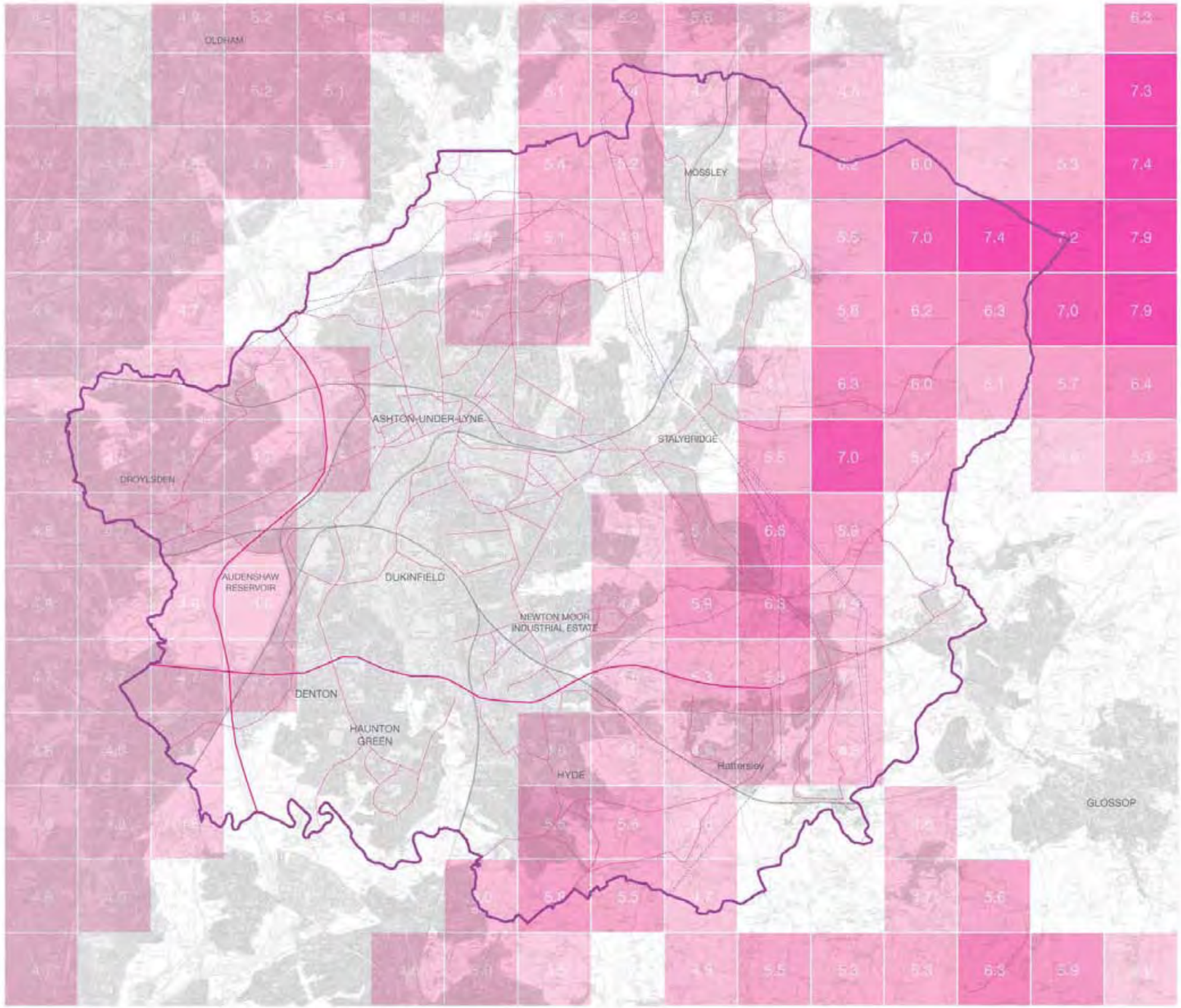
Tameside Decentralised and Zero Carbon Energy Planning

A report prepared for Tameside Metropolitan Borough Council by URBED and AECOM

October 2011



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The spatial plans, case studies and associated costs and performance specifications presented and described in association with this report are indicative only (based on 2011 data).

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1. Introduction

The aim of this study was to strengthen Tameside's evidence base for it's emerging LDF Core Strategy energy policies. Consistency is required with the PPS1 Supplement on Planning and Climate Change and the AGMA Decentralised and zero carbon energy planning study.

In line with the requirements of PPS1 Supplement on Climate Change and building on the Association of Greater Manchester Authorities' (AGMA) 'Decentralised and zero carbon energy planning' study, Tameside wishes to strengthen the evidence base for it's emerging Core Strategy energy policies. The Local Development Scheme currently anticipates adoption of the new Local Development Framework (LDF) Core Strategy in 2013 and this study will therefore form a key part of the evidence base.

The study will therefore have an important role to play in helping the Council to put in place a locally specific evidence base for its LDF Core Strategy energy and carbon reduction policies and in supporting the implementation by Building Control of future revisions of Part L of the Building Regulations.

But an equally important role will be to place this in the context of projections for future growth and development, and identify stakeholders who will need to be involved in making the strategic investment that will be required.

The AGMA decentralised and zero carbon energy study highlighted the importance of a number of focal points for growth and development within Tameside as well as highlighting strategic opportunities associated with:

- Major centres and district centres – including Ashton, Hyde, Stalybridge, Droylsden, Dukinfield, Denton, Hattersley and Mossley;

- Housing and regeneration sites – including sites following on from the Strategic Housing Land Availability Assessment (SHLAA) which will be identified in the emerging Core Strategy and any associated allocations;

- Employment locations – including sites following from the Employment Land Study and as identified and graded in the employment land Supplementary Planning Document (SPD) as well as strategic sites such as Ashton Moss and the St Petersfield area;

- Existing district heating networks and large public sector sites – including transfer stock managed by New Charter and Peak Valley, the Civic Centre and other public building assets, and Tameside General Hospital;

- Renewable resources – The potential for a number of cluster/single turbine wind power sites along the Eastern fringe of Tameside, mine water geothermal at Ashton Moss and Wood Park, the use of biomass residue from the Pennine Edge Forest and large local processors, opportunities for hydroelectric generation on the Rivers Tame, Medlock and Etherow, and sewage gas generation from United Utilities' wastewater treatment works;

The study creates the opportunity to relate these and other opportunities to local implementation of the AGMA target framework and Tameside's emerging LDF energy policies.

The consultants work programme for the study is illustrated by Figure 1.1

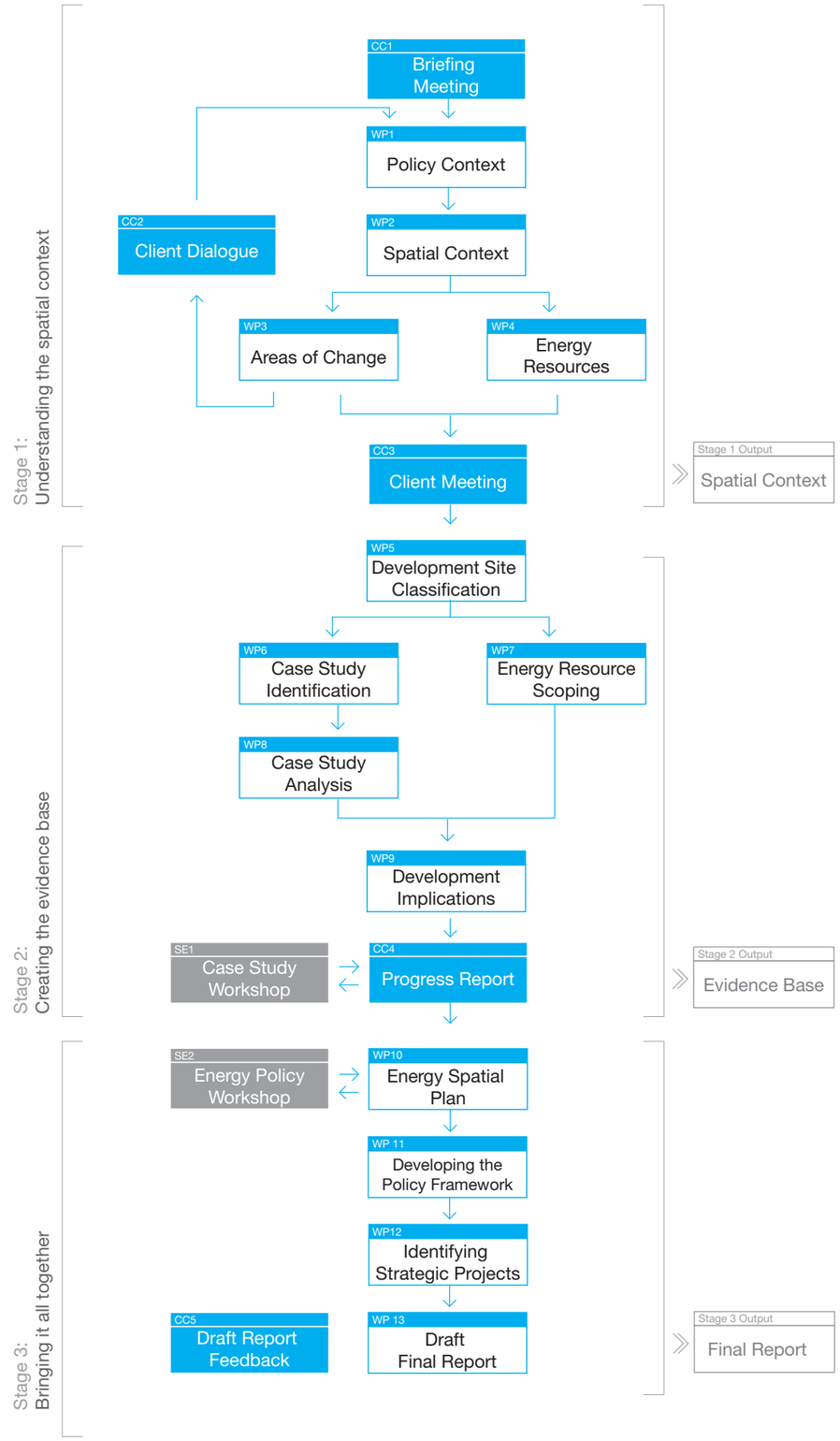


Figure 1.1 **Decentralised energy planning study work programme**

2. The Long View

Tameside's role in the industrial revolution was sustained by investment in innovative new forms of energy infrastructure. New investment will be required if the borough is to position itself to benefit from the City Region's transition to a low carbon economy.

Energy played a key role in the growth of Tameside's industrial base during the 19th Century. Coal mining fuelled a new generation of larger mills that required hydraulic power. Importantly coal was also used to manufacture town gas for lighting using innovative new technology.

Unlike Manchester and Salford many of the first gas works in Tameside were built by consortiums of industrialists, primarily to meet the needs of their mills, warehouses and offices. Hyde is a good example where, in 1844, local cotton manufacturer Isaac Booth – a man of 'enterprise and public spirit' - extended his factories gas supply into local neighbourhoods.

Electricity was the next new innovation. Tameside was one of the first districts in Greater Manchester to electrify its tram network. The need to power this network, together with growing demand for electricity from industry and for street lighting, led Ashton-under-Lyne Corporation and the Stalybridge, Hyde, Mossley and Dukinfield Joint Transport and Electricity Board to invest in pioneering electricity generation plants. These plants were fuelled by locally sourced coal and were located on Wellington Road in Ashton and at Hartshead in the Tame Valley.

This pioneering gas and electricity infrastructure was gradually superceded during the 20th Century. Regulation was introduced which allowed Local Authorities and Corporations to rationalise gas networks in order to meet social and economic objectives. Tameside's networks were then integrated into wider gas and electricity networks in order to improve economies of scale and resilience. The two local power stations were closed down and management of the local networks was moved over to regional and national Boards.

With the subsequent decline of the Cotton industry in the early 20th Century and the accelerated loss of manufacturing in the face of international competition, Tameside has struggled to sustain a distinctive economic base. The loss of major employers such as Celestica, Gallaghers, Robertsons Jam (Premier Foods), Grampian Foods, Princes Foods, North Safety and Castrol Oils has raised concerns about the loss of both jobs and employment land.

Greater Manchester's designation as a Low Carbon Economic Area (LCEA) creates the prospect of finding a new economic direction. But there are lessons to be learnt in seeking to build a low carbon economy. Experience during the 1990's and early 2000's in countries such as Germany is that job creation in this sector is difficult to translate into practice. Local demand needs to be there in order to give investors confidence and demonstrate sufficient commitment to underwrite investment.

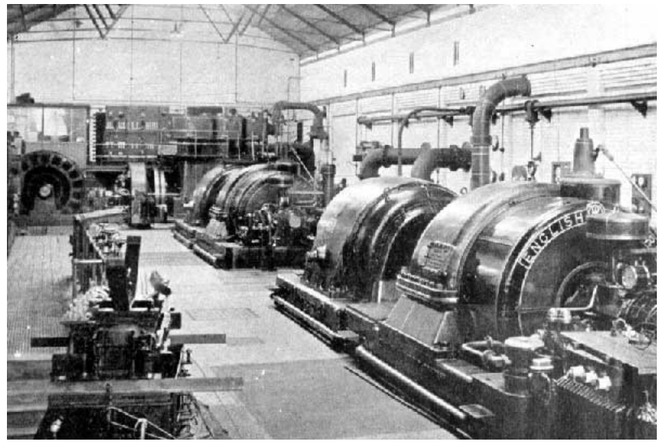
The lesson is that the transition to a low carbon economy will be as much as about supporting existing industry and differentiating an area – for example, by putting in place low carbon energy infrastructure and incentives - in order to attract investment as it will be about developing new technologies. In this respect Tameside already has a number of assets. These include:

- Companies such as Scapa Tapes - who form part of the solar photovoltaic supply chain, Wellman-Hunt Graham - a leading engineering firm manufacturing heat exchangers - and Hadfields and Plevins - two of the North West's largest biomass fuel processors,
- Investment by organisations such as the NHS and Carillion, through the BSF programme, in biomass and CHP infrastructure demonstrates real local commitment.
- A proposed allocation in the Greater Manchester Waste DPD for a site that could accommodate an anaerobic digestion plant which could support the food industry.

The 'Mini-Stern' report on the implications of climate change for the Greater Manchester City Region highlighted a key role for planning in creating the right framework for investment. This study therefore also has a role to play in seeking to create a framework for low carbon investment in Tameside.

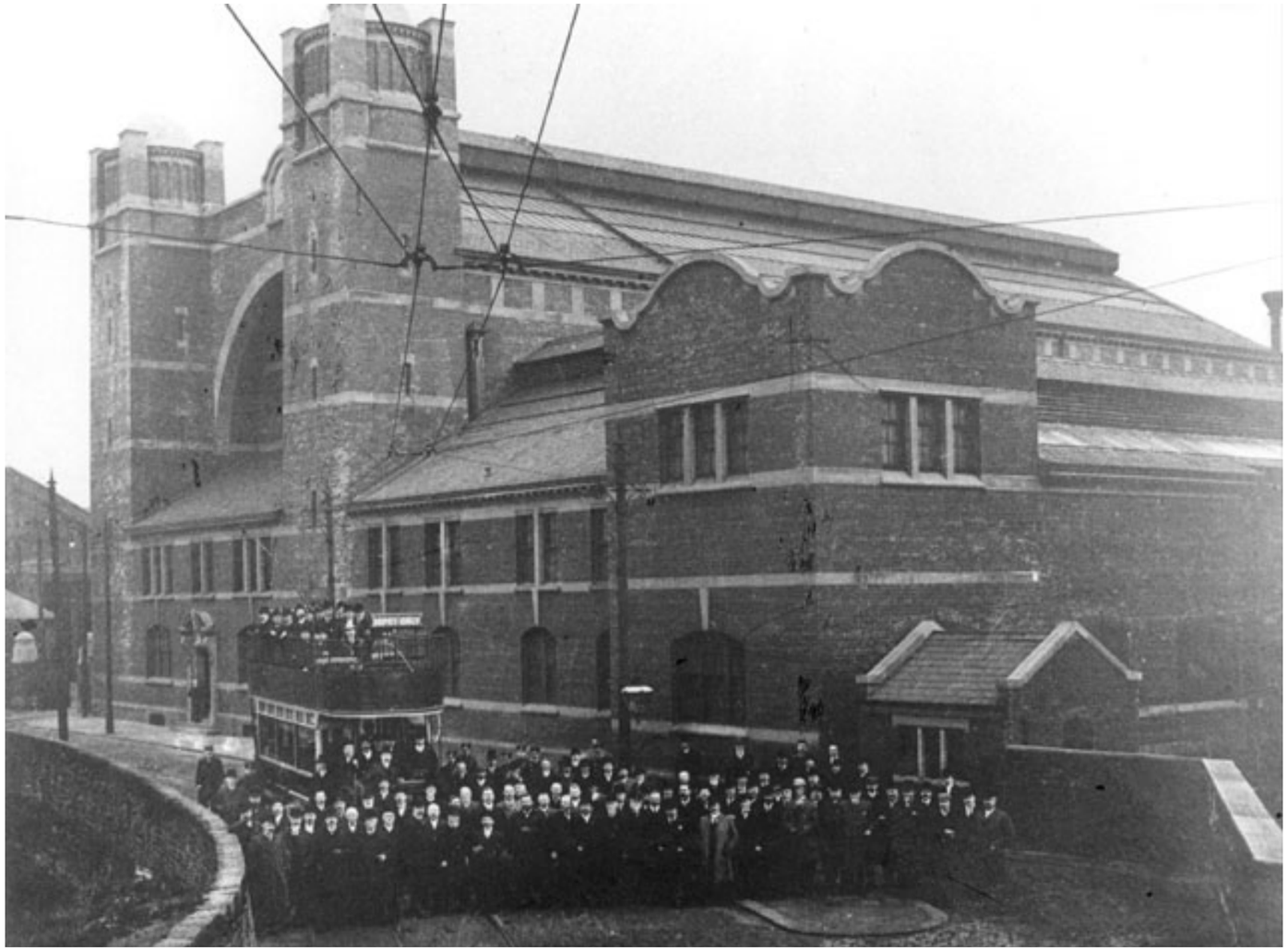
Broad findings and recommendations

- There are lessons to be learnt from the proliferation of new decentralised energy networks in the mid 19th Century. On the one hand they demonstrate the positive role that private enterprise can play. On the other hand they highlight a possible role for the Council in providing co-ordination and regulation in order to meet wider social and economic objectives.
- Energy planning should not be seen in isolation from the wider aim of Greater Manchester to achieve low carbon economic growth. Specific local objectives could include:
  - The ability to differentiate Tameside as a place to invest
  - Supporting investors to meet or exceed future regulatory requirements
  - Growing and supporting the supply chain
- Further investigation and mapping of Tameside's industrial specialisms by the Economic Development team could be used to support this approach, mapping them onto and making connections with new opportunities. This could help to maximise the impact of policies;

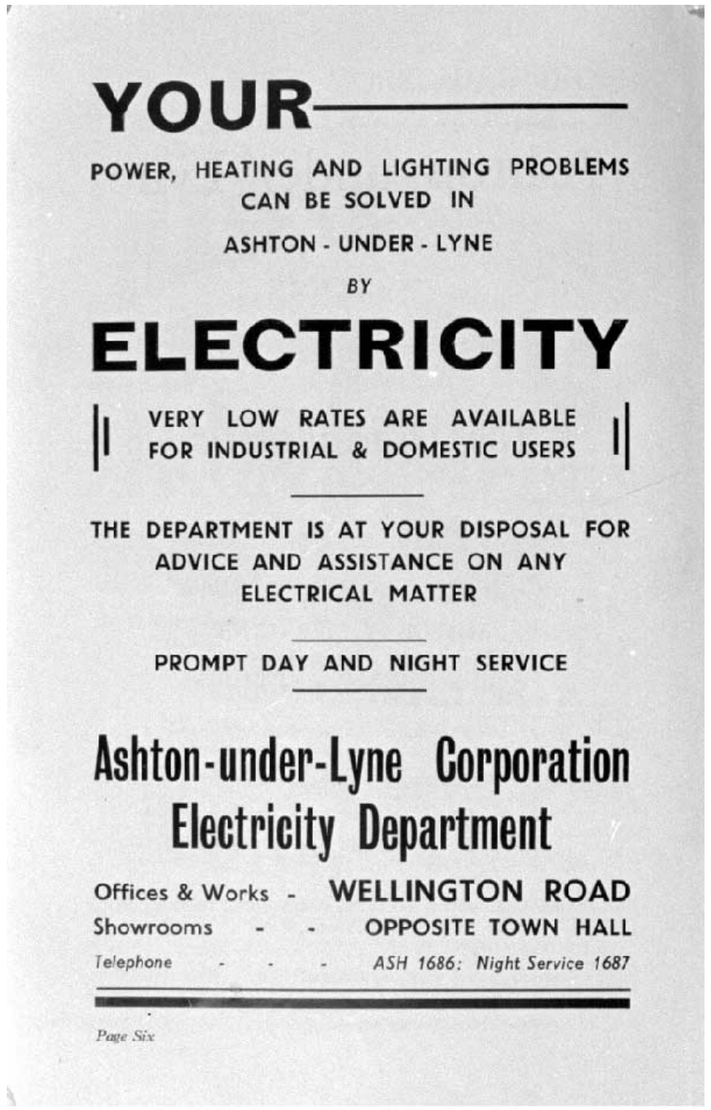


Electricity Department engine room in Ashton-under-Lyne

Trough and Transformer (electricity supply for trams),



Official opening of Wellington Road generating station and tram shed



1939 - Poster form the Ashton-Under-Lyne Corporation Electricity Department

3. Making sense of the changing policy context

The economic downturn combined with the recent change in Government has resulted in a lack of clarity on energy planning policy. This position is set to change as a series of policy reviews and consultations are completed during 2011.

Whilst the new Government's policy emphasis may be changing and evolving the underlying drivers remain the same. The UK is committed to the reduction of CO_2 emissions of 80% on 1990 levels by 2050. The European Union may shortly push for greater commitments of 85-90%. Under the Climate Change Act 2008 five year carbon budgets to meet current national commitments are set by the independent Committee on Climate Change.

At a local level the picture is less clear. The recent scrapping of National Indicators means that clarity is still required on the expectations of the role that each Local Authority will play. However, in the short to medium term the potential for Local Development Frameworks (LDF's) to play an important role in creating a strategic framework for low carbon development and investment is unlikely to change.

3.1 A period of continuing uncertainty

Following the change of Government in May 2010 and a Comprehensive Spending Review in October 2010 there continues to remain a degree of uncertainty relating to national energy planning policies.

A number of areas of policy have been scrapped, updated or are under review by DCLG and DECC:

- A National Planning Policy Framework has been proposed, with a presumption in favour of sustainable development.

The draft Framework states that local planning authorities should: *'Identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers'*

- Regional Spatial Strategies are to be revoked, which will remove key policies that set the scene for the policy framework promoted by AGMA;

- A series of policy reviews are under way, including a review of Planning Policy Statements 1 and 22, which may be incorporated into the National Planning Policy Framework;

- A revised UK Micro-generation Strategy has undergone consultation, including provision to give non-domestic installations Permitted Development Rights;

- Social housing will move towards sub-market rental in place of social rents, which could restrict its ability to achieve levels of Part L compliance ahead of regulatory minimums;

- Decisions on local housing development may be influenced by Neighbourhood Plans, which could include a requirement to consider how they contribute towards carbon reduction objectives contained within plans;

The new Government has begun pursuing a policy of 'localism'. It has indicated that it will bring forward new policies, strategies and support for local action by Local Authorities and communities to tackle climate change. This is likely to include the promotion of new local energy infrastructure and community ownership of renewable energy projects.

3.2 Supporting the zero carbon policy

The PPS1 supplement on Planning and Climate Change forms the main planning policy reference for this study. One of the main objectives of the PPS supplement is to support delivery of the Government's policy commitment to zero carbon homes.

The Government has recently confirmed that the zero carbon objective will be retained – although unregulated carbon emissions from buildings will no longer be the subject of regulation from 2016. A similar commitment is likely to be made for non-domestic buildings, following the broad approach set out in DCLG's consultation of November 2009. The mechanism for pooling investment in off-site infrastructure is still to be confirmed but may take a similar form to the Community Infrastructure Levy (CIL).

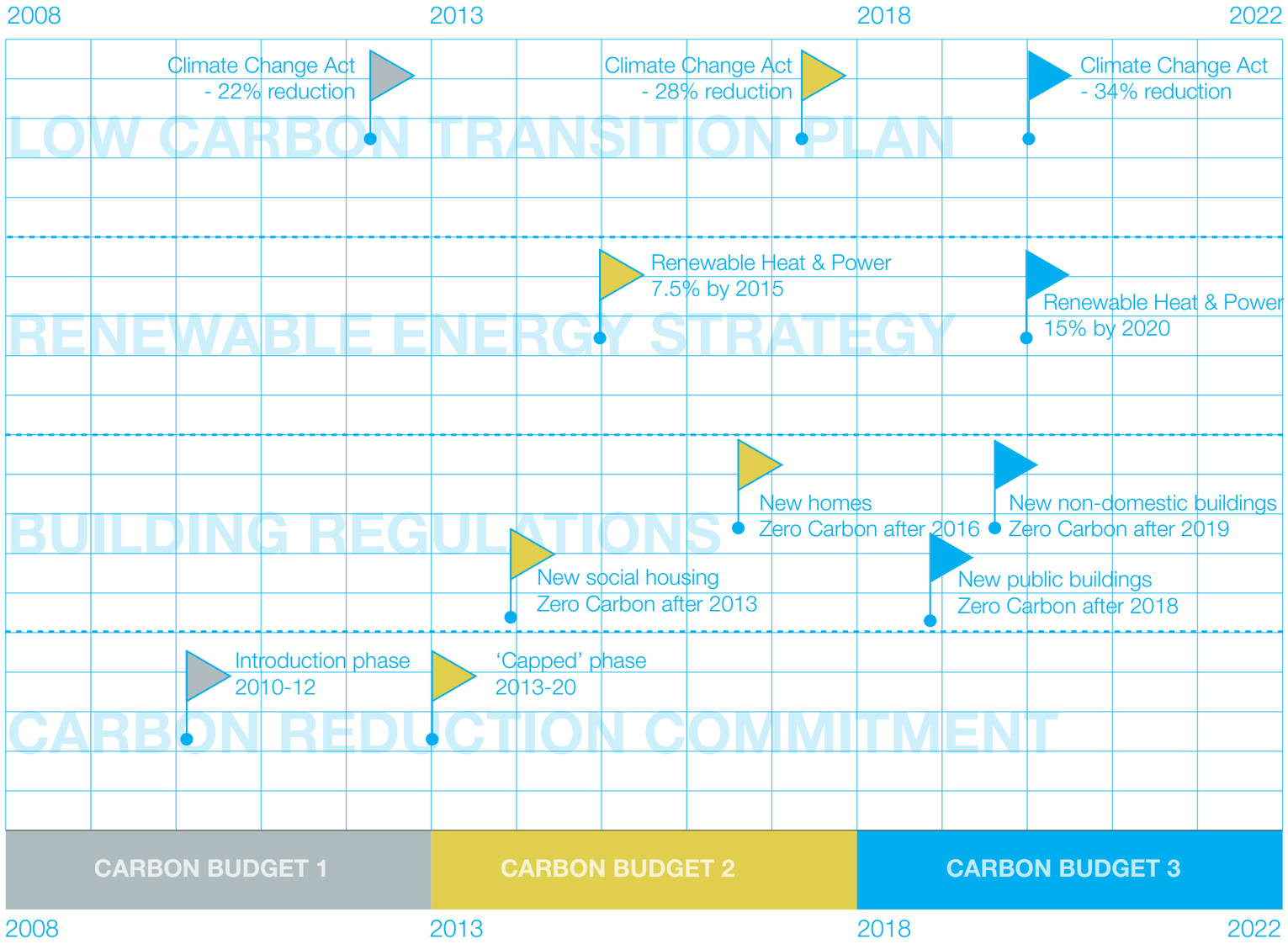
The PPS1 supplement also places a strong emphasis on placing locally specific policies and targets in a Development Plan Document (DPD). Policies could include the promotion of decentralised networks linking new and existing buildings. It also describes a 'criteria-based' approach to the consideration of renewable energy generation opportunities – an approach also promoted by PPS22. Both PPS1 and 22 were, and continue to be, under review and the Government's overall approach to decentralised energy networks still remains uncertain.

3.3 The influence of Europe

The European Union Energy Performance of Buildings Directive (2002/91/EC) and the Renewable Energy Directive (2009/28/EC) have driven national targets and policy requirements for renewable electricity and heat. The UK's Renewable Energy Strategy, which was published in 2009, responds to these Directives by setting out a target for 15% of our energy to come from renewables by 2020, broken down into targets of 35% for electricity and 14% for heat.

Pro-active planning policies were identified as a key mechanism to achieve these targets and formed the basis for the previous Government's Home Energy Management Strategy (HEMS) in 2009. The extent to which the broad approach promoted by HEMS – which included a specific focus on the role of local authorities in planning for district heating – is uncertain.

Figure 3.1
Timeline and national policy context for zero carbon



3.4 The Combined Authority and 'Low Carbon Economic Area'

The pioneering 'Mini Stern' report (2008) identified the key economic risks and opportunities for the Manchester City Region in responding to climate change. The report highlighted the potential for the City Region to position itself as a low carbon economic centre. This would enable it to compete in a changing regulatory environment in which carbon reduction will increasingly become a commercial priority and a changing world in which energy prices will continue to rise.

The methodology used for this study is directly informed by the findings of the AGMA 'decentralised energy and zero carbon' energy study. Completed in 2010 the study provided a response to the recommendations on the role of planning made by the Mini-Stern. Importantly it also provided an evidence base for a sub-regional response to PPS1 and 22. The study proposed a framework of planning policies and targets that could be adopted by each of the ten districts of Greater Manchester.

The planning policy framework and evidence base provided by the AGMA study is now being taken forward by the new Combined Authority with a view to the broad approach being adopted by each of ten districts. Planning and low carbon infrastructure will also form part of an overall Climate Change Strategy and Energy Plan for Greater Manchester.

An additional driver for a sub-regional approach is the designation of Greater Manchester as a Low Carbon Economic Area (LCEA). It is important therefore that planning policies are aligned in order to support the economic objectives of the LCEA and to create a level playing field for investment. Planning has been identified in the LCEA programme as a key mechanism to provide certainty for investment in low carbon infrastructure.

3.5 Developing Tameside's policy response

A target of a 34% reduction in CO_2 emissions by 2022 was set by the Low Carbon Transition Plan White Paper in 2008. This target represents a significant commitment and, as identified by the White Paper, will require targeted investment in buildings, businesses and renewable energy generation. This transition will need to take place during the lifespan of Tameside's LDF. It is therefore important that all possible policy provisions to promote carbon reduction are considered for inclusion in the LDF Core Strategy – although not necessarily the detail of how the policies will operate.

In terms of soundness there are a number of challenges in seeking to develop energy planning policies. Both the PPS1 supplement and PPS22 highlight the importance of ensuring that policies do not hinder housing supply and the ability to attract economic investment. However, the future direction of Building Regulations has been set and has implications for the cost of development at specific points in time – namely after 2013 and 2016.

The AGMA 'target framework' was an attempt to reconcile these two potentially conflicting requirements. It proposed a flexible approach based on identifying local opportunities which could reduce the cost of regulatory compliance. The evidence base from the study identified what these opportunities could be. In Greater Manchester they could comprise a combination of:

- Area-wide projects to achieve economies of scale,
- Off-site solutions such as wider networks,
- Third party investment to reduce the upfront capital cost burden.

In carrying out this study we have reviewed the current Unitary Development Plan (UDP) - the proposals plan for which is presented in Figure 3.2 - and the structure of its policies.

This policy review has been used to highlight and illustrate the potential coverage of future energy policies. We have also identified other existing policy and guidance documents that, with revised content, could have an important role to play in supporting the implementation and interpretation of future energy policies.

The role of Greater Manchester's Joint Waste and Joint Minerals DPD's and their associated policies and site allocations have also been considered. A summary of the issues and options arising from our policy review is contained within Table 3.1.

Broad findings and recommendations

- That Tameside adopts its own position on carbon reductions but that this is aligned with and contributes to targets adopted by the Combined Greater Manchester Authority, to be reflected in the forthcoming Greater Manchester Climate Change Strategy;

- Low/zero carbon infrastructure should form a key part of Tameside's strategy for reducing carbon emissions, with reference to the proposed mixes of technology described in the UK Renewable Energy Strategy, the National Low Carbon Transition Plan White Paper and the shortly to be published Micro-generation Strategy;

- That Tameside explores the adoption of the broad approach to the promotion of energy opportunities set out in the AGMA decentralised energy study. This would include the application of a flexible framework for carbon reduction that can be adapted to local opportunities and which has the capability to respond to changes in the future emphasis of the Government's energy and climate change policies;

- That the Core Strategy policies considers the allocations proposed by the Joint Waste and Minerals DPD's in the context of energy planning in order to ensure a consistent approach;

Figure 3.2

The Tameside Unitary Development Plan (UDP) proposals map (adopted November 2004)

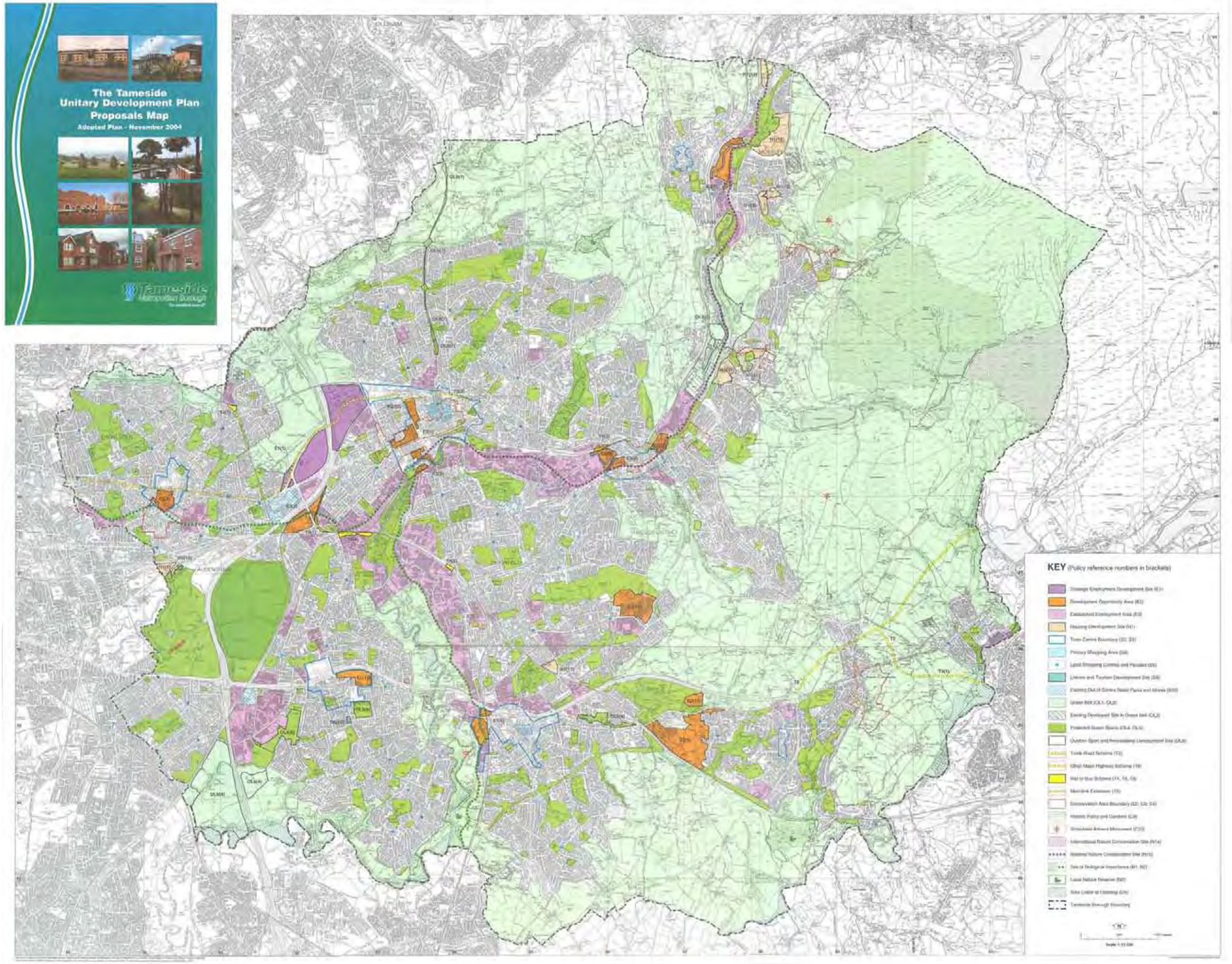


Table 3.1 **Tameside UDP policy review**

Selected policies	Policy coverage	Issues and options related to energy planning
UDP (Adopted 2004)		
Employment and local economy		
E1 Strategic Regional Site	Identifies Ashton Moss as a strategic employment site.	• Further sites identified in the LDF could be highlighted as strategic opportunities, tailored to the mix and form of development; • Specific forms of development may require a distinct approach depending on the findings of the building testing exercise; • Specific technologies may benefit from a simplified approach to applications and/or specific design guidance e.g. solar photovoltaics.
E2 Development Opportunity Areas	Identifies a range of mixed use employment/residential sites.	
E3 Established Employment Areas	Identifies broad areas in which development will be permitted.	
E5 Detailed design of employment developments	Highlights criteria for consideration of applications;	
Housing and community facilities		
H1 Housing land provision	Sets out the basis for allocating land in order to provide a housing supply and identifies sites for housing development.	• Further sites identified in the LDF could be highlighted as strategic opportunities, tailored to the mix and form of development; • The approach to low/zero carbon infrastructure may vary depending on the scale and density of housing developments; • The timing of development will influence the level of carbon reduction it will be required to achieve under Building Regulations; • Affordable housing will be required to achieve higher levels of Building Regulations earlier; • The cost of meeting Tameside's affordable housing requirements would be likely to take a significant proportion of the value of Planning Gain/future CIL; • The scale, density and mix of housing on a site will influence how viable it is for district heating; • Specific technologies may benefit from specific design guidance e.g. solar photovoltaics.
H4 Type, size and affordability of dwellings	Sets out aspirations to achieve a mix of housing types and to achieve an element of affordable housing (for developments of more than 25 units).	
H6 Education and community facilities	Sets out requirements to contribute towards education provision (for developments of more than 25 units).	
H7 Mixed use and density	Sets out aspirations to achieve a mix of housing types.	
H10 Detailed design of housing developments	Highlights criteria for consideration of applications;	
Town Centre Improvement		
S1 Town Centre Improvement	Sets out the Councils approach to securing investment in its Town and District Centres.	• Investment could be aligned with the potential for low/zero carbon energy infrastructure to meet Building Regulations, improve competitiveness and benefit public buildings; • Specific forms of development may require a distinct approach depending on the findings of the building testing exercise; • As part of meeting the sequential test developments could be required to achieve greater levels of carbon reduction;
S2 New retail developments in town centres	Makes provision for the Council to identify sites for development.	
Countryside, open land, sport and recreation		
OL1 Protection of the green belt	Sets out Tameside's consideration of appropriate development in the Greenbelt.	• Locations for wind energy clusters are likely to be within the green belt and their appropriateness will therefore require consideration; • Large sites may provide strategic opportunities for specific technologies and the Council may wish to place requirements on the release of sites e.g. schools, farmland; • The impact of wind energy projects on landscape character will require consideration in line with guidance on best practice (see also OL16 Peak District National Park);
OL3 Major development sites in the greenbelt	Identifies sites on which development may be permitted.	
OL10 Landscape character and quality	Highlights criteria for consideration in the siting and design of development.	

Selected policies	Policy coverage	Issues and options related to energy planning
Transportation and access		
T4 Rail infrastructure	Identifies planned rail investment locations.	• There could be the potential to promote the movement of fuels such as biomass by rail; • Specific investment locations could be identified in relation to processors and/or energy generation projects; • Specific policies could be considered to regulate the transport impacts of biomass fuel to energy centres;
T9 Freight movement	Sets out a requirement to consider the impact of lorry movements on local roads and also the promotion of rail freight.	
Mineral working, waste management and pollution control		
MW8 Energy from waste	Permits proposals for landfill gas, waste digestion and incineration subject to criteria addressing their location and how the impacts from waste management facilities will be minimised (MW6 and MW9)	• The policy could be extended to cover the primary energy efficiency of each plant and the potential to make use of waste heat; • The Joint Waste DPD proposes the allocation of a site at Shepley Industrial estate for 'enclosed' waste treatment facilities which could include digestion and incineration (see below – Ta3a); • The policy does not currently consider the potential for cumulative impacts from several sources of air pollution;
MW14 Air quality	The health and environmental impact of developments which could have a significant impact on local air quality will be weighed against other material planning considerations.	
Utilities and energy		
U5 Energy efficiency	Encourages all development to incorporate energy efficiency measures 'so far as is appropriate'.	• Energy efficiency should be promoted as a priority before energy technologies are considered; • The policy does not provide or make reference to specific guidance on how to assess impacts on landscape quality; • The policy does not provide a clear local position on the acceptability of development in the Green Belt;
U6 Renewable energy	Permits the development of projects subject to balancing local environmental implications against national and global issues and to meeting specific listed criteria.	

Selected policies	Policy coverage	Issues and options related to energy planning
Joint waste DPD (Subject to consultation on minor amendments)		
4. Site and area allocations	Identifies the need for five facilities to treat municipal waste 2012-27.	• Adoption of allocation for waste treatment plant which could include anaerobic digestion of municipal and commercial food/organic waste;
5. Development Management policies	Highlights the potential for CHP where biogas or energy from waste plant are developed.	
Tameside TA3a allocation	Proposes the allocation of a site at Shepley Industrial Estate for 'enclosed' treatment facilities.	
Joint minerals DPD (Issues and Options stage)		
Identifying future coal bed methane resources and associated mineral safeguarding areas	Seeks to identify future locations for energy minerals and gas resource extraction and associated planning criteria.	• Policy consideration of the potential surface impacts of drilling and processing plant; • Coal bed methane is a fossil fuel – potential for policy provision that regulates the efficiency with which it is used;

4. Characterising development in Tameside

Here we summarise the findings of our exercise to characterise current and future development in Tameside. This in turn has been used to inform an appraisal of future development costs and land values against the projected costs of Part L compliance.

The AGMA decentralised energy study created an evidence base which was informed by the characterisation of representative forms of development across Greater Manchester. This evidence base can readily be used by Tameside to identify strategic opportunities for certain forms of development. The character areas are identified in Figure 4.2 below.

The evidence base provided by the AGMA study can now also be supplemented by evidence emerging from local opportunities plans being brought forward across the ten districts – for example, in Stockport and Radcliffe Town Centres. In each location the strategic approach and the cost of technologies can be used to further refine the evidence base, although comparative land values will vary and require further consideration.

In order to further refine this evidence base this study has sought to further characterise the type and form of the potential future development in Tameside during the LDF period. In order to do this we have drawn upon a range of evidence. This has included:

- UDP allocations for Strategic Employment, Development Opportunities, Established Employment and Housing Development;
- Data from UDP Annual Monitoring Returns including residential completions and employment land supply;
- Housing, employment and retail land studies undertaken in support of the forthcoming Local Development Framework;
- Local and Greater Manchester-wider residential and commercial property listings including Estates Gazette and MIDAS;

This evidence has also been supplemented by input from the client group who have assisted in refining our understanding of potential future development sites and priorities for the Council in bringing forward the LDF. The resulting characterisation is brought together in Table 4.2 and Figure 4.3.

Below we have sought to summarise the key issues that will need to be considered in relation to the planning use classes identified in the UDP.

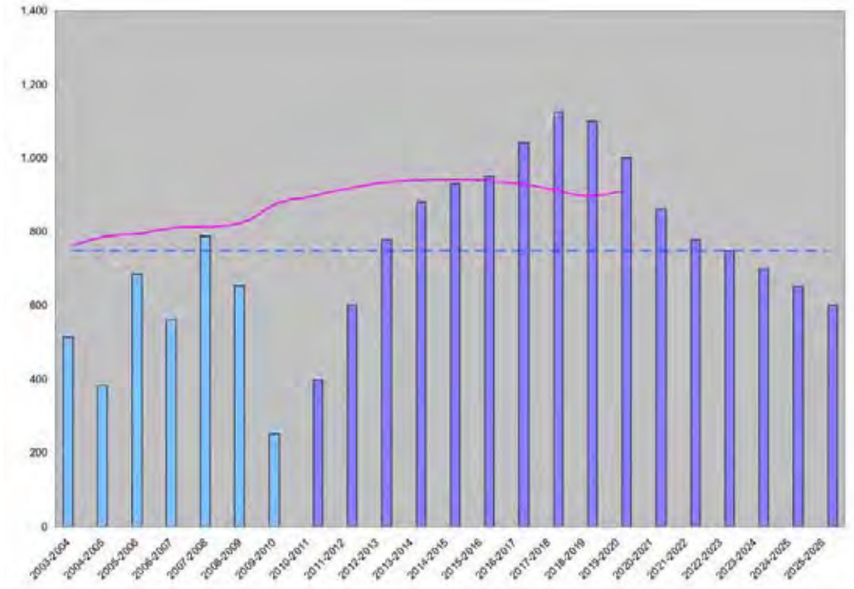
4.1 Housing development

Despite the downturn Tameside appears to have maintained relatively healthy values for new-build homes. It is understood that housebuilders have sought to appeal to the demand from within Manchester's commuter belt.

The majority of the sites allocated in the UDP have been built out, with recent sites brought forward by the volume housebuilders characterised by developments of between 39 and 383 homes comprising a mix of apartments, townhouses and detached properties. A combination of current market trends, feedback from the client group and sites identified in the SHLAA carried out in 2010 suggest the following:

- That in the short-term demand for apartments will be weak but Tameside will continue to promote them as part of the mix of larger, higher value developments and in and around centres such as Ashton, Droylsden and Stalybridge;
- That there will be seven strategic development sites capable of bringing forward more than 150 units, mainly comprising school sites released by the Building Schools for the Future (BSF) programme;
- That there will be twenty one large development sites capable of bringing forward between 40 and 150 units;
- Ten of the large development sites are located in the centres of Ashton, Stalybridge, Droylsden and Hattersley, however, the majority of the large sites are on the edge of the urban area;
- The majority of the SHLAA sites are dispersed across the district and are not located within 400 metres of local or district centres.
- That there are no specifically designated regeneration areas within the Borough apart from the Hattersley area. There are areas of in-fill such as at Hattersley and in and around major centres such as Ashton-under-Lyne which will support regeneration objectives;
- Tameside is currently assessing its approach to affordable housing and the implementation of policy in the adopted UDP. Discussions with the largest potential local provider, New Charter, suggest a build rate between 2011 and 2016 of 75 units/annum on small sites which they will need to acquire having exhausted the majority of the in-fill sites they inherited from the large scale stock transfer.
- Future projections of housing numbers to 2026 made in the SHLAA are presented in Figure 4.1.

Figure 4.1
Tameside SHLAA housing projections



Spatially the projections suggest a relatively evenly split between the nine 'townships'. They predict a peak completion rate of 1,125 properties per annum. Over 775 sites have been identified with the potential, excluding windfall, to bring forward 12,606 units over the LDF period. Importantly 8,337 units are predicted post-2016, when they will need to achieve zero carbon.

Figure 4.2

Greater Manchester character areas of change

Sub-regional scale	Strategic mixed development corridor
Regional centre	Mixed commercial and residential
Regional centre	Large growth point residential
Regeneration area	Estate improvement/HMR terrace in-fill
Regional town centre	Mixed use and public sector led precincts
Sub-regional centre	Retail-led investment
Sub-regional housing	Strategic housing allocations
Sub-regional employment	Refurbishment and new build / office
Existing residential	Improvements and property sales

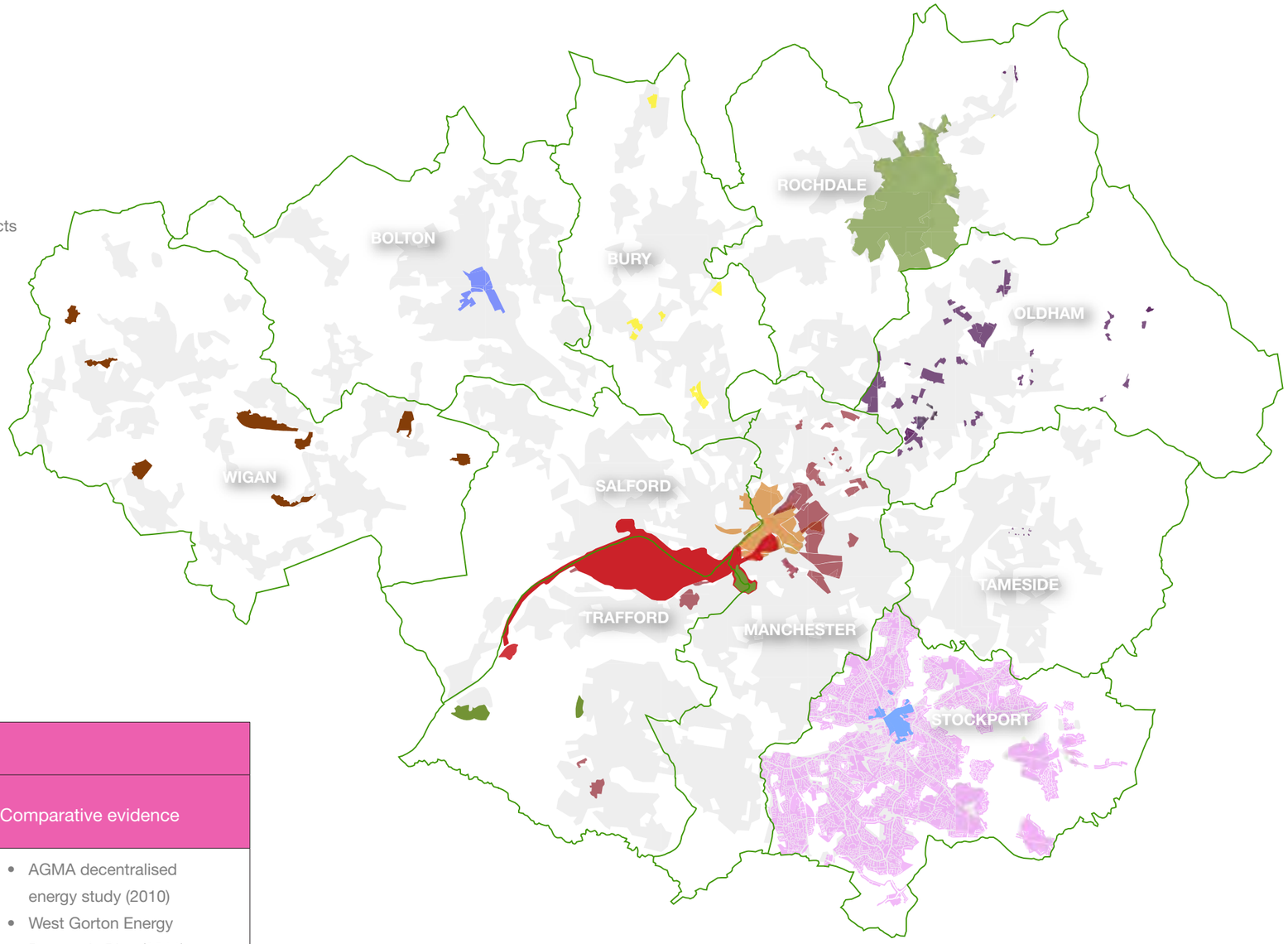


Table 4.1

Relating the AGMA evidence base to Tameside

Characterisation	AGMA evidence base	
	Case study	Comparative evidence
Housing, in-fill sites, regeneration locations and large strategic sites (C3 and D1)	Old Trafford, Trafford North Leigh, Wigan West Gorton, Manchester Radcliffe Town Centre, Bury	• AGMA decentralised energy study (2010) • West Gorton Energy Proposals Plan (2011) • Radcliffe energy framework study (2011)
Employment sites, employment area location (B1a or c/B2/B8)	Hollinwood, Oldham East Central, Rochdale Tower Mill, Tameside Bury Town Centre, Bury	• AGMA decentralised energy study (2010) • Bury Town Centre energy framework (2009)
Food and comparison retail, town centre locations (A1)	Town Centre, Stockport Bury Town Centre, Bury Radcliffe Town Centre, Bury	• AGMA decentralised energy study (2010) • Bury Town Centre energy framework (2009) • Radcliffe energy framework study (2011)

4.2 Employment sites

The majority of the large strategic employment sites (Ashton Moss) have been developed. This suggests that the majority of future development will consist of in-fill or redevelopment within established employment areas or Development Opportunity Area.

The office market in Tameside is understood to be relatively immature and values are low. As a result the only opportunities that are likely to be brought forward are as part of light industrial park in-fill schemes (see Table 4.2 below) and on town centre sites such as St Petersfield – although the values achieved on all of these sites are likely to make them marginal at best under current economic conditions.

Pressure to identify new housing land together with relatively low values for employment uses has led to development pressure on employment land, including the demolition of historic mills. Tameside has therefore sought to grade its employment land by quality with a view to protecting and promoting high quality areas.

In order to compete with other locations in Greater Manchester it has sought to promote high quality combinations of B1, B2 and B8 uses.

Constraints on the availability of suitable sites means that Tameside is unlikely to attract large B8 distribution uses.

However, smaller B8 uses may be brought forward and some of these B8 uses could have distinct demands for energy – for example, the food industry which may require cold storage warehousing.

4.3 Food and comparison retail

The large freestanding retail sites identified as Development Opportunity sites within the UDP have been built out. However, the Retail Study carried out in 2010 suggests that outstanding convenience commitments would meet a quarter (25%) of the identified convenience goods capacity through to 2014 with residual capacity of £53m in 2014.

Although there is demonstrable need for further convenience goods floorspace within the Borough, the most pressing need in terms of additional floorspace appears to be in Ashton-under-Lyne with improved consumer choice in Droylsden and Stalybridge.

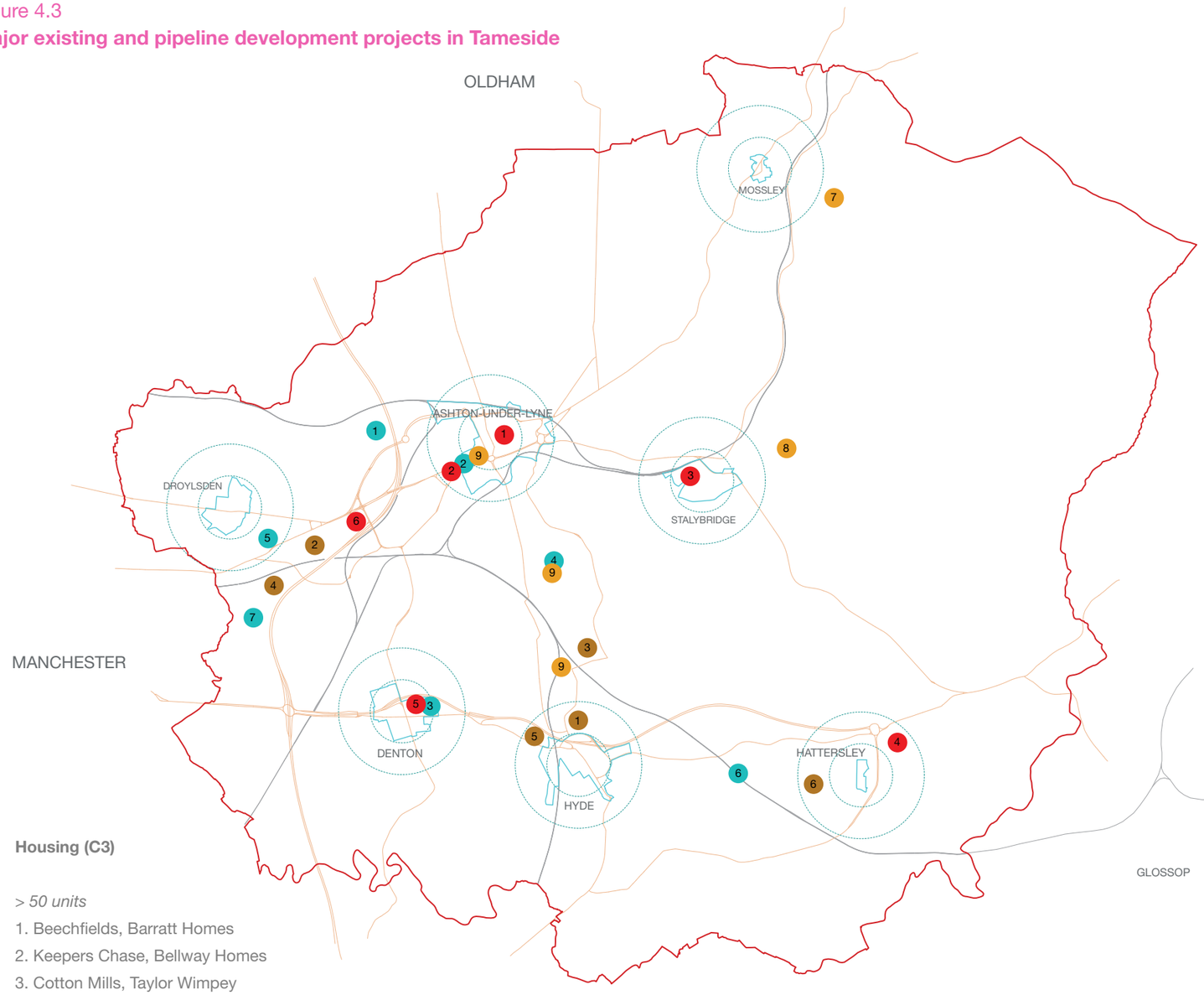
Outstanding comparison commitments within the borough would absorb the identified capacity up to 2014 focused primarily around the extension to Ashton's Arcade shopping centre . Despite this qualitatively there is identified to be a need to improve the quality of the overall retail offer of Ashton-under-Lyne town centre to reflect its position within the local hierarchy.

Table 4.2
Major existing and pipeline development projects in Tameside

Characterisation	Example developments and sites	Evidence base
Housing (C3)	Large schemes on site or being marketed: • Barratt Homes, Beechfields (Hyde) • Bellway Homes, Keepers Chase • Taylor Wimpey, Cotton Mills • Morris Homes, Kings Rd (Audenshaw) Small sites/windfall: • White Gates, Mossley • New Charter social housing in-fill • Release of BSF school sites Masterplans with planning permission: • Hattersley Regeneration	• Tameside MBC, SHLAA, April 2010 • Tameside MBC, LDF AMR report 2008/09
Employment sites (B1a or c/B2/B8)	Business parks • Berkeley Business Park, Ashton • Ashton Moss (MUSE/ Stayley Developments) In-fill sites (including Mills) • Globe Industrial Estate • Broadway 67 Industrial Estate • Tower Mill (Stamford Group) • Park Road, Dukinfield • Former Involvement Packaging site, Dukinfield	• CBRE, Employment Land Study, December 2009 • Tameside MBC Employment Land SPD, January 2009 • Estates Gazette, Property Link, 2011 listings • MIDAS, Property search, 2011 listings
Food and comparison retail (A1)	Town or district centre • Arcades extension (Hark Group/ Apollo Real Estate) • Hattersley District Centre (CTP/Tesco) Retail park in-fill/extension • Crown Point East (Langtree plc)	• WYG, Retail capacity study, May 2010 • Estates Gazette, Property Link, 2011 listings
Mixed use development (A1/B1/C3/D1)	Ashton town centre • St Petersfield (ASK Developments) • Ashton North bypass District centres • Droylsden Marina (Watkin Jones) • Stalybridge West • Longlands Mill, Stalybridge (Urban Splash)	• Estates Gazette, Property Link, 2011 listings • ASK Developments, St Petersfield

Figure 4.3

Major existing and pipeline development projects in Tameside



Housing (C3)

> 50 units

1. Beechfields, Barratt Homes
2. Keepers Chase, Bellway Homes
3. Cotton Mills, Taylor Wimpey
4. The Grange, Morris Homes
5. Moorside Place, Morris Homes
6. Hattersley Regeneration, BASE

< 50 units

7. White Gates, Mossley, Countryside Properties
8. Staley Heights, Persimmon
9. New Charter Housing Trust Group:
   - St Petersfield, Ashton
   - Atlas St, Ashton
   - Crowhill Rd, Ashton
   - Lake Rd, Stalybridge
   - Ravensfield, Dukinfield
   - Carter St./Hickenfield, Hyde

Existing/Pipeline Employment Sites (B1, B2 and B8)

1. Ashton Moss, MUSE/Stayley Developments
2. St Petersfield, Ashton, Ask Developments
3. Crown Point East, Denton, Langtree Group
4. Globe Industrial Estate, Dukinfield
5. Former Premier Foods site, Droylsden
6. Godley Hill, Hyde
7. Fairfield Clough, Audenshaw

Retail/Town Centre (A1)

1. Arcades Shopping Centre Extension, Hark Group/Apollo Real Estate
2. St Petersfield, Ashton, Ask Developments
3. Longlands Mill, Stalybridge, Urban Splash
4. Hattersley District Centre, CTP/Tesco
5. Crown Point East, Langtree
6. Snipe Retail Park, Midia Group

Broad findings and recommendations

- In addition to the character areas of change set out in the AGMA decentralised energy study the relatively fragmented pattern of development projected for Tameside suggests that individual building types should also be tested in order to strengthen the evidence base – particularly for retail and employment uses;
- Town centres, strategic housing sites and large housing sites should be tested as they could form a potential focus for policies to promote higher levels of carbon reduction. However, apartments are currently marginal in terms of both demand and value so any additional capital cost burdens would need to be carefully considered so as not to directly affect the viability of development;
- The Council could look to require higher levels of carbon reduction on sites that it owns and has greater influence over, such as school sites vacated following BSF investment, where this could be incentivised by a reduction in the capital receipt. However, this will depend on the extent of other costs such as for land remediation and affordable housing;
- Compensation could be sought for instances where there is a loss of employment land – particularly in higher graded areas - by requiring greater levels of investment in carbon reduction measures;
- Offices and industrial parks generate relatively low values (both in terms of rental and residual land values) and so any additional capital cost burdens would need to be carefully considered so as not to directly affect the viability of development;
- Solutions should be identified for supermarkets and comparison retail located within existing town centres;

5. Identifying strategic energy opportunities

Here we present the findings of the scoping exercise to identify strategic opportunities for low or zero carbon energy generation across Tameside. For each opportunity we explore their spatial location and related planning and delivery implications.

In order to develop a better understanding of the Tameside-specific opportunities for decentralised energy generation three broad categories of technologies were investigated in an outline level of detail:

- Standalone renewable energy generation: Standalone hydro, wind and solar electricity generation opportunities located where there is a sufficient resource;

- Heating networks: The potential for district heating networks at a variety of different scales supplied by heat-only or Combined Heat and Power (CHP) plant using a range of fuels or heat sources which could include natural gas, biomass, biogas and geothermal;

- Fuel supply chain development: The development of handling, processing and distribution infrastructure for biogas, biomass and coal bed methane;

The scoping exercise was informed initially by the broad areas and locations identified by the AGMA decentralised energy study and by the specification provided by DECC in their 'Renewable and low carbon energy capacity methodology' (2010). The data and mapping used in the AGMA study were then refined using a combination of finer grained data, more detailed mapping, consultation with stakeholders and site investigations.

In this Chapter we outline each of the Tameside-specific opportunities that were investigated, including the methodology used, our findings and the implications for spatial planning and delivery.

5.1 Standalone renewable energy generation opportunities

Opportunity 1: Wind energy

Tameside is located on the edge of the Peak District National park and was identified in the AGMA study as having areas of high wind speed (>6.5 metres per second). Opportunities were filtered according to three broad categories which have been refined based on feedback from commercial investors on previous studies:

- Clusters of more than 4-5 large turbines (requiring a 45 metres hub height and a wind speed of >6.5 metres/second),

- Large single turbines in industrial settings (requiring a 45 metre hub height and a wind speed of >5.5 metres/second).

- Small to medium sized turbines within the urban area (requiring a 10-25 metres hub height and a wind speed of >4.5 metres/second).

The National Wind Speed Database was used to identify these four broad 'wind cluster' opportunity areas before a series of constraints were applied in order to filter them further. The constraints layers applied were those used in the 4NW capacity study (2008) - which had been consulted on and agreed by Statutory Consultees in the North West - and as specified by the DECC methodology (2010).

In order to further refine the 'large single turbine' opportunity areas the proximity of sites to residential areas was reduced down to 350 metres based on UK planning policy precedent from three sites brought forward by specialist developer Ecotricity.

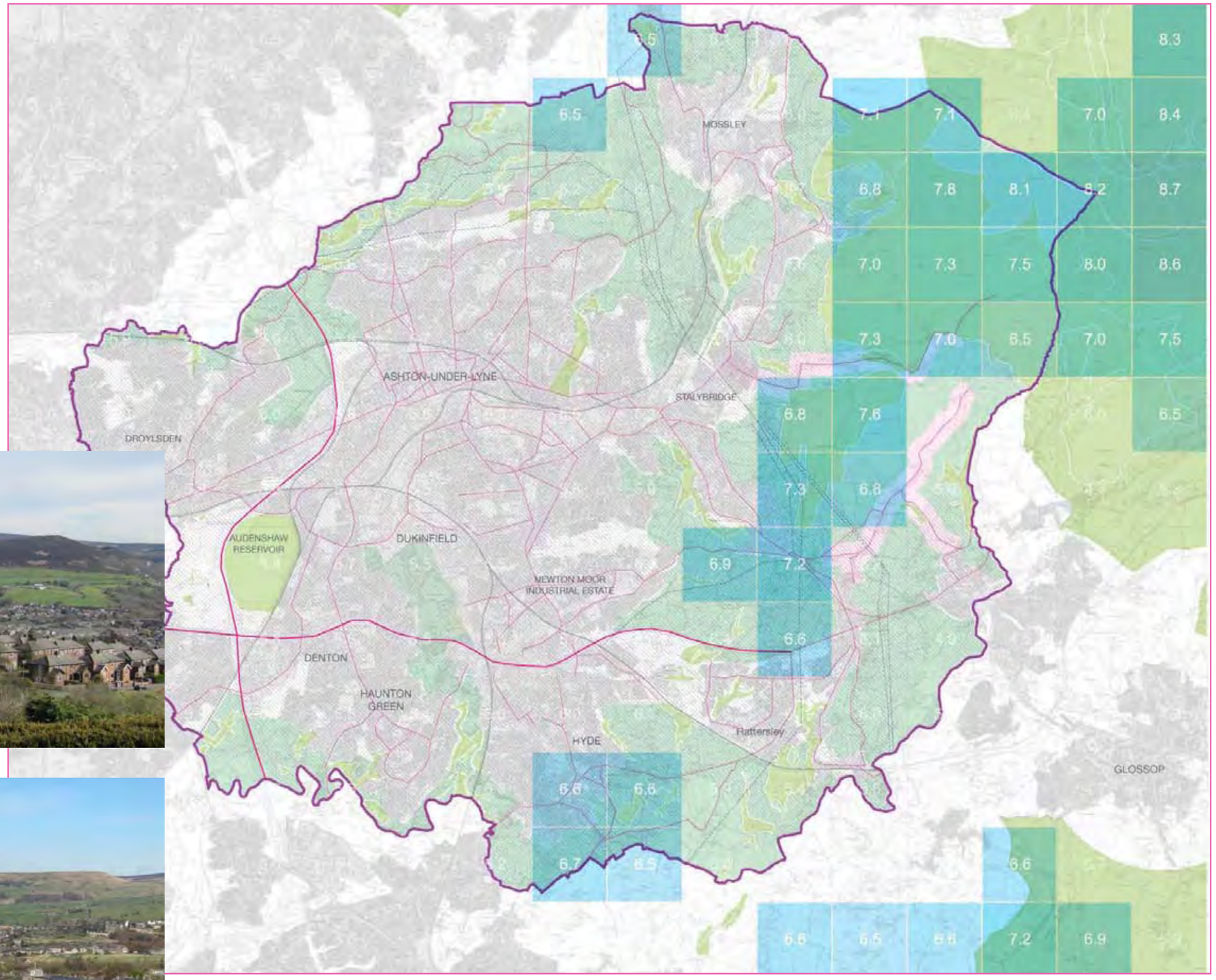
Two 'wind cluster' areas at Alt Hill (Hartshead) and near Hyde were discarded following further investigation due to the variable terrain and proximity to landmarks and obstructions.

A site investigation of two remaining areas at Hollingworthall Moor/Lees Hill near Mottram and Hoarstone Edge near Mossley. was carried out to identify where they could be viewed from surrounding areas and to gather initial photographic evidence of their landscape character setting.

The proximity of these two wind cluster areas to the Peak District National Park prompted a review of the Parks planning policies which confirmed the need for consultation with the National Park Authority in relation to any proposals. Land ownerships were also obtained for these sites by Tameside Council which are presented in Annex 2 of this report.

Following the site investigation it was proposed that the Hoarstone Edge area was discarded from the opportunity areas because of the limited access and its proximity to the National Park. The Hollingworthhall Moor/Lees Hill sites were retained because access is potentially good, clear views of the site are restricted and the sites within a landscape already dominated by two lines of electricity pylons.

Figure 5.1
Wind cluster opportunity areas



View of the Hoarstone Edge opportunity area from Mossley

View of the Hollingworthopportunity area from Mossley

Examples of large single turbine sitings

Spatial location	Planning policy issues and options	Delivery issues and options
Two 9-18 MWe 'wind cluster' opportunity areas were identified at Hollingworthall Moor and Lees Hill (see Figure 5.1) Six 300 kWe to 1.5 MWe 'single large turbine' opportunity areas were identified at Peak Forest Canal, Godley Junction and Windmill Lane (see Figure 5.2) Broad opportunity areas were identified for small to medium sized turbines of up to 15m hub height (see Figure 5.3)	• Broad areas would need to be identified in the Core Strategy and Allocations DPD; • Further landscape character assessments would be required to refine these broad areas and support the consultation process – drawing upon the methodology used for the South Pennine Landscape Capacity study; • The wind clusters areas identified would require engagement with the Peak District National Park and High Peak Authorities; • A continued presumption in favour of development would require applications to be considered against specified criteria; • The existing planning policy criteria should be updated to reflect current guidance and the position on development in the greenbelt clarified; • Wind cluster and single large turbine opportunities should be earmarked as part of the Allowable Solutions pool;	• Risk capital would be required to carry out feasibility study, develop business plans and to obtain planning permission; • A community-owned wind cluster could be underwritten by developer contributions and equity share ownership by members of the community; • A private partner(s) could be identified to take forward cluster and large turbine sites, underwritten by developer contributions; • Planning gain could be negotiated from private applications in order to fund low carbon infrastructure projects; • Land owners would need to be approached and agreement reached to obtain access and to locate wind generation equipment

Table 5.1
Turbine opportunity sites and ddelivery issues

Figure 5.2

Large single wind turbine opportunity sites - Wind speeds above 5.5m/s at 45m above ground level

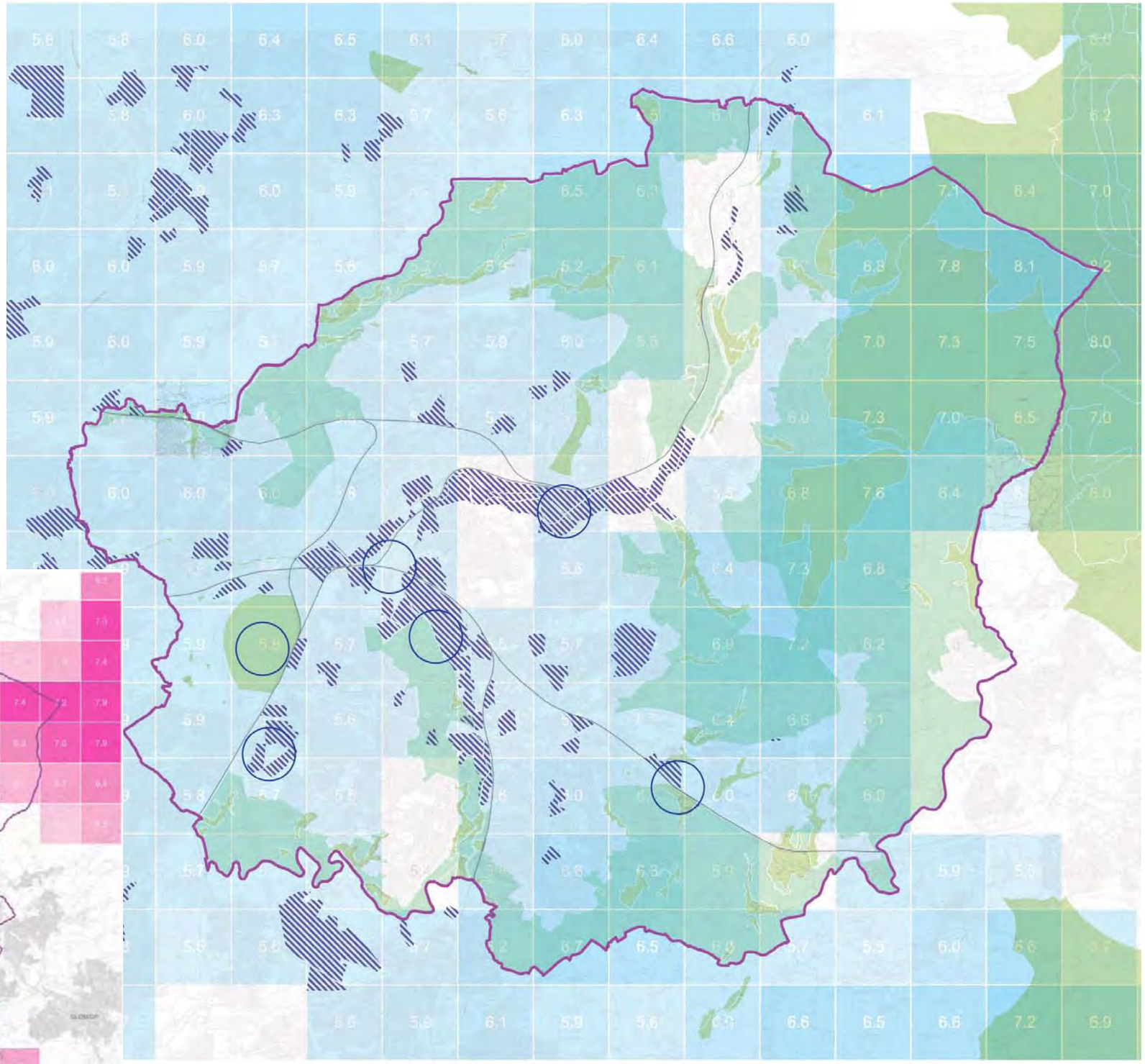
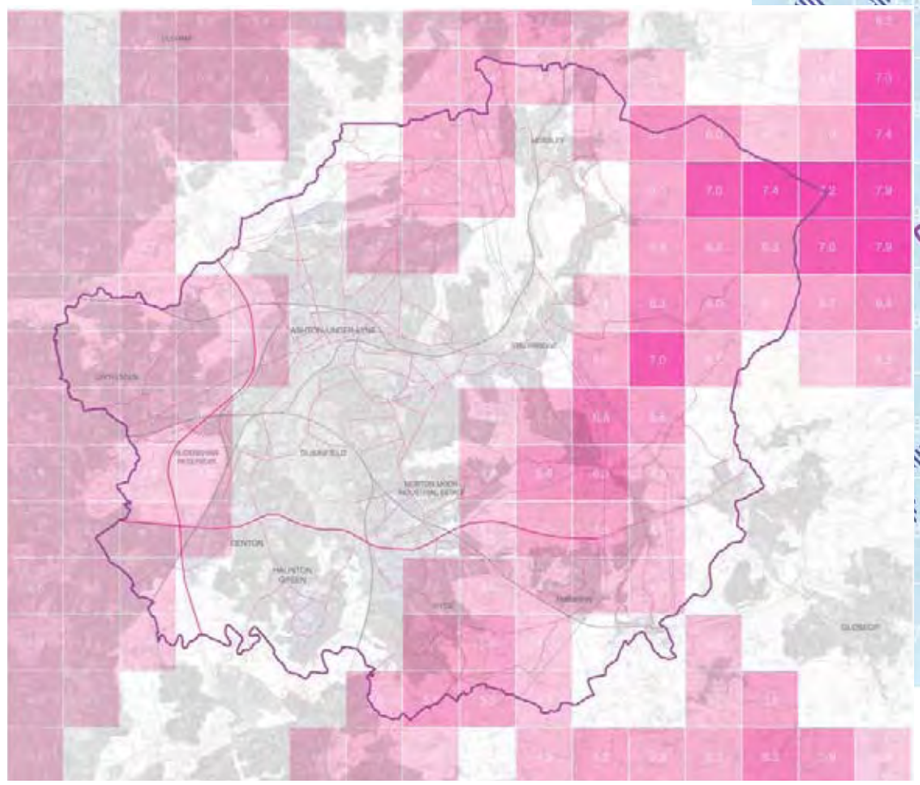


Figure 5.3

Small to medium sized turbine opportunity areas - Wind speeds above 4.5m/s at 10m above ground level



Opportunity 2: Hydropower

Tameside's hydrology is characterised by the rivers Tame and Etherow, associated canal networks, and the locks and weirs that regulate the flow of water. The Environment Agency's hydropower mapping database was used to identify potential weir locations.

A screening process was then carried out. Unsuitable locations such as locks and reservoirs were screened out. Locations with a potential of less than 20 kWe were also screened out as evidence suggests that they would tend not to be viable even at low discount rates. The remaining opportunities were then categorised into two size classes – 20 to 50 kWe and 50 to 100 kWe.

The majority of the locations identified are designated as having 'low' or 'moderate' constraints. Previous discussions with the Environment Agency suggest that these constraints are generally not a barrier to most projects as long as the Agency's guidance on the design of the project and selection of the turbine technology is followed.

Example hydroelectric sites located on weirs

Spatial location	Planning policy issues and options	Delivery issues and options
17 weirs in the 20-50 kWe range and 3 weirs in the 50-100 kWe range on the River Tame (see Figure 5.4) 4 weirs in the 20-50 kWe range and 1 weir in the 50-100 kWe range on the River Etherow (see Figure 5.4)	• Opportunity sites could be identified in the Core Strategy; • Policies should refer to design guidance produced by the Environment Agency, who would also need to consulted on applications;	• Risk capital would be required to carry out feasibility studies, develop business plans and to obtain planning permission; • Community-owned hydropower projects could be underwritten by developer contributions and local share ownership; • A private partner(s) could be identified to take forward sites, underwritten by developer contributions;

Opportunity 3: Light industrial solar

Tameside is characterised by distinctive employment areas which form corridors of development, particularly in the Tame Valley. The predominance of large mills and industrial sheds – particularly associated with more recent warehousing and retail developments – create the potential for large, cost effective solar photovoltaic arrays. A mapping exercise was therefore carried out to identify roofspace potential.

Spatial location	Planning policy issues and options	Delivery issues and options
1,219,441 m2 industrial roofspaces with a combined potential in the range of 107 to 162 MWe depending on the technology deployed and without constraints (see Figure 5.5)	• Broad areas of potential could be identified and promoted; • Guidance and criteria for acceptability could create a consistent basis for applications; • Permitted Development rights for non-domestic installations are likely to become Statute during 2011-12;	• An investor partner(s) could be identified to take forward sites, underwritten by developer contributions; • The partner(s) could provide an 'investment-ready' arrangement for new-build applications;

Example industrial solar photovoltaic roofs

Figure 5.4
Hydroelectric opportunity sites

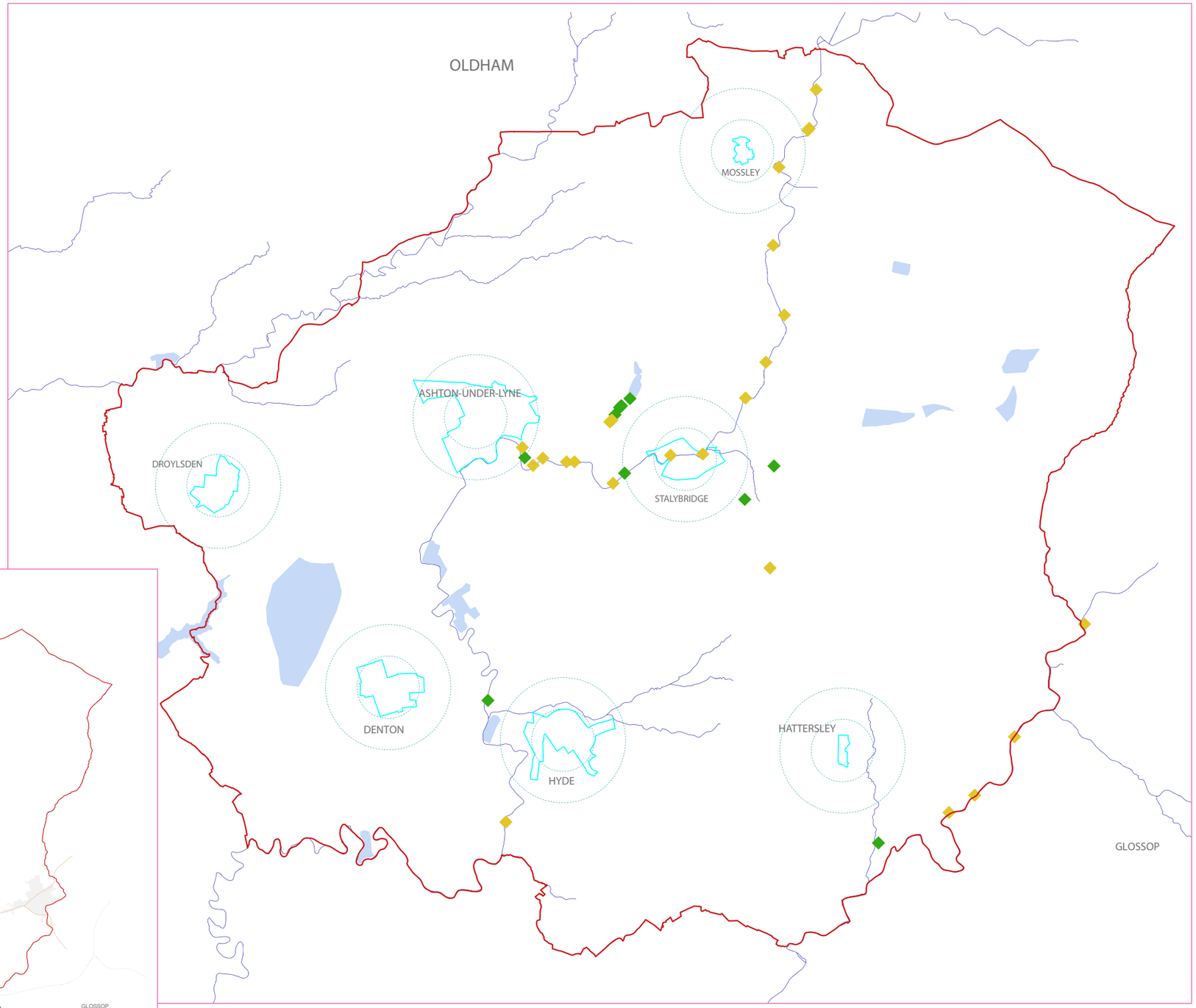
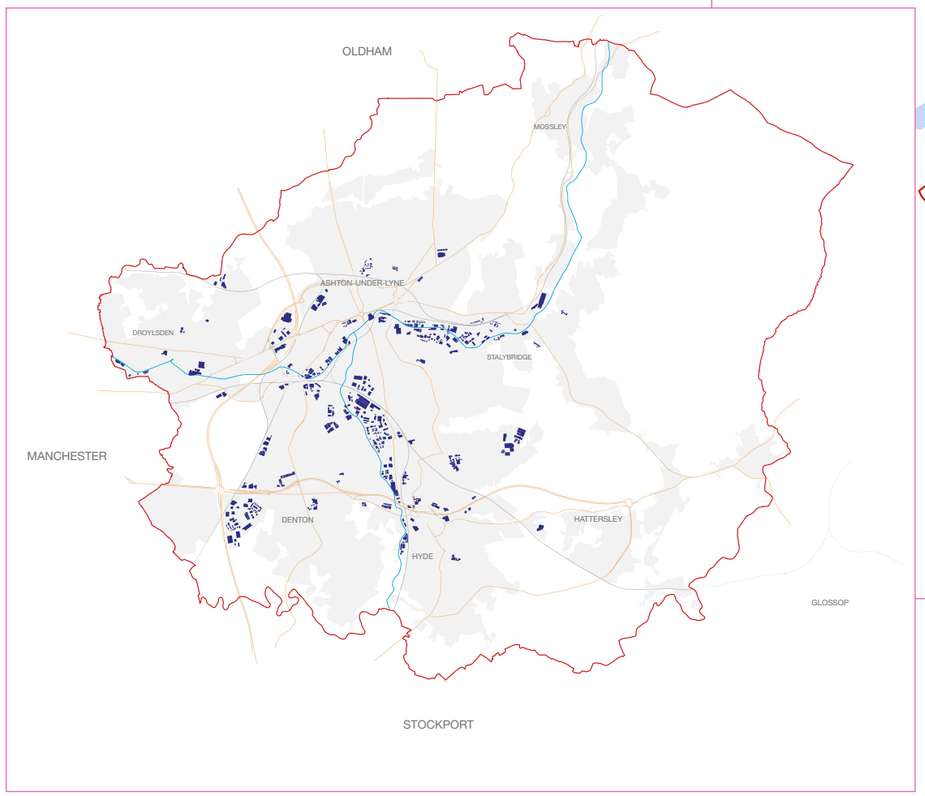


Figure 5.5
Industrial and retail roofspace solar potential



5.2 Heating and cooling networks

Opportunity 1: Large networks

The AGMA study identified Sub-regional, Local and District Centres as having the potential to support district heating networks. The study highlighted the need to anchor these networks with public buildings and social housing and, where they exist, to make connections with existing networks.

Ashton-under-Lyne together with the six district centres identified in the UDP were mapped and clusters of public buildings and social housing within a 400m and 800m radius identified. The number of buildings, their clustering and their relationship to future development sites were considered in order to select the centres with greatest potential.

A search was also carried out to identify any existing large heating networks or CHP plant using OFGEM's Renewable Energy Guarantee of Origin (REGO) database. This did not yield any large MWe scale CHP plant in Tameside. Tameside General Hospital was, however, identified as having a large biomass fuelled heating network.

Illustrative heat network formation

Spatial location	Planning policy issues and options	Delivery issues and options
Ashton Town Centre has the potential for gas or biomass CHP in the range of 2-5 MWe (see Figure 5.6) Stalybridge has the potential for gas CHP of up to 1 MWe (see Figure 5.7)	• The two centres could be identified as areas of potential (or 'network areas') in the Core Strategy for which network plans and evidence will be brought forward; • New development within/adjacent to these centres could be required to connect to or futureproof connection to district heating networks; • Guidance and criteria for the design, specification and location of energy centres in order to minimise their impact (see also biomass supply);	• Risk capital would be required to carry out feasibility studies, develop business plans and to obtain planning permission; • Projects could be delivered by the Council, a Special Purpose Vehicle, a public:private Joint Venture or by procuring private partner(s);


CHP 'energy centre'

Opportunity 2: Small clusters

The AGMA study highlighted the potential for associations to be made between single public buildings and new developments to form small networks or clusters of heat demand. A mapping exercise was carried out to identify the extent of opportunities.

The following buildings were mapped – civic offices, libraries, swimming pools, schools and colleges, high density social housing estates and sheltered housing schemes (which tend to have communal heating plant). A search was also carried out to identify existing small heating networks. The search was only able to identify two social housing schemes that had recently had communal heating installed – a tower block in central Hyde called Chartist House and Cavendish Mill in Ashton-under-Lyne.

Spatial location	Planning policy issues and options	Delivery issues and options
New development linked with at least 27 sites - which include a mix of schools, colleges, social housing, sheltered housing, civic buildings and swimming pools (see Chapter 7, Target Framework opportunity map 1)	• The location of potential buildings could be identified as connection opportunities; • New development within a designated range of these buildings could be required to consider linking to them;	• Engagement would be required with asset owners/energy managers in order to build up a schedule of plant replacement opportunities; • Private partner(s) could be identified to engineer/finance plant and networks, underwritten by developer contributions;


Example cluster opportunity in Mossley


Biomass heating plant 'energy centre'

Figure 5.6
Ashton-Under-Lyne building cluster locations

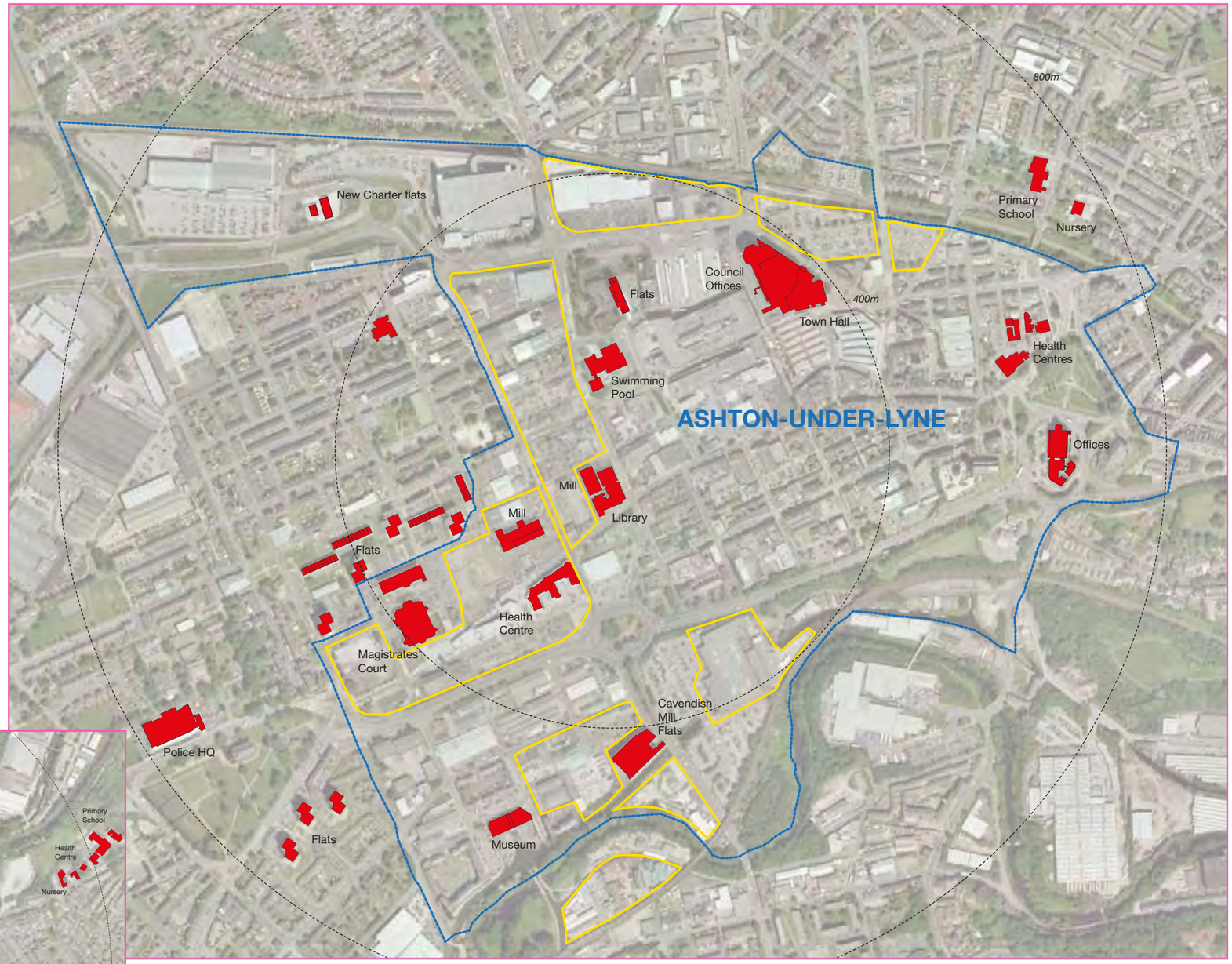
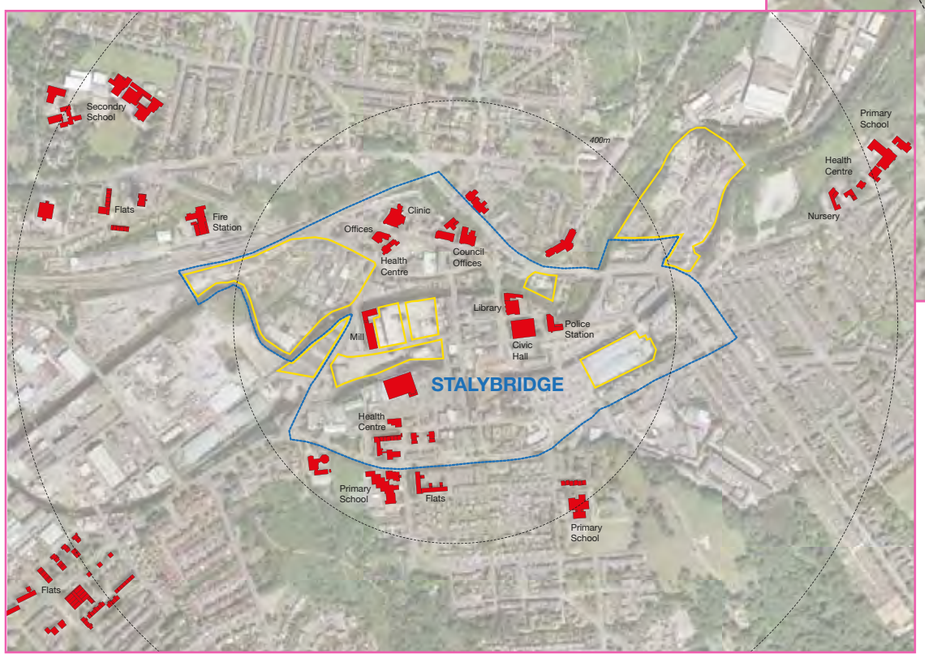


Figure 5.7
Stalybridge building cluster locations



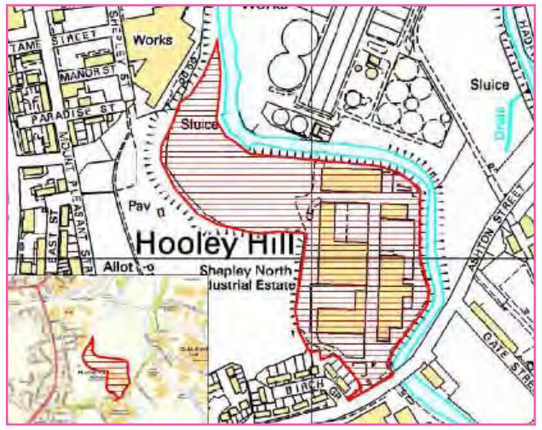
Opportunity 3: Biogas CHP

The AGMA study highlighted the potential for the anaerobic digestion of sludge from wastewater treatment works and municipal organic waste to fuel CHP plant. Whilst no specific opportunities were identified in Tameside by the AGMA study there is a cluster of three wastewater treatment works located in the Tame Valley.

United Utilities were consulted to obtain further information about the three Tame Valley treatment works and whether there were any existing generating plant installed or planned at these sites. This indicated that sludge from two of the sites is combined and treated at the Dukinfield site. Biogas is then produced which is burned in two gas engines each with a rating of 315 kWe. It is understood that the majority of the available waste heat from the engine jacket cooling circuit and exhaust gas is currently used to provide heat to maintain the anaerobic digestion process.

The Joint Waste DPD proposes the allocation of a 5.7 hectare site on the Shepley Industrial Estate (TA3a) which could be suitable for investment in biogas production for heating or CHP. This could be based on municipal organic waste or it could be developed to support the food industry. The latter would have the potential to generate proportionally more biogas than the existing United Utility plant because the waste would have a richer organic content than sewage sludge.

Spatial location	Planning policy issues and options	Delivery issues and options
Dukinfield wastewater treatment works (630 kWe). See Figure 5.9. Joint Waste DPD Shepley Industrial Estate site allocation (with an unspecified kWe/ MWe energy generation potential). See Figure 5.9 for spatial location.	• Inclusion of the waste DPD site allocation in the Core Strategy; • Promotion of the site for large-scale anaerobic digestion with a requirement for CHP generation or biogas supply (see also biogas supply); • Request of contributions towards heat network expansion and/or gas pipeline development;	Promotion of the Shepley site to the food and waste management industries;



Proposed allocation of TA3a site

Opportunity 4: Canal water cooling

Tameside has an industrial legacy of three canal branches – Ashton, Huddersfield Narrow and Peak Forest. The canals are owned and managed by British Waterways. Recent research has demonstrated that, under controlled conditions, canal water can be used by buildings for cooling without detrimental impact on the water quality. British Waterways promote the use of their network for cooling by adjacent buildings. Users are required to discharge heat within prescribed conditions. Analysis for British Waterways has suggested a limit of 0.75 MWth of cooling load for every 10 metre of narrow canal.

Spatial location	Planning policy issues and options	Delivery issues and options
Development along the canal network has the potential to use the water for cooling (subject to license restrictions). See Figure 5.8 for spatial locations.	• Promotion of canal water cooling for specific canalside development sites;	• Dialogue with British Waterways to promote the use of their local network for cooling and in order to simplify the permissions/consenting process; • Promotion of associated heat pump and geothermal technologies to local businesses and property developers;

Measured cooling return to canal network

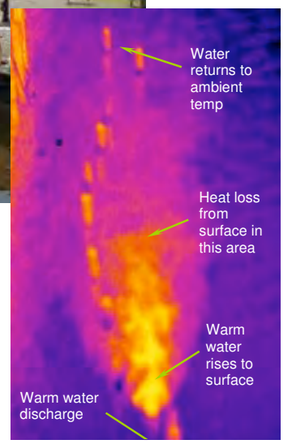


Figure 5.8
Canal, groundwater and mine water areas and locations

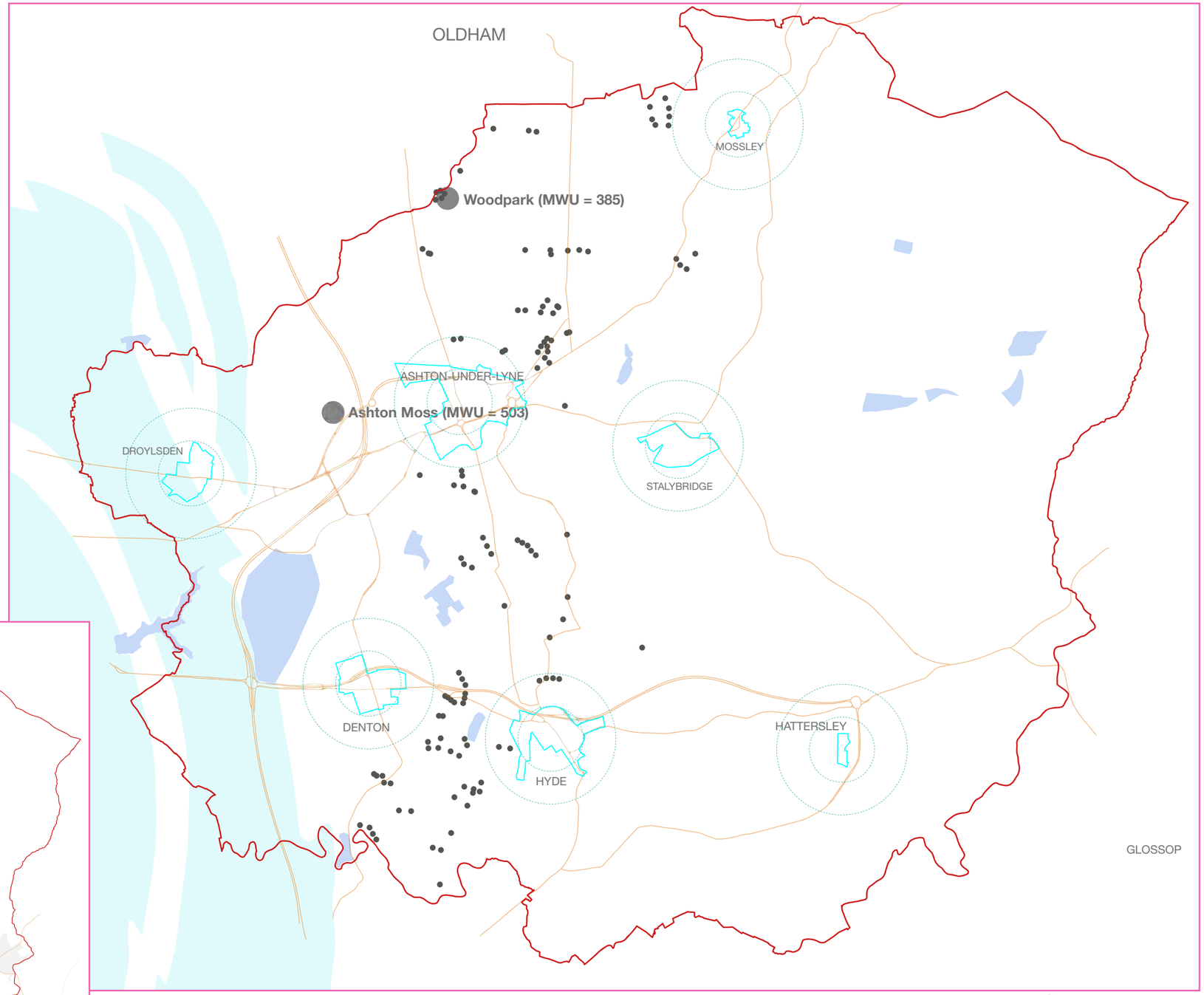
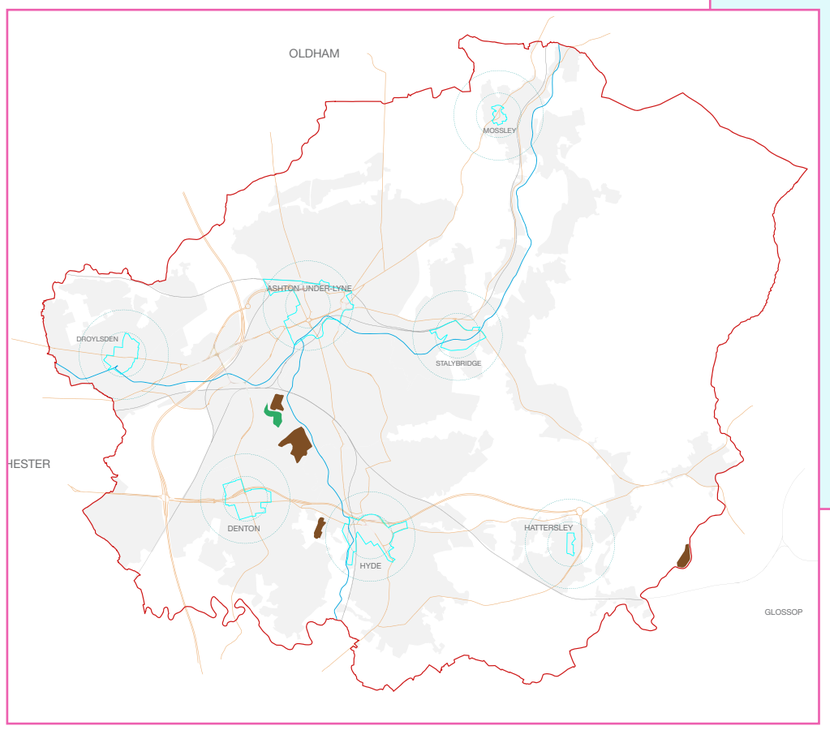


Figure 5.9
Existing and proposed biogas CHP plant locations



Opportunity 5: Minewater heating

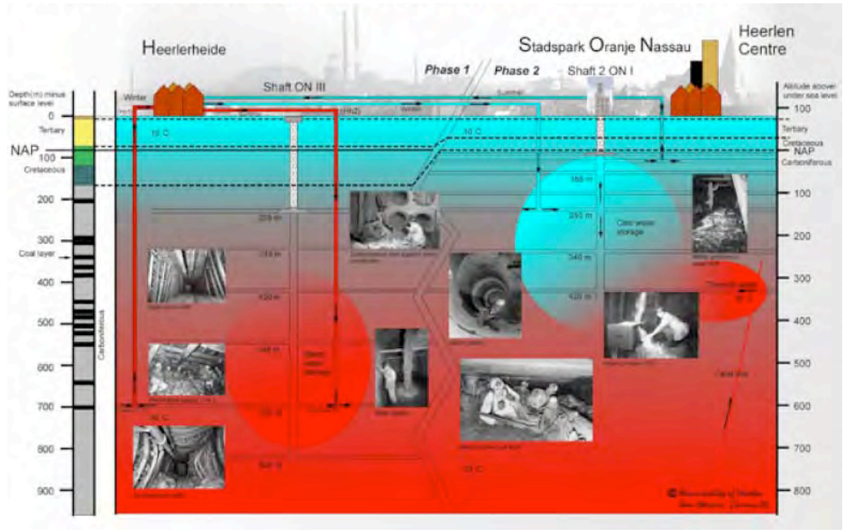
Tameside has a history of coal mining dating from the industrial revolution. All of these colliery sites are now closed. However, depending on their depth and extent they could have the potential to supply geothermally heated water to buildings via a district heating network. Studies suggest that water is heated by 3°C for every 100 metres of depth.

The Snipe and Woodpark Collieries were identified by the AGMA study as the largest and deepest collieries in Tameside. Historical literature suggests that the Snipe Colliery was at least 870 metres deep. Heated water can be abstracted and re-injected by drilling down into selected locations in abandoned mine workings. The location of the well head may not therefore correspond with the original location of the pit head(s).

The evidence from a pilot minewater geothermal project in the town of Heerlen in the Netherlands is that the thermal potential of a mine is site specific, requiring detailed investigation of the condition of the workings and the potential for the transfer of heat.

In order to validate the potential resource further investigation would therefore be required in conjunction with the Coal Authority who, under the remit of the Coal Mines Regulation Act, monitor mine workings closed after 1872. The project would also be likely to require a groundwater abstraction license from the Environment Agency.

Spatial location	Planning policy issues and options	Delivery issues and options
Shallow aquifers underlie some areas of Tameside which could be used for geothermal heating and cooling; The mine workings of Ashton Moss and Woodpark collieries could be used for geothermal heating and cooling;	• Promotion of conventional geothermal options for heating in the identified spatial areas and locations; • A specific heat network plan could be brought forward if the Ashton Moss colliery is found to be viable geothermal resource;	• A detailed technical investigation would be required in order to determine the potential of Ashton Moss and Woodpark collieries; • Promotion of associated heat pump and geothermal technologies to local businesses and property developers;



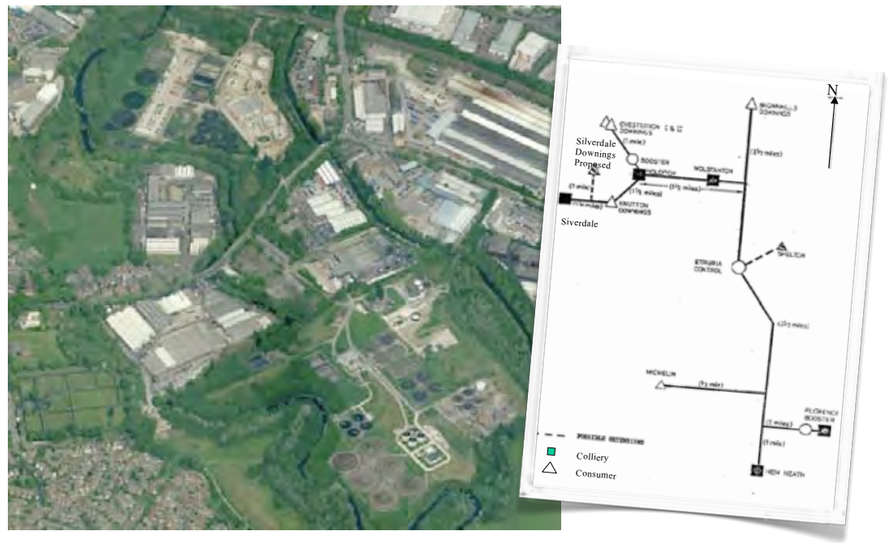
Heerlen geothermal minewater project

5.3 Fuel supply chains

Opportunity 1: Biogas pipeline

It was noted during the mapping of United Utilities' wastewater treatment plant and the Shepley Industrial Estate Joint Waste DPD allocation site that, based on a broad assessment, neither sites are within a close proximity of significant identifiable heat loads. If a larger anaerobic digestion plant was to be developed on the Shepley Industrial Estate allocation site then its location would constrain its potential to operate in CHP mode. One possible way to overcome this constraint would be to pipe biogas to a location nearer to large heat demands. For example, Ashton-under-Lyne would be the nearest major centre where the potential has been identified for CHP supplying district heating.

Spatial location	Planning policy issues and options	Delivery issues and options
Pipeline route linking biogas CHP opportunity sites with Ashton Town Centre;	• Ashton Town Centre has the potential for 2-5 MWe gas or biomass CHP; • Potential to identify and/or safeguard potential pipeline routes;	• Contributions from investors in a plant on the Shepley site could be used to underwrite a pipeline; • A joint venture could be established with National Grid Transco to develop the pipeline;



Mine gas pipeline in Stoke-on-Trent

Figure 5.10
Broad areas and locations for biomass fuel production

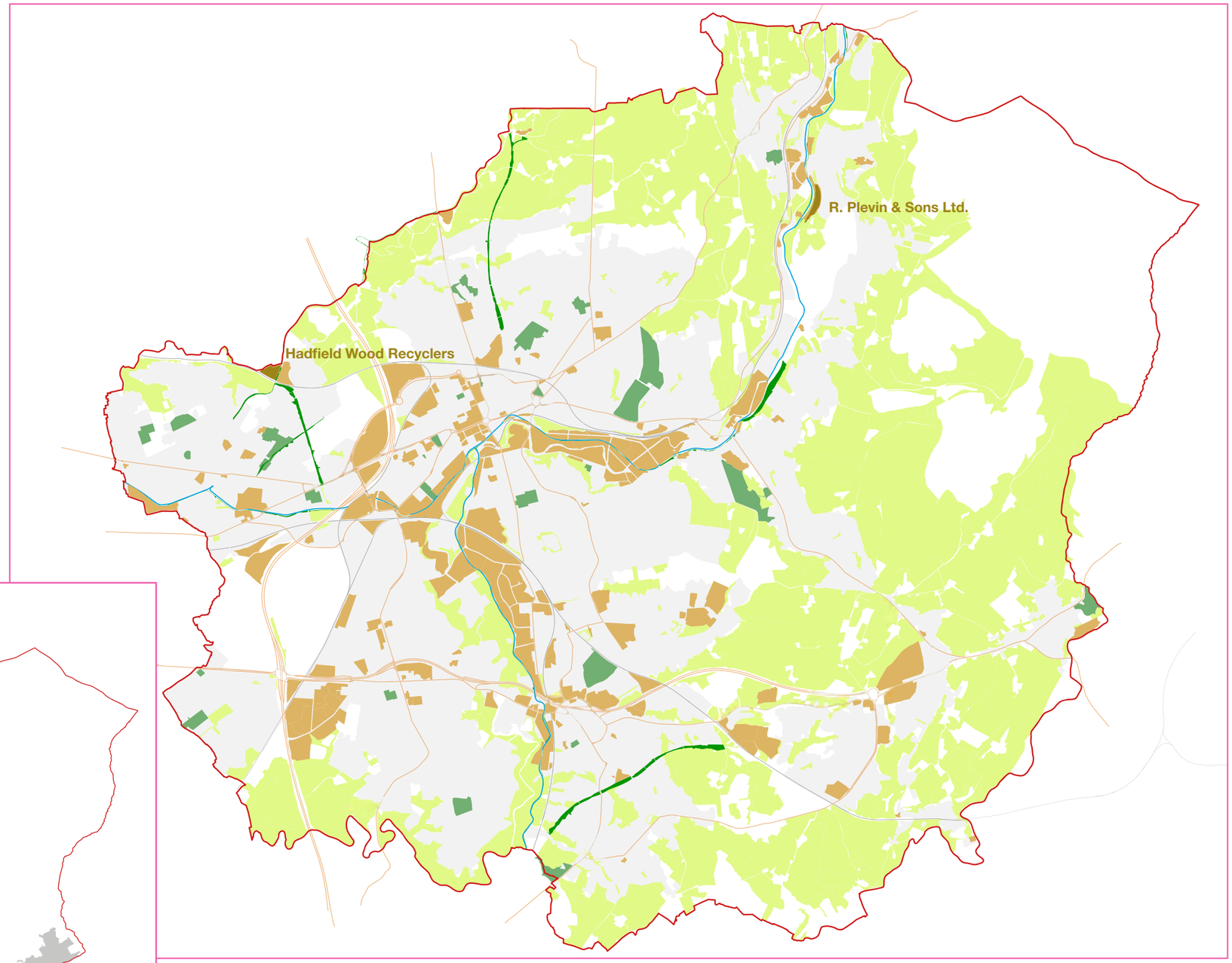
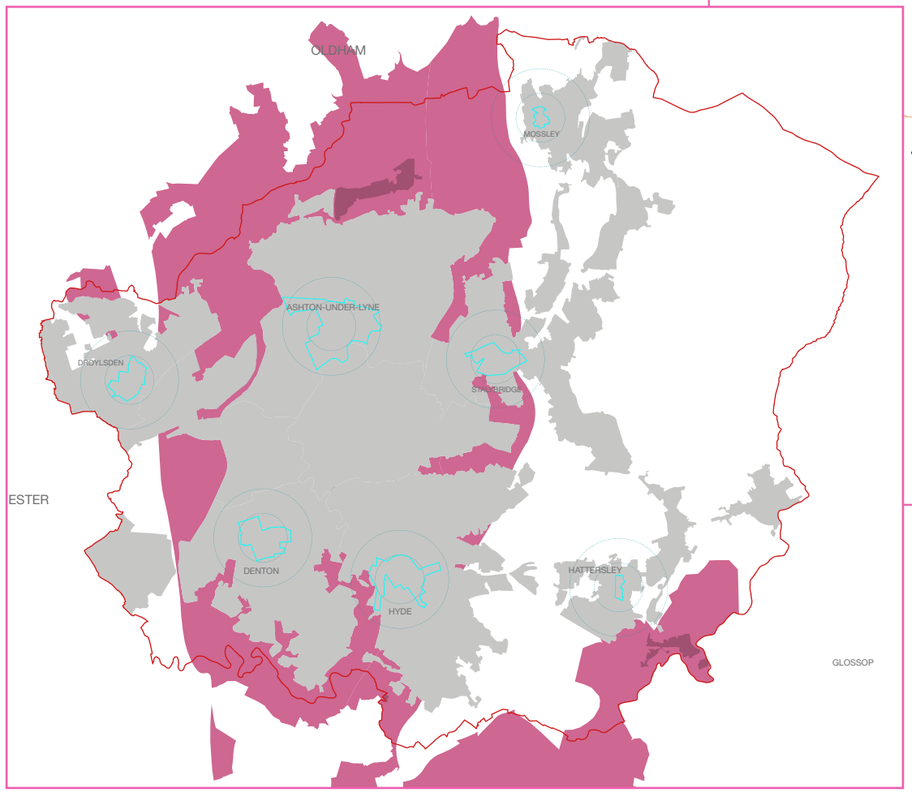


Figure 5.11
Proposed Coal Bed Methane safeguard areas



Opportunity 2: Biomass production

A number of potential sources of wood chip fuel for boilers or CHP plant were identified, including primary sources and secondary sources that combine material from a wider catchment area:

- Tree surgery: The Council carries out regular maintenance of street trees across the district;

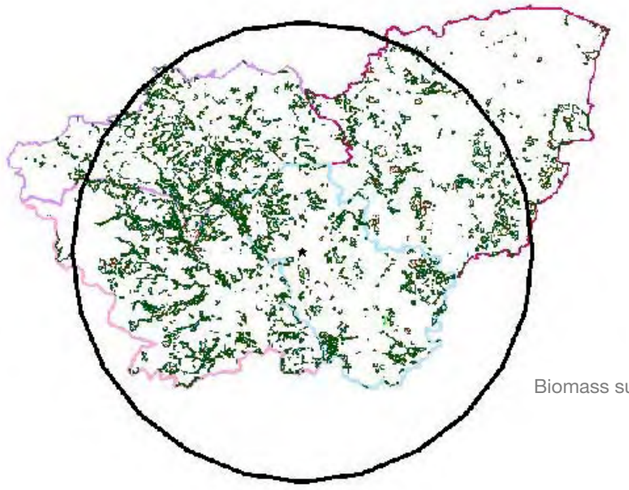
- Parks and grounds maintenance: The Council maintains 20 urban parks, the majority of which will generate wood waste. Within the scope of the study it was not possible to obtain data for the combined current arisings;

- Forest and country park management: The Council maintains 3 country parks and nature reserves and in conjunction with Pennine Edge Forest also has a number of woodland sites which based on data compiled by Red Rose Forest together generate more than 927 tonnes of wood chip per annum. However, as we note below this resource could be considerably higher;

- Agricultural land: DEFRA's Agricultural and Horticultural land survey records that in 2007 there were 2,237 hectares of permanent grassland in Tameside. If all of this land was used to grow an energy crop such as Short Rotation Coppice willow the yield without constraints applied could be as much as 6,746 Oven Dried Tonnes (ODT) of fuel per annum. However, it is likely that the actual potential would be much lower than this;

- Wood waste processors: There are two major processors located in Tameside – Hadfield Wood Recyclers and R Plevin & Sons – which together produce 400,000 tonnes per annum of wood chips. It is understood that an unspecified proportion of the raw material for this fuel may be imported from elsewhere in Europe or even further afield;

Recent studies carried out by Red Rose Forest suggest that much higher tonnages could be obtained from forest and country park management. For example, the North Manchester area was shown to have the potential to yield as much as 3,000 tonnes per annum based on all available sources. However, it was not possible within the scope of this study to further ascertain the scale of this potential.



Biomass supply chain development in Barnsley

Spatial location	Planning policy issues and options	Delivery issues and options
Park and grounds maintenance arisings suggest a resource of at least 970 tonnes/annum of wood chip; The combined resource from street trees, forestry management and underused agricultural land could be combined from across the district; Local processors Plevins (Mossley) and Hadfield (Droylsden) have a combined output of 400,000 tonnes/annum of wood chips and pellets.	• Promotion of a sequential approach to the sourcing of biomass fuel, with regard to Environment Agency findings on the CO_2 emissions from transport; • Safeguarding and promotion of industrial sites with rail access for biomass processing and/or biomass CHP plant;	• Promotion of biomass processing sites and/or supply opportunities to leading logistics companies and processors;

Opportunity 3: Coal Bed Methane

Coal Bed Methane differs from coal mine methane in that it requires new boreholes to be drilled down to coal seams. The resulting release of pressure then allows methane gas which was adsorbed to the surface of the coal to be extracted. The exploitation of coal derived methane is regulated by licenses granted by the Department of Business, Innovation and Skills (BIS) through a similar process to natural gas and oil licenses.

Greater Manchester's Joint Minerals DPD proposes safeguard areas for Coal Bed Methane extraction. In seeking to align these areas with potential energy policies it is important to recognise that CBM is a fossil fuel.

To ensure this option can be classified as 'low carbon' there are two possible options which could be promoted by a local plan:

- Efficient use of the methane directly: Ensuring that the methane is used as a efficiently as possible – either as a heating fuel or in generators operating in CHP mode.

- Efficient use of the methane's hydrogen content: The second and lowest carbon option would be to strip hydrogen gas from the methane gas. The resulting hydrogen gas could then be used in a fuel cell CHP unit.

The exploitation of coal bed methane is still being trialled at a small number of sites in the UK. The number of well heads and the environmental impact of drilling has raised concerns in trial areas such as Stoke-on-Trent and Salford.

The above ground impact can, however, now be minimised by using 'directional' drilling. The environmental impact of drilling would need to be considered as part of any license application to BIS.

Spatial location	Planning policy issues and options	Delivery issues and options
Broad area identified where future extraction would be safeguarded;	• General considerations in seeking permission and licenses for surface drilling and processing equipment; • Requirement that if Coal Bed Methane is used to generate electricity this should be CHP and that the plant should be located near to identified network areas; • Request of contributions towards heat network expansion and/or gas pipeline development; • Potential to promote the use of fuel cell generators as another means of minimising CO_2 emissions;	• Contributions from investors in a plant could be used to underwrite heat network investment;

Broad findings and recommendations

- The wind energy opportunity areas identified and associated planning criteria should be consulted on as part of the Local Development Framework with a view to their potential allocation. Further work will be required on landscape character assessment in order to inform this consultation;

- Spatial opportunities for heating networks at a number of different scales should be aligned with the Councils asset management plans and investment programmes. The Council should also seek to align the plans and programmes of other partners including New Charter Housing Trust, Tameside Sports Trust and Inspired Spaces;

- Spatial opportunities to promote the canalwater cooling, groundwater heating/cooling and hydropower should be taken forward in conjunction with British Waterways and the Environment Agency, who will be able to make technical design advice available and could identify ways to streamline the permitting process;

- Planning policies to promote strategic energy opportunities should be aligned with the establishment of a low carbon energy infrastructure or allowable solutions fund. This could be introduced in advance of 2016 in order to progress projects. This fund would provide feasibility funding to progress projects at risk and provide subsequent funding for capital investment;

- A technical feasibility study would be required to better understand the potential associated with the Snipe and Woodpark Collieries. There would be benefit in any study being able to draw upon technical lessons emerging from the Heerlen project in the Netherlands;

- The Joint Waste DPD site allocation TA3a should be complemented by new policy conditions that promote biogas production and/or energy generation in CHP mode;

- Consideration should be given to how Tameside could work with landowners, forestry partners and local biomass producers to promote and develop the local biomass supply chain and associated equipment to make use of the fuel;

- The Joint Minerals DPD Coal Bed Methane safeguard area should be complemented by a new policy that promotes and/or requires energy generation in CHP mode and/or the use of the best available low carbon generation technology;

6. Testing the options for future development

Here we present the findings of our testing to identify viable options for future regulatory compliance based on a series of on and off-site options. The testing was also used to identify instances where stretch targets could be applied and specific technologies promoted.

In order to test both the technology options and the cost and viability of compliance with future revisions of Part L of the Building Regulations a testing protocol was applied to the building types identified in Chapter 4.

The aim of the protocol was to test the cost and viability of four broad policy options:

1. Basic compliance route: Building Regulations are enforced on a site by site basis and each developer chooses their own means of compliance (Part L regulatory minimum);

2. Flexible target and support mechanism: Carbon reduction targets and/or options for compliance with Building Regulations are defined on a site by site basis based on the availability of local opportunities (the AGMA target framework approach);

3. Energy proposals plans: Carbon reduction targets and/or options for compliance with Building Regulations are defined based on plans brought forward for specific sites or areas by the Council and/or developers (the AGMA energy proposals plan approach);

4. Buy-out route: Compliance with Building Regulations is achieved by purchasing carbon credits from a local fund administered by the Council. The price of carbon would be set based on the mix of local technologies paid for by the fund (Allowable Solutions approach).

All options were with reference to the Government's proposed approach to building compliance with the 'zero carbon' standard in 2016 (see Figure 6.1).

The protocol was carried in three iterative stages. The first was an exercise to define and cost the technologies to be used. The second was an exercise to appraise the impact of these costs on residual land values. The third was an exercise to test and refine the options for applying stretch targets based on the AGMA approach.

6.1 Defining the technology options

The technology options were first setup for testing by AECOM using the following protocol:

Domestic buildings: 2013 and 2016 revisions of Part L

1. Standard technology mixes were selected that meet Part L (individually or for specific forms of housing development) drawing upon those used for the AGMA study and by DCLG/Zero Carbon Hub in developing the zero carbon policy.

2. Tameside-specific on-site 'Carbon Compliance' and off-site 'Allowable solutions were selected and tested against Part L compliance.

3. An estimate was made of the unregulated energy use for each house type upon occupation in order to allow calculation and testing of stretched targets over and above the new definition of zero carbon.

Non-domestic buildings: 2013 and 2016 revisions of Part L

1. Standard technology mixes were selected that meet Part L (individually or for specific forms of housing development) drawing upon those used for the AGMA study and provisionally by DCLG in their 2009/10 consultations on the non-domestic definition of zero carbon.

2. The technology mixes were checked with the AECOM team responsible for the DCLG consultation options in order to refine the compliance levels and cost assumptions;

3. Tameside-specific on-site 'Carbon Compliance' and off-site 'Allowable solutions' were selected and tested against Part L compliance.

4. An estimate was made of the unregulated energy use for each building type upon occupation in order to allow calculation and testing of stretch targets over and above the new definition of zero carbon.

The building types that were tested are summarised in the Figure 6.2 below. B2 and B8 were combined for the purposes of energy modelling of Part L compliance although clearly the energy use of occupants could vary considerably.

The evidence base from the AGMA study was used as the starting point for the cost and carbon reduction benefits of different technologies. The AGMA evidence base addressed strategic opportunities that could form the basis for energy proposals plans - such as networks in district centres - and a range of off-site allowable solutions. Recent evidence from studies in Bury, Stockport and Manchester, was also drawn upon.

Figure 6.1
The government's proposed approach to 'Zero Carbon' compliance

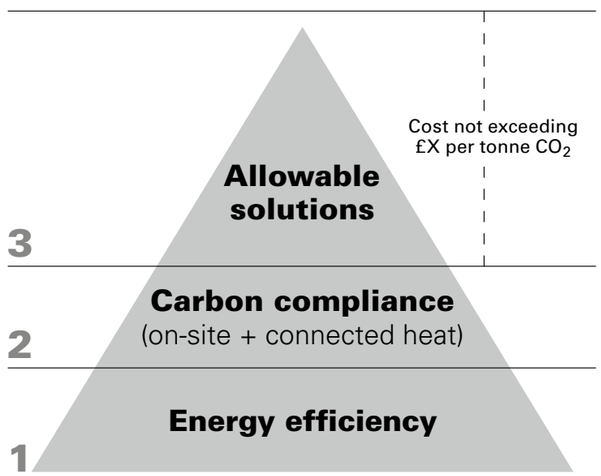


Figure 6.2
Building types subject to testing

Housing
- Apartment (2 bed)
- Townhouse (3 bed)
- Semi-detached (4 bed)

Employment
- B1 office (air conditioned) (2,000 sq m)
- B2 light industrial (2,000 sq m)
- B8 storage/logistics (5,000 sq m) (Conventional and cold storage)

Retail
- Small supermarket (800 sq m)
- Large supermarket (8,000 sq m)
- Town centre comparison (2,000 sq m)

Table 6.1

Preferred technology and financing options tested for compliance with Part L 2013

Building type	Indicative 'Carbon Compliance' options	Performance of options against Part L 2013 (+/-)
Apartments	(a)1. BPEE + Biomass district heating supplied by biomass CHP (Ashton-under-Lyne)	Compliance +24%
	(a)2. BPEE + Biomass heat only in association with public buildings	Compliance +24%
Townhouses	(a)1. BPEE + gas CHP supplying sites in and around Local Centres	Compliance
Detached houses	(a)1. BPEE + Biomass heat only connection	Compliance +24%
	(a)2. BPEE + Solar photovoltaics (70% capital finance)	Compliance
Offices	(a)1. APEE + Biomass district heating connection supplied by biomass CHP (Ashton-under-Lyne)	Compliance +17%
	(a)3. APEE + Solar photovoltaics (70% capital finance)	Compliance
Light industrial	(a)1. APEE + Solar photovoltaics (100% upfront cost)	Compliance
	(a)2. APEE + Solar photovoltaics (70% capital finance)	Compliance
Supermarket (small)	(a)1. APEE + Solar photovoltaics (100% upfront cost)	Compliance
Supermarket (large)	(a)1. APEE + gas CHP supplying sites in and around Local Centres	Compliance
	(a)2. APEE + Solar photovoltaics (70% capital finance)	Compliance
Convenience retail	(a)1. APEE + Solar photovoltaics (70% capital finance)	Compliance

Notes

1. All % performances are relative to performance against Part L 2010
2. BPEE = Best Practice Energy Efficiency measures.
3. APEE = Advanced Practice Energy Efficiency measures

Table 6.2

Preferred technology and financing options tested for compliance with Part L 2016

Building type	Indicative 'Allowable solution' options	Balance of Allowable Solutions required to meet Part L (%)
Apartments	(c)4. Connection of public buildings to biomass heating network	19%
	(c)5. Capital contribution towards off-site PV installations on public buildings (30%)	19%
Townhouses	(c)4. Connection of public building to biomass heating network	Exported heat (125%)
	(c)5. Capital contribution towards off-site PV installations on public buildings (30%)	21%
Detached houses	(c)6. Capital contribution towards off-site PV installations on public buildings (30%)	26%
	(c)7. Capital contribution towards off-site community renewables fund (30%)	26%
Offices	(c)1. Capital contribution towards off-site PV installations on public buildings (30%)	56%
	(c)2/3. Connection of public buildings to biomass or gas CHP network	56%
Light industrial	(c)3/4. Capital contribution towards off-site PV installations on public buildings (30%)	2%
Supermarket (small)	(c)1. Capital contribution towards off-site PV installations on public buildings (30%)	83%
	(c)3. Capital contribution towards off-site community renewables fund (30%)	83%
Supermarket (large)	(c)3. Capital contribution towards off-site community renewables fund (30%)	83%
	(c)4. Capital contribution towards off-site PV installations on public buildings (30%)	83%
	(c)5. Connection of public buildings to gas CHP network	Exported heat (103%)
Convenience retail	(c)1. Capital contribution towards off-site PV installations on public buildings (30%)	67%
	(c)2. Capital contribution towards off-site community renewables fund (30%)	67%
	(c)3. Connection of public buildings to gas CHP network	67%

Notes

1. All % balances are calculated against a baseline of Part L 2010 and represent the additional % required to achieve a performance of 100% carbon reduction (zero carbon) against Part L 2010

A number of new Tameside-specific opportunities were also tested and calculated – specifically including solar photovoltaic financing at different scales and contributions to off-site, locally specific opportunities such as hydropower, small heating networks and wind clusters. The overall mix of technologies was brought together into a menu of on and off-site options. The options for offsetting upfront capital costs with financing were considered.

6.2 Appraising the building types

Each set of technology options were then subjected to a simplified development appraisal process in order to determine their viability. This exercise was repeated in order to identify, where possible, viable options for each building type. The development appraisal was carried out to the following protocol:

1. Development costs and values: A basic model of the build costs was setup for each building type based on generic cost yardsticks cross referenced with local examples.

2. Developers margin: The model was then supplemented with assumptions about the marginal cost of developing each building type, adjusted to reflect residual land values that are achievable in Greater Manchester and the profit margin expected by different developers of different use classes.

3. Example sites and developers: Selected examples of the building types, the sites on which they have been brought forward and their developers were identified in order to evidence sales and rental values. For housing this was used to develop an example of mix of apartments, townhouses and detached homes in order to model the combined performance of these building types.

4. Part L appraisal: The estimated costs of the technology mixes identified by AECOM to achieve Part L compliance were added to the build costs for each building type in order to test their impact on residual land values. These costs represent the worst case in each instance as costs are projected to decline as the market evolves.

5. Target framework appraisal: The estimated costs of technology mixes and off-site contributions to meet options for stretched targets were added to the build costs for each building type in order to test their impact on residual land values (see Section 6.3 below).

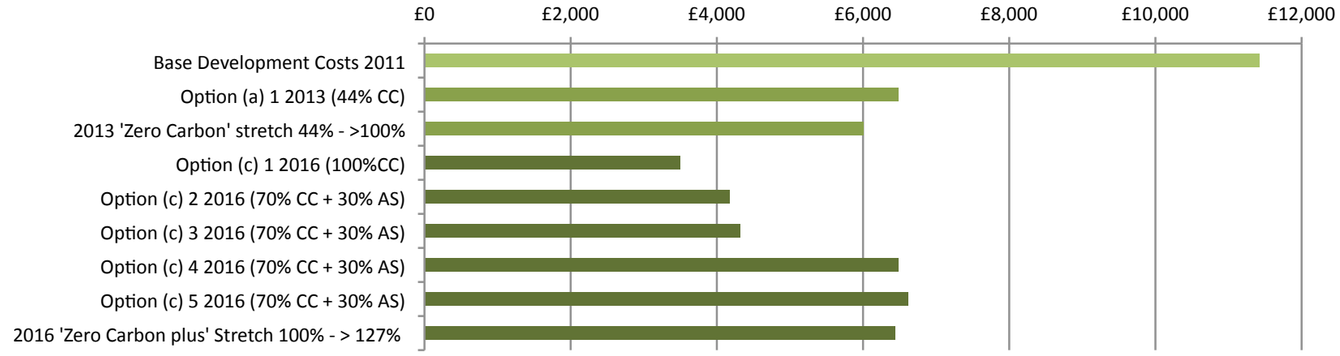
The preferred technology options appraised by the testing exercise are presented in Tables 6.1 and 6.2 on the previous page.

Residual Land Value was used as the main yardstick for the measurement of the capacity of each building type to absorb additional costs. A sample of the appraisal results for a number of building types are presented in Figure 6.3.

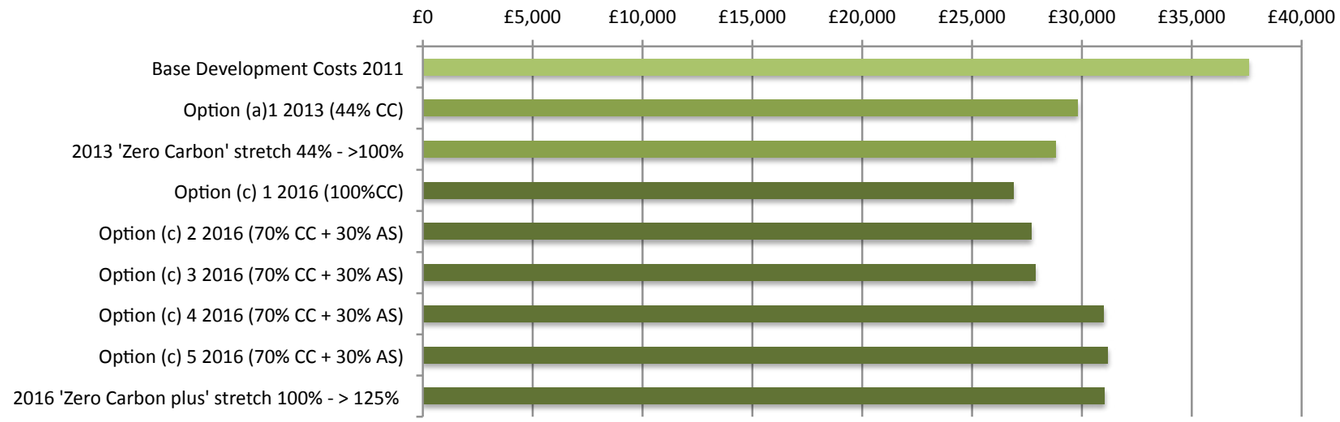
Given the current economic downturn and the potential for reductions in the cost of technologies before 2013 and 2016 these can therefore be taken to represent 'worst case scenarios' for viability. The options presented are drawn from the full

Figure 6.3
Residential development appraisal results

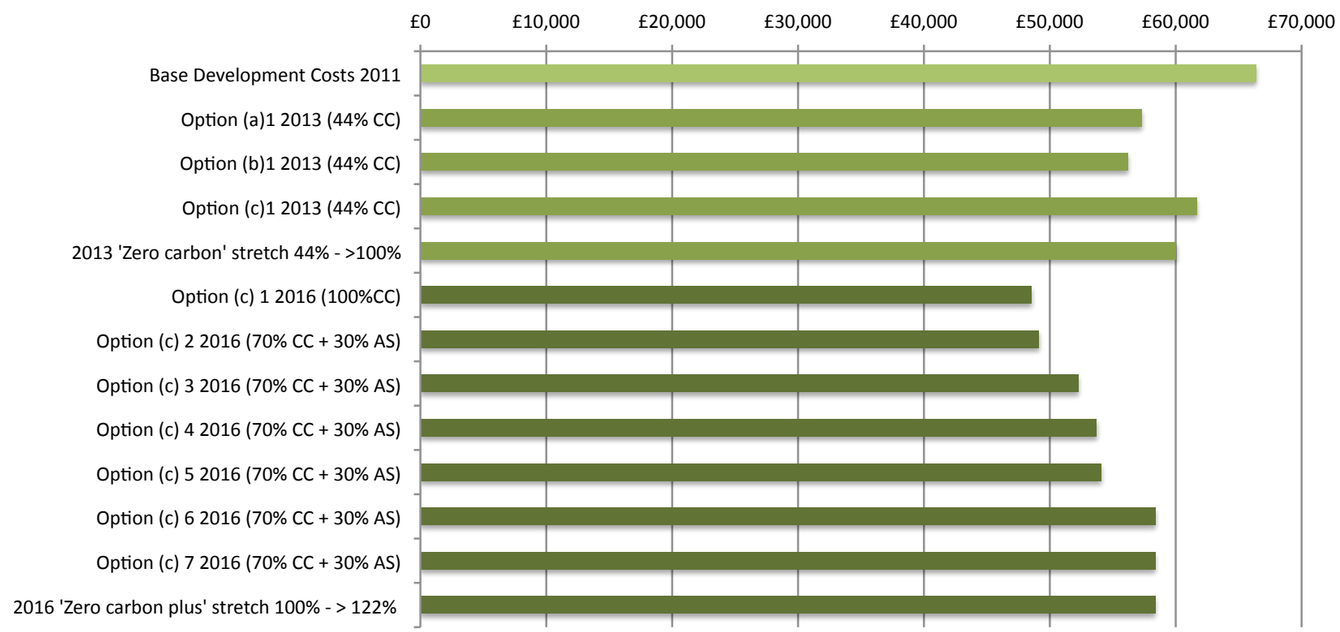
Apartment residual land values 2013 and 2016



Town house residual land values 2013 and 2016



Detached house residual land values 2013 and 2016



range of options which were appraised. The full testing and appraisal results can be found in Annex 3 of this report.

6.3 Stretch target options

The AGMA target framework approach (a form of stretch target setting) was tested in two stages. The original 15% minimum target was first tested for residential properties at a cost of £392/tonne CO_2. In a number of instances lower cost technologies that enabled compliance in 2013 and 2016 also provided greater levels of carbon reduction than the regulatory minimum (as illustrated by Table 6.1).

A revised version of the target framework approach was then tested using a lower cost of carbon (£50/tonne CO_2). This lower cost of carbon was based on a locally specific mix of off-site solutions (see footnotes to Table 6.3).

The cost of this revised stretch target option was calculated based on a 30% capital contribution to the off-site solutions – sufficient to lever in debt finance to develop a project. This investment would have the potential to lever in enough additional investment to achieve zero carbon in 2013 and the original definition of zero carbon in 2016.

The scope for the application of stretch targets (defined as maximum targets by the AGMA target framework) using this revised approach was only tested for building types capable of generating sufficient residual land value. The proposed minimum targets for the four selected building types are presented in Table 6.3 below.

Table 6.3
Proposed revision to AGMA 'minimum' targets

Building type	% requirement in addition to Part L	
	2013 'zero carbon'	2016 'zero carbon +'
Townhouses	+17%	+25%
Detached houses	+17%	+22%
Large food retail	+25%	+3%
Town centre retail	+20%	+7%

Notes on stretch target calculation

1. *In 2013 'zero carbon' (100% reduction against Part L 2010) and in 2016 'zero carbon plus' (100% reduction againts Part L 2010 + estimated emissions from unregulated energy use) can be achieved by requiring a 30% capital contribution to the financing of a mix of offsite solutions in Tameside (hydroelectric, large wind energy and solar PV) at £50/tonne CO_2 .*
2. *In real terms this equates to 17-25% stretch target in 2013 and a 3-27% stretch target in 2016.*
3. *The 30% capital contribution represents the typical level of equity required to secure bank financed for a project.*
4. *The variation in 2016 reflects the different proportions of 'unregulated' energy estimated for each building type e.g. for a detached house the target is 173% of Part L 2010.*

Broad findings and recommendations

- The findings of the development appraisals suggest that a combination of heating networks, third party financing of equipment and infrastructure and off-site contributions to community renewables are likely to be required in order to enable developers in Tameside to meet future Part L requirements in a cost effective way that minimises the impact on residual land values.
- The way in which the energy policies are framed should reflect the viability of different building types and use classes, some of which were not able to achieve a healthy residual land value even when the lowest cost options were applied. However, relative 'viability' should be periodically reviewed given that property market values are projected to begin rising again and technology costs to decline.
- Supermarkets and specific storage uses (such as cold stores) and process industries are likely to have significantly higher unregulated carbon emissions than modelled by the testing exercise. It is recommended that further consideration is given to promoting options to reduce these emissions, which largely relate to electricity use.
- Financing models exist which could enable the building types and use classes which failed the viability testing to comply with Part L for a minimal upfront capital outlay – for example, to assist with the installation of solar photovoltaics.
- The AGMA 'minimum' target was found to be viable when applied to townhouses and detached homes but not apartments.
- An alternative version of the AGMA minimum target based on using a lower cost of carbon to achieve a 'zero carbon' and a 'zero carbon plus' standard was found to be viable for townhouses, detached homes, offices, large supermarkets and town centre retail but resulted in marginal or negative residual land values for apartments, B2/B8 employment uses and small supermarkets.
- For specific building types there is therefore the scope to adopt stretch targets equivalent in levels of carbon reduction to zero carbon in 2016 and the previous Government's definition of zero carbon – a 'zero carbon' and a 'zero carbon plus' target. These can also be described in terms of minimum % targets in 2013 and 2016.
- Compliance with these proposed new stretch targets can only be achieved based on a mix of lower cost off-site community renewables projects, although as previously noted apartments and B2/B8 uses would need to be treated differently.
- The adoption of stretch targets will need to be enabled by a plan to develop the required mix of off-site community renewables projects – in Tameside's case hydropower, wind energy and solar photovoltaics. This could be achieved using third party finance to provide equipment or infrastructure at low or no cost.

7. Developing policy options for the LDF Core strategy

Here we present an indicative structure and options for Tameside's Core Strategy energy policies, bringing together the strategic energy opportunities we have identified with the building testing results in order to adapt the approach promoted by AGMA.

The main objective of this evidence study was to inform Tameside's policies on energy in the emerging Core Strategy. This final chapter of the report presents a possible structure for the policies.

Within the proposed structure we have outlined a number of options in considering the scope for coverage of the range of issues and opportunities highlighted by this study.

The proposed structure for the policies has been informed by the Tameside-specific evidence base and the AGMA evidence base. The emerging LDF Core Strategy energy policies in Manchester and Bury as well as the adopted LDF Core Strategy in Stockport have also been referenced.

7.1 The proposed policy structure

The proposed structure for the Core Strategy Energy Policies is as follows:

- **Core Strategy energy policy principles:** The broad principles and assumptions that will underpin the energy policies and Development Management;
- **Energy Policy 1:** Overarching Statement and Opportunities Plan: An overarching policy statement setting out how and where Tameside will seek to promote and support carbon reduction measures;
- **Energy Policy 2:** Approach to Development Management: A set of policies setting out how Tameside will seek to promote and/or require the adoption of specific levels of carbon reduction by new and existing buildings – which could include the promotion of specific technologies for application on strategic development sites and specific building types.
- **Energy Policy 3:** Approach to renewable energy generation: A set of policies setting out how Tameside will seek to promote renewable energy generation opportunities – which could include identifying broad areas and locations for specific technologies, the potential to retrofit existing buildings and the potential to promote community-owned renewables.
- **Energy Policy 4:** Approach to Infrastructure Planning: A policy setting out how Tameside will seek to use Section 106, the Community Infrastructure Levy and Allowable Solutions funds in order to bring forward low and zero carbon infrastructure.

These options were further refined with input from the client group. The resulting policy framework is presented in this Chapter of the report.

7.2 Core Strategy energy policy principles

The findings from this study together with feedback from the client group workshops suggest that the following broad principles should underpin the Core Strategy energy policies:

- Opportunities for carbon reduction should be promoted in a way that supports low carbon economic development and which has the potential to attract investment and support growth of a local supply chain;
- Wherever possible energy efficiency should be prioritised but not to the exclusion of opportunities for greater carbon reduction;
- Tameside MBC will play a pro-active role in supporting developers by co-ordinating and promoting solutions;
- Where viable opportunities exist Tameside MBC will look to bring forward solutions that achieve greater carbon emissions than regulatory minima;
- The energy policies will provide a flexible framework which will allow high levels of carbon reduction to be required/ negotiated, subject to further site specific evidence being brought forward;
- The onus will be on developers to demonstrate why energy opportunities that the Core Strategy highlights as being well suited to their development are not viable;
- Contributions from developers will be used to lever in finance to achieve greater carbon reductions and develop wider energy opportunities;
- Where the viability of development makes future compliance too costly Tameside MBC will pro-actively seek to arrange other ways of financing carbon reduction;
- Tameside MBC will seek to use it's influence to support policy implementation – including where possible the commitment of anchor public buildings, the use of public land and associated capital receipts, and the use of planning requirements;

These principles could either form part of a preceding section of the Core Strategy identifying cross-cutting issues or they could form the basis for a pre-amble to the energy policies.

7.3 Proposed Core Strategy energy policies

Energy Policy 1: Overarching Statement and Opportunities Plan

This policy would articulate Tameside's broad commitment to carbon reduction and the principle of the energy hierarchy – the prioritisation of energy efficiency followed by low or zero carbon technologies. The policy would be underpinned by a presumption in favour of low or zero carbon development. This presumption would be subject to three fundamental caveats:

- That development also conforms with the other key principles of sustainable development that will be regulated by the LDF Core Strategy.

- That applicants fully respond to the criteria set out in the energy Development Management policies (see Energy Policy 2).

- That where possible the approach to delivering low or zero carbon development seeks to support the local supply chain.

The policy would also highlight Tameside's commitment to work with developers to bring forward opportunities, which would be illustrated by an energy opportunities plan for the district.

The Tameside energy opportunities plan would highlight the broad range of opportunities for low or zero carbon infrastructure across Tameside. It would also highlight the potential for these opportunities to assist developments in meeting future regulatory requirements and to respond to Tameside's target framework (see Table 7.1).

Energy Policy 2: Approach to Development Management

This policy would describe the options that should be explored by developers of new property in order to bring forward low or zero carbon developments. The proposed technology options that the policy would promote are presented in Table 7.1 as the 'Tameside energy opportunity framework'.

The framework would promote different options depending on the spatial location and type of development being brought forward. Options could be used to meet regulatory compliance at a lower cost and, where possible, achieve greater reductions in carbon emissions.

In order to support the Council in seeking to promote and bring forward opportunities the policy would also contain a number of additional provisions that are supported by the PPS1 Supplement:

- Preparation of a 'low carbon development statement': Applicants would be required to submit a 'low carbon development statement' in order to demonstrate their response to the policy (see Box 7.1 below).

- Identification of strategic locations: The policy would highlight where in Tameside evidence shows that specific technologies may be more appropriate and where it is intended that further evidence will need to be brought forward – for example, biomass CHP in Ashton Town Centre;

- A requirement to connect to district heating networks: Where they exist already, or where there will be an expectation that developers play a pro-active role in developing new networks – for example, where a development is adjacent to a public building. A threshold of 25 units is proposed for this provision;

- A requirement to participate in solar roofspace agreements: Where an investment framework or roofspace rental/licensing arrangement is in place, and is regulated and/or promoted by the Council, developers will be required to allow access in perpetuity to their roofspace (at no upfront capital cost).

- Futureproofing for solar energy generation: New buildings should be designed in a way that wherever possible their height and massing does not overshadow other solar installations and in a way that facilitates opportunities to maximise solar energy generation, either now or in the future.

The policy could also note that interpretation of these provisions will be supported by the revision of existing Supplementary Planning Documents – for example, the Residential Design Guide.

A threshold would be set for the application of the policy to developments. For example, it could be aligned with Tameside's threshold for affordable housing provision of 25 units. Alternatively this study has identified a possible threshold of approximately 40 units based on the size of developments typically brought forward by volume housebuilders. The AGMA study also proposed that policies be applied to all commercial development with a floor area greater than 1,000 m2. This threshold reflects that set by the EU Energy Performance of Buildings Directive (2002/91/EC).

- Futureproofing for solar energy generation: New buildings should be designed in a way that wherever possible their height and massing does not overshadow other solar installations and in a way that facilitates opportunities to maximise solar energy generation, either now or in the future.

The policy could be linked to future revisions of existing Supplementary Planning Documents – for example, the Residential Design Guide.

A threshold could be set for the application of the policy to developments. For example, it could be aligned with Tameside's threshold for affordable housing provision of 25 units. Alternatively this study has identified a possible threshold of approximately 40 units based on development by volume housebuilders.

The AGMA study also proposed that policies be applied to all commercial development with a floor area greater than 1,000 m^2. This threshold reflects that set by the EU Energy Performance

Box 7.1

Preparing a 'low carbon development statement

Applicants would be expected to demonstrate how they have responded to the Tameside's energy policies. This could take the form of a 'Low Carbon Development Statement' which would need to be submitted as part of the Design and Access Statement. The statement would need to comprise:

- Calculation of the predicted energy use and carbon emissions of the development in line with the requirements for compliance with Part L of the Building Regulations;
- Calculation of the residual carbon emissions reductions that would be required either to meet 'zero carbon' (applicants prior to 2016) or 'zero carbon plus' (applicants after 2016);
- Evidence of which options the developer has explored, the level of additional carbon reduction that they will agree to achieve and their proposed infrastructure contribution;
- Where an appraisal shows that the options available are not viable the developer must provide enough information to substantiate this.

Table 7.1

Proposed Tameside-specific 'target framework'

Options for low carbon infrastructure	Target forms of development	Specific opportunities to be promoted by Tameside
1. Collaborate in a network Could the development benefit from connecting to or helping initiate a heating network?	• Large supermarkets • Apartments and offices • Housing sites with >25 units	• CHP supplying district heating networks in Ashton and Stalybridge • Public building and social housing mini biomass heating networks
2. Control your energy costs Could investment in low carbon energy generation help to manage your energy costs?	• Offices • Supermarkets and shopping centres • Energy intensive industrial processes and cold storage warehouses	• Canal or groundwater cooling • On-site CHP to directly supply electricity and/or steam • Wind turbines to directly supply electricity
3. Agree to some help on-site Could some help from an investor make installing low carbon energy generation more viable?	• Small supermarkets and retail units • Light industrial and distribution • Small housing sites (<25 units) and detached housing;	• Solar photovoltaic finance arrangements
4. Make a community contribution Would you prefer to contribute towards making local community renewables projects happen?	• All forms of development	• Hydropower sites • Installation of solar photovoltaics on community buildings • All scales of wind power

Energy Policy 3: Approach to renewable energy generation

Here a policy would be used to describe the broad areas and locations where specific technologies will be promoted. The policy would then briefly set out specific criteria and considerations for Development Management in relation to specific technologies covered by this study. These could comprise the following:

- Wind energy: Criteria in relation to the three scales of technology that the Core Strategy will promote – wind clusters, large single turbines and small to medium sized turbines.

- Energy Centres: Criteria for the design, location and specification of energy centres that will supply heat and power to developments – to include consideration of visual appearance, pollution control and transport and noise impacts.

- Hydropower: The need to respond to guidance published by the Environment Agency in relation to the necessary consents for a project.

- Biogas CHP: The promotion of the Shepley Industrial Estate site for biogas production subject to operation in CHP mode and/or the supply of biogas for CHP plant.

- Coalbed methane extraction: The promotion of coalbed methane subject to its use to fuel CHP plant and/or the use of fuel cell technology.

- Biomass fuel: A sequential approach to the sourcing of biomass fuel in order to minimise carbon emissions from transport and the prioritisation of transport by rail or canal for large projects.

- Community ownership: Following the example adopted by Stockport MBC in their Core Strategy (Adopted March 2011) there is also the option to specifically promote community-owned renewables projects. Evidence has shown that these form of projects have the potential to contribute to wider acceptance of the need for decentralised forms of energy generation. This is because by their very nature they are smaller and need to be located 'in everyone's backyard'.

Energy Policy 4: Approach to infrastructure planning

Here a policy would be used to make provision for the future collection of contributions towards low or zero carbon energy infrastructure and/or for the purchase of off-site carbon credits (currently known as 'allowable solutions').

We propose that this policy establishes the provision for payments and contributions from the following applicants:

- Property developers: Contributions to specific infrastructure projects or the payment of sums calculated to be equivalent to a fixed quantity of carbon reduction. The latter would be linked to the cost of carbon reduction achieved by community renewables projects specifically planned/brought forward by the Council and/or strategic partners;

- Energy generators: Contributions to the development of energy networks required to ensure the operation of plant in CHP mode and/or to a community renewables fund in order to provide development costs and working capital for future projects;

This policy would be subject to further work by the Council to align these payments and contributions with its emerging approach to the Community Infrastructure Levy. It is likely that a separate mechanism will be brought forward by the Government for 'allowable solutions' so this would also be referenced by the policy.

Option 1 plan
Collaborate in a network

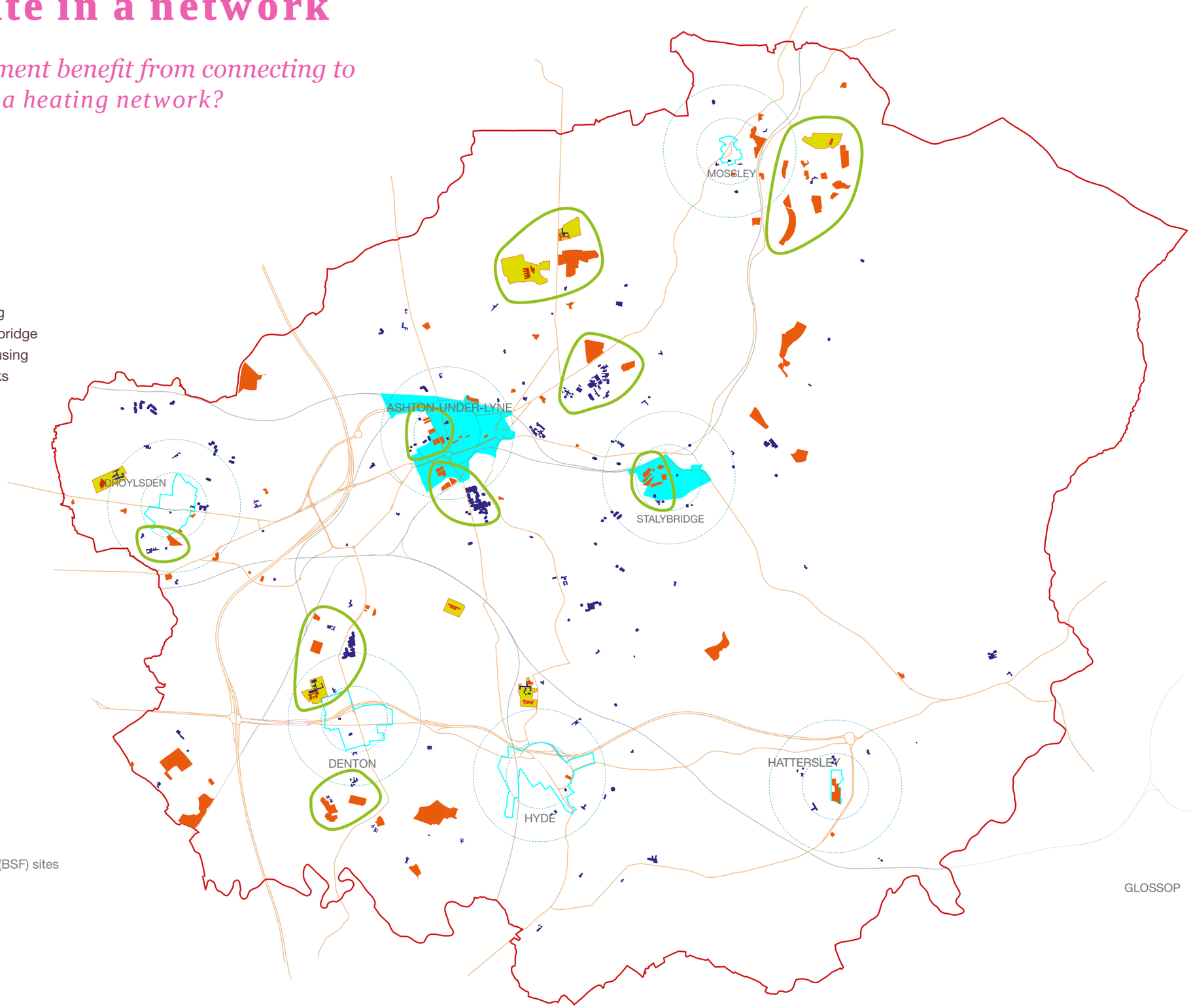
Could the development benefit from connecting to or helping initiate a heating network?

Target forms of development

- Large supermarkets
- Apartments and offices
- Housing sites with >25 units

Specific opportunities to be promoted by Tameside

- CHP supplying district heating networks in Ashton and Stalybridge
- Public building and social housing mini biomass heating networks



Option 2 plan
Control your energy costs

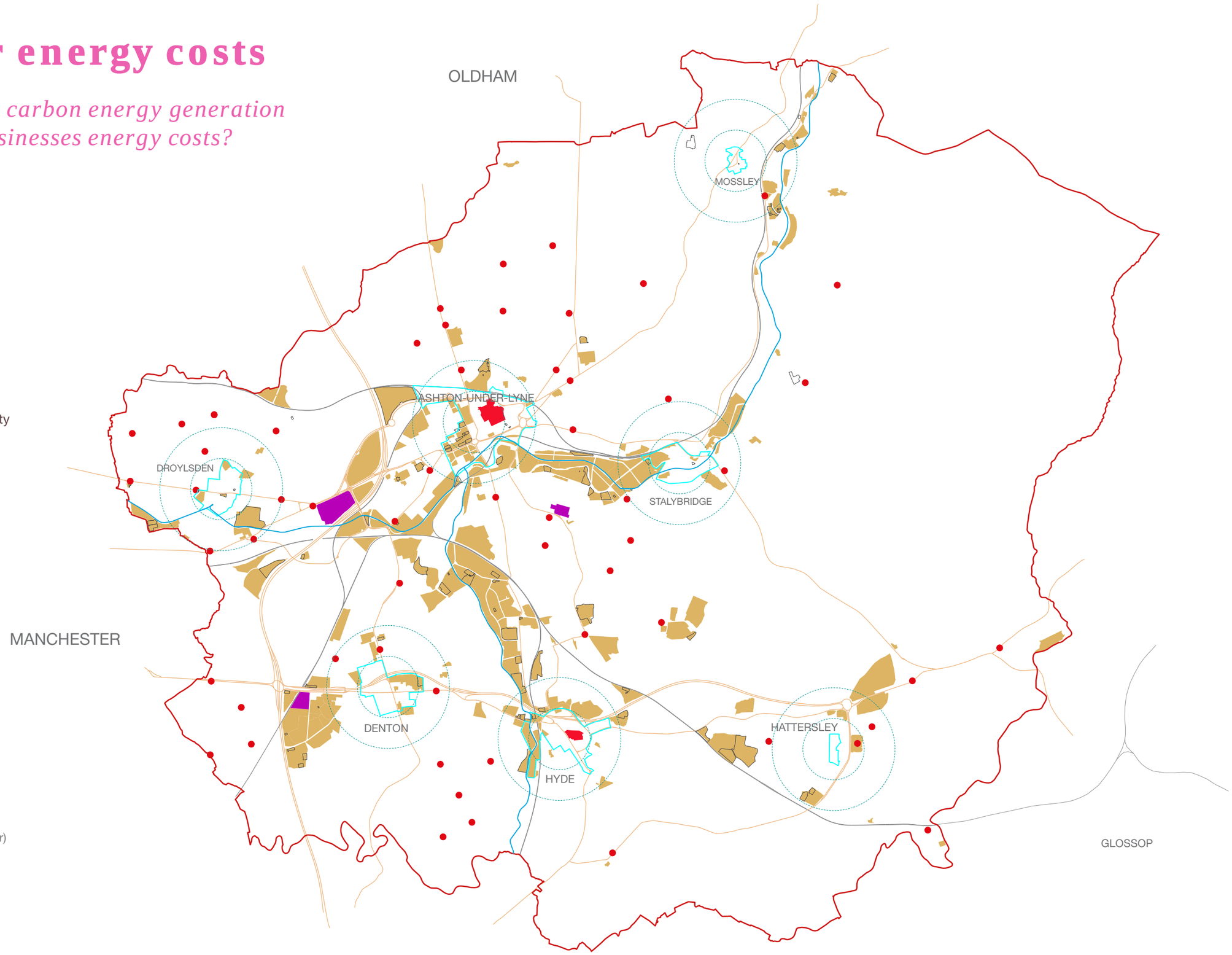
Could investment in low carbon energy generation help to manage your businesses energy costs?

Target forms of development

- Offices
- Supermarkets and shopping centres
- Energy intensive industrial processes and cold storage warehouses

Specific opportunities to be promoted by Tameside

- Canal or groundwater cooling
- On-site CHP to directly supply electricity and/or steam
- Wind turbines to directly supply electricity



Option 3 plan
Agree to some help on-site

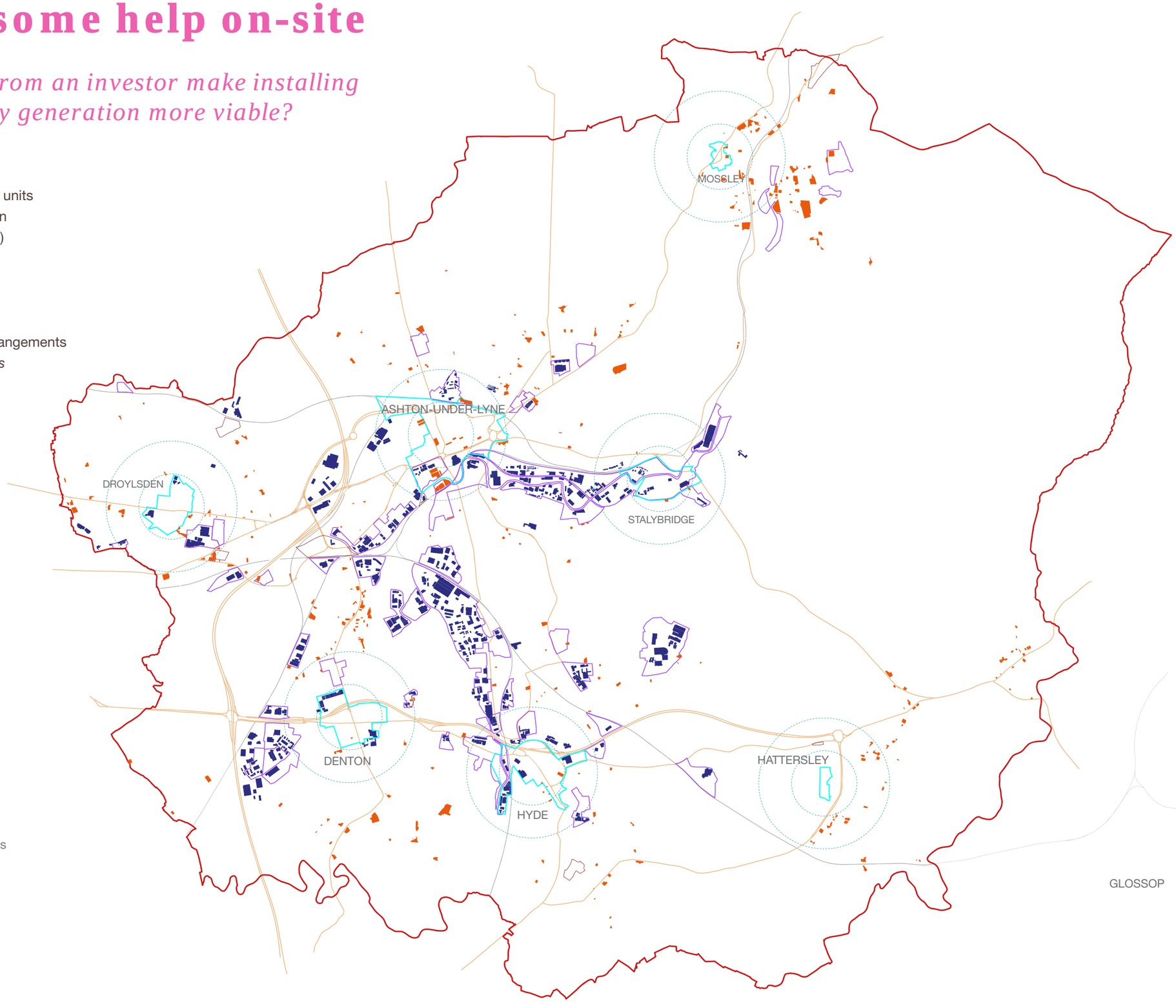
Could some help from an investor make installing low carbon energy generation more viable?

Target forms of development

- Small supermarkets and retail units
- Light industrial and distribution
- Small housing sites (<25 units) and detached housing;

Specific opportunities to be promoted by Tameside

- Solar photovoltaic finance arrangements
- *Other finance arrangements as they are brought forward*



- District Centre
- Industrial buildings
- Manufacturing
- Housing sites with under 41 units
- Highways
- Railway
- Tameside boundary

Option 4 plan
Make a community contribution

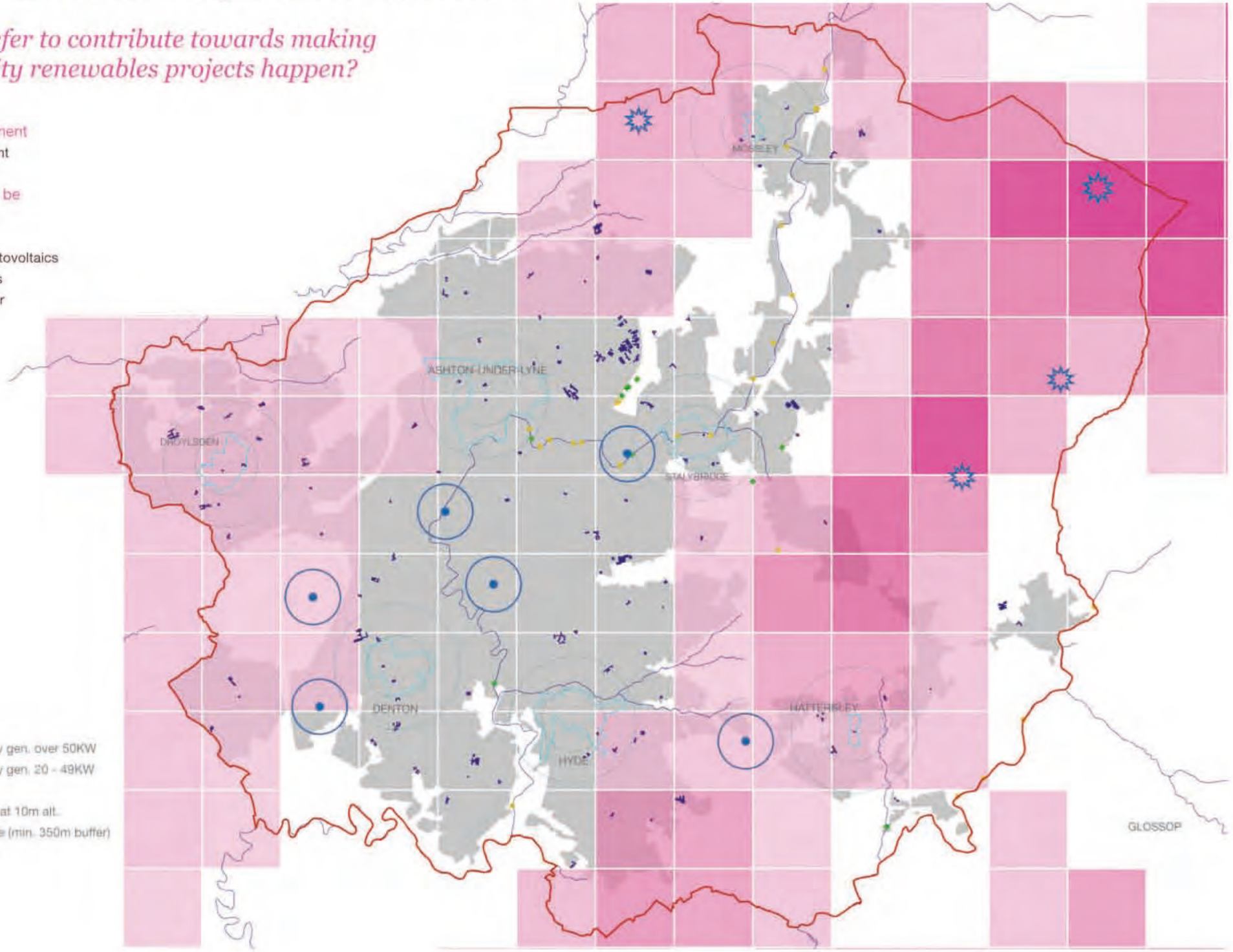
Would you prefer to contribute towards making local community renewables projects happen?

Target forms of development

- All forms of development

Specific opportunities to be promoted by Tameside

- Hydropower sites
- Installation of solar photovoltaics on community buildings
- All scales of wind power



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