



SUSTAINABILITY SNAPSHOT

THE DIVERSE AND FAR-REACHING PARTNERSHIP WORK TAKING PLACE ACROSS OUR REGION

The Greater Manchester Combined Authority is made up of ten Councils and a host of delivery partners from the third, private and community sectors. Together we have delivered projects that have improved energy efficiency through smart heat innovation, enhanced natural environments, delivered resource efficiencies through sustainable production and consumption, developed skills and knowledge within the low carbon economy, provided increased sustainable transport options and built innovative, awe-inspiring environments for places of work research and education.

The Greater Manchester Low Carbon Hub is at the heart of this work — a policy, research and investment vehicle to finance a sustainable infrastructure and deliver shared environmental priorities between GMCA and government departments.

AIMS:

- o Cutting carbon emissions by 48% from a 1990 baseline by 2020
- o Growing a low carbon economy
- o Achieving local air quality thresholds
- o Adapting to climate change
- o Embedding low carbon behaviours

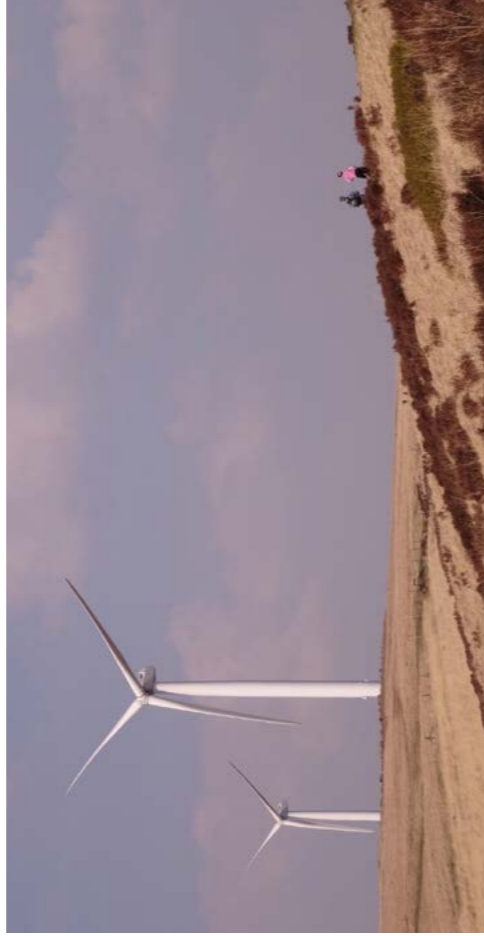
// GREATER MANCHESTER ENVIRONMENT TEAM // 0161 237 4483
GMLWCARBONHUB / WWW.GREATERMANCHESTER-CA.GOV.UK
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"Media City — Manchester (April 2011)" / Photograph by Esther Westerveld / Creative Commons — North West England / CC BY 2.0

BUILDINGS

Since 2011, GM Energy Advice and framework partners have installed 27,000 retrofit measures in homes, saving 15,000 tonnes of CO₂ per year. Social housing partners have saved 50,000 tonnes of CO₂ by installing 100,000 measures since 2010. By 2020, we need to significantly improve the energy performance of our buildings and make them more affordable and comfortable to occupy.



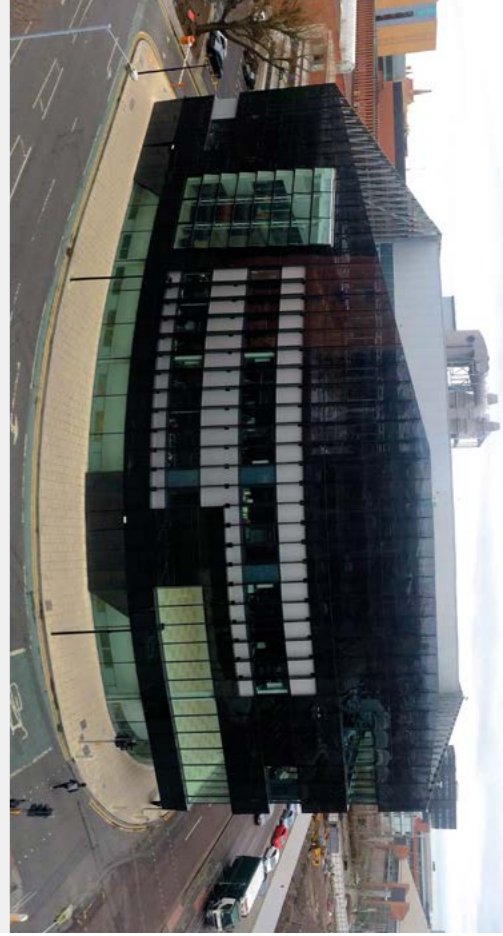
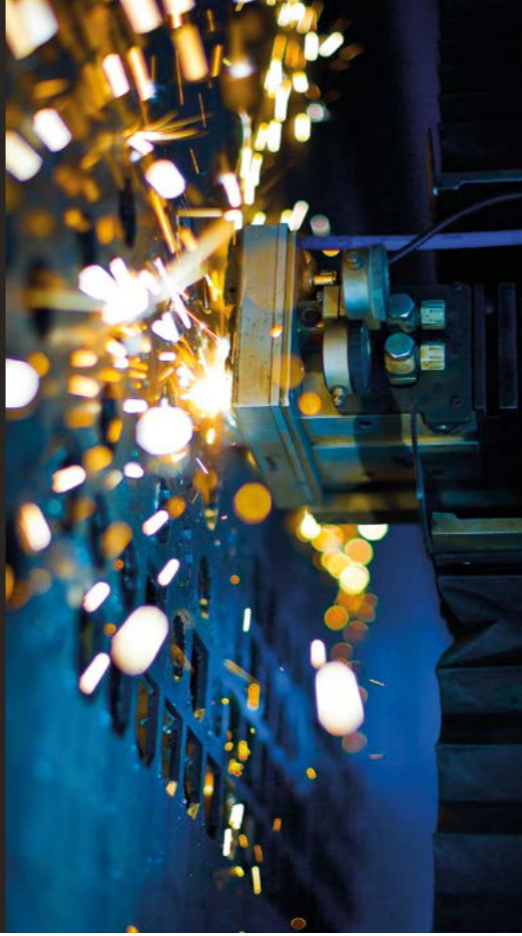
"Scott Moor Wind Farm and some people" / Photography by Gidzy / Creative Commons — Project Weather / CC BY 2.0

ENERGY

A £590m+ programme of heat network, generation and demand reduction projects has been established. A £30m world first trial is taking place between GM partners and NEDO, which will demonstrate how new technology and innovation can reduce domestic energy demand. We will establish the necessary capacity and policy framework, to accelerate the implementation of energy generation, distribution, storage, trading and smart system schemes across Greater Manchester by 2020.

SUSTAINABLE CONSUMPTION AND PRODUCTION

A CHP waste to energy plant that generates 30MWe and 51MWh of electrical and thermal energy has been built for GM's domestic waste. A £1m programme of business support has brought resource efficiency and growth opportunities to 180 businesses. We will continue to support the contributions that sustainable consumption and production make towards GM's low carbon ambitions.



National Graphene Institute, University of Manchester / Photograph by Alice Red (www.alicered.net) / CC-BY-SA-4.0

SECTOR AND SKILLS

GM's Low Carbon Environmental Goods and Services sector is the third largest in the UK, employing 38,000 people with annual sales of £5.5billion and annual growth of around 3%. By 2020, we will help businesses to optimise their potential as we work to raise the profile and increase the economic contribution of the sector.



DSCN1060 / Photograph by Theachham / Creative Commons — Public Transport / CC BY 2.0

TRANSPORT

Over 95% of GM's transport emissions come from road vehicles. By 2020, carbon targets will be a core delivery focus and goal of transport strategy and planning. We will develop, gain funding for and deliver transport interventions that enable GM to reduce its emissions, adapt to climate change, improve air quality and raise awareness of the carbon and health impacts of transport choices.



"Holker Moss Pond" / Photograph by Phil Grahwell / Creative Commons — 360 Degrees / CC BY 2.0

NATURAL CAPITAL

The natural environment needs to be protected and (where possible) enhanced in light of increasing pressures from people, the economy and a changing climate. Significant improvements are being made to Greater Manchester's natural habitat, which includes the planting of 3 million trees by 2035 and the enhancement of the Greater Manchester Wetlands.

BUILDINGS

- ONE ANGEL SQUARE, NOMA, MANCHESTER**
One of Manchester's highest-rated green buildings and home to the Co-op's head office and contact centre. The Building Research Establishment Environmental Assessment Method (BREEAM), an internationally acclaimed system of assessing buildings, gave 1 Angel Square a score of 95.16% — the highest ever awarded.
- MEDIACITYUK, SALFORD**
Awarded the status of the first outstanding, sustainable community grade in the world by BREEAM in 2011. One of the most innovative measures was the delivery of a tri-generation power plant which helps to heat, cool and power the buildings at the heart of MediaCityUK.
- OLDHAM PASSIVHAUS**
Symphony Housing has developed four 'Passivhaus' zero carbon homes on St Mary's estate in Oldham, which are at the cutting edge of sustainable design.
- GREEN DEAL COMMUNITIES**
1200 Greater Manchester homes are receiving retrofit measures as part of the DECC incentive scheme. Horwich Railway Terraces, Bolton, is a great example of external wall insulation home improvements.

ENERGY

- NEDO SMART COMMUNITIES PILOT**
Trialling air source heat pumps and demand side response technology in 600 social tenanted properties in Bury, Manchester and Wigan.
- OTTERSPOOL WEIR HYDRO, STOCKPORT**
A renewable energy scheme at Otterspool Weir on the River Goyt near Marple, Stockport, is Greater Manchester's first community-owned hydro-electric project. Electricity generated since commissioned in October 2012 totals 689,948kWh, (May 2016).
- SMART SYSTEMS AND HEAT**
GM has been selected along with two other UK cities to trial an innovative modelling tool, which will map the trajectory to a decarbonised heating model in domestic properties by 2050. The £80m project with the Energy Catapult will map which low carbon technologies should be installed to meet the UK's decarbonisation targets over the next 35 years and will be followed by a demonstrator pilot in 2018.
- BOLTON - THERMAL RECOVERY FACILITY (TRF)**
The Bolton TRF has the capacity to process around 90k tonnes of waste per annum, and produces 48,000 MWh of electricity per annum. The turbine is configured to extract steam/heat, and a techno-economic feasibility study is currently being undertaken to determine the viability of supplying this heat to buildings in Bolton Town Centre.
- SCOUT MOOR WIND FARM, ROCHDALE**
Scout Moor wind farm opened in 2008 with 26 existing wind turbines generating enough electricity for 40,000 homes. It is currently the second largest onshore wind farm in England.

SECTOR AND SKILLS

- UNIVERSITY OF SALFORD ENERGY HOUSE**
A unique testing asset, the Energy House is the only full-scale building in an environmental chamber in Europe and the only full-scale brick-built test facility in a controlled environment in the world. The Energy House has been designed and developed to allow leading academics and researchers to conduct scientific research in order to improve the energy efficiency of hard to treat properties, in collaboration with industry.
- UNIVERSITY OF MANCHESTER GRAPHENE INSTITUTE**
The innovation ecosystem will have at its core the National Graphene Institute and the Graphene Engineering Innovation Centre

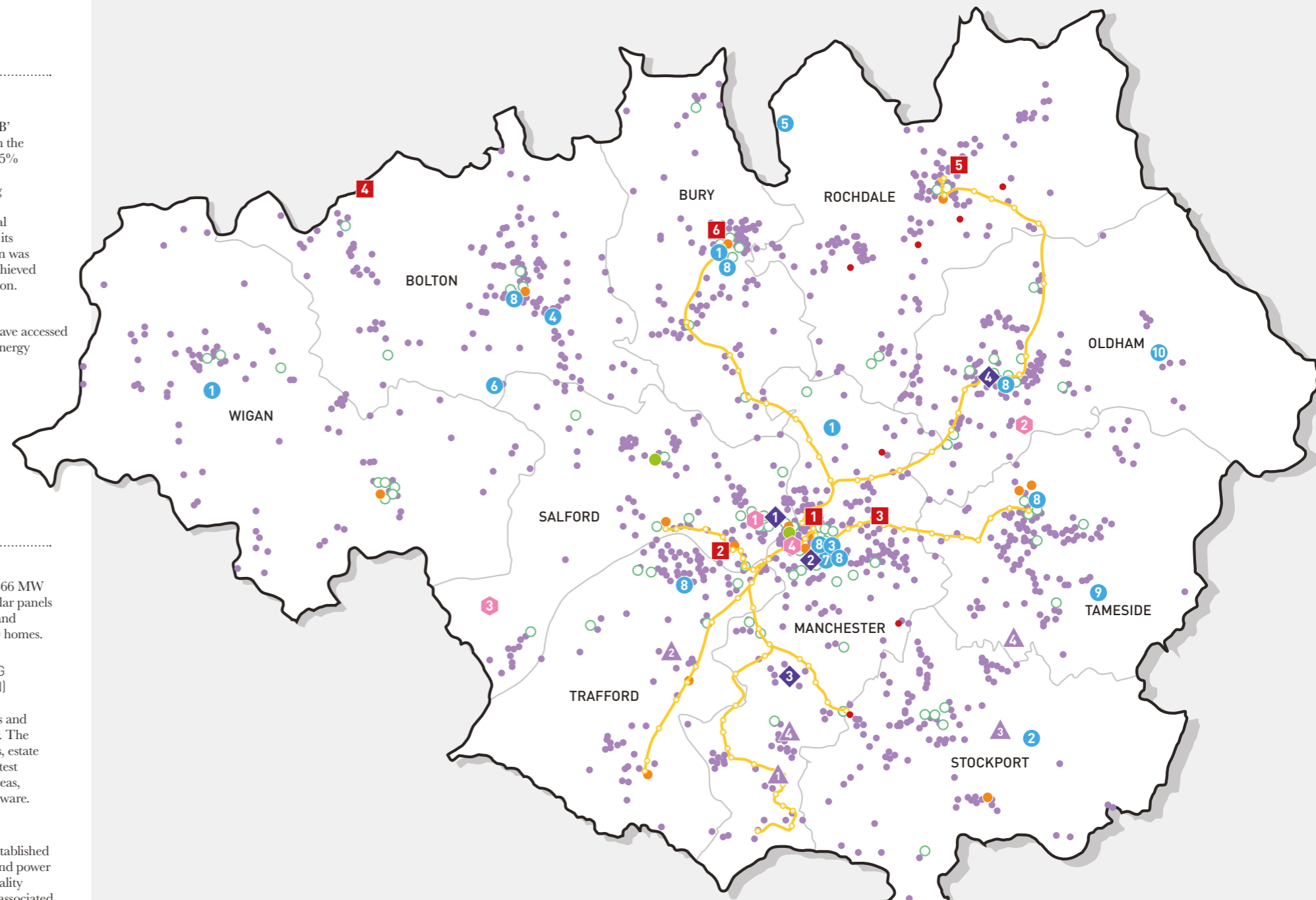
- BURY & ROCHDALE COMMUNITY FIRE STATIONS**
Opened in 2012, Bury fire station has a very high 'B' energy performance rating. 40m² of solar panels on the roof provide electricity and hot water to cater for 15% of the building's total energy demand. None of the rain that falls on the site enters the sewers, reducing the chance of flooding downstream. The building itself is made from 20% recycled materials and local labour, suppliers and apprentices were used during its construction. Opened in 2014, Rochdale fire station was built as the most energy efficient in the UK, and achieved the highest BREEAM assessed rating for a fire station.

- GM SALIX ENERGY EFFICIENT SCHOOLS**
With the support of GM, a pilot of seven schools have accessed 100% interest free funding to reduce their on-site energy consumption. In some cases their energy cost per pupil has reduced by as much as a third. This has been achieved through measures ranging from fabric through to lighting and heating controls.

● GM SALIX ENERGY EFFICIENT SCHOOL LOCATIONS

- THE SOLAR FARM, SALFORD ROAD**
Salford Road is now complete and will produce 1.866 MW energy yield per annum (pa). It consists of 8,400 solar panels on a 2.8 ha site, saving over 600 tonnes of carbon and producing enough power to provide energy for 600 homes.
- DIMMER (DISTRICT INFORMATION MODELLING AND MANAGEMENT FOR ENERGY REDUCTION)**
A European funded project to develop software that allows users to model how different energy measures and behaviour will affect the performance of a building. The software can be used by residents, energy managers, estate managers and building and design professionals to test different scenarios. The project is using two pilot areas, Turin and the Corridor, to develop and test the software.
- GM HEAT NETWORK PIPELINE**
A programme of heat network projects has been established across GM to provide lower cost low carbon heat and power to connected customers, as well as delivering air quality improvements, security of fuel supply and benefits associated with increasing the capacity of local energy generation. Significant projects include the Manchester Civic Quarter, Manchester Corridor, Bolton Raikes Lane and Trafford Park.
- GODLEY RESERVOIR, HYDE**
United Utilities' £3.5m floating solar power farm with around 12,000 individual panels covering an area of 45,500 sqm can generate 2.7 GWh pa of renewable, zero-carbon power. It will partially power a local water treatment plant.
- SADDLEWORTH COMMUNITY HYDRO**
Dove Stone Reservoir — 50kW innovation award-winning hydroelectric turbine working directly from the reservoir overflow.

- SIEMENS TRAINING CENTRE — SITRAIN**
Training for industry, professional and practical learning solutions straight from the manufacturer.
- THE GM / UNIVERSITY TECHNICAL COLLEGE**
This college's cutting edge low carbon design creates an inspirational learning environment for sustainable engineering students.



SUSTAINABLE CONSUMPTION AND PRODUCTION

- REAL FOOD WYTHENSHAW, MANCHESTER**
An ambitious five-year programme to engage and excite the people of Wythenshawe in growing and cooking fresh, sustainable food.
- GLEBELANDS CITY GROWERS, TRAFFORD**
A pioneering urban growing project on the banks of the Mersey in Sale, which produces organic food for consumption within Greater Manchester.
- STOCKPORT SUSTAINABLE FOOD**
Feeding Stockport is a combined programme to make Stockport a more Sustainable Food City. It works closely with the community and the Council to revolutionise a chain of local food production, distribution and consumption.
- GM WASTE DISPOSAL**
MBT — AD Plants: The organic rich fraction of mixed waste is separated and anaerobically digested as part of the waste treatment process. The process also refines the waste into a solid recovered fuel, which is sent to Ineos Chlor for energy recovery.
- BUSINESSES TRANSITIONING TO A LOW CARBON ECONOMY SMES SUPPORTED BY THE BUSINESS GROWTH HUB**

NATURAL CAPITAL

- IRWELL RIVER PARK**
Embracing some 280 hectares, the park provides inspirational waterside spaces and delivers new cultural and leisure opportunities and sustainable transport routes. It is transforming an eight kilometre stretch of the Irwell corridor across the regional centre between MediaCityUK and Peel Park.
- MEDLOCK VALLEY PROJECT**
Restoration of the river and its landscape has seen an improvement in water quality and the return of fish and other wildlife. The Medlock Valley project covers the entire river valley system in East Manchester, running from Great Ancoats Street in the west to Clayton Bridge in the east.
- GREATER MANCHESTER WETLANDS**
Focusing on the wetlands of 'Wigan Flashes' and the mosslands of 'Chat Moss' and 'Risley Moss'.
- DEANSGATE-CASTLEFIELD GREEN WALL, MANCHESTER**
The transformed D-C Metrolink station (including Green Wall) and the creation of Manchester's light rail system.

TRANSPORT

- GREATER MANCHESTER ELECTRIC VEHICLE SCHEME (GMEV)**
157 Chargers and four Fast Chargers available in Greater Manchester.
- CYCLE HUBS**
13 Cycle Hubs currently open, one in Sale due to open soon and five to open in 2016.
- METROLINK**
Network of 92km track with 93 stops.
- GREEN WHEELS** Salford City Council.
1,200 staff enrolled in a Co-Wheels Car Club.