



LDF

WIGAN LOCAL DEVELOPMENT FRAMEWORK CORE STRATEGY



Energy Final Topic Paper 11

AUGUST 2011

Core Strategy Submission Version



Places Directorate
www.wigan.gov.uk/ldfcorestrategy

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ONE

Introduction

Purpose of this document

1.1 This is Topic Paper 11 on 'energy'. It is one of 13 topic papers that we have produced to help ensure that our Local Development Framework Core Strategy is properly backed up by robust and credible evidence. The 13 topic papers are:

1. Health and recreation
2. Community safety and neighbourhood quality
3. Community development and involvement
4. Education and learning
5. Economy and employment
6. Housing
7. Retail and centres
8. Accessibility
9. Built environment and landscapes
10. Wildlife habitats and species
11. Energy
12. Waste
13. Natural resources and pollution

1.2 Each topic paper provides a summary and analysis of the evidence which informs the Core Strategy and the Sustainability Appraisal. The evidence is set out in detail in a series of evidence reviews of the same name which sit alongside the topic papers. This topic paper focuses on the following policies:

- CP13 'Low-carbon, decentralised energy infrastructure'
- CP14 'Low-carbon development'

1.3 We have combined the evidence gathering stages for both the Core Strategy and the Sustainability Appraisal, to streamline the documentation produced and avoid duplication. This has ensured that sustainable development is embedded in the process of producing the Core Strategy. This topic paper also sets out how we have engaged

with the community and other stakeholders and established the legality and soundness of the policies. More details of this are set out in Section 9 'An assessment of legality and soundness'.

1.4 Each topic paper can be read in isolation, but inevitably, there are important related matters in other topic papers and evidence reviews. The key related topic areas for energy are:

- Accessibility
- Built Environment and Landscape
- Natural Resources and Pollution

1.5 Rather than preparing an additional report on climate change, we have considered this important theme within each topic paper. This is to make sure that it is not viewed as a 'stand alone' issue.

How the Local Development Framework will be used

1.6 The Local Development Framework is the planning strategy for the borough. The Core Strategy is the principal development plan document in our Local Development Framework. It sets out what development is needed for the next 10-15 years, where this will go and how it can be achieved. For the most part the details will be determined in other policy documents that will make up the Local Development Framework. These will include an Allocations and Development Management Plan, area action plans and supplementary planning documents. All of these other documents will have to conform to the Core Strategy and be equally founded on a robust and credible evidence base.

1.7 We have to work with national and European legislation on Sustainability Appraisal and national and regional planning policy. Of particular importance to the energy topic area are Planning Policy Statement 22 'Renewable Energy', the Planning and Energy Act (2008), and the supplement to Planning Policy Statement 1 'Planning and Climate Change'.

1.8 Our current patterns of energy use are unsustainable and are having a huge impact in terms of contributing to climate change, an unstable energy supply and fuel poverty. The Government has recognised the need for change and is seeking an 80% reduction

(from 1990 levels) in carbon dioxide emissions by 2050. Strong and early action is required, with an emphasis on reduced demand, energy efficiency and the promotion of low carbon technologies, particularly from decentralised sources.

1.9 The Local Development Framework must seek to provide planning policies that will facilitate the conditions to move towards low carbon lifestyles. This will need to be achieved in line with the principles of sustainable development, ensuring that economic, social and environmental objectives are secured together.

How the Sustainability Appraisal framework will be used

1.10 The purpose of the Sustainability Appraisal is to appraise the social, environmental and economic effects of strategies and policies in the documents that form the Local Development Framework. This has been done from the outset in preparing the Core Strategy to ensure that decisions are made that accord with sustainable development.

1.11 A framework of sustainability objectives has been used to test and ask questions of each approach considered in the Core Strategy. The appraisal process has a number of set stages that must be followed, but each stage has been revisited as new information became available.

1.12 This topic paper contains the information we have used to help us establish the issues for energy. This information has helped us to establish a set of sustainability objectives and sub-questions to tackle these issues - see Section 8 'Our sustainability framework'.

Viewing documents

All documents related to the Core Strategy are available to view on our website at: www.wigan.gov.uk/ldfcorestrategy.

Paper copies of the Core Strategy, Sustainability Appraisal and the 13 Topic Papers are also available at:

- All our public libraries (except the children's library)

Viewing documents

- Wigan Town Hall*
- Wigan Life Centre, College Avenue, Wigan, WN1 1NJ*

** Until January 2012, when documents will be available at The One Stop Shop, Wigan Life Centre, The Wiend, Wigan, WN1 1NH*

TWO

Key plans, policies and strategies reviewed

2.1 This section focuses on the most relevant published plans, policies and strategies and draws out the key messages for the Core Strategy and Sustainability Appraisal. The key plans and strategies which provide support for policies CP13 and CP14 and contribute to policies SP1, SP3 and SP4 from an energy perspective include:

International / European plans, policies and strategies

- **European Union Directive to Promote Electricity from Renewable Energy (European Union, 2009)** - This sets out the targets for each EU member state for energy from renewable sources and requests action plans from member states – including the UK.
- **A World Energy Outlook (International Energy Agency, 2009)** - This sets out the projections and analysis of worldwide energy supply, demand and investment.

National plans, policies and strategies

Planning Policy Statement 22: Renewable Energy (2004)

With regard to sustainable energy, Planning Policy Statement 22 states that planning authorities should:

- Set out the criteria that will be applied in assessing applications for planning permission for renewable energy projects.
- Put in place policies to encourage at least 10% of energy to be provided by renewable sources on-site.
- Consider previously used development land that is not suitable for other uses, such as housing, for possible use for renewable energy projects.
- Ensure policies for renewable energy on-site do not cause an 'undue burden' to developers and that the installation of renewable energy equipment is viable.

- Recognise and have a full understanding of the potential clash with landscape and nature conservation objectives if potential for renewables is identified in such areas.
- Ensure that the Local Development Framework seeks to identify key sites suitable for renewable energy production. These could include sites with existing development such as employment allocations which, due to their location and nature could have a reduced impact on the amenity of adjacent uses.

Planning and Climate Change – Supplement to Planning Policy Statement 1 (2008)

- The document outlines the central role of the planning system in delivering our response to climate change.
- Policies in the Core Strategy should be designed to promote and not restrict renewable and low-carbon energy and supporting infrastructure.
- Expect a proportion of the energy supply of new developments to be secured from decentralised and renewable or low-carbon energy sources.
- A flexible local target for percentage of renewable energy to be used in new developments must be set. Site specific targets should also be set where there are opportunities to exceed the broad target percentage.
- Key climate change principles must be considered when selecting land for development.
- Planning policies should support innovation and investment in sustainable buildings and should not, unless there are exceptional reasons, deter novel or cutting-edge developments. When higher standards of sustainable design are specified, this should be done through nationally recognised building standards such as the Code for Sustainable Homes.

- Planning authorities should expect new development to deliver high quality local environments; make use of sustainable drainage systems; provide and make use of multi functional greenspaces; provide for sustainable waste management; create and secure opportunities for sustainable transport; and minimise energy consumption.
- Ensure that any approach to protecting landscape and townscape does not preclude the supply of any renewable energy type other than in the most exceptional circumstances.
- Planning authorities should outline how they will make use of the community infrastructure levy / section 106 to tackle climate change and low carbon energy supply issues.
- Policies must be evidence-based and viable. There should be no conflict with housing objectives.

2.2 Other key national plans, policies and strategies which provide support for policies CP13 and CP14 and contribute to policies SP1, SP3 and SP4 from an energy perspective include:

- **Mainstreaming Sustainable Development (2011)** - This is the Government's commitment to sustainable development and how it will be integrated across Government policies and departments.
- **The Carbon Plan (2011)** - This is the Government-wide plan on tackling climate change department by department including policies and strategies to be pursued.
- **Stern Review: The Economics of Climate Change (2006)** - This is a comprehensive examination of how climate change will affect the economy and the investment that will be needed to tackle climate change.
- **The Energy Bill (2010-11)** - Sets out how energy efficiency measures will be delivered in homes and businesses, how changes will be made to energy infrastructure and how fairness will be ensured in energy markets.
- **Localism Bill (2010)** - Sets out how local areas will take on local responsibility, including altering local planning powers and approaches.

- **The Climate Change Act (2008)** - This is the Government's legally binding framework for tackling climate change, including the setting of legally binding carbon reduction targets.
- **Microgeneration Strategy Consultation (2010)** - Examines the role that microgeneration can play in energy security and tackling carbon emissions, including setting standards and security for installers and consumers.
- **Red Point Energy Electricity Market Reform Analysis of Policy Options (2010)** - This reviewed the options open to Government for reforming the electricity market.
- **Local Government Group and Department of Energy and Climate Change Memorandum of Understanding on Climate Change (2011)** - This is agreement between local and central Government on how climate change will be tackled at different levels.

Regional / Sub regional plans, policies and strategies

North West of England Plan - Regional Spatial Strategy to 2021

The Regional Spatial Strategy forms part of the development plan for the borough, setting the context for the Core Strategy and other Development Plan Documents. Policies with a particular relevance to energy are:

Policy DP4: Making the Best Use of Existing Resources and Infrastructure

-Promotes the reuse of buildings and land within settlements and the prudent and efficient use of natural and man-made resources.

Policy DP9: Reduce Emissions and Adapt to Climate Change - Reducing emissions by increasing urban density, encouraging sustainable design and construction, increasing renewable energy capacity and locating new development where energy can be gained from decentralised supply systems.

Policy EM15: A Framework for Sustainable Energy - Promotes sustainable energy production and consumption in line with the principles of the energy hierarchy - minimise use > efficiency > renewables > clean fossil fuels.

Policy EM16: Energy Conservation and efficiency - Actively facilitate reductions in energy requirements and improvements in energy efficiency, by incorporating robust policies which support the delivery of the national timetable for reducing emissions from domestic and non-domestic buildings; and make effective provision for energy network upgrades that are required, in terms of distribution connections and substations.

Policy EM17: Renewable Energy - New renewable energy capacity should be developed. Sub-regional studies of renewable energy resources should be prepared, to inform local strategies for dealing with renewable resources and setting local targets for their use. Plans and strategies should seek to promote and encourage, rather than restrict the use of renewable energy resources. Significant weight should be given to the wider environmental, community and economic benefits of proposals to mitigate the causes of climate change and minimise the need to consume finite natural resources. Developers must engage with local communities at an early stage.

Policy EM18: Decentralised Energy Supply – Encourage the use of decentralised and renewable or low-carbon energy in new development. In particular, development plan documents should set out targets for the energy to be used in new development to come from decentralised and renewable or low-carbon energy sources, based on appropriate evidence and viability assessments; and the type and size of development to which the target will be applied.

2.3 Other key regional or sub-regional plans, policies and strategies which provide support for policies CP13 and CP14 and contribute to policies SP1, SP3 and SP4 from an energy perspective include:

- **Rising to the Challenge - A Climate Change Action Plan for England's Northwest 2010 update (Joint Government and regional bodies strategy)** - This was a co-ordinated approach to tackling carbon emissions and adapting to climate change on a North West level across the public and private sectors.
- **North West Sustainable Energy Strategy (Joint Government and regional bodies strategy, 2006)** - This was a co-ordinated approach to increasing the production of low carbon and renewable energy sources across the north west.

- **Greater Manchester Decentralised Energy Study (2010)** - A study of the potential for renewable and low carbon energy across Greater Manchester, including policy recommendations.
- **Greater Manchester Draft Climate Change Strategy (2011)** - A co-ordinated approach across Greater Manchester to reducing emissions, promoting a low carbon economy, adapting to climate change and achieving behaviour change.
- **Greater Manchester Low Carbon Economic Area Programme** - A programme of investment and support for improving the energy and environmental performance of building stock across Greater Manchester.
- **Greater Manchester Sustainable Energy Action Plan (2010)** - Provision of evidence to inform and help shape energy priorities in Greater Manchester.
- **Greater Manchester 'Mini-Stern' Review** - Analysis of the impact of climate change on the Greater Manchester economy, to build upon the work done at the national level.
- **Peak oil, oil price volatility and the vulnerability of key industry sectors (North West Development Agency, 2010)** - An analysis of the effects of changes in oil prices on key sectors of the north west economy.

Local plans, policies and strategies

Wigan Replacement Unitary Development Plan (2006)

The local planning policy for energy - policy G1D 'Renewable Energy' - is in Chapter 15 'General Policies' of the Unitary Development Plan. It is supportive of renewable energy development subject to consistency with other policies, no unacceptable magnetic disturbance to transmitting or receiving systems, and no unacceptable harm to amenity by transmission lines. It is proposed to replace this policy with policies CP13 and CP14, as set out in Appendix A of the Draft Core Strategy (Proposed Submission version).

2.4 Other key local plans, policies and strategies which provide support for policies CP13 and CP14 and contribute to policies SP1, SP3 and SP4 from an energy perspective include:

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- **Wigan Climate Change Strategy and Action Plan (2011)** - This sets out Wigan's approach to reducing carbon emissions and adapting to climate change over the next 5-10 years, with a short term action plan.
 - **Vision 2026: Sustainable Community Strategy (2008)** - Policies CP13 and CP14 are in line with the 'Ambitious Communities' priority area identified in the community strategy.
 - **Wigan Carbon Management Programme (Strategy and Implementation Plan, 2007)** - Wigan Council's internal plan to reduce carbon emissions from operations.

THREE

Other key evidence reviewed

Key sources of information

3.1 This section provides a summary of key evidence reviewed and a snapshot of the borough in terms of energy, outlining key characteristics, trends, issues and opportunities. It also gives an overview of the infrastructure and climate change considerations and a summary of stakeholder and community involvement related to energy issues.

3.2 The main sources of information used are:

National

UK Government unless otherwise stated.

- UK Energy in Brief - July 2008, 2009, 2010
- Local and regional CO₂ emissions estimates
- Regional and local authority electricity consumption statistics
- Gas sales and numbers of customers by region and local authority
- Middle layer super output area electricity and gas estimates
- www.restats.org.uk
- National Grid Gas Maps (GL Noble Denton, 2010)

Regional / sub-regional

- Towards Broad Areas for Renewable Energy Development (4NW, 2008)
- Regional Strategy - Energy Evidence Paper (NWDA, 2008)
- AGMA Decentralised Energy Study (2010)
- Electricity North West
- United Utilities

Local

Wigan Council unless otherwise stated.

- Local Development Framework Annual Monitoring Reports (2005-2010)

- Community Plan monitoring system (Wigan Borough Partnership)
- Wigan Carbon Management Programme: Strategy and Implementation Plan (2007)
- Wigan Decentralised Energy Study (2010)

Background / overview

3.3 Traditionally we have relied upon fossil fuels such as coal, oil and gas to heat our homes, generate electricity, manufacture products and for transportation. For a long time we have acted as though these fuels are limitless and have largely disregarded their environmental impact. However, as fossil fuel prices continue to rise and the threat of climate change becomes increasingly clear, it is obvious that we cannot continue with these trends.

3.4 Fossil fuels will not be readily available forever. They are already becoming more expensive to extract and demand for them is rising, leading to higher costs and making shortages more likely.

3.5 Burning fossil fuels also releases carbon dioxide into the atmosphere and this is causing the planet to warm-up much faster than is natural. We are already seeing some of the effects of climate change, such as melting ice, floods and droughts; scientists state that if we do not act quickly the earth could heat-up to very dangerous levels.

3.6 It is clear that we can no longer solely rely upon fossil fuels, but we still need energy to sustain our modern lives. Therefore, to meet the dual challenges of climate change and energy security we need to start using alternative fuels and technologies to meet our needs, and to use energy and other resources much more efficiently. In recognition of these challenges, there are international efforts to limit carbon emissions to a level that will not result in a temperature rise over 2 degrees Celsius.

3.7 At the European and national level, policy is developing with more urgency, with increasingly tougher standards on energy efficiency in buildings, requirements to produce more energy from renewable sources, and the promotion of decentralised, low-carbon energy supplies. The passing of the Climate Change Act, 2008 underlines the UK's commitment to tackling these issues.

3.8 Lowering the demand for energy, using it more efficiently and diversifying supply is also essential for a strong modern economy, because it leads to financial savings for businesses, especially those that are energy intensive, and reduces uncertainty about energy supplies.

Energy and emissions reduction targets

3.9 In 2007, the European Union committed itself to a series of targets relating to energy and the reduction of greenhouse gases. These were:

- A 20% reduction in greenhouse gas emissions by 2020
- A 20% improvement in energy efficiency by 2020
- That 20% of energy is generated from renewable sources by 2010
- That 10% of fuel for transport is biofuel.

3.10 The UK share of this target is for 15% of our energy to be generated from renewable sources by 2020. This is broken down as 40% from electricity, 12% heat production from renewables and 10% of transport fuel.

3.11 In its carbon Plan, the UK Government believes that 30% of electricity will need to come from renewables alone by 2030, which is challenging given that energy from renewable sources was just 2% in 2005, 5% in 2007 and 5.3% in 2008.

3.12 The UK government has also set formal carbon emissions reduction targets through the Climate Change Act. These complement the energy targets as the two agendas are intrinsically linked. They are:

- A 34% reduction in carbon emissions by 2020
- A 50% reduction in carbon emissions by 2027
- A 80% reduction in carbon emissions by 2050
- 5 Yearly budgets to be set with interim targets.

Action on climate change and energy

3.13 Greater Manchester has recently been designated as a Low Carbon Economic Area for the Built Environment. This intends to make use of the regions expertise and partnership-working credentials to fast-track carbon reductions from new and existing buildings across the districts. Clearly planning has an important role to play.

3.14 The Association of Greater Manchester Authorities produced a Decentralised Energy Study in January 2010 that outlined the broad opportunities for the sub-region. It also set out a framework for achieving carbon reduction targets.

3.15 Our work locally has helped take forward this broad level study and implement the recommendations made by the Decentralised Energy Study. The Greater Manchester councils are also producing a joint Climate Change Strategy. This will set Greater Manchester on the course for a low carbon economy and renewed energy infrastructure.

3.16 Additionally, Wigan Council has produced a Climate Change Strategy and Action Plan. This is closely linked to the energy planning work that needs to come forward as part of the Local Development Framework, and at the strategy for Greater Manchester. The strategy sets out the need for addressing our energy use and resource depletion and ensuring that our energy supplies are not a barrier to development.

3.17 The Wigan Borough Partnership (our local strategic partnership) previously chose national indicator 188 on adaptation to climate change as a priority for our Local Area Agreement. Although the Government has abolished this performance regime, adaptation and resilience remain key issues within the borough's approach to climate change. This will involve elements of mitigation, which will be measured through progress on reducing carbon emissions.

3.18 The estimated per capita carbon savings that should be realised for the borough by 2020 is 13.3%.

3.19 Although funding may now be a major issue, opportunities have also been recognised to make big reductions in carbon emissions from schools and leisure premises. For example, this could be achieved through the replacement of oil heating systems with wood pellet or biofuel; increasing the use of solar systems; improving lighting controls; and further integrating our school and Leisure and Culture Trust estates with Building Energy Management Systems for centralised control and monitoring.

3.20 Wigan Council is also a signatory to the Nottingham Declaration and the Northwest Climate Change Charter, which pledge local action to reduce carbon dioxide emissions and prepare for the impacts of climate change.

International energy trends

- 3.21** The International Energy Agency forecasts that the world will need 40% more energy in 2030 than 2007.
- 3.22** Although the rate of growth is expected to be much lower for the UK over the same timeframe, global changes will have a profound impact on our economy as demand for resources pushes up fuel prices and destabilises supply.
- 3.23** Due to the global financial crisis and ensuing recession, global energy use fell between 2008 and 2009 for the first time since 1981. However, it quickly resumed its long-term upward trend in 2010 to the highest output in history.
- 3.24** The majority of future demand for energy is anticipated to be from developing countries such as China and India, and a large proportion of this is likely to be fossil fuel-based, at least in the short to medium term.
- 3.25** We know that fossil fuel combustion contributes massively to climate change and it is now widely acknowledged that we need to make drastic cuts in emissions if we are to limit its impacts to an 'acceptable' level.
- 3.26** This means increasing investment in low carbon technologies. However, whilst energy investment has faced difficulties in the face of a tougher financing markets, worldwide investment in renewable energy as a proportion of total energy investment has increased. New funding mechanisms, government support and appropriate development will therefore be critical to achieving low carbon growth.

UK energy trends

- 3.27** Indigenous production of primary energy was 4.9% in 2008, compared to 2007, continuing a year on year decline for each year since 2000. This means we are becoming ever more dependant upon imported energy, which is often located in volatile areas, and is under increasing demand from growing economies such as China and India.
- 3.28** Although growth in energy demand in the UK is expected to be low, if we keep using energy at the same rate as today, taking into account population and economic growth, final energy demand could almost double from 2005 to 2021.

3.29 The demand for electricity is expected to rise, particularly if we start to increase its use for heat and transport as anticipated.

3.30 A positive trend is the growth in renewable energy generation of 14% between 2007 and 2008, with most coming from biomass and being consumed as electricity. However, the total contribution to national consumption is still minimal, at only 5.3% (Energy In Brief, 2009).

3.31 UK energy prices have risen for commercial domestic, transport and industrial sectors between 2007 and 2008, continuing a long term upward trend in fuel prices.

3.32 All these trends put the scale of the challenge into perspective and make it clear that it is imperative to reduce carbon emissions and increase the share of renewable and low carbon technologies in our energy generation mix.

Local energy consumption

3.33 Energy consumption in Wigan in 2007 was almost exclusively from fossil fuels, with 3,316 Gigawatt hours (Gwh) from natural gas; 2,250 Gwh from petroleum; and 1,244 Gwh from electricity (mainly from fossil fuels). Direct use of renewable energy and waste made up only 12.4 Gwh, 0.18% of the total.

3.34 There has been little change in the breakdown of fuel types used between 2003 and 2007.

3.35 Energy use is broken down by sector as follows:

- Transport 28%
- Domestic 37%
- Industry 35%

3.36 Wigan residents used an average of 1,840kwh of electricity and 9,231 kwh of gas per person per year in 2007. This is less than the North West and UK averages over the same time period and is likely to be due to economic output and income levels.

3.37 Between 2005 and 2007 there has been an overall decrease in total energy use by 3.5%. This is largely due to big reductions in gas across the board. Electricity use has risen in both domestic and commercial/industrial sectors over the same time period.

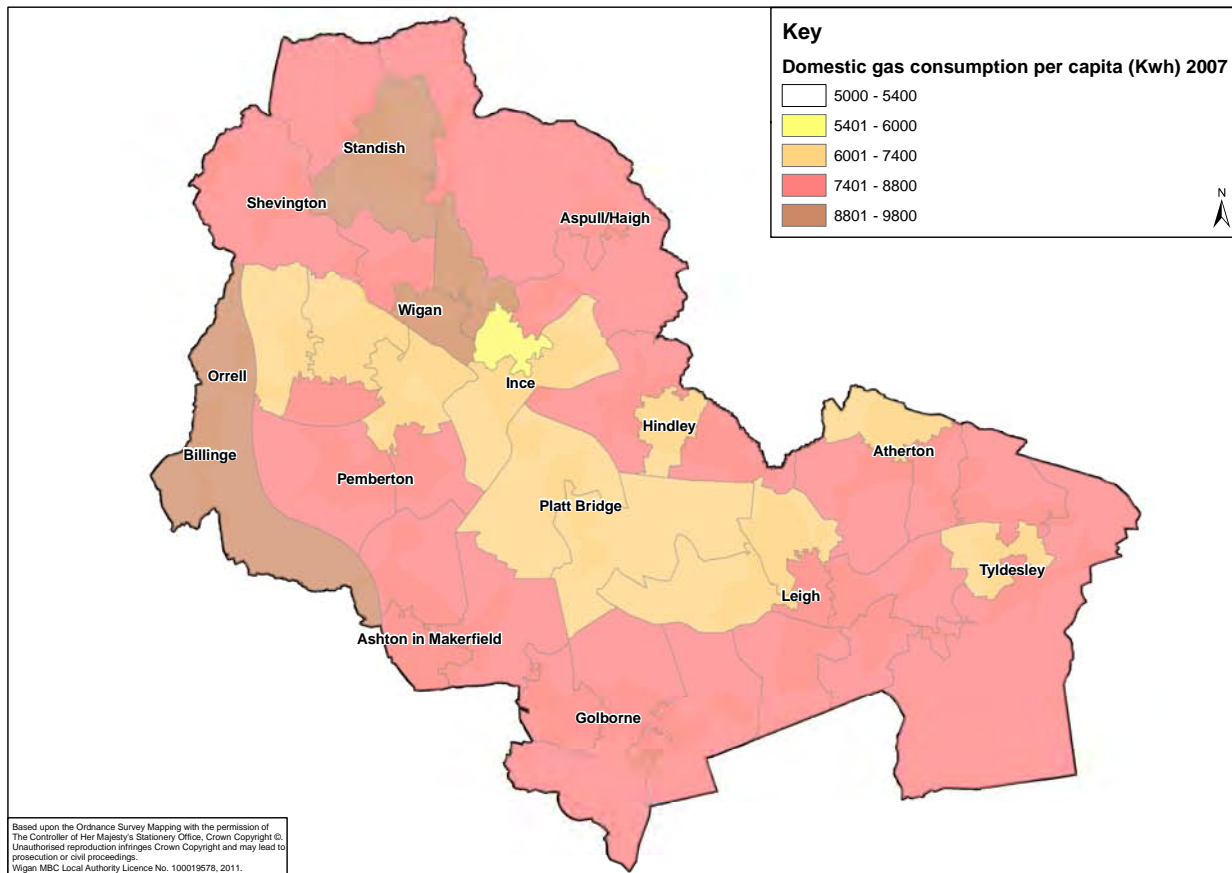
Interestingly, we note a particular increase in energy consumption in Wigan town centre and at Leigh Sports Village, illustrating the impact that new development has on energy demand in particular areas.

3.38 In our energy study for the borough we have used gas and electricity consumption data from the Department of Energy and Climate Change to map energy use across the borough.

3.39 The maps reveal that there are clear trends in energy use, with the more affluent outer parts of the borough consuming greater amounts of domestic energy per capita and per household when compared to the more deprived areas. We also identify hot-spots of energy use around the town centres, reflecting relatively dense residential development and concentrations of businesses.

3.40 Identifying the areas with the greatest demand for energy highlights where we may need to target infrastructure reinforcements and the development of suitable low carbon technologies.

3.41 Map 3.1 is an example of one of the energy maps that we have produced. It illustrates the domestic gas consumption per capita. The complete range of maps and analysis can be found in the Wigan Decentralised Energy Study, which is on our website at www.wigan.gov.uk/ldfcorestrategy.



Map 3.1 Domestic gas consumption per capita (Wigan Council 2011)

Carbon dioxide emissions

3.42 Total carbon dioxide emissions in Wigan Borough from road transport, homes, industry and commerce have been estimated at 1,701,000 tonnes for 2007, which equates to 5.6 tonnes per resident. This is a reduction from the figures for 2005 and 2006, which equated to 5.7 tonnes per resident in each of those years.

3.43 These emissions break down into 357,000 tonnes for road transport (21%), 706,000 tonnes for homes (42%) and 639,000 tonnes for industry and commerce (38%).

3.44 The spatial concentration of carbon emissions by end user is closely correlated to the energy consumption maps that we have produced. However, those areas that use more electricity will have higher emissions by comparison to those that are more reliant on gas, as electricity is more carbon intensive.

Fuel poverty

3.45 Fuel poverty is difficult to measure because it is a product of a complex interaction between income, health and the standard of homes. Using the 2001 census and 2003 Home Condition Survey, there are an estimated 8,000 households in Wigan in fuel poverty. Between 2004 and 2007 there was an average 108 excess winter deaths per year in Wigan.

3.46 With the recent economic downturn and continued rising costs of fuel, we anticipate a larger number of households to either be in fuel poverty or face it soon. In fact, the most recent estimates suggest a 14.5% increase in the number of people living in fuel poverty in the North West. Applied to Wigan this would equate to an increase of 1,160.

3.47 Despite these trends, levels of energy efficiency are relatively high in the borough. The local authority housing stock is within the top quartile nationally. Energy efficiency in the private sector is also above average, although there are 8% in poor standard, meaning that they have a 'Standard Assessment Procedure' rating of below 40.

3.48 Most households in fuel poverty are within the east-west core of the borough. These are deprived areas, so it is likely that income and poor health are important factors rather than housing standards, which may generally be satisfactory.

Energy generation and supply

3.49 Wigan's businesses and households are highly dependant on energy imported from outside the borough. This is mainly petrol and diesel for transport, electricity generated from large power stations and distributed via wires at differing voltages, and gas supplied through a network of underground pipes at various pressures.

Electricity

3.50 Electricity North West is responsible for the electricity distribution infrastructure in Wigan. Electricity is generated almost solely from large scale power stations that are fired from fossil fuels, nuclear and, to a lesser extent, renewable energy sources. The National Grid then transmits the electricity at high voltage and distribution network operators reduce the voltage at various substations to convey it to customers.

3.51 The National Grid is supplied from a variety of power stations around the UK. There is a general flow of energy from north to south, because there are significant generation resources in the north and the south has higher demand in comparison.

3.52 The major electricity generating power stations in the North West are Fiddlers Ferry (coal/biomass-fired) and Rocksavage (gas-fired) in Cheshire; Heysham 1 and 2 (nuclear) in Lancashire; and Roosecote (gas-fired) and Fellside (gas combined heat and power) in Cumbria. There are also a number of smaller installations including a growing number of wind farms, both on and offshore.

3.53 Nuclear power accounts for over 10,000 jobs in the region and 44% of its energy generation mix. The two generating plants in Heysham are anticipated to be decommissioned in 2019 and 2023 retrospectively, so it is important that capacity is replaced. The region is a key area of the search for proposed replacement facilities but there are significant time lags associated with the construction of new power plants. This may affect supplies of energy in the future.

3.54 It is also important to note the plans for significant offshore wind development around the UK coast, including the potential for over 4GW in the Irish Sea from the Round 3 Offshore Wind Zone allocation. This will include significant development along the North West coast line.

Gas

3.55 The majority of our gas is supplied to large terminals on the UK's coast where it is then distributed by the National Grid through its high pressure network. Gas pressure is then reduced through a network of intermediate high, medium and low pressure gas mains as it is distributed to consumers.

Energy networks

3.56 As well as being heavily reliant upon fossil fuels, our current energy networks are also highly centralised. This means that a lot of heat is produced during combustion that goes to waste. Energy is also lost during transmission over long distances.

3.57 The Government intends to de-carbonise the grid by increasing the mix of renewable energy, nuclear and 'clean fossil fuel' technologies. It also recognises that local decentralised energy generation will play an important part, and seeks to increase the amount of local energy schemes.

Local energy generation

3.58 Although most of the energy used we use comes from outside the borough, there is some local generation of electricity, which is mostly fed back into the national grid. This includes 3 landfill gas plants, small scale combined heat and power schemes and small scale wind schemes. These are listed in the 'Infrastructure audit' at the end of this section.

3.59 Landfill gas is currently classed as a renewable energy for the purposes of obtaining a renewable obligation certificate. The three operational plants in Wigan have a total capacity of 8MW. Combined with other known energy schemes, there is a total of 8.83MW of installed capacity in Wigan, which amounts to 9.4% of Greater Manchester's installed capacity of 94.3MW in 2008 (4NW, 2008).

3.60 The waste heat produced at the landfill gas installations is currently unused.

3.61 Given policy restrictions on landfill, generation from these sources may be expected to peak within the next few years. However, future energy generation may be feasible from sewage gas, sludge, coal bed methane and municipal waste.

3.62 There is some additional local energy generation through the installation of micro-generation technologies such as solar panels, wind turbines and biomass boilers. However, it is difficult to measure the contribution these make as many schemes will be permitted development and the energy is often used on site for heat and power. Furthermore, installations to date have been very small in scale and not widespread, so they do not contribute a great deal at the moment.

3.63 With the introduction of the 'Feed in Tariff' for electricity and the Renewable Heat Incentive, we would expect an increase in the number of these technologies being installed. Likewise, the Green Deal may see an increase in technologies to reduce energy demand.

Potential for decentralised and low carbon energy

3.64 National policy and guidance and our evidence strongly support a move towards decentralised, renewable and low carbon energy generation, to provide heat and power more efficiently and with fewer carbon emissions.

3.65 Local authorities are required to identify suitable areas and understand constraints for decentralised energy and renewable/low carbon energy schemes. In response, the council has carried out a broad decentralised energy study to identify the opportunities, constraints and delivery mechanisms for low carbon technologies in the borough.

3.66 This study outlines opportunities for different types of low carbon technologies at a broad scale. It follows a robust methodology for identifying 'theoretical' and 'realistic' potential. A summary of the key outputs of the energy study are set below:

Large-scale wind generation

3.67 We have assumed an installed capacity of 2.5MW or above for large scale wind turbine schemes.

3.68 In order to identify broad locations of opportunity for large scale wind turbines, we have overlaid national wind speed data against our constraints layers. These included environmental resources, residential areas, radar, aerodrome, Green Belt and accessibility.

3.69 When all factors are considered, the opportunity areas for large scale wind turbines in the borough are quite limited. There is also limited potential for clusters of more than say 2-5 turbines because of the separation distances needed, ground conditions and other constraints.

3.70 It is also the case that where wind resources are best, landscape value is often higher. In areas of lower landscape value, there are still some opportunities for wind but the power output is not anticipated to be as great. Many of the opportunity areas are in the Green Belt land too.

3.71 Taking all of these factors into account, there is potential for about 15MW of installed capacity from large scale wind turbines by 2020. However, this is an ambitious target given the constraints, so large scale wind turbine capacity would be better focused elsewhere in the region where it is more suitable and attractive for investment.

Medium and small scale wind generation

3.72 Small scale wind generation may be defined as anything under 100KW installed capacity. Medium-scale bridges the gap between this smaller scale and the large-scale schemes.

3.73 As a starting point, the opportunities identified for large scale wind would also be applicable to smaller turbines - particularly if larger turbines are found to be unfeasible or unacceptable. However, because smaller turbines are less visually intrusive and have smaller impacts than large scale wind, the scope of opportunity areas will be much wider.

3.74 Smaller wind speeds can also operate effectively at lower wind speeds than the larger turbines. Wind speeds of 4.5 metres per second would typically be acceptable for smaller scale schemes.

3.75 In some instances, urban / industrial areas may be particularly suitable for medium scale turbines. Farmland is also generally suitable for such turbines due to open landscape and adequate wind speeds. These areas are also generally 'off the gas mains' and may benefit from a range of renewable energy technologies.

3.76 By overlaying information from the national wind speed database with our constraints layers and applying wind scaling factors, we have identified that there is potential for about 288KW from small scale turbines (average of 10KW each) and 2.4MW from medium scale turbines (average of 150KW each). This calculation assumes a take-up rate of 25% of realistic opportunities.

3.77 We have taken care to ensure that there is no 'double counting' of the opportunities for wind, as there are crossovers between opportunities for small scale, medium and large scale turbines. If no large scale schemes were brought forward, the potential for smaller and medium sized turbines would increase accordingly.

Hydroelectric power

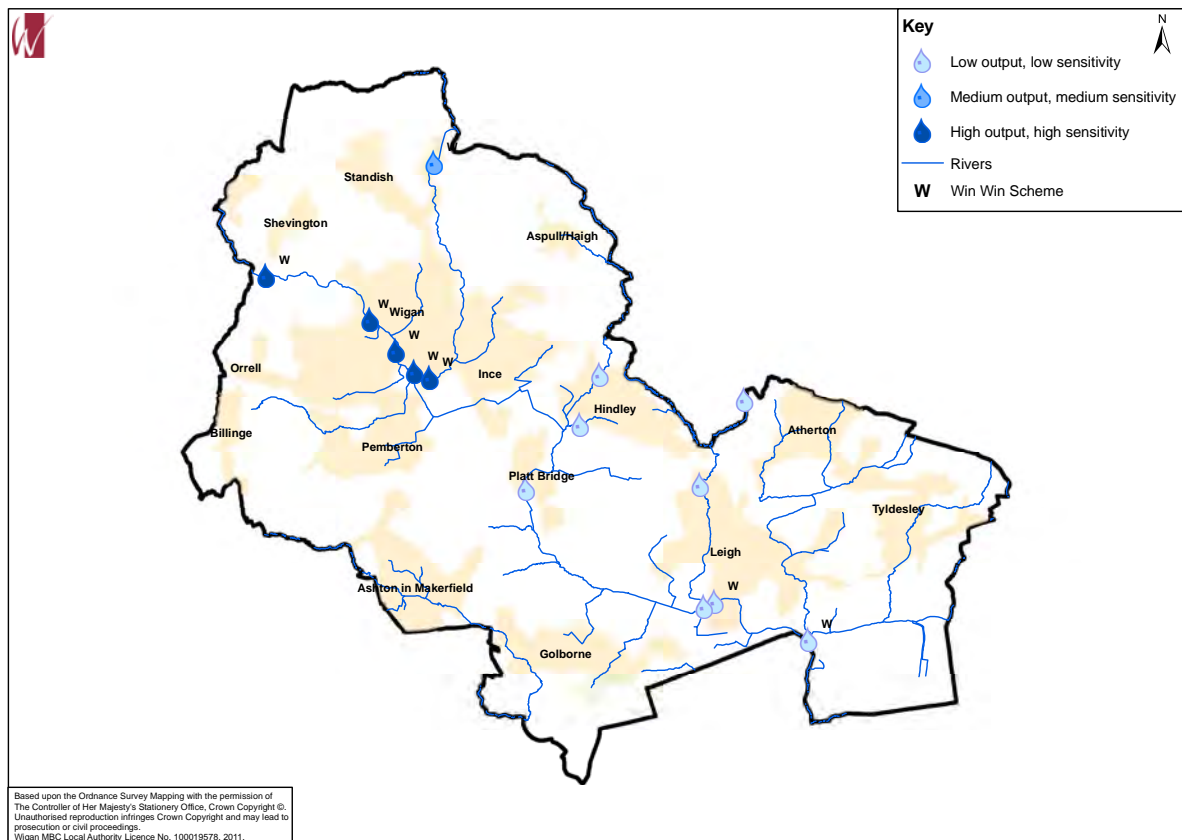
3.78 There are no existing hydroelectric schemes in the borough and the potential for hydro power to contribute a significant proportion of our energy needs is constrained by limited flow rates and head heights.

3.79 However, there are a number of watercourses in the borough where there may be potential for smaller-scale schemes. Although these would be of a lower output, the theoretical cumulative contribution of such schemes could contribute a small proportion of our renewable capacity across the borough. Such schemes could be beneficial to community groups and businesses where opportunities are feasible and suitable funding structures in place.

3.80 We have mapped broad opportunities for small scale hydro in the borough using Environment Agency data and sensitivity analysis along watercourses. This has included 'win-win' opportunities in heavily modified watercourses, where there is potential for the creation of hydropower barriers that can also be beneficial to the passage of fish upstream.

3.81 There is potential for a number of such schemes in Wigan, especially along the River Douglas. Despite these locations being classified as 'highly sensitive', carefully designed schemes could have a positive environmental impact.

3.82 Overall, hydro power schemes are unlikely to make a significant contribution to renewable energy targets and carbon emissions reductions in Wigan. We have estimated that there is 'realistic' potential for about 100KW installed capacity of hydro schemes. The potential of hydropower in the borough is illustrated in Map 3.2.



Map 3.2 Hydro-power potential in Wigan Borough (Wigan Council, 2011)

Microgeneration - solar power

3.83 Using renewable energy calculation methodology from SQWenergy, we have assumed that roughly a quarter of existing domestic roof space in the borough; 40% of all existing commercial properties; 80% of existing industrial stock; and 50% of all roofs from new developments will be suitable for solar power installation. Assumptions are then made on the size of solar system for each roof type. The theoretical capacity that this gives is further refined by determining a likely uptake level of 10% - 30%. This gives a 'realistic potential' of 46.6MW. This is a significant proportion of the opportunities for low carbon technologies in Wigan.

Microgeneration - heat pumps

3.84 Along with solar power, there is significant potential for other microgeneration technologies to be installed across the borough, particularly heat pumps.

3.85 Heat pumps are an established technology that make use of thermal energy stored in the ground, water or air. Using heat converters and pumps they can provide space heating for homes and a wide range of other buildings.

3.86 Heat pumps require electricity to power their parts, but for every unit of electricity used, roughly 3 units of heat are produced, making an overall saving in energy and carbon when compared to conventional gas or electric heating.

3.87 Heat pumps are particularly useful in reducing carbon emissions when electricity is the main source of heat being used.

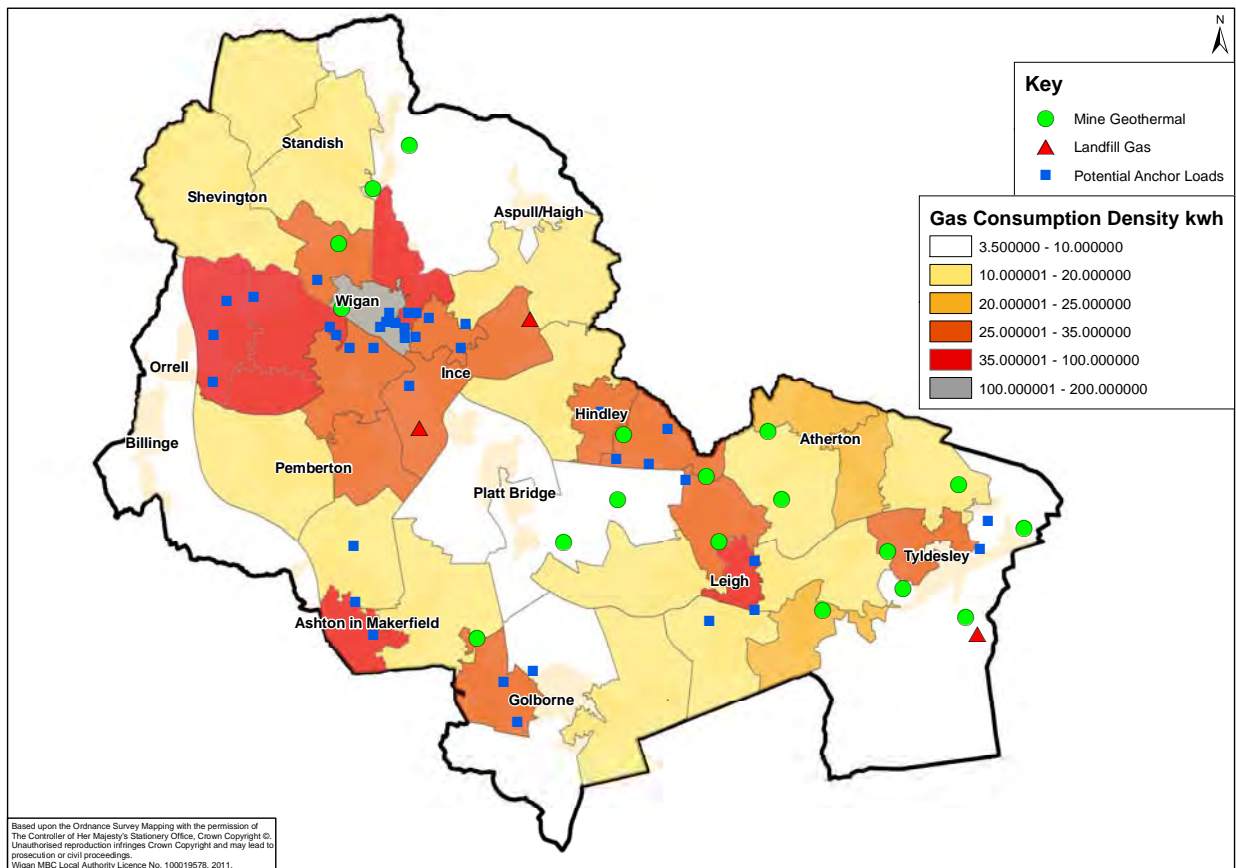
3.88 In our energy study we calculated that, realistically, there is an opportunity for about 30.2MW of installed capacity to be implemented by 2020. Most of this potential - around 85% - comes from the domestic market.

Heat networks and biomass

3.89 At present, we rely mainly on centralised gas and electricity for our heating needs. There are exceptions at a smaller-scale when businesses produce their own electricity and/or heat using combined heat and power networks.

3.90 Decentralised heat networks can be an efficient way of providing heat and electricity as it avoids transmission losses and makes use of 'waste heat' that is often unused. For networks to be attractive it is necessary for there to be a source of heat and adequate demand for the heat.

3.91 We have produced maps using gas consumption data to illustrate the areas of the borough where demand for heat is greatest. When we overlay the sources of heat map, it allows us to identify areas that may be attractive and viable for the development of district heat and power networks.



Map 3.3 Heat density in Wigan Borough, from gas consumption data (Wigan Council, 2009)

3.92 Using this information we have it is possible to identify areas that may be suited for the development of heat networks. For Wigan, there appears to be potential in and around our town centres and in areas of significant new development.

3.93 It is difficult to estimate the contribution to our energy targets that district heat networks could have, but we have made some assumptions based on current trends and resources.

3.94 District heating schemes can be fuelled by gas, biomass or waste. Schemes can produce electricity too. We have considered various fuel sources to help us determine a realistic energy target from combined heat and power. These include gas, 'energy crops' and energy from waste.

3.95 For gas, it would be reasonable to assume that 10MW of thermal energy could be installed through traditional gas turbine plant.

3.96 For energy crops, using Grade 4 agricultural land as a proxy for available agricultural resources for energy crop growth, 420 hectares could be set aside potentially. This level of growth would support 1MW of electricity generation. As such the benefits of this approach are limited given the quantity of land that would be required to produce the fuel.

3.97 For waste, a number of waste streams have untapped potential to provide energy - both electricity and heat - through the development of 'Energy from Waste' plant. This includes animal biomass such as slurry, poultry litter and manure; biogas from landfill and sewage plants; and commercial and municipal waste streams. The heat generated can be used to supply a district heat network.

3.98 On the assumption that at least one fairly large energy from waste scheme will come forward, we have calculated that a further 8MW of electricity and 20MW of heat could be produced through a combined heat and power network. An approved planning application provides for such a scheme but customers for heat would need to be established and the business case put into place.

Grid connection

3.99 The majority of properties and areas in the borough are connected to the national grid electricity network, and the mains gas network. However, there are some more 'rural' areas where connection to the gas mains is absent. These include farms, some homes and a small number of industrial units.

3.100 Typically, 'off-gas' properties use a combination of gas bottles, liquid petroleum gas, oil or coal for heating requirements. These are usually more costly and coal and oil produce more carbon emissions than gas.

3.101 With the Renewable Heat Incentive, such properties may be ideal for switching to low-carbon alternatives such as heat pumps, biomass boilers and solar panels.

Implementation issues - network capacity constraints

3.102 New development in the borough could have an impact on the capacity of the current electricity network to operate at required standards. Reinforcement of the system or demand management may be necessary.

3.103 Experience in the electricity industry has shown that most supply issues are due to local primary substations and bulk supply points. According to broad data for Wigan, several of the borough's primary sub-stations are running close to, or over capacity. There are issues in areas earmarked for future development such as 'Wigan South Central', Leigh and Ashton. Loads of 5-10MW will generally require the reinforcement of primary substations.

3.104 As new primary substations and cabling are expensive to install, these issues need to be addressed in viability studies and infrastructure planning. Strategic planning is important to ensure that the burden of reinforcement does not fall wholly on the first development that needs it. This can prevent development happening

Implementation issues - connecting decentralised energy

3.105 Local distribution networks are not designed for the connection of generating capacity that takes supply significantly over demand. Therefore, the connection of distributed capacity can often require reinforcement of the system too.

3.106 The inner core of the borough could present issues. Areas anticipated to experience new development overlap with fault level and capacity issues.

3.107 Grid connection can also be an issue when low carbon technologies are being introduced at a small scale due to electrical engineering issues.

Developing local policies and setting targets

3.108 In total, there is around 152MW of untapped capacity for low carbon / renewable energy that could be secured during the period being planned for in the Core Strategy.

3.109 In order to contribute to the national carbon reduction target of 80% by 2050, there is a need for policies to set a framework to shift towards decentralised and low carbon energy supply. Reducing consumption and improving efficiency are also key principles alongside these measures.

3.110 In terms of new development, the building regulations are an important mechanism for delivering zero carbon development. But achieving increased building regulation standards will become increasingly difficult at the 'building' scale alone. Strategic energy planning will be necessary to allow off-site matters to be taken into account, such as potential district heat networks.

Data limitations

3.111 Our estimates for energy capacity and low carbon energy opportunities are limited by the methodology used and the scale of data available. Therefore, although the Wigan Energy Study outlines some broad locations and capacity targets, these could be readjusted by new or more accurate data and changes in viability or policies.

Climate change considerations

3.112 How we prepare for climate change and reduce further greenhouse gas emissions is a major challenge. It requires changes to almost everything we do, and must therefore be considered from many different perspectives. The issues that are particularly important for energy include:

- Global warming is largely the result of the carbon dioxide emissions released during fossil fuel combustion.
- As well as being a major cause of climate change, the use of energy will be affected by the impacts of climate change, for example, for cooling rather than heating, or from different sources.
- There are national and local targets to reduce carbon dioxide emissions that we must help to achieve.
- There is a need to strike an appropriate balance between energy security and tackling climate change. Energy security viewed over the short term could lead to the use of previously uneconomic reserves of fossil fuel, such as coal.
- Without strong and early action to switch to low carbon energy sources we will struggle to achieve our carbon reduction targets.

Key community and stakeholder involvement

3.113 There are a number of 'key stakeholders' who have played an important role in the development of our approach to energy issues. By identifying and involving these key stakeholders from an early stage, have been able to establish a stronger evidence base and more sustainable policy options.

3.114 The following key stakeholders have been involved:

- United Utilities
- Electricity North West
- Association of Greater Manchester Authorities and Greater Manchester Combined Authority
- Wigan Council Facilities Management Section
- The residents of the borough

3.115 We worked with United Utilities to identify any electricity capacity issues for proposed employment and housing sites as part of our Employment Land Review and Strategic Housing Land Availability Assessment.

3.116 We also worked alongside other Greater Manchester authorities to develop a brief and commission a Decentralised Energy Study that has helped us to identify broad opportunities and set a carbon reduction and implementation framework for new development. This study forms a significant part of our evidence base.

3.117 The Greater Manchester councils have continued to work together to develop a consistent framework for Core Strategy policies relating to energy, and the mechanisms for delivering these policies.

3.118 These key stakeholders have been involved at all stages of the Core Strategy's preparation including issues and options, preferred options, revised proposals and draft policies and proposed submission.

3.119 At proposed submission stage, we received one representation on policy CP13 'Low-carbon, decentralised energy infrastructure'. This was from Manchester Airport who requested the inclusion of text to highlight the importance of safeguarding aerodrome

when considering wind turbine development. We have not proposed a change in response to this because it is a matter for a more detailed stage. We received one supporting representation on policy CP14 'Low-carbon development' from a developer.

3.120 Further information is available in our Consultation Reports.

Infrastructure audit

Gas

3.121 National Grid owns and operates the high pressure gas transmission system in England, Scotland and Wales. It consists of approximately 4,300 miles of pipelines and 26 compressor stations, connecting to 8 distribution networks. They have a duty to develop and maintain an efficient, co-ordinated and economical transmission system for the conveyance of gas.

3.122 National Grid also owns and operates 82,000 miles of lower-pressure distribution gas mains in the north west of England, the West Midlands, east of England and North London – almost half of Britain's gas distribution network - delivering gas to around 11 million homes, offices and factories. National Grid does not supply gas, but provides the networks through which it flows.

3.123 National Grid has the following gas transmission assets located within Wigan Borough:

Pipeline	Feeder detail
FM21	Feeder 21 Mawdesley – Warrington
FM15	Feeder 15 Bretherton - Warburton

3.124 Given the scale of these gas transmission networks, National Grid has informed the Council that it is unlikely that the anticipated growth in Wigan over the next 15 years will create capacity issues. The existing network should be able to cope with additional demands

Electricity

3.125 Electricity North West Ltd owns and operates the local electricity distribution network in the North West.

3.126 Wigan is fed from the Washway Farm Grid Supply Point in West Lancashire (275kV/132kV), which also feeds Skelmersdale. This group is approaching capacity and reinforcements are under consideration to introduce additional capacity, involving the installation of a new Bulk Supply Point (132kV/33kV substation) at Orrell.

3.127 There are six primary substations (33kV/11kV) which supply Wigan Borough. These have a combined spare capacity of approximately 15MVA but this is not spread evenly. There is spare capacity at some primaries and full capacities at others. Primary substation capacity is dependent on the location of future load growth. Reinforcement of the primary network may be required to cater for specific new large developments.

3.128 The Orrell Bulk Supply Point will require a new 132kV circuit from Kirkby. This is most economically achieved by installation of a new wood pole overhead line. United Utilities is pursuing this option. However, the scheme was delayed by objections during the planning application process.

3.129 Delivery of the Bulk Supply Point and circuit from Kirkby will cost up to £25 million. This will be delivered by United Utilities Electricity Services, through a combination of Electricity North West funding and developer contributions for specific new connections.

Local energy generation

3.130 Although most of the energy used in the borough is imported via gas pipes and the National (electricity) Grid, there is some local generation of electricity within the borough, which is mostly fed back into the national grid. These are identified in the table below.

Energy type	Name/location	Installed capacity	Status
Landfill gas	Kirkless	2.08MW	Operational
Landfill gas	Ince Moss Landfill Scheme	0.62MW	Operational
Landfill gas	Whitehead Landfill, Astley	5.3MW	Operational

Energy from Waste (CHP)	Blakeley's EfW proposal / Bickershaw	8MW electricity 24MW heat	Planning approved
Small scale wind	Wigan North Western Train Station	12KW	Operational
Small scale wind	Abraham Guest High School	30KW	Planning approved
Small scale CHP	Various (4 sites)	0.41MW	Operational
Small scale wind	Swan Lane Industrial Estate	12KW	Planning approved

3.131 There are no existing hydroelectric or large scale wind schemes in the borough.

FOUR

Key messages

4.1 A number of key messages have been drawn from the evidence identified in Sections 2 and 3. The table below identifies these and the most relevant source documents. These key messages have all been addressed in the Core Strategy, particularly by policies CP13 and CP14 and the energy elements of policies SP1, SP3 and SP4.

Message	Source documents
Follow the principles of the energy hierarchy, which means reducing the need to use energy as a priority; being more efficient; generating energy from cleaner sources; and reducing the environmental impact of fossil fuel combustion as a 'last resort'.	<ul style="list-style-type: none"> • An Energy policy for Europe (the 'energy package') (2007) • Climate Change, The UK Programme (2006) • Energy White Paper, 2007 • Planning and Climate Change - Supplement to Planning Policy Statement 1 (2008) • The UK Low Carbon Transition Plan (2009) • Micro generation Strategy - Progress Report (2008)
Support a switch to low carbon technologies for power, heat and transport, in line with:	
EU Target - 20% reduction in carbon emissions by 2020	<ul style="list-style-type: none"> • Planning Policy Statement 22: Renewable Energy (2004) • UK Renewable Energy Strategy (2009) • Stern Review: The Economics of Climate Change (2006) • North West of England Plan - Regional Spatial Strategy to 2021 (2008)
EU Target - 20% renewable energy generation by 2020	<ul style="list-style-type: none"> • Rising to the Challenge - A Climate Change Action Plan for England's Northwest (2010 Update)
UK Target - 26-32% reduction in emissions by 2020	<ul style="list-style-type: none"> • Greater Manchester Climate Change Strategy (2011)
UK Target - 80% reduction in carbon emissions by 2050	<ul style="list-style-type: none"> • Wigan Climate Change Strategy and Action Plan (2011) • AGMA Decentralised Energy Study (2010)

Message	Source documents
<p>Wigan and Greater Manchester Target – 30-50% reduction in carbon emissions by 2020.</p>	<p>Greater Manchester Sustainable Energy Action Plan (2010)</p> <ul style="list-style-type: none"> ● North West Sustainable Energy Strategy (2006) ● Peak oil, oil price volatility and the vulnerability of key industry sectors (2010) ● Wigan Carbon Management Programme (Strategy and Implementation Plan, 2007) ● Annual Local Strategic Partnership Conference Workshops (2007)
<p>Encourage decentralised energy generation and supply using low carbon technologies such as biomass, combined heat and power and renewable technologies.</p> <p>Encourage or require near and on-site generation of energy from renewable and low carbon sources.</p>	<ul style="list-style-type: none"> ● Energy White Paper, 2007 ● UK Renewable Energy Strategy (2009) ● Planning and Climate Change – Supplement to Planning Policy Statement 1 (2008) ● Planning Policy Statement 22: Renewable Energy (2004) ● Our Energy Challenge: Power from the people (2006) ● North West of England Plan - Regional Spatial Strategy to 2021 (2008) ● Permitted Development Rights for Householder Microgeneration (Consultation Paper) (2007) ● Community Energy: Urban Planning or a Low Carbon Future (2008) ● Wigan Climate Change Strategy and Action Plan (2011) ● Wigan Decentralised Energy Study (2010) ● Greater Manchester Climate Change Strategy (2011)

Message	Source documents
<p>Maintain the reliability of energy supplies, ensuring that we are not dependent on any one supplier, country or technology. Promote competitive markets in the UK and beyond, helping to raise the rate of sustainable economic growth and improve our productivity.</p>	<ul style="list-style-type: none"> ● An Energy policy for Europe (the 'energy package') (2007) ● Energy White Paper, 2007 ● UK Renewable Energy Strategy (2009) ● North West Sustainable Energy Strategy (2006) ● UK Low Carbon Transition Plan (2009) ● Greater Manchester Sustainable Energy Action Plan (2010) ● Peak oil, oil price volatility and the vulnerability of key industry sectors (2010) ● Wigan Climate Change Strategy and Action Plan (2011)
<p>Ensure that every home is adequately and affordably heated.</p>	<ul style="list-style-type: none"> ● Energy White Paper, 2007 ● UK Renewable Energy Strategy (2009) ● UK Low Carbon Transition Plan (2009) ● Wigan Climate Change Strategy and Action Plan (2011)
<p>Exploit the full potential of energy from biomass and waste. Biomass-fuelled technologies, including biogas, may need to provide around 30% of the UK's renewable electricity and heat generation by 2020.</p>	<ul style="list-style-type: none"> ● UK Renewable Energy Strategy (2009) ● UK Biomass Strategy (2007)
<p>The market for renewable energy technologies and investments will grow substantially. We need to</p>	<ul style="list-style-type: none"> ● An Energy policy for Europe (the 'energy package') (2007) ● UK Renewable Energy Strategy (2009) ● UK Low Carbon Transition Plan (2009)

Message	Source documents
<p>maximise the benefits for local businesses and jobs.</p>	<ul style="list-style-type: none"> • Greater Manchester Sustainable Energy Action Plan (2010) • North West of England Plan - Regional Spatial Strategy to 2021 (2008) • Wigan Climate Change Strategy and Action Plan (2011)
<p>Develop a suite of decentralised renewable and low carbon energy policies.</p> <p>Set evidence based renewable / low carbon energy targets for the local authority as a whole. Where particular local opportunities exist higher site or area specific targets should be set.</p> <p>Explore policies that require new developments to connect to existing decentralised energy networks.</p>	<ul style="list-style-type: none"> • Planning and Climate Change – Supplement to Planning Policy Statement 1 (2008) • Planning Policy Statement 22: Renewable Energy (2004) • North West of England Plan - Regional Spatial Strategy to 2021 (2008) • Community Energy: Urban Planning or a Low Carbon Future (2008) • The Planning Response to Climate Change (2004) • Wigan Decentralised Energy Study (2010) • Wigan Climate Change Strategy and Action Plan (2011)
<p>There are opportunities to increase Wigan's generation of energy from low carbon and renewable sources.</p>	<ul style="list-style-type: none"> • Wigan Decentralised Energy Study (2010) • AGMA Decentralised Energy Study (2010) • Community Energy: Urban Planning for a Low Carbon Future (2008)

FIVE

Main spatial planning issues identified

5.1 Set out below are the issues relating to energy which have been identified during preparation of the Core Strategy. Section 5 of the Draft Core Strategy lists the headline issues for the borough.

Issue E 1

Our current patterns of energy use are unsustainable. We are contributing heavily towards climate change and we are vulnerable to volatile fossil-fuel markets. There are also concerns about capacity in the borough, which could potentially constrain new development. And we currently generate very little renewable or 'low carbon' energy as an alternative.

Issue E 2

Energy consumption is considerably higher in more affluent outer areas of the borough and fuel poverty is a bigger issue in our more deprived, predominantly inner areas.

Issue E 3

Opportunities to increase decentralised low carbon energy generation in the borough have been identified. These need to be developed if we are to achieve our climate change and energy objectives.

SIX

Main infrastructure issues identified

6.1 The infrastructure audit in section 3 sets out the current provision in the borough. A number of key issues are identified below:

Issue E 4

We are highly reliant on non-renewable energy imported from outside the borough.

Issue E 5

In order to achieve zero carbon development and reduce the boroughs carbon emissions, there will need to be investment in low carbon energy networks.

Issue E 6

There are energy capacity issues in the Borough, particularly the south, that could restrain growth.

Issue E 7

There is the potential for large reductions in carbon dioxide emissions through improvement programmes in schools, other public sector facilities and through major development schemes.

Issue E 8

There is potential for heat networks in the borough but considerable investment in the heat delivery infrastructure is needed, to link heat generation to end users.

SEVEN

Main sustainability issues identified

7.1 We have identified key issues for the sustainability appraisal to ensure that it is appropriately focused on what is most important and relevant for Wigan Borough. These helped to inform the sustainability appraisal framework.

7.2 Our sustainability issues cross-over with our spatial planning issues set out in section 5. Issues E 1, E 2 and E 3 are particularly relevant from a sustainability perspective. We have also identified an additional sustainability issue:

Issue E 9

There are limits to what can be achieved locally. National initiatives such as feed-in tariffs, nuclear policy, de-carbonising the grid and 'energy coast' will need to play a vital part in our move towards zero/low carbon development. We need to recognise that we are working within the context of such national frameworks.

EIGHT

Our sustainability framework

Sustainability objectives and criteria

8.1 The following sustainability objectives, appraisal criteria and monitoring indicators have been established as part of the framework for assessing the Core Strategy. The objectives have been developed to reflect:

- Government guidance on sustainability appraisal such as 'Sustainability Appraisal of Regional Spatial Strategies and Development Plan Documents (2005)' and recognised frameworks such as the Integrated Appraisal Toolkit (North West Regional Assembly and other agencies).
- The key sustainability issues identified in this topic paper.
- Policy context and legal requirements.
- Feedback and suggestions from consultation on the Sustainability Appraisal Scoping Report (which contained a draft set of objectives and criteria).

8.2 The Sustainability Appraisal is underpinned by 19 headline objectives. Objective 15 specifically relates to energy.

Sustainability Objective(s)	Appraisal criteria / sub-questions
Objective 15. To ensure the borough has a secure supply of energy that meets current and future needs and minimises our contribution to climate change.	Will it minimise the requirement for energy use and improve energy efficiency in new and existing buildings and infrastructure as a priority?
	Will it lead to an increased proportion of energy generated from decentralised and renewable / low-carbon sources?
	Will it lead to a higher proportion of buildings with sustainable design features (energy efficient, water saving, good access, etc) and using sustainable materials with lower embodied energy.

Baseline position

Indicator	Wigan baseline	Wigan trends	Targets	Comparisons	Comments
Total emissions (tonnes) of carbon dioxide per capita NI 186 (no longer used)		5.7 tonnes (2004-05) 5.8 tonnes (2005-06)	To reduce carbon emissions by 20% of 1990 levels by 2010, 26-32% by 2020	National- 7.4 tonnes North West - 7.1 tonnes (2005-06)	There has been a slight increase in emissions per resident since 2004-05. There has been no change in the national and regional averages over the same time.
Emissions (tonnes) of carbon dioxide per capita: (Industry, commercial) NI 186 (no longer used)		2.17 tonnes (2004-05) 2.23 tonnes (2005-2006)	80% by 2050.	England - 3.22 tonnes North West - 3.22 tonnes (2005-2006)	Per capita emissions from industry/commerce and domestic have increased slightly in Wigan since 2005. Although emissions of carbon dioxide per resident are lower than national and Northwest
Emissions (tonnes) of carbon dioxide per capita: (Domestic) NI 186 (no longer used)		2.38 tonnes (2004-2005) 2.42 tonnes (2005-06)		England - 2.54 tonnes North West - 2.52 tonnes (2005-06)	averages, they are high in a global context.

Renewable energy schemes granted planning permission (and installed capacity by type)		3 small scale wind schemes approved to date 3 Combined Heat & Power schemes approved to date 1 Solar PV scheme approved to date (2011)	Not available	Data gap.	Not all schemes will require planning permissions (e.g. that element of solar which is permitted development)
Number of planning applications meeting our carbon reduction targets	No data	No data	No data	No data	New indicator

Data Sources

- Local and Regional CO₂ emissions Estimates for 2005-06 - LAA Indicator NI186 Subset (2008)
- Department of Trade and Industry Energy Trends.
- Wigan Council Fourth Annual Monitoring Report (2008)
- Wigan Council Planning Application and Decision records.

Data gaps

- Limited information about renewable energy use and generation in the borough.

- Need more thorough investigation of sites with potential for renewable energy generation, including those that are not council owned.
- Indicators measuring renewable energy generation and sustainable design need to be developed in line with Planning Policy Statement 1 Supplement on Planning and Climate Change.

NINE

An assessment of legality and soundness

9.1 This topic paper provides a summary of the evidence required for our Core Strategy and Sustainability Appraisal. The policies in the Core Strategy that this Topic Paper serves are policies CP13 'Low-Carbon, decentralised energy infrastructure' and CP14 'Low-carbon development'. The purpose of this section is to show that we have produced our Core Strategy in line with legal requirements and these policies are 'sound'.

9.2 Some of the legal requirements are procedural and concern the Core Strategy as a whole rather than individual policies; these are covered in the Self Assessment of Soundness and Legal Compliance document that accompanies the Core Strategy. The 4 legal requirements that are specific to contents of the Core Strategy are:

1. Community and stakeholder involvement
2. Subject to sustainability appraisal
3. Regard to the sustainable community strategy
4. Conforms generally to the Regional Spatial Strategy

9.3 A further requirement is to have "regard to national policy" but this is also covered under a similar 'test of soundness'.

9.4 To be sound the Core Strategy must be **justified, effective and consistent with national policy**. Compliance with these tests of soundness is assessed against the following 6 'soundness' sub-headings:

1. Founded on a robust and credible evidence base; and
2. The most appropriate strategy when considered against the reasonable alternatives
3. Deliverable, including:
 - Identifying what physical, social and green infrastructure is needed to enable the amount, type and distribution of development proposed for the borough.
 - Ensuring that there are no regulatory or national policy barriers to delivery.
 - Ensuring that partners who are essential to delivery are signed up to it.
 - Being coherent with the core strategies prepared by our neighbouring councils.

4. Flexible
5. Able to be monitored
6. Consistent with national policy

9.5 The remainder of this section sets out the case for policies CP13 and CP14 against these 4 legal requirements and the tests of soundness.

Policies CP13 Low-Carbon, decentralised energy infrastructure and CP14 Low-carbon development

Community and stakeholder involvement

9.6 The community and key stakeholders including United Utilities, Electricity North West and other Greater Manchester councils have all been involved at each stage of the Core Strategy's preparation. Their views and comments have been considered and have helped to shape the content and direction of policies CP13 and CP14 and other policies where appropriate. Policies CP13 and CP14 therefore comply fully with the Statement of Community Involvement in respect of who has been involved or consulted, and how and when consultation has taken place. Details of this involvement are set out in Section 3 of this Topic Paper and are also included in our Consultation Reports which accompany the Core Strategy.

Subject to sustainability appraisal

9.7 Policies CP13 and CP14 have been shaped by the outcomes of a robust sustainability appraisal that satisfies the requirements of the Strategic Environmental Assessment Directive. The appraisal process was founded on the collection of thorough baseline information about energy consumption and emissions trends, and policy drivers relating to low carbon development and key stakeholders were involved, including the Environment Agency, Electricity North West and United Utilities. The process informed the original choice of policy and subsequently tested it against sustainability principles and objectives. It was then further adapted to address sustainability issues and, as a result, is the most sustainable policy for Wigan Borough that we could reasonably include in the Core Strategy. The full details of the appraisal can be found in the Sustainability Appraisal Report (August 2011).

Conforms generally with the Regional Spatial Strategy

9.8 Policy CP13 is in general conformity with the Regional Spatial Strategy, specifically:

- It contributes to the reduction in carbon emissions in accordance with policy DP9.
- It contributes to an increase in the generation of renewable energy in accordance with policy EM17.

9.9 Policy CP14 is in general conformity with the Regional Spatial Strategy, specifically:

- It contributes to the reduction in carbon emissions in accordance with policy DP9.
- It requires consideration of the energy hierarchy as a key principle in accordance with policy EM15.
- It facilitates the delivery of the national timetable for zero carbon development in accordance with policy EM16.
- It brings forward local targets for carbon reduction in accordance with policy EM18.

Regard to the Sustainable Community Strategy

9.10 Our sustainable community strategy 'Vision 2026' was produced in 2008 in line with the Core Strategy time frame. It identifies four priority areas and policies CP13 and CP14 are broadly in line with one of them: 'Ambitious Communities', as well as the core question on sustainability.

Founded on robust and credible evidence

9.11 Policies CP13 and CP14 are founded on robust and credible evidence as shown in sections 2, 3 and 4 of this topic paper. This is backed up further by our separate 'Energy and Climate Change' evidence review document. The key sources of evidence that support policies CP13 and CP14 are the Greater Manchester Decentralised Energy Study (2010) and the Wigan Energy Study (2010).

The most appropriate strategy when considered against the alternatives

9.12 The most likely alternative to policy CP13 would be a disjointed approach to energy schemes and development with the links that need to be made across the borough not being considered. This would make for an unsustainable energy network or at the least

reduce the benefits for the borough whilst potentially placing constraints on the network. The policy also provides clarity for developers as to how we will approach the issue of energy provision and therefore reduces project risk.

9.13 The most likely alternative to policy CP14 would be to not go beyond the requirements of the building regulations, which from 2016 will mean 'zero carbon'. If this approach was followed for developments in Wigan, carbon emissions and energy use could rise even though they satisfy the new definition of 'zero-carbon'. This would conflict with the need to reduce emissions and secure energy use.

Deliverable

9.14 The key messages identified in section 4 of this document indicates what needs to be addressed in the borough with regards to energy. To address these messages and deliver change and improvement in the borough, policies CP13 and CP14 have indicated a set of key delivery items. These are set out in a table beneath each policy and include:

- Determining renewable and low carbon energy schemes and networks and requiring them to be capable of connecting to existing development.
- Preparation of supplementary planning document or other guidance on energy and/or climate change.
- Reducing carbon emissions from new development and requiring this to be evidenced through a carbon reduction strategy for relevant planning applications.

9.15 Alongside the council, a number of organisations including Electricity North West and energy service companies will play a crucial role in the delivery of this policy. We have received no objections from these organisations.

9.16 Neighbouring authorities have been involved at all stages of the policy's preparation. No representations have been received from neighbouring authorities relating to policies CP13 and CP14 indicating that these policies are coherent with their Core Strategies.

9.17 There are no regulatory or national policy barriers to the delivery of the policy.

Flexible

9.18 Policy CP13 does not identify any specific areas of opportunities to develop energy schemes will not be outdated with any change in technology or environmental conditions. Policy CP14 is flexible in how carbon reductions can be achieved and provides mechanisms for supporting developers.

Able to be monitored

9.19 The means for monitoring these policies are set out in chapter 10 in the Draft Core Strategy: Proposed Submission Version, specifically:

- Low carbon energy schemes completed (installed capacity by type)
- % of new developments achieving our carbon reduction targets

Consistent with national policy

9.20 Policies CP13 and CP14 are consistent with national planning policy, specifically:

- Planning Policy Statement 22: Renewable Energy
- Supplement to Planning Policy Statement 1: Planning and Climate Change.

TEN

Next steps

10.1 This is the final version of the topic paper summarising and analysing evidence on energy that we have gathered to inform our Core Strategy: Submission Version and the accompanying Sustainability Appraisal.

10.2 Previous versions of each topic paper and evidence reviews are available from the 'Issues and Options', 'Preferred Options' and 'Draft Core Strategy - Proposed Submission version' webpages for the Core Strategy, on our website at www.wigan.gov.uk/ldfcorestrategy. This is to provide a record of what evidence was available at each stage of Core Strategy preparation.

10.3 We may update this topic paper to inform a future development plan document or a review of the Core Strategy.

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WIGAN LOCAL DEVELOPMENT FRAMEWORK CORE STRATEGY

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