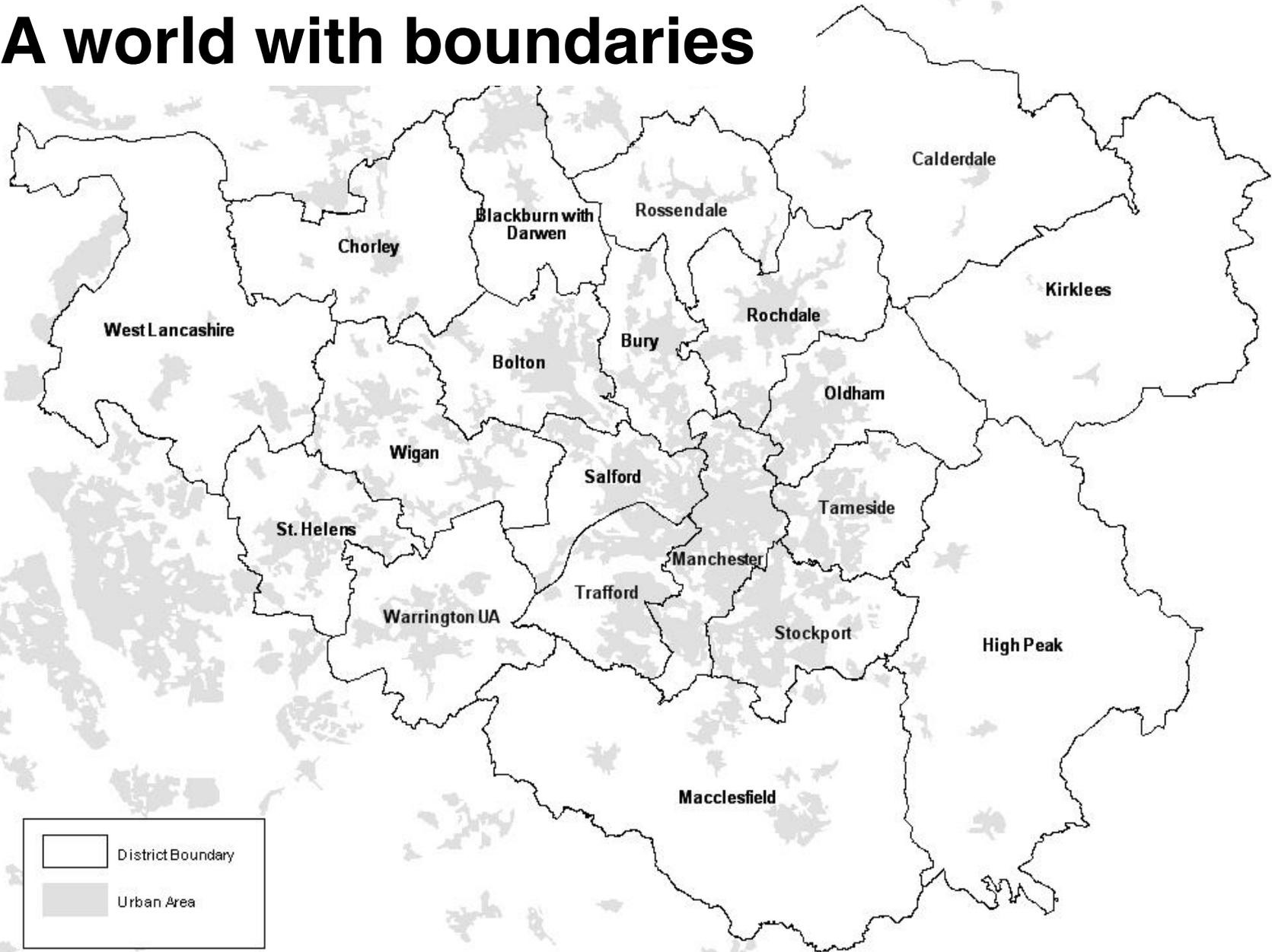
2011

Localism Act (duty to co-operate) / LEPs introduced to address the strategic gap

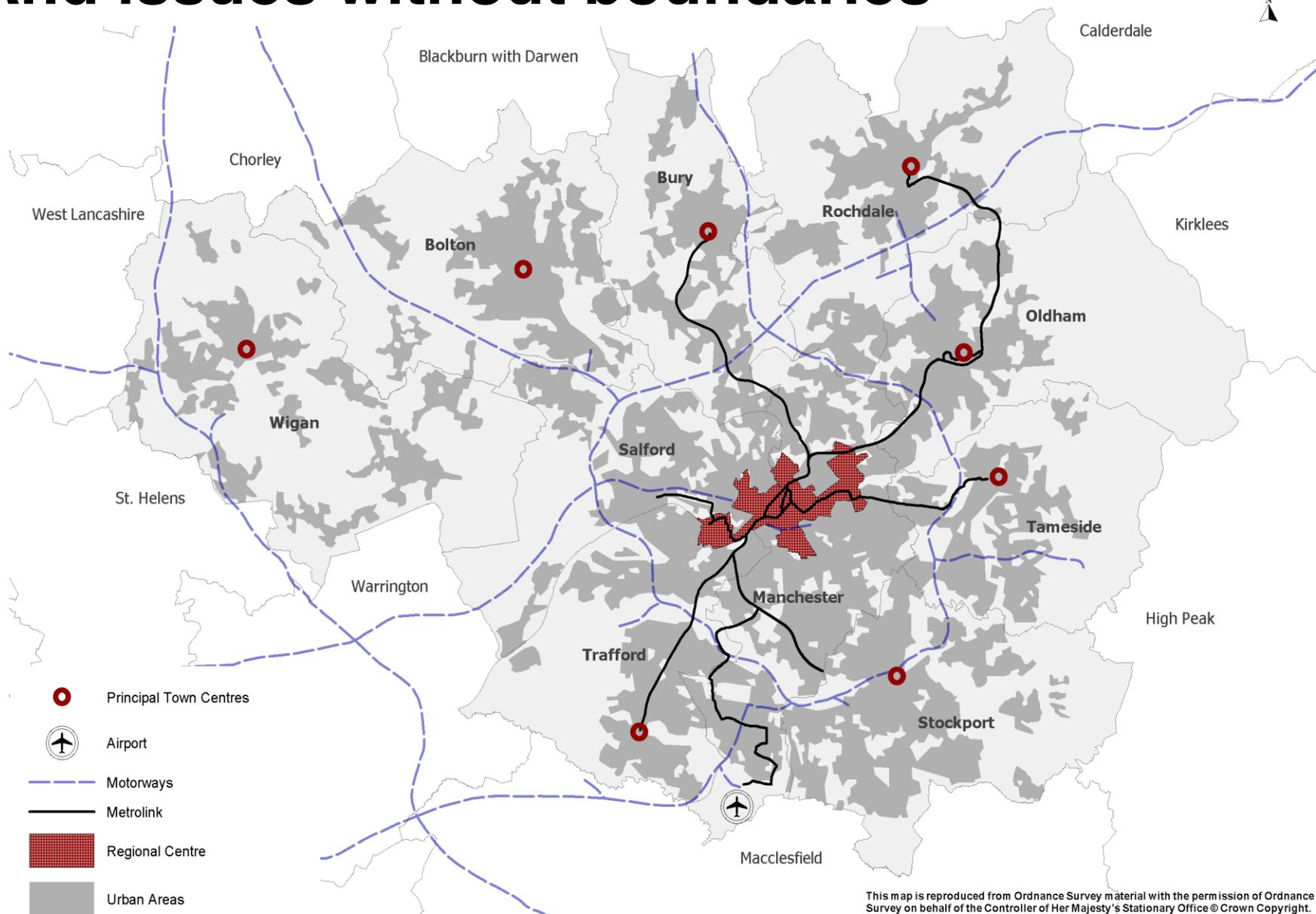
2012

National Planning Policy Framework and ‘presumption in favour of sustainable development’

A world with boundaries

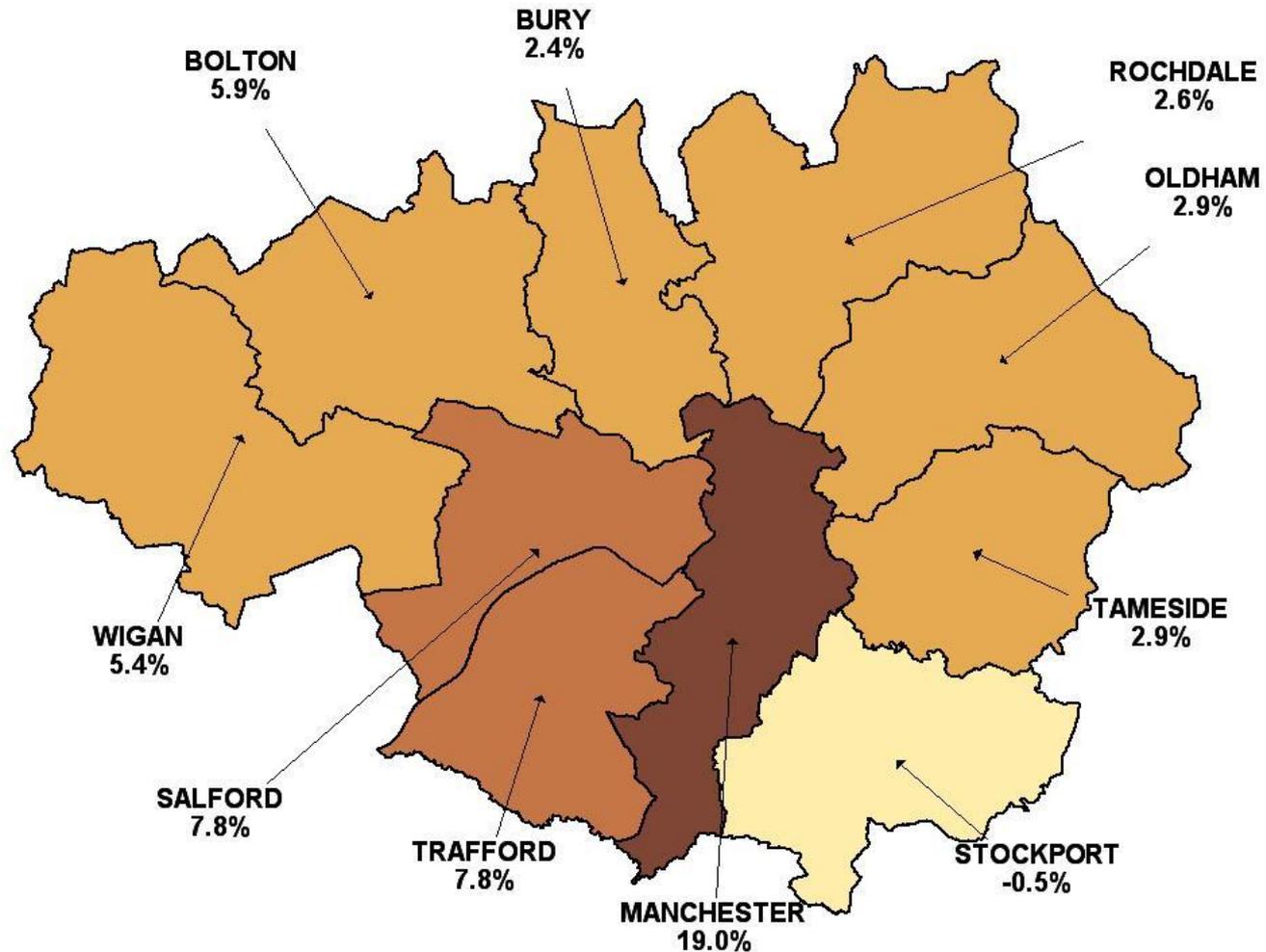


And issues without boundaries

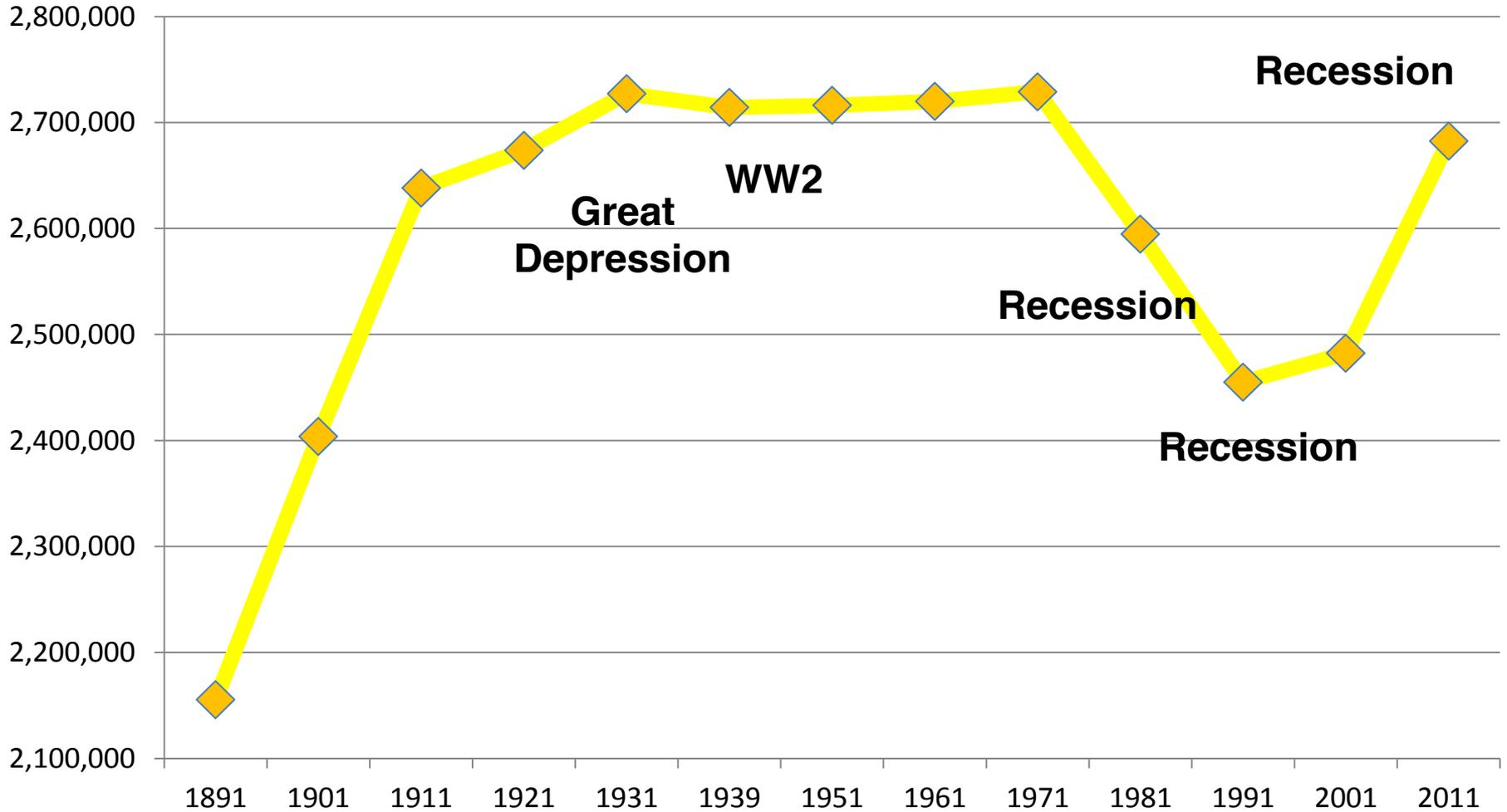


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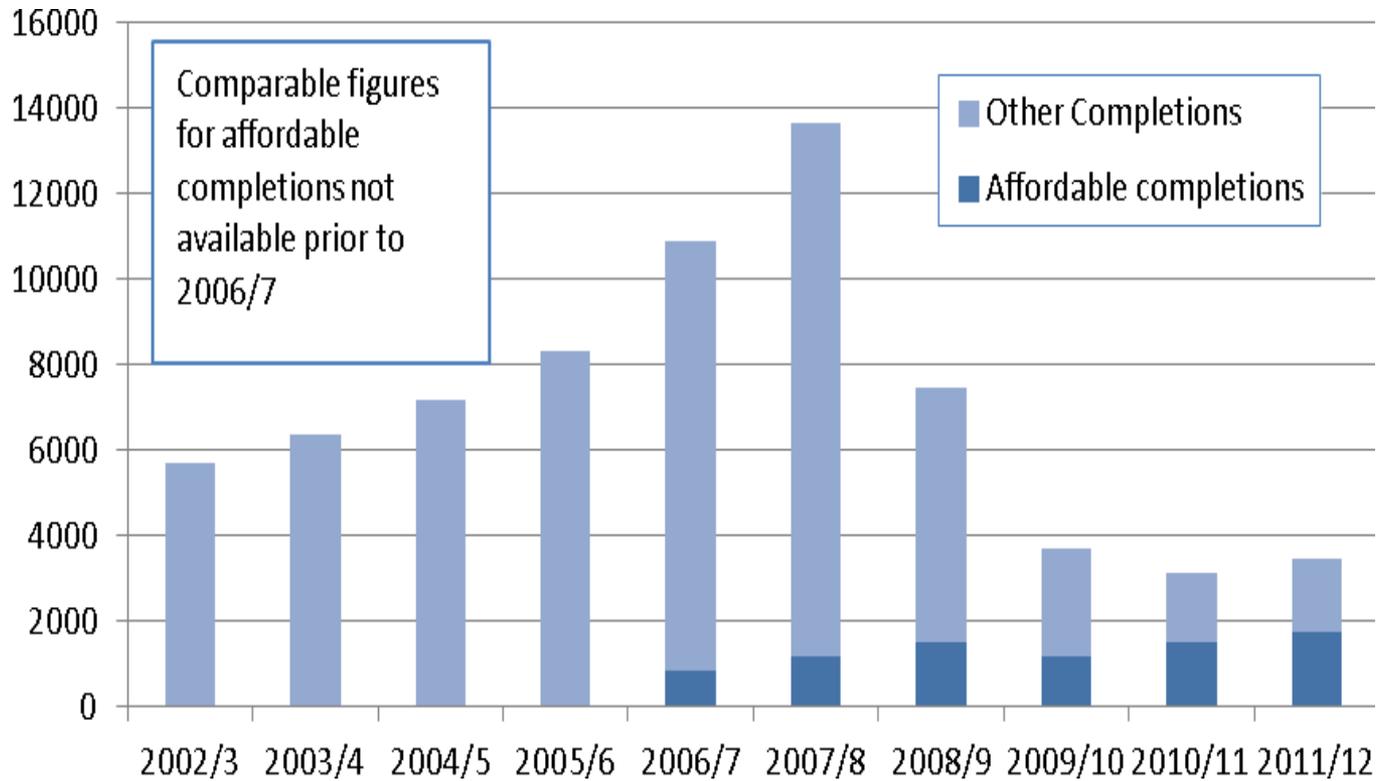
Population growth (2001-2011)



Population in GM 1891-2011



Homes for a Growing Population



Greater Manchester Strategy (2013)

Four interrelated and focussed priorities for Planning and Housing to support 'smart growth':

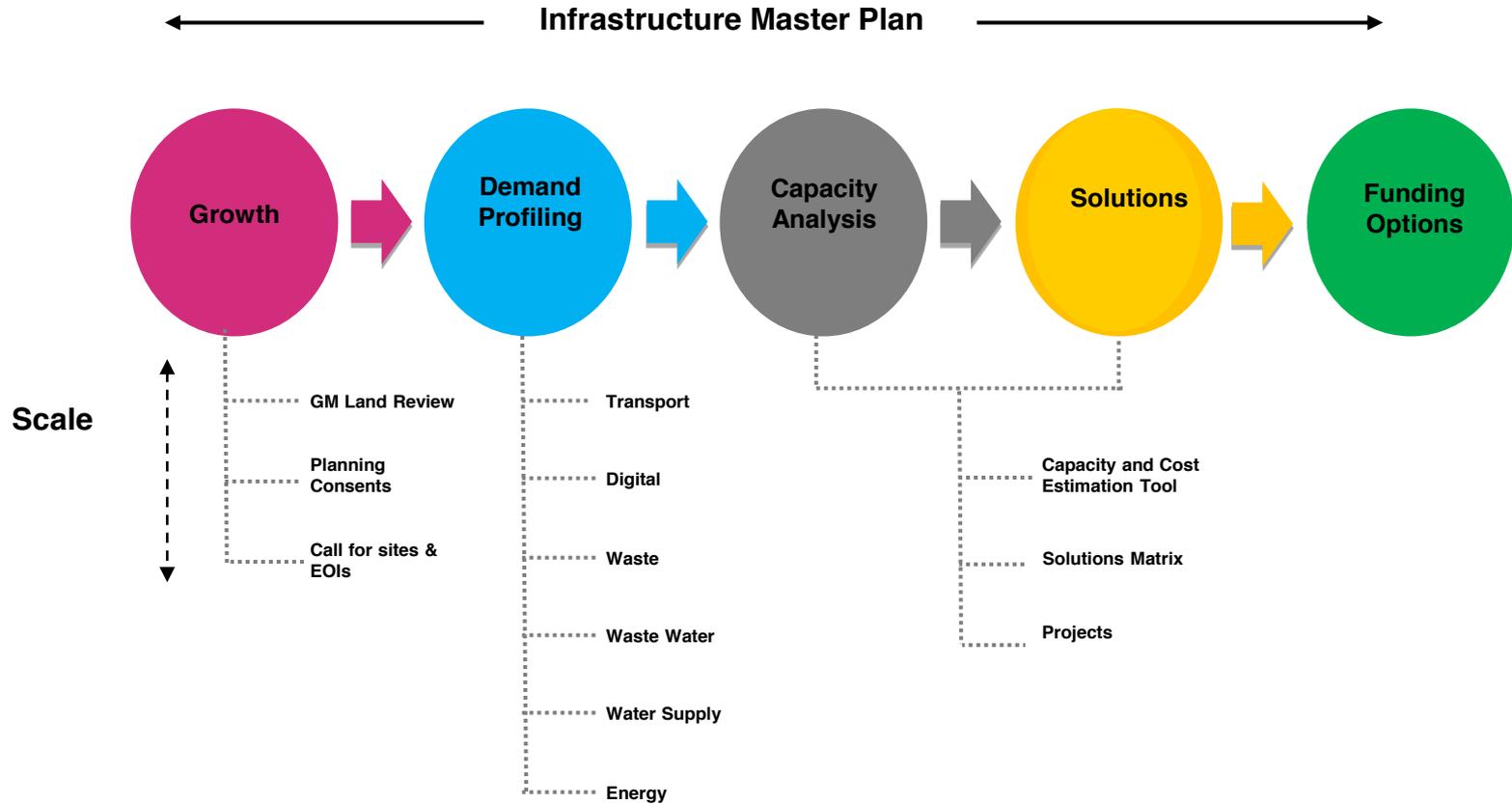
1. Create a blue-print for our town centres, applying creative approaches to redevelopment of the offer
2. Review land supply to support growth in those locations most attractive to the market
3. Attract and retain talent by creating places where people want to live through stimulation of the housing market and delivery of a high quality residential offer
4. Masterplan and deliver the investment necessary in the existing and critical infrastructure required to support growth

Why Infrastructure?

- Infrastructure is the backbone which supports and interconnects our modern economies.
- Infrastructure can be large scale and strategic or site specific and required to unlock development locations.
- Infrastructure investment is driven by change arising from:
 - Growth – population and new development
 - Increasing climate risk
 - Age and quality of existing infrastructure
 - Technology change e.g. electrification of transport
 - Regulatory change e.g. improvement to water quality
- A lack of infrastructure can not only stall development but can often be a disincentive to existing communities to support development.
- Timing is essential and ideally infrastructure should be provided in advance.

Infrastructure Master Plan

Timescales



Energy + Planning = Energy Planning

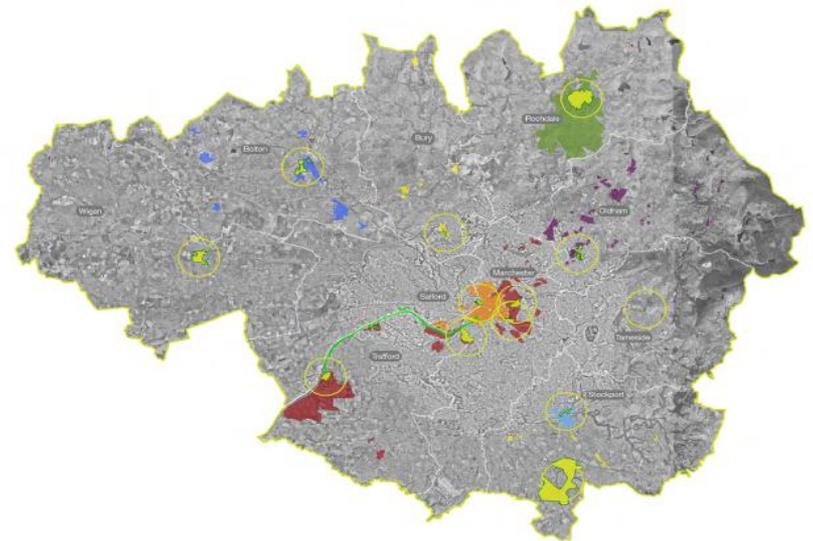
Study Completed in 2010, evidence to:

- Provide the **right low carbon infrastructure in the right place** to secure Greater Manchester's low carbon growth ambitions.
- Develop a **spatial framework** and work programmes that enables investments in low carbon infrastructure.
- **To Integrate planning, investments, incentives and infrastructure plans** across Greater Manchester.
- To enable **opportunities to move from concept to delivery** more quickly and providing the right scale to attract investors.

A report prepared for AGMA by URBED, AECOM and Quantum Strategy & Technology

Decentralised and zero carbon energy planning

January 2010





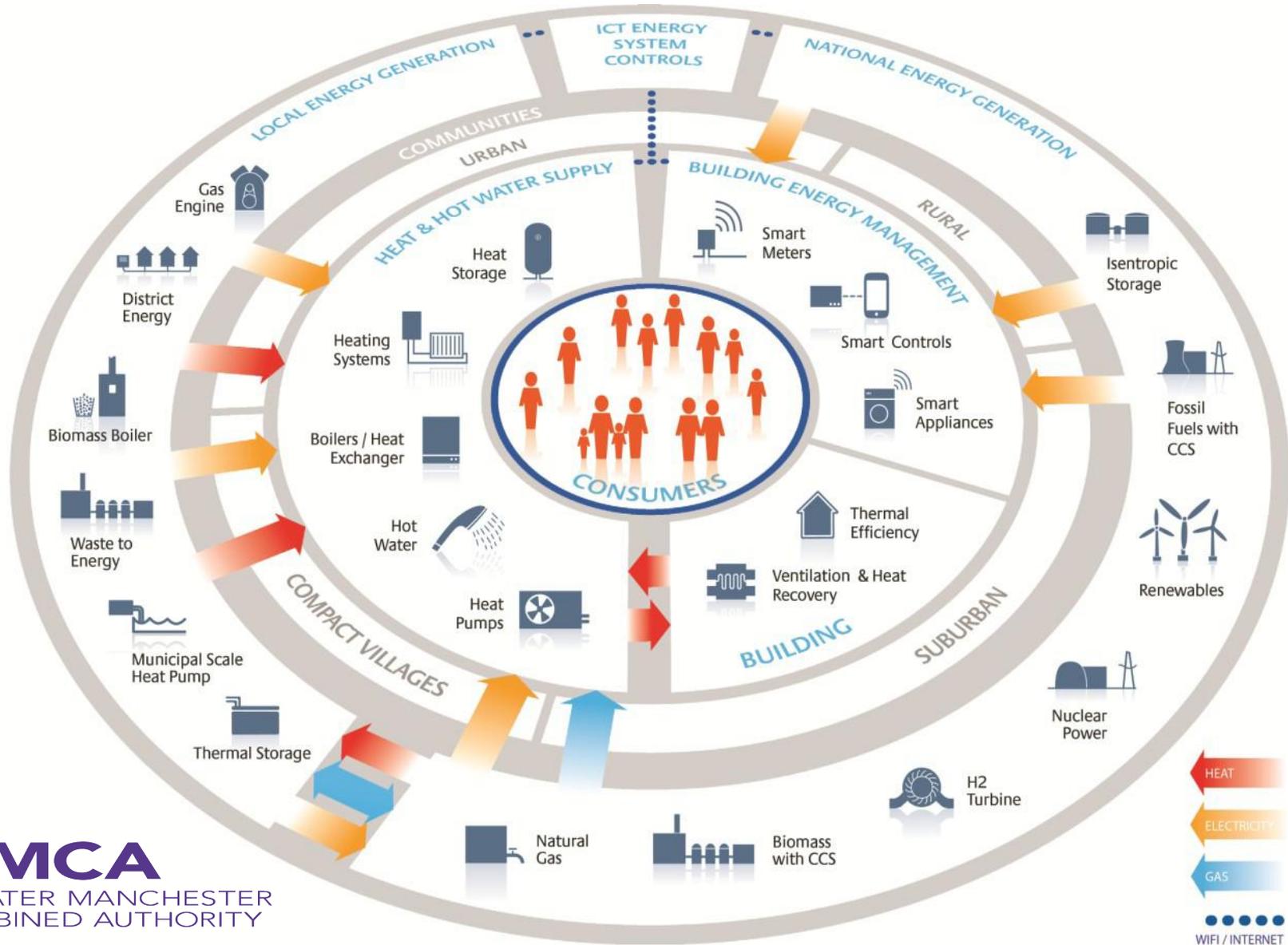
Energy

Overview of Projects

Sarah Davies
Head of Strategy and Programmes



GM Energy



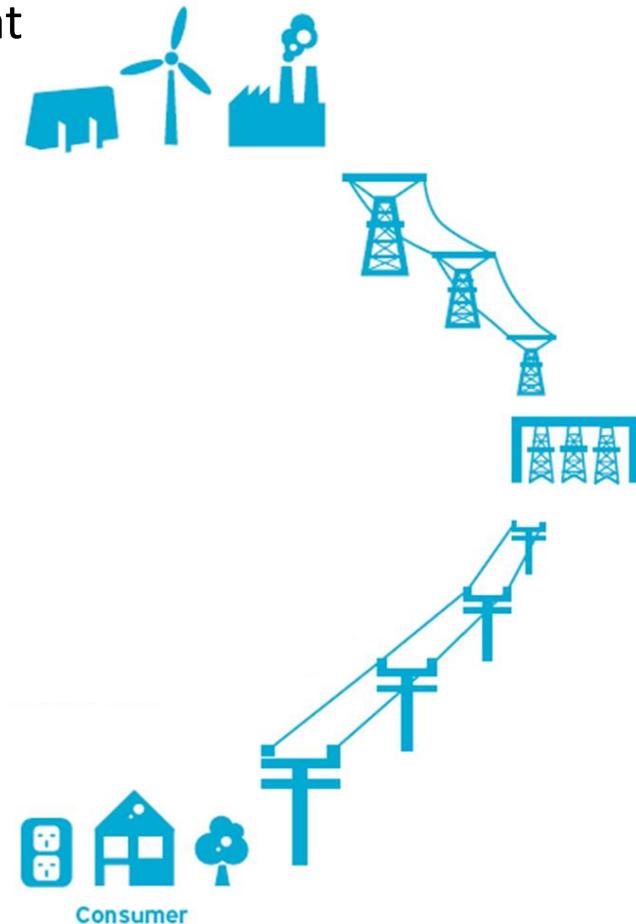


GM Energy

- **GM Energy Facts:**

- 25.8TWh of gas for commercial and domestic heat
- 11.7TWh of electricity; and
- 20TWh of petroleum products
- Cc 5TWh of planned gas generation
- 0.5TWh of actual, and 0.5Twh of planned renewable electricity generation
- Cc 6TWh of renewable electricity generation opportunities
- 0.2TWh of renewable heat generation
- Cc 20TWh of renewable heat opportunities.
- 0.3TWh of renewables from finite energy sources (landfill gas)

Electricity: From plant to plug



GM Energy



- **Current Work Programme: 42 projects including:**
 - the UK's largest LG energy switching collective
 - smart network aggregation, trading, demand shift and voltage variation trials,
 - local government energy contract innovation
 - Community energy investment models
 - Heat network and building scale heat Feasibility
 - Heat Mapping
 - Hydro, geothermal and wind opportunities
 - Energy modelling
 - DECC strategy input: 2050 cities, PV, EMR, Green deal & building scale heat
 - Metrolink
 - Electric Vehicles
 - £100m R&D programmes

GM Projects

	Building Blocks
Smart generation	Heat networks initiative Cc 0.9TWh /yr of renewables generation (landfill, wind, hydro, PV) Around 50,000 homes with microgeneration (heat or power) Opportunities; geothermal, wind, hydro, ASHP, GSHP, Waste, AD
Smart Distribution	£11m demand side response trial £10m voltage variation network trial Aggregation, capacity market trading and private network contract trials
Smart Buildings	Green Deal Go Early - £10m retrofit of homes DIMMER Building Energy Modelling – a £4m European project Public Sector Retrofit – Joint venture with the UK Green Investment Bank Major civic and private sector projects – cutting edge low carbon build
Smart Trading	UK's biggest Energy Contract switching campaign – over 50,000 sign ups Reforming Local Government Energy Purchase – collaborative buying
Smart Users	ENWORKS Business Support Carbon Literacy Green Technology College – major UK leading collaboration on low carbon technology and smart meter skills training
Smart Research	UK's only High Voltage Laboratory Bid to become UK's Power Systems Research Hub Over £100 million in 3 universities – Energy Modelling, hydrogen, Dalton Research Institute, PV cells, Tyndall Climate Change, Ecocities

UK Policy



Measures:

- **Capacity Market to be initiated in 2014**
- **Renewable Strike Prices (contracts for difference)**
- **Feed in tariffs and renewable heat incentives for microgeneration**

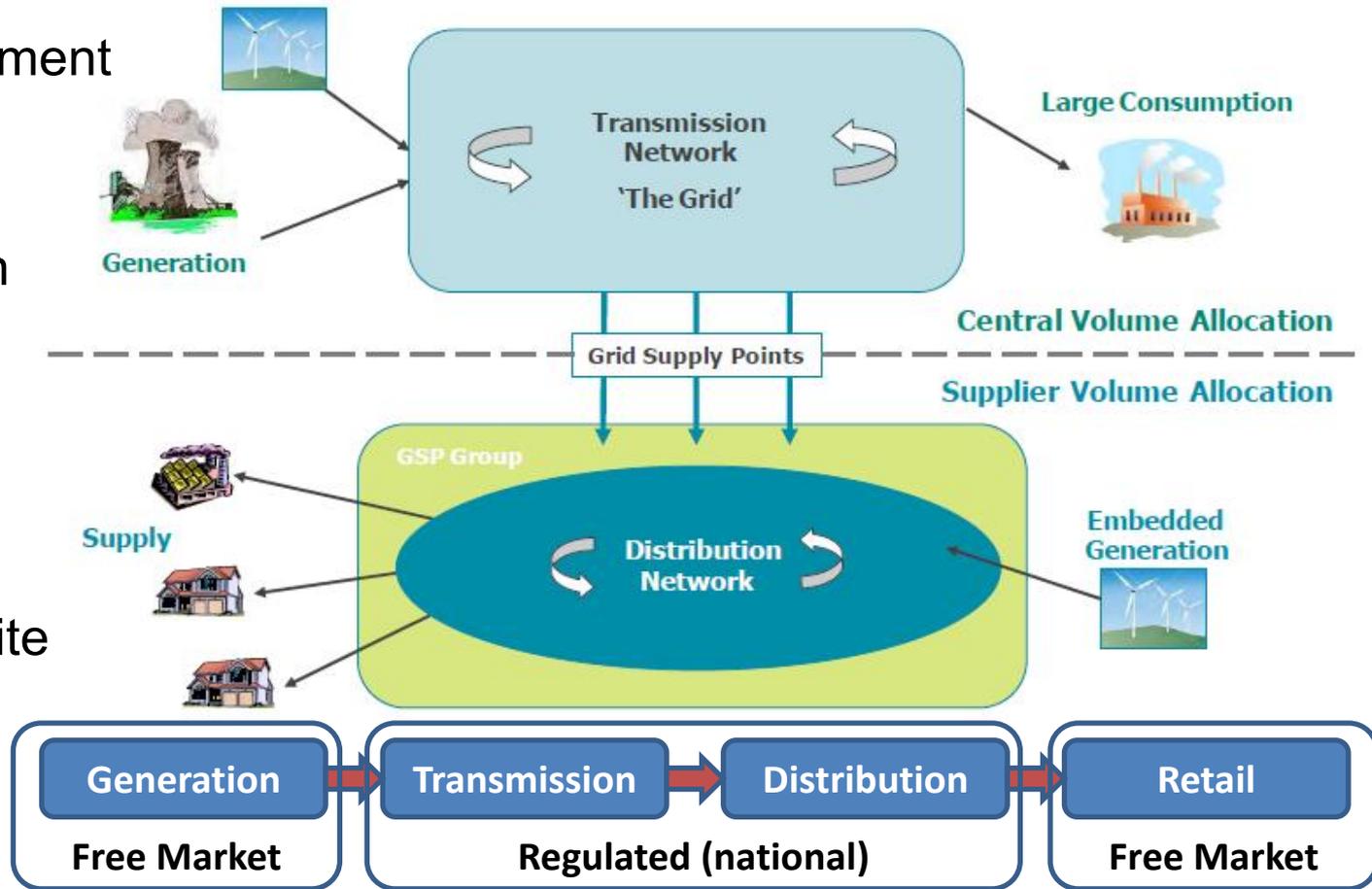
Expected Results:

- **Deliver flexible electricity supply to meet future demand and reduce risks to security of supply from winter 2018**
- **Stimulate £110 billion energy infrastructure investment and support up to 250,000 jobs by 2020**
- **help renewables contribute more than 30% of total power by 2020**

Heat & Power Generation



- Carrington
 - Private investment
 - 2 x CC Gas turbines
 - ESBi / Carlton
- Peel Energy
 - Wind
 - Biomass
 - Hydro
- Commercial on-site renewables
- Rent a roof PV schemes



Heat & Power Generation



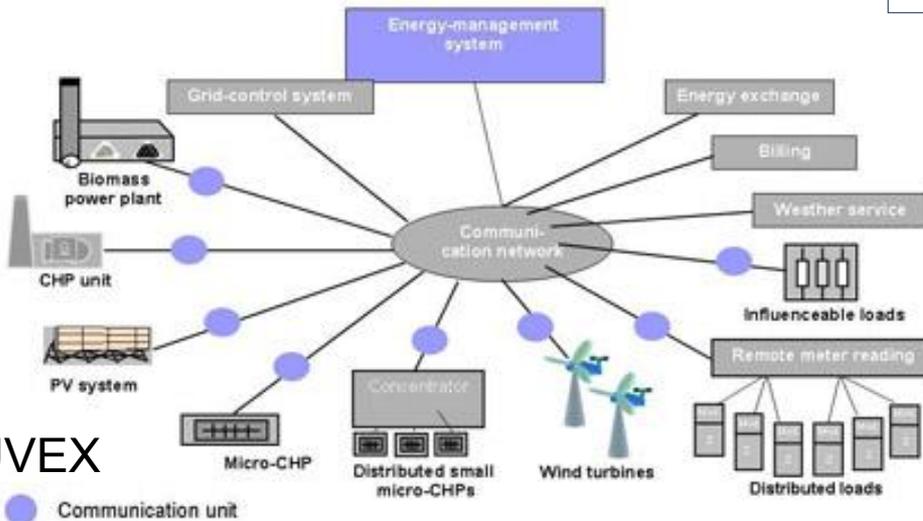
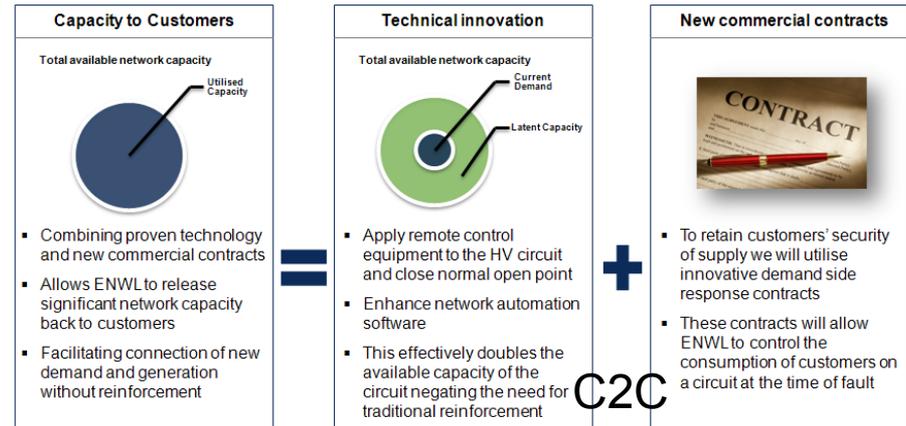
- Geothermal
 - 2 sites in Manchester
 - 17 sites in Greater Manchester
 - Understand wider implications
- Coal bed methane / Gas
 - Current applications
 - Wider implications
 - GM position
- Carrington: 2 large CC gas turbine generation projects
- Biomass
 - Commercial, large to small domestic
- Hydro
 - Integration of WFD and planned works with hydro opportunities: A GM JV?
- Hydrogen
 - GM Hydrogen partnership
- Wind
 - Significant extension to Scout Moor
 - 6 more sites in pre-planning





Energy Highlights

- Capacity and Demand side response trials
- GM Energy Procurement
- Hydrogen Partnership
- Smart networks



- Manchester Energy
- Siemens Renewable Energy Centre
- Renewable heat – 6 heat networks
- Electricity Market Reform
- Community Energy

Case Studies



- Energy Switching: £3m saved
 - Over 50,000 cumulative sign ups
 - Transparency in the trading chain
 - Dedicated fuel poverty, fuel debt and pre-payment meter switching support
 - Unique community energy fund for finders fees



Demand Response in CLASS Project



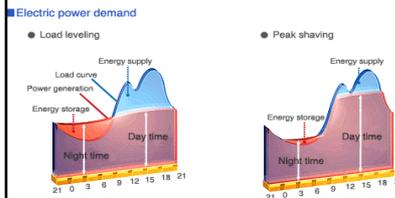
CLASS uses the known relationship between voltage and load to generate a demand response by applying a very small voltage reduction to generate a large demand response

Today

High Peak Demand

2% decrease in demand

At time of peak defers reinforcement allowing more Low Carbon Technologies to be connected at lower cost. Allows rapid connection of LCTs



Lower network costs
Faster connections

Tomorrow

Response & Reserve

2% decrease in demand

Compensates for loss of a large power station. Allows more low carbon generation to be connected and reduces need for reserve.



Lower balancing costs
Reduced carbon

And into the future

Wind Following

2% increase in demand

Allows several large wind farms to stay on load maximising the free wind



Lower energy costs

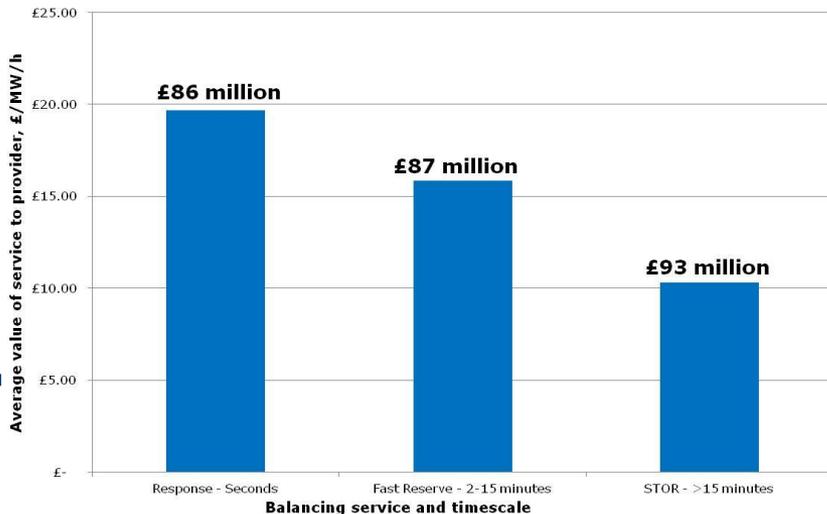
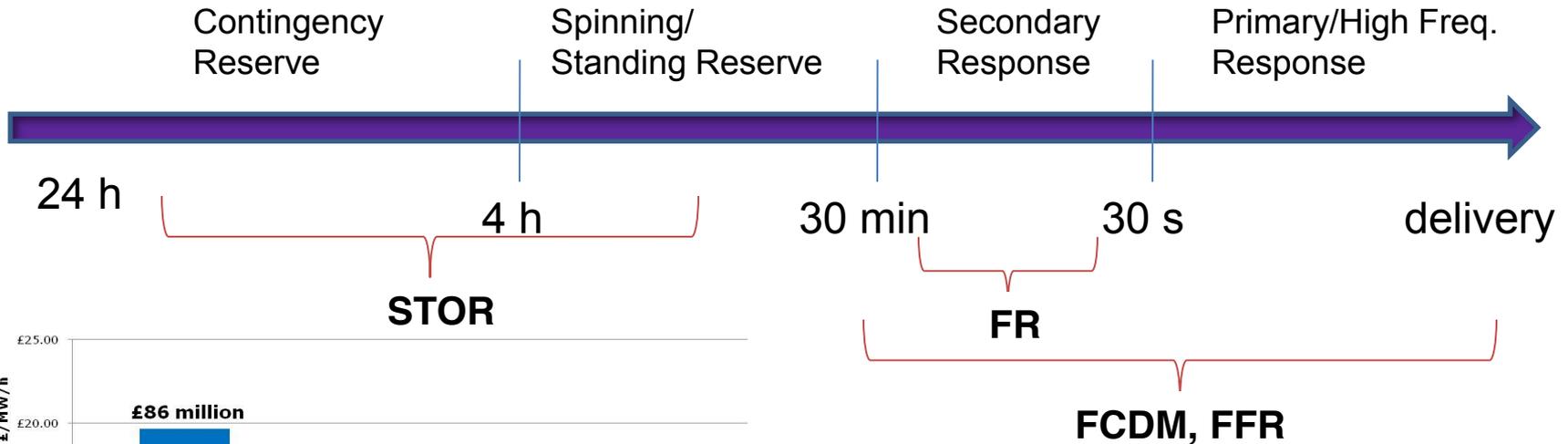


Case Studies

- UVEX / DIMMER

- A modelling tool for energy flows in communities

National Grid Reserve and Response Time Scales

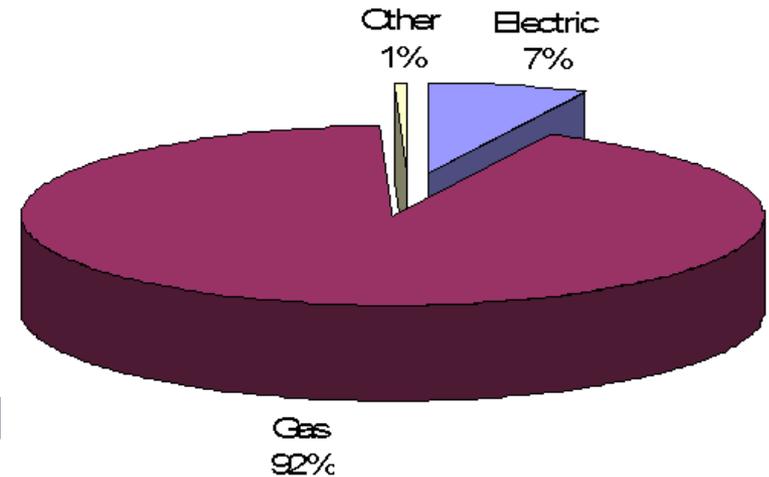


STOR = Short Term Operating Reserve
FR = Fast Reserve
FCDM = Frequency Control by Demand Management
FFR = Firm Frequency Response

NEDO



- Heat is a critical challenge
- We need to change culture AND technology AND markets
- £20m agreement with Japanese Government Agency
 - Trial air source heat pump / demand aggregation in cc 500 homes
 - Hitachi, Daikin, Mizuho, GM partnership





Thank you

Sarah Davies
Head of Strategy and Programmes
sarah.davies@agma.gov.uk



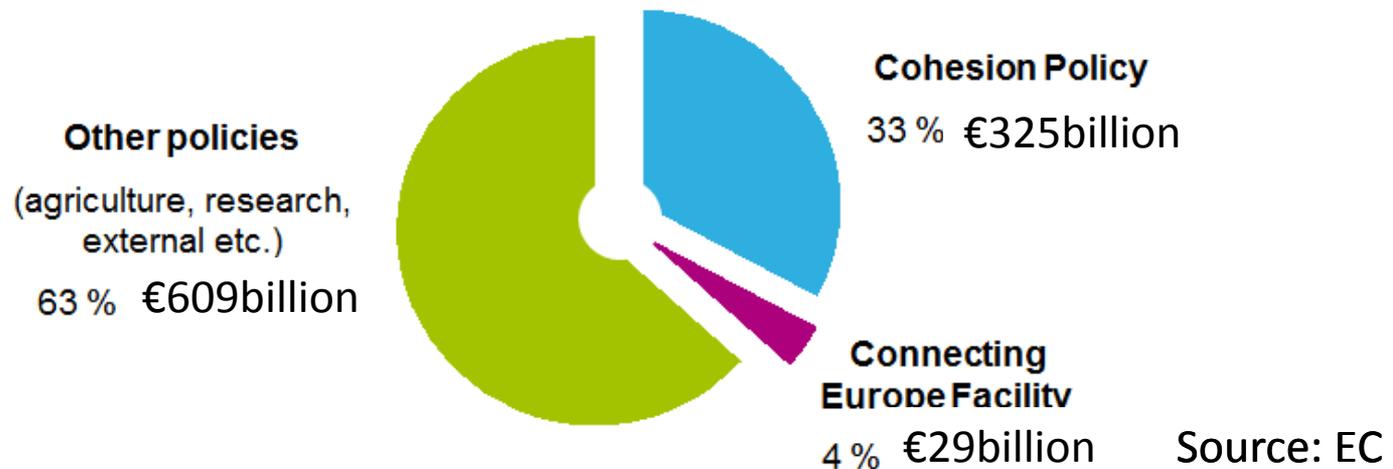
EU FUNDING

María González
EU Funding Principle
New Economy



NEW FINANCIAL PERIOD 2014-2020

- Over €960bn budget shared across a number of DGs and delivered via a number of programmes covering all thematic areas.
- All draft regulations were published at the end of 2011.
- Regulations have been debated by EU Ministers and Parliament throughout 2012/13.



WHY FUTURE EU FUNDING IS IMPORTANT NOW?

- Programmes are being drafted but we know the priorities that are likely to be supported from 2014.
- This is the time to influence future programmes and calls for projects.
- Calls for projects will start in spring 2014 onwards...., but it can take 12 months to develop a good transnational partnership & project.



NEW FINANCIAL PERIOD 2014-2020 THE GREATER MANCHESTER EXPERIENCE

Greater Manchester Strategy 2020 Vision

- **Growth:** Creating the conditions for Growth; and Supporting Businesses
- **Reform:** Worklessness and Skills; and Reducing Dependency and Demand

GMCA

LEP

GM Low
Carbon Hub

GM Science
Review
Smart
Specialisation
Strategy

TFGM

GM
Business
Growth
Hub

GM Skills &
Employment
Partnership

Others

GM EU Investment Plan

ERDF

ESF

EU Trans
Programmes

Some
Rural

HOW GM TRIES TO MAKE THE BEST OF THESE FUTURE OPPORTUNITIES

- Making EU funding part of our future strategic planning – one more source of funding to deliver GM objectives.
- Resources has been allocated to ensure strategic direction.
- Keeping a close eye on the development of the future programme.
- Starting dialogue with some cities/regions about future collaborations.
- Liaising closely with UK Contact Points, Govt representatives and EC Officers.
- GM European Funding Group.

LOW CARBON / CLIMATE CHANGE PRIORITIES FOR 2014-2020

- Support the GM Low Carbon Hub and Joint Venture with Green Investment Bank in areas of building retrofit, heat network development, energy efficient street lighting and micro-renewables.

National Structural Funds/Horizon 2020/Interreg VB and VC

- Develop a GM integrated low carbon infrastructure, including smart grids, heat networks, transport, building efficiency and energy generation.

National ERDF/Horizon 2020/Interreg VB and VC

- Resilience of GM's critical infrastructure, especially in relation to climate change through the green infrastructure framework.

National ERDF/ National Rural/Horizon 2020/Interreg VB and VC /LIFE

- Growth in businesses in GM's low carbon sector through diversification, innovation and increased export potential.

National ERDF/Horizon 2020/Interreg VB and VC /COSME

LOW CARBON / CLIMATE CHANGE PRIORITIES FOR 2014-2020

- Support employment in the low carbon supply chain, particularly for building retrofit linked to GM's Green Deal provision.
National ESF/Interreg VC / Erasmus for All/PROGRESS
- Support behaviour and culture change programmes such as carbon literacy
National ERDF&ESF/Horizon 2020/Interreg VB and VC
- Sustainable commuting – public transport investment priorities connecting key centres of population, employment and growth areas.
National ERDF/Horizon 2020/Interreg VC/
- Integrated sustainable transport and GM urban regeneration – promoting town centre renewal through enhanced urban mobility (incl. interchange development and cycling/walking measures)
National ERDF /Horizon 2020/Interreg VC/ LIFE /Connecting Europe

THE CHALLENGES

- ➔ Lack of sufficient resources - primarily linked to project development (it takes between 6 to 12 months to develop a good project).
- ➔ Perception is shifting but EU funds are still seen (by many) as too bureaucratic and complex.
- ➔ EU are not always the easiest pot of fund to approach (LIFE+ experience).
- ➔ Insufficient skills for bid writing using “EU language”.
- ➔ Partners do not always have the capacity/resources to take the accountable body role.



THANK YOU

María González

Principle EU Funding

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Greater Manchester Investment Strategy



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Contents

1	Background
2	Funding
3	Track record
4	Our offering
	Appendix



Investment strategy

Our investment strategy is targeted across three areas

Infrastructure

Projects that typically support the development of strategic sites thereby creating jobs for Greater Manchester.

Available funds
Growing Places
European Regional Development Fund
Evergreen

Business

Projects that typically support the expansion of business thereby creating jobs for Greater Manchester.

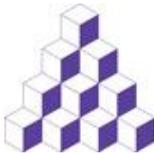
Available funds
Regional Growth Funds
Greater Manchester Loan Fund
Growth Hub

Low Carbon

Projects that support the transition of Greater Manchester to a low carbon economy (e.g. heat network, retrofit or street lighting).

Available funds
Regional Growth Funds
Greater Manchester Loan Fund
Green Investment Bank

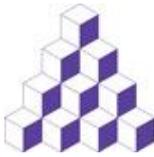
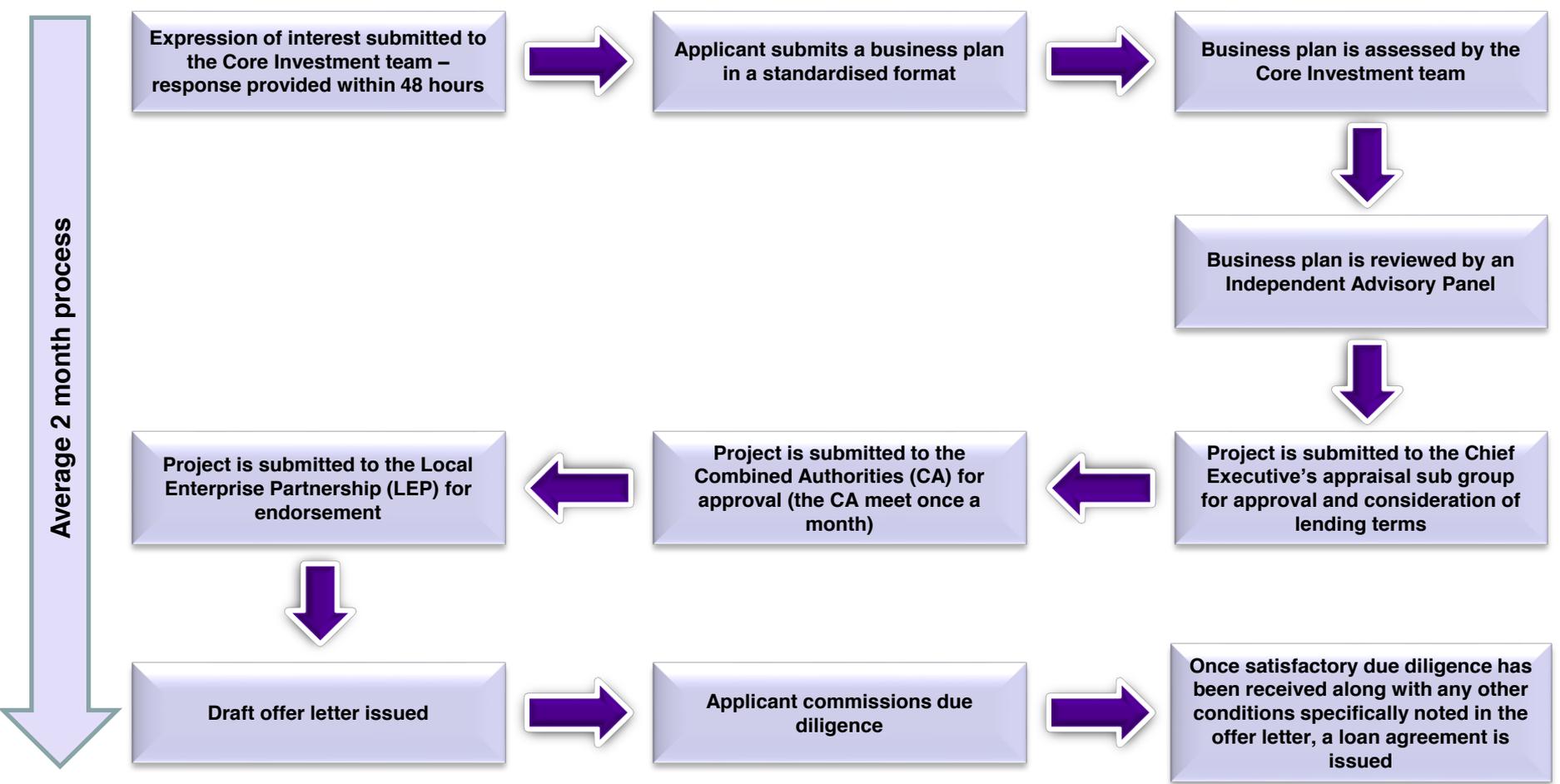
Greater Manchester has several funds available to deliver this strategy.



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Our process – projects > £500k



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Funding



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Types of funding

- Our primary focus is on loan funding which allows us to recycle funds and maximise the longevity of their impact.
- Grants will be considered where projects are transformational in that they have a significant impact and/or deliver a high numbers of jobs (200+).
- The table below summarises the type of funding available by the size of the required investment. See appendix for descriptions of the funds.

Requirement / Application Size	Grant	Debt	Equity
£0-£100k	-	The Growth Hub	-
£100 - £500k	-	Greater Manchester Loan Fund (GM Loan Fund)	-
£500k - £1m	Regional Growth Fund (RGF)	RGF Growing Places	RGF
£1m plus	RGF Growing Places European Regional Development Fund (ERDF)	RGF Growing Places	RGF



Funding position

- The table below summarises the status of the active funds as at 1 May 2013.
- The next phase of ERDF will be available in 2014.

						Funding position at 1 May 2013	
£'m	RGF2	RGF3	Growing places	GM Loan Fund	Evergreen	ERDF (2014-20)	Total
Invested	2.8	-	-	-	0.3	-	3.1
Board Approved	19.7	1.4	13.2	-	21.8	-	56.1
Remainder	7.5	33.6	21.4	20.0	19.0	200.0	301.5
Total	30.0	35.0	34.6	20.0	41.1	200.0	360.7

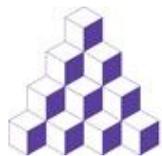
- Plus potential £20m for RGF 4.
- Potential for individual councils to provide further loan support through Prudential Borrowing.



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Track record



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Summary of Approved Projects > £1m

Regional Growth Fund 2

Project Name	Description	RGF 2 Grant /Loan	Amount £m's
Eon (1)	To establish a European R&D Interactive Digital Centre (IDC)	Grant	1.8
Business Growth Hub	A2F/Mentoring/UFB/ Mid-Growth Start -up	Grant	4.4
Leopold Street	2.78 acre site in Wigan delivering 13 industrial Units	Loan	1.0
Zen Internet	Installation of equipment for high speed fibre optic broadband	Loan	1.0
GM Loan Fund	Invest in debt packages to SME's between £100k and £500k.	Loan	2.0

Regional Growth Fund 3

Project Name	Description	RGF 3 Grant/Loan	Amount £m's
Factory Games (2)	Software developer staff costs, marketing and rent.	Loan	1.4

1. Eon

- Eon is a world leader in interactive 3D visual content management and virtual reality software.
- Mixture of grant and loan funding of circa £4m to relocate a number of the existing UK/European functions to East Manchester and to establish a European R&D Interactive Digital Centre to be the European centre of excellence for digital media. Eon provided significant matched funding.
- The Centre's core commercial activities in its initial years will be the creation of 3D educational tools.
- Revenues are budgeted to grow to over £20m over 5 years.
- 243 new positions to be created over three years.

2. Factory Games

- Start up company specialising in incubating developing IP and technology.
- 71 new positions budgeted to be created using loan funding with a significant matched equity contribution.
- Revenues budgeted to grow significantly over 4 years.
- Loan repayment period of 3 years with a equity conversion option.



Summary of Approved Projects > £1m (cont.)

Growing Places Fund			
Project Name	Description	GPF Loan	Amount £m's
Partington (1)	Redevelopment of Partington TC with development of 550 residential Units	Loan	4.5
Horwich Loco Works	Regeneration of brownfield site to provide 1,600 residential units with 10 hectares of employment land	Loan	4.7
Chapel Street (2)	The project will provide 97 new residential units alongside 10,000sqft of commercial space	Loan	3.4

1. Partington

- £4.5m loan granted to contribute to a Partington Town Centre regeneration project, alongside £24.5m of private funding.
- The project will unlock 550 new houses in the area alongside a new community hub and market square.
- Loan draw down period is over one year in seven tranches.

2. Chapel Street

- £3.4m loan granted to contribute to the delivery of 97 new residential units and 10,000 sqft of commercial accommodation along Chapel Street.
- Public funding sits alongside senior debt provided by Barclays.
- Loan draw down period is over two years in two tranches.
- Loan repayment period is two years following draw down with an assigned interest rate of 5.19%.
- The loan has joint second charge over the entire site with the Homes and Communities Agency.



Summary of Approved projects <£1m

Regional Growth Fund 2			
Project Name	Description	RGF 2 Grant /Loan	Amount £m's
B & H Precision Tooling	Acquisition and installation of a 22m milling machine which is the largest of its type in the UK.	Loan	0.5
Culimeta Safeguards	The acquisition and renovation of Tower Mill to expand the business.	Loan	0.7
Green Growth Project	To create a pipeline of potential investments to the Green Investment Bank.	Grant	0.9
Hanson Springs	Purchase and refurbishment of new premises providing additional capacity	Grant	0.5

Growing Places Fund			
Project Name	Description	GPF Loan	Amount £m's
GM Chamber of Commerce	Cash flow loan to enable GMCC to carry out its activities relating to Growth & Innovation	Loan	0.5



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Our offering



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Our offering

- Loans up to £5m with flexibility around interest rates (see below) and payment holidays (subject to State Aid provisions).
- Will rank behind other lenders on security.
- No covenants.
- Ability to subsidise the interest by up to €200k over 3 years (i.e. €66k p.a.)

Infrastructure

- Opportunity to use GMCA funding for debt/Mezz
- This opportunity will allow us to leverage your debt capacity to support the breadth and range of our funding

Business

- Provision of business support services alongside our funding to help SMEs grow

Low carbon

- Close links with the Green Investment Bank to maximise low carbon deliverables and provide specialised advice



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Our ask

- Proposals that have been turned down by the Bank but are able to sustain a level of debt repayment.
- Projects where you have a gap in the funding you are able to provide.
- The funds are not set up to compete with the Bank.
- Projects that demonstrate a clear link to jobs created/safeguarded within Greater Manchester.
- Investment size £0.5m-£5.0m.

Our requirements

- Quarterly monitoring of outputs
- A clear exit
- A seat on the Board where we take an equity stake

Interest rates

- As a guide we use the Euro reference rates, summarised opposite.

Interest Rates as at 01/06/13	Level of collateral		
Rating category	High	Normal	Low
Strong (A-AAA)	1.59%	1.74%	1.99%
Good (BBB)	1.74%	1.99%	3.19%
Satisfactory (BB)	1.99%	3.19%	4.99%
Weak (B)	3.19%	4.99%	7.49%
Financial difficulties	4.99%	7.49%	10.99%



Appendix



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Types of funding

REGIONAL GROWTH FUNDS (RGF)

RGF 2

- £30m allocated to Greater Manchester.
- Key requirement is the creation of 2000 jobs (i.e. £15,000 per job benchmark).
- Jobs must be either direct or represent safeguarding of existing direct jobs.
- Funds to be committed by 31 March 2015.
- Preference for some matched funding (debt or equity).

RGF 3

- £35m allocated to Greater Manchester.
- Principle requirement is the creation of 1,448 jobs (split between direct and indirect) and the safeguarding of 276 jobs (i.e. £20,000 per job).
- Funds to be committed by 31 March 2015.
- Preference for some matched funding (debt or equity).

RGF 4

- £20m bid for Greater Manchester.
- Emphasis will be on science and innovation.
- Decision expected in Autumn.



NORTH WEST EVERGREEN FUND

- The North West Evergreen Fund provides debt funding for commercial property and regeneration projects in the North West of England at highly competitive commercial rates. Funding is provided by the HCA and ERDF, and currently stands at £41.1m
- Targets development projects in Greater Manchester, Cumbria, Cheshire and Lancashire
- JESSICA Funding requires that projects must be:
 - Employment creating
 - Offices & industrial, possibly mixed use & leisure
 - Meet the requirements of cross-cutting themes
 - Invested alongside other funding sources (can be senior or mezz)
- Once initial round of funding has been invested, it can be recycled and reused for further projects.



Types of funding

GROWING PLACES	GREATER MANCHESTER LOAN FUND	GROWTH HUB
<ul style="list-style-type: none">● £34.6m allocated to Greater Manchester.● Funding is for property and infrastructure projects. To date the primary focus of projects approved for this funding have been centred on the delivery of housing units.	<ul style="list-style-type: none">● Established in June 2013 and managed by Maven Capital Partners LLP.● £20m of funding available● Provides mezz-style funding to SME's seeking £100k - £500k investment.	<ul style="list-style-type: none">● Allocated a separate RGF of £5m.● Assists SMEs looking for <£100k investment.



Types of funding

EUROPEAN REGIONAL DEVELOPMENT FUND (ERDF)

- Current ERDF of £633m largely committed.
- New ERDF expected in 2014 for up to £200m covering the period to 2020.
- Nine priority areas for the next phase of ERDF:
 - Innovation;
 - ICT;
 - SME Competitiveness (inc. Business Start Up Support);
 - Low Carbon (20% of funding ring fenced);
 - Environment and Resource Efficiency;
 - Sustainable Transport;
 - Access to Employment;
 - Promoting Social Inclusion, Education;
 - Skills & Lifelong Learning (including limited support for Higher Level Skills to support R&D and Innovation).



Our team

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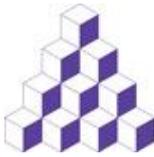
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Supply chain and sector growth
opportunities



EUROPEAN UNION
Investing in Your Future
European Regional
Development Fund 2007-13



Environment
Agency

Aim of the presentation

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Low carbon and environmental goods and services sector in GM
Opportunities for growth
Activities to support growth



Low carbon and environmental goods and services (LCEGS)

Environmental	Renewable Energy	Low Carbon
<ul style="list-style-type: none"> • Air Pollution • Contaminated Land • Energy Management • Environmental Consultancy • Environmental Monitoring • Marine Pollution Control • Noise & Vibration Control • Recovery and Recycling • Waste Management • Water Supply and Waste Water Treatment 	<ul style="list-style-type: none"> • Biomass • Geothermal • Hydro • Photovoltaic • Wave & Tidal • Wind • Renewable Consulting 	<ul style="list-style-type: none"> • Additional Energy Sources • Alternative Fuel/ Vehicle • Alternative Fuels • Building Technologies • Carbon Capture & Storage • Carbon Finance • Nuclear Power



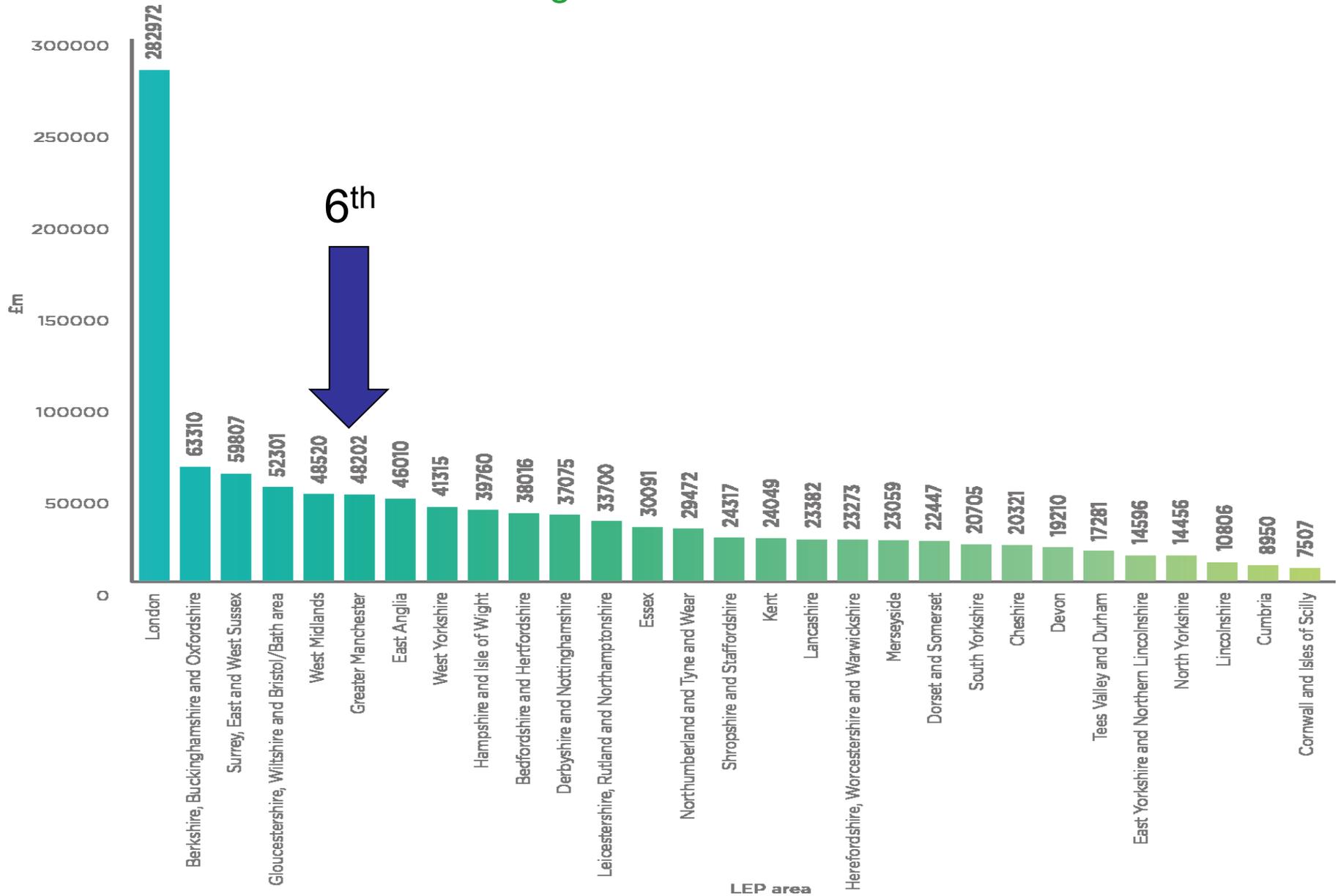
Size of the sector 2011/12

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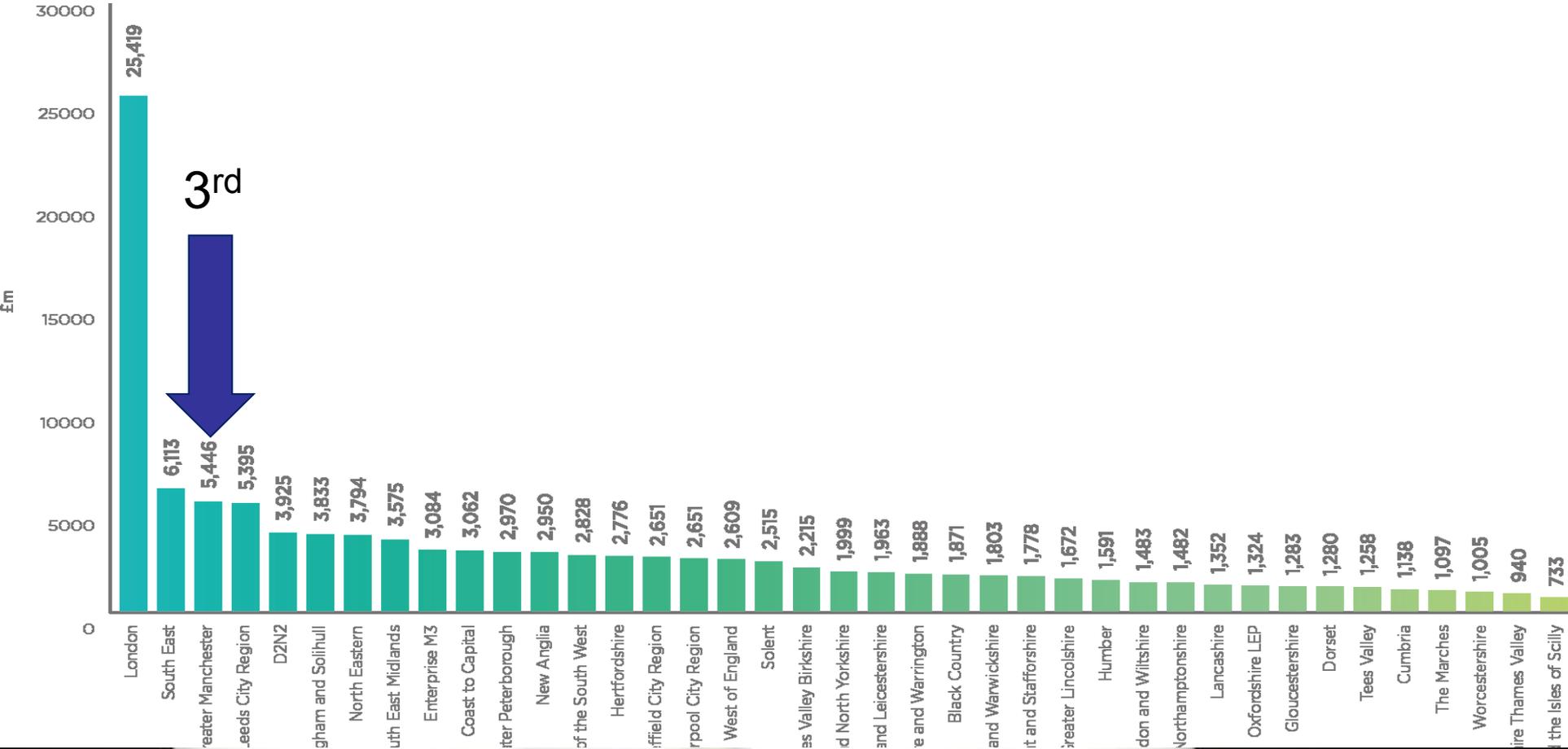
	GM	UK	Global
Sales (£)	£5.5bn	£128bn	£3.4trillion
Companies	1,941	Tbc	Tbc
Staff	37,053	Tbc	Tbc

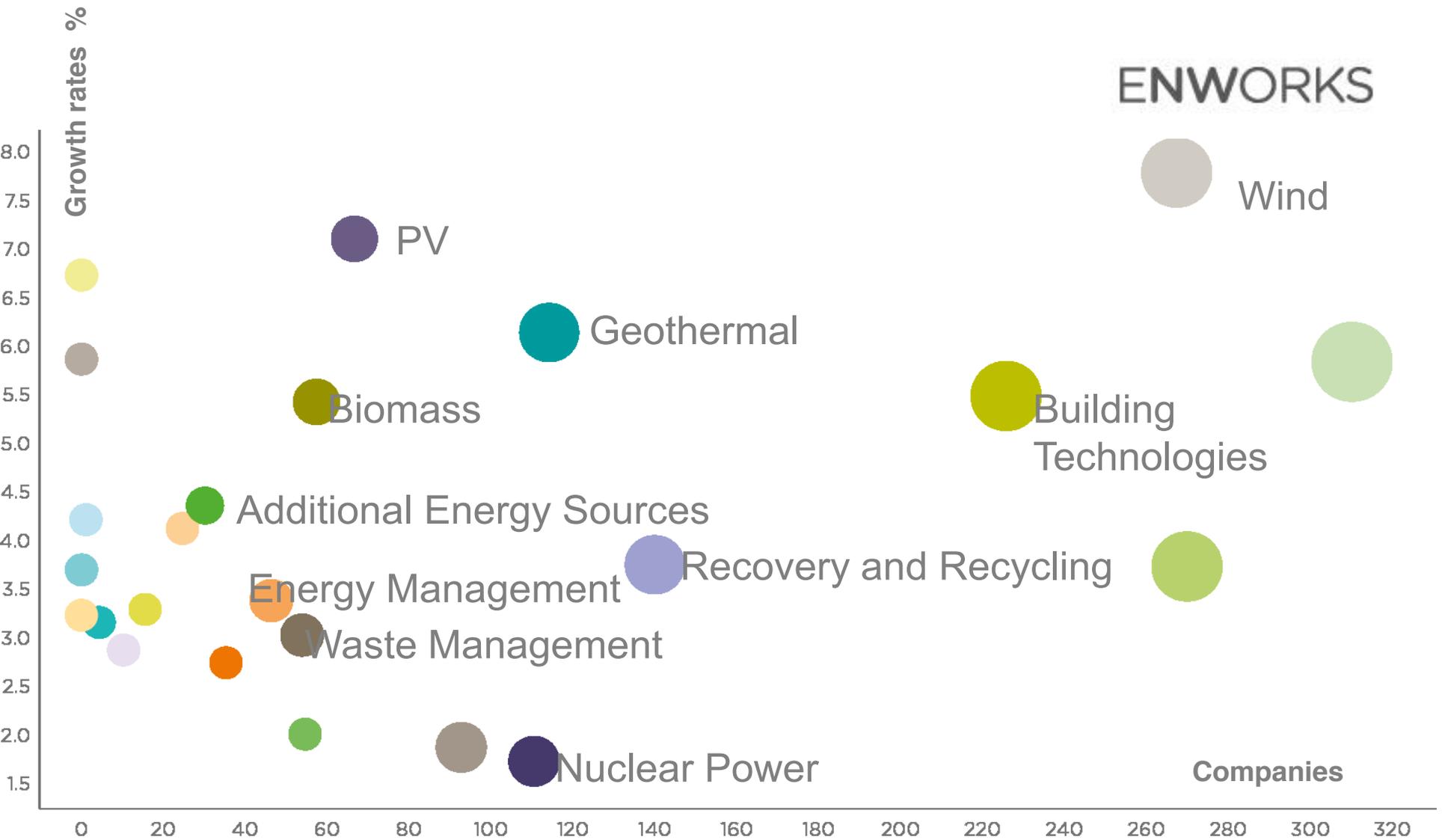


GM's overall economic ranking is 6th

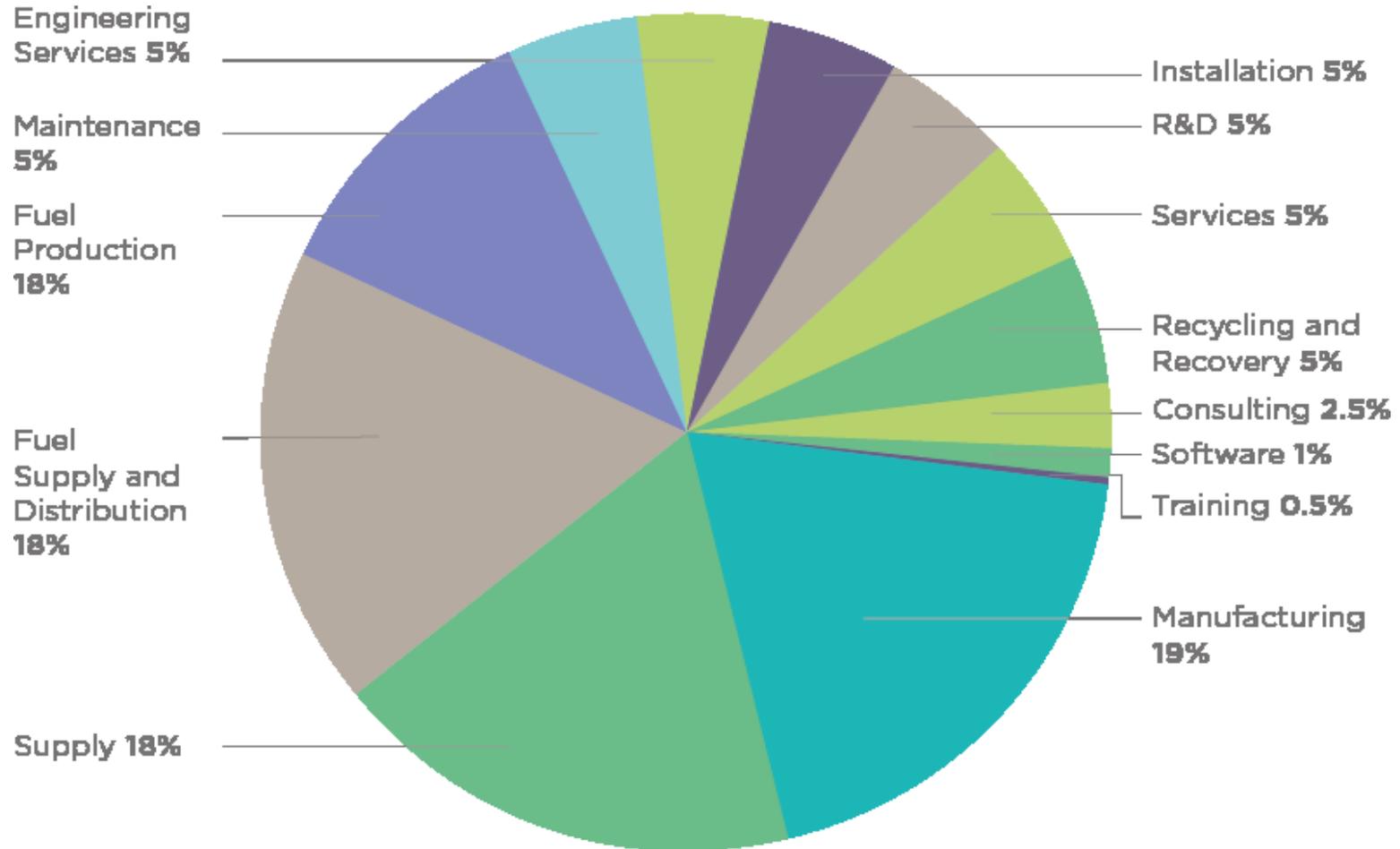


The LCEGS sector is a specialism of the GM economy
 Ranking third out of all the LEPs





Activity type



Diversification opportunities

There are opportunities for diversification from:

- engineering
- manufacturing
- process
- professional services

Biggest opportunities are in

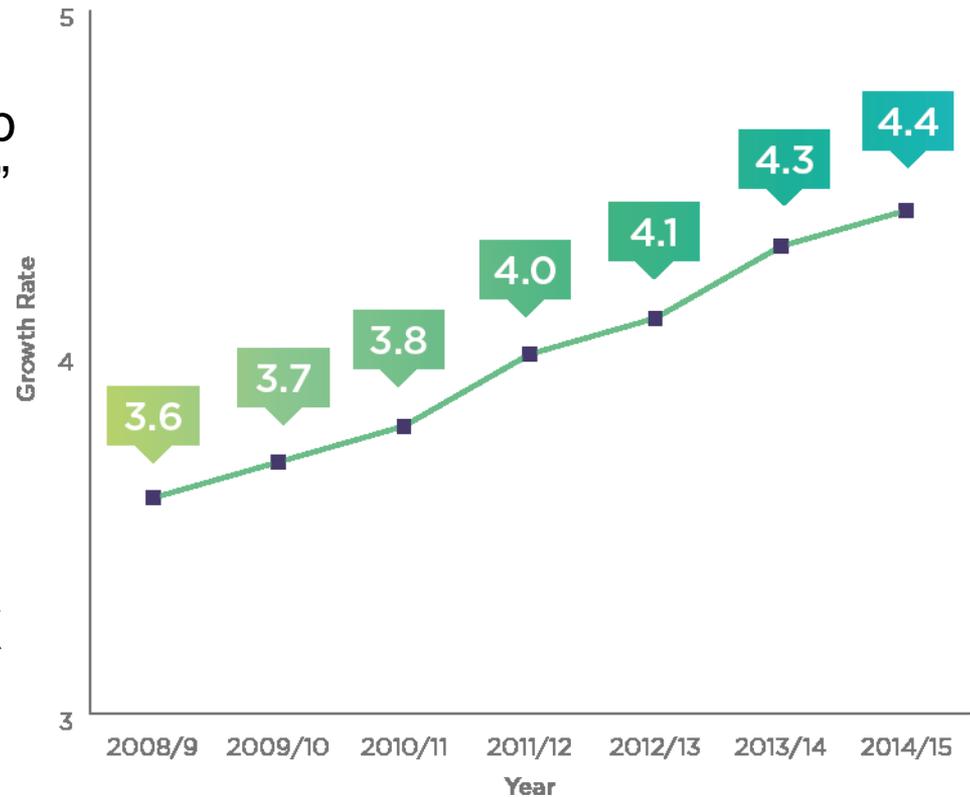
- renewable energy industry, particularly wind, biomass and geothermal sub-sectors

Why the sector is important

“The low carbon economy could be a real engine of growth in the UK”
The CBI

£3.4trillion global sales
£128.2bn UK sales

In 2014/15 the LCEGS sector is expected to roughly halve the UK trade's deficit



Market drivers

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Cost of energy and raw materials

Cost savings

Ageing energy infrastructure

Energy security

Renewable energy and climate change targets

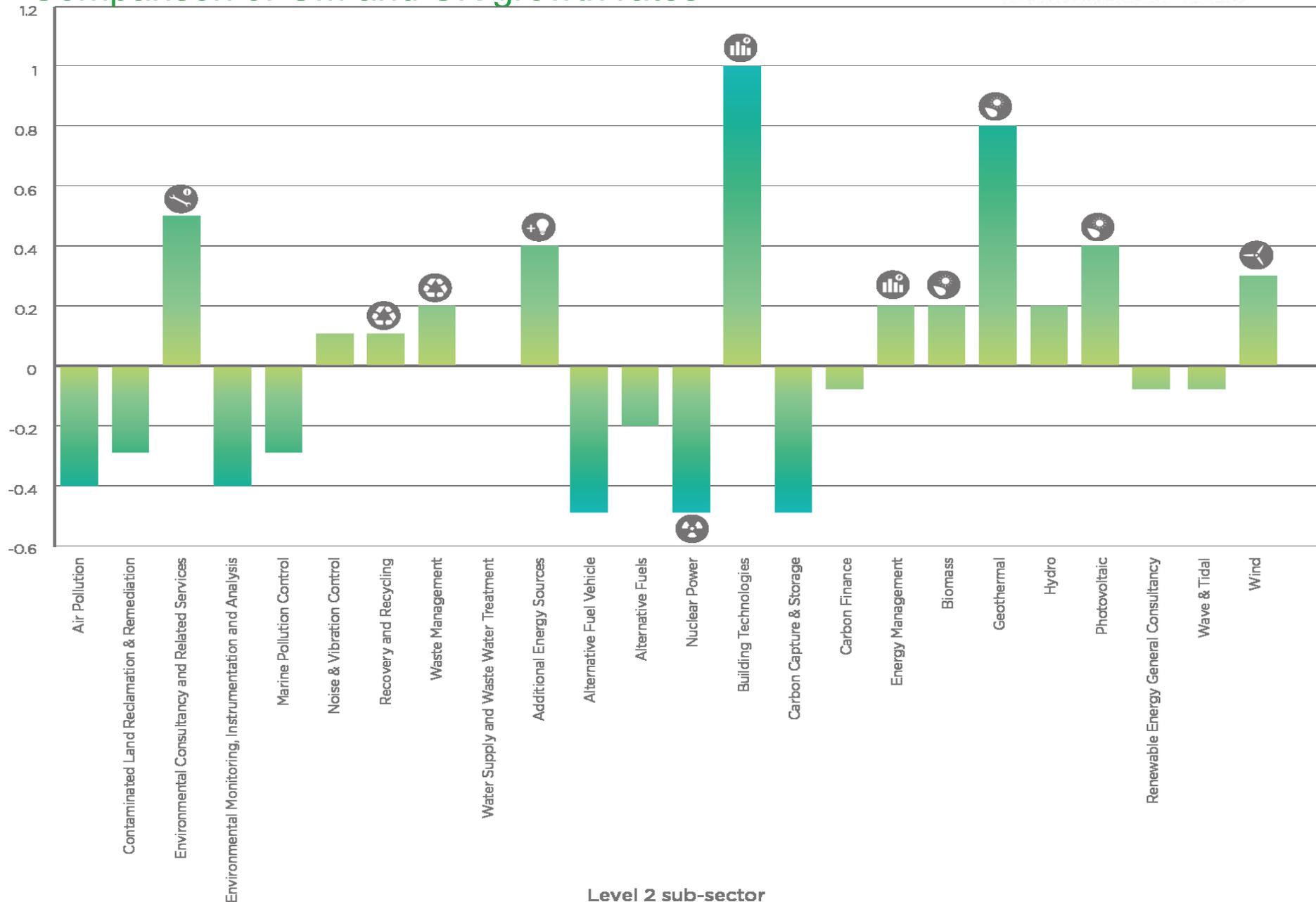
Waste disposal costs and landfill costs



Comparison of GM and UK growth rates

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Growth Variance: GM vs. UK % (2011/12)



Growth rates of level 2 sub-sectors

	Growth rate %		
	2011/12*	2012/13**	2013/14**
Additional Energy Sources	4.3	3.8	3.6
Air Pollution	2.0	2.2	2.2
Alternative Fuel Vehicle	3.7	4.0	3.9
Alternative Fuel	5.6	6.7	6.0
Biomass	5.4	5.4	5.7
Building Technologies	5.4	5.2	5.5
Carbon Capture and Storage	3.3	3.3	3.6
Carbon Finance	6.7	8.5	7.3
Contaminated Land Reclamation and Remediation	2.8	2.8	2.9
Energy Management	3.4	3.8	3.8
Environmental Consultancy and Related Services	4.1	3.9	3.8
Environmental Monitoring, Instrumentation and Analysis	3.3	3.3	3.5
Geothermal	6.1	6.5	6.8

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	Growth rate %		
	2011/12*	2012/13**	2013/14**
Hydro	3.2	3.5	3.4
Marine Pollution Control	3.7	3.5	3.7
Noise and Vibration	4.2	4.3	4.3
Nuclear Power	1.8	1.9	2.3
Photovoltaic	7.0	7.0	7.2
Recovery and Recycling	3.7	3.9	4.4
Renewable Energy General Consultancy	2.9	2.7	3.2
Water Management	2.8	3.1	2.9
Water Supply and Waste Water Treatment	1.9	1.9	2.0
Wave and Tidal	5.9	6.3	6.1
Wind	7.8	6.9	8.5

*actual
**predicted

The Sector Growth group will support the Low Carbon Hub's aspiration to make a rapid transition to a low carbon economy by:

- Creating the business environment to enable local businesses to optimise their potential in low carbon and environmental markets.
- Raising the profile of the sector to increase business activity particularly in relation to number of Greater Manchester businesses involved in the sector, international trade and inward investment.
- Increase understanding of how the low carbon economy can support the economic prosperity of Greater Manchester.
- Co-ordinating and developing Greater Manchester's support to develop the sector.



Raising the profile and understanding of the LCEGS sector within GM

Sector development business support programme

Influencing the public and private sector to increase percentage of spend with local LCEGS sector companies



Research funding

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Produced by the Environmental Sustainability Technical Assistance project

Delivered by ENWORKS

Funded by the Environment Agency and ERDF

ESTA's aim: to support the NW LEPs and their partners to embed environmental sustainability into economic development priorities



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