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Greater Manchester: Social, Economic and Sustainability Context

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1. Introduction

The aim of this report is to provide some background information on the Greater Manchester city-region focussing on its historical development and economic and sustainability agendas. In doing so, it will frame the socio-technical transition discourse in the region and provide a reference for the RETROFIT 2050 project as it considers potential regional futures. By considering the historical development of urban settlements in the region and the shape of sustainability policy to date, it is intended to offer some context for considering future pathways to a low carbon economy in the region.

Section 2 is concerned with the historical development of the region alongside the industrial revolution, its decline with the loss of its industrial base and subsequent regeneration efforts and the shape of the modern city-region. Arguably the first city to embrace industrialisation, Manchester emerged as the hub of an interdependent city region during the industrial revolution as its strong industrial base fuelled rapid urbanisation. However, the first industrial city was also amongst the first to lose its industrial base (Peck and Ward, 2002), causing widespread economic decline. The entrepreneurial city discourse prevalent in the city in the latter part of the twentieth century saw Greater Manchester being held up as an exemplar of regeneration, adopting a pro-growth, boosterist approach.

Sections 3 and 4 investigate the social and economic context of the region. Manchester has established itself as a vibrant economy, overtaking Birmingham as the UK's second city. However, the wide Greater Manchester region is far from homogenous, and is home to urban, semi rural and rural landscapes as well as economically vibrant areas alongside pockets of deprivation. As well as considering the challenges that shape the regional social and economic agenda, these sections will consider the drivers that influence employment and economic development.

Section 5 will outline the sustainability agenda to date. Greater Manchester emerged from the twentieth century with something of a bad reputation for sustainability concerns thanks to a prioritisation of physical and economic regeneration and a number of high profile disputes with environmental groups, a particularly notable example being the expansion of the airport. Recent years have seen sustainability rising up the political agenda as part of a wider growing awareness of the issues at stake. This section will consider the policy at work and the current emissions and housing stock that characterise the region. Finally, section 6 will attempt to draw some conclusions as to the context for sustainability transitions in Greater Manchester.

2. Development

2.1 Industrial revolution and urban growth

The town of Manchester can be traced back to a Roman outpost in 79AD, but the contemporary city really has its roots in the 18th century. During the early 1700s, South East Lancashire was agricultural in nature with Manchester serving as the market town at its centre. The rise in the demand for cotton that came about in the latter part of the century proved a catalyst for rapid growth and the town's population grew from 76,000 in 1801 to 316,000 in 1851 (Manchester City Council, 1995). The structure of Greater Manchester grew out of this booming industry, with the towns of Bolton, Bury, Rochdale, Oldham, Ashton, Stockport and Salford developing as distinct nodes in an integrated industrial region (Deas and Ward, 2002).

The continued expansion of industry rendered Manchester the largest and most highly concentrated centre for cotton manufacturing and distribution in the world. Other industries grew up around it: a chemical industry rooted in the bleaching process and an engineering industry emerging from the maintenance and repair of machinery, for example (Manchester City Council, 1995). Transport infrastructure grew to accommodate this boom of economic activity. In the 1790s, Manchester became home to the country's first cut canal, the precursor to a network of waterways; in the 1830s, the world's first public passenger railway station opened at Manchester (Manchester City Council, 1995). The industrial revolution changed Manchester from a small market town to the hub of a well-connected, rapidly growing industrial region.

Increased competition for land drove its price up and from 1853 the number of mills in Manchester began to decrease. By 1879, international competition from Germany and the United States provided another challenge for the cotton industry. In order to preserve the city's competitiveness a canal was built connecting it directly to the sea, eliminating the costs associated with transporting exports to Liverpool. The canal opened in 1894 and allowed the regional engineering industry to grow in size and importance (Manchester City Council, 1995).

For many commentators, Manchester can be seen as the original Industrial City. However, the first industrial city was also the first to experience large scale de-industrialisation from the 1960s onwards, bringing with it a host of economic, social and environmental problems (Peck and Ward, 2002).

2.2 Decline and regeneration: the Entrepreneurial City

In 1959, the manufacturing industry employed over half of the Greater Manchester workforce; today, it accounts for less than 1 in 5 jobs (Peck and Ward, 2002). The de-industrialisation of the latter twentieth century hit the regional economy hard, as it did in much of the UK's industrial north. Some parts of the city were particularly affected - East Manchester, a former centre for heavy engineering and chemicals, experienced 24,000 job losses between 1974 and 1984 alone (Manchester City Council, 1995) – but the entire region suffered from the loss of economic activity.

As in many other UK cities, local government looked to regenerating the area. Given the scale of dereliction and decay in the city – a product of its rapid expansion, decline with the loss of industry and damage to the built environment inflicted by bombing in WW2 (and, in 1996, an IRA bomb attack) – urban renewal was dominated by physical regeneration led by major flagship projects and infrastructure renewal (While, Jonas and Gibbs, 2004).

The Local Government Act of 1972 changed the governance of the region, imposing the two tier London blueprint of a regional body and a number of smaller local authorities. The Greater Manchester Council came into being in 1974, responsible for strategic planning, transport and major development while 10 boroughs held responsibility for other local government issues (Hebbert and Deas, 2000). In 1981, the GMC released a structured plan that highlighted four key themes: bringing development back into the city's urban centre, focussing investment in central areas suffering high levels of deprivation, removing or reusing derelict buildings and protecting the environment by preserving open land and reducing energy use (Manchester City Council, 1995).

13 years after its creation, the GMC was swept away by the 1985 Local Government Act. Abolishing the regional council required the local districts to form a Co-ordinating Committee to transfer services to a new model of provision. This new model highlighted the lead authority principle – one district would take administrative responsibility for the provision of key services with the remit of benefitting the other nine as well as itself. This mechanism proved to be unexpectedly durable. Indeed, many of the bodies that arose from it are still active in the guise of the Association of Greater Manchester Authorities (AGMA) (Hebbert and Deas, 2000).

Like the neighbouring region of Liverpool, Manchester briefly experimented with the Municipal Socialism movement, the Left's response to systematic economic crisis that sought to take a more socialist approach to addressing the problems faced by the UK's cities. The region was a relative latecomer to the discourse, slowed by a split between the local Labour party and the wider labour movement. In 1984, the left took control of the City Council. The experiment was short-lived as by

1987 a third consecutive Conservative win at the general election saw a u-turn in regeneration policy (Quilley, 2002).

From the late 1980s onwards Manchester took a more growth-orientated approach to its regeneration – indeed, it has been held up as paradigmatic of the UK urban entrepreneurialism of the period. Local government sought to turn around the national and international image of the city (While, Jonas and Gibbs, 2004). In keeping with national policy, the Central Manchester Development Corporation of 1988 was charged with regenerating 500 acres of land in the south of the city centre (Manchester City Council, 1995). This area based approach was incorporated in the city's regeneration strategy, which rolled out regeneration efforts from one geographical area to another. This approach allowed the council and developers to 'think big' in terms of planning and investment, as well as signalling to other areas that their turn would come. Another notable feature of the regeneration agenda was the "Manchester Model". Initially used in Hulme in 1992, the model was structured around a delivery body with an arm's length relationship with the Local Authority and a dedicated team of officers seconded from the council. The body didn't hold any assets but rather brought together the necessary players and provided a framework (Robson, 2002).

A guiding principle of the city's growth strategy was the intention to consolidate and extend its role as a regional centre. Focussed on creating a vibrant, integrated Greater Manchester with a strong reputation that could attract inwards investment, the regeneration scheme eschewed a number of environmental concerns to pursue a socio-economic sustainability agenda, for example ensuring good road access to the city centre (While, Jonas and Gibbs, 2004). As such, Manchester emerged from the twentieth century as an exemplar of urban regeneration but with a poor reputation for sustainability (Jonas, Gibbs and While, 2004).

2.3 The City-Region

The Greater Manchester area cannot be thought of as a homogenous region but "a diverse mix of high value and high performing economic centres close to some of the most deprived communities in the country" (Northern Way, 2006). The marked disparities across the region, discussed in more detail later, have acted as something of a brake on growth for the region as a whole, as well as presenting problems of social and economic inequality. Nonetheless, Greater Manchester is an important hub for the North West region and has been highlighted by the Core Cities group as a potential 'growth pole' for the North West. Indeed, Greater Manchester is UK's largest functional economic area after London (Roy, 2011).

The region has a population of approximately 2.5 million to the city of Manchester's 430,000, and incorporates the 10 local authorities of Wigan, Bolton, Bury, Rochdale, Oldham, Tameside, Stockport, Salford, Wigan and Manchester (figure 1). As regional capital, Manchester is home to much regional government as well as significant concentrations of retail, cultural, leisure, commercial, higher education and office developments as well as a great deal of transport infrastructure (Gibbs, Jonas and While, 2002).

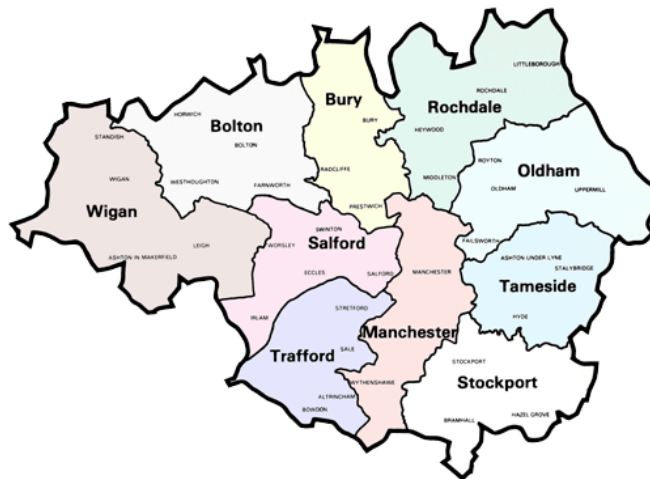


Figure 1: The Greater Manchester Region (GMTS, 2010)

Despite a long history of integration, it is the most highly fragmented conurbation in the UK in terms of administration (Robson, 2002). Nonetheless, aspects of city-regional governance survived the disbandment of the GMC. Such strategic roles are carried out by AGMA, as noted above, and are largely limited to a discrete number of policy areas such as waste management and public transport planning, though this is changing with the advent of the Greater Manchester Strategy published in 2009. Greater Manchester can be noted as particularly accomplished in terms of integrated public transport planning with the Metrolink tram system as a clear example. Transport infrastructure is overseen at the regional level by the Greater Manchester Passenger Transport Authority and Executive (GMPTA and GMPTE respectively) (Gibbs, Jonas and While, 2002). Manchester itself is extremely under-bounded with almost no suburban population (Gibbs, Jonas and While, 2002). This lack of affluent suburban areas, present in most large UK cities, has implications for the city's tax base and was a key driver in the push to bring people back to the city centre.

When thinking of governance in Manchester it is worth noting a number of initiatives that have looked to the wider regions of the North of England and more specifically the North West. The North West Development Agency was set up in 1999 as one of nine Regional Development Agencies established by central government to take a business-led approach to regeneration across England. The government have announced the intention of disbanding the RDAs by 2012 (England's RDAs,

2010). At a wider regional level, the Northern Way initiative was launched in 2004 to address the North/South divide prevalent in England and improve the image of the North to attract investment. The initiative ended in March 2011 as part of the closure of the RDAs (Northern Way, 2011).

3. Population

3.1 Demographics

Recent growth has seen Manchester overtaking Birmingham as the UK's second city, and the Greater Manchester conurbation is now home to nearly 2.6 million people representing about 4.2% of the UK population (New Economy, 2011). As can be seen in figure 2, this population is concentrated in the city of Manchester itself, with pockets of higher density across the region. As of 2009, the working age population consisted of 1.6 million people; of these, 1.1 million were in employment. A further 1.2 million were economically inactive (New Economy, 2011).



Figure 2: Population density (New Economy, 2011)

In recent years population growth has seen something of a renaissance, changing from a declining population in large parts of the 1980s and 1990s to experiencing significant growth. Between 2000 and 2010, the average annual rate of growth was 4.1%. Figure 3 illustrates the way this growth was distributed across the region's local authorities (LAs). Manchester LA experienced significantly stronger growth than any of its neighbours, reporting a 17% percent increase in population between 2000 and 2010. The next strongest performer was Salford, which experienced almost 4% growth over the period. Oldham and Rochdale experienced the weakest population growth over the period with the former experiencing less than 1% growth and the latter contracting.

The population of Greater Manchester is relatively young compared to that of the UK, with a greater proportion falling into age groups of 40 and below. It is also home to a higher a concentration of ethnic minority groups than the UK average (8.9% and 8.7% respectively), though this is markedly

less than the concentrations found in London and nearby Leeds (28.8% and 10.7%)(New Economy, 2011).

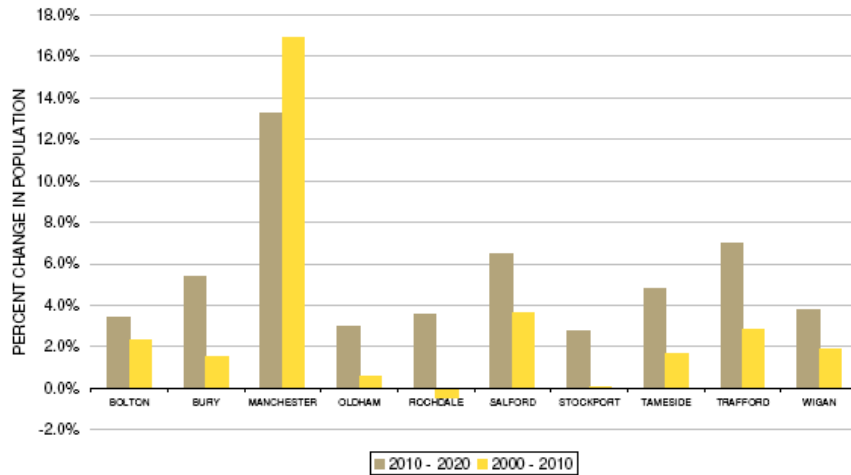


Figure 3: Population growth by local authority (New Economy, 2011)

3.2 Education

The Local Economic Assessment of Greater Manchester, published in 2011, highlights two key challenges facing the region: reducing the productivity gap between the region and the UK and ensuring that the benefits of growth are felt throughout. It identifies skills as central to both of these agendas. This is translated into two key strategic objectives, with one considering the life chances of residents and the other looking to higher skills to support high value added business growth (New Economy, 2011a).

Since 2009, Greater Manchester has held devolved powers over adult skills as part of its remit as a city region, the first of its kind after London. Unlike London, it also has powers to plan and allocate funding for 16-19 year old skills with a single grant allocation. As such, the New Economy commission, part of AGMA, is responsible for identifying skills needs to underpin strategies going forwards (New Economy, 2011a).

INDICATOR	GM		UK		
	NUMBER	PERCENT	NUMBER	PERCENT	
ALL RESIDENTS	LEVEL 4+	450,200	26.7 %	11,835,600	29.8 %
	LEVEL 3	317,350	18.8 %	7,298,610	18.4 %
	LEVEL 2	361,825	21.4 %	8,394,410	21.1 %
	LEVEL 1	316,125	18.7 %	7,232,880	18.2 %
	NO QUALS	243,000	14.4 %	5,012,400	12.6 %

Figure 4: Qualifications (New Economy, 2011a, 2011)

As figure 4 shows, the proportion of Greater Manchester residents with no qualifications is higher than in the rest of the UK, while the proportion of residents achieving level 4 qualifications (e.g. university degrees or equivalent) is lower than the UK average. Looking more specifically at school leavers, 70.2% achieve 5 GCSEs at grades A*- C, in line with the English average of 70% but less than the Liverpool and Newcastle rates of 73.1% and 75.2%. Furthermore, less than half of all young people leave school with 5 GCSE passes including Maths and English, reflecting relatively poor performance in these two core subjects. More positively, however, recent years have seen reductions in the proportion of residents with no qualifications as well as increases in the number of residents achieving degree level qualifications or equivalent (New Economy, 2011a).

Skills shortages are an important determinant of worklessness in the region, accounting for an estimated 17% of all vacancies according to the National Employers Skills Survey in 2007. The survey found that there were 29,200 vacancies across the region with ¼ considered to be hard-to-fill. Just over 2/3 of these places were subject to skills shortage difficulties. Notably, many such shortages were in soft skills such as basic numeracy and literacy and team working (New Economy, 2011a).

It can be seen, then, that skills in the region are integral to reducing inequality by increasing access to jobs: the “better chances” objective as identified by the New Economy. Their second objective, “higher skilled”, is reflected in the sort of skill sectors they identify as priorities. They highlight low carbon energy, advanced manufacturing, digital media and technology and health and life sciences as key sectors for skills improvement, reflecting their aim to establish Manchester as a high value added sector than can generate growth across the North West (New Economy, 2011a).

4. Economy

4.1 Employment

As has been noted above, Greater Manchester experienced something of a renaissance from the late 1990s onwards, shifting from a region much in need of regeneration to a growing economy. It enjoyed a decade of growth before being hit by the current economic crisis, losing 34,100 jobs and £1.5 billion of GVA between 2008 and 2010. This contraction, while significant, is smaller than that felt by the UK as a whole (Roy, 2011). The region continues to produce over £42 billion of the UK's GVA, representing about 4% of the national economy (AGMA, 2010). In fact, southern Greater Manchester is the only part of the UK to deliver growth rates comparable to those found in London (Roy, 2011).

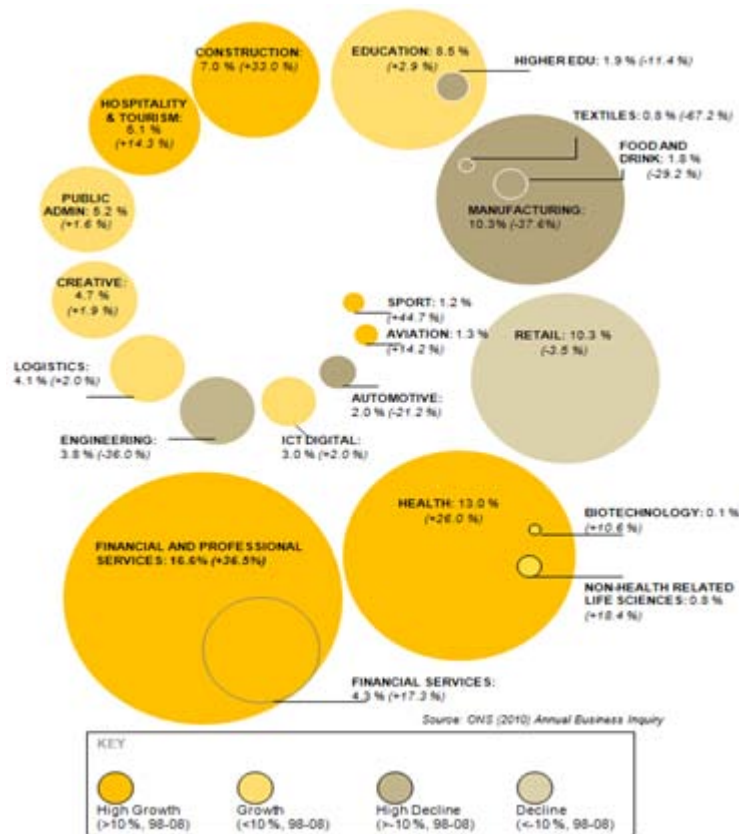


Figure 5: Employment sectors by size and growth, 1998 – 2008 (Roy, 2011)

This growth has been driven by the service sector. In particular, financial and professional services account for 1/6 of all jobs, 1/5 of gross value added (GVA) and almost half of GVA growth in the decade leading up to the onset of the recession (Roy, 2011). This dominance is clear in figure 5, which shows the relative size and growth rates of employment sectors in Greater Manchester. The sector provides 16.6% of jobs and grew by 36.6% between 1998 and 2008. The manufacturing

industry, on the other hand, contracted by 37.6% over the period, reflecting the wider structural shift in the economy from manufacturing centre to service economy. Manufacturing activities remain an important employer, though, providing 10.3% of jobs.

Even at the peak of its growth, the region suffered from disproportionate rates of economic inactivity – indeed, economic inactivity is nine times higher than unemployment in the Northern Way prescribed Manchester City Region (incorporating Greater Manchester along with the neighbouring areas of Congleton, Vale Royal, Warrington, Macclesfield and High Peak) (Northern Way, 2006). As of 2008, 24% of Greater Manchester’s working age population were economically inactive, higher than the average for the North West (23.7%) or the UK (21.4%). Similarly, 9.7% of the working age population were Incapacity Benefit or Employment Support Allowance claimants, above the UK average of 7.1%. Nearly 1/10 of 16-18 year olds can be classified as not in employment, education or training (New Economy, 2011a), carrying implications for both the skills and employment agendas.

Furthermore, those in employment are, on average, paid less their counterparts elsewhere in the UK. The average salary in Greater Manchester is £23,700 compared to £26,100 in the UK as a whole and £24,500 in Leeds (New Economy, 2011c). This pay gap is intertwined with a wider productivity gap of £6.4 billion per year. As such, the region can be characterised as punching below its weight. Such issues are not uniform across the region: unemployment is concentrated in former industrial areas and other pockets across the region, while low value activities are similarly clustered across the region. Figure 6 shows the proportion of the working age population classified as unemployed or economically inactive in each local authority and highlights concentrations in the urban areas and peripheral social housing areas of the region.

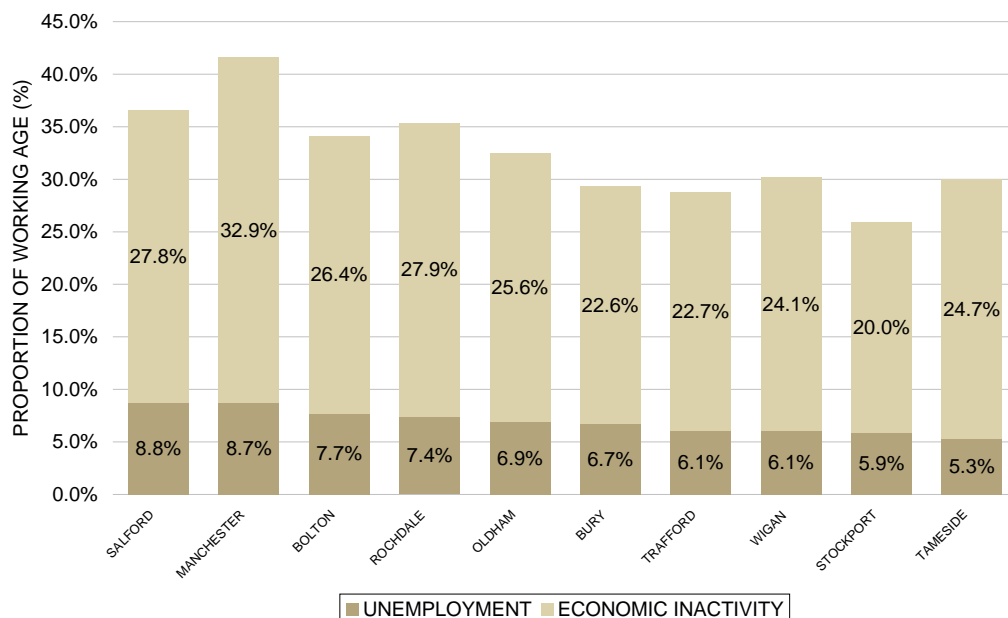


Figure 6: Unemployment and Economic Inactivity by Local Authority (Roy, 2011)

Sectoral bias also varies across the region, with the urban core of Manchester, Trafford and Stockport paying at or above the English average while others specialise in lower value activities; Oldham, for example, has an average wage 20% the national level. Reliance on the public sector for jobs also varies. Oldham and Tameside, for example, are particularly reliant on the public sector for new jobs (Roy, 2011).

4.2 Multiple Index of Deprivation

As of 2007, over 30% of the lower super output areas (LSOAs) in Greater Manchester were within the worst 10% nationally. This marks an improvement on 2004 levels, but a high level of deprivation across the region nonetheless. Furthermore, figures for 2010 show that Manchester still performs badly in terms of deprivation, ranking in the five local authorities in England with the greatest proportion of their LSOAs amongst the 10% most deprived. Three of the five LAs were situated in the North West (Liverpool, Manchester and Knowsley)(Carpenter, 2011).

Figure 7 maps the Index of Multiple Deprivation 2007 for the region. Every district suffers from clusters of deprivation, but the inner city areas and town centres of the region perform particularly badly and are home to some of the worst deprivation in the country: Manchester, Salford, Rochdale and Oldham are home to 19 LSOAs within the worst 100 while Harpurhey, Manchester is home to the second most deprived LSOA nationally (Roy, 2011).

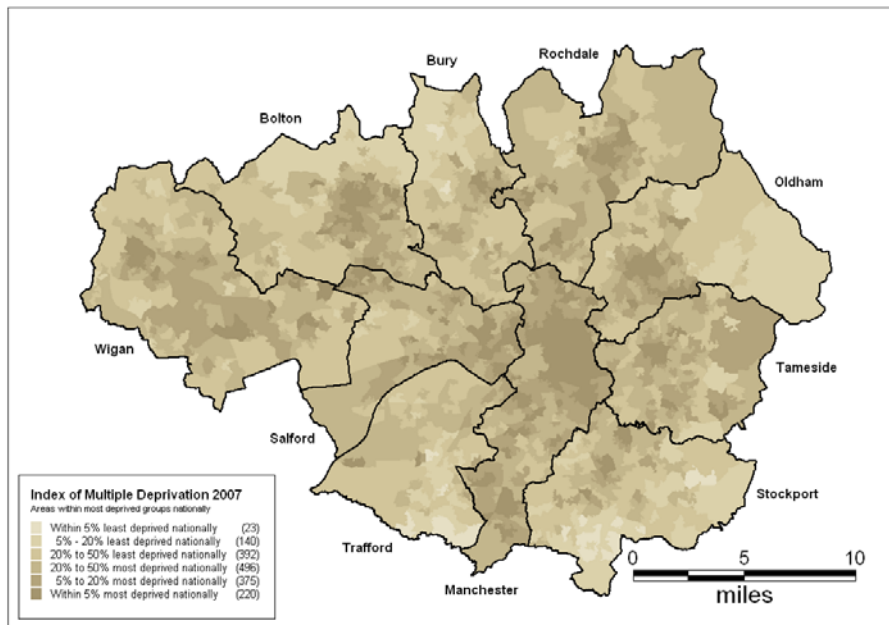


Figure 7: Index of Multiple Deprivation 2007 (Roy, 2011)

Trafford, Stockport and Bury are home to lower levels of deprivation, housing less than half the number of deprived LSOAs than the next most deprived district, as well as a number of LSOAs in the 5% least deprived nationally (Roy, 2011).

4.3 Drivers

Structural change has been influential in determining the growth and direction of the Greater Manchester economy. As has been noted, the regional economy has undergone sectoral change, shifting from a primarily manufacturing based economy to one dominated by services. This has had implications for employment patterns, with the new economy favouring the conurbation core in the South (Roy, 2011).

Policy drivers in the region can be found at a number of levels, including the local authority, city-region and regional levels as well as the national and European arenas. The legacy of the Manchester County Council, abolished by the 1985 Local Government Act, can be found in the Association of Greater Manchester Authorities (AGMA) (Gibbs, Jonas and While, 2002; Hebbert and Deas, 2000). AGMA represents a partnership between the ten local authorities of the area along with the private sector, and describes its role as driving new investment and co-ordinating planning. It incorporates six commissions: Planning and Housing, Environment, Health, Public Protection, Improvement and Efficiency and the New Economy, focused on economic development. These groups bring together representatives from the public, private and voluntary sectors to focus on their strategic area in the city-regional context (AGMA, 2011a). Working alongside AGMA, the Greater Manchester Combined Authority came into being in April 2009, and brings together a committee of elected officials representing each of the constituent local authorities with the remit of improving the efficiency of public transport, economic development and regeneration (AGMA, 2011). Both bodies aim to bring together the ten independent local authorities on more strategic issues.

In April 2009, Manchester and Leeds were named as the venues for the UK-Level pilot city-region programme. The programme was intended to devolve certain powers and responsibilities to city-regional level with regard to public sector reform, skills, transport, the low carbon economy and regional competitiveness (AGMA, 2011). As part of the negotiations regarding this development, the region sought a number of key interventions from government and successfully gained the designation of Low Carbon Economic Area for the Built Environment, the first in the UK. Reflecting the ambitions of the city-region to establish itself as a leader in the transition to sustainability, it is intended to build the low carbon supply chain, develop research and innovation and mobilise resources for retrofitting (AGMA, 2010).

At the wider regional scale, the Northwest Development Agency (NWDA) is one of nine Regional Development Agencies (RDAs) created in 1999 to provide a link between local business needs and government policies (NWDA, 2009). It, along with the other eight RDAs, is due to be abolished in 2012 to be replaced with a Local Economic Partnership (LEP), locally owned partnerships between LAs and local businesses (NWDA, 2010). One of the NWDA's initiatives was the Northern Way, responsible for a number of programs including the creation of a growth strategy for the North which championed city-regions as vehicles for closing the £30 billion output gap between the Northern and English averages. As part of the RDA closure, the initiative came to an end in March 2011 (Northern Way, 2011). Looking to the national arena, Manchester is one of the cities that fall under the purview of the Core Cities group, which represents the eight largest city economies outside London.

4.4 EU Funding

The NWDA is currently responsible for administering European Regional Development Fund money via the North West Operational Programme, which has four priority areas: stimulating enterprise and supporting growth in target markets, exploiting innovation and knowledge, creating the conditions for sustainable growth and growing and accessing employment. The New Economy commission is responsible for coordinating and promoting NWOP activities in Greater Manchester. As of 2010, the programme was funding 7 projects within Greater Manchester, providing £16.7 million towards a total project value of £70 million, the largest being the Media City development. A further 17 projects were in the pipeline, with ERDF providing £54 million towards a total value of £108 million (New Economy, n.d). The Northwest no longer qualifies for EU Objective 1 funding, but does receive Objective 3 funding through the European Social Fund with the remit of extending employment opportunities and improving the skills and adaptability of the workforce (Salford City Council, 2009).

Manchester also participates in the Clusters and Cities Network Programme (Clusnet). Supported by the Interreg IVC programme, an EDRF initiative for funding interregional cooperation, Clusnet brings together ten European cities to improve the effectiveness of cluster support policies (Clusnet, 2011). This, then, reflects the region's aim to develop its high value added clusters to drive forwards productivity.

5. Sustainability

5.1 The Sustainability Agenda To Date

Many commentators have argued that Manchester entered the 1990s as something of a lagging region in terms of sustainability. This can be seen as an unfair judgement, however, as its performance was comparable to other metropolitan areas. This bad reputation can be attributed to a number of factors. Firstly, a number of high profile conflicts between local government and environmental groups, such as those raging over the expansion of the airport and the extremely poor air quality in the city centre, gave the impression of a city hostile to sustainability issues (Jonas, Gibbs and While, 2004). This was compounded by a seeming lack of willingness to work with environmentalists, leading to sniping between two oppositional groups (While, Jonas and Gibbs, 2004). Secondly, the nature and veracity of the regeneration agenda in Manchester meant that environmental issues were sidelined in order to pursue economic, social and physical renewal. While this shows a prioritisation of growth, it is important to remember the enormity of the regeneration needed after the loss of industry. It can certainly be argued that it was necessary to sideline ecological concerns in order to address the deprivation felt across the region. Thirdly, the localism agenda of national government limited both the resources available for local change – particularly in a city with a limited tax base – and also became a key factor in competition both between and within regions to attract investment (While, Jonas and Gibbs, 2004).

Nonetheless, a number of local government initiatives show a concern for the environment as far back as 1981, when the city council highlighted reducing energy use as a priority. The main stimulus for a turn towards a more environmentally conscious mode of governance can be seen in the city council's successful bid to host the Global Forum, an event in order to check progress on sustainability issues following the Rio Summit the previous year. The event itself was plagued by management and funding issues and as such attracted negative press at both the regional and national level. More positively, it provided an opportunity for environmental discourse and brought the issue up the political agenda. The Manchester 100 project – around 100 initiatives grouped around 11 policy goals – arose from the event, but resultant changes were not as quick or far-reaching as some had hoped (Gibbs, Jonas and While, 2002).

The new millennium seemed to bring with a new attitude to environmental policy. The local authority Environmental Action Programme was developed by the city council during early 2001, while national policy forced authorities to take a proactive approach. These new initiatives represented the second phase of the Manchester growth project looking to quality of life in the city. As such, it doesn't represent so much a shift from the urban boosterism of the 1990s as a shift

within it: a broader based approach to urban development which incorporated a form of environmental sustainability, albeit a weak one (Jonas, Gibbs and While, 2004).

Manchester's current approach to sustainability issues is perhaps demonstrated by its Community Strategy where they are not awarded their own chapter but listed as one of five cross-cutting themes. As such, environmental concerns have been integrated into urban management to a degree, but are held to be second to socio-economic regeneration efforts. Nonetheless, a proactive approach to sustainability is felt to offer potential employment and skills gains for local people as well as a competitive advantage in attracting new residents and companies (Gibbs, Jonas and While, 2002). As such, sustainability is gaining importance as a guiding principle, if as a means to an end rather than in its own right. New development in the city can be seen to be considering such issues: while the Mackintosh and New Islington schemes, which consciously seek to incorporate a sustainable approach to the built environment into their design, are only a small part of the development underway in the region, they can be seen as indicative of the prevalent acceptance of the need to design more sustainable buildings. Similarly, the development of Groundwork Manchester, part of national federation of environmental regeneration charities, in 2008 shows the recognition of a need for a greater focus on the environment (Gibbs, Jonas and While, 2002).

Manchester's sustainability agenda has long played second fiddle to those of social and economic regeneration and physical renewal, a choice arguable necessitated by the extreme deprivation and decline felt in the city after the loss of the industry that formed such a big part of the region. However, it has not been entirely absent and can be seen throughout Manchester's regeneration. Recent years have seen a growth in the importance of environmental discourse, though it continues to be dominated by an economic rationale.

5.2 Climate and Energy Policy

The Climate Change Act 2008 laid out a legally binding commitment to reducing national greenhouse gas emissions by 34% by 2020 and 80% by 2050, both on based on a 1990 baseline (DECC, 2011). This commitment provides the foundation for UK climate and energy policy, which is informed by a number of strategies, white papers and schemes, an overview of which is given in Appendix 1.

Particularly relevant to the retrofit agenda are:

- the "Warm Homes, Greener Homes" document published in March 2010, which described the UK domestic energy management strategy
- the "Low Carbon Transition Plan," detailing the UK climate and energy strategy, published in July 2009

- Energy Bill 2010- 2011 which describes plans for the Green Deal
- The Carbon Emissions Reduction Target (CERT), which will run between 2008 and 2012 and requires energy companies to meet a carbon reduction target through promoting uptake of low carbon solutions; and the Community Energy Savings Programme (CESP) which targets low income areas with a whole house approach. These schemes will be replaced by the Energy Company Obligation (ECO), which will run alongside the Green Deal
- The Feed-in Tariff and Renewable Heat Incentive, introduced in April 2010 and 2011 respectively, intended to subsidise renewable heat and electricity generation
- The Local Performance Framework, established by the Local Government White Paper 2006 which requires LAs to adhere to Local Areas Agreements and National Indicator collection, both of which address emissions

The Greater Manchester region also holds a degree of devolved responsibility in discrete policy areas, including the transition to a low carbon economy. In April 2009, it was announced that the Greater Manchester region would become one of two pilot city-regions with devolved powers and responsibilities with regard to public service reform, skills, transport, creating a low carbon economy and regional competitiveness, the priorities for which are set out in the Greater Manchester Strategy (AGMA, 2011). The Greater Manchester Environment Commission has been responsible for tackling strategic environmental issues in the region since 2009; however, its priorities are as yet uncertain as negotiations are ongoing regarding devolutions of powers under the city-region scheme. According to its website, the commission is currently discussing projects with national government concerning climate resilience, low carbon energy decision making and capacity, retrofit at the domestic, commercial and municipal scale, low carbon transport and pilot low carbon economic areas (AGMA, 2011c). The region released its own Climate Change Strategy in July 2011, setting out its plan to reduce carbon emissions by 48% and build a green industry sector. The strategy's headline visions describe a rapid transition to a low carbon economy, reduction of emissions, climate change adaptation and embedding of carbon literacy into behaviours (AGMA, 2011d).

5.3 Carbon Emissions

In creating the Greater Manchester Low Carbon Economic Area, AGMA intended to establish the region as a world leader in the transformation to a low carbon economy. The primary objectives of the LCEA were to accelerate low carbon economy growth and to create new and higher skilled jobs (AGMA, 2010). As such, the low carbon agenda is strongly linked to providing economic growth. Greater Manchester is home to a fledgling low carbon market that employed 34,000 people and generated £4.4 billion of value in 2008/09 (AGMA, 2010).

As of 2005, Greater Manchester was responsible for 18.2 million tonnes of CO₂ emissions; by 2008 this had decreased to 17.5 million tonnes. This represented a carbon footprint of 7.1 tonnes per person, lower than the national average of 8.7. However, if embodied emissions are taken into account – such as those related to imported products and materials – then the region’s carbon footprint is nearer to 15 tonnes (GMCA, 2011).

Of the 18.2 tonnes emitted in 2005, 38.4% can be attributed to the industrial and commercial sector. The domestic sector was responsible for a further 34.2%, with road transport accounting for 26.9%. Land use and forestry emissions represented only 0.4% of the total. As such, individual behaviours in the residential and transport arenas are of importance in reducing the regional carbon footprint, as are the behaviours of industry (GMCA, 2011).

Figure 8 charts the per capita CO₂ emissions of each of the region’s LAs in 2008, as well as the percentage change between 2005 and 2008. There is a wide degree of variation across the ten LAs, with per capita emissions ranging between 5 tonnes in Oldham to 9 tonnes in Trafford. Each LA succeeded in reducing its emissions over the period, with Salford performing the strongest with a reduction of over 7% and Stockport and Rochdale reporting the smallest reductions of around 3%. Each LA is able to set its own targets for carbon reduction; eight have done so, with Bury and Wigan yet to formalise targets as of 2010. Collectively, the Greater Manchester strategy sets a target to reduce CO₂ emissions by 30-40% by 2020, echoing the national target but incorporating a range rather than a single figure (Parker, Smith and Bance, 2010).

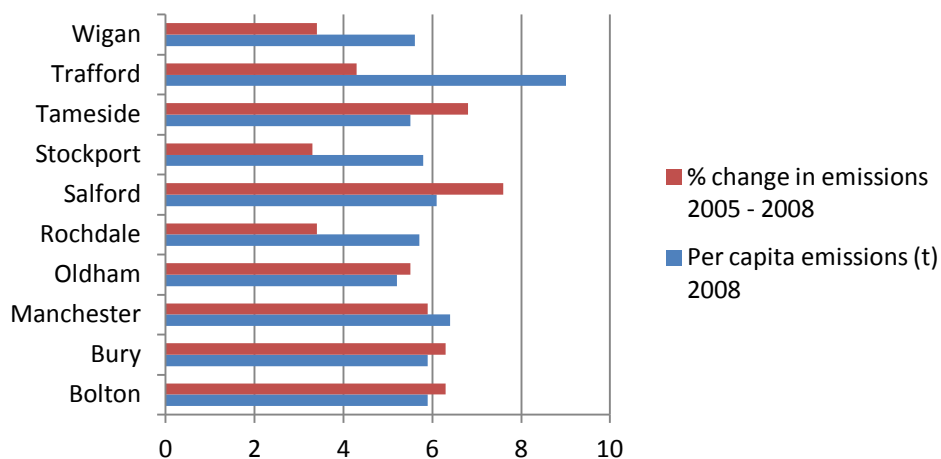


Figure 8: CO₂ emissions by local authority 2005 – 2008 (DECC, 2010)

In 2005, domestic energy use accounted for 40% of total energy consumed and around 36% of CO₂ emissions. It was emitted a lower level of CO₂ per unit of energy because of the reliance of residential properties on gas in the area. The industrial and commercial sector were responsible for a

further 1/3 of energy use and 39% of CO₂ emissions and the transport sector accounted for 27% and 25% respectively, as shown in figure 9.

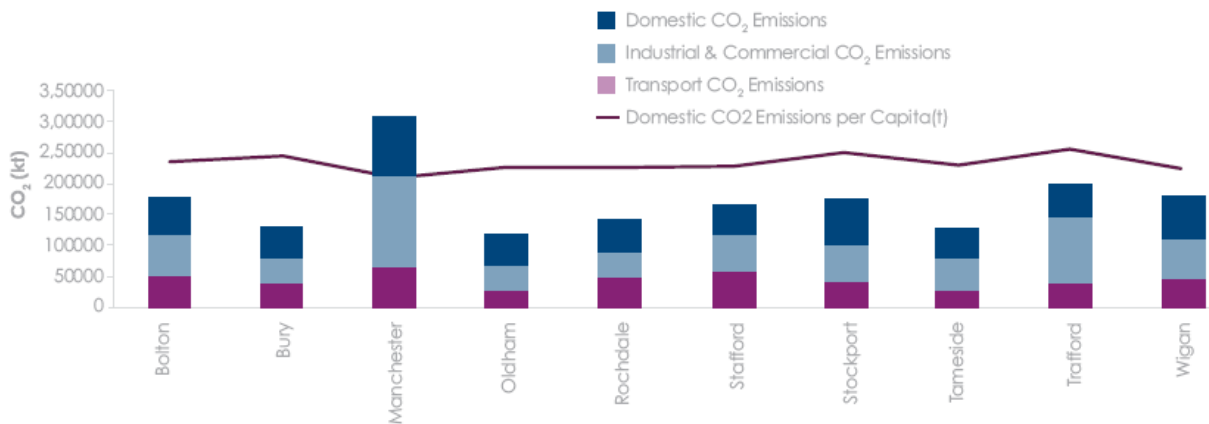


Figure 9: CO₂ Emissions by Local Authority (Parker, Smith and Bance, 2010)

Again the figures varied by local authority. Unsurprisingly, the urban centres of Manchester and Trafford were responsible for the highest levels of industrial and commercial emissions. Per capita domestic emissions, on the other hand, are notably similar across the region.

5.4 Fuel Poverty

As of the 2001 census, Greater Manchester performed reasonably well in terms of the percentage of households in fuel poverty, defined by UK government as those needing to spend 10% or more of their income on heating, relative to the UK and the North West (CSE, 2003). Pockets of fuel poverty are nonetheless clustered around the region, as can be seen in figure 10. They are somewhat clustered around urban areas, with Manchester and Salford as notable examples. The relatively affluent areas of Trafford and Stockport report low levels of fuel poverty.

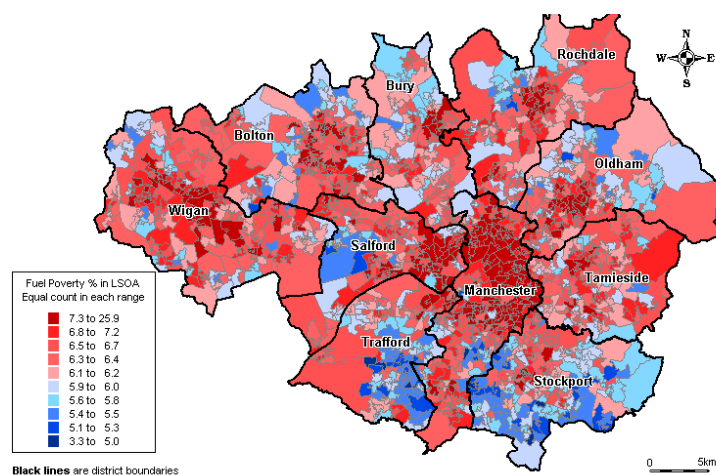


Figure 10: Fuel Poverty in Greater Manchester (CSE, 2003)

In response to the issue of fuel poverty, the Greater Manchester Fuel Poverty Initiative was led and managed by the UK Public Health Association between 2008 and 2010 to systematically review the ways LAs, Primary Care Trusts and energy suppliers can work together to reduce its incidence. At its heart is the ‘Clearing House’ model that was developed by the UKPHA in 2007. The model is now being implemented by AWARM (Affordable Warmth Access and Referral Mechanism) which coordinates networks and provides training and referrals (UKPHA, n.d).

5.4 Housing Stock

As of 2010, there were 1,134,300 households in Greater Manchester and this was forecasted to grow by 9.5% by 2020. Despite this anticipated growth, the number of new houses completed annually has fallen significantly in recent years, dropping by 45% in 2008/09 (New Economy, 2010). While this can be attributed at least in part to the effects of recession, it still represents a sharp contraction in the number of new homes in the market. The built environment can be characterised as mix of urban, suburban, semi-rural and rural in nature with wide variations across the region (New Economy, 2011b). In terms of housing type, semi-detached and terraced houses are most prevalent, representing 38% and 33% of the housing stock respectively. Detached houses account for a further 14%, while apartments make up the remaining 15% (New Economy, 2010). This picture varies significantly. Table 1 shows the proportion of housing stock by type for the different local authorities. It can be seen that apartments make up a higher percentage of the housing stock in urban Manchester and Salford; terraced houses are particularly common in Oldham and Rochdale. It should be noted, though, that semi-detached and terraced houses represent the majority of the housing stock in all ten LAs.

	Detached	Semi-detached	Terraced	Apartment
Bolton	16	35.3	37.1	11.4
Bury	18.2	38.8	31	11.8
Manchester	4.3	32.2	36	26.6
Oldham	11.5	33.6	41.9	12.8
Rochdale	14.9	33.3	38.6	13
Salford	8.6	37	32.5	21.6
Stockport	21.4	42.2	22.2	14
Tameside	11.1	38.6	37.1	12.8
Trafford	15.4	44.8	22.3	17.2
Wigan	16.6	46.5	29.2	7.5
Greater Manchester	13.8	38.2	32.8	14.9

Table 1: Housing type by local authority (New Economy, 2010)

The Greater Manchester Strategic Housing Market Assessment 2010, carried out by the New Economy commission, identifies four regions as illustrative of the typology of market conditions: central, northeast, south and northwest. The highest levels of growth are focussed in the central Manchester region, with the lowest in the northeast region of Rochdale, Oldham and Tameside. The most affluent housing market area can be found in the south in Trafford, Stockport and southern Manchester, while the northwest area of Bolton, Bury, Wigan and Salford has experienced high growth in its commuter population but deprivation in its town centres (New Economy, 2010).

Figure 11 charts the tenure of the housing stock by local authority. As a region, Greater Manchester has a greater proportion of local authority owned housing than the North West or English averages. This is true of each of the local authorities apart from Tameside and Trafford, where all public sector housing is owned by registered social landlords (RSLs). As in the rest of England, privately owned housing dominates the market. Manchester and Salford stand out as having the largest proportions of social housing, 34% and 30% respectively. Stockport and Bury, on the other hand, have only 14% and 16% of the housing stock in social ownership. The size of the social stock across Greater Manchester shrank considerably between 2001 and 2007 due to a number of factors including the change of tenure as part of the Right to Buy scheme, but has increased again in 2008/09 (New Economy, 2010).

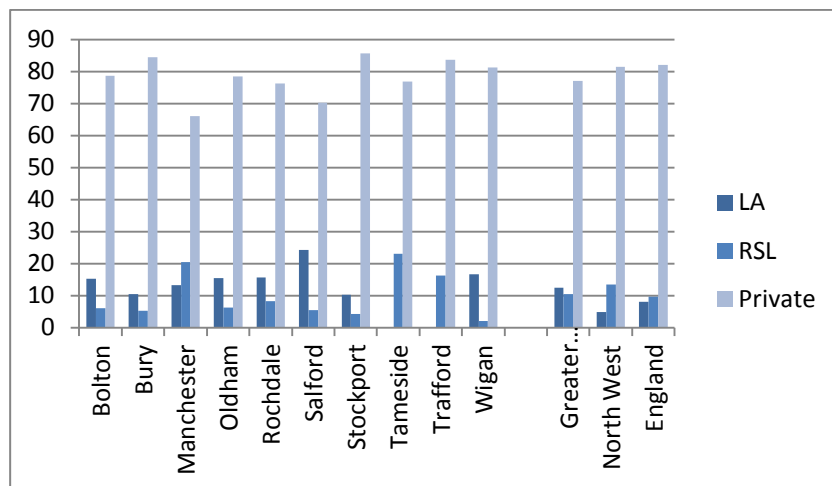


Figure 11: Housing stock tenure (New Economy, 2010)

Housing built between 1941 and 1975 is especially prevalent in Greater Manchester, accounting for 40% of the total housing stock in 2007 (figure 12). A decreasing trend in housing completions can also be seen since 1960, with only 7% of all stock built since 1991. Housing built before 1940 accounts for 41% of the housing stock (Deloitte, 2008). This carries implications in terms of the number of 'hard to treat' properties in the region since cavity walls did not become common until 1935 and conflict between retrofitting for efficiency and building conservation for heritage reasons

often arise with older properties. Age distribution of housing is relatively uniform across the area, but it can be seen that newer properties (post 1991) are somewhat concentrated in the Central housing market area (HMA); notably, older properties (pre 1920) are concentrated in the same area.

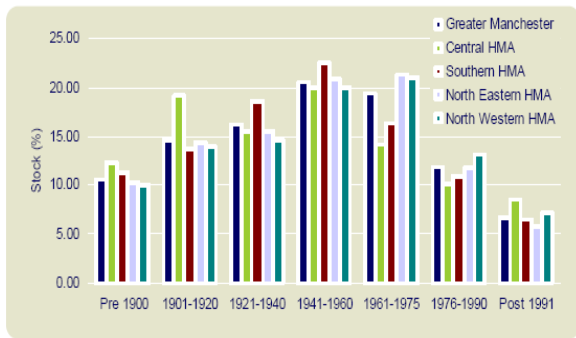


Figure 12: Age distribution of housing stock 2007 (Deloitte, 2008)

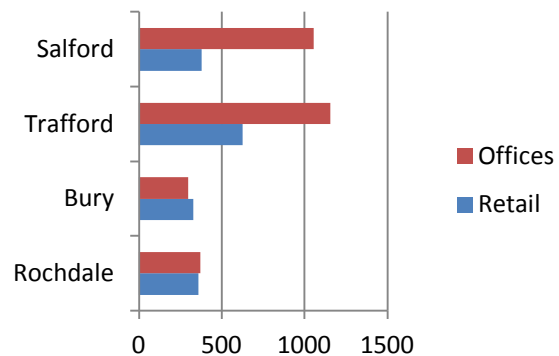


Figure 13: Office and retail floorspace (m²) 2008 (CLG, 2008)

While it is possible to remark general trends in energy efficiency measures taken in the English housing stock – for example, that the percentage of potential lofts that are insulated has risen from 52% in 1976 to 93% in 2005 and cavity wall insulation has increased from 4% of its potential in 1976 to 37% in 2006 (Utley and Shorrock, 2007) – it is difficult to find data specific to the Greater Manchester region.

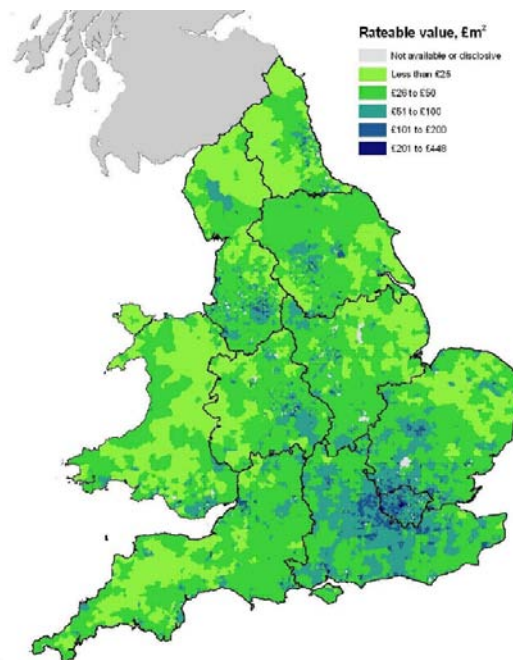


Figure 14: Rateable value of floorspace 2008 (CLG, 2009)

The North West has the highest amount of commercial and industrial floorspace in the UK (CLG, 2009). As of 2008, Greater Manchester was home to 34,285m² of retail floorspace, 27,526m² of office, 12,153m² of factories and 12,181m² of warehouses (CLG, 2008). These premises were not distributed equally across the region. As can be seen in figure 13, local authorities such as Trafford

and Salford far outstrip than those such as Bury and Rochdale. Indeed, while Greater Manchester's office stock was second only to London's in 2004, this was concentrated around Manchester city centre (CLG, 2009). This disparity can also be seen in the rateable value of commercial space, mapped in figure 14. High rents are concentrated in urban areas, with the highest prices being found in Manchester city. 'Large grade A' offices in Manchester city centre commanded an average value of £300 per m² in 2008 making them the most expensive outside London, while prices varied widely elsewhere in the region (CLG, 2009).

It can be seen, then, that Greater Manchester's commercial stock varies greatly across the region, with vibrant areas such as Salford and Manchester comparing favourably with other parts of the country while other areas report lower levels of floorspace and rateable value.

6. Conclusion

The aim of this paper was to present some of the regional context that will frame any future pathway to sustainability in the Greater Manchester region, considering the historical factors that shape the modern city region as well as regional growth and sustainability agendas. In conclusion, a few key points can be made on each of these areas.

Greater Manchester is in many ways a product of the Industrial Revolution, a period that saw rapid urbanisation in the area as Manchester, Bolton, Bury, Rochdale, Oldham, Ashton, Stockport and Salford grew to become major centres in a booming integrated industrial region. However, the region suffered extensive decline from the 1960s onwards as its traditional industries faded. After a brief experiment with municipal socialism, the city-region became known for its entrepreneurial regeneration strategy characterised by physical development and large flagship projects. In 1972, the creation of the Greater Manchester Council formalised the interdependent linkages within the region. Many of these links persisted after the abolishment of the council 13 years later and still exist under the auspices of AGMA.

Regeneration efforts in the region received widespread acclaim, reflecting the fact that it reoriented itself from a declining economy experiencing significant depopulation in the 1980s and early 1990s to a vibrant economy with a population that has grown to overtake Birmingham as the UK's second city. Much of this growth was driven by a strong financial services sector, which held implications for the regional economy in recent years. Nonetheless the region reports strong economic performance, representing 4% of the UK economy. Despite this success, the region suffers disproportionate economic inactivity as well as clustering of deprivation in urban areas.

For many, Greater Manchester entered the 1990s as something of a laggard in terms of sustainability. This can be seen as an inescapable consequence of the need for significant physical and economic regeneration in the area, which prompted not only a subjugation of environmental concerns to other policy concerns but also a number of high profile disputes with green-minded civil groups. Since the millennium, the region has been more proactive and is indeed the first UK Low Carbon Economic Area, affording it certain devolved powers in order to reduce its emissions.

A legacy of industry means that the area suffers from aging infrastructure and housing that impede the sustainability agenda. As such, any transition to sustainability in the area will need to address these problems area in the built environment.

Bibliography

- AGMA (2010) "Greater Manchester's Low Carbon Economic Area for the Built Environment (LCEA): Joint Deliver Plan (JDP) – Final Version" Available at <http://neweconomymanchester.com/downloads/733-LCEA-Joint-Delivery-Plan-Final-Version-2-doc> Last accessed 14/7/11
- AGMA (2011) "About Us" Available at http://www.agma.gov.uk/about_us/index.html Last accessed 14/7/11
- AGMA (2011a) "Commissions" Available at <http://www.agma.gov.uk/commissions1/index.html> Last accessed 14/7/11
- AGMA (2011b) "City Region" Available at http://www.agma.gov.uk/agma/city_region/index.html Last accessed 11/8/11
- AGMA (2011c) "Environment Commission" Available at http://www.agma.gov.uk/commissions1/environment_commission/index.html Last accessed 16/8/11
- AGMA (2011d) "Greater Manchester Launches Pioneering Climate Change Strategy – 29 July 2011" Available at http://www.agma.gov.uk/cms_media/files/gm_climate_change_strategy_press_release.pdf Last accessed 16/8/11
- Carpenter, J (2011) "Digested: The 2010 Indices of Multiple Deprivation" Available at <http://regenandrenewal.blogspot.com/2011/03/digested-2010-indices-of-multiple.html> Last accessed 16/8/11
- CLG (2008) "Table 401 – Commercial and industrial property: summary statistics England and Wales, 1st April, 1998-2008" Available at <http://www.communities.gov.uk/planningandbuilding/planningbuilding/planningstatistics/livetablestablescommercialindustrialfloors/> Last accessed 15/9/11
- CLG (2009) "Floorspace and rateable value of commercial and industrial properties 1 April 2008, (England & Wales)" Available at <http://www.communities.gov.uk/documents/statistics/pdf/1179067.pdf> Last accessed 13/09/11
- Clusnet (2011) "Welcome to Clusters and Cities Network" Available at <http://www.clusnet.eu/> Last accessed 15/7/11
- CSE (2003) "Fuel Poverty Mapping" http://www.fuelpovertyindicator.org.uk/newfpi.php?mopt=1&pid=fpi_areamap Last accessed 15/7/11
- Deas, I and Ward, K (2002) "Metropolitan Manoeuvres: Making Greater Manchester" in Peck, J and Ward, K (eds) "City of Revolution: Restructuring Manchester" Manchester: Manchester University Press

DECC (2010) "Local and Regional CO2 Emissions Estimates 2005-2008" Available at http://www.decc.gov.uk/en/content/cms/statistics/climate_stats/gg_emissions/uk_emissions/2008_local/2008_local.aspx Last accessed 18/7/11

DECC (2011) "Climate Change Act 2008" Available at http://www.decc.gov.uk/en/content/cms/legislation/cc_act_08/cc_act_08.aspx Last accessed 11/8/11

Deloitte (2008) "Greater Manchester Strategic Housing Market Assessment" Available at http://neweconomymanchester.com/stories/840-other_publications Last accessed 15/9/11

England's RDAs (2012) "Home" Available at <http://www.englandsrdas.com/> Last accessed 18/7/11

Hebbert, M and Deas, I (2000) "Greater Manchester – 'Up and Going'?" *Policy and Politics* 28 (1) p79-92

Gibbs, D, Jonas, A and While, A (2002) "Manchester: Changing Attitudes to the Environment in the Entrepreneurial City" *Case Study Working Paper 3* Department of Geography, University of Hull

Greater Manchester Transport Society GMTS (2010) "Districts of Greater Manchester" Available at <http://www.gmts.co.uk/explore/history/district.html> Last accessed 12/7/11

GMCA (2011) "Greater Manchester Climate Change Strategy 2011-2020" Available at <http://meetings.gmwda.gov.uk/mgConvert2PDF.aspx?ID=8975> Last accessed 16/8/11

Jonas, A, Gibbs, D and While, A (2004) "City-regions, Sustainability and New Territorialities: Evidence from English City Regions" *Submitted to REGIONET Workshop* Brussels, January 2004

Manchester City Council (1995) "Manchester: 50 Years of Change" London: HMSO

MIER (2008) "Economic Baseline 2008. Unit 4: Place" Available at www.manchester-review.org.uk/download/?id=561. Last accessed 15/9/11

New Economy (2010) "Greater Manchester Strategic Housing Market Assessment Update Report May 2010" Available at <http://ne.stardotserver.co.uk/downloads/695-Update-of-the-GM-SHMA-May-2010-pdf> Last accessed 15/7/11

New Economy (2011) "Local Economic Assessment: People" Available at http://neweconomymanchester.com/stories/1424-local_economic_assessment Last accessed 18/7/11

New Economy (2011a) "Local Economic Assessment: Skills" Available at http://neweconomymanchester.com/stories/1424-local_economic_assessment Last accessed 18/7/11

New Economy (2011b) "Local Economic Assessment: Place" Available at http://neweconomymanchester.com/stories/1424-local_economic_assessment Last accessed 18/7/11

- New Economy (2011c) "Local Economic Assessment: Introduction" Available at http://neweconomymanchester.com/stories/1424-local_economic_assessment Last accessed 18/7/11
- New Economy (n.d) "NWOP Funding Priorities" Available at <http://neweconomymanchester.com/stories/1009-nwop-funding-priorities> Last access 15/7/11
- Northern Way (2006) "The Manchester City Region Development Programme 2006" Available at http://www.red.mmu.ac.uk/documents/ent_files/strategies/CRDP%202006%20Full%20Report.pdf Last accessed 15/7/11
- Northern Way (2011) "Northern Way Closure" Available at <http://www.thenorthernway.co.uk/default.asp?id=2> Last accessed 15/7/11
- NWDA (2009) "About Us" Available at <http://www.nwda.co.uk/about-us.aspx> Last accessed 15/7/11
- NWDA (2010) "NWDA Newsletter December 2010" Available at <http://nwdainteractive.com/1G3-ACEC-751D79IE6E/cr.aspx> Last accessed 15/7/11
- Parker, A, Smith, OL and Bance, M (2010) "Sustainable Energy Action Plan" Manchester: ARUP and Manchester Knowledge Capital Ltd
- Peck, J and Ward, K (2002) "Placing Manchester" in Peck, J and Ward, K (eds) "City of Revolution: Restructuring Manchester" Manchester: Manchester University Press
- Quilley, S (2002) "Entrepreneurial Turns: Municipal Socialism and After" in Peck, J and Ward, K (eds) "City of Revolution: Restructuring Manchester" Manchester: Manchester University Press
- Robson (2002) "Mancunian Ways: the Politics of Regeneration" in Peck, J and Ward, K (eds) "City of Revolution: Restructuring Manchester" Manchester: Manchester University Press
- Roy, A (2011) "Greater Manchester Local Economic Assessment: Summary and Conclusions" A report for Association of Greater Manchester Authorities (AGMA) Manchester: New Economy
- Salford City Council (2009) "European Regional Development Fund/ European Social Fund" Available at <http://www.salford.gov.uk/erdf.htm> Last accessed 15/7/11
- UKPHA (n.d) "Fuel Poverty" Available at <http://www.ukpha.org.uk/fuel-poverty.aspx> Last accessed 15/7/11
- Utlej, J and Shorrocks, L (2008) "Domestic Energy Fact File (2007): England, Scotland, Wales and Northern Ireland" Watford: BRE
- While, A, Jonas, A and Gibbs, D (2004) "The Environment and the Entrepreneurial City: Searching for the 'Sustainability Fix' in Manchester and Leeds" *International Journal of Urban and Regional Research* 28 (3) p549-569

Appendix 1: UK Climate and Energy Policy

Energy legislation			
Year	Name	Description	Scale
2012	Energy Bill 2012	Currently awaiting report stage in parliament, includes provisions for Green Deal, low carbon electricity and security of the energy supply	UK
2011	Energy Security and Green Economy Bill	To be introduced following Summer recess 2011. To include further details on the Green Deal, to introduce Energy Company Obligation (ECO) to replace CERT post 2012 and outline guidelines for private rental retrofitting	
	Carbon Plan 2011	Plan of action on climate change. Includes provisions for the Green Deal, GIB, electricity market reform	
	Heat and Energy Saving strategy	Consultation finished in May 2011. Sets out aim for emissions from existing buildings to be approaching zero by 2050.	
	Local transport white paper: creating growth, cutting carbon	Published January 2011. Announces new funding structure for transport, emphasises initiatives for modal shifts	
	Electricity Market Reform white paper 2011	Sets out key measures to attract investment and create a secure mix of electricity sources. Key elements include carbon price floor, long term contracts	
	UK Renewable Energy Roadmap 2011	Comprehensive action plan to accelerate deployment and use of renewable energy sources	
	National Energy Efficiency Plan and Savings Plan	Published 2011. Focuses on actions and intended actions of WG to support sustainability	
2010	Energy Bill 2010-11	Has received first and second readings and is at report stage. Will include provisions for the Green Deal, ECOs and smart meter rollout	
	Energy Act 2010	Provides a framework for supporting elements of the Low Carbon Transition Plan. Includes provisions for CCS incentives and market and social fairness	
	Fuel Poverty Strategy	Published 2010 to replace Fuel Poverty Commitment for Wales (2001). Includes HEES, referral network	Wales
	Wales Climate Change Strategy	Published October 2010. Sets out policies and programmes to reduce GHGs by 3% a year in areas of devolved competence	
2009	A Low Carbon Revolution: Wales Energy Statement	Published in March 2010, framework for increasing energy efficiency and low carbon energy sources, links low carbon agenda to wider economic and social sustainability	
	Low Carbon Transition Plan	Plan to meet emissions reductions target from Climate Change Act 2008. Includes provisions for	UK

	2009	governmental carbon budgets, renewable energy, PAYS and demonstration projects	
	One Wales, One Planet	Launched May 2009, overarching sustainable development strategy	Wales
	Green Jobs Strategy	Published July 2009. Strategy to support greening of existing jobs and stimulation of green economy to create new jobs	
	Bioenergy Action Plan for Wales	Consultation held in 2009. Actions identified being addressed by WAG, SECC and local authorities	
	UK Renewable Energy Strategy	Published June 2009. Strategy to meet EU target of 20% energy from renewable sources	UK
2008	Energy Act 2008	Provides a legislation framework for underpinning energy and climate change strategies. Includes provisions for FiT, smart metering and RHI	
	Climate Change Act 2008	Introduced world's first long-term legally binding framework for tackling climate change. Key provisions included a legally binding emissions reductions target of 80% by 2050 and 34% by 2020, carbon budgeting, creation of the CCC	
Energy programmes/schemes			
Year	Name	Description	Scale
2014	Smart meter roll out	Proposed obligation on energy suppliers to roll out smart meter to all UK homes over 2014-2019	UK
-	Welsh Housing Quality Standard (WHQS)	Standard to which all social landlords must bring all their properties by the end of 2012	Wales
2011	Renewable Heat Incentive (RHI)	Announced in March 2011, financial support scheme for renewable heat. To work alongside FiT and RO	UK
	Nyth/Nest	Launched April 2011, all-Wales scheme to combat fuel poverty, targets means tested households	Wales
	Warm Front		England
	Green Investment Bank	Spring 2011 Budget committed £3million in funding for GIB to provide finance for low carbon growth with borrowing powers from 2015-16	UK
2010	Feed in tariffs (FiT)	Introduced in April 2010 under powers in the Energy Act 2008. Grant scheme to support small-scale investment in low carbon energy generation. To work alongside RO and RHI	
	EU Energy Performance of Buildings Directive	Established 2002, amended 2010. Contains provisions for DECs, EPCS and definition of low carbon buildings	EU
	Decent Homes Standard	Standard to which all social landlords must bring all their properties by the end of 2010	England
2009	Community Energy Saving Programme (CESP)	Started September 2009, first live scheme commenced in January 2010. Targets areas of low income, provides financial support improved energy efficiency according to community based, whole house approach. Funded by obligation on suppliers	UK

	Arbed 1 and 2	Established 2009. Wales' strategy energy performance investment programme/ Phase 1 (2010/11) involved energy efficiency projects in social housing. Phase 2 will incorporate private and public sector housing	Wales
2008	Carbon Emissions Reduction Target (CERT)	Requires all domestic energy suppliers to make savings in carbon emitted by householders. The supplier obligation phase of CERT was launched in 2008, intended to run until December 2012	UK
	Display Energy Certificates (DECs)	Since 2008 public building in the UK over 1000m ² must display a DEC reporting actual energy usage	
	Energy Performance Certificates (EPCs)	As of 2008, required whenever a building is built, sold or rented out, provides an energy efficiency rating	
2007	Code for Sustainable Homes	Established 2007, sets minimum performance standards for the design and construction of homes covering energy, waste, materials and water	
	CRC Efficiency scheme	Announced in Energy White Paper 2007, launched April 2010. Mandatory scheme aimed at large public and private sector organisations	
2006	Climate Change programme	First released in 2000, updated in 2006. Sets out policies and priorities for action.	
2002	Energy Efficiency Commitment (EEC)	Introduced 2002, requiring energy supplier to assist the implementation of home energy efficiency improvements. Second phase 2005-2008.	
2005	EU Emissions Trading Scheme	Started in 2005, a Europe wide cap and trade scheme.	EU
2002	Renewables Obligation (RO)	Replaced the Non Fossil Fuel Obligation in 2002, subject to consultation and amendment regularly since. Places an obligation on electricity suppliers to source an increasing proportion of electricity from renewable sources	UK
2001	Climate Change Levy (CCL)	Introduced in April 2001. A tax on the use of energy in industry, commerce and the public sector. Climate Change Agreements (CCA) give special dispensation for certain industries	
2000	UK Climate Change Programme	Published in 2000 following the 1997 Kyoto Protocol. Included a target carbon reduction of 20% by 2010 and provisions for the CCL and building regulations	
1989	Non fossil fuel obligation (NFFO)	Established under the Electricity Act 1989. Originally intended to support nuclear electricity generation, expanded in 1990 to include renewables	Wales and England
Planning			
2013	Building regulations	Will devolve to Wales in December 2011. Aims for consultation in 2012 and implementation in 2013	Wales
2010	Community Infrastructure Levy	Came into effect April 2010. New charging structure to require developers to contribute to local infrastructure	UK
2008	Planning Act 2008	Introduced the Infrastructure Planning Commission for nationally significant infrastructure projects	

		and the community infrastructure levy	
	Planning and Energy Act 2008	Came into force November 2008. Allows local authorities to require a proportion of renewable or low carbon energy to be generated for new developments	
2007	Planning policy statement 1	Published December 2007. Supplement that provides government guidance on planning policy and climate change. Discusses targets and evidence for low carbon development in local authorities	
-	Technical advisory notes 8, 12, 18 and 22	Provides advice on renewable energy provision, good design including environmental sustainability, design, transport planning and sustainable building respectively	
2000	Home Energy Efficiency Scheme (HEES Wales)	In operation since November 2000, WAG's primary vehicles for meeting fuel strategy commitments, grants directed a low-income households	Wales

Appendix 2: Climate and Energy Research Projects in or near Greater Manchester

Name	Organisation	Description	Website
Models and methods for informing UK climate change mitigation models	PhD project at Manchester University, funded by Sustainable Consumption Institute	To understand appropriate tools and methods to support/ inform the UK transition to a low carbon economy and recommendations for modelling improvements.	http://www.tyndall.ac.uk/research/energy/informing-uk-climate-change-mitigation-policy
EcoCities: the Bruntwood Initiative for Sustainable Cities	Led by Manchester University, funded by Bruntwood	Project focussing on response of urban areas to impacts of climate change, aims to produce blueprint for adaptation strategy for Manchester by end of 2011	http://www.sed.manchester.ac.uk/architecture/research/ecocities/index.htm
UKSHEC Plus: Public attitudes to city-level energy options	University of Manchester	Qualitative and quantitative study of stakeholder opinion of the options for emissions contraction in a city-region	http://manchesterismyplanet.com/_file/IGelcNDC_Kj_85420.pdf
Changing Behaviour	Salford University	Modelling end-user behaviour and develop understanding of demand management in energy use and services	http://www.climatechangenorthwest.co.uk/?page_id=1363