

Assessing climate risks and opportunities for strategic growth sites



The effects of climate change are already being felt in Cheshire & Warrington (C&W) through an increase in frequency of severe weather events such as intense rainfall, high winds and prolonged periods of ice and snow.

We have also seen an increase in flooding, both from rivers bursting their banks and from surface water caused by periods of high rainfall. Such incidents pose a threat not only to homes and people, but also to businesses, with a consequent threat to economic growth and prosperity.



At the same time such events also present opportunities for local companies to develop products and systems to combat the effects of climate change as well as installing measures that reduce carbon dioxide (CO₂) emissions and reduce energy bills.

Recognising these threats and opportunities, the Cheshire & Warrington Local Economic Partnership (LEP) commissioned a study to assess the risks and opportunities at the strategic growth sites and sectors in the region. These sites include both existing employment sites and those earmarked for future development.

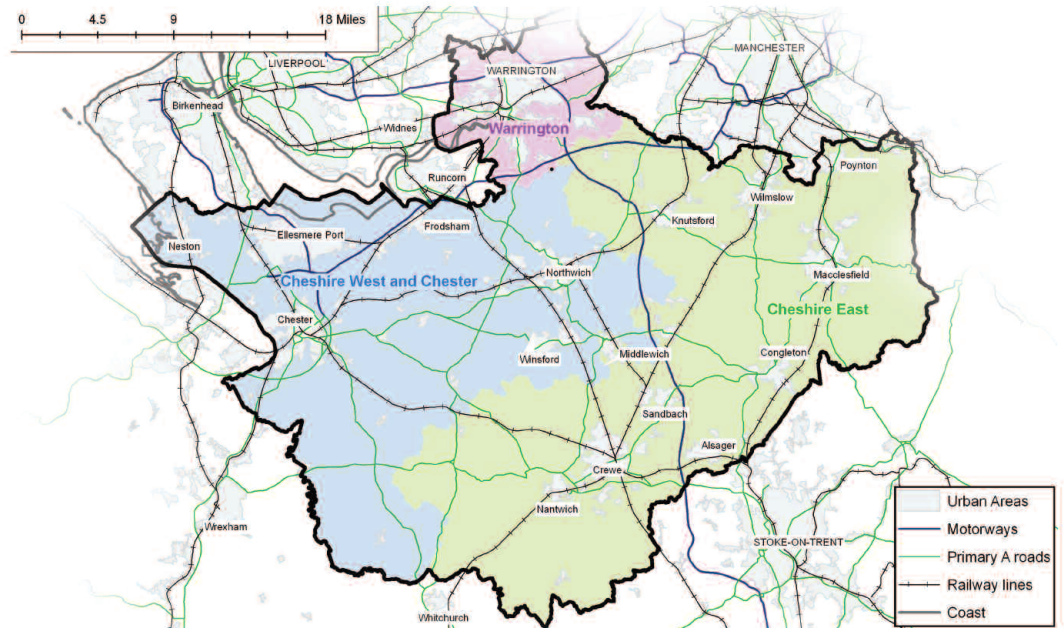
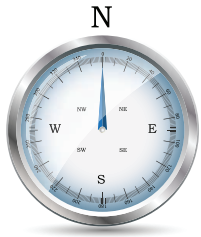
The second phase, which is about to commence, will involve engagement with businesses and site developers to encourage them to take action to combat the risks and seize the opportunities.

The work has been undertaken by Quantum Strategy & Technology and CAG Consultants under the direction of a Steering Group with members from the three Local Authorities, the Environment Agency, the ENWORKS Programme and The Mersey Forest.

Quantum



Cheshire and Warrington covers an area of approximately 880 square miles. It has a population of around 903,000 people and about 440,000 people work there. This area contributes nearly £20bn to the UK's economic output and has successful businesses operating in chemicals, pharmaceuticals, automotive, engineering, financial & professional services and the creative industries (2011 data).



Cheshire and Warrington sub-region

Map produced by the Economic Development & Regeneration Team, Cheshire East Council. Version 2 (production date: 16 October 2012)

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Key Sites & Sectors

The criteria for selection as a 'Strategic' or Key Site included the size of the site, the numbers of people employed and the type and number of businesses on the site (or, in the case of development sites, the anticipated numbers). The sites were identified in a series of meetings with officers from the three Local Authorities.

These discussions led to the 'grouping' of adjacent sites so that a number could be assessed together from a climate change perspective and also provided other useful information for the vulnerability assessments (e.g. sites with large numbers of small businesses).

This resulted in the identification of 17 sites or 'groups' in Cheshire West and Chester, 12 sites in Cheshire East and 12 sites or 'groups' in Warrington.

The Key Sectors include both existing sectors with large numbers of employees and important growth sectors.

These include:

- Oil refining, chemicals, automotive, nuclear engineering and financial services in Cheshire West and Chester;
- Automotive, pharmaceuticals and nuclear design in Cheshire East;
- Chemicals, nuclear engineering and distribution/logistics in Warrington.

- **Surface Water Flooding** - susceptibility to flooding from intense or prolonged rainfall;
- **Low Adaptive Capacity** - related to the number of Small and Medium Enterprises (SME's) on the site;
- **Supply Chain and / or Distribution Vulnerability** - for the identified key sectors.

Opportunities

The main opportunities at the key sites include:

- **On-site Energy Generation** – e.g. planned district heating/cooling systems for development sites, heat/electrical integration for existing sites with big process energy users;
- **Renewable Energy Systems** – either supplying the whole site or a number of businesses (e.g. wind turbines, biomass boilers) or individual businesses (e.g. solar photovoltaics, heat pumps);
- **Green Infrastructure** – green spaces or tree planting to increase resilience to climate change, mainly planned into development sites but may be opportunities on some existing sites.

These were assessed in a similar way to the risks.

The Low Carbon & Environmental Goods & Services (LCEGS) sector is an important sector in Cheshire and Warrington employing 18,000 people across 800 companies with sales worth more than £1.8 billion per year. This sector can potentially supply the measures needed for climate change adaptation and mitigation in the area.

Risks

The risks include not only those affecting the sites themselves but also the surrounding infrastructure such as gas & electricity supplies, telecommunications equipment and the road network.

The main risks come from:

- **Fluvial & Tidal Flooding** – susceptibility to flooding from rivers or around the coast;

Sites at Risk

The **sites** assessed as being most at risk from the climate impacts examined are:

Local Authority	Type of Risk		
	Flood / Low Adaptive Capacity	Infrastructure	
		Electricity Substations	Flooding of Local Roads
Cheshire West and Chester Council	Stanlow Group	Stanlow Group	Gadbrook Park
	Northwich Town Centre	Helsby	Lostock Gralam
	Lostock Gralam	Ince Park	Northwich Town Centre
	Helsby	Sealand Road Industrial Est	Wincham Industrial Est
			Winnington Lane
Cheshire East Council	Basford East		Crewe Business Park
	Midpoint 18		Crewe Gates Industrial Est
			Weston Road Industrial Est
Warrington	Centre Park	Centre Park	Around 25km of transport infrastructure at risk
	Southern Gateway Group	Southern Gateway Group	
	Gemini Group	Gemini Group	
	Woolston Grange Group	Winwick Road Corridor Group	

As can be seen, some sites are vulnerable themselves and also have risks to the surrounding infrastructure.

The Sectors most likely to be at risk on the key sites are:

- Pharmaceuticals - Alderley Park and Hurdsfield Industrial Estate (both AstraZeneca);
- Automotive – Bentley Motors, Vauxhall Motors;
- Chemicals – Solvay, Unilever.

In addition, many of the Strategic Sites include smaller businesses that supply the above companies and / or are in the Distribution sector and so may themselves be vulnerable to supply chain disruption.

Opportunities

The sites with the best potential opportunities for On-site Generation and Energy Integration are:

- Stanlow Group, Ince Park, Vauxhall Group, Lostock Gralam and Wincham Industrial Estate in Cheshire West & Chester;
- Hurdsfield in Cheshire East;
- Unilever in Warrington.

There may also be opportunities at sites that are still to be developed. The most appropriate sites for consideration are Basford East & West and Capricorn (both Cheshire East), and Omega (Warrington).

There are opportunities for different forms of **Renewable Energy** at most of the sites. The technical and economic feasibility needs to be assessed for each site and business individually.

Many sites also have potential for **Green Infrastructure**. Previous studies have identified that the best potential is on sites around Chester, Ellesmere Port, Warrington, Northwich, Winsford, Crewe, Congleton and Wilmslow.



What next?

Before talking to businesses and site developers some more detailed work will be carried out to assess the extent of existing flood defences on key sites and local roads. This will be done in conjunction with the Environment Agency and the Local Authority Highways teams. We will also look more closely at opportunities for Green Infrastructure, working with The Mersey Forest.

The programme of Business Engagement will include:

- Discussions with site developers and the Local Authorities for Development Sites on measures taken or planned to alleviate flood risks on vulnerable sites. We will also explore the opportunities for on site generation and large-scale renewables at these meetings;
- Discussions with Large Businesses that have been identified as being at risk from flooding and/or potentially have supply chain vulnerabilities to determine the extent of their awareness and the actions they are taking to alleviate the risks. We will also discuss potential opportunities for energy integration with neighbouring sites or companies;
- A series of workshops for Small Businesses on vulnerable sites to outline the risks presented by climate change and to encourage them to take action to mitigate the risks.

Funding of actions

In most instances the business case for taking action to alleviate the risks or to seize the opportunities should be evident to the sites or businesses concerned. However, further funding may be available from UK Government sources as well the European Union, in particular the European Regional development Fund. These funding sources are being explored to enable a wider Phase 2.

For further details, please contact:

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